

THE UNIVERSITY
OF ILLINOIS
LIBRARY

605

IND

v. 9

cop. 3

~~U~~

JOURNALS CANNOT BE RENEWED

~~ENCLOSURE~~

THE INDUSTRIAL ARTS INDEX

SECOND TWO-YEAR CUMULATION
[NINTH ANNUAL VOLUME]

1920—1921

SUBJECT INDEX TO A SELECTED LIST OF ENGINEERING, TRADE
AND BUSINESS PERIODICALS, BOOKS AND PAMPHLETS
WITH A LIST OF IMPORTANT TECHNICAL
SOCIETIES

EDITED BY
MARION E. POTTER, LOUISE D. TEICH
MARIAN I. LORD

ALTGELT HALL
H. W. WILSON

NEW YORK
THE H. W. WILSON COMPANY
1921

PRINTED IN U. S. A.

605
IND
v. 9
cop. 3

PREFACE

In accordance with the plan of cumulation adopted two years ago, the two volumes of the Industrial Arts Index, covering the years 1920 and 1921, have been combined in one alphabet and published as number ten of volume nine. It includes all the references appearing in the Industrial Arts Index since January 1920. It supplants, therefore, the 1920 annual volume as well as all the current numbers for 1921. The list of periodicals indexed is given on following pages. The periodicals recently added and not therefore indexed thru the entire two-year period are indicated by an asterisk. With the vast amount of new technical literature to be indexed it seemed unwise to go back even for the period of a year in order to index all the periodicals completely. New technical and business books have been included in the same alphabet with the periodical references, this feature having been begun in the middle of 1920. Various bibliographies from other sources than the magazines regularly indexed will also be found under their proper subject headings.

The members of the staff who are responsible for this volume include besides those mentioned on the title page, Miss May Carpenter, who has given faithful and intelligent service to the Index almost from its beginning; Miss Elsie Schonholtz, who has read the page proof for this volume; Miss Bella Traum, Mrs. Marion Scherr and Miss Marguerite Klosset, who tho recent additions to the staff, have carried on the monotonous details with patience and efficiency.

M. E. P.

Technical Societies

The following list is compiled by Marian Lord of the Index staff from notices found in the periodicals indexed in the Industrial Arts Index for 1921.

- Aerial league of America**
Sec. Maj. R. Sutton, 280 Madison Ave., New York
- Aerial league of the world**
Sec. 280 Madison Av., New York
- Aero club of America**
Sec. Augustus Post, 11 East 38th St., New York
Annual meeting, New York, Nov. 14, '21
Annual meeting, New York, Nov. 13, '22
A calendar of events under the auspices of the club appears in each issue of the Aerial Age Weekly
- Aeronautical chamber of commerce of America**
Sec. 501 Fifth Ave., New York
This organization partly succeeds the Manufacturers' aircraft association in that it will collect and disseminate information regarding aeronautical activities, and will publish the Aircraft Year Book
- Aeronautical society of America**
Amalgamated with the Society of automotive engineers
- Alloys research association**
Chairman, Bd. of Managers, Alfred D. Flinn, Engineering Foundation, 29 W. 39th St., New York
- American association for the advancement of science**
Sec. Dr. Burton E. Livingston, Johns Hopkins University, Baltimore
Meeting, Toronto, Dec. 27-31, '21
- American association of advertising agencies**
Executive Sec. James O'Shaughnessy, Metropolitan Tower, New York
Annual convention, Philadelphia, Oct. 10-12, '21
- American association of engineers**
Sec. C. E. Drayer, 63 East Adams St., Chicago
Annual convention, Buffalo, May 9-11, '21
- American association of operating engineers**
Sec. H. C. Bristol, Tallassee Power Co., Tallassee, Ala.
Organization of southern electric light and power plant engineers
- American association of petroleum geologists**
Sec.-Treas. Charles E. Decker, Norman, Okla.
Annual meeting, Tulsa, Okla., March 17-19, '21
- American association of port authorities**
Sec. M. P. Fennell, Jr., Montreal, Can.
Convention, Seattle, Wash., Oct. 11-14, '21
- American association of refrigeration**
Sec. 5707 West Lake St., Chicago
Annual meeting, Washington, D.C., Mar. 25-26, '21
- American association of state highway officials**
Sec. Charles M. Upham, Raleigh, N.C.
Annual meeting, Omaha, Neb., Dec. 5-8, '21
- American association of textile chemists and colorists**
Sec. Walter E. Hadley, Clark Thread Co., Newark, N.J.
Organization meeting, Boston, Mass., Nov. 3, '21
- American association of woolen & worsted manufacturers**
Sec. J. J. Nevins, 45 E. 17th St., New York
Annual meeting, Waldorf-Astoria, New York, Dec. 7, '21
- American automobile association**
Sec. John N. Brooks, Torrington, Conn.
- American bankers' association**
Sec. Wm. B. Fitzwilson, 5 Nassau St., New York
Annual convention, Los Angeles, Calif., Oct. 4-7, '21
- American boiler manufacturers' association**
Sec.-Treas. H. N. Covell, c/o Lidgerwood Mfg. Co., Brooklyn
Winter meeting, Hollenden hotel, Cleveland, O., Feb. 22, '21
Annual convention, Bedford Springs, Pa., June 20-22, '21
- American building exposition**
Asst. Mgr. R. G. Collier, 1305 Schofield Bldg., Cleveland, O.
Exposition, Cleveland auditorium, Cleveland, Jan. 4-14, '22
- American ceramic society**
Sec. Ross C. Purdy, Ohio State University, Columbus, Ohio
Annual meeting, Deschler hotel, Columbus, Ohio, Feb. 21-24, '21
Summer meeting, Canton, O., July 25-27, '21
Annual meeting, St. Louis, Mo., Feb. 27-Mar. 2, '22
- American chemical society**
Sec. Charles L. Parsons, 1709 G St., N. W., Washington, D.C.
61st meeting, Rochester, N.Y., April 26-29, '21
National exposition of chemical industries, 8th Coast Artillery Armory, New York, Sept. 12 '21
Fall meeting, New York, Sept. 6-10, '21
Spring meeting, Birmingham, Ala., April '22
- American civic association**
Meeting, Chicago, Nov. 13-17, '21
- ✓ **American concrete institute**
Sec. Harvey Whipple, 314 New Telegraph Bldg., Detroit
Convention, Auditorium hotel, Chicago, Feb. 14-16, '21
Convention, Cleveland, O., Feb. 13-16, '22
- American concrete pipe association**
Sec. G. E. Warren, 175 W. Jackson Blvd., Chicago
Convention, Chicago, Feb. 18-19, '21
- American drop forge association**
Sec. E. B. Horne, Rochester Foundry and Machine Co., Rochester, Mich.
Annual convention, held jointly with Drop forge supply association, Chicago, June 22-24, '21
- American dyes institute**
Sec. William R. Corwine, 132 W. 42d St., New York
Annual meeting, New York, Jan. 21, '21
- American electric railway accountants' association**
Sec.-Treas. F. J. Davis, Public Service Railway, Newark, N.J.
Annual convention, Atlantic City, Oct. 3-5, '21
- ✓ **American electric railway association**
Sec. J. W. Welsh, 8 W. 40th St., New York
Annual convention, Atlantic City, N.J., Oct. 3-7, '21
Midyear conference, Indianapolis, Ind., Feb. 28, '22
- American electrochemical society**
Sec. A. D. Spillman (Acting Sec.), Lehigh University, Bethlehem, Pa.
Spring meeting, Hotel Chalfonte, Atlantic City, April 21-23, '21
Fall meeting, Lake Placid, N.Y., Sept. 29-Oct. 1, '21
Spring meeting, Baltimore, Md., April '22

American electro-platers' society

Sec.-Treas. J. E. Sterling, 473 10th Ave., Long Island City, N.Y.

Convention, Indianapolis, June 29-July 2, '21

Convention, Cincinnati, O., June '22

American engineering council

See Federated American engineering societies

American engineering standards committee

Sec. P. G. Agnew, 29 W. 39th St., New York

American face brick association

Sec. R. D. T. Hollowell, 110 S. Dearborn St., Chicago

Annual convention, White Sulphur Springs, W.Va., Nov. 30-Dec. 2, '21

American federation of arts

Sec. Miss Leila Mechlin, 1741 New York Ave., Washington, D.C.

Annual convention, Washington, D.C., May 18-21, '21

American foundrymen's association

Sec.-Treas. C. E. Hoyt, Marquette Bldg., Chicago

Annual convention, Cleveland Public Hall, Cleveland, O., May 22-29, '22

American gas association

Sec.-Manager. Oscar H. Fogg, 130 E. 15th St., New York

Annual convention, Chicago, Nov. 7-12, '21

American gear manufacturers' association

Sec. Frank D. Hamlin, c/o Earl Gear & Machine Co., Philadelphia

Annual meeting, Sinton hotel, Cincinnati, O., April 27-30, '21

Semi-annual meeting, Rochester, N.Y., Oct. 13-15, '21

American institute of accountants

Sec. A. P. Richardson, 135 Cedar St., New York

Annual meeting, New Washington hotel, Washington, D.C., Sept. 20-21, '21

American institute of architects

Sec. W. Stanley Parker, 120 Boylston St., Boston

Convention, Washington, D.C., May 11-13, '21

American institute of chemical engineers

Sec. John C. Olsen, Brooklyn Polytechnic Institute, Brooklyn, N.Y.

Semi-annual meeting, Detroit, Mich., June 20-24, '21

Annual meeting, Baltimore, Md., Dec. 6-9, '21

American institute of consulting engineers

Sec. F. A. Molitor, 35 Nassau St., New York

Annual meeting, Engineers' Club, New York, Jan. 16, '22

American institute of electrical engineers

Sec. F. L. Hutchinson, 33 W. 39th St., New York

Midwinter convention, United Engineering Societies Bldg., New York, Feb. 16-18, '21

Annual meeting, New York, May '21

Annual convention jointly with the Pacific Coast convention, Salt Lake City, Utah, June 20-25, '21

Midwinter convention, United Engineering Societies Bldg., New York, Feb. 15-17, '22

American institute of metals

Now a division of the American institute of mining and metallurgical engineers

American institute of mining and metallurgical engineers

Sec. Frederick F. Sharpless, 29 W. 39th St., New York

Spring meeting, New York, Feb. 14-17, '21

Semi-centennial anniversary, Wilkes-Barre, Pa., Sept. 12-15, '21

Annual meeting, United Engineering Societies Bldg., Feb. 20-24, '22

American institute of weights and measures

Sec. C. C. Stutz, 115 Broadway, New York

Annual meeting, United Engineering Societies Bldg., New York, Dec. 9, '21

American iron and steel institute

Sec. H. H. Cook, (Acting Sec.) 61 Broadway, New York

Annual meeting, Hotel Commodore, New York, May 27, '21

Meeting, New York, Nov. 18, '21

Annual meeting, New York, May '22

American leather chemists' association

Sec. H. C. Reed, 22 E. 16th St., New York

Annual meeting, Ambassador hotel, Atlantic City, June 9-11, '21

American manufacturers' export association

Sec. A. W. Willmann, 160 Broadway, New York

Annual convention, Waldorf-Astoria hotel, New York, Oct. 5-6, '21

American metric association

Sec. Howard Richards, Jr., 156 5th Av., New York

American mining congress

Sec. James F. Callbreath, Munsey Bldg., Washington, D.C.

Annual convention, Coliseum, Chicago, Oct. 17-22, '21

American national retail jewelers association

Sec. A. W. Anderson, Neenah, Wis.

American newspaper publishers association

Sec. John S. Bryan, c/o Richmond News Leader, Richmond, Va.

Annual meeting, Waldorf Astoria, New York, April 27-29, '21

American oil chemists' society (formerly Society of cotton products analysts)

Sec.-Treas. Thomas B. Caldwell, Law & Co., Wilmington, N.C.

Annual meeting, Congress hotel, Chicago, May 16-17, '21

American order of steam engineers

Sec. Andrew Lauterbach, 4726 North Warrnock St., Philadelphia

Annual convention, Allentown, Pa., June 6-11, '21

Annual convention, Philadelphia, Pa., June '22

American paper and pulp association

Sec.-Treas. Dr. Hugh P. Baker, 18 E. 41st St., New York

Annual meeting, Waldorf-Astoria, New York, April 11-15, '21

American petroleum institute

Sec. R. L. Welch, 17 W. 44th St., New York

Annual meeting, Chicago, Dec. 6-8, '21

American physical society

Sec. D. C. Miller, Case School of Applied Science, Cleveland, O.

Meeting, New York, Feb. 25-26, '21

Meeting, Chicago, Nov. 25-26, '21

American public health association

Sec. A. W. Hedrick, 169 Massachusetts Ave., Boston

Semi-centennial exhibition, New York, Nov. 13-18, '21

American radio relay league

Dir. N. E. Wunderlich, 4533 N. Sawyer Ave., Chicago

First National radio exposition, Broadway Armory, 5075 Broadway, Chicago, Aug. 30-Sept. 3, '21

American railway association

Sec. J. E. Fairbanks, 75 Church St., New York

Annual meeting, Waldorf-Astoria hotel, New York, Nov. 16, '21

Annual meeting, New York, Nov. '22

A complete list of the various divisions and sections of the American railway association, and also of all the other important railway associations, with convention dates and secretaries, is to be found in the first number of each month of the Railway Age.

American railway bridge and building association

Sec. C. A. Lichty, C. & N. W. Railway, 319 N. Waller Ave., Chicago

Convention, Cincinnati, Ohio, Oct. 17-19, '21

American railway development association

Sec. A. F. Jackson, Central of Georgia, Savannah, Ga.

Annual meeting, Denver, Colo., May 10-12, '22

- ✓ **American railway engineering association**
Sec. E. H. Fritch, 431 S. Dearborn St., Chicago
Convention, Chicago, March 14-16, '22
- American railway tool foremen's association**
Sec. R. D. Fletcher, 1145 East Marquette Road, Chicago
- American road builders' association**
Sec. E. L. Powers, care of Good Roads, 11 Waverly Place, New York
Annual convention, Coliseum, Chicago, Feb. 9-12, '21
Annual meeting, New York, Nov. 15, '21
Annual convention, Chicago, Jan. 17-20, '22
- American short line railroad association**
Sec. T. F. Whittelsey, Union Trust Bldg., Washington, D.C.
- ✓ **American society for municipal improvements**
Sec. Charles C. Brown, Dept. Public Works, St. Petersburg, Fla.
Annual convention, Southern hotel, Baltimore, Md., Oct. 24-28, '21
Annual convention, Cleveland, Ohio, Oct. '22
- American society for steel treating (formerly American steel treaters' society)**
Sec. W. H. Eisenman, 208 N. Wabash Ave., Chicago
Annual convention, Indianapolis, Sept. 19-24, '21
Annual convention, Detroit, Mich., Sept. 25-30, '22
- ✓ **American society for testing materials**
Sec. C. L. Warwick, University of Pennsylvania, Philadelphia
Annual meeting, New Monterey hotel, Asbury Park, N.J., June 20-24, '21
Annual meeting, Atlantic City, N.J., June '22
- American society of agricultural engineers**
Sec. Raymond Olney, St. Joseph, Mich.
Annual meeting, Auditorium hotel, Chicago, Dec. 27-29, '21
- ✓ **American society of civil engineers**
Sec. Elbert M. Chandler, United Engineering Societies Bldg., 33 W. 39th St., New York
Annual meeting, United Engineering Societies Bldg., New York, Jan. 19-20, '21
Annual convention, Houston, Texas, April 27, '21
Annual meeting, United Engineering Societies Bldg., Jan. 18-19, '22
- American society of heating and ventilating engineers**
Sec. Casin W. Obert, 29 W. 39th St., New York
Annual meeting, New York and Philadelphia, Jan. 25-28, '21
Semi-annual meeting, Cleveland, June 14-16, '21
Annual meeting, 29 W. 39th St., New York, Jan. 24-26, '22
- American society of lubricating engineers**
Sec. J. L. Overholt, 30 No. Michigan Ave., Chicago
Annual convention, Chicago, Oct 12-13, '21
- American society of marine designers (formerly American society of marine draftsmen)**
Sec. B. G. Barnes, 47 Saville Av., Quincy, Mass.
Annual meeting, New York, Nov. 17-19, '21
- ✓ **American society of mechanical engineers**
Sec. Calvin W. Rice, 29 W. 39th St., New York
Spring meeting, Chicago, May 23-26, '21
Annual meeting, New York, Dec. 5-8, '21
Spring meeting, Atlanta, Ga., May 8-11, '22
- ✓ **American society of naval engineers**
Sec. Navy department, Washington, D.C.
Sec. Commander J. S. Evans, Bureau of engineering, Navy Dept. Washington, D.C.
Annual meeting, Washington, D.C., Oct. 4, '21
- American society of refrigerating engineers**
Sec. William H. Ross, 154 Nassau St., New York
Meeting, Chicago, May 25-27, '21
Meeting, New York, Dec. 5-7, '21
- American society of safety engineers**
Sec. G. S. Wood, 29 W. 39th St., New York
Meeting, New York, Feb. 18, '21
Annual meeting, Cafe Boulevard, New York, Jan. 26, '22
- American society of sanitary engineering**
Sec. Aden E. Smith, Columbus, O.
Convention, Hotel Gibson, Cincinnati, Sept. 6-8, '21
- American specification institute**
Sec. Gardner C. Coughlen, 1144 American Bond & Mortgage Bldg., Chicago
Annual fall conference, Chicago, Dec. 9, '21
- American statistical association**
Sec. 222 Charles River Road, Cambridge, Mass.
- American steel treaters' society**
Now the American society for steel treating
- American supply and machinery manufacturers' association**
Sec. F. D. Mitchell, 4106 Woolworth Bldg., New York
Triple convention with the National supply and machinery dealers' association and the Southern supply and machinery dealers' association, Marlborough-Blenheim, Atlantic City, N.J., May 16-18, '21
- American valuation association**
Sec. Stanley Williamson, Linde Air Products Co., 30 E. 42d St., New York
Organization meeting, New York, June 16, '21
- American warehousemen's association**
Sec. C. L. Criss, 1110 Bessmer Bldg., Pittsburgh, Pa.
- ✓ **American water works association**
Sec. John M. Diven, 153 W. 71st St., New York
Annual convention, Hollenden hotel, Cleveland, June 6, '21
Annual convention, Philadelphia, May 15-19, '22
- American welding society**
Sec. N. M. Kelly, 29 W. 39th St., New York
Annual meeting, United Engineering Societies Bldg., New York, April 28, '21
Annual meeting, United Engineering Societies Bldg., New York, April '22
- ✓ **American wood preservers' association**
Sec. G. M. Hunt, Forest Products Laboratory, Madison, Wis.
Annual meeting, San Francisco, Jan. 25-27, '21
Annual meeting, Chicago, Jan. '22
- American zinc institute**
Sec. Stephen S. Tuthill, 27 Cedar St., New York
Annual meeting, Hotel Statler, St. Louis, May 9-10, '21
- Asphalt association**
Sec. J. E. Pennybacker, 23 W. 43d St., New York
Annual convention, New York, April 13, '21
Prepares specifications for asphalt roads
- Associated advertising clubs of the world**
Sec. P. S. Florea, 110 W. 40th St., New York
Annual convention, Atlanta, Ga., June 12-16, '21
Annual international convention, Milwaukee, Wis., June 11-15, '22
- Associated business papers, Inc.**
Sec. W. W. Macon, % Iron Age, 239 W. 39th St., New York
Annual meeting, Chicago, Oct. 24-26, '21
- Associated general contractors of America**
Sec. 111 West Washington St., Chicago
National conference, Hotel Grunewald, New Orleans, La., Jan. 25-27, '21
National conference, Cleveland, O., Jan. 17-19, '22
- Associated metal lath manufacturers**
Commissioner, Wharton Clay, Edison Bldg., Chicago
- Association of Chinese and American engineers**
Sec. P. Y. Tsai, c/o The Chuchow-Chinchow Railway, Peking

Association of collegiate schools of architecture
Sec. Clarence A. Martin, Cornell University,
Ithaca, N.Y.

Annual meeting, Washington, D.C., May 9-11, '21

Association of Edison Illuminating companies
Sec. P. S. Miller, Electrical Testing Laboratories, East End Ave. & 80th St., New York
Annual meeting, Spring Lake Beach, N.J., Sept. 12-15, '21

Association of employees' clubs
Sec. J. Marshall, Alexander Hamilton Inst., 13 Astor Place, New York
Organization meeting, Times Bldg., New York, May 25, '21

Association of iron and steel electrical engineers
Sec. John F. Kelly, Empire Bldg., Pittsburgh

Meeting with American institute of electrical engineers, Pittsburgh, April 16, '21

Annual convention, Hotel La Salle, Chicago, Sept. 19-24, '21

Annual convention, Cleveland auditorium, Cleveland, O., Sept. 11-15, '22

Association of national advertisers
Sec.-Treas. John Sullivan, 15 E. 26th St., New York

Semi-annual meeting, Atlantic City, May 12-14, '21

Annual meeting, Lakewood, N.J., Dec. '21

Semi-annual meeting, Chicago, May 10, '22

Association of official agricultural chemists
Sec.-Treas. R. W. Balcom, Box 290, Pennsylvania Avenue Station, Washington, D.C.

Association of railway electrical engineers
Sec.-Treas. Joseph A. Andreucetti, Room 413, C. & N. W. Terminal Station, Chicago

Association of railway executives
Chairman. Thomas DeWitt Cuyler, 61 Broadway, New York

Atlantic deep waterways association
Sec. Real Estate Trust Bldg., Philadelphia
Meeting, Savannah, Ga., Nov. 15-18, '21

Aviation clubs
A list of aviation clubs is published from time to time in Aviation

Bakers and millers technical club
Sec. C. A. Paesch, 958 Montana St., Chicago

Boston society of civil engineers
Sec. Richard K. Hale, (Acting Sec.) 715 Tremont Temple, Boston

British iron and steel institute
Sec. George C. Lloyd, 28 Victoria St., London, S.W. 1

Building officials' conference
Sec.-Treas. F. W. Lumis, Springfield, Mass.
Annual meeting, Cleveland, Ohio, April 24-30, '21

Annual meeting, Cleveland, Massillon, and Youngstown, Ohio, April 27-30, '22

Canadian association of stationary engineers
Sec.-Treas. Louis J. Ellis, Hamilton, Ont.
Annual convention, Ottawa, Ont., June 28-30, '21

Annual convention, Kitchener, Ont., June '22

Canadian deep waterways and power association
Sec.-Treas. Maj. Alex. C. Lewis, Toronto
Annual convention, Hamilton, Ont., Nov. 1-2, '21

Canadian electrical association
Sec.-Treas. Eugene Vinet, Shawinigan Water & Power Co., Montreal, Canada.

Annual convention, Quebec City, June 15-17, '21

Canadian good roads association
Sec. George A. McNamee, 909 New Birks Bldg., Montreal, Que.

Annual convention, Halifax, Canada, May 10-12, '21

Canadian institute of chemistry
Sec.-Treas. Harold J. Roast, 393 Guy St., Montreal, Que.

Annual meeting, Montreal, Aug. 29-Sept. 3, '21

Canadian institute of mining and metallurgy
Sec.-Treas. G. C. Mackenzie, Montreal, Quebec

Annual meeting, Ottawa, Ont., March 2-4, '21

Chamber of commerce of the United States
Sec. D. A. Skinner, Mills Bldg., Washington, D.C.

Annual meeting, Hotel Traymore, Atlantic City, N.J., April 27-29, '21

Chemical foundation
Sec. R. Buffum, 81 Fulton St., New York

City managers' association
Sec. H. H. Freeman, Kalamazoo, Mich.
Annual meeting, Chicago, Nov. 14-16, '21

City planning institute
Sec. Flavel Shurtleff, 19 Congress St., Boston, Mass.

Coal mining institute of America
Sec. H. D. Mason, Jr., Chamber of Commerce Bldg., Pittsburgh, Pa.

Annual meeting, Pittsburgh, Pa., Dec. 7-9, '21

Common brick manufacturers association of America
Sec. Ralph P. Stoddard, Schofield Bldg., Cleveland, O.

Convention, New York, Jan. 31-Feb. 4, '21

Convention, Hotel Statler, St. Louis, Mo., Jan. 30-Feb. 1, '22

Compressed air society
Sec. C. H. Rohrbach, 50 Church St., New York

Annual meeting, New York, Dec. '21

Compressed gas manufacturers' association
Sec. John H. Hayes, 23 E. 26th St., New York
Annual meeting, Hotel Astor, New York, Jan. 17, '21

Annual meeting, United Engineering Societies Bldg., New York, Jan. 16, '22

Concrete products association
Sec. J. E. Montgomery, Chicago
Annual convention, Auditorium hotel, Chicago, Mar. 28-30, '21

Conference on highway engineering and highway transport education
Annual conference, University of Michigan, Ann Arbor, Mich., Feb. 12-17, '22

Conference of state sanitary engineers
Sec.-Treas. Theodore Horton, New York State Department of Health, Albany
Annual conference, Boston, June 1-2, '21

Copper and brass research association
Sec. W. S. Eckert, 25 Broadway, New York
Meeting, New York, Dec. 6, '21

Cooperative league of America
Sec. J. F. McNamee, Editor, Brotherhood of Locomotive Firemen and Enginemen's Magazine, Cleveland, O.

Cooperative society of America
Sec. 1554 Ogden Ave., Chicago

Cost association of the paper industry
Sec. T. J. Burke, 18 E. 41st St., New York
Annual meeting, Waldorf-Astoria hotel, New York, April 13, '21

Direct mail advertising association
Sec. Louis Balsam, Lewis Manufacturing Company, Walpole, Mass.

International convention and exposition, Springfield, Mass., Oct. 25-27, '21

Drop forge supply association
Sec.-Treas. A. W. Wurster, c/o Heppenstall Forge & Knife Co., Philadelphia, Pa.

Annual convention, held jointly with American drop forge association, Chicago, June 22-24, '21

Electric associations
A complete directory of electrical associations with convention dates and secretaries is to be found in the first issue of each month of the Electrical World

Electrical manufacturers' council
Sec. Frederick Nicholas, 522 Fifth Ave., New York

Electrical safety conference
Sec. Dana Pierce, 25 City Hall Place, New York

Electrical supply jobbers' association

Sec. Franklin Overbagh, 411 South Clinton St., Chicago

Engineering advertisers' association

Sec. D. T. Eastman, 208 S. La Salle St., Chicago

Annual meeting, Chicago, March 8, '21

Engineering foundation

Sec. Alfred D. Flinn, 29 W. 39th St., New York

Engineering institute of Canada

Sec. Fraser S. Keith, 176 Mansfield St., Montreal, Quebec

Annual meeting, King Edward hotel, Toronto, Feb. 1-3, '21

Engineering society of western Pennsylvania

Sec. Kenneth F. Treschow, 568 Union Arcade Bldg., Pittsburgh, Pa.

Engineers' club of Philadelphia

Sec. H. E. Hopkins, 1317 Spruce St., Philadelphia

Export publishers' association

Sec. R. M. Dodson, editor of Pacific Ports, Central Building, Seattle, Wash.

Federal highway council

Sec. H. G. Shirley, Washington, D.C.

Federated American engineering societies

Sec. Lawrence W. Wallace, McLachlen Bldg., Washington, D.C.

Meeting of American engineering council, Syracuse, N.Y., Feb. 14, '21

Annual meeting, Washington, D.C., Jan. 5-6, '22

Federated engineers' development corporation

Sec. 154 Ogden Av., Jersey City, N.J.

Aim is to advise about and sponsor new inventions

Franklin institute

Sec. R. B. Owens, Franklin Institute, Philadelphia, Pa.

Friction drive and engineering society

Sec.-Treas. C. W. Kelsey, 817 West End Av., New York

Meeting, Indianapolis, Ind., Nov. 3, '21

Gas associations

A list of the principal gas associations, with officers and place and date of annual meeting is published regularly in the Gas Age

Geological society of America

Sec. Edmund O. Hovey, American Museum of Natural History, New York

Annual meeting, Amherst, Mass., Dec. 28-30, '21

Governmental research conference

Sec. Dr. L. D. Upson, 542 Griswold St., Detroit, Mich.

Meeting, Asheville, N.C., June 2-4, '21

Great Lakes protective association

Sec. George A. Marr, Rockefeller Bldg., Cleveland, O.

Annual meeting, Detroit, Mich., Jan. 21, '21

Heating and piping contractors national association

Sec. Henry B. Gomers, 50 Union Square, New York

Annual meeting, Boston Mass., May 30-June 2, '21

Hydraulic society

Sec. C. H. Rohrbach, 50 Church St., New York

Illuminating engineering society

Sec. Clarence L. Law, Irving Place and 15th St., New York

Annual convention, Rochester, N.Y., Sept. 26-30, '21

Industrial cost association

Sec. A. A. Alles, Jr., 1501 People's Bank Building, Pittsburgh

National industrial cost conference, East Aurora, N.Y., May 26-28, '21

Industrial relations associations of America (formerly National association of employment managers)

Sec. E. A. Shaw (Acting Sec.), 671 Broadway, Newark, N.J.

Annual convention, Waldorf-Astoria hotel, New York, Nov. 1-4, '21

Institute for government research

Sec. James F. Curtis, 818 Connecticut Ave., N.W., Washington, D.C.

An association of citizens for cooperating with public officials in the scientific study of government

Institute of radio engineers

Sec. A. N. Goldsmith, College of the City of New York, New York

Meeting, New York, Feb. 2, '21

International association of fire engineers

Sec. James T. Mulcahey, Yonkers, N.Y.

Directors' meeting, Atlanta, Ga., Mar. 30, '21

International association of municipal engineers

Sec. Clarence R. George, Houston, Tex.

Annual meeting, Colorado Springs, Colo., Sept. 6-9, '21

International association of printing house craftsmen

Sec. Louis M. Augustine, 38 White Ave., Hamilton, Md.

Annual convention, Coliseum, Chicago, July 25-30, '21

Convention, Boston, Mass., '22

International association of street cleaning officials

Sec. A. M. Anderson, 1340 Old Colony Bldg., Chicago

Annual conference, Hotel La Salle, Chicago, Aug. 10-12, '21

International bureau of weights and measures

Director, Charles E. Guillaume, St. Cloud, Seine-et-Oise, France

International chamber of commerce

Sec. Dr. Edward Dolleans (temporary sec.), University of Dijon, Dijon, France

1st annual meeting London, England, June 27-July 2, '21

Annual meeting, Rome, Italy, Sept. 18-25, '22

International commission on illumination

Asst. Sec. J. W. T. Walsh, National Physical Laboratory, Teddington, England

Meeting, Paris, Sept. '21

International electrochemical commission

General Sec. C. le Maistre, 28 Victoria St., Westminster, London, S.W., England

International body representing national electrical societies contributing to its support

International mining convention

Exec. Chairman. Henry M. Parks, Director. Oregon Bureau of Mines and Geology, Oregon Bldg., Portland, Ore.

Meeting, Portland, Ore., April 5-9, '21

Meeting, Nelson, B. C., June, '22

International railway association

Sec. L. Weissenbruch, 11 Rue de Louvian, Brussels, Belgium

9th congress, Rome, Italy, April 19-May 1, '22

International railway fuel association

Sec. J. G. Crawford, 702 E. 51st St., Chicago

Annual meeting, Hotel Sherman, Chicago, May, '21

Annual meeting, Chicago, May '22

International street and interurban railway congress

Sec. Dr. Arthur Ertel, Favoritenstrasse 9, Vienna

Organization meeting, Nuremberg, Nov. 19, '20

Meeting, Vienna, May 29-June 3 '21

International typographical union

Sec. J. W. Hays, 640-50 Newton Claypool Bldg., Indianapolis

International union of radio telegraphy

Corresponding sec. of American section, Augustus Trowbridge, 1150 Connecticut Ave., Washington, D.C.

Inventors' league of the United States

Sec. George W. Whigelt, 114 Maiden Lane, New York

Investment bankers' association of America
Sec. Frederick R. Fenton, 38 S. Dearborn St., Chicago

Annual convention, New Orleans, Oct. 31-Nov. 5, '21

Annual convention, Los Angeles, Calif., '22

Lake carriers' association

Sec.-Treas. George A. Marr, Rockefeller Bldg., Cleveland, O.

Annual meeting, Detroit, Mich., Jan. 20, '21

League of the Southwest

Sec. F. E. Weymouth, U.S. Reclamation Service, Denver, Col.

Meeting, Riverside, Calif., Dec. 8-10, '21

An organization for studying the problems connected with the development of the Colorado river

Lighting fixture dealers' society of America

Sec. J. L. Wolf, Builders' Exchange, Cleveland, Ohio

Annual convention, Milwaukee, Wis., Jan. 30-Feb. 2, '22

Manufacturers' aircraft association

Sec. S. H. Russell, c/o Curtiss Airplane & Motor Corporation, Garden City, L.I.

The collecting and disseminating of information regarding aeronautical activities and the publishing of the Aircraft Year Book, formerly duties of this association, have been taken over by the Aeronautical chamber of commerce of America. The Manufacturers' aircraft association will continue to handle the administration of the cross license agreements covering airplane patents

Manufacturing chemists' association of the United States

Sec. John I. Tierney, Woodward Building, Washington, D.C.

Marine equipment association of America

Sec.-Treas. Robert B. Lea, c/o Sperry Gyroscope Co., 40 Flatbush Ave., Brooklyn, N.Y.

Annual meeting, New York, Nov. 16, '21

Master boiler makers' association

Sec. Harry D. Vought, 95 Liberty St., New York

Convention, Planters' hotel, St. Louis, Mo., May 23-26, '21

Convention, Hotel Sherman, Chicago, May 23-26, '22

Mineralogical society of America

Sec. H. P. Whitlock, American Museum of Natural History, New York

Annual meeting, Amherst, Mass., Dec. 28-30, '21

Mining and metallurgical society of America
Sec. B. Britton Gottsberger, 115 Broadway, New York

Mississippi valley association

Sec. John M. Gill, Kansas City, Mo.

Joint conference with National drainage congress, Harrington hotel, Washington, D.C., Jan. 19-20, '21

Aim of the society is to promote the Valley's foreign commerce

National advisory committee for aeronautics

Sec. S. W. Stratton, 2722 Navy Bldg., 17th & B Sts., N.W., Washington, D.C.

National amateur wireless association

Sec. H. L. Welker, 326 Broadway, New York

National association of commercial organization secretaries

Pres. F. D. E. Babcock, Worcester, Mass.

Meeting, New Orleans, Oct. 24-26, '21

National association of cost accountants

Sec. Stuart C. McLeod, 233 Broadway, New York

Annual convention, Cleveland hotel, Cleveland, Sept. 14-16, '21

Annual convention, Atlantic City, Sept. 23-28, '22

National association of cotton manufacturers

Sec. H. C. Meserve, 45 Milk St., Boston

Annual convention, Copley-Plaza hotel, Boston, April '21

Fall meeting, Copley Plaza, Boston, Nov. 2-7, '21

National association of credit men

Sec.-Treas. J. H. Tregoe, 41 Park Row, New York

Annual convention, St. Francis hotel, San Francisco, June 14-18, '21

Annual convention, Indianapolis, June 5, '22

National association of electrical contractors and dealers

Sec. Farquson Johnson, 15 W. 37th St., New York

Anniversary convention, Buffalo, N.Y., July 20, '21

Annual convention, Cincinnati, O., Oct. 11, '22

National association of engine and boat manufacturers

Sec. Ira Hand, 29 W. 39th St., New York

Annual meeting, New York, Feb. 23, '22

National association of manufacturers

Sec. George S. Boudinot, 30 Church St., New York

Spring meeting, Waldorf-Astoria hotel, New York, May 16-18, '21

National association of master plumbers

Sec. Chas. E. Dreier, 707 E. 47th St., Chicago

Annual convention, New Orleans, June 7-9, '21

Annual convention, Detroit, Mich., June 6-8, '22

National association of masters, mates, and pilots

Sec. M. D. Tenniswood, 308 Vine St., Camden, N.J.

National association of practical refrigerating engineers

Sec. Edward H. Fox, 5707 West Lake St., Chicago

Annual convention, Hotel Lorraine, Philadelphia, Nov. 30-Dec. 3, '21

National association of railway and utilities commissioners

Sec. James B. Walker, 49 Lafayette St., New York

Annual convention, Atlantic City, N.J., Oct. 10-15, '21

Annual convention, Detroit, Mich., Sept. 26, '22

National association of stationary engineers

Sec. Frederick W. Raven, 417 S. Dearborn St., Chicago

Annual convention, Evansville, Ind., Sept. 12-17, '21

National automobile chamber of commerce

Sec. A. J. Brosseau, International Motor Company, 25 Broadway, New York

Annual meeting, New York, Oct. '21

National civic federation

Sec. D. L. Tease, 1 Madison Ave., New York

Annual meeting, Hotel Astor, New York, Feb. 14-16, '21

Annual meeting, Hotel Astor, New York, Jan. 30-31, '22

National coal association

Sec. W. B. Reed, Commercial National Bank Bldg., Washington, D.C.

Annual convention, White Sulphur Springs, W. Va., May 18-20, '21

National concrete stave silo association

Sec. W. G. Kaiser, 111 W. Washington St., Chicago

Annual convention, Chicago, Dec. 6-8, '21

National conference on city planning

Sec. Flavel Shurtleff, 19 Congress St., Boston, Mass.

Annual meeting, William Penn hotel, Pittsburgh, Pa., May 9-11, '21

National conference on highway traffic regulations

Sec.-Treas. D. R. Faries, Automobile Club of Southern California, 1344 South Figueroa St., Los Angeles, Cal.

Meeting, Washington, Jan. 10, '21

National cooperative convention. See Cooperative league of America

National council of American importers and traders

Sec. Franklin Van Leer, jr., 949 Broadway, New York

Meeting, Hotel Pennsylvania, New York, May 6, '21

National council of lighting fixture manufacturers

Sec. Charles H. Hofrichter, 231-233 Gordon Square Bldg., Cleveland

Annual convention, Elmwood Music Hall, Buffalo, N.Y., Feb. 14-19, '21

Midsummer meeting, West Baden, Md., July 6-8, '21

Annual convention, Auditorium, Milwaukee, Jan. 30-Feb. 4, '22

National crushed stone association

Sec. A. P. Sandles, 405 Hartman Bldg., Columbus, Ohio

National district heating association

Sec. D. L. Gaskill, Greenville, O.

Annual convention, Breakers hotel, Cedar Point, Ohio, June 22-24, '21

✓ National drainage congress

Joint conference with Mississippi valley association, Harrington hotel, Washington, D.C., Jan. 19-20, '21

Annual meeting, St. Paul, Sept. 22-24, '21

Annual meeting, Kansas City, '22

National editorial association

Sec. George Schlosser, c/o Republican, Westington Springs, So. Dakota

Annual convention, Birmingham, Ala., Mar. 5, '21

✓ National electric light association

Executive Manager. M. H. Aylesworth, 29 W. 39th St., New York

Annual convention of the Pacific coast section, Del Monte, Calif., May 25-27, '21

Annual convention, Drake hotel, Chicago, May 31-June 3, '21

National electrical credit association

Sec. Frederick P. Vose, 1350 Marquette Bldg., Chicago

Meeting, Richmond, Va., May 19-20, '21

National federation of construction industries

Sec. John C. Frazee, Drexel Bldg., Philadelphia

Annual meeting, Hotel Sherman, Chicago, March 24-25, '20

National federation of export managers

Chairman. Oren D. Gallup, Simond Mfg. Co., Fitchburg, Mass.

Organization meeting, New York, Feb. 17, '21

Annual meeting, Hotel Pennsylvania, New York, March 7, '21

National fertilizer association

Sec. John D. Toll, 1010 Arch St., Philadelphia

Annual convention, Greenbrier hotel, White Sulphur Springs, W.Va., June 20-25, '21

National fire protective association

Sec. Franklin H. Wentworth, 87 Milk St., Boston

Annual convention, San Francisco, June 14-16, '21

Annual convention, Atlantic City, May 9-11, '22

National foreign trade council

Sec. O. K. Davis, Hanover Sq., New York

Annual convention, Cleveland O., May 4-7, '21

Annual convention, Philadelphia, May 10-12, '22

National founders' association

Sec. J. M. Taylor, 29 S. La Salle St., Chicago

Annual meeting, Hotel Astor, New York, Nov. 16-17, '21

National hardware association of the United States

Sec. T. James Fernley, 120 High St., Boston

Annual convention, Marlborough-Blenheim hotel, Atlantic City, N.J., Oct. 17-22, '21

National highway traffic association

Sec. Elmer Thompson, Automobile club of America, 247 W. 54th St., New York

Annual convention, Detroit Athletic Club, Detroit, April 29, '21

National housing association

Sec. Lawrence Veiller, 105 East 22nd St., New York

National implement and vehicle association

Sec. Henry J. Sameit, 72 W. Adams St., Chicago

Meeting, Chicago, Oct. 12-14, '21

National industrial traffic league

Sec. J. H. Beels, 111 W. Washington St., Chicago

Meeting, Cleveland, O., May 25-26, '21

Annual meeting, Hotel Sherman, Chicago, Nov. 10-11, '21

Annual meeting, New York, Nov. 15-16, '22

National institute of inventors

Sec. R. Nerenstone, 118 Fulton St., New York

National lime association

Sec. Mather Bldg., Washington, D.C.

Annual convention, Hotel Commodore, June 15-17, '21

National machine-tool builders' association

Sec. H. W. Dunbar, Norton Co., Worcester, Mass.

Spring convention, Hotel Traymore, Atlantic City, N.J., May 19-20, '21

Fall meeting, Hotel Astor, New York, Oct. 18-20, '21

Spring convention, Atlantic City, '22

National marine league of the United States of America

Sec. J. H. Kitchin, 268 Pearl St., New York

Annual meeting, New York, Jan. '22

Publishes for free distribution articles on American merchant marine problems

National merchant marine association

Sec. Munsey Bldg., Washington, D.C.

Annual convention, Washington, D.C., Jan. 20-21, '21

National metal trades association

Sec. Homer D. Sayre, People's Gas Bldg., Chicago

Annual convention, Hotel Astor, New York, April 18-21, '21

Annual convention, New York, April 19-20, '22

National municipal league

Sec. Harold W. Dodds, 261 Broadway, New York

Annual meeting, Chicago, Nov. 16-18, '21

Annual meeting, Chicago, Nov. '22

National paper trade association

Sec. William Ridgeway, 41 Park Row, New York

Annual meeting, Waldorf-Astoria hotel, New York, April 13, '21

National paving brick manufacturers' association

Sec. Maurice B. Greenough, Engineers' Bldg., Cleveland, Ohio

National petroleum association

Sec. C. D. Chamberlain, Guard Bldg., Cleveland

National pipe and supplies association

Sec.-Treas. George D. McIlvaine, Pittsburgh, Pa.

Convention, Hollenden hotel, Cleveland, May 10-11, '21

National research council

Sec. Vernon Kellogg, 1701 Massachusetts Ave., Washington, D.C.

National rivers and harbors congress

Sec. S. A. Thompson, Colorado Bldg., Washington, D.C.

National safety council

Sec. W. E. Worth, 168 North Michigan Ave., Chicago

Annual safety congress, Boston, Sept., '21

National sand and gravel producers' association

Sec. E. Guy Sutton, Williamsport, Ind.

National sheet metal products association

Sec. D. C. Jones, 1016 Commerce Bldg., St. Paul, Minn.

National society for vocational education

Sec. Miss Clothilde Ware, 140 W. 42d St., New York

Annual convention, Kansas City, Mo., Jan. 5-7, '22

National structural steel society

Sec. C. J. McIntosh, c/o Federal Bridge & Structural Co., Waukesha, Wis.
Meeting. Massillon, O., Aug. '21

National supply and machinery dealers' association

Triple convention with the Southern supply and machinery dealers' association, and the American supply and machinery manufacturers' association, Marlborough-Blenheim, Atlantic City, May 16-18, '21

National warm air heating and ventilating association

Sec. Allen W. Williams, Columbia Bldg., Columbus, O.
Annual meeting, Cleveland, O., May 23-24, '21

National wholesale dry goods association

Sec. A. T. Roman, Cooper, Coate & Casey Dry Goods Co., Los Angeles, Cal.

Natural gas association of America

Sec.-Treas. William B. Way, 904-5 Oliver Bldg., Pittsburgh, Pa.
Annual convention, Pittsburgh, May 16-20, '21

New England foundrymen's association

Sec. Fred S. Stockwell, Barbour-Stockwell Co., Cambridge, Mass.
Annual meeting, Exchange Club, Boston, Mass., Jan. 12, '21

New England water works association

Sec. Frank J. Gifford, Supt. Water Works, Dedham, Mass.
Annual meeting, Copley Square hotel, Boston, Jan. 12, '21
Annual convention, Bridgeport, Conn., Sept. 13-16, '21

North central electric association

Sec. H. E. Young, 15 South Fifth St., Minneapolis, Minn.
Annual convention, Duluth, Minn., June 14-16, '21

Pacific logging congress

Sec.-Treas. George M. Cornwall, Portland, Ore.
Annual meeting, Palace hotel, San Francisco, Oct. 26-29, '21

Pan American chamber of commerce

Sec. 42 Broadway, New York

Periodical publishers' association of America

Sec. Phillips Wyman, 200 5th Av., New York

Personnel research federation

Sec. Alfred D. Flinn, 29 W. 39th St., New York
This society will collect research information and coordinate the research activities of about 250 organizations

Plumbers' associations

A list of the various state associations, with convention dates, will be found in the weekly numbers of Domestic Engineering

Portland cement association

Gen. Mgr. Wm. M. Kinney, 111 West Washington St., Chicago

Pressed metal association

Sec. Illuminating Bldg., Cleveland, O.
Convention, Youngstown, O., April 27-29, '21

Purchasing agents' association

Sec. W. A. Tubman, c-o Theodore Kundtz Co., Cleveland, O.
Annual meeting, Cleveland, O., Jan. 20, '21

Radio club of America

Sec. Renville H. McMann, 150 Nassau St., New York

Radio research association

Sec. B. Hoffman, 233 South Third St., Brooklyn, N.Y.

Railway associations

A complete list of the various divisions and sections of the American railway association, and also of all the other important railway associations, with convention dates and secretaries, is to be found in the first number of each month of the Railway Age

Rice leaders of the world association

Pres. Ellwood Rice, 225 Fifth Ave., New York

Rubber association of America

Sec. A. L. Viles, 52 Vanderbilt Ave., New York
Annual meeting, Waldorf-Astoria hotel, New York, Jan. 10, '21

Russian engineering society

Sec. A. Pazdersky, 29 West 39th St., New York

Science service

Sec. Edwin E. Slosson, 530 W. 123d St., New York

An institution, comprised of the National academy of sciences, the American association for the advancement of science, and the National research council "for increasing the intelligence of the people in science by means of the journalistic press"

Smoke prevention association

Sec.-Treas. Frank A. Chambers, 5449 Woodlawn Ave., Chicago
Annual convention, Hotel Statler, St. Louis, Mo., May 31-June 3, '21

Society for electrical development, Inc.

Sec. Theodore E. Burger, 522 Fifth Ave., New York
Annual meeting, New York, May 10, '21
Annual meeting, New York, May '22

Society for the promotion of engineering education

Sec. Dean F. L. Bishop, Univ. of Pittsburgh, Pittsburgh, Pa.
Annual convention, New Haven, Conn., June 28-July 1, '21

Society of automotive engineers

Sec. Coker F. Clarkson, 29 W. 39th St., New York
Annual meeting, New York, Jan. 11-13, '21
Semi-annual meeting, West Baden, Ind., May 24-28, '21
Annual meeting, United Engineering Societies Bldg., New York, Jan. 11-14, '22

Society of economic geologists

Sec. Prof. J. Volney Lewis, New Brunswick, N.J.
Annual meeting, Amherst, Mass., Dec. 28-30, '21

Society of gas lighting

Sec. George B. Ramsdell, 128 E. 15th St., New York

Society of industrial engineers

Sec. W. G. Sheehan, Detroit, Mich.
Convention, Milwaukee, April 27-29, '21
Fall convention, Springfield, Mass., Oct. 5-7, '21

Society of naval architects and marine engineers

Sec.-Treas. Daniel H. Cox, 29 W. 39th St., New York
General meeting, United Engineering Societies Bldg., New York, Nov. 17-18, '21

Southern gas association

Sec.-Treas. George H. Smith, Baltimore, Md.
Annual convention, Savannah, Ga., May 24, '21
Annual convention, Greenville, S.C., May 16, '22

Southern metal trades association

Sec. W. E. Dunn, Jr., Atlanta, Ga.
Convention, Battery Park hotel, Asheville, N.C., June 13-14, '21

Southern pine association

Sec. J. E. Rhodes, New Orleans, La.

Southern supply and machinery dealers' association

Sec.-Treas. Alvin M. Smith, Smith-Courtney Co., Richmond
Triple convention with the National supply and machinery dealers' association and the American supply and machinery manufacturers' association, Marlborough-Blenheim, Atlantic City, May 16-18, '21

Southwest water works association

Sec.-Treas. E. L. Fulkerson, Waco, Tex.
Meeting, Shirwin hotel, Oklahoma City, Okla., May 9-12, '21

Southwestern electrical and gas association
 Sec. E. N. Willis, 403 Slaughter Bldg., Dallas, Texas
 Annual convention, Galveston, Texas, May 18-21, '21

Southwestern society of engineers
 Sec. C. E. Barlebaugh, 721 First National Bank Bldg., El Paso, Tex.

Stoker manufacturers' association
 Sec. J. G. Worker, Phoenix Manufacturing Co., Eau Claire, Wis.
 Annual meeting, Stockbridge, Mass., June 14-16, '21

Synthetic chemical manufacturers' association of the United States
 Pres. Chas. H. Herty, 35 E. 41st St., New York

Organization meeting, Washington hotel, Washington, D.C., Oct. 28-29, '21

✓ **Taylor society**
 Sec. H. S. Person, 29 W. 39th St., New York
 Meeting, Hotel Statler, Cleveland, May 19-21, '21
 Fall meeting, New York, Dec. 1-3, '21
 To promote the science and art of administration and of management

Technical association of the pulp and paper industry
 Sec. Hugh P. Baker, 18 E. 41st St., New York
 Annual meeting, Waldorf-Astoria hotel, New York, April 12-19, '21

Telephone pioneers of America
 Sec. R. H. Starrett, 195 Broadway, New York
 10th anniversary celebration and annual meeting, Hotel Statler, St. Louis, Mo., Oct. 24-25, '21

Textile exhibitors' association
 Sec. 5 Park Square, Boston
 International textile exposition, Mechanics Bldg., Boston, Oct. 31-Nov. 5, '21

United engineering society
 Sec. Alfred. D. Flinn, 29 W. 39th St., New York
 Annual meeting, United Engineering Societies Bldg., New York, Jan. 26, '22

United States good roads association
 Sec. J. A. Rountree, Birmingham, Ala.
 Annual convention, Greensboro, N.C., April 18-23, '21

United States potters' association
 Sec.-Treas. Charles F. Goodwin, East Liverpool, Ohio
 Annual convention, Willard hotel, Washington, D.C., Dec. 5-10, '21

Water power league of America, Inc.
 Sec.-Treas. Frederick L. Long, 114 Nassau St., New York
 Annual meeting, New York, Jan. 18, '21
 Conference, Waldorf-Astoria, New York, June 21-22, '21

Western association of electrical inspectors
 Sec. William S. Boyd, 175 West Jackson Blvd., Chicago
 Annual convention, Hotel Statler, Detroit, Mich., Jan. 25-28, '21

✓ **Western society of engineers**
 Sec. E. S. Nethercut, 1736 Monadnock Bldg., Chicago
 Meeting, Chicago, Mar. 28, '21

List of Periodicals Indexed

- Administration**—Administration. \$5; single numbers 50c. Ronald Press Co., 20 Vesey St, New York.
- A S R E J**—A. S. R. E. Journal. \$3. American Society of Refrigerating Engineers, 154 Nassau St, New York.
- Aerial Age**—Aerial Age Weekly. \$4; single numbers 10c. Aerial Age Co., Inc., Madison Ave. & 40th St, New York.
Flying consolidated with Aerial Age Weekly beginning August 1, 1921.
- Aeronautical J**—Aëronautical Journal. £1 12s * 6d; single numbers 2s 9d. Royal Aëronautical Society, 7, Albemarle St, Piccadilly, London, W. 1.
- Am Arch**—The American Architect and the Architectural Review. \$6; single numbers 35c. Architectural & Building Press, Inc., 243 W 39th St, New York.
- Am Cer Soc J**—American Ceramic Society. Journal. \$8; single numbers. 75c. American Ceramic Society, 211 Church St, Easton, Pa.
- Am Chem Soc J**—Journal of the American Chemical Society. \$7.50. Charles L. Parsons, sec., 1709 G St, N.W., Washington, D.C.
- Am Electrochem Soc Trans**—American Electrochemical Society. Transactions. \$3. American Electrochemical Society, Bethlehem, Pa.
- Am Gas Assn**—American Gas Association. Second annual convention, 1920. 5 sections. American Gas Association, Inc., 130 East 15th St, New York.
- Am Gas Eng J**. See Am Gas J
- Am Gas J**—American Gas Journal. \$3; single numbers 10c. American Gas Light Journal, Inc., 150 Nassau St, New York.
Formerly American Gas Light Journal; American Gas Engineering Journal
- Am Ind**—American Industries. \$1; single numbers 15c. National Manufacturers Co., 50 Church St, New York.
- Am Inst Arch J**—Journal of the American Institute of Architects. \$5; single numbers 50c. Journal of the American Institute of Architects, 313 E 23d St, New York.
- Am Inst E E J**—Journal of the American Institute of Electrical Engineers. \$10; single numbers \$1. F. L. Hutchinson, sec., 33 W. 39th St, New York.
Formerly American Institute of Electrical Engineers. Proceedings
- Am Inst E E Pro**. See Am Inst E E J
- Am Inst Min Bul**. See Min & Met
- Am J Sci**—The American Journal of Science. \$6; single numbers 50c. American Journal of Science, New Haven, Conn.
- Am Lumberman**—American Lumberman. \$4; single numbers 25c. American Lumberman, Manhattan Bldg., 431 S Dearborn St, Chicago.
Not indexed since July 3, 1920.
- Am Mach**—American Machinist. \$5; single numbers 25c. McGraw-Hill Co., Inc., 10th Av at 36th St, New York.
- Am Soc C E Pro**—Proceedings of the American Society of Civil Engineers. \$8. American Society of Civil Engineers, 33 W 39th St, New York.
- Am Soc Heat & V E J**—Journal of the American Society of Heating and Ventilating Engineers. \$3; single numbers 35c. American Society of Heating and Ventilating Engineers, 29 W 39th St, New York.
- Am Soc M E J**. See Mech Eng
- Am Soc Refrigerating Eng J**. See A S R E J
- Am Soc T M Pro**—American Society for Testing Materials. Proceedings. 2 parts, each \$6. American Society for Testing Materials, 1315 Spruce St, Philadelphia.
- Am Water Works Assn J**—Journal of the American Water Works Association. \$7; American Water Works Assn., Mount Royal and Guilford Avenues, Baltimore, Md.
- Americas**—The Americas. monthly, gratis. National City Bank of New York, 55 Wall St, New York.
Discontinued publication with the July 1921 issue.
- Annalist**—The Annalist. \$5; single numbers * 10c. New York Times Co., Times Square, New York.
- Arch & Bldg**—Architecture and Building. \$3; single numbers 30c. William T. Comstock Co., 23 Warren St, New York.
- Arch Forum**—Architectural Forum. \$6; single numbers 60c. Rogers and Manson Co., 142 Berkeley St, Boston 17, Mass.
- Arch Rec**—Architectural Record. \$3; single numbers 35c. Architectural Record Co., 115 W 40th St, New York.
- Automobile Eng**—The Automobile Engineer. * 30s; Canadian subs 25s 6d; single numbers 2s. 20, Tudor St, London E.C. 4.
- Automotive Ind**—Automotive Industries. \$3; single numbers 35c. Class Journal Co., 239 W 39th St, New York.
Formerly Automobile
- Aviation**—Aviation and Aircraft Journal. \$4; single numbers 15c. Gardner-Moffat Co., Inc., 225 4th Av, New York.
- Blast F & Steel Pl**—The Blast Furnace and Steel Plant. \$2; single numbers 25c. Andersen Co., Inc., Thaw Bldg., 108 Smithfield St, Pittsburgh, Pa.
- Bldg Age**—Building Age. \$2; single numbers 25c. Building Age Publishing Corporation, 912-920 Broadway, New York.
- Boston Soc C E J**—Journal of the Boston Society of Civil Engineers. \$4 (ten numbers); single numbers 50c. Boston Society of Civil Engineers, 715 Tremont Temple, Boston
- Brass W**—Brass World and Platers' Guide. \$1; * single numbers 15c. Brass World Pub. Co., 153 Waverly Pl, New York.
- Brick & Clay Rec**—Brick and Clay Record. \$3; * single numbers 25c. Industrial Publications, Inc., 407 S Dearborn St, Chicago.
- Can Chem & Met**—Canadian Chemistry and * Metallurgy. \$3; single numbers 40c. Westman Press, Ltd., 57 Queen St, W, Toronto, Canada.
- Can Eng**—The Canadian Engineer. \$3; single numbers 10c. Monetary Times Printing Co. of Canada, Ltd., Church & Court Sts, Toronto, Ont.
Not indexed since it assumed newspaper form, May 26, 1921
- Carnegie scholarship memoirs**. See Iron & Steel Inst C S M
- Chem Age**—Chemical Age. \$3; single numbers * 50c. McCready Pub. Co., 118 E 28th St, New York.
- Chem & Met Eng**—Chemical and Metallurgical Engineering. \$5; single numbers 25c. McGraw-Hill Co., Inc., 10th Av, at 36th St, New York.
Formerly Metallurgical and Chemical Engineering
- Chem Soc J**—Journal of the Chemical Society. * £4. Gurney and Jackson, 33, Paternoster Row, London, E.C. 4.

- Chimie & Ind**—Chimie & Industrie. 110 fr; single numbers 10 fr. Société de Chimie Industrielle, 49, rue des Mathurins, Paris, France.
- Coal Age**—Coal Age. \$3; single numbers 20c. McGraw-Hill Co., Inc., 10th Av at 36th St, New York.
- Color Tr J**—Color Trade Journal. \$5; single numbers 50c. Color Trade Journal, Inc., 103 Park Av, New York.
- Comm & Fin Chr**—The Commercial & Financial Chronicle. \$10; single numbers 25c. William B. Dana Co., 138 Front St, New York.
- Concrete**—Concrete. \$3; Concrete-Cement Age Pub. Co., Telegraph Bldg., Detroit, Mich. Formerly published as Concrete-Cement Age.
- Deutsche Chem Gesell Ber**—Berichte der Deutschen Chemischen Gesellschaft. \$7.50. R. Frielaender & Sohn, Karlstrasse 11, Berlin, N.W., Germany.
- Dom Eng**—Domestic Engineering. \$2; single numbers 10c. Domestic Engineering Co., 1900 Prairie Av, Chicago.
- Econ Geol**—Economic Geology. \$4; single numbers 65c. Economic Geology Pub. Co., 41 North Queen St, Lancaster, Pa.
- Elec J**—The Electric Journal. \$2; single numbers 25c. The Electric Journal, 1205 Keenan Bldg., Pittsburgh, Pa.
- Elec Ry J**—Electric Railway Journal. \$4; single numbers 20c. McGraw-Hill Co., Inc., 10th Av at 36th St, New York.
- Elec R**—Electrical Review and Industrial Engineer. \$3; single numbers 20c. International Trade Press, Inc., 542 Monadnock Blk., Chicago. Formerly Electrical Review and Western Electrician.
- Elec R (Lond)**—Electrical Review. £2 1s 6d; * Canadian subs £1 12s 6d; single numbers 6d. 4, Ludgate Hill, London, E.C. 4.
- Elec W**—Electrical World. \$5; single numbers 25c. McGraw-Hill Co., Inc., 10th Av at 36th St, New York.
- Electrician**—Electrician. £2 14s; single numbers 1s 2d. 8 Bouverie St, London, E. C. 4.
- Engineer**—Engineer. Thick paper ed £3 7s 6d; Canadian subs £3 3s; thin paper ed £3 3s; Canadian subs £2 18s 6d; single numbers 1s 3d. Engineer, 33, Norfolk St, Strand, London, W.C. 2.
- Engineering**—Engineering. Thick paper ed £3 7s 6d; Canadian subs £3 3s; thin paper ed £3 3s; Canadian subs £2 18s 6d; single numbers 1s 2½d. Engineering, Ltd., 35 and 36, Bedford St, Strand, London, W.C. 2.
- Eng & Contr**—Engineering and Contracting. \$4; single numbers 20c. Engineering and Contracting Pub. Co., 9 S Clinton St, Chicago.
- Eng & Ind Management**—Engineering and Industrial Management. 25s; single numbers 7d. Louis Cassier Co., Ltd., 34, Bedford St, Strand, London, W.C. 2.
- Eng & Min J**—Engineering and Mining Journal. \$5; single numbers 25c. McGraw-Hill Co., Inc., 10th Av at 36th St, New York.
- Eng Educ**—Engineering-Education. \$3 (ten numbers). Dean F. L. Bishop, University of Pittsburgh, Pittsburgh, Pa. Indexed beginning v. 11, no 1, September, 1920.
- Eng N**—Engineering News-Record. \$5; single numbers 25c. McGraw-Hill Co., Inc., 10th Av at 36th St, New York. Engineering News consolidated with Engineering Record beginning April 5, 1917.
- Eng Soc W Pa**—Proceedings of the Engineers' Society of Western Pennsylvania. \$5; single numbers 50c. Engineers' Society of Western Pennsylvania, 568 Union Arcade Building, Pittsburgh, Pa.
- Factory**—Factory. \$3; single numbers 25c. A. W. Shaw Co., Cass, Huron and Erie Sts, Chicago.
- Flying**—Flying. \$3; single numbers 25c. Flying Assn., Inc., 280 Madison Av, New York. Consolidated with Aerial Age Weekly beginning with August 1, 1921.
- Foundry**—Foundry. \$3; single numbers 25c. Penton Pub. Co., Penton Bldg., Cleveland, O.
- Gas Age**—Gas Age-Record. \$3; single numbers 25c. Robbins Pub. Co., Inc., 52 Vanderbilt Av, New York. Consolidation of Gas Age and the Gas Record.
- Gen Elec R**—General Electric Review. \$3; single numbers 30c. General Electric Co., Schenectady, N.Y.
- Génie Civil**—Le Génie Civil. 85 fr; single numbers 2 fr. 6, rue de la Chaussée-d'Antin, Paris (9^e), France.
- Good Roads**—Good Roads. \$3; single numbers 10c. E. L. Powers Co., 11 Waverly Place, New York. New series volume number was dropped with the July 6, 1921 number, and the old series volume number continued.
- Heat & Ven**—Heating and Ventilating Magazine. \$2; single numbers 20c. Heating & Ventilating Magazine Co., 1123 Broadway, New York.
- Ill U Eng Exp Sta Bul**—Illinois University Engineering Experiment Station. Bulletin. Univ. of Ill., Urbana.
- Ill U Eng Exp Sta Circ**—Illinois University Engineering Experiment Station. Circular. Univ. of Ill., Urbana.
- Illum Engr**—Illuminating Engineer. 18s; single numbers 1s 6d. Illuminating Engineering Pub. Co., 32 Victoria St, London, S. W. 1.
- Illum Eng Soc**—Transactions of the Illuminating Engineering Society. \$5; single numbers 75c. Illuminating Engineering Soc., 29 W 39th St, New York.
- Ind Management**—Industrial Management. \$3; single numbers 35c. Industrial Management, 120 W 32d St, New York. Formerly Engineering Magazine.
- India Rubber W**—India Rubber World. \$3; single numbers 35c. India Rubber Pub. Co., 25 W 45th St, New York.
- Inland Ptr**—Inland Printer. \$4; single numbers 40c. Inland Printer Co., 632 Sherman St, Chicago.
- Inst E E J**—Journal of the Institution of Electrical Engineers. single numbers 10s 6d. E. & F. N. Spon, Ltd., 57 Haymarket, London, S. W. 1.; Spon & Chamberlain, 123 Liberty St, New York. The Institution premises have been taken over by H. M. Government and the temporary offices are at 1 Albemarle Street, London, W. 1.
- Inst Pet Tech J**—Journal of the Institution of Petroleum Technologists and Record of Transactions. single numbers 7s 6d. Institution of Petroleum Technologists, 5 John St, Adelphi, Strand, London, W.C. 2.
- Int Labour R**—International Labour Review. \$5; single numbers 60c. International Labour Office, 7, Route de Pregny, Geneva, Switzerland.
- Int Marine Eng**. See Marine Eng
- Iron Age**—Iron Age. \$6; single numbers 50c. Iron Age Pub. Co., 239 W 39th St, New York.
- Iron & Steel Inst C S M**—The Iron and Steel Institute Carnegie Scholarship Memoirs. E. & F. N. Spon, Ltd., 57 Haymarket, London, S. W. 1.; Spon & Chamberlain, 123 Liberty St, New York.
- Iron Tr R**—Iron Trade Review. \$6; single numbers 25c. Penton Pub. Co., Penton Bldg., Cleveland, O.
- J Account**—Journal of Accountancy. \$4; single numbers 35c. Journal of Accountancy, Inc., 135 Cedar St, New York.
- J Elec**—Journal of Electricity and Western Industry. \$2.50; single numbers 25c. McGraw-Hill Co. of Cal., Rialto Bldg., San Francisco, Cal.
- J Fr Inst**—Journal of the Franklin Institute. \$6; single numbers 60c. Franklin Institute, Philadelphia.
- J Ind & Eng Chem**—Journal of Industrial and Engineering Chemistry. \$7.50; single numbers 75c. Charles L. Parsons, sec., 1709 G St, N.W., Washington, D.C.
- J Ind Hygiene**—The Journal of Industrial Hygiene. \$6; single numbers 75c. Journal of Industrial Hygiene, 1 Divinity Av, Cambridge 38, Boston.
- J Phys Chem**—The Journal of Physical Chemistry. \$4. Cornell University, Ithaca, N.Y.

- Locomotive**—Locomotive. 50c; single numbers gratis; recent bound volumes \$1. Hartford Steam Boiler Inspection & Insurance Co., Hartford, Conn.
- Mach**—Machinery. Engineering edition \$3; single numbers 35c. Industrial Press, 140 Lafayette St, New York.
- Marine Eng**—Marine Engineering and Shipping Age. \$3; single numbers 35c. Aldrich Pub. Co., 6 E. 39th St, New York.
Formerly International Marine Engineering
- Marine R**—Marine Review. \$3; single numbers 25c. Penton Pub. Co., Penton Bldg., Cleveland, O.
- Mech Eng**—Mechanical Engineering, the Journal of the American Society of Mechanical Engineers. \$4; single numbers 50c. American Society of Mechanical Engineers, 29 W 39th St, New York.
- Metal Ind**—Metal Industry. \$1; single numbers 10c. Metal Industry Pub. Co., 99 John St, New York.
- Metal Work**. See Plumber and Steam Fitter and Sheet Metal Worker
- Min & Met**—Mining and Metallurgy. subs. \$10; single numbers \$1; to members, public libraries, and educational institutions, \$5; single numbers 50c. F. F. Sharpless, sec., 29 W 39th St, New York.
Formerly Bulletin of the American Institute of Mining and Metallurgical Engineers
- Min & Sci P**—Mining and Scientific Press. \$4; single numbers 15c. Dewey Pub. Co., 420 Market St, San Francisco, Cal.
- Mo U Sch Mines & Met Bul**—Bulletin of the University of Missouri. School of Mines and Metallurgy, Univ. of Mo., Rolla
- Mo U Sch Mines & Met Bul tech ser**—Bulletin of the University of Missouri, School of Mines and Metallurgy, Technical Series. Univ. of Mo., Rolla
- Monthly Labor R**—Monthly Labor Review. \$1.50; single numbers 15c. U.S. Bureau of Labor Statistics, Washington, D.C.
Free to labor departments and bureaus and other offices connected with the administration of labor laws.
- Motor Age**—Motor Age. \$5; single numbers 35c. Class Journal Co., 59 E Madison St, Chicago.
Not indexed since October 21, 1920
- Munic Eng**—Municipal and County Engineering. \$2; single numbers 25c. Engineering Pub. Co., 702 Wulsin Bldg, Indianapolis, Ind.
- Munic J**. See Pub Works
- N E L A Bul**—National Electric Light Association Bulletin. \$3. National Electric Light Assn., 29 W 39th St, New York.
- Nat Pet N**—National Petroleum News. \$5; single numbers 25c. National Petroleum Pub. Co., 812 Huron Road, Cleveland, O.
- Nat Research Council Bul**—National Research Council Bulletin. National Research Council, 1701 Massachusetts Av, Washington, D.C.
- Nation's Business**—The Nation's Business. \$3; single numbers 25c. Chamber of Commerce of the United States, Mills Bldg., Washington, D.C.
- N E Water Works Assn J**—Journal of the New England Water Works Association. \$4; single numbers \$1.25. New England Water Works Association, 715 Tremont Temple, Boston.
- Oil Paint & Drug Rep**—Oil, Paint and Drug Reporter. \$5; single numbers 15c. Oil, Paint and Drug Reporter, 100 William St, New York.
- Paper**—Paper. \$5; single numbers 25c. Paper, Inc., 251 W 19th St, New York.
- Philos Mag**—Philosophical Magazine, and Journal of Science. single numbers 5s. Taylor and Francis, Red Lion Court, Fleet St, London.
- Phys R**—The Physical Review. Second Series. \$7; single numbers 75c. The Physical Review, Ithaca, N.Y.
- Plumber**—Plumber and Steam Fitter. \$2; single numbers 10c. Edwin A. Scott Pub. Co., Inc., 15 E 40th St, New York.
Formerly published as part of Metal Worker, Plumber and Steam Fitter.
Title changed July 15, 1921 to Sanitary & Heating Engineering
- Pop Mech**—Popular Mechanics Magazine. \$3; single numbers 25c. Popular Mechanics Magazine, 6 N Michigan Av, Chicago.
- Power**—Power. \$3; single numbers 15c. McGraw-Hill Co., Inc., 10th Av at 36th St, New York.
- Power Pl Eng**—Power Plant Engineering. \$2; single numbers 15c. Technical Pub. Co., 537 S Dearborn St, Chicago.
- Ptr Ink**—Printers' Ink. \$3; single numbers 10c. Printers' Ink Pub. Co., 185 Madison Av, New York.
- Ptr Ink M**—Printers' Ink Monthly. \$2; single numbers 25c. Romer Pub. Co., Inc., 185 Madison Av, New York.
Indexed beginning v. 2, no. 1, December, 1920
- Ptg Art**—The Printing Art. \$4; single numbers 40c. The University Press, Cambridge, Mass.
Indexed beginning v. 36, no. 1, September, 1920.
- Pub Roads**—Public Roads. \$1; single numbers 10c. U.S. Department of Agriculture, Bureau of Public Roads, Washington, D.C.
- Pub Works**—Public Works. \$3. Public Works, 243 W 39th St, New York.
Formerly Municipal Journal and Public Works
- Ry Age**—Railway Age. \$6; single numbers 25c. Simmons-Boardman Pub. Co., Woolworth Bldg., New York.
Formerly Railway Age Gazette
- Ry Mech Eng**—Railway Mechanical Engineer including the American Engineer. \$3; single numbers 35c. Simmons-Boardman Pub. Co., Woolworth Bldg., New York.
Formerly Railway Age Gazette. Mechanical edition.
- Ry R**—Railway Review. \$4; single numbers 25c. Railway Review, 537 S Dearborn St, Chicago; 30 Church St, New York.
Formerly Railway and Engineering Review.
- Safety Eng**—Safety Engineering. \$3; single numbers 25c. Safety Press, Inc., 126 Maiden Lane, New York.
- Sanitary & Heat Eng**—Sanitary & Heating Engineering. \$2; single numbers 10c. Edwin A. Scott Pub. Co., Inc., 15 E 40th St, New York.
Formerly published as Plumber and Steam Fitter
- Sci Am**—Scientific American. \$4; single numbers 35c. Munn & Co., 233 Broadway, New York.
Consolidation of Scientific American Weekly and Scientific American Monthly, beginning November, 1921.
- Sci Am M**—Scientific American Monthly. \$7; single numbers 60c. Munn & Co., 233 Broadway, New York.
Now Scientific American; formerly Scientific American Supplement
- Sci Am S**. See Sci Am M
- Sheet Metal Worker**—Sheet Metal Worker. \$3; single numbers 15c. Edwin A. Scott Pub. Co., Inc., 15 E 40th St, New York.
A Consolidation of Metal Worker, Plumber and Steam Fitter and Sheet Metal
- Sibley J**—Sibley Journal of Engineering. \$3; single numbers 30c. Sibley College, Cornell Univ., Ithaca, N.Y.
- Soc Auto Eng J**—Society of Automotive Engineers. Journal. \$5; single numbers 50c. Society of Automotive Engineers, Inc., 29 W 39th St, New York.
- Soc Ing Civils Bul**—Mémoires et Compte Rendu des Travaux de la Société des Ingénieurs Civils de France. Bulletin. Hotel de La Société, 19, rue Blanche, 19 (9^e), Paris, France.
- Special Lib**—Special Libraries. \$4; single numbers 50c. Special Libraries Association, 513 Fourteenth St, Washington, D.C.
- Stahl & Eisen**—Stahl und Eisen, Düsseldorf, Germany.
- Stevens Ind**—Stevens Indicator. \$1.50; single numbers 50c. Stevens Institute of Technology, Hoboken, N.J.
- System**—System. \$3; single numbers 25c. A. W. Shaw Co., Cass, Huron and Erie Sts, Chicago.

Textile World—Textile World. \$4. Bragdon, Lord & Nagle Co., 334 4th Av., New York.

Formerly published as Textile World Record, monthly at \$2; Textile World Journal

U S Agric Bul—United States. Dept. of Agriculture. Bulletin. Distributed free of charge. U.S. Dept. of Agriculture, Division of Publications, Washington, D.C.

Contributions from the Bureau of Chemistry, Forest Service and Office of Public Roads are indexed, also selected publications of other bureaus.

U S Bur For & Dom Com—United States. Bureau of Foreign and Domestic Commerce. Special agents series. U.S. Bureau of Foreign and Domestic Commerce, Washington, D.C.

U S Bur For & Dom Com misc ser—United States. Bureau of Foreign and Domestic Commerce. Miscellaneous series. U.S. Bureau of Foreign and Domestic Commerce, Washington, D.C.

U S Bur Labor Statistics Bul—United States. Bureau of Labor Statistics. Bulletin. Distributed free of charge. U.S. Bureau of Labor Statistics, Washington, D.C.

U S Bur Mines Bul—United States. Bureau of Mines. Bulletin. U.S. Bureau of Mines, Washington, D.C.

U S Bur Mines Circ—United States. Bureau of Mines. Miners' circular. U.S. Bureau of Mines, Washington, D.C.

U S Bur Mines Tech Pa—United States. Bureau of Mines. Technical paper. U.S. Bureau of Mines, Washington, D.C.

U S Bur Stand Circ—United States. Bureau of Standards. Circular. U.S. Bureau of Standards, Washington, D.C.

U S Bur Stand Sci Pa—United States. Bureau of Standards. Scientific papers. U.S. Bureau of Standards, Washington, D.C.

Per volume paper \$1.25; cloth \$1.50; foreign subscription, paper \$2; cloth \$2.10. Single numbers vary in price.

U S Bur Stand Tech Pa—United States. Bureau of Standards. Technologic papers. U.S. Bureau of Standards, Washington, D.C.

U S Geol S Bul—United States Geological Survey. Bulletin. Distributed free of charge. U.S. Geological Survey, Washington, D.C.

U S Nat Advisory Com for Aeronautics—United States National Advisory Committee for Aeronautics. Washington, D.C.

U S Sp Cons Rep—United States. Special consular reports. U.S. Bureau of Foreign and Domestic Commerce, Washington, D.C.

W Soc E J—Journal of the Western Society of Engineers. \$3; single numbers 50c. Western Society of Engineers, 53 W Jackson Blvd, Chicago.

Wireless Age—The Wireless Age. \$2.50; single numbers 25c. Wireless Press, Inc., 326 Broadway, New York.

* The free distribution of nearly all of the publications of the Bureau of Foreign and Domestic Commerce is confined to the American Consular Service, educational institutions, libraries, trade journals, newspapers, commercial organizations, such as chambers of commerce or manufacturers' associations, traffic managers of American railroads and government offices. Others may procure them from the Superintendent of Documents, Government Printing Office, Washington, D.C., or at any of the District or Cooperative offices of the Bureau, at the cost of printing.

† A limited edition of each publication of the Bureau of Mines is printed for free distribution to residents of the United States and its possessions and Canada, Mexico, Panama, and Cuba.

‡ Single copies of the publications of the Bureau of Standards are sent free upon request to specialists concerned with the subjects treated, to those collaborating with the Bureau in its investigations, to organizations exchanging like courtesies with the Bureau, and to designated Government depository libraries. Others may purchase them from the Superintendent of Documents.

Abbreviations of Publishers' Names Used in Book Titles

Am. Acad. of Pol. and Soc. Sci. American Academy of Political and Social Science, Station B, Philadelphia

Appleton. Daniel Appleton & Co., 29-35 W. 32d St., N.Y.; 533 S. Wabash Av., Chicago

Baird. H. C. Baird & Co., 2 W. 45th St., N.Y.

Blakiston. P. Blakiston's Son & Co., 1012 Walnut St., Philadelphia

Bobbs. Bobbs-Merrill Co., University Square, Indianapolis; 185 Madison Av., N.Y.

Century Co., 353 4th Av., N.Y.

Chemical Catalog Co., Inc., 1 Madison Av., N.Y.

Chemical Pub. Co. Chemical Pub. Co., Easton, Pa.

Doran. George H. Doran Co., 244 Madison Av., N.Y.

Doubleday. Doubleday Page & Co., Garden City, N.Y.

Drake. Frederick G. Drake & Co., 1006 S. Michigan Av., Chicago

Dutton. E. P. Dutton & Co., 681 5th Av., N.Y.

Ginn. Ginn & Co., (Educational text-bks.) 15 Ashburton Place, Boston; 2301-2311 Prairie Av., Chicago; 70 5th Av., N.Y.

Harper. Harper & Brothers, Franklin Square, N.Y.

Heath. D. C. Heath & Co., 50 Beacon St., Boston; 231 W. 39th St., N.Y.; 623 S. Wabash Av., Chicago

Henley. Norman W. Henley Pub. Co., Putnam Bldg., 2 W. 45th St., N.Y.

Holt. Henry Holt & Co., 19 W. 44th St., N.Y.

Houghton. Houghton, Mifflin Co., 4 Park St., Boston; 16 E. 40th St., N.Y.; 2451-2459 Prairie Av., Chicago; 278 Post St., San Francisco

Knopf. Alfred A. Knopf, 220 W. 42d St., N.Y.

Lippincott. J. B. Lippincott Co., East Washington Square, Philadelphia

Longmans. Longmans, Green & Co., 443-449 4th Av., Cor. 30th St., N.Y.

McGraw-Hill. McGraw-Hill Bk. Co., Inc., 370 7th Av., N.Y.

McKay. David McKay, 604-608 S. Washington Square, Philadelphia

Macmillan. The Macmillan Co., 66 5th Av., N.Y.

Manual Arts Press, 237 N. Monroe St., Peoria, Ill.

Oxford. Oxford University Press (Clarendon Press) (American branch), 35 W. 32d St., N.Y.

Penton Pub. Co., 12th St. Cor. Chestnut, Cleveland, O.

Pitman. Sir Isaac Pitman & Sons, 2-6 W. 45th St., N.Y.

Putnam. G. P. Putnam's Sons, Putnam Bldg., 2-6 W. 45th St., N.Y.

Ronald Press. Ronald Press Co., Evening Post Bldg., 20 Vesey St., N.Y.

Routledge. Routledge, G. & Sons, Ltd., Broadway House, 68-74 Carter Lane, Ludgate Hill, E.C. 4

Scribner. Charles Scribner's Sons, 597 5th Av., N.Y.; 608 S. Dearborn St., Chicago

Spon. E. & F. N. Spon, Ltd., 57 Haymarket, London, S. W. 1; Spon & Chamberlain, 123 Liberty St., N.Y.

Stokes. F. A. Stokes Co., 443-449 4th Av., N.Y.

U. P. C. Book Co., Inc., 243 W. 39th St., N.Y.

Van Nostrand. D. Van Nostrand Co., 8 Warren St., N.Y.

Wiley. John Wiley & Sons, Inc., 432 4th Av., N.Y.

Industrial Arts Index

A Cumulative Index to Engineering, Trade and Business Periodicals
and Selected Books and Pamphlets

January, 1920—December, 1921

Abaca. See Hemp, Manila

Abbott, William Lamont, 1861-

Leader in power-plant operation. *por* Power 51:667-8 Ap 27 '20

Abbreviations

Definitions of export quotations. *Am Mach* 52:311-13 F 5 '20; Same. *Textile World* 57:1157-9 F 7 '20; Same *abr.* *Am Ind* 20:37-9 Ja '20; Same *abr.* *Automotive Ind* 42:520-2 F 19 '20; Same *abr.* *Paper* 26:10, 24-5 Ag 25 '20

Exporting iron and steel; standard shipping designations. V. G. Iden. *il Iron Tr R* 68:1657-61 Je 16 '21

See also Chemical symbols; Electric symbols; Shorthand; Symbols

Abeel brothers, New York

Linking past and present warehousing of iron and steel in New York. E. C. Kreutzberg. *Iron Tr R* 69:286-8+ Ag 4 '21

Abercrombie and Fitch company

Building a reputation for authority by professional service to customers. C. B. Larabee. *il Ptr Ink M* 3:28-30+ Ag '21

Aberration

Transmission of waves through a symmetric optical instrument. I. Roman. *Phys R* 18:62-77 Jl '21

Aberthaw construction company

Aberthaw construction co.'s instructions for its field men. *Eng & Contr* 55:67-8 Ja 19 '21

Ability

See also Efficiency, Industrial; Executive ability

Ability tests

Building a better force of workers: gaging applicants' skill will help you pick workers better suited to the job; four trade tests. E. S. Bengé. *Factory* 25:1237-9 O 15 '20

Correlation between army intelligence test and college records. E. F. Coddington. *Eng Educ* 11:311-18 F '21

Mental tests. P. B. Ballard. 235p Hodder & Stoughton, Ltd., London '20

Practical mental measurement. R. M. Yerkes. *diags Sci Am M* 1:270-3 Mr '20

Prevention of fatigue in industry; psychological tests and the reduction of necessary fatigue. R. A. Spaeth. *Ind Management* 59:311-13 Ap '20

Prevention of labor turnover. H. G. Kenagy. *Administration* 2:464-8 O '21

Psychological examinations; new and practical methods of measuring vocational fitness. A. T. Poffenberger. *il Sci Am M* 3:205-11 Mr '21

Psychological examining in the United States army. R. M. Yerkes, ed. 590p (Memoirs v. XV) National academy of sciences, Washington '21

Psychological tests of industrial capacities. M. Tevis. *il Sci Am M* 4:208-11 S '21

Psycho-technics in Germany. A. Gradenwitz. *il Am Mach* 53:407-8 Ag 26 '20

Die psychotechnische eignungsprüfung und ihre anwendung auf hüttenbetriebe. Hüttenhain and others. *Stahl & Eisen* 41:822-7 Je 16 '21

Putting the right man in the right job. *il Textile World* 59:866-7+ F 5 '21

Report of the administration of the Thurstone engineering aptitude test to 800 students in the College of engineering of the University of Illinois. *diags Eng Educ* 11:182-200 D '20

Right man in the right place in the army. J. J. Swan. *Mech Eng* 41:423-8 My '19; Excerpts. *Eng & Contr* 52:570-1 N 12 '19

Selection of mill workers by mental tests. A. Otis. *Sci Am M* 4:271 S '21

Simple tests for selecting office workers. E. J. Bengé. *Ind Management* 61:91-3 F 1 '21; Same. *Paper* 28:13-14+ Ap 6 '21

Trade test principles in industry. M. Watson. *Ind Management* 59:247-50 Mr '20

Trade tests; the scientific measurement of trade proficiency. J. C. Chapman. 435p Holt '21

See also Edison questionnaire

Abney, William, 1843-1920

Sketch. *Engineering* 110:782 D 10 '20

Abnormalities (plants)

Singular phenomena in the kingdom of plants; curious vegetable deformities. J. Bergner. *il Sci Am M* 1:121-3 F '20

Abrasive wheels. See Grinding wheels

Abrasives

Abrasive materials in 1918. F. J. Katz. *U S Geol S Min Res of U S* 1918,pt 2:1171-87 '20

Abrasive materials in 1919. L. M. Beach and A. T. Coons. *U S Geol S Min Res of U S* 1919,pt 2:381-6 '21

Abrasive paper and cloth; their manufacture for use in polishing metals. P. W. Blair. *Metal Ind* 18:268-9 Je '20

Abrasives in 1920. J. V. Lewis. *Eng & Min J* 111:154 Ja 22 '21

Artificial abrasives, the manufacture of, in the electric furnace; abstract. C. J. Brockbank. *Am Cer Soc J* 3:518-19 Je '20

Decreased use of abrasives. *Iron Age* 106:1470 D 2 '20

Grinding and polishing materials. F. J. Katz. *U S Geol S Bul* 666:61-3 '19

Grinding in the automotive industry. P. M. Heldt. *diags Automotive Ind* 45:265-8 Ag 11 '21

New aluminous abrasive. O. Hutchins. *il Am Mach* 52:113-14 Ja 15 '20; Same. *Iron Age* 105:873-4 Mr 25 '20; Same *cond.* *Chem & Met Eng* 22:565 Mr 24 '20

Review of the abrasive materials situation in 1919. F. J. Katz. *Eng & Min J* 109:231-2 Ja 17 '20

See also Alundum; Carborundum; Garnet; Grinding and polishing

Absenteeism (labor)

Are you overlooking important personnel data? G. O. Swartz. *chart Ind Management* 60:381-2 N '20

Attendance of workers in Moscow factories. *Int Labour R* 1:223-30 F '21

Control of absenteeism. P. S. Florence. *Administration* 1:634-46 My '21

Eliminating absenteeism. F. C. Smith. *Ind Management* 59:164-5 F '20

Sickness and absenteeism in a manufacturing plant. *Monthly Labor R* 11:1055-6 N '20

Absorbers, Electric. See Electric absorbers

Absorption

Absorption of carbon monoxide by cuprous ammonium carbonate solutions. W: R. Hainsworth and E. Y. Titus. *diag Am Chem Soc J* 43:1-11 Ja '21

Absorption of gases in spray systems and towers. E. M. Baker. *Chem & Met Eng* 22:122-4 Ja 21 '20

Absorption of oxides of nitrogen by nitric acid. E. K. Rideal. *diags J Ind & Eng Chem* 12:531-8 Je '20

Absorption par les liquides. H. Vigneron. *Génie Civil* 78:476-7 Je 4 '21

Determination of the sorption of both solvent and solute—preliminary; the system: benzene—iodine—charcoal. A. M. Bakr and J. E. King. *diag Chem Soc J* 119:454-60 Ap '21

Recovery of volatile solvents by the Bregeat process. M. Roulleux and R. G. Dort. *flow sheet Chem & Met Eng* 24:916-21 My 25 '21; *Discussion*. 25:93, 181 Jl 20, Ag 3 '21

Selective absorption and its results. *Sci Am M* 1:534 Je '20

Soda lime as an absorbent for industrial purposes. R. E. Wilson. *J Ind & Eng Chem* 12:1000-7 O '20

Some aspects of the behavior of charcoal with respect to chlorine. G. S. Bohart and E. Q. Adams. *diags Am Chem Soc J* 42:523-44 Mr '20

Some factors governing the sorptive capacity of charcoal; sorption of ammonia by coconut charcoal. J. B. Firth. *Chem Soc J* 119:926-31 Je '21

Sorption of alcohol and water by animal charcoal. J. Driver and J. B. Firth. *Chem Soc J* 119:1126-31 Jl '21

Sorption of hydrogen by amorphous palladium. J. B. Firth. *Chem Soc J* 119:1120-6 Jl '21

See also Adsorption

Absorption machine

Refrigeration study course; absorption machine. H. J. Macintire. *diags plan Power* 52:430-3 S 14 '20

Absorption of light

Absorption of light by caoutchouc. S. J. Lewis and B. D. Porritt. *India Rubber W* 64:496 Ap '21

Absorption process (gasoline)

Absorption as applied to recovery of gasoline left in residual gas from compression plants. W. P. Dykema and R. O. Neal. *il diags plan U S Bur Mines Tech Pa* 232:1-40 '20; *Excerpts*. *Nat Pet N* 12:41-2+ Mr 24; 35+ Ap 7 '20

Absorption gasoline. *Engineering* 109:760-1 Je 4 '20

Absorption of gasoline from casinghead gas by activated charcoal. H. R. Auerswald. *diags Mech Eng* 43:601-2+ S '21

Court decision expected to stimulate use of absorption process. J. B. Gambrell, jr. *Nat Pet N* 13:21-2 Jl 15 '21

Absorption spectra. *See Spectrum—Absorption spectra*

Absorption tower packing. *See Packing, Absorption tower*

Abstract writing

Co-ordination in libraries and abstracts. A. B. Eason. *Special Lib* 11:201-3 D '20

Abyssinia. *See Mines and mineral resources—Abyssinia; Petroleum—Abyssinia*

Acacias

Acacia bark as an industrial material. *Sci Am M* 2:340 D '20

Academy of political science

39th annual meeting, New York, Nov. 21-22. *Ry Age* 67:1145-50 D 12 '19

Acceleration diagram. *See Machinery, Kinematics of*

Accelerators. *See Vulcanization*

Accelerometer

Acceleration of the automobile and its measurement. P. M. Heldt. *diags Automotive Ind* 42:1329-33 Je 10 '20

Accelerations in flight. F. H. Norton and E. T. Allen. *il diags U S Nat Advisory Com for Aeronautics* 1920:483-8 '21

Accelerometer design. F. H. Norton and E. P. Warner. *diags U S Nat Advisory Com for Aeronautics* 1920:491-504 '21

Les différents types d'accéléromètres. Boyer-Guillon. *Génie Civil* 78:200-1 F 26 '21

Notes on the theory of the accelerometer. E. P. Warner. *Aerial Age* 11:681-2 Jl 26 '20

Acceptances

Acceptance advantages cited. T. P. Nicholas. *Iron Tr R* 67:1810 D 30 '20

Acceptance development. P. M. Warburg and L. E. Pierson. *Comm & Fin Chr* 111:2181-2 D 4 '20

Acceptances; their importance as a means of increasing and simplifying domestic and foreign trade. 4th rev. ed. 108p American exchange national bank, New York '21

Acceptances: trade and bankers'. P. Mathewson. 372p Appleton '21

American acceptance council on abuses of the trade acceptance. *Comm & Fin Chr* 112:1345 Ap 2 '21

American acceptance council on bill permitting national banks to endorse bankers' acceptances. *Comm & Fin Chr* 113:580-1 Ag 6 '21

American acceptance council's survey of outstanding bankers' acceptances. *Comm & Fin Chr* 112:2481 Je 11 '21

A.B.A. committee's report on development of acceptances. *Comm & Fin Chr* 112:2482 Je 11 '21

American business and acceptances. F. I. Kent. *Comm & Fin Chr* 113:170-2 sec 2 O 29 '21

Business must halt spread of cancellation to credits. E. A. Bradford. *Annalist* 17:171-2 Ja 31 '21

Federal reserve banks on condition of acceptance market. *Comm & Fin Chr* 113:682-3 Ag 13 '21

Federal reserve board in annual report on development of acceptance market. *Comm & Fin Chr* 112:794 F 26 '21

Federal reserve board makes six months acceptances eligible when based on foreign trade. *Comm & Fin Chr* 112:2034-5 My 14 '21

Federal reserve board on growth of acceptance credits. *Comm & Fin Chr* 110:2619 Je 26 '20

Federal reserve board on the condition of the acceptance market. *Comm & Fin Chr* 113:1105-6 S 10 '21

Federal reserve board ruling on acceptances for export and domestic sales. *Comm & Fin Chr* 112:613 F 12 '21

Federal reserve board's monthly review of acceptance market. *Comm & Fin Chr* 112:1571-2 Ap 16 '21

First Federal foreign banking association on financing by acceptance. *Comm & Fin Chr* 111:1324 O 2 '20

New York federal reserve bank on demand for acceptances. *Comm & Fin Chr* 110:2033 My 15 '20

Questionnaire of savings bank association state of New York on acceptances. *Comm & Fin Chr* 111:744-5 Ag 21 '20

Report of Acceptance committee of the American bankers' association. *Comm & Fin Chr* 111:132-3 sec 2 N 20 '20

Survey of trade acceptance progress. L. E. Pierson. *Dom Eng* 94:239-40+ Ja 29 '21

To finance time payment business. S. A. Dennis. *Gas Age* 48:474-6 O 15 '21

Trade acceptance progress. *Am Ind* 20:35-6 Ja '20

Trade acceptances, fact and fiction. R. H. Bean. *Am Ind* 21:18-20 Je '21

Use of acceptances. H. P. Willis. *Comm & Fin Chr* 110:2619 Je 26 '20

Use of trade acceptances. R. H. Bean. *Comm & Fin Chr* 111:937-8 S 4 '20

Use of trade acceptances improving collections of Western electric company. *Elec W* 76:659 S 25 '20

Acceptances—Continued

Using the trade acceptance to finance installment sales. G. E. Messmore. *Am Gas Eng J* 112:321-2 Ap 24 '20

See also International acceptance corporation, inc.

American Acceptance Council, 111 Broadway, New York, publishes pamphlets on acceptances

Accident law

Accidents and third party risks. *Eng & Ind Management* 5:580-2 My 19 '21

See also Employers' liability; Personal injuries; Workmen's compensation

Accident prevention. *See* Safety devices and measures

Accidents

Accidents that happen and others that don't. R. P. Blake. *Sci Am* 123:9 Jl 3 '20

How we get ourselves killed. *il Sci Am* 121:549+ D 6 '19

Obscure but most prolific hazard; slipping, tripping, falling. H. W. Mowery. *Safety Eng* 41:183-4 Ap '21

Scientific basis of carelessness. D. H. Colcord. *Sci Am* 122:645 Je 12 '20

See also Automobile accidents; Aviation—Accidents; Bridge accidents; Building accidents; Building failures; Burns and scalds; Dust explosions; Electric railroads—Accidents; Electricity, Accidents from; Explosions; Grade crossing accidents; Life saving apparatus; Lightning; Navigation—Accidents; Negligence; Personal injuries; Railroads—Accidents; Safety devices and measures; Shipwrecks; Street accidents

Accidents, Automobile. *See* Automobile accidents

Accidents, Industrial

Accident prevention. *Am Gas Assn General Sessions* sec v 1:60-86 '19

Accidents and accident prevention in machine building. L. W. Chaney. *il charts U S Labor Statistics Bul* 256:1-119 '20

Analyzing accidents to reduce them. H. W. Patton. *Factory* 25:370-1 Ag 1 '20

Dangers in the dyestuff industry. L. C. Cone. *Chem & Met Eng* 22:33-5 Ja 7 '20

Factory accidents and their prevention. J. Jackson. *Textile World* 60:325+ Jl 9 '21

French court decisions regarding incapacities from industrial accidents. *Monthly Labor R* 11:566-8 S '20

High cost of things that happen unexpectedly. S. J. Williams. *il Factory* 25:1043-5 O 1 '20

How much is a worker worth? D. H. Colcord. *il Sci Am* 122:390+ Ap 10 '20

Industrial accidents and their cost. W. F. Mulhall. *Iron Age* 106:1766-7 D 30 '20

Industrial casualties. *Engineering* 112:724 Ag 5 '21

Industrial deaths exceed those of war; 1st annual Massachusetts accident prevention congress, Worcester. *Iron Age* 105:809-11 Mr 18 '20

Industrial safety and hygiene. *See* monthly numbers of Monthly labor review

Influence of fatigue on accident frequency. A. Vautrin. *Eng & Contr* 53:749 Je 30 '20

La loi de 1898 et la psychologie des accidentés du travail. P. Juquelier. *Chimie & Ind* 4:686-8 N '20

Practical jokes among workmen. C. C. Sherlock. *Chem & Met Eng* 24:619-20 Ap 6 '21

Prevention of accidents by the statistical method. R. Meeker. *Monthly Labor R* 10:595-7 Mr '20

Proceedings of the 5th annual meeting of the International association of industrial accident boards and commissions. *U S Bur Labor Statistics Bul* 264:1-224 '19

Proceedings of the 6th annual meeting of the International association of industrial accident boards and commissions. Toronto, Canada, Sept. 23-26, 1919. *U S Bur Labor Statistics Bul* 273:1-424 '20

Reducing accident risks. *See* monthly numbers of Factory

Report of the New Jersey Department of labor; abstract. *J Ind Hygiene* 2:sup161-2 Ja '21

Responsibility for industrial accident prevention: the Wisconsin system. P. Hambrecht. *Monthly Labor R* 12:816-17 Ap '21

Shop accidents. J. A. McNally. *Ry R* 67:715-16 N 6 '20

Some causes of accidents. *Sci Am* 124:352 Ap 30 '21

Step toward accident prevention in Massachusetts. *Am Mach* 52:919-20 Ap 22 '20

Study of accident records in a textile mill, by students in the course in statistics at Mount Holyoke College. *J Ind Hygiene* 3:187-95 O '21

Study of accidents among women in industry. N. Swartz. *Safety Eng* 41:19-22 Ja '21

What are the dangerous jobs? J. A. Tobey. *Safety Eng* 42:102-5 S '21

Why should we not prevent accidents? S. D. Hubbard. *Safety Eng* 42:24-6 Jl '21

See also Back strain; Boiler explosions; Building accidents; Burns and scalds; Coal mines and mining—Accidents and explosions; Coke ovens—Accidents; Cranes, derricks, etc.—Safety devices; Disabled—Rehabilitation; Electricity, Injuries from; Employers' liability; Explosions; First aid in illness and injury; Gas manufacture and works—Accidents; Grinding wheels—Accidents; Machine shops—Accidents; Metallurgical plants—Accidents; Mine accidents; Quarries and quarrying—Accidents; Railroads—Accidents; Railroads—Safety devices and measures; Safety devices and measures; Workmen's compensation; also International association of industrial accident boards and commissions

Bibliography

Industrial accidents and their prevention. Safety [261 Madison Av., N.Y.] 8:203-6 N '20

Records

Accident records in the paper mill. R. H. Guerrant. *Paper* 27:21-3+ N 17 '20

Keeping accident records in construction industry. *Eng & Contr* 54:487-9 N 17 '20

Statistics

Accident frequency rates in the iron and steel industry, by causes, 1913 to 1920. L. W. Chaney. *Monthly Labor R* 13:487-92 S '21

Cost of industrial accidents. R. Meeker. *Monthly Labor R* 10:831-43 Ap '20

Discussion of an American accident table. C. Hookstadt. *Monthly Labor R* 13:1-5 Jl '21

Inadequacy of industrial accident statistics published in state reports. M. Gadsby. *Monthly Labor R* 12:651-60 Mr '21

Industrial accident frequency in Wisconsin, 1915 to 1920. A. J. Altmeyer. *Monthly Labor R* 12:1117-21 Je '21

Industrial accident record of 1919 best in five years. *N E L A Bul* 7:825 N '20

Influence of the war on accident rates in the iron and steel industry, 1914-1919. L. W. Chaney. *charts Monthly Labor R* 10:1457-63 Je '20

Standardization of industrial accident statistics. *U S Bur Labor Statistics Bul* 276:1-103 '20

Accidents from electricity. *See* Electricity, Accidents from

Accountants

Accounting profession. G. L. Vannais. *Elec Ry J* 56:769-70 O 16 '20

Junior accountants neglecting opportunities. I. A. May. *Elec Ry J* 56:320 Ag 14 '20

Qualifications for a cost accountant. L. L. Thwing. *Am Mach* 55:460 S 22 '21

Some aspects of professional accounting. P.-J. Esquerré. *Administration* 2:102-7 Jl '21

Word to those who would be accountants. *J Account* 29:53-6 Ja '20

See also West Virginia accountants' association

Advertising

Advertising. A. P. Richardson. *J Account* 29:127-30 F '20

Accountants—Advertising—Continued

- Treasury department to issue regulation against accountants' advertising. *Ptr Ink* 117:60+ N 3 '21
 Word of warning; accountants and the treasury department. A. P. Richardson. *J Account* 32:279-82 O '21

Accountants, Public

- Advisory accountancy. W: B. Gower. *J Account* 30:262-70 O '20
 Growth and effect of branch offices. F. A. Ross. *J Account* 30:252-61 O '20
 Hanging out the shingle. *J Account* 29:456-9 Je '20

See also Auditing

Examinations

- American institute examination, May, 1920; accounting theory and practice; questions and answers. S. Walton and H. A. Finney. *J Account* 30:145-60, 214-34, 308-15 Ag-O '20
 American institute examination, November, 1920; accounting theory and practice; questions. *J Account* 30:403-9, 412-19 D '20; Answers. H. A. Finney. 31:64-79, 145-59, 214-21 Ja-Mr '21
 American institute examination, May 1921; accounting theory and practice; questions. *J Account* 31:404-8, 411-16 Je '21; Answers. 32:59-72, 138-53 Jl-Ag '21
 American institute of accountants, board of examiners; November, 1919; examination questions. *J Account* 28:401-12 D '19; Answers. S. Walton and H. A. Finney. 29:145-59, 223-36 F-Mr '20
 American institute of accountants, board of examiners, May, 1920; examination questions. *J Account* 29:401-15 Je '20
 C.P.A. accounting, theory, auditing, and problems. G: H. Newlove. 416p Appleton '20
 Information in regard to examinations for certified public accountants. 23p California. State board of accountancy, Sacramento. '20
 Proposal for junior C. P. A. examinations. J. A. Bexell. *J Account* 31:161-6 Mr '21

Accounting

- The accountant, the industrial engineer, and the banker. A. Andersen. *Administration* 2:156-60 Ag '21
 Accountants' reports. W: H. Bell. 247p Ronald press '21
 Accounting for food preserving companies. R. E. Barth. *J Account* 29:91-7 F '20
 Accounting problems. H. D. Greeley. *Administration* 1:246-54, 389-96 F-Mr '21
 Accounts in theory and practice; principles. E. A. Sallers. 301p McGraw-Hill '20
 Analysis of general ledger and preliminary layout for working sheets. H. D. Grant. *Administration* 2:245-57 Ag '21
 Appraisals and their relation to accounts. L. G. Hawkins. *J Account* 29:206-9 Mr '20
 Assumptions of the accountant. W: A. Paton. *Administration* 1:786-802 Je '21
 Bookkeeping, accounting and auditing. W: M. Cole. 479p Lincoln institute of business, Chicago '21
 Budget as basis for calculating predetermined rates. E. O. Sommer. *Ind Management* 59:24-8 Ja '20
 Business accounting; ed. by H. D. Greeley. 5v Ronald press '20
 Canadian modern accounting. A. F. Sprott (pt. 1), and F. G. Short (pt. 2). 220p Commercial text book co., Toronto, Canada '21
 Continuous inventory of fixed capital. E. Johnson. *Am Gas Assn Accounting* sec v 2:135-8; Discussion. 138-46 '20
 Course "A" accounting; a course in elementary accounting. H: J. Wicks. 2v. Interstate audit and accounting bureau, Chicago '20
 Depreciation, appreciation and productive capacity. W. A. Paton. *J Account* 30:1-11 Jl '20
 Fundamentals of accounting. W: M. Cole and A. E. Geddes. 434p Houghton '21
 Individual home study course in higher accounting. 4 vols. Washington institute, Chicago '20

- Industrial accounting; with C. P. A. questions and problems. G: H. Newlove and L. A. Pratt. 266p Appleton '21
 Methods in credit accounting. C: M. Neubauer. *Administration* 1:151-68 F '21
 Practical bookkeeping and accounting. W: L. Musick. 242p Universal text book co., Chicago '21
 Principles of accounting. A. C. Hodge and J. O. McKinsey. 389p University of Chicago press '20
 Principles of accounting. E. A. Saliers. 72p La Fayette inst. '21
 Problems for the business executive; accounting problems. H. D. Greeley. *Administration* 1:99-105, 537-53, 674-7, 824-8 Ja, Ap-Je '21
 Profits and dividends. S. Walton and H. A. Finney. *J Account* 28:461-73 D '19
 Question of figures; how to figure profits and discounts, and how to compute interest and how to take inventory. B. J. Munchweiler. *Dom Eng* 95:310-11 My 14 '21
 Redemption and replacement of bonded indebtedness. E. J. Rock. *J Account* 32:36-40 Jl '21
 Relation of business statistics to management control. S. Gilman. *Paper* 28:14-15+ My 11 '21
 Resources and their application. L. E. Palmer. *Administration* 2:310-18 S '21
 Small community accounting methods. G. H. Clarke. *Am Gas J* 115:186+ Ag 27 '21
 Taxable income and profit and loss. J: W. Roberts. *J Account* 29:351-8 My '20
 University course in practical cost accounting. P. B. Kelly. *J Elec* 46:294-6, 348-50, 394-6, 448-50, 522-4, 570-2, 646-9; 47:33-6, 70-3, 111-13, 153-5, 191-3, 231-3, 310-12 Mr 15-S 15, O 15 '21
 Unsold goods and the income account. W: B. Gower. *J Account* 29:171-9 Mr '20
 Value of graphics in an accounting system. W. F. Bloor. *chart J Account* 31:421-7 Je '21
 When profits fall off. H. D. Grant; S. Gilman. *Administration* 1:768-72; 2:376-80 Je, S '21

See also Accountants; Arithmetic, Commercial; Balance sheets; Bookkeeping; Budget, Business; Cost accounting; Depreciation; Farm accounting; Financial statements; Foundry accounting; Good will (in business); Highway accounting; Income; Interest; Inventories; Mine accounting; Municipal accounting; Overhead expense; Partnership; Payrolls; Percentage; Punched card system; Surplus; Treasury stock; also subhead Accounting under following subjects, Agricultural machinery industry; Box factories; Building; Chain factories; Coal trade; Contractors; Corporations; Dye industry; Electric railroads; Engineering offices; Executors and administrators; Export trade; Factories; Greenhouses; Hotels; Institutions, Public; Insurance; Investments; Lumber trade; Machine tool industry; Moving picture industry; Newspapers; Packing industry; Peanut industry; Petroleum industry; Plumbing trade; Power plants; Printing, Practical; Professional associations; Public utilities; Publishing; Railroads; Receivers; Rubber industry; Sawmills; Scrap metal; Shoe industry and trade; Steel works

Bibliography

- Accountants' index; a bibliography of accounting literature to December, 1920. 1578p American institute of accountants, 135 Cedar st., New York '21
 Current literature; published in monthly numbers of *Journal of accountancy*

Examinations

See Accountants, Public—Examinations

Mechanical aids

See also Office appliances

Study and teaching

- Practical problems graded. S: F: Racine. 96 leaves Western institute of accountancy, commerce and finance, Seattle '20

Accounting departments

- Engineer vs. auditor in cost keeping. Elec Ry J 57:893-4 My 14 '21
 Relation of cost department to other departments. J. L. Nicholson. Administration 1:46-52 Ja '21

Accounts, Collecting of. See Collecting of accounts**Accumulators, Hydraulic**

- Hydraulic accumulators and piping systems. A. Searles. Mach 28:64-5 S '21
 Selecting proper size accumulators. R. W. Schuette. Blast F & Steel Pl 9:89 Ja '21

Acenaphthene

- Aufklärung des anhydrids des acenaphthenchinon-imids als diacenaphthylenazotid (acenaphthylen-1,2-azin). A. Schönberg and F. Nedzati. Deutsche Chem Gesell Ber 54:238-42 F '21

- Chemistry of acenaphthene and its derivatives. D. A. Hahn and H. E. Holmes. bibliog J Ind & Eng Chem 13:822-30 S '21

- Synthesis of indanediones; pericyclic derivatives of acenaphthene. K. Fleischer and F. Siefert. Chem Soc J 120 pt 1:255-6 Ap '21

Acenaphthenequinone

- Aufklärung des anhydrids des acenaphthenchinon-imids als diacenaphthylenazotid (acenaphthylen-1,2-azin). A. Schönberg and F. Nedzati. Deutsche Chem Gesell Ber 54:238-42 F '21

Acetaldehyde

- Acetaldehyde. Chem & Met Eng 23:752 O 13 '20

- Acetaldehyde: acetic acid; patent. diag Chem & Met Eng 24:938 My 25 '21

- Fabrication de l'acide acétique synthétique au départ du carbure de calcium. M. Deschiens. diags Chimie & Ind 5:253-6, 398-408 Mr-Ap '21

- Manufacture of acetaldehyde; patent. Chem & Met Eng 25:668 O 5 '21

- Odorous constituents of apples; emanation of acetaldehyde from the ripe fruit. F. B. Power and V. K. Chesnut. Am Chem Soc J 42:1509-26 Jl '20

Acetanilide

- Influence of substituents on reactions: nitration of substituted acetanilides; abstract. H. Franzen and E. Engel. Chem Soc J 120 pt 1:713 O '21

Acetic acid

- Determination of acetic acid in pyroligneous acid. V. E. Grotlisch. diags J Ind & Eng Chem 12:1183-6 D '20

- Essigsäure-derivate des *p*-anisidins. J. Halberkann. Deutsche Chem Gesell Ber 54:1152-67 Je '21; Abstract. Chem Soc J 120 pt 1:562-3 Ag '21

- Fabrication de l'acide acétique synthétique au départ du carbure de calcium. M. Deschiens. il diags Chimie & Ind 5:239-56, 398-408, 518-26; Bibliography. 526-8 Mr-My '21

- Fermentation process for the production of acetic and lactic acids from corncobs. E. B. Fred and W. H. Peterson. J Ind & Eng Chem 13:211-13 Mr '21

- Fermentation process for the production of acetone, alcohol, and volatile acids from corncobs. W. H. Peterson, E. B. Fred and J. H. Verhulst. J Ind & Eng Chem 13:757-9 S '21

- Modification of the Thompson method for the determination of acetic acid in white lead. L. McMaster and A. E. Goldstein. J Ind & Eng Chem 12:170-1 F '20

- New method for the determination of acetic acid in acetates. O. A. Pickett. J Ind & Eng Chem 12:570-1 Je '20

- Synthetic acetic acid and acetone. J. T. Rooney. flow sheet il Chem & Met Eng 22:847-50 My 5 '20

- See also Methanetetra-acetic acid; Methanetriacetic acid; Vinegar

Acetic anhydride

- Action of acetic anhydride on alpha naphthyl propionic acid. B. L. West. diags Am Chem Soc J 42:1656-69 Ag '20

Acetoacetic ester

- Darstellung der enolformen aus acetessig-ester und acetyl-aceton. K. H. Meyer and

- H. Hopff. Deutsche Chem Gesell Ber 54:579-80 Ap '21

Acetobromorhamnose

- Acetobromorhamnose and its application in the synthesis of rhamnosides; abstract. E. Fischer, M. Bergmann and A. Rabe. Chem Soc J 120 pt 1:94-6 F '21

Acetol (motor fuel)

- Acetol new gasoline substitute. Eng N 85:924 N 11 '20

- New motor spirit. Juritz. Sci Am M 3:179 F '21

Acetolysis

- Acetolytic decomposition products of cellulose. R. Prosiegel. Paper 28:86-98+ Ap 20 '21

- Notiz über acetolyse von polysacchariden. M. Bergmann and F. Beck. Deutsche Chem Gesell Ber 54:1574-8 Jl '21

Acetonaphthone

- Zur kenntnis der aceto-naphthole. K. Fries. Deutsche Chem Gesell Ber 54:709-14 Ap '21

Acetone

- Acetone from acetic acid; patent. Chem & Met Eng 22:40 Ja 7 '20

- Action of ammonia on acetone. T: S. Patterson and A. McMillan. Chem Soc J 119:269-71 Mr '21

- Fermentation process for the production of acetone, alcohol, and volatile acids from corncobs. W. H. Peterson, E. B. Fred and J. H. Verhulst. J Ind & Eng Chem 13:757-9 S '21

- Die kondensation zwischen formaldehyd und acetone. A. Müller. Deutsche Chem Gesell Ber 54:1142-8 Je '21

- Losses incurred in the preparation of acetone by the distillation of acetate of lime. L. F. Goodwin and E. T. Sterne. diag J Ind & Eng Chem 12:240-3 Mr '20

- Seed-culture methods in the production of acetone and butyl alcohol by a fermentation process. H. B. Speakman. il diags plan J Ind & Eng Chem 12:581-7 Je '20

- Synthetic acetic acid and acetone. J. T. Rooney. flow sheet il Chem & Met Eng 22:847-50 My 5 '20

- Über die salzartigen additionsprodukte der doppelten kohlenstoffbindung mit säuren. F. Kehrmann and I. Effront. Deutsche Chem Gesell Ber 54:417-25 Mr '21

Analysis

- Analysis of acetone by Messinger's method. L. F. Goodwin. Am Chem Soc J 42:39-45 Ja '20

Acetophenone

- Über acetophenon-[*p*-amino-phenylhydrazon] und *p*-amino-phenylhydrazin. H. Franzen and P. Steinführer. Deutsche Chem Gesell Ber 54:861-7 My '21

Acetylacetone

- Addition of 1,3-diketones to isothiocyanates; acetylacetone and certain aryl isothiocyanates. D: E. Worrall. Am Chem Soc J 42:1055-61 My '20

- Darstellung der enolformen aus acetessig-ester und acetyl-aceton. K. H. Meyer and H. Hopff. Deutsche Chem Gesell Ber 54:579-80 Ap '21

Acetylamino-phthalic anhydrides

- Friedel and Crafts' reaction—nitro-phthalic anhydrides and acetylamino-phthalic anhydrides with benzene and aluminum chloride. W. A. Lawrance. Am Chem Soc J 42:1871-9 S '20

Acetylcellulose. See Cellulose acetate**Acetylene**

- Acetylene as a substitute for gasoline in motors. Sci Am 122:663 Je 12 '20

- Acetylene as an automobile fuel. Automotive Ind 43:1072 N 25 '20

- Acetylene for automobiles. Engineering 110:450 O 1 '20

- Acetylene generator explosion; report of accident at plant of Moore shipbuilding company, Oakland, California. L. Balliet. Power Pl Eng 25:576-7 Je 1 '21

- Acetylene generator precautions. Safety Eng 41:271 Je '21

Acetylene—Continued

- Autogenous welding; what it is and how it is applied. diag Motor Age 38:32-3 Ag 5; 30-1 Ag 12 '20
- Chlorovinylchloroarsines. S. J. Green and T. S. Price. Chem Soc J 119:448-53 Ap '21
- Condensation of acetylene with benzene and its derivatives in the presence of aluminum chloride. O. W. Cook and V. J. Chambers. Am Chem Soc J 43:334-40 F '21
- Darstellung von glyoxal durch einwirkung von acetylen auf goldchlorid bezw. goldbromid. K. Kindler. Deutsche Chem Gesell Ber 54:647-9 Ap '21
- Distribution of energy in the spectrum of an acetylene flame. W. W. Coblentz. U S Bur Stand Sci Pa 362:639-51 '20
- Electrothermic production of acetylene from hydrocarbons; patent. Chem & Met Eng 22:40 Ja 7 '20
- Fabrication de l'acide acétique synthétique au départ du carbure de calcium. M. Deschiens. il diags Chimie & Ind 5:239-56, 398-408 Mr-Ap '21
- Imperial automatic acetylene generator. il Mach 27:90-1 S '20
- Interaction of acetylene and mercuric chloride. W. J. Jenkins. Chem Soc J 119:747-9 My '21
- Preparation of ethylene by hydrogenation of acetylene. W. H. Ross, J. B. Culbertson and J. P. Parsons. diags J Ind & Eng Chem 13:775-8 S '21
- Use of acetylene in U.S. navy yards during the war. H. G. Knox. il Engineer 129:164-6 F 13 '20; Excerpts. Int Marine Eng 24:720-7 N '19; Excerpts. Am Mach 51:661-4 O 2 '19
- See also* Oxyacetylene flame; Welding, Oxyacetylene

Acetylene lamps

- Carbide lamps in pillar robbing. Coal Age 17:419, 870-1 F 26, Ap 29 '20

Acetylene lighting

- Acetylene for ship's lighting. Marine Eng 26:587 Ag '21
- Night lighting on road job. il Eng N 86:1048 Je 16 '21

See also Acetylene lamps

Acetylene tetrachloride. *See* Tetrachlorethane**Acetylenediactal**

- Über derivate des acetylendiactals. A. Wohl and K. Jaschinowski. diags Deutsche Chem Gesell Ber 54:472-5 Mr '21

Acetylmethylpyridine

- Über die synthese des 3-acetyl-4-methylpyridins und des β -kollidins. P. Rabe and E. Jantzen. Deutsche Chem Gesell Ber 54:925-9 My '21

Acetyl-salicylic acid

- Aspirin trade mark opinion denies validity in sales made to public. Oil Paint & Drug Rep 99:26+ sec 1 My 2 '21

Acheson, Edward G.

- Romance of invention; father of the lubrication of the future. C. H. Claudy. por Sci Am 122:332+ Mr 27 '20

Acid burns. *See* Burns**Acid handling**

- Armour fertilizer works. C. H. Jones. il diag plan Chem & Met Eng 24:333-7, 379-84 F 23-Mr 2 '21
- Displacement pump for elevating acid by compressed air. il Chem & Met Eng 25:757 O 19 '21
- Negligence in handling of acids—care required to prevent injuries to others. W. Gustin. Chem & Met Eng 24:129-30 Ja 19 '21
- Pumping acid with compressed air. J. Oliphant. il Chem & Met Eng 22:408-10 Mr 3 '20
- See also* Acid-resisting materials; Acid tanks

Acid phosphate. *See* Phosphates**Acid-resisting materials**

- Acid-proofing and hardening of concrete. il Chem & Met Eng 23:297 Ag 18 '20
- Acid-resisting qualities of aluminum. Chem & Met Eng 22:230-1 F 4 '20
- Bituminous acid-proof coatings for acid-proofing concrete surfaces. Chem & Met Eng 23:287-9 Ag 18 '20

- Copper-aluminum-iron bronze as an acid-resisting alloy. O. L. Kowalke. Chem & Met Eng 22:37-8 Ja 7 '20

- Factory floors for special uses; types recommended by experiences in navy for acid-subjected floors and for different kinds of storehouses and workshops. H. S. Rinker. Eng N 85:54-5 Jl 8 '20

- Note on the acid resistance of enameled cooking utensils. B. T. Sweely. Am Cer Soc J 4:407-9; Discussion. 409-12 My '21

- Pumps for corrosive liquids. il diags Engineering 110:253-4 Ag 20 '20; Same cond. Mach 27:114 O '20; Abstract. Sci Am M 2:277-8 N '20

- Relative action of acids on enamels. il Am Cer Soc J 3:560-7 Jl '20

- Report on investigation of acid resisting bronze. il Paper 27:21-4 Mr 2 '21

- La résistance aux acides de divers ferrosiliciums. Génie Civil 76:214-15 F 21 '20

See also Concrete—Protection; Corrosion; Pipes, Fiber

Acid sludge. *See* Petroleum refining—By-products**Acid tanks**

- Concrete tanks for storage of crude carbolic acid and a larvacide. G. C. Bunker and A. H. Khachadorian. plans Concrete 19:145-7 O '21

- Effect of lightning striking an acid tank. P. de Wolf. il Chem & Met Eng 25:336 Ag 24 '21

Acid waste

- Acid waste stack construction. diag Metal Work 93:382-3 Mr 26 '20

Acidimetry

- Acidimetry of red wines and fruit juices. A. M. Macmillan and A. Tingle. J Ind & Eng Chem 12:274-6 Mr '20

- Acidity and acidimetry of soils: comparison of methods for determining lime requirements of soils with hydrogen electrode; proposed method for determination of lime requirements of soils. H. G. Knight. J Ind & Eng Chem 12:559-62 Je '20

- Acidity and acidimetry of soils: investigation of acid soils by means of the hydrogen electrode. H. G. Knight. diags J Ind & Eng Chem 12:457-64 My '20

- Acidity and acidimetry of soils; studies of the Hopkins and Pettit method for determining soil acidity. H. G. Knight. diags J Ind & Eng Chem 12:340-4 Ap '20

- Indicators used for determining free acid in pickling solutions. C. L. Boyle. J Ind & Eng Chem 12:571-2 Je '20

See also Solutions, Standard

Acids

- Acids of paragraph 1 and related materials provided for in the tariff act of 1913. (Tariff information series no. 13) 85p '20 U.S. Tariff commission, Washington, D.C.

- Contrasting effects of chlorides and sulfates on the hydrogen ion concentration of acid solutions. A. W. Thomas and M. E. Baldwin. Am Chem Soc J 41:1981-90 D '19

- Relation between the total acidity, the concentration of the hydrogen ion, and the taste of acid solutions. R. B. Harvey. diag Am Chem Soc J 42:712-14 Ap '20

- Solubilities of acids in aqueous solutions of other acids. J. Kendall and J. C. Andrews. Am Chem Soc J 43:1545-60 Jl '21

- Volumetric estimation of mixtures of acids and of bases, and of polybasic acids or bases. H. T. Tizard and A. R. Boeree. Chem Soc J 119:132-42 Ja '21

See also Acid handling; Acidimetry; also names of acids, e.g. Hydrochloric acid, Nitric acid, Silicic acid, Sulfuric acid

Acids, Fatty

- C₁₈ fatty acids—the non-identity of eleostearic acid tetrabromide from tung oil with ordinary linolic acid tetrabromide. B. H. Nicolet. Am Chem Soc J 43:938-40 Ap '21

- Distillation and grading of fatty acids. J. W. Bodman. diag Chem Age 29:263-6 Jl '21

- Fat associated with starch. T. C. Taylor and J. M. Nelson. Am Chem Soc J 42:1726-38 Ag '20

Acids, Fatty —Continued

- Heat balance of a distillation plant for the recovery of fatty acids from cottonseed foots. J. Alsberg. *diag J Ind & Eng Chem* 12:490-3 My '20
- Hydrolysis of fats by reagents made from cymene. R. H. McKee and L. J. Lewis. *Chem & Met Eng* 24:969-75 Je 1 '21
- Improvement in fatty acid distillation. J. W. Bodman. *diag Chem Age* 29:166 My '21
- Law of probability applied to the formation of fats from carbohydrates. E. J. Witze-mann. *J Phys Chem* 25:55-60 Ja '21
- Menthol and phenylhydrazine derivatives of the higher fatty acids. D. H. Brauns. *Am Chem Soc J* 42:1478-81 Jl '20
- Operation of fatty acid distillation plants. O. H. Wurster. *diag Chem & Met Eng* 25:651-6 O 5 '21
- Precipitation of solid fatty acids with lead acetate in alcoholic solution. E. Twitchell. *J Ind & Eng Chem* 13:806-7 S '21
- Quantitative separation of the lead salts of the saturated from the less unsaturated fatty acids. A. Seidenberg. *Am Chem Soc J* 43:1323-36 Je '21
- Über die synthese von fettsäure-derivaten der zuckerarten. K. Hess and E. Messmer. *Deutsche Chem Gesell Ber* 54:499-523 Mr '21
- Volatility with steam of lower fatty acids in dilute aqueous solutions. E. J. Witze-mann. *Am Chem Soc J* 41:1946-51 D '19

Acids, Organic

- Identification of acids; para halogen phenacyl esters. W. L. Judefind and E. E. Reid. *Am Chem Soc J* 42:1043-55 My '20
- Identification of acids; separation of acids by means of phenacyl esters. J. B. Rather and E. E. Reid. *Am Chem Soc J* 43:629-36 Mr '21
- Ringschlüsse bei polycarbonsäuren; verlauf der amidierung beim äthan-tetracarbonsäureester, äthan-hexacarbonsäureester, methan-tri-und methan-tetracarbonsäureester. E. Philippi, J. Hanusch and A. von Wacek. *Deutsche Chem Gesell Ber* 54:895-902 My '21
- Solubility of metals in acids containing formaldehyde. R. C. Griffin. *J Ind & Eng Chem* 12:1159-60 D '20

See also names of acids, e.g. Acetic acid, Adipic acids, Amino acids, Lactic acid; Mucic acid, Saccharinic acids, Tartaric acid

Acoustic devices. *See* Sound-ranging devices; Submarine detectors

Acoustics, Architectural

- Acoustical properties of buildings. F. R. Watson. *il diags W Soc E J* 26:241-7 Jl '21; Same. *Eng & Contr* 56:182-4 Ag 24 '21
- Architectural acoustics. P. E. Sabine. *Am Arch* 120:215-18, 266-9 S 28, O 12 '21
- Architectural acoustics. C. M. Swan. *Am Inst Arch J* 7:548-50 D '19
- Architectural acoustics; recent tests at the University of Illinois indicate the sound-proofing efficiency of thin metal lath and plaster partitions. *diags Arch Forum* 32:249-52 Je '20
- Architectural acoustics; transmission of sound thru doors and windows. P. E. Sabine. *plan Am Arch* 118:102-8 Jl 28 '20

See also Sound-proofing

Acraldehyde. *See* Acrolein

Acrolein

- Some physico-chemical constants of acraldehyde. C: Moureu, A. Boutaric and C: Dufraisse. *Chem Soc J* 120 pt 1:395-6 Je '21

Actinum

- Distribution of the active deposits of radium, thorium, and actinium in electric fields. G. H. Briggs. *diags Philos Mag* 6th ser 41:357-77 Mr '21
- Independent origin of actinum. E. Q. Adams. *Am Chem Soc J* 42:2205-8 N '20

Activated sludge. *See* Sewage disposal—Activated sludge method

Acylation

- Molecular rearrangement in the acylation of certain aminophenols. L. C: Raiford. *Am Chem Soc J* 41:2068-80 D '19

Acylphenylhydrazines

- New method for the preparation of *a*-acylphenylhydrazines. W. F. Short. *Chem Soc J* 119:1445-8 S '21

Adams, Comfort Avery, 1868-

- Chairman of Division of engineering, National research council. *por Power Pl Eng* 25:505-6 My 15 '21

Addition compounds

- Addition compounds of ammonia with the ammonium halides. J. Kendall and J. G. Davidson. *Am Chem Soc J* 42:1141-5 Je '20
- Addition reactions of phosphorus halides; the mechanism of the reaction of the trichloride with benzaldehyde. J. B. Conant and A. D. Macdonald. *Am Chem Soc J* 42:2337-48 N '20
- Addition reactions of phosphorus halides; the 1,4-addition of phosphenyl chloride. J. B. Conant and S. M. Pollack. *Am Chem Soc J* 43:1665-9 Jl '21
- Addition reactions of phosphorus halides; the reaction with dibenzal-acetone and cinnamylidene-acetophenone. J. B. Conant, A. H. Bump and H. S. Holt. *Am Chem Soc J* 43:1677-84 Jl '21
- Addition reactions of the carbonyl group involving the increase in valence of a single atom. J. B. Conant. *Am Chem Soc J* 43:1705-14 Jl '21
- Additive compounds and the process of substitution in the benzene ring; organic molecular compounds; abstract. M. Giua, A. Marcellino and A. Curti. *Chem Soc J* 120 pt 1:193-4 Mr '21
- Additive compounds of antiprylaminodiacetic acid and its salts with neutral salts. R. G: Fargher and H. King. *Chem Soc J* 119:292-8 Mr '21
- Additive compounds of arylamines with nitro-derivatives of naphthalene. J. J. Sudborough, N. Picton and D. D. Karve. *Chem Soc J* 120 pt 1:557-8 Ag '21
- Additive compounds of *m*-dinitrobenzene. D. D. Karvé and J. J. Sudborough. *Chem Soc J* 120 pt 1:657-9 S '21
- Compound formation and solubility in systems of the type, formic acid:metal formate. J. Kendall and H. Adler. *Am Chem Soc J* 43:1470-81 Jl '21
- Compound formation and solubility in systems of the type sulfuric acid: metal sulfate. J. Kendall and A. W. Davidson. *Am Chem Soc J* 43:979-90 My '21
- Compound formation and specific conductivity in solutions of the types acid: ester, acid:ketone and acid:acid. J. Kendall and P. M. Gross. *Am Chem Soc J* 43:1426-39 Jl '21
- Compounds of hexamethylenetetramine with complex metallic salts and acids. P. Rây and P. V. Sarkar. *Chem Soc J* 119:390-6 Ap '21
- Factors affecting the stability of addition compounds in solution and their influence upon ionization equilibria. J. Kendall and P. M. Gross. *Am Chem Soc J* 43:1416-26 Jl '21
- Formation of addition compounds between 100% sulfuric acid and the neutral sulfates of the alkali metals. J. Kendall and M. L. Landon. *Am Chem Soc J* 42:2131-42 N '20
- New type of addition reaction. J. B. Conant and A. A. Cook. *Am Chem Soc J* 42:830-40 Ap '20
- Organic molecular compounds. J. F. Norris and D. M. Tibbetts. *Am Chem Soc J* 42:2085-92 O '20
- Prediction of solubility in polar solutions. J. Kendall, A. W. Davidson and H. Adler. *Am Chem Soc J* 43:1481-1502 Jl '21
- Solubilities of acids in aqueous solutions of other acids. J. Kendall and J. C. Andrews. *Am Chem Soc J* 43:1545-60 Jl '21
- Some additive compounds derived from ar-sines. G: J. Burrows and E. E. Turner. *Chem Soc J* 119:1448-50 S '21

Addition compounds—Continued

Über pyranhydron, eine neue gruppe von farbigen, chin-hydron-artigen additionsverbindungen. W. Schneider and H. F. W. Meyer. *Deutsche Chem Gesell Ber* 54:1484-1503 J1 '21; *Abstract. Chem Soc J* 120 pt 1:680-1 S '21

Unsaturation and molecular compound formation. O. Maass and J. Russell. *diags. Am Chem Soc J* 43:1227-30 Je '21

Addresses (letters)

Geographical blind-man's bluff. *Sci Am* 122: 180 F 21 '20

Addressing machines

Press address mailer—a new invention by P. F. Cox. *il Inland Ptr* 65:367-8 Je '20

Adhesion

Experimental studies in the liquid state. S. Skinner. *Engineer* 129:424 Ap 23 '20

Molecular attractions of contact. *Power* 53: 408 Mr 8 '21; *Discussion.* 54:111, 461, 499 J1 19, S 20-27 '21

Orientation of molecules in surfaces, surface energy, adsorption, and surface catalysis; the adhesional work between organic liquids and water. W: D. Harkins, G: L. Clark and L. E. Roberts. *Am Chem Soc J* 42:700-12 Ap '20

Adhesives

Adhesives from waste sulphite lyes. S. Halen. *Paper Trade Journal* 73:30 Ag 25 '21

Use of gas in making casein, celluloid adhesives, dental cements, etc. G. C. Shadwell. *Am Gas Eng J* 113:341-2, 351-2 O 30 '20

See also Binding materials; Cement; Cements, Adhesive; Glue; Mortar; Mucilage; Paste; Sodium silicate

Adiabatic compression

Sur une transmission d'énergie mécanique utilisant une masse invariable de gaz en circuit fermé. J. de Lassus. *Génie Civil* 77: 420 N 20 '20

Adipic acids

Conditions underlying the formation of unsaturated and cyclic compounds from halogenated open-chain derivatives; products derived from α -halogenated adipic acids. C. K. Ingold. *Chem Soc J* 119:951-70 J1 '21

Administrative and political divisions

Why states? J: C. Trautwine, jr. *Eng N* 86: 274 F 10 '21

Administrators. See Executors and administrators**Adobe**

Cement-coated mud houses a future possibility. *il Pop Mech* 36:92 J1 '21

Concrete pavement on a saturated adobe foundation. T. E. Stanton. *il diag Eng N* 86: 217 F 3 '21

Electricity in mud houses of the Southwest. H. S. Bradley. *il plan J Elec* 46:75-6 Ja 15 '21

Germany returns to adobe building. *Eng N* 86:823 My 12 '21

Mansions of mud; how California is meeting the housing problem by building in adobe. J: L. Von Blon. *il Sci Am* 122:218+ F 28 '20

Physical properties of some California adobe soils. *Eng & Contr* 55:440 My 4 '21

Adrenalin

Colorimetric estimation of adrenalin. W. L. Scoville. *J Ind & Eng Chem* 12:769-71 Ag '20

Adsorption

Adsorption by precipitates. H. B. Weiser. *J Phys Chem* 25:399-414 My '21

Adsorption by precipitates. H. B. Weiser and E. B. Middleton. *J Phys Chem* 24:30-73, 630-63 Ja, N '20

Adsorption by silica gel. E. B. Miller. *Chem & Met Eng* 23:1155-8, 1219-22, 1251-4 D 15-29 '20

Adsorption in sand filters. J: Don. *Engineering* 111:759-60 Je 17 '21

Adsorption of arsenious oxide by metastannic acid. T. R. Briggs and W. J. Bartlett. *Am Electrochem Soc Trans v* 37 (preprint 34):449-59 Ap '20

Adsorption of gases by charcoal; tables. S. Dushman. *Gen Elec R* 24:61 Ja '21

Adsorption of gases by metallic catalysts. H. S. Taylor and R. M. Burns. *diag Am Chem Soc J* 43:1273-87 Je '21

Adsorption of radium by barium sulfate. F. E. E. Germann. *Am Chem Soc J* 43:1615-21 J1 '21

Adsorption of sulfur dioxide by the gel of silicic acid. J: McGavack. 37p Johns Hopkins university '20

Adsorption of sulfur dioxide by the gel of silicic acid. J: McGavack, jr., and W. A. Patrick. *diag Am Chem Soc J* 42:946-78 My '20

Colloidal adsorption. A. Mutscheller. *diag Am Chem Soc J* 42:2142-60 N '20

Les colloïdes; adsorption des solutions. H. Vigneron. *Génie Civil* 78:496 Je 11 '21

Contribution to the stoichiometry of adsorption. S. Odén and E. W. Langelius. *J Phys Chem* 25:385-98 My '21

Contributions to the stoichiometry of adsorption; adsorption of cations of the alkalies and alkaline earths. S. Odén and H. Andersson. *J Phys Chem* 25:311-31 Ap '21

Effect of adsorbed gases on the surface tension of water. S. S. Bhatnagar. *diags J Phys Chem* 24:716-35 D '20

Effect of concentration of chrome liquor upon the adsorption of its constituents by hide substance. A. W. Thomas and M. W. Kelly. *J Ind & Eng Chem* 13:65-7 Ja '21

Examples of selective adsorption by B. pyocyneus. W: C. Moore. *Am Electrochem Soc Trans v* 37 (preprint 19):293-303 Ap '20

Heat of absorption of vapors on charcoal. A. B. Lamb and A. S. Coolidge. *diag Am Chem Soc J* 42:1146-70 Je '20

Importance of adsorption in analytical chemistry; abstract. I. M. Kolthoff. *Chem Soc J* 120 pt 2:19-21 Ja '21

Mechanism of the surface phenomena of flotation. I. Langmuir. *Min & Sci P* 121:913-17 D 25 '20

Methods for the production and measurement of high vacua. S. Dushman. *Gen Elec R* 24:58-68, 244-52, 810-18 Ja, Mr, S '21

Negative adsorption of alkali haloids by wood charcoal. A. Pickles. *diag Chem Soc J* 119:1278-80 Ag '21

Physical properties of thin metallic films; some factors affecting the resistance of spluttered platinum films. L: R. Koller. *Phys R* 18:221-35 S '21

Research problems in colloid chemistry. W. D. Bancroft. *J Ind & Eng Chem* 13:83-9 Ja '21

Silica gel and its uses. W. A. Patrick. *Chem & Met Eng* 22:949-50 My 19 '20

Sorption of alcohol and water by animal charcoal. J: Driver and J. B. Firth. *Chem Soc J* 119:1126-31 J1 '21

Studies in the adsorption by charcoal; the relation of service time to adsorption and absorption. H. H. Lowry and G. A. Hulett. *diags Am Chem Soc J* 42:1393-1408 J1 '20

Velocity of adsorption of chloropicrin and carbon tetrachloride by charcoal. H. S. Harned. *diags Am Chem Soc J* 42:372-91 Mr '20

Adulterations

See also Drugs—Laws and legislation; Fertilizers—Law

Advance-Rumely company

4th annual report, 1919. *Comm & Fin Chr* 110: 1437-8 Ap 3 '20

5th annual report for the fiscal year ending Dec. 31, 1920. *Comm & Fin Chr* 112:1423-4 Ap 2 '21

Advertisements

Adventure in housekeeping; what I found out in my own home in one day that will affect my work as an advertising man. G. K. Brown. *Ptr Ink* 111:149-50+ Je 17 '20

Advertisements criticised. R. Ruxton. *Ptg Art* 37:152-4, 332-6, 435-40, 535-8 Ap, Je-Ag '21

Advertisements—Continued

- Advertising as literature. J. Wallen. *Ptr Ink* 110:88-9+ Mr 4 '20
 Alexander brothers' 1919 year book a de luxe volume. W. Wallick. *Inland Ptr* 65:755-6 S '20
 Is indefinite advertising losing you sales? M. Price. *Ptr Ink M* 2:88+ D '20
 Making best use of the quarter page. W. L. Larned. *Ptr Ink* 111:77-8+ Ap 8 '20
 Perfection of workmanship reflected by advertising; Stevens-Duryea motor cars. D. W. Kingsley. *Ptr Ink M* 3:55-6 J1 '21
 Try this on your last year's advertisements. C. W. Garrison. *Ptr Ink* 115:129-30 Ap 21 '21
 What's there for you in that other chap's success? Sacson house frocks. G. D. Ward. *Ptr Ink* 115:109-10+ Je 23 '21

See also Advertising; Billboards; Catalogs; Labels; Posters; Printing—Specimens

Books and booklets

- Association members benefit by quality note in advertising. G. A. Nichols. *Ptr Ink* 113:57-8+ O 28 '20
 Booklet that is sold to prospects. D. Gridley. *Ptr Ink M* 2:49-50 My '21
 Booklets are coming back. R. E. Ramsay. *Ptg Art* 36:205-8 N '20
 Getting people to read your booklet through good typography. W. A. Kittredge. *Ptr Ink M* 2:23-4+ My '21
 Morgan sash & door co. sets a high price on its advertising book. *Ptr Ink* 113:113-14 D 2 '20
 Pictorial story of the plant told in a new way. B. D. Peyton. *Ptr Ink M* 2:81+ My '21
 Teaching the dealer a new standardized line. H. Burwen. *Ptr Ink* 116:73-4+ S 29 '21

Composition

- Actline copy—the matter that makes advertisements instead of announcements. B. H. Jefferson. *Ptr Ink* 116:17-20 S 22 '21
 Advertise the news! L. Markel. *Ptr Ink* 115:73-4+ Je 16 '21
 Advertiser locks horns with a buyer's prejudice. *Ptr Ink* 112:93-4 J1 1 '20
 Advertising. H. W. Angus. *J Elec* 45:218-19 S 1 '20
 Advertising dramatics. P. K. Marsh. *Ptr Ink* 114:122+ Mr 10 '21
 Advertising in a flood-tide market. W. L. Larned. *Ptr Ink* 113:73-4+ N 11 '20
 Advertising scouts watch the consumer at close range. A. L. Chapman. *Ptr Ink* 113:166+ N 4 '20
 Advertising with Americanism as a by-product. *Ptr Ink* 111:157+ Ap 8 '20
 Allowing the prospect to convince himself. W. L. Larned. *Ptr Ink* 114:55-6 F 3 '21
 The American advertisement. A. W. Dean. *Ptr Ink* 116:93-6+ Ag 25 '21
 Are copy-writers cowards? *Ptr Ink* 112:91-2 J1 15 '20
 Ask Doc—he knows; how the advertising agent can use his client's research laboratory. W. Kaempffert. *Ptr Ink M* 3:31-2+ O '21
 Big sales value of personal pronouns. F. H. Williams. *Ptr Ink* 110:25-7+ Ja 8 '20
 Billy Sunday, copy writer. H. T. Mitchell. *Ptr Ink* 112:99-100 S 16 '20
 Building the advertising background with feature stories. S. C. Lambert. *Ptr Ink* 112:89-90 S 23 '20
 Business paper advertising that capitalizes human habits. R. B. Lockwood. *Ptr Ink* 115:133-4+ Je 16 '21
 Business that is different. R. Dickinson. *Ptr Ink M* 3:40+ J1 '21
 Capture the caption. P. K. Marsh. *Ptr Ink* 112:42-4 S 2 '20
 Cold facts vs. imagination in copy. *Ptr Ink* 110:97-8 Mr 18 '20
 Commercialized psychism sells hard candy. *Ptr Ink* 112:84 J1 29 '20
 Consult the dealer on local copy. *Ptr Ink* 115:113-14+ Je 2 '21
 Copy based on stage technique makes big hit. E. T. Tandy. *Ptr Ink* 114:61-3 F 3 '21
 Copy for electrical advertisements. *Elec-trician* 87:178-9 Ag 5 '21

- Copy rules that are made to be broken. W. A. McDermid. *Ptr Ink* 110:37-40 Ja 22 '20
 Copy that is too full of advertising. E. E. Calkins. *Ptr Ink* 110:25-7+ Ja 29 '20
 Copy writer finds a way to put himself in buyer's place. R. M. Rhodes. *Ptr Ink* 117:33-4 N 3 '21
 Digging out the big idea. *Ptr Ink* 116:41-2+ S 22 '21
 Does something new and different always pay? G. K. Brown. *Ptr Ink M* 2:73 Ja '21
 Dramatization of advertising ideas. E. McKenna. *Ptr Ink* 112:93-6 Ag 19 '20
 Ed Wetherbee stumbles upon an advertising paradox. W. L. Barker. *Ptr Ink* 116:10+ S 15 '21
 Electrical advertising; ungrammatical and illogical copy. *Electrician* 86:380-1 Ap 1 '21
 Emotion in advertising copy. J. Wallen. *Ptr Ink* 112:34-6 J1 29 '20
 Emphasis shifted from product to users' needs; Kelly reamer co. *Ptr Ink* 110:153+ Mr 4 '20
 Employees woven in the copy impart new life. R. B. Lockwood. *Ptr Ink* 110:112-13+ Ja 15 '20
 Endowing technical subjects with human qualities in advertising. R. B. Lockwood. *il Ptr Ink* 110:61-4 Ja 1 '20
 English advertising writers catch the American spirit. W. H. Heath. *Ptr Ink* 113:149-50+ O 14 '20
 Eternal magic of "once upon a time." J. H. Collins. *Ptr Ink M* 3:44+ N '21
 Facts! the basis of indisputable advertising. F. S. Spahr. *Ptr Ink* 117:85-6+ O 6 '21
 Finding angles for technical copy. C. A. Sloan and J. D. Mooney. *Ptr Ink* 113:101-2+ D 2 '20
 Finding enough ideas to go around; what happened in the case of piston rings. W. L. Larned. *Ptr Ink* 113:73-4+ O 14 '20
 Frankness in copy instills confidence. R. B. Lockwood. *Ptr Ink* 112:81-2+ S 16 '20
 Get it at your dealer's. R. L. Burdick. *Ptr Ink* 113:65-6+ D 16 '20
 Get the reader into the picture. *Ptr Ink* 117:57-8+ O 6 '21
 Getting a real personality into the advertisement. W. L. Larned. *Ptr Ink* 113:49-50 D 2 '20
 Getting action on your advertising. G. K. Brown. *Ptr Ink* 114:17-20 Ja 6 '21
 Give the consumer an encouraging pat! Piggly Wiggly self-serving system of stores hits out straight from the shoulder, and tells the kind of customers it wants. *Ptr Ink* 115:141+ My 5 '21
 Giving the dealer business-building tips in the advertising. *Ptr Ink* 112:125-6+ S 16 '20
 Giving the product a living personality. A. L. Townsend. *Ptr Ink* 114:91-2 Mr 24 '21
 Go to the people. *Ptr Ink* 117:113-14+ O 27 '21
 Guide posts to good advertising. E. E. Calkins. *Ptr Ink M* 3:16-18+ J1; 31-2+ Ag '21
 Hitching the advertising to a fad. *Ptr Ink* 112:49-51 J1 15 '20
 Hitting the high spots in writing technical copy. R. B. Lockwood. *Ptr Ink* 111:33-6 My 13 '20
 How Hebe company teaches trade to stick to the truth. J. T. Bartlett. *Ptr Ink* 111:116+ Ap 29 '20
 How Libby is giving an old advertising idea a new lease of life. G. A. Nichols. *Ptr Ink* 111:3-4+ Ap 29 '20
 How many clichés in your copy? H. Wiseman. *Ptr Ink* 113:68+ D 9 '20
 How many kinds of copy? *Ptr Ink* 116:33-6 J1 14 '21
 Human touch that wins the reader. W. L. Larned. *Ptr Ink* 117:96-7+ N 3 '21
 Humanizing the obvious in technical copy. R. B. Lockwood. *Ptr Ink* 112:49-50+ Ag 12 '20
 Institutional advertising by the historical method. *il Ptr Ink* 111:25-7 Ap 22 '20
 Is advertising too high in the forehead? P. C. Gunion and J. Tarcher. *Ptr Ink* 114:109-10+ Ja 20 '21
 Is technical advertising too technical? S. C. Lambert. *Ptr Ink* 112:77-8+ J1 8 '20
 Just what is the public? J. H. Collins. *Ptr Ink M* 2:23-4+ D '20

Advertisements—Composition—Continued

Keeping copy down to earth. Ptr Ink 111:33-6 Ap 29 '20
 Lazy copy. P. K. Marsh. Ptr Ink 110:25-7+ Ja 15 '20
 Lecturing the prospect a doubtful practice. A. F. Edmondson. Ptr Ink 117:145-6+ O 13 '21
 Making a product supreme in its own home town. F. Cook. Ptr Ink 114:19-20 Mr 31 '21
 Making copy go fast. Ptr Ink 110:41-3 Ja 1 '20
 Making one feature the main theme. A. L. Townsend. Ptr Ink 113:165+ N 25 '20
 Making the inanimate object live in the advertising. A. L. Townsend. Ptr Ink 112:81-2 Ag 19 '20
 Manufacturer builds on past performance when line is broadened. Ptr Ink 112:49-50+ Jl 22 '20
 Measuring the copy to suit the calibre of the product. H. T. Mitchell. Ptr Ink 114:109-10 Mr 3 '21
 Memory, the yardstick of advertising. T. H. Thompson. Ptr Ink 117:93-4 O 6 '21
 Mr Crump gets an O. K. S. Dick. il Ptr Ink M 3:46+ S '21
 Modern business writing; a study of the principles underlying effective advertisements and business letters. C. H. Raymond. 476p Century co. '21
 Muse at work in the copy department. P. K. Marsh. Ptr Ink 112:25-7+ Jl 8 '20
 New angles that help to keep advertising interesting. G. H. Wicker. Ptr Ink M 3:44+ Jl '21
 New selling point markets an old product. T. Russell. Ptr Ink 110:68+ Ja 8 '20
 New uses for old advertisements. R. B. Lockwood. Ptr Ink 112:57-8+ Jl 29 '20
 O. Henry as a copy man. H. T. Mitchell. Ptr Ink 116:73-4+ Ag 11 '21
 Old news makes dead copy. H. J. Sherman. Ptr Ink 110:117+ Ja 15 '20
 Once-upon-a-time as the copy theme. A. L. Townsend. Ptr Ink 114:159+ Ja 20 '21
 One dozen experiences in present-day advertising. P. Sartorous. il Ptr Ink M 3:21+ N '21
 Ought the boss to write the copy?; the example of President Jordan, of the Jordan motor car co. H. Wiseman. Ptr Ink 116:53-4+ Ag 4 '21
 Pacifying the detail cranks. W. L. Larned. Ptr Ink 113:46+ D 9 '20
 Parnassus and publicity. P. K. Marsh. Ptr Ink 111:33-6 Je 17 '20
 Parts manufacturer advertises the whole product; the Ross gear company. Ptr Ink 113:154+ N 4 '20
 Pitfalls of simplicity. H. J. Clarke. Ptr Ink 116:141 Ag 11 '21
 Plea for better manners in copy. R. W. Johnson. Ptr Ink 112:65-6+ Ag 5 '20
 Public's hunger for fact advertising. A. L. Townsend. Ptr Ink 114:53-4+ F 17 '21
 Punctured punctuation. Ptr Ink 112:109-10 Jl 29 '20
 Putting the writer back into copy writer. V. C. Kitchen. Ptr Ink 111:53-4+ Ap 15 '20
 Quiet voice in copy. R. Bostick. Ptr Ink 114:33-5 Mr 3 '21
 Reading ads with your ears. P. Waxman. Ptr Ink 110:137-8+ Mr 11 '20
 Reason why comes back. Ptr Ink 114:17-18 Mr 31 '21
 Responsibilities of the teaser campaign. A. L. Townsend. Ptr Ink 113:41-2+ N 18 '20
 Retail selling suggestions form keynote of business paper advertising. Ptr Ink 110:73-4+ Mr 11 '20
 Reversing the letter of endorsement. Ptr Ink 112:145-6+ S 16 '20
 Royal Tailors sell personality of their workmen to get foothold in big cities. Ptr Ink 113:77-8+ D 9 '20
 Sales argument in story form. Ptr Ink 115:101-4 Je 23 '21
 Selling by the printed word. R. Ruxton. Ptg Art 37:49-53, 427-30 Mr, Jl '21
 Sells merchandise by advertising its advertising. C. M. Harrison. Ptr Ink 115:77-8+ Je 2 '21

Shakespeare on the copy staff. J. J. Buzzell. Ptr Ink 111:148-9 Je 3 '20
 Should copy be written in English or American? H. Wiseman. Ptr Ink 115:33-4+ Ap 21 '21
 Show me, says the reader of technical advertisements. R. B. Lockwood. Ptr Ink 111:69-70+ Ap 8 '20
 Simple trick of writing newspaper ads. Am Gas Eng J 112:54-6 Ja 17 '20
 Singing words. P. K. Marsh. Ptr Ink 113:33-6 N 18 '20
 Single sales appeal, constantly advertised, built this business. J. A. Murphy. Ptr Ink 115:3-4+ Je 16 '21
 Small-town merchant needs an adjusted selling appeal. H. E. Miles. Ptr Ink 112:101-2+ Jl 15 '20
 Small-town people are no longer different. H. E. Miles. Ptr Ink 114:57-8 F 10 '21
 Some antics of old-time advertising. F. D. Boyd. Ptr Ink 112:41-2+ S 9 '20
 Some of the earmarks of copy that is written too easily. Ptr Ink 110:85-6+ F 19 '20
 Statistics—using them effectively in advertising. S. C. Lambert. Ptr Ink 116:121-2 Ag 11 '21
 Strategic words and phrases in the copy. A. Cobb, jr. Ptr Ink 112:105-7 Ag 19 '20
 Structure of copy. Ptg Art 37:324-6 Je '21
 Summing up the virtues of the merchandise. D. W. Henderson. Ptr Ink 115:97-8+ Je 30 '21
 Taking the writer out of copy writer. M. E. Feckler. Ptr Ink 111:167-8 Ap 1 '20
 Talking Father Knickerbocker's own language. W. L. Larned. Ptr Ink 113:69-70+ D 30 '20
 Tests to find the advertisable argument. B. Ashbrook. Ptr Ink 115:61-2+ Ap 7 '21
 There are fundamental differences between advertising copy and literature. H. W. Patterson. Ptg Art 37:517-19 Ag '21
 There is nothing obvious under the sun. P. C. Gunion. Ptr Ink 112:19-20 S 23 '20
 Things as they are. R. H. Isbell. Ptr Ink M 2:63-4 Ja '21
 Three times and over. R. M. Rhodes. Ptr Ink M 3:24 S '21
 To-day's news in the advertisements. J. H. Payne. Ptr Ink 112:122+ Jl 1 '20
 Trickless advertisement—a reply to lazy copy. Ptr Ink 110:33-6 Ja 15 '20
 Untold stories that might make advertising more effective. W. L. Larned. Ptr Ink 116:57-8+ S 15 '21
 Use—a fruitful source of marketing and copy ideas. Ptr Ink 117:41-2+ O 20 '21
 Wanted: old-fashioned sales copy. Ptr Ink 115:61-2+ My 5 '21
 Well, what does constitute a good idea? A. L. Townsend. Ptr Ink 114:73-6 Ja 6 '21
 What is an advertisement? B. H. Jefferson. Ptr Ink M 3:34-5 Ag '21
 What the customer looks for in merchandise. R. H. Isbell. Ptr Ink 113:93-4+ N 11 '20
 What the steady stride policy in advertising is doing for Lowe brothers this year. R. Cole. Ptr Ink 116:105-6+ Jl 7 '21
 When is it advisable to change the advertising appeal? R. H. Isbell. Ptr Ink 115:126+ Je 2 '21
 When the big sales argument loses its punch. A. Cobb, jr. Ptr Ink 113:57-8+ N 18 '20
 When there is nothing to say about the product—dig. Ptr Ink 110:33-4 Ja 1 '20
 Where copy slants come from. F. H. Williams. Ptr Ink 112:146+ Ag 26 '20
 Where some technical advertisers find unusual copy angles. R. B. Lockwood. Ptr Ink 110:169+ Mr 18 '20
 Who is Jim Henry; the mythical salesman who writes Mennen shaving cream copy. W. A. McDermid. Ptr Ink 114:63-4 F 10 '21
 Why imaginary talking-points should be avoided. R. W. Johnson. Ptr Ink 115:96+ My 26 '21
 Why not advertise as though you meant it? R. N. Rhodes. Ptr Ink 113:25-7+ N 25 '20
 Why not try English? L. Markel. Ptr Ink 115:109-10+ My 12 '21

Advertisements—Composition —Continued

Why there are no rules for writing advertisements. F. H. Williams. *Ptr Ink* 110:113-14+ F 26 '20

Writing advertising copy. J. Lightbody. *J Elec* 46:73-4 Ja 15 '21

See also Advertisements, Humorous; Advertisements, Pictorial

Coupons

Little coupon in the corner. W. L. Larned. *Ptr Ink M* 3:58+ S '21

Esthetic appeal

Beauty of design is made keynote of advertising policy of Oneida community. R. Cole. *il Ptr Ink M* 2:15-18+ D '20

See also Candles—Advertising

Fashion appeal

It's used by the very best people. A. L. Townsend. *Ptr Ink* 116:65-6+ JI 21 '21

Graphs

Graphic methods in technical advertising. A. H. Richardson. *Ind Management* 61:288-91 Ap 1 '21

Headlines

Giving added emphasis to the headline text. W. L. Larned. *Ptr Ink* 117:49-50 O 27 '21

Headlines that ask a question. W. L. Larned. *Ptr Ink* 111:43-4 Je 3 '20

Headlines that make you read the copy. H. Wiseman. *Ptr Ink* 115:49-50+ My 26 '21

Health appeal

Advertising will put health on the map. C. E. Williams. *Ptr Ink* 112:130+ Ag 5 '20

Campaign seeks to introduce liquid soap in the home. R. Cole. *Ptr Ink* 110:77-8+ Ja 8 '20

Making a product a national issue. *Ptr Ink* 112:142+ S 9 '20

Illustrations

See Advertisements, Pictorial

Negative appeal

Square D company junks the negative appeal. *Ptr Ink* 113:81-2 N 11 '20

Successful marketing with a negative idea; *Ptr Ink* 116:53-4+ S 29 '21

Value of the negative appeal. *Ptr Ink* 112:12 S 2 '20

Novelties

See Advertising novelties

Novelty appeal

New ideas in the product that make advertising's work easier. *Ptr Ink* 115:49-50+ Ap 28 '21

Price justification

See Advertising, Educational

Price quoting

Advertising the price does sell goods. R. A. Hardy. *Sanitary & Heat Eng* 96:255-6+ O 21 '21

Does a quality article suffer loss of dignity when priced? R. Cole. *Ptr Ink* 115:141-2+ My 26 '21

Emphasize price as big selling argument. C. Hendrickson. *Ptr Ink* 114:41-2 Ja 27 '21

How much will it cost?—does your advertising tell? R. H. Isbell. *Ptr Ink* 112:41-2+ S 16 '20

Is it time to advertise price as well as product? C. P. Russell. *Ptr Ink* 113:3-4+ N 18 '20

Quoting price by new unit broke down sales resistance of oak flooring. G. A. Nichols. *Ptr Ink* 113:93-4+ N 4 '20

Should the advertiser list the retail price? H. L. Winn. *Ptr Ink* 111:153-61 My 20 '20

What advertising means to me. *Ptr Ink* 114:41-4 F 10 '21

When to advertise the price. C. P. Russell. *Ptr Ink* 113:41-2+ D 23 '20

Pride appeal

Pride appeal enables manufacturer to sell better merchandise; advertising of Belber luggage. A. S. Banks. *Ptr Ink* 115:154+ Ap 14 '21

Quality appeal

Converting knocks into sales-arguments. *Ptr Ink* 110:138+ Mr 4 '20

How a happy use of suggestion can put over the quality idea. G. D. Ward. *Ptr Ink* 113:25-7 O 21 '20

Unusual quality proves good talking point for fifty-cent collar. B. Gannon. *Ptr Ink* 116:129-30+ JI 21 '21

What to do when product is near losing identity. C. M. Harrison. *Ptr Ink* 114:73-6 F 3 '21

Safety appeal

Trade ballot to determine whether or not copy is right. *Ptr Ink* 112:118+ S 2 '20

Specimens

Attainable ideals in newspaper advertising. *Inland Ptr* 66:488a-d Ja '21

Standardization

Can advertisement sizes be standardized? M. Martin. *Ptr Ink M* 3:16-18+ Ag '21

Testimonials

Bringing the testimonial-ad up to date. *Ptr Ink* 114:25-6 Mr 17 '21

Dealers! why not cash in on those magazine approvals? K. Maddock. *il Elec R* 79:663-4 O 29 '21

New way of applying the testimonial. *Ptr Ink* 116:129-30+ Ag 18 '21

Thrift appeal

Advertising headlines that cater to the buyer's market. W. L. Larned. *Ptr Ink* 113:57-8+ N 25 '20

Farm thrift—its significance to advertisers. *Ptr Ink* 112:122+ Ag 5 '20

Using the economy appeal to change a luxury into a necessity; silk underwear manufacturer averts sales slump. R. Cole. *Ptr Ink* 113:3-4+ O 14 '20

Typography

Advertisement framer or gilder vs. the mere copy writer. F. T. Singleton. *Ptg Art* 37:41-8 Mr '21

Anamorphosis in advertising design. F. T. Singleton. *Ptg Art* 37:539-42 Ag '21

Art printing, personal expression, and the working of the beauty sense. *il Ptg Art* 38:66-8 S '21

Beauty, dignity, and display effectiveness. J. L. Frazier. *il Inland Ptr* 67:785-8 S '21

Circumstances alter cases. J. L. Frazier. *Inland Ptr* 68:66-7 O '21

Copy that may be dressed well. E. R. Currier. *Ptr Ink* 111:169+ Je 10 '20

Debatable black background. W. L. Larned. *Ptr Ink* 114:57-8+ Mr 10 '21

Design: the missing link between copy and printing. F. T. Singleton. *Ptg Art* 36:483-90 F '21

Does color in magazine advertising pay? *Ptg Art* 37:455-7 JI '21

Effective typography increases sales force of advertisements. W. A. Kittredge. *Ptr Ink M* 2:33-4+ F '21

Following a formula in display to get continuity. *Ptr Ink* 112:93-4+ Ag 26 '20

How lettering can make an advertisement distinctive. W. L. Larned. *Ptr Ink* 115:61-2+ Je 16 '21

How the offset process helps feminize store literature. D. L. Smith. *il Ptr Ink M* 3:50+ N '21

How to make the most of small space. J. F. Cameron. *Ptr Ink M* 2:44+ My '21

Invitation to advertisement designers with a questionnaire on a Welsbach advertisement. *il Ptg Art* 38:61-4 S '21

Is the golden section golden in advertising? R. M. Rhodes. *Ptr Ink M* 3:32-4+ JI '21

Making an advertising layout. I. L. Heuslein. *Ptg Art* 36:117-22 O '20

Advertisements—Typography—Continued

- Modern publicity; a plea for art in advertising. A. W. Dean. 70p Pitman '21
- Niceties of composition. Ptr Ink 116:53-4+ J1 14 '21
- Notable series of advertisements. J. L. Frazier. Inland Ptr 65:741-3 S '20
- Opening the gates to the garden—a talk on layout and art. H: Hale, jr. Inland Ptr 64:299-302 D '19
- Planning the double-column display. W. L. Larned. Ptr Ink 112:85-6+ Ag 26 '20
- Selling a high-priced car with good copy and typography. W: A. Kittredge. Ptg Art 37: 313-17 Je '21
- Setting type in unconventional form. W. L. Larned. Ptr Ink 111:25-8 My 6 '20
- Super-display by means of cleverness of layout. W. L. Larned. Ptr Ink 116:122+ S 29 '21
- Time to guard against waste of white space. Ptr Ink 110:10+ Ja 1 '20
- Typography of bank advertisements. T. D. MacGregor. il Ptg Art 36:25-32 S '20
- Value of comparison. J. L. Frazier. Inland Ptr 65:609-11 Ag '20
- Variety without loss of identity. J. L. Frazier. Inland Ptr 66:65-7 O '20
- When to use the second color. E. R. Currier. Ptr Ink M 2:19-21 Ja '21
- Advertisements, Classified**
- Don't neglect the classified. R. Dickinson. Ptr Ink 115:81-2+ Ap 14 '21
- Want ads**
- Heart-throb copy that pulled results. Ptr Ink 116:50+ Ag 18 '21
- Advertisements, Humorous**
- Day of the humorist in advertising. A. L. Townsend. Ptr Ink 113:165+ D 9 '20
- Jazz copy in the technical field. C. B. McCuaig. Ptr Ink 113:120+ D 16 '20
- Laughter—what it means to advertisers. J. T. Bartlett. Ptr Ink 111:41-4 Ap 15 '20
- Wanted—a sense of humor. T. H. Thompson. Ptr Ink 112:41-2+ J1 22 '20
- Advertisements, Pictorial**
- Accessories that make the half-tone interesting. D. P. Foster. il Ptr Ink 111:133-4+ Ap 15 '20
- Adopting an advertising character with no near relatives. Ptr Ink 113:113-14 O 7 '20
- Advertisements that rely on quaintness instead of size. Ptr Ink 110:189-90 Mr 18 '20
- Advertisements that sell without showing the product. D. Gridley. Ptr Ink M 3:49-50+ Je '21
- Advertisements unveil the daily life of the business man. Ptr Ink 113:158+ D 16 '20
- Advertising auto tires by atmosphere. Ptr Ink 111:105-6 Ap 8 '20
- Advertising cashes in on a gesture common among motorists. R. Cole. Ptr Ink 116: 122+ S 22 '21
- Advertising comes back to Santa Claus. S. C. Lambert. Ptr Ink 113:149-50+ D 2 '20
- Advertising dress that creates individuality. L. Peake. il Ptr Ink M 2:23-4 Ap '21
- Advertising's master of properties. W. L. Larned. il Ptr Ink M 3:22-3+ N '21
- The American advertisement. A. W. Dean. Ptr Ink 116:93-6+ Ag 25 '21
- Appeal of color in advertising. Ptr Ink 113: 93 D 30 '20
- Architecture applied to the layout. E. L. Fitchner. Ptr Ink M 3:37 O '21
- Art directors' exhibition. E. E. Calkins. il Ptr Ink M 2:15-17+ Ap '21
- Art embellishment changes entire character of an account. G. R. Allen. Ptr Ink 113: 129-30+ O 28 '20
- Art of the illustration in miniature. Ptr Ink 113:41-2+ N 4 '20
- Artist's prerogative of standing pat on his illustrations. W. L. Larned. Ptr Ink 112: 105-6 S 30 '20
- As-the-customer-sees-the-goods a theme for illustration. P. K. Knowlton. Ptr Ink 112: 149+ S 2 '20
- Atmosphere for the commonplace product. W. H. Heath. Ptr Ink 110:65-6+ Mr 11 '20
- Aunt Jemima comes to life. G. A. Nichols. Ptr Ink 110:17-20+ Mr 18 '20
- Back to first principles in advertising display. Ptr Ink 114:65-6+ Mr 24 '21
- Bank that advertises itself by advertising New England.—D. G. Miller. il Ptr Ink M 2:30-1+ D '20
- Black backgrounds and contrasts. Ptr Ink 110: 152+ F 19 '20
- Campaign that cashes in on other firms' trademarks. Ptr Ink 110:99 Ja 22 '20
- Cartoons used to get sales argument to wholesalers. Ptr Ink 110:121-2 Ja 8 '20
- Catching the eye of the lazy reader. W. L. Larned. Ptr Ink 113:150-2 N 18 '20
- Character-study heads that put over the story. W. L. Larned. Ptr Ink 114:166+ Mr 17 '21
- Charts as the picture theme. Ptr Ink 113: 153-4 O 21 '20
- Color and the camera. A. Krug. il Ptr Ink M 2:30+ Ap '21
- Comedies of advertising. W. L. Larned. Ptr Ink M 2:36+ Ja; 40+ F '21
- Commercial art and the block print. F. Weitenkampf. il Ptg Art 36:393-402 Ja '21
- Contrasts that sparkle up illustrations. W. L. Larned. Ptr Ink 117:65-6+ O 13 '21
- Conversational pictures sell quality to Fifth avenue and Main street. C. B. Larrabee. Ptr Ink M 2:15-16+ My '21
- Copy value of crowds. D. W. Kingsley. Ptr Ink M 2:83+ D '20
- Criticized advertisements that are popular, notwithstanding. C. Walters. Ptr Ink 110: 81-2 F 26 '20
- Decoration which builds an atmosphere for the product. G. Rosa. il Ptr Ink M 2: 25-6+ F '21
- Department store engages leading artists to illustrate advertising. Ptr Ink 112:150+ S 23 '20
- Dramatized message. J: R. Coffee. Ptr Ink M 3:108+ N '21
- Drawings that print on uncoated papers. W. L. Larned. Ptr Ink 111:97-8+ Ap 22 '20
- Element of vivid contrast in illustrations. Ptr Ink 115:57-8+ Je 23 '21
- Elements that go to make art embellishment striking. W. L. Larned. Ptr Ink 112:57-8 S 16 '20
- Expert surgery of the art department. W. L. Larned. Ptr Ink 111:33-5 Ap 1 '20
- Famous churches in advertisements boost the sales of wedding rings. D. G. Baird. Ptr Ink 112:57-8 J1 8 '20
- Finding a significant theme for the illustration. W. L. Larned. Ptr Ink 111:65-6 Je 10 '20
- Finding advertising ideas in salesmen's demonstrations. A. H. Deute. Ptr Ink 110:138+ Ja 15 '20
- Finding the theme for the illustration. W. L. Larned. Ptr Ink 113:105-6+ O 28 '20
- Giving the photograph an art quality. L. Peake. Ptr Ink 116:123-4+ Ag 4 '21
- Greying-down the background. W. L. Larned. Ptr Ink 111:57-8+ Je 24 '20
- Heart throbs as the pictorial theme. W. H. Heath. Ptr Ink 113:157-8+ N 11 '20
- Hidden beauties of the photographic illustration. W. L. Larned. Ptr Ink 110:57-8+ Mr 25 '20
- How National oats came to adopt a new trademark. F. H. Morse. il Ptr Ink 112:57-8+ S 9 '20
- How the eye follows a single line. Ptr Ink 115: 65-6+ Je 2 '21
- Idea-plus in the illustration. W. L. Larned. Ptr Ink 115:53-6 My 5 '21
- Illustration novelties that catch the eye. W. L. Larned. Ptr Ink 114:95-6+ Mr 31 '21
- Improved technique of newspaper illustrations. Ptr Ink 116:100+ S 22 '21
- Incongruous advertisements. M. B. Saunders. Ptg Art 37:318-20 Je '21
- Jumbo display that dominates. W. H. Heath. Ptr Ink 116:41-2+ J1 7 '21
- Labor—a gladiator of the pictures. A. L. Townsend. Ptr Ink 112:117-18+ J1 8 '20
- Line drawings popular in British publications. T: Russell. Ptr Ink 113:57-8 D 16 '20
- Line engravings that closely resemble product's appearance. T: Russell. Ptr Ink 116: 44+ J1 28 '21

Advertisements, Pictorial—Continued

- Linking the aerial view with the advertising view. R. B. Lockwood. *il* *Ptr Ink M* 2:14-15+ *Ja* '21
- Little actors of the advertising camera. W. L. Larned. *Ptr Ink* 116:57-8+ *S* 1 '21
- Making the illustration a mere adjunct to the text. J. L. Conkey. *Ptr Ink* 114:73-4+ *Mr* 3 '21
- Making the pictorial contrast sharp. *Ptr Ink* 111:113-14+ *My* 20 '20
- Making the still life live. K. B. White. *il* *Ptr Ink M* 2:29-30 *My* '21
- Man's primitive interest in tracks and feet. *Ptr Ink* 110:89-90+ *Ja* 29 '20
- Marked improvement in newspaper advertising display. A. L. Townsend. *Ptr Ink* 113:122+ *O* 14 '20
- Mother-and-child pictures to sell cocoa. *Ptr Ink* 112:49-50 *Jl* 8 '20
- Opening up the package to show the goods. *il* *Ptr Ink* 110:99-100+ *F* 19 '20
- Peopling the advertisement with characters that really live. W. L. Larned. *il* *Ptr Ink* 110:59-60+ *F* 12 '20
- Picture comparisons that make a giant of the product. *Ptr Ink* 111:105-6+ *Ap* 1 '20
- Pictures that look the reader straight in the eyes. *Ptr Ink* 112:33-4 *Ag* 12 '20
- Please keep your pictures simple! *Ptr Ink* 111:81-2+ *Ap* 15 '20
- Practical shading tints and their application in modern advertising illustrations, from the studios of Osgood co. 27p Chicago '20
- Prestige for American merchandise built on exhaustive study. E. T. Tandy. *il* *Ptr Ink M* 2:17-18+ *Ja* '21
- Product may be dwarfed by wrong type of picture. W. L. Larned. *Ptr Ink M* 2:104+ *D* '20
- Putting action into advertising illustration. *il* *Ptr Ink* 110:69-70+ *Ja* 15 '20
- Putting poster punch in the picture. *Ptr Ink* 112:81-2 *Jl* 29 '20
- Realism in mechanical illustrations. L. N. Burnett. *il* *Ptr Ink M* 2:68+ *My* '21
- Reincarnation of advertising characters. W. L. Larned. *Ptr Ink* 114:150+ *Ja* 6 '21
- Safeguarding the line plate. *Ptr Ink* 112:57-8+ *Ag* 5 '20
- Sales pictures; specimens. *Ptr Ink M* 3:27-30 *S* '21
- Shorthand art illustrates new absorbine campaign. *Ptr Ink* 110:131-2 *F* 19 '20
- Show all pictured equipment up-to-date, even though you don't make it. I. Mattson. *Ptr Ink* 112:19 *Ag* 12 '20
- Show only the hands. *il* *Ptr Ink* 110:96-7+ *Ja* 1 '20
- Specialism. J. A. Heppes. *Ptg Art* 36:417-19 *Ja* '21
- Spotlighting the advertised goods. W. L. Larned. *Ptr Ink* 111:60+ *My* 13 '20
- Suggestion of life without figures. H. Williams. *Ptr Ink* 111:96+ *Ap* 29 '20
- Superimposing the product on the main illustration. W. L. Larned. *il* *Ptr Ink* 116:57-8+ *Ag* 25 '21
- Techniques of advertising illustration. W. L. Larned. *il* *Ptg Art* 36:473-82; 37:25-34, 121-9, 213-21, 305-12, 405-16, 509-16 *F-Ag* '21
- That added ten per cent of cleverness in copy. W. L. Larned. *Ptr Ink* 112:97-8 *Ag* 12 '20
- To make the factory picture reflect your product. K. B. White. *il* *Ptr Ink M* 3:40-1+ *S* '21
- Unprofessional advertising that builds for future sales. C. P. Russell. *Ptr Ink* 110:49-51 *F* 12 '20
- Use of advertising picture confers no trademark monopoly. *Ptr Ink* 112:113-14 *Ag* 26 '20
- Use of photographs in Swiss advertising. *Sci Am* 125:68 *Jl* 23 '21
- Using pictures to tell a long copy story. *Ptr Ink* 115:138+ *My* 12 '21
- Value of illustrative label. W. L. Larned. *Ptr Ink* 112:133-4 *Jl* 22 '20
- Versatility—and a bottle of ink. *il* *Ptr Ink* 110:17-20 *Mr* 11 '20
- Vexatious problems of the art department. *Ptr Ink* 113:169-70+ *D* 16 '20

- Viewpoint in looking at an advertising picture. C. H. Claudy. *Ptr Ink* 111:25-8+ *Ap* 8 '20
- Visualizing the magnitude of a business with chart illustrations. R. D. Newton. *Ptr Ink* 112:107-8 *S* 9 '20
- What becomes of your old drawings? suggestions for filing and rehabilitation of used original advertising illustrations. *Ptr Ink* 116:89-90 *Ag* 11 '21
- What constitutes a good mechanical drawing? *Ptr Ink* 115:105-6+ *Ap* 14 '21
- When is an illustration unconventional? W. L. Larned. *Ptr Ink* 113:165-6+ *O* 7 '20
- When the photograph is live news. C. R. Knite. *Ptr Ink* 112:100-1 *Ag* 19 '20
- See also* Portraits; Posters; Rotogravure; Trade marks

Portraits

- Advertisers' right to use portraits of political candidates. *Ptr Ink* 112:19-20 *S* 2 '20
- Associating a product with prominent people. E. H. Falkner. *il* *Ptr Ink M* 2:58+ *F* '21
- Faces and fortunes. R. H. Isbell. *Ptr Ink M* 2:34+ *D* '20
- Personalizing a machinery store. P. B. Findley. *Ptr Ink* 114:81-2 *F* 17 '21
- Portraits that are permissible in advertising. *Ptr Ink* 110:52, 57+ *Ja* 8 '20
- Proper form of release from photographic models. *Ptr Ink* 112:20 *S* 9 '20
- Advertisements, Repetition of**
- Making an advertisement score twice. A. McClure. *Ptr Ink* 112:109-11 *Ag* 5 '20
- New uses for old advertisements. R. B. Lockwood. *Ptr Ink* 112:57-60 *Jl* 29 '20
- Recapitulation of the campaign. W. L. Larned. *Ptr Ink* 114:41-3 *Ja* 20 '21
- Advertising**
- Advertised line a stabilizing factor in times of stress. R. Cole. *Ptr Ink* 113:3-4+ *D* 2 '20
- Advertiser's handbook. 2d ed. 445p International textbook co., Scranton, Pa. '21
- Advertising a duty to the public as well as to business. J. E. Weier. *Ptr Ink* 112:65-6+ *S* 2 '20
- Advertising enables manufacturer to control his production. R. Dickinson. *Ptr Ink* 117:19-20 *O* 27 '21
- Advertising establishes profession of tree surgery. R. Cole. *il* *Ptr Ink* 110:17-20+ *F* 19 '20
- Advertising fills in wide sales gap by changing custom; Cyclone fence company revives enclosed lawn idea. G. A. Nichols. *Ptr Ink* 114:97-8+ *Mr* 24 '21
- Advertising finds buyer for 27,000,000 pounds of surplus product. L. P. Wight. *Ptr Ink* 115:89-90 *My* 12 '21
- Advertising handbook. S. R. Hall. 743p McGraw-Hill '21
- Advertising holds down prices of commodities. J. Sullivan. *Ptr Ink* 111:122+ *Ap* 15 '20
- Advertising in 1930. B. Jefferson. *Ptr Ink M* 2:13-14 *D* '20
- Advertising information the forthcoming census will yield. *Ptr Ink* 110:65-6+ *F* 5 '20
- Advertising introduces the square doughnut. *il* *Ptr Ink* 110:8+ *Ja* 15 '20
- Advertising—selling the consumer, by J. L. Mahin. Review and excerpts. *Ptg Art* 37:326-32 *Je* '21
- Advertising that reduces selling costs. T. Russell. *Ptr Ink* 114:105-6 *Ja* 27 '21
- Advertising under fire; education needed to explain the economic justification of advertising. J. Sullivan. *Ptr Ink* 111:49-52 *Ap* 22 '20
- Advertising's ten great achievements. *Ptr Ink M* 2:16+ *Ja* '21
- American business and its debt to advertising. F. W. Ayer. *Ptr Ink* 115:81-2+ *My* 26 '21
- American tobacco company ties up sales talk with advertising copy. R. Bostick. *Ptr Ink* 116:3-4+ *Ag* 25 '21
- Aunt Jemima comes to life. G. A. Nichols. *Ptr Ink* 110:17-20+ *Mr* 18 '20
- Better advertising. J. M. Manly. 157p Drake '21

Advertising—Continued

- Better understanding in the whole advertising business an essential. R. Dickinson. *Ptr Ink* 111:129-30+ Ap 29 '20
- Burglar-proofing a market after you have won it. *Ptr Ink* 110:81-2+ F 5 '20
- Can advertising shoulder the whole sales responsibility?; salesmen for mulsified shampoo are really field representatives of advertising department. A. Cobb, jr. *Ptr Ink* 113:57-8+ O 21 '20
- Catching up the loose ends in an advertising campaign. *Ptr Ink* 116:118+ S 1 '21
- Concern which is getting ready to advertise. R. W. Johnson. *Ptr Ink* 110:3-4+ Ja 15 '20
- Courage to go ahead in business. R. Dickinson. *Ptr Ink* 113:57-8+ D 9 '20
- Cut my commission and advertise! A. P. Roberts. *Ptr Ink* 111:89-92 My 20 '20
- Does local advertising pay? *Metal Work* 92:389-90 O 3 '19
- Does the advertiser know advertising? A. L. Townsend. *Ptr Ink* 113:145-6+ O 28 '20
- Don't be fooled by the straws. H. Varley. *Ptr Ink* 113:41-2+ O 7 '20
- Essentials of advertising. F. L. Blanchard. 322p McGraw-Hill '21
- Fast awakening force—advertising. E. E. Calkins. *Ptr Ink M* 2:23-4+ F '21
- Fear of competition cured by advertising. H. E. Agnew. *Ptr Ink* 112:146+ Ag 5 '20
- Get Susie Mulligan into the dealer's store. R. Dickinson. *Ptr Ink* 115:113-14 Je 9 '21
- Getting dealer distribution when jobbers will not buy; makers of Kampkook use advertising. C. B. Larrabee. *Ptr Ink* 116:101-2+ Ag 11 '21
- Guessing on advertising results. H. E. Agnew. *Ptr Ink* 113:42+ O 21 '20
- Has advertising ever advertised itself—adequately? W. L. Larned. *Ptr Ink* 113:73-4+ O 21 '20
- High cost of a non-advertising policy. J. E. Bullard. *Ptr Ink* 114:49-50+ Mr 10 '21
- Hook the newspaper copy up to the telephone. R. F. Baldwin. *Ptr Ink* 112:137+ S 9 '20
- How a raw material can be advertised; the Pacific lumber co. employs advertising to scout for new markets. J. A. Murphy. *Ptr Ink* 116:3-4+ Ag 18 '21
- How advertising aids the credit seeker. B. Ashbrook. *Ptr Ink* 115:3-4+ Ap 14 '21
- How advertising can overcome prejudice. E. M. Woolley. *Ptr Ink* 111:3-4+ Ap 8 '20
- How advertising has demonstrated its place in the economic system. J. I. Clarke. *Ptr Ink* 115:65-6+ Je 30 '21
- How advertising stabilized prices in up and down markets. *Ptr Ink* 114:33-4 Ja 13 '21
- How big English advertisers began. *Ptr Ink* 113:85-6+ O 14 '20
- How can a lost market be retaken? H. E. Agnew. *Ptr Ink* 112:105-6+ Ag 26 '20
- How conservation of credits will affect advertising. A. R. Howell. *Ptr Ink* 111:25-7+ My 27 '20
- How many of these advertising questions can you answer? *Ptr Ink* 115:42+ My 26 '21
- How post-war employee problem affects advertising. *Ptr Ink* 115:145-6 Ap 14 '21
- How the Gates rubber company snatched victory from defeat. P. Findlay. *Ptr Ink* 112:25-7+ Jl 15 '20
- How, to-day, should salesmen talk advertising? S. C. Lambert. *Ptr Ink* 114:3-4+ Mr 3 '21
- Ideas and the spirit board of directors. R. M. Rhodes. *Ptr Ink* 110:69-70+ F 19 '20
- If Professor Einstein were an advertising man. T. L. Masson. *Ptr Ink* 111:33-4 Je 24 '20
- Industrial publicity and the house organ. C. E. Carpenter. *Ind Management* 61:246-9 Ap 1 '21
- Invention plus advertising equals success; the Klaxon campaign. C. F. Carter. *Ptr Ink M* 3:23+ O '21
- Is advertising an economic resource? J. P. Wilder. *Ptr Ink M* 2:19-20 Ap '21
- It is easier to make advertising progress during periods of business depression. J. A. Murphy. *Ptr Ink M* 3:13+ Ag '21
- It is ideas that move merchandise. R. R. Updegraff. *Ptr Ink* 112:33-6 S 16 '20
- Larger a business grows the more it must advertise. *Ptr Ink* 110:129-30 Mr 4 '20
- Local advertising and dealers' conferences supplement Willard campaign. C. M. Harrison. *Ptr Ink* 116:25-7+ Ag 4 '21
- Les lois d'extension dans l'industrie et la publicité moderne. L. Mestre. *Chimie & Ind* 4:808-13 D '20
- Looking forward in advertising. R. Dickinson. *Ptr Ink* 112:3-4+ Jl 29 '20
- Maintaining prices in spite of rising costs. N. G. Shidle. *Automotive Ind* 43:528-9 S 9 '20
- Making a brand of salt different through advertising. R. Cole. *Ptr Ink* 111:17-20 My 6 '20
- Making people want more—the basis of civilization. J. F. Johnson. *Ptr Ink* 111:19-20 Je 10 '20
- Market that hadn't run away; how the American hammered piston ring company met the recent slump. R. W. Johnson. *Ptr Ink* 115:53-4+ Ap 14 '21
- Mars as a sales outlet; a one-sided discussion on wages, buying power and production in relation to advertising. R. Dickinson. *Ptr Ink* 117:128+ O 20 '21
- Merchandising failures due to lack of advertising. *Elec R* 78:111 Ja 15 '21
- More for advertising to do than maintain living standards. *Ptr Ink* 111:19-20 My 13 '20
- My business will be what I make it. R. Cole. *Ptr Ink* 114:17-20 Mr 10 '21
- One thousand ways and schemes to attract trade. I. P. Fox. 4th ed. 195p Spatula pub. co., Boston '21
- Opening the sales door of America. R. R. Updegraff. *Ptr Ink* 116:17-20 Ag 4 '21
- Peaks and valleys in advertising and sales. R. Dickinson. *Ptr Ink* 111:49-51 My 27 '20; Same cond. *Metal Work* 94:149-50 Jl 30 '20
- Pet worry of one advertising manager; salesmanship and advertising. R. M. Rhodes. *Ptr Ink* 114:33-4 Ja 27 '21
- Pointers on direct advertising. R. E. Smith. *J Elec* 46:239 Mr 1 '21
- Population and its distribution. 3d ed. 335p J. Walter Thompson co., New York, Chicago '21
- Problem of advertising after a patent has expired. S. C. Lambert. *Ptr Ink* 110:77-8+ F 19 '20
- Research, a comparison of methods for obtaining information to plan advertising campaigns. 43p A. W. Corcoran & co., New York '21
- Revolution in advertising comes as its power is seen. G. A. Nichols. *Ptr Ink* 114:17-20 Mr 3 '21
- Salesmen's commissions reduced as advertising starts. *Ptr Ink* 114:69-70+ F 10 '20
- Selling by the printed word. R. Ruxton. *Ptg Art* 37:229-32, 321-4, 527-38 My-Je, Ag '21
- Service, the keynote of advertising. H. E. Miles. *Inland Ptr* 66:323-4 D '20
- Short course in advertising. A. F. Osborn. 248p Scribner '21
- Showing the advertising to the stockholders. W. H. Dawson. *Ptr Ink* 110:53-4+ F 26 '20
- Small business made big in midst of slump. C. P. Russell. *Ptr Ink* 115:97-8+ Ap 14 '21
- Some by-products of advertising. J. M. Campbell. *Ptr Ink* 112:145+ Jl 15 '20
- Some high spots of the advertising convention. H. Hillman. *Inland Ptr* 65:474-5 Jl '20
- Some thoughts on planning an advertising campaign. O. C. Harn. *Ptr Ink* 117:85-6+ O 27 '21
- Suppose the turn will come in 1921! what of it? C. W. Hoyt. *Ptr Ink* 113:33-4+ D 2 '20
- Survey of merchandising urged. E. N. Hurley. *Iron Tr R* 66:1676-7 Je 10 '20
- Talking turkey to the timid client. *Ptr Ink* 113:162+ O 21 '20
- Teach women what advertising does. C. Frederick. *Ptr Ink* 111:177+ Je 10 '20
- Touching advertisement. W. P. Kirkwood. *Inland Ptr* 67:190-2 My '21
- Truth, advertising and better merchandise. G. French. *Ptr Ink* 110:152+ F 12 '20

Advertising—Continued

- Truth in advertising dominant note at Indianapolis convention. *Ptr Ink* 111:41-2+ Je 17 '20
- Untrue that eighty-four per cent of business failures in 1920 did not advertise. *Ptr Ink* 116:87-8 Jl 7 '21
- Unusual uses to which advertising has been put. *Ptr Ink* 111:117+ Je 3 '20
- Use of government endorsement for advertising purposes specifically prohibited by recent ruling. *Ptr Ink* 113:109-10 D 23 '20
- War, prohibition and the wave of advertising. *Ptr Ink* 110:182-3+ F 5 '20
- What a salesman should know about advertising. J. C. Aspley. Pocket ed. 119p Dartnell corporation, Chicago '21
- What advertising means to me. *Ptr Ink* 114:41-4 F 10 '21
- What I have learned in fifty years of advertising. D. H. Fanning. il *Ptr Ink M* 3:21-2+ Jl '21
- What is collateral advertising? B. Chapple. *Ptr Ink* 113:141-2+ D 2 '20
- What it costs to stop advertising. M. Martin. *Ptr Ink* 114:81-2+ F 24 '21
- What of the future? R. I. Bartholomew. *Ptg Art* 36:491-3 F '21
- What to do with the big advertising inventory. C. M. Lemperly. *Ptr Ink* 114:33-4 F 24 '21
- What, today, do dealers think of advertising. B. Ashbrook. *Ptr Ink M* 3:33-4+ N '21
- What's wrong with distribution; the connection between sales and advertising. N. M. Clark. *System* 39:673-5+ My '21
- When a business went stale by taking too much for granted. A. D. Albin. *Ptr Ink* 111:161-2+ Je 3 '20
- When buying is three times removed. V. C. Kitchen. *Ptr Ink* 114:80+ Ja 27 '21
- When it pays to persuade your competitor to advertise; baby chick business an industry where nearly everybody advertises. J. A. Murphy. il *Ptr Ink M* 3:19-20+ Je '21
- Where advertising saves salesmen's work. W. H. Ingersoll. *Ptr Ink* 110:10, 12 Ja 29 '20
- Where is advertising going? R. S. Durstine. *Ptr Ink* 112:65-6+ S 23 '20
- Which sex buys your product? C. P. Russell. *Ptr Ink M* 3:38+ O '21
- Why Kellogg has faith in advertising. *Ptr Ink* 111:17-18 My 20 '20
- Why our basic industries should advertise. J. E. Bullard. *Ptr Ink* 111:113-14+ Ap 22 '20

See also Advertisements; Airplanes in advertising; Bank advertising; Billboards; Business; Catalogs; Community advertising; Containers; Electric signs; Good will (in business); Government advertising; House organs; Industrial relations—Advertising aids; Library advertising; Mail order business; Merchandizing; Milline; Money raising campaigns; Moving pictures in advertising; Municipal advertising; New York stock exchange—Advertising rules; Posters; Press agents; Propaganda; Recruiting and enlistment; Sales letters; Sandwich men; Seals, Commercial; Service (in industry); Show windows; Slogans; *also* subdivision Advertising under the following subjects, Auctions; Automobile industry; Bakers and bakeries; Beds; Beverages; Biscuits; Bonds; Book industry and trade; Brick industry and trade; Brooms; Brushes; Building trades; Business streets; Butter trade; Candles; Candy trade; Cement; Chain stores; Chromel; Church furniture; Cigars; Clothes hangers; Clothing trade; Collars; Colleges and universities; Contractors; Corsets; Domestic appliances; Doughnuts; Electric fans; Electric industries; Electric railroads; Farm produce; Farmers; Flour trade; Fruit trade; Fur trade; Gas industry; Grocery trade; Hardware; Hosiery trade; Hotels; Ice; Insurance, Life; Insurance companies; Jewelry trade; Linoleum; Lumber trade; Mail order business; Maps; Marshmallows; Mattresses; Milk, Condensed; Millinery; Mirrors; Mops; Moving picture industry; Mustard; Nuts; Salted; Olive oil; Olives; Optical trade; Overalls; Plumbing trade; Poultry; Print-

ing trade; Public utilities; Railroads; Retail trade; Salmon industry; Screws; Seasonal products; Shingles, Asbestos; Shipping; Shoe industry and trade; Silverware; Soft drinks; Soldering apparatus; Stoneware; Street railroads; Sugar industry and trade; Tea; Technical products; Telegraph companies; Telephone companies; Terra cotta; Textile industry; Theaters; Tombstones; Tractor industry; Travel; Trust companies; Underwear; Veils; Wallpaper; Watches; Water companies; Wire fence; Woodwork; *also* American newspaper publishers association—Bureau of advertising; Association of national advertisers

Accounting

- Keeping tab on how your advertising appropriation is going. *Ptr Ink* 113:81-2+ N 4 '20

Appropriations

- Advertising in national publications 1914-1920; expenditures. 66p Curtis publishing co., Philadelphia '21
- Budgeting the advertising program. W. A. McDermid. *Administration* 2:14-22 Jl '21
- Control of the advertising appropriation. J. W. Young. *Administration* 2:177-80 Ag '21
- Eleven ways to build the advertising appropriation. J. A. Murphy. *Ptr Ink* 113:3-4+ D 9; 41-2+ D 16 '20
- Emotional appropriations may hurt advertising. E. N. Hurley. *Ptr Ink* 111:10+ Je 17 '20
- Keep your advertising appropriation flexible. M. H. Wright. *Ptr Ink* 115:10+ Je 2 '21
- New lessons applied by Palmolive in 1921 advertising. G. A. Nichols. *Ptr Ink* 116:3-4+ S 1 '21
- Reserve advertising fund for times of business depression. *Ptr Ink* 112:145+ Jl 22 '20
- Vital thing to know about advertising appropriations. J. Sullivan. *Ptr Ink* 115:41-2+ Ap 14 '21
- Where is authority for advertising appropriation to rest? *Ptr Ink* 113:109-10 D 2 '20
- Why small appropriations often fail. R. Walsh. *Ptr Ink* 112:57-8+ Jl 15 '20
- Wrigley announces half million increase in advertising appropriation for 1921. G. A. Nichols. *Ptr Ink* 112:17-20 S 30 '20

See also Advertising, Association

Bankers' relations

See Advertising and bankers

Bibliography

- Best books on advertising. *Library Journal* 46:173 F 15 '21
- Community advertising campaigns in Printers' Ink. *Ptr Ink* 113:113-14 N 11 '20
- Printers' Ink campaign stories of the past four years. *Ptr Ink* 113:170+ O 14 '20

Competitive products

- Featuring competing lines in the same advertisement. A. McClure. *Ptr Ink* 111:113-14+ Ap 15 '20
- Should competitive products be featured in the same advertisement? *Ptr Ink* 113:10+ O 7 '20

Cost

- How much is enough for a booklet? *Ptr Ink* 115:137-8 Ap 14 '21
- Measuring copy writer's pay by results obtained. *Ptr Ink* 115:110+ My 5 '21
- Wanted: average cost per inquiry. *Ptr Ink* 115:137+ Ap 7 '21
- What the advertising dollar buys. H. L. Adams. *Ptr Ink* 110:41-2+ Mr 11 '20
- See also* Advertising—Rates; Milline

Dealer cooperation

- Advertising built on dealer tie-ups. E. T. Tandy. *Ptr Ink* 113:17-20+ N 18 '20
- Basis on which automobile advertising is charged to dealers. A. L. Chambers. *Ptr Ink* 110:113-14+ Mr 18 '20
- Beaver Board broadens dealer electro service. L. H. Harvey. *Ptr Ink* 110:107-8 Ja 8 '20

Advertising—Dealer cooperation—Continued

- Dealer advertising to bridge the summer valley. R. Dickinson. Ptr Ink 115:41-2+ Je 23 '21
- Dealer copy that bristles with sales ideas. R. Cole. Ptr Ink 114:82+ Ja 6 '21
- Dealer helps that don't hinder. R. Dickinson. Ptr Ink 115:145+ My 19 '21
- Developing dealer co-operation from the dealer's side. W. K. Porzer. Ptr Ink 114:41-2+ Ja 6 '21
- Does turnover talk in advertising slow up the selling? G. A. Nichols. Ptr Ink 116:150+ Ag 18 '21
- Don't use the dealer as a ventriloquist figure! J. Katz. Ptr Ink 110:41-3 Ja 15 '20
- Getting the manufacturer's trade-mark inside. R. W. Johnson. Ptr Ink 115:73-4+ My 19 '21
- How shall dealer helps be distributed? D. Kirkland. Ptr Ink 113:133+ D 23 '20
- How to get your advertising displayed in the most conservative stores. Ptr Ink M 3:54+ S '21
- How we help our dealers sell. J. R. Ozanne; W. F. Hypes. System 39:392+ Mr '21
- How we make sure our dealers will advertise. G. W. Iverson. Ptr Ink 116:25-8 Ag 25 '21
- Keeping your ad aid service out of the dealer's W. P. B. E: T. Tandy. Ptr Ink 116:97-8+ Jl 7 '21
- Making dealer vital cog in selling machine. Brick & Clay Rec 59:418-23 S 20 '21
- Marketing a product by the easiest way; the Thermopak finds in ice cream a natural ally. Ptr Ink 111:97-8 Je 24 '20
- Merchandising a cut in price. Ptr Ink 115:10+ Je 30 '21
- National lamp works helps the dealer to help himself. H. E. Agnew. Ptr Ink 114:52+ Ja 27 '21
- Stage managing the dealers' displays. R. Bostick. Ptr Ink 116:128+ Ag 4 '21
- This letter campaign gives personal touch to saw selling. C. M. Harrison. Ptr Ink 116:101-2+ Ag 18 '21
- Tie-up is the basis of the new Sherwin-Williams campaign. C. M. Lemperly. Ptr Ink 112:49-50+ S 16 '20
- Western electric company finds a way to collaborate. S. C. Lambert. Ptr Ink 115:25-6 My 12 '21
- Work with and for dealers a vital part of Kuppenheimer campaign. Ptr Ink 113:121-2+ D 2 '20

See also Retail trade

Bibliography

- Manufacturer suspects dealers waste advertising matter. Ptr Ink 116:25-7 S 15 '21

Exhibitions

- Advertising exhibition visited by 250,000 Londoners. T: Russell. Ptr Ink 113:97-8 D 23 '20
- London to have international exhibition of advertising. T: Russell. Ptr Ink 112:122+ S 9 '20

Family of products

- Adding an allied product leads to new market. Ptr Ink 114:61-2+ Mr 31 '21
- Advertising that acts as a reception committee for the new product. Ptr Ink 112:81-2+ Jl 22 '20
- After seventy-five years, successful firm adopts advertising. H. E. Agnew. Ptr Ink 112:91-2+ S 2 '20
- Baby product succeeds on elder brother's reputation. Ptr Ink 111:57-8+ Ap 1 '20
- Do your dealer customers scatter their buying? A. Cobb, jr. Ptr Ink 114:81-2+ Mr 17 '21
- Fish firm finds big new seller in housewives' old dish. E: T. Tandy. Ptr Ink 112:17-19 S 9 '20
- Group advertising helps cash in on goodwill. G. A. Nichols. Ptr Ink 114:41-2+ Ja 13 '21
- How Corticelli makes advertised leader work for whole line. R. Cole. Ptr Ink 117:49-50+ O 13 '21
- How jiggtime won the New York market in twenty-one days. Ptr Ink 114:17-19 Mr 24 '21

- How quick wit won two continents by bold strokes of advertising and merchandising. E: T. Tandy. Ptr Ink 113:33-4+ O 28 '20
- Making your advertising leader profitable. W: R. Basset. Ptr Ink M 3:15-16+ O '21
- Manufacturer builds on past performance when line is broadened. Ptr Ink 112:49-50+ Jl 22 '20
- Neglected little brother of the business family. H: Burwen. Ptr Ink 112:65-6 S 9 '20
- New uses add big general market to a restricted one; how Kenwood blankets and comfort products sprang from woolen felt belting. E: T. Tandy. Ptr Ink 116:97-8+ S '21
- Putting over an entire line on leader's reputation. Ptr Ink 116:75-6 Ag 25 '21
- Raising the family of products. Ptr Ink 110:90+ Ja 1 '20
- San-tox selects trade-mark which permits constant addition to line. Ptr Ink 111:41-4 My 27 '20
- Short, compact line means quick, paying turnover. C. James. Ptr Ink 112:33-4 S 30 '20
- To change name of product and preserve good-will. Ptr Ink 113:117-18 N 25 '20
- Westclox advertising family has new member. Ptr Ink 115:153-4 Ap 21 '21
- When a business outgrows its short pants; how Van Raalte solved the problem of expansion. E: T. Tandy. Ptr Ink 113:93-4+ D 9 '20
- When the product is ready the market will be. H. E. Agnew. Ptr Ink 116:112+ Jl 14 '21
- Which—the family of products or the bachelor product. Ptr Ink 116:68+ S 15 '21
- Why have so many products in the line? C. M. Lemperly. Ptr Ink 113:101-2+ N 11 '20
- See also* Advertising—Leaders

Farmers, Appeals to

- Letters from farmers make effective sales arguments; Greenfield tap and die corporation uncovers big field for farm tools. O. De Camp. Ptr Ink M 3:37-8 Ag '21
- Natural advertising is the way to sell the farmer. C. M. Harrison. Ptr Ink 114:149-50+ Mr 17 '21

History

- Honorable lineage of modern advertising. C. Armstrong. Ptr Ink 113:101-2 D 23 '20
- When advertising was young. C. P. Russell. Ptr Ink M 2:22-4+ Ja '21

Laws and regulations

- New York advertising club has honest advertising trophy. Ptr Ink 115:25-6 My 19 '21
- Traffic regulations of advertising shipped with merchandise. Ptr Ink 114:126+ F 24 '21
- Uncle Sam likely to champion truth in advertising. Ptr Ink 110:125-6 F 26 '20
- Use of government endorsement for advertising purposes specifically prohibited by recent ruling. Ptr Ink 113:109-10 D 23 '20
- What recourse, if advertising phrases are copied? Ptr Ink 113:144+ N 18 '20

See also Advertisements, Pictorial—Portraits; Advertising—Taxation; Advertising, Fraudulent; Trade names

Leaders

- Adding an advertiseable specialty to lead the unknown line. Ptr Ink 113:116+ O 7 '20
- Creating toilet preparations to sell big drug line. E: T. Tandy. Ptr Ink 115:33-4+ My 26 '21

See also Advertising—Family of products

Prize contests

- Are contests successful to-day? R. L. Burdick. Ptr Ink 112:73-4+ S 9 '20
- Building the contest around the dealer. Ptr Ink 117:129-30 O 27 '21
- Intensive work with dealers keeps Blabon running at capacity. R. Cole. Ptr Ink 117:72+ O 6 '21
- One way to impress a raw material on a dealer's mind; prize contest for shoe dealers. Ptr Ink 110:61+ Ja 29 '20

Advertising—Prize contests—Continued

- Relation of the prize contest to sales. R. Cole. *Ptr Ink* 114:41-4+ F 3 '21
- To prove to dealers that advertising interests their customers, West coast lumbermen's association institutes prize contest. W. Brindley. *Ptr Ink* 116:65-6 S 15 '21
- What kind of advertising do women read? E. B. Johns. *Ptr Ink* 112:137+ J1 15 '20
- What you should know about consumer contests. bibliog *Ptr Ink* 115:33-4+ My 12 '21

Psychology

- Can advertising stick to fundamental motives? M. Olds. *Ptr Ink* 112:73-4+ Ag 12 '20
- Manual for the study of the psychology of advertising and selling. H. D. Kitson. 116p Lippincott '20
- Mind of the buyer. H. D. Kitson. 211p [bibliog. p. 203-6] Macmillan '21
- Probing for fundamental instincts in an advertising campaign; advertising activities of the Hartford fire insurance company. R. Cole. *Ptr Ink* 112:113-14+ J1 29 '20
- Psychology of advertising in theory and practice. W. D. Scott. 437p Small, Maynard & co., Boston '21
- Psychology of consumer preference. R. B. Kingman. *Ptr Ink* 114:125-6+ Ja 20 '21
- Psychology of industry. J. Drever. p. 103-18 Dutton
- Why do people stop buying certain goods? W. L. Larned. *Ptr Ink* 114:73-4+ Ja 27 '21

Rates

- Advertising rate per thousand is wrong. Inland *Ptr* 67:801 S '21
- Advertising rates as affected by publishers' costs. L. D. Fernald. *Ptr Ink* 114:28, 33-6 Mr 24 '21
- Agate line costs money in Oklahoma, too. T. F. McPherson. *Ptr Ink* 113:109-10+ N 18 '20
- Flexible advertising rates suggested by publishers. *Ptr Ink* 111:33-5 Ap 15 '20
- Future of advertising rates. *Ptr Ink* 113:33-6 D 23 '20
- Hearst recommends doubling of advertising rates to save paper. *Ptr Ink* 111:117-18+ My 6 '20
- Increased advertising rates urged before senate committee. *Ptr Ink* 111:8+ My 6 '20
- Increasing cost of the advertising blanket. E. G. Taylor. *Ptr Ink* 110:41-2 F 26 '20
- Local vs. national rates—the agents' attitude. *Ptr Ink* 115:10+ Ap 21 '21
- Newspapers' cost of the agate line. R. Dickinson. *Ptr Ink* 113:33-6 N 11 '20
- Newspapers lining up against commissions direct. *Ptr Ink* 113:72 D 23 '20
- Poster advertising rates to be stabilized. *Ptr Ink* 110:10+ Mr 25 '20
- Protest against wide differences in local and national advertising rates. *Ptr Ink* 115:17-20 Ap 14 '21
- Publisher's rejoinder to Mr Babson. H. E. Taylor. *Ptr Ink* 116:93-4 Ag 18 '21
- Should publishers guarantee price a year ahead? F. T. Carroll. *Ptr Ink* 111:17-18 My 13 '20
- Slight disagreement with Mr Babson. R. Dickinson. *Ptr Ink* 116:33-4 Ag 11 '21

See also Milline

Records

See also Advertising departments

Societies

See also Associated advertising clubs of the world; Association of national advertisers

Statistics

- How much is spent for advertising. R. MacKay. *Ptg Art* 37:433-4 J1 '21
- Table of leading advertisers. 199p Advertising dept., Curtis pub. co., Philadelphia '21
- Volume of advertising in monthly magazines. *Ptr Ink* 117:181 O 13 '21

Study and teaching

- Looking to standardization of instruction. H. J. Buckley. *Ptr Ink* 111:177+ Ap 22 '20

- University extension course advertising. *Ptr Ink* 110:161+ F 26 '20

Taxation

- Advertising tax—how it would penalize American business. J. Sullivan. *Ptr Ink* 110:105-6+ Mr 25 '20
- Bill introduced in Congress to tax advertising. *Ptr Ink* 110:3-4+ Mr 18 '20
- Thompson defends his bill to tax advertising. *Ptr Ink* 111:57-8+ My 27 '20
- Will the advertising tax bill go through? *Ptr Ink* 110:69-70+ Mr 25 '20

Advertising, Association

- Advertising to raise the standards of an industry; the American malleable castings association. J. P. Wilder. *Ptr Ink* 117:53-4+ O 20 '21
- Association advertises to get more spring wheat planted. *Ptr Ink* 110:141-2+ F 26 '20
- Bottle makers undertake unusual co-operation. H. E. Agnew. *Ptr Ink* 113:25-7 D 23 '20
- Copper gets ready to advertise. R. Dickinson. *Ptr Ink* 116:45-6+ S 15 '21
- How advertising can keep down potential competition; car wheel makers find value in educational publicity. *Ptr Ink* 115:121-2 Je 9 '21
- How knitted outerwear makers hope to boost trade. G. D. Ward. *Ptr Ink* 114:65-6+ F 24 '21
- Iron pipe makers in long distance advertising effort. *Ptr Ink* 116:33-4 S 22 '21
- Lumber associations in unified institutional campaign. G. A. Nichols. *Ptr Ink* 114:17-20 F 3 '21
- Make 1922 the greatest year goal of paint and varnish manufacturers. M. Hastings, jr. *Ptr Ink* 116:44+ S 29 '21
- National advertising for bicycles. *il Ptr Ink* 110:26-8 F 19 '20
- Nine hundred thousand dollars to advertise rice. *Ptr Ink* 113:121-2 N 18 '20
- Paving the way for the life insurance agent by co-operative advertising. A. E. Haase. *Ptr Ink* 117:41-2 O 27 '21
- Putting duckling on the dining table just a little oftener. E. T. Tandy. *Ptr Ink* 116:17-20 J1 14 '21
- Quoting price by new unit broke down sales resistance of oak flooring. G. A. Nichols. *Ptr Ink* 113:93-4+ N 4 '20
- Raising the funds for the association campaign. C. H. Rohrbach and J. A. Murphy. *Ptr Ink* 110:117-18+ Mr 25; 81-2+ Ap 1 '20
- Reasons for the rapid growth of manufacturers' associations. C. H. Rohrbach and J. A. Murphy. *Ptr Ink* 110:3-4+ F 5 '20
- Revised sales unit stiffens backbone of shingle industry. W. Brindley. *Ptr Ink* 114:145+ Mr 10 '21
- Tea association prepares to conduct extensive co-operative campaign. *Ptr Ink* 110:17-19 Ja 22 '20
- To keep members interested in association advertising, achieve something real. *Ptr Ink* 116:25-6 S 29 '21
- What advertising has done for the California fruit growers. D. Francisco. *Ptr Ink* 111:33-6+ Je 10 '20
- Why do some trade associations fail? C. H. Rohrbach and J. A. Murphy. *Ptr Ink* 111:137-8+ My 6 '20

See also Advertising, Cooperative

Bibliography

- What has been done in association advertising; Printers' Ink has described over two hundred cooperative campaigns. *Ptr Ink* 111:85-6+ Je 17 '20
- Advertising, Bank. See Bank advertising
- Advertising, Bureau of. See American newspaper publishers association—Bureau of advertising
- Advertising, Cooperative
- Advertising a shopping district co-operatively. *Ptr Ink* 117:81-2 N 3 '21
- American people to be made book readers. *Ptr Ink* 112:41-2 Ag 12 '20
- California electrical co-operative campaign. plan Elec R 76:894-6 My 29 '20

Advertising, Cooperative—Continued

- Competing brick manufacturers unite in newspaper campaign. *Ptr Ink* 116:41-2 Ag 18 '21
- Competitors jointly advertise pride in their product. *Ptr Ink* 110:61-2 Ja 22 '20
- Cooperating with your competitor to boost sales. J. D. Nelson. *Sanitary & Heat Eng* 96:221-2 O 7 '21
- Co-operative advertising in the electrical industry. O. C. Small. *Ptr Ink* 116:85-6+ S 15 '21
- Co-operative campaign to be increased 500 per cent. *Ptr Ink* 113:111-12 D 9 '20
- Co-operative campaign to educate public to advantages of milk. *Ptr Ink* 110:70+ Ja 22 '20
- Effective co-operative advertising. W: B. Stoddard. *Plumber* 95:6+ Ja 14 '21
- Electrical co-operative campaign in California. *Elec W* 75:389-90 F 14 '20
- Factories, still using hand methods, advertise products. *Ptr Ink* 113:60+ D 30 '20
- How custom tailors may advertise co-operatively. A. E. Haase. *Ptr Ink* 117:81-2 O 20 '21
- Kansas City bankers advertise co-operatively. *Ptr Ink* 116:25-6 S 22 '21
- Killing off the seasonal handicap. R. Bostick. *Ptr Ink* 111:41-2+ Ap 29 '20
- Laying the groundwork for a co-operative campaign. M. Hastings, jr. *Ptr Ink* 114:57-8+ F 24 '21
- Longer credits for home builders sought by advertising. G. A. Nichols. *Ptr Ink* 112:19-20+ Ag 5 '20
- Need of co-operative educational work in the chemical industry. J. G. Cohen. *Chem & Met Eng* 22:509-12 Mr 17 '20
- Net of what advertising has done for the cranberry. C. Moran. *Ptr Ink* 117:89-90+ O 13 '21
- Retailers induce manufacturers to advertise co-operatively. *Ptr Ink* 117:41-2 O 6 '21
- Saving an old industry hard hit by whim of fashion. M. Hussobee. *Ptr Ink* 115:41-2 Je 2 '21
- Spread of the cooperative idea. *J Elec* 45:215-16 S 1 '20
- When competitors join hands to advertise. J: A. Murphy. *Ptr Ink M* 3:22+ O '21
- When farmers and middle interests co-operate. J. T. Bartlett. *Ptr Ink* 112:129+ Jl 29 '20

See also Advertising, Association

Advertising, Direct. *See* Advertising, Mail

Advertising, Educational

- Advertise, to make masses understand conditions. E. S. La Bart. *Ptr Ink* 115:81-2+ An 28 '21
- Bridge the bay advertising sets San Francisco by the ears. J. M. Campbell. *Ptr Ink* 116:57-8+ Jl 21 '21
- How educational advertising sells foot appliances. C. M. Harrison. *Ptr Ink* 114:57-8+ Ja 20 '21
- Important change in Stetson advertising policy; narrative copy to explain high price of hats. R. Cole. *Ptr Ink* 112:10+ S 23 '20
- Lumber industry sets public right upon fundamental facts. C. M. Harrison. *Ptr Ink* 112:110+ S 2 '20
- 1914-1920—has your advertising really bridged the economic gap?; justification of prices. H. Holley. *Ptr Ink* 112:41-2+ Ag 26 '20
- Using advertising to fend off price agitations. M. Hussobee. *Ptr Ink* 116:37-8+ Jl 21 '21
- Wanted: a federal advertising bureau to influence public opinion. R. S. Durstine. *Ptr Ink* 113:85-6+ D 9 '20
- What Swift has accomplished in good-will advertising. A. D. White. *Ptr Ink* 116:37-8+ S 15 '21

See also Advertising, Association; Advertising, Institutional; Chicago stock exchange—Advertising

Advertising, Ethics of. *See* Advertising ethics

Advertising, Foreign

- Absurdities in Chinese advertising prepared abroad. *Ptr Ink* 111:106 Ap 8 '20
- Advertising for foreign trade. F. E. Ackerman. *Am Ind* 21:43-5+ F '21

Advertising is our foreign trade weapon. *Ptr Ink* 113:100+ N 25 '20

Advertising methods in Argentina, Uruguay, and Brazil. J. W. Sanger. *il U S Bur For & Dom Com* 190:1-119 '20; Excerpts. *Ptr Ink* 111:160+ My 13 '20

Advertising methods in Japan, China, and the Philippines. J. W. Sanger. *il U S Bur For & Dom Com* 209:1-107 '21; Excerpts. *Ptr Ink* 116:113-14+ S 22; 91-2+ S 29; 133-4+ O 6 '21

Centralized or dealer-controlled foreign advertising? P. D. Davis. *Ptr Ink* 116:85-7 Jl 21 '21

Copy that won't translate literally in foreign languages. A. J. Wolfe. *Ptr Ink* 112:57-8+ Ag 12 '20

Dodging the dilemma of trade name translation in Latin America. *Ptr Ink* 110:85-6 Ja 8 '20

Doing as the Romans do, but in a new way; how Guaranty trust company in England has vitalized its advertising. C. P. Russell. *Ptr Ink* 112:81-2 Ag 26 '20

Experience in foreign automobile advertising. F: Dickinson. *Automotive Ind* 44:1118-21 My 26 '21

Export publicity methods. A. J. Wolfe. *Am Ind* 20:37-9 My '20

Exporting iron and steel; foreign advertising. V. G. Iden. *il Iron Tr R* 67:1675-9 D 16 '20

Honest advertising to aid American products. R. G. Owens. *Ptr Ink* 110:174+ Ja 8 '20

Horse sense in foreign advertising. R. Dickinson. *Ptr Ink* 110:97-8+ F 26 '20

How to use the foreign mail service in export. E. Sands. *Ptr Ink* 113:89-90+ O 28 '20

Latin America as a side issue. J. H. Collins. *Ptr Ink* 111:69-72 Ap 22 '20

Pioneer in export publicity. A. J. Wolfe. *Am Ind* 21:35-6 S '20

Points that sell goods in South American copy. R. B. Lockwood. *Ptr Ink* 111:124+ Je 17 '20

Publicity for American products in the foreign field. D: Beecroft. *Automotive Ind* 42:1219-21 My 27 '20

What to expect from a foreign advertising appropriation. A. B. Cole. *Ptr Ink* 115:117-18+ My 12 '21

What you may expect from foreign advertising. A. B. Cole. *Automotive Ind* 44:1216-18 Je 9 '21

Where advertising and high-priced dollars won't mix. G. A. Nichols. *Ptr Ink* 114:124+ Ja 6 '21

Advertising, Fraudulent

Cleaning up the patent-medicine and other evils. E: W. Bok. *Ptr Ink* 113:129-30+ O 7 '20

Congress to curb fraudulent advertising in foreign trade. J. B. Powell. *Ptr Ink* 116:73-4+ Jl 7 '21

Consumer wants clean advertising. *Ptr Ink* 114:83-4 Mr 24 '21

Dark ways of the ad fakir. W. B. Powell. *Nation's Business* 8:30-2 N '20

Elimination of fake oil securities. R: H. Lee. *Nat Pet N* 12:52+ Mr 17 '20

Review of the ten-year fight against fraudulent advertising. R. Cole. *Ptr Ink* 114:17-20+ F 24; 121-2+ Mr 3 '21

Warning to dishonest advertisers and fake publicists. *Ptr Ink* 112:12 Ag 5 '20

What vigilance work has accomplished under the Printers' ink statute. A. E. Haase. *Ptr Ink* 115:44+ Je 16 '21

Why the truth in advertising should interest bankers. *Ptr Ink* 114:93-4 Mr 3 '21

See also Advertising—Laws and regulations; Advertising ethics

Advertising, Government. *See* Government advertising

Advertising, Institutional

Advertising that acts as a reception committee for the new product. *Ptr Ink* 112:81-2+ Jl 22 '20

Advertising to dig up complaints from customers; Fairbanks, Morse & co. *Ptr Ink* 114:133+ Mr 24 '21

Advertising, Institutional—Continued

- Advertising to market a professional service; Wells bros. advertise to sell fee principle to prospective builders. S. C. Lambert. *Ptr Ink* 111:41-2+ *Je* 10 '20
- Attack turned into an advertising asset. *Ptr Ink* 115:17-18 *Ap* 28 '21
- Continuity in advertising builds prestige. L. B. Jones. *Ptr Ink* 112:97-8 *Jl* 29 '20
- Double-service advertising builds prestige and develops uses; a campaign to sell air instead of blowers. H. Burwen. *Ptr Ink* 112:65-6+ *Ag* 12 '20
- Goulds advertises to win public appreciation of pumps. A. D. Albin. *Ptr Ink* 110:69-70+ *F* 12 '20
- How manufacturer's advertising can regulate the retailer; Kahn tailoring co. emphasizes its trade-mark for self protection while helping dealer. *Ptr Ink* 116:81-2 *Ag* 4 '21
- Hyatt goes afield to bolster tractor salesmen. G. A. Nichols. *Ptr Ink* 113:49-50+ *O* 7 '20
- Institutional advertising by the historical method. *il* *Ptr Ink* 111:25-7 *Ap* 22 '20
- Institutional advertising, not for the house, but for the product. C. P. Russell. *Ptr Ink* 110:95-6 *Ja* 22 '20
- Making welfare copy believable; advertising that sells the community and gets new workers. R. Dickinson. *Ptr Ink* 110:169+ *Mr* 11 '20
- Oversold campaign that builds good will for an entire industry; Western electric company finds the golden rule works. H. T. Mitchell. *Ptr Ink* 112:3-4+ *S* 23 '20
- Study pure science, urges General Electric. *Ptr Ink* 113:125-6+ *N* 25 '20
- Training the college mind toward General Electric. A. P. Cooke. *Ptr Ink* 112:89+ *S* 16 '20
- Turning employee stock ownership facts into an advertising appeal. *Ptr Ink* 116:79-80 *Ag* 25 '21

See also Publicity

Advertising, International

- Helping a world organization to advertise. R. Giles. *Ptr Ink* 113:77-8+ *N* 18 '20

Advertising, Juvenile

- Advertising to the grown-up of to-morrow. L. Peake. *Ptr Ink* M 2:80+ *Ja* '21
- Campaign to little shavers; maker of Enders safety razor looks ahead. *Ptr Ink* 114:110 *F* 3 '21
- Dodging fathers' objections in advertising to sons. R. L. Burdick. *Ptr Ink* 113:77-8+ *D* 30 '20
- Getting advertising messages over to children. E. T. Tandy. *Ptr Ink* 113:157-8 *O* 21 '20
- How Marshall Field & co. cater to the coming generation. *Ptr Ink* 110:155-6+ *F* 5 '20
- Nursery rhymes to sell ice-cream to children. *Ptr Ink* 116:33-4+ *Ag* 18 '21
- Something new in advertising a highly competitive product. *Ptr Ink* 112:10+ *Ag* 19 '20
- What kind of advertisements do boys like? H. A. Wade. *Ptr Ink* M 2:32+ *D* '20

See also Toys—Advertising

Advertising, Mail

- Direct advertising. R. E. Ramsay. *Inland Ptr* 68:195-7 *N* '21
- Direct-mail advertisers increase service for members. *Ptr Ink* 113:53-4+ *N* 4 '20
- Direct-mail campaign increases business 200 per cent in six months. C. P. Russell. *Ptr Ink* M 3:53-4 *Je* '21
- Envelope enclosure—medium of a hundred uses. R. K. Sewell. *Ptr Ink* M 2:74+ *Ja* '21
- Hoover sweeper analyzes effectiveness of advertising appeal. M. L. Pierce. *Ptr Ink* 113:137-8 *O* 28 '20
- How bonds are sold by mail. C. M. Harrison. *Ptr Ink* 115:73-4+ *My* 5 '21
- How do stamped return envelopes influence replies? *Ptr Ink* 113:162+ *D* 16 '20
- How stocks are sold by mail on partial payment plan. C. M. Harrison. *Ptr Ink* 115:115-16+ *Je* 30 '21
- How to use the foreign mail service in export. E. Sands. *Ptr Ink* 113:89-90+ *O* 28 '20
- Human interest advertising even in clothing samples. *Ptr Ink* 114:73-4 *Mr* 31 '21

- Increasing sales in slack times, convention slogan of Direct advertisers. *Ptr Ink* 117:105-6+ *N* 3 '21
- Letterheads match catalogues in this follow-up plan. E. H. Falkner. *Ptr Ink* M 2:66, 69, 71 *Ap* '21
- Making 'em call him mister again. A. G. Brenton. *Inland Ptr* 66:753-5 *Mr* '21
- Personalized direct mail that lands \$200 orders. J. Y. Beaty. *il* *Ptr Ink* M 2:32-3+ *Ap* '21
- Preparing for national advertising with a direct-mail foundation. F. G. Adams. *Ptr Ink* 117:105-6 *O* 27 '21
- Red or green stamps on direct mail advertising? *Ptr Ink* 116:26-7 *Jl* 28 '21
- Retail chain and catalogue join in selling effort; Harsh and Chapline shoe company. *Ptr Ink* 115:124+ *Ap* 14 '21
- Selling by mail two million army field caps. *Ptr Ink* 115:119-20 *Ap* 21 '21
- Selling by the printed word. R. Ruxton. *Ptg Art* 37:143-54 *Ap* '21
- Selling the consumer via the dealer by direct mail. A. E. Haase. *Ptr Ink* 112:35-6 *Jl* 15 '20
- Signs that dealers will use on back of mailing pieces. *Ptr Ink* 113:154+ *D* 16 '20
- Unusual plan for distributing advertising through jobbers. *Ptr Ink* 115:17-18 *My* 26 '21
- See also* Catalogs; Follow-up systems; Mail order business; Mailing lists; Sales letters

Advertising, Municipal. *See* Municipal advertising

Advertising, National

- Advertisers must learn how consumer acceptance operates. G. A. Nichols. *Ptr Ink* 112:113-14+ *S* 9 '20
- Advertising that crosses lots in getting product to the consumer. *Ptr Ink* 112:85-6 *Jl* 15 '20
- Apartments must be larger to accommodate twin beds. C. M. Harrison. *Ptr Ink* 113:26-7+ *O* 7 '20
- Creating a market by setting people up in business. R. Cole. *Ptr Ink* 111:3-4+ *My* 13 '20
- How a nation-wide business was built for Rawlplugs during 1921. W. R. Howard. *Ptr Ink* 117:125-6+ *N* 3 '21
- How Cracker Jack came to follow the circus into town. F. E. Ruhling. *Ptr Ink* 115:76+ *Ap* 7 '21
- Interlocking campaign for industrial and household sales. C. E. Duffie. *Ptr Ink* 111:97-8+ *Ap* 8 '20
- Largest non-retailing shoe firm turns to consumer advertising. E. T. Tandy. *Ptr Ink* 112:41-2+ *S* 30 '20
- Marketing an article of prohibitive price. R. Cole. *Ptr Ink* 111:17-20 *Je* 3 '20
- National advertising to find unknown users. E. A. Muschamp. *Ptr Ink* 113:138+ *D* 9 '20
- National campaign of advertising for Kresge stores. *Ptr Ink* 111:17-20+ *Ap* 1 '20
- Nationally advertised articles the most profitable for jobbers to handle. J. S. Goldbaum. *Ptr Ink* 110:129-30+ *Ja* 1 '20
- One man did two men's work with help of advertising. S. C. Lambert. *Ptr Ink* 110:154+ *Ja* 8 '20
- Opportunities in fields hitherto unadvertised; Martex towels. W. L. Day. *Ptr Ink* 113:134+ *O* 21 '20
- Pal pencil gets national distribution in sixty days. R. Cole. *Ptr Ink* 115:17-20 *Je* 2 '21
- People have become standardized by advertising. J. M. Campbell. *Ptr Ink* 112:10+ *Jl* 29 '20
- Promotion work that backs up the national advertising. *Ptr Ink* 114:33-5 *Ja* 20 '21
- Rise of Clicquot club through advertising. E. S. Price. *Ptr Ink* 115:189+ *Ap* 28 '21
- Shortest cut to successful advertising. R. A. Hardy. *Plumber* 95:332-3 *Je* 3 '21
- Should the advertiser list the retail price? H. L. Winn. *Ptr Ink* 111:153+ *My* 20 '20
- Sidelight on landing the big customer; big barber chain adopts Mennen's shaving cream and is featured in Mennen national advertising. *Ptr Ink* 111:93-4 *Je* 10 '20

Advertising, National—Continued

Special brands go begging in face of national advertising. Ptr Ink 112:76+ Ag 5 '20

To sell the customer you can't get to. R. Cole. il Ptr Ink M 2:35-6+ F '21

Trust companies begin national campaign. Ptr Ink 113:105-6 D 9 '20

Walter M. Lowney had abiding faith in the national market. Ptr Ink 115:25-7 Ap 14 '21

Why Printz-Biederman business is ahead of last fall. E. J. Ensten. Ptr Ink 117:33-4+ O 6 '21

Why we are pushing sales now—and getting them. W. Wrigley, jr. System 40:397-401+ O '21

Advertising, Professional. See Professional advertising

Advertising, Soliciting of

Being kind to the advertising solicitor. C. P. Russell. Ptr Ink 115:33-4+ Ap 28 '21

Fifty-seven varieties of space sellers. P. C. Gunion. Ptr Ink 113:117-18+ D 23 '20

Missionary work of the newspaper advertising salesman. H. W. Smith. Inland Ptr 65:41-2 Ap '20

On the landing of new accounts. Ptr Ink 113:89-90+ O 7 '20

Soliciting advertising thirty years ago. Ptr Ink 113:41-2+ O 28 '20

Space buyers should be publication analysts. Ptr Ink 110:93-4+ Ja 8 '20

Space seller's obligation to his clients. W. S. Lockwood. Ptr Ink 110:77-8 Mr 25 '20

Advertising, Trade union

Ideas or industrial warfare? R. Dickinson. Ptr Ink 116:33-4, 36 S 29 '21

Unions help in advertising move to stimulate building. Ptr Ink 116:133-4+ Ag 25 '21

Advertising agencies

Advertising agency's part in developing foreign trade. F. A. Arnold. Ptr Ink 111:97-8+ My 13 '20

Agencies and publishers draw together for advertisers' good. C. Armstrong. Ptr Ink 111:57-8+ Je 17 '20

Better market study the way to better advertising. L. D. H. Weld. Ptr Ink 111:3-4+ Je 10 '20

Dark ways of the ad fakir. W. B. Powell. Nation's Business 8:30-2 N '20

Do agencies carry insurance on clients' merchandise? Ptr Ink 112:73-4 Ag 5 '20

Emblem of advertising agency obtains federal credentials. Ptr Ink 110:17-18 Ja 29 '20

How agencies work to catch issues for all their accounts. Ptr Ink 113:26-7 O 14 '20

Joint commission to improve agency standards. T. W. Le Quatte. Ptr Ink 111:141-2+ Je 10 '20

Move against rebates to advertisers direct. C. Armstrong. Ptr Ink 111:10+ Ap 8 '20

Standard order blank. R. Dickinson. Ptr Ink 113:49-50+ O 14 '20

Supreme court holds publisher may refuse dealing with advertising agency. Ptr Ink 111:129+ My 13 '20

What is agency practice as to cash discounts? Ptr Ink 113:157-8 O 14 '20

Advertising

British service agencies tell how they help manufacturers. T. Russell. Ptr Ink 114:89-90 Ja 20 '21

Advertising agencies, American association of. See American association of advertising agencies

Advertising and bankers

Advertising and the bankers' attitude toward it. W. T. Mullally. Ptr Ink 117:69-70+ N 3 '21

Bank's attitude toward advertising. R. Dickinson. Ptr Ink 116:3-4+ Jl 21 '21

How advertising looms up in bankers' minds today. J. Fletcher. Ptr Ink 117:3-4+ O 27 '21

Why banks don't know value of commercial advertising. R. D. Brigham. Ptr Ink 116:42+ S 1 '21

See also Bank advertising

Advertising and employees

Teaching the workers what advertising does. Ptr Ink 112:19-20 Jl 1 '20

Using your copy inside the plant. R. Dickinson. il Ptr Ink M 2:21-2+ Ap '21

Western clock company tells workers why it advertises though oversold. R. Dickinson. Ptr Ink 112:89-90 Jl 22 '20

See also Employment management—Advertising aids; Employment systems—Advertising; Industrial relations—Advertising aids

Advertising as a profession

Advertising as a career for college men. H. S. Houston. Ptr Ink 110:105-6+ Mr 4 '20

Advertising man—an estimate. C. M. Lemperly. Ptr Ink 115:81-2+ My 19 '21

Advertising booklets. See Advertisements—Books and booklets

Advertising cards. See Show cards

Advertising clubs, Associated. See Associated advertising clubs

Advertising contests. See Advertising—Prize contests

Advertising departments

De-centralized advertising department—what has happened to it? J. P. Wilder. Ptr Ink M 3:40+ Je '21

Optimism must be tempered by sound judgment. L. Allen. Ptr Ink 113:69-70 D 23 '20

Putting longer legs on the advertising dollar. A. H. Deute. Ptr Ink 111:125-6+ Je 10 '20

System for advertising men. G. W. Allen. il Gas Age 45:237-40, 324-6, 430-2 Mr 10, Ap 10, My 10 '20

\$250,000 building dedicated to Pratt & Lambert advertising. C. B. McCuaig. il Ptr Ink M 3:109+ Je '21

What becomes of your old drawings?; suggestions for filing and rehabilitation of used original advertising illustrations. Ptr Ink 116:89-90 Ag 11 '21

See also Advertising managers; Advertising policies

Bibliography

When salesmen and advertising are not on speaking terms. Ptr Ink 114:145+ Ja 13 '21

Advertising ethics

Copy ethics and the fictitious instance. L. R. Alwood. Ptr Ink 116:41-3 Jl 28 '21

Ethics of advertising. M. E. Hixson. J Elec 44:65 Ja 15 '20

Honest advertising won't sell dishonest goods. A. E. Haase. Ptr Ink 112:101-2+ Jl 22 '20

Telling the whole truth is not a whit too much. R. H. Lee. Ptr Ink 112:41-2+ S 23 '20

Truth, advertising and better merchandise. G. French. Ptr Ink 110:152+ F 12 '20

See also Advertising, Fraudulent

Advertising funds. See Advertising—Appropriations

Advertising managers

Advertising manager must first be a salesman. Ptr Ink 113:122+ O 28 '20

Bread-and-butter problems of the advertising man. G. K. Brown. Ptr Ink M 3:26+ O '21

Seven years in the office—three weeks on the road. R. Barstow. Ptr Ink 113:84+ N 11 '20

Where should an advertising manager's prerogatives stop? S. C. Lambert. Ptr Ink 113:160+ O 14 '20

Advertising mediums

Big sales from a small advertising appropriation. Ptr Ink 114:33-4 F 3 '21

Buyer's hunch. W. E. Humelbaugh. Ptr Ink 115:133-4 Ap 28 '21

Circulation: its duplication and verification. G. F. Hobart. Ptr Ink 110:33-5 Mr 18 '20

Dangers of advertising specifics. Ptr Ink 115:89-90 Ap 28 '21

Dealers! why not cash in on those magazine approvals? K. Maddock. il Elec R 79:663-4 O 29 '21

How English advertisers choose mediums. T. Russell. Ptr Ink 110:89-90 Mr 18 '20

Advertising mediums—*Continued*

How long does an advertisement live? F. E. Duggan. *Ptr Ink* 115:81-2+ My 5 '21

Keener judgment needed in buying space. J: A. Murphy. *Ptr Ink* 114:3-4+ Ja 20 '21
Next to advertising matter; a view into the future, when values are reversed. *Ptr Ink* 112:41-4 Jl 15 '20

Scientific space selection. 167p Audit bureau of circulations, Chicago '21

What the space buyer wants to know. G. F. Hobart. *Ptr Ink* 111:105-6 Ap 15 '20

See also Moving pictures in advertising

Farm papers

Milline rate of a piece of cheese. *Ptr Ink* 117:149-50+ O 20 '21

Newspapers

Background shrubbery. F. T. Singleton. *Ptg Art* 37:542-6 Ag '21

Borden uses newspapers intensively to round out campaign. *Ptr Ink* 114:108+ Mr 10 '21

Creating more advertising. G. L. Caswell. *Inland Ptr* 66:363-4 D '20

How advertisers are developing the possibilities of the newspaper. C. B. Larrabee. *Ptr Ink M* 3:27-30+ Je '21

How our agency buys space in newspapers and magazines. *Ptr Ink* 111:34-6+ My 20 '20

Newspaper advertising. H. W. Angus. *il J Elec* 45:185-7, 218-19 Ag 15-S 1 '20

Standardizing newspaper advertising methods and practices. C. Armstrong. *Ptr Ink* 113:173+ O 21 '20

What a study of advertising lineage would teach space buyers. G. S. Osborn. *Ptr Ink* 114:10+ Mr 10 '21

Newspapers, Company

You can't sell against that competition. L. Miller. *System* 39:676-8+ My '21

Programs

Moral: hitch your copy to the stars. O. C. Harn. *Ptr Ink* 110:170+ Mr 4 '20

Trade papers

Crain's market data book, and directory of class, trade and technical publications. 462p G. D. Crain, 417 S Dearborn St., Chicago '21

To get a message to the dealer's salesmen. *Ptr Ink* 113:50+ O 28 '20

Trade- and class-paper advertising. *Ptg Art* 38:45-9 S '21

Advertising men. *See* Advertising as a profession; Advertising managers

Advertising novelties

Advertising novelties that interest the dealer. L. Peake. *Ptr Ink M* 3:104-5 O '21

Every printshop a novelty advertising house. F. H. Williams. *Ptg Art* 37:521-5 Ag '21

Making sales the friendly way; how Errett, the lily cup man, uses advertising specialties. D. W. Kingsley. *Ptr Ink M* 2:32+ Ja '21

Advertising policies

Advertising policy is not a thing apart. R. Dickinson. *Ptr Ink* 112:3-4+ Ag 19 '20

Case for single product advertising. *Ptr Ink* 114:53-4+ Mr 17 '21

Data on which advertising policies are built. C: Stirrup. *Ptr Ink* 116:55-6 Ag 25 '21

Greater efficiency per agate line. *Ptr Ink* 115:117-18+ My 5 '21

How can consumer advertising best be merchandised? G. A. Nichols. *Ptr Ink* 115:57-8+ Je 9 '21

Increasing sales by advertising the industry. E: T. Tandy. *Ptr Ink* 114:49-50+ Mr 24 '21

Parts manufacturer advertises the whole product. *Ptr Ink* 113:154-8 N 4 '20

Reason why advertising must be okayed by more than one man. *Ptr Ink* 114:10+ Ja 13 '21

Reason why advertising should be okayed by one man. W. T. Sangston. *Ptr Ink* 114:137 Ja 27 '21

Should branch managers have a voice in advertising policies? C. M. Lemperly. *Ptr Ink* 112:17-18 S 2 '20

When the advertising comes up at the salesmen's convention. F. L. Scott. *Ptr Ink* 117:133-4+ N 3 '21

Where the personnel decides the policies. C. M. Harrison. *Ptr Ink* 113:3-4+ N 25 '20

See also Advertising—Competitive products; Advertising—Family of products; Advertising, Educational; Advertising departments; Seasonal products—Advertising

Advertising rates. *See* Advertising—Rates

Advertising scouts

Advertising scouts watch the consumer at close range. A. L. Chapman. *Ptr Ink* 113:166+ N 4 '20

Aeration of sewage. *See* Sewage disposal—Activated sludge process

Aeration of water. *See* Water aeration

Aerial bombs. *See* Bombs, Aerial

Aerial cables. *See* Electric cables

Aerial derby around the world

Aerial derby around South American continent and circuit of the Atlantic to be annual events. A: Post. *il Flying* 9:161-3 Ap '20

Aerial derby around the world to be made an annual event. *il Flying* 9:17-20 F '20

China welcomes commission organizing first Aerial derby around the world. *il Flying* 9:23-5, 104-7, 187-9 F-Ap '20

First aerial derby around the world. H: Woodhouse. *Flying* 8:835-7, 914-17, 991-4; 9:44-7, 113-15 N '19-Mr '20

Rules and regulations. *Flying* 8:838-9 N '19

World welcomes commission organizing first Aerial derby around the world. *il Flying* 9:257-61, 326-30, 386-8, 466-7, 508-9, 576-81, 635-7, 683-5+, 732-4; 10:28-30, 67-9, 107-9+, 147-9 My '20-Mv '21

Aerial fish patrol. *See* Fish patrol, Aerial

Aerial forest fire patrol. *See* Forest fire patrol, Aerial

Aerial league of America

Aerial league of America's stupendous campaign to popularize aeronautics, establish airports and extend the aerial mail service by organizing a unit in every community, university and organization. *Aerial Age* 12:143 O 11 '20

Agreement form for Aerial league of America units. *Aerial Age* 12:175 O 18 '20

Organization plan for the units of the Aerial league of America. *Flying* 9:570-1 O '20; Same. *Aerial Age* 12:144-6 O 11 '20

Aerial league of the world

Aerial league of the world organized. *Flying* 9:528-9 S '20; Same. *Aerial Age* 11:797+ Ag 23 '20

Aerial lighthouses. *See* Aerial routes—Lighting

Aerial photography. *See* Photography, Aerial

Aerial police. *See* Police, Aerial

Aerial routes

Air service adopts location marker. *il diag Aviation* 10:527 Ap 25 '21

Charting the air. W: Mitchell. *Aerial Age* 13:39 Mr 21 '21

Climatological factors governing the selection of air routes and flying fields. C. L. Meisinger. *Aerial Age* 12:368-9+ D 13 '20; Same. *Aviation* 9:423-5 D 13 '20; Same. *Sci Am M* 3:68-70 Ja '21

First airway guide. *Aviation* 10:755 Je 13 '21

How to establish an airway. *Aerial Age* 13:276-7 My 30 '21

See also Air ports

Lighting

Aerial lighthouses. *il diags Engineer* 129:500-1 My 14 '20; Same. *Sci Am M* 2:170-1 O '20

Le balisage lumineux des routes aériennes pour la navigation nocturne. *diags Génie Civil* 79:111-12 Jl 30 '21

Luminous beacons. *Aerial Age* 13:374 Je 27 '21

Aerial routes —Continued**Africa**

Cairo-Cape air route. *il map Flying* 9:324-5 Je '20

Arabia

Conquest of Arabian desert by aircraft. *Aerial Age* 14:208 N 7 '21; Same. *Aviation* 11:535 N 7 '21

Canada

Trans-Canada air route. *Aviation* 11:488 O 24 '21

Europe

London - Paris - Toulouse - Rabat - Casablanca route. *Aviation* 9:349 N 29 '20
Les transports aériens entre Paris et Londres. *Génie Civil* 76:577-8 Je 26 '20

Italy

Italian air routes and ports. *Aviation* 11:190-1 Ag 15 '21

New York (state)

National airways centre in New York. *Aerial Age* 13:484-5 Ag 1 '21

Peru

Pacific to Amazon air route reconnaissance. *Aerial Age* 13:64 Mr 28 '21

United States

Aeronautic roads. S. B. Ladd. *diags map Aerial Age* 13:563-4 Ag 22 '21
America's first model airway. *map Aviation* 10:267, 270 F 28 '21; Same. *Flying* 10:63-4 Mr '21; Excerpts. *Soc Auto Eng J* 8:330 Ap '21

First American commercial dirigible line. C. A. Tinker. *Aerial Age* 13:202-3 My 9 '21

Hudson Valley air line organized. *Aerial Age* 13:6 Mr 14 '21

Information for pilots, giving the practical characteristics of the land along various air routes. *Aerial Age* 14:107-9, 132-4, 152-4, 181, 204-6 O 10-N 7 '21

Mapping the aerial routes. T. N. Sandifer. *il Flying* 9:711-12 Ja '21; Same *abr. Aerial Age* 12:493+ Ja 17 '21

Opening exercises of America's first airway. *il Aviation* 10:376 Mr 21 '21

System of airways urged. *Aerial Age* 13:438 Jl 18 '21

West Indies

Aeromarine West Indies airways. *Aviation* 10:115 Ja 24 '21

Key West-Havana air line inaugurated. *il Aerial Age* 12:249-50 N 8 '20; *Aviation* 9:226-7+ N 1 '20

Aerial surveying. See *Surveying, Aerial*

Aerial tramways. See *Cableways*

Aerial transport corporation

Group of progressive Americans organizing aerial transportation lines throughout the United States, unable to get deliveries of aeroplanes of American manufacture, acquire large number of aeroplanes from British government. *Flying* 9:334-5 Je '20

Aero club of America

Courts asked for injunction to help aero club maintain its national leadership. *Flying* 9:152-6, 512-16+, 582-5 Ag-O '20; Same *abr. Aerial Age* 11:671-3+, 798-9+, 863-4+; 12:134-5+, 166 Jl 26. Ag 23, S 6, O 11-18 '20
11th annual meeting. New York, Nov. 8. *Aviation* 9:298 N 15 '20

Evidence of conspiracy to destroy Aero club of America submitted to the Supreme court of New York. *Aerial Age* 11:703-5+, 734-5, 745-6+ Ag 2-9 '20

Purposes of irregular meeting of A. C. A. called for August 16, violate New York state laws. *Aerial Age* 11:765-7+ Ag 16 '20

Aerodromes (fields). See *Aviation fields*

Aerodynamic balances

Aerodynamical torsion balance. A. F. Zahm. *il diag J Fr Inst* 189:463-8 Ap '20

Bifilar windbalance. A. F. Zahm. *il diags J Fr Inst* 192:233-7 Ag '21

Cross-arm wind-balance. A. F. Zahm. *il J Fr Inst* 190:685-90 N '20

Design of recording wind tunnel balances. F. H. Norton. *diags Aviation* 10:145-6 Ja 31 '21; Same. *Aerial Age* 12:511-12 Ja 24 '21

Determination of the resistance of airship models. R. H. Smith. *Aviation* 9:44-7 Ag 15 '20

Method for determining the angular setting of a tail plane to give balance at any given condition. L. V. Kerber and W. F. Gerhardt. *diag Aerial Age* 12:370-3 D 13 '20

Wind tunnel balances. E. P. Warner and F. H. Norton. *il U S Nat Advisory Com for Aeronautics* 1919:613-48 '20

Aerodynamic laboratories

Aeronautic research laboratory at the Institute of St. Cyr. J. J. Ide. *il diag Automotive Ind* 44:853-5 Ap 21 '21

Aerotechnical institute of St. Cyr; new apparatus for testing mechanical conditions governing the flight of airplanes. *il Sci Am M* 2:260-3 N '20

Altitude laboratory for the testing of aircraft engines. H. C. Dickinson and H. G. Boutell. *il diags U S Nat Advisory Com for Aeronautics* 1918:483-98 '20

Études sur l'aéronautique faites au laboratoire aérodynamique Eiffel, de 1915 à 1918. *il diags plans Génie Civil* 76:325-9 Ap 3 '20

Laboratory for aircraft engine testing. H. Chase. *il diag Automotive Ind* 45:520-2 S 15 '21

See also *Aerodynamic balances; Wind tunnels; also McCook field*

Standards

Standardization and aerodynamics. L. Prandtl. *Aerial Age* 14:79-80 O 3 '21

Aerodynamics

Aerodynamics. *diags Aerial Age* 12:209 O 25 '20

Aerodynamics at very high speed. A. Guidoni. *diags Aerial Age* 13:31-2 Mr 21 '21

Air forces on circular cylinders, axes normal to the wind, with special reference to dynamical similarity. H. L. Dryden. *diags U S Bur Stand Sci Pa* 394:489-519 '20; Abstract. *J Fr Inst* 190:727-8 N '20

Altitude effect on air speed indicators. M. D. Hersey, F. L. Hunt, and H. N. Eaton. *diags U S Nat Advisory Com for Aeronautics* 1920:693-717 '21; Abstract. *Aviation* 10:812 Je 27 '21

Applied aerodynamics. L. Bairstow. *Longmans* '20

Comparison of United States and British standard pitot-static tubes. A. F. Zahm and R. H. Smith. *il diags U S Nat Advisory Com for Aeronautics* 1919:793-6 '20

Design of aeroplane control surfaces with special references to wing ailerons. H. B. Irving. *Engineering* 110:461-3, 493-4, 527-8 O 8-22 '20

Determination of downwash. W. S. Diehl. *Aerial Age* 12:655-6 Mr 7 '21; Same. *Aviation* 10:635-7 My 16 '21

Effect of variation in load factor on structural weight of wings. R. A. Miller. *Aerial Age* 14:177-8 O 31 '21

Effects of staggering a biplane. F. H. Norton. *Aerial Age* 14:103-4 O 10 '21

Extract from a report of the resistance of spheres of small diameter in an airstream of high velocity. Capt. Toussaint and Lieut. Hayer. *diags Aerial Age* 13:199-200 My 9 '21

Factors that determine the minimum speed of an aeroplane. F. H. Norton. *Aerial Age* 13:57-60 Mr 28 '21

Harmonic oscillations. A. F. Zahm. *diags J Fr Inst* 191:381-404 Mr '21

Influence of span and load per square meter on the air forces of the supporting surface. A. Betz. *diags Aerial Age* 13:224-5 My 16 '21

Limiting velocity in falling from a great height. E. B. Wilson. *U S Nat Advisory Com for Aeronautics* 1919:769-72 '20

New lifting element. *diag Sci Am M* 2:285 N '20

Aerodynamics —Continued

Report of the committee on aerodynamics.
U S Nat Advisory Com for Aeronautics
1920:22-8 '21

Scale effects in relation to aerodynamics. H.
Levy. *il* diags *Automotive Ind* 41:629-33 S
25 '19; Same. *Sci Am M* 1:45-8 Ja '20

Sound emitted by wires of circular section
when exposed to an air-current. E. F. Relf.
diags Philos Mag 6th ser 42:173-6 J1 '21

Standardization and aerodynamics. W:
Knight. *Aerial Age* 13:343 Je 20 '21

Standardization and aerodynamics. L. Prandtl.
Aerial Age 14:79-80 O 3 '21

Wind tunnel studies in aerodynamic phenom-
ena at high speed. F. W. Caldwell and
E. N. Fales. *il* diags U S Nat Advisory
Com for Aeronautics 1920:59-99 '21

See also Aerodynamic balances; Aero-
dynamic laboratories; Aeronautics; Air
flow; Airplane resistance; Wind tunnels

Aerofoils. *See* Airplane propellers; Airplane
wings

**Aeromarine plane and motor co., Keyport, New
Jersey**

Plant of the Aeromarine plane and motor co.
A. Klemin. *il* *Aviation* 10:171, 174-6 F 7 '21

Aeromarine West Indies airways, inc.

Plans of Aeromarine West Indies airways
announced. *Aerial Age* 12:179 O 18 '20

Aeronautic code (proposed)

Proposed aeronautical safety code. *Aviation*
11:338-40 S 19 '21

Aeronautic engineering

Ground engineering. H. W. S. Outram. *Aero-
nautical J* 25:237-45 My '21; Same. *Aviation*
10:367-9 Mr 21 '21; Discussion. *Aeronautical*
J 25:245-50, 312-14 My-Je '21

See also Aerial routes; Aeronautic re-
search; Aeronautics; Airplane engines; Air-
planes; Airships; Aviation

Aeronautic instruments

Aeronautic instruments. M. D. Hersey. *il*
Aviation 8:437-4, 473-6 J1 1-15 '20; Same.
Aerial Age 11:403-5, 437-8+ My 31, Je 7
'20; Same cond. *Mech Eng* 42:263-8 My '20

Aëronautic instruments. C: E. Mendenhall. *il*
diags J Fr Inst 191:57-86 Ja '21; Same.
Aerial Age 12:512-15, 537-9+ Ja 24-31 '21

Airplane flight instruments. K. Bennewitz.
diags Aviation 9:346-8 N 29 '20

Airplane tensiometer. L. J. Larson. *il* U S
Nat Advisory Com for Aeronautics 1918:
335-8 '20

Appareil simple permettant d'obtenir la
mesure de la dérive à bord d'un aéronef.
Barbillion and Dugit. *Génie Civil* 79:314-15
O 8 '21

Aviator's tell-tales; how the pilot keeps track
of distances and speeds. W: R. Andrews. *il*
Sci Am 125:274-5+ O 15 '21

Cloud-flying instrument board. *Aerial Age* 13:
301 Je 6 '21; Same. *Aviation* 10:747 Je 13 '21

Development of air speed nozzles. A. F.
Zahm. *il* plans U S Nat Advisory Com for
Aeronautics 1918:322-34 '20

Development of an aircraft incidence meter.
A. F. Zahm. *il* plan *J Fr Inst* 188:683-5 N
'19; Same. *Aviation* 7:432 D 15 '19

Efficiency of small bearings in instruments
of the type used in aircraft. F. H. Norton.
il diags U S Nat Advisory Com for Aero-
nautics 1920:339-46 '21

Foreign aviation instruments. *Aerial Age* 12:
229 N 1 '20; Same. *Am Inst E E J* 39:975
N '20

High-speed engine pressure indicator of the
balanced diaphragm type. H. C. Dickinson
and F. B. Newell. *il* diags U S Nat Ad-
visory Com for Aeronautics 1920:637-48 '21

Indicating the safety factor. *il* *Sci Am* 125:
277 O 15 '21

Instruments and commercial aviation. C. S.
MacDonald. *Aviation* 11:456 O 17 '21

Klemperer wing-load indicator. L. N. W.
Colin. *diag Aviation* 11:164-5 Ag 8 '21

New aviation instrument. S. R. Winters. *Sci*
Am 122:211 F 28 '20

Nouvelle méthode de navigation aérienne à
l'estime, au moyen d'un correcteur de route.
Génie Civil 77:378 N 6 '20; Translation
(Driftograph). *Sci Am M* 3:453-4 My '21

Pioneer aircraft instruments. *il* *Aerial Age*
11:257-8 My 3 '20

Pioneer turn indicator. C: H. Colvin. *il* *diag*
Aviation 8:283-4 My 1 '20

Pressure gages for airplanes. *il* *Aviation* 9:
357-8 N 29 '20

Special inclinometers and indicators. *il* *Avia-
tion* 9:322-3 N 22 '20

Static head turn indicator for aeroplanes.
H. Darwin. *Sci Am S* 88:322-3 N 29 '19;
Same cond. *Aviation* 7:389-90 D 1 '19

See also Accelerometer; Aerodynamic
balances; Air speed indicators; Compass;
Compass, Gyrostatic; Nephoscope; Sextants,
Air; Wireless telegraph in aviation

Aeronautic libraries

See United States—Air service library

Aeronautic maps

Aeronautical maps. *Aerial Age* 13:470 J1 25
'21

International aeronautical maps. *Aerial Age*
12:638 F 28 '21

See also Aerial routes

Aeronautic patents

Aeronautic patents situation. *Aerial Age* 11:
573-4 J1 5 '20

Invention in aeronautics. F: W. Barker. *Sci*
Am M 1:202-4 Mr '20; Same abr. *Aviation* 8:
112-13 Mr 1 '20

Method of navigating aircraft. *diags Aerial*
Age 11:647-8 J1 19 '20

Aeronautic research

Education and research in aeronautics. En-
gineering 109:289 F 27 '20

Government agencies and aeronautics. *Avia-
tion* 10:142 Ja 31 '21

Research and the future of aeronautics. W:
B. Stout. *Flying* 10:207-8 J1 '21

Scientific flight study urged by national
aeronautic body. A. Sinsheimer. *Automotive*
Ind 41:1224-5 D 18 '19

Scientific methods in aeronautics. G. I.
Taylor. *il* diags *Aeronautical J* 25:474-91 S
'21

See also Aerodynamic laboratories; Aero-
nautics—Experiments; Wind tunnels

Aeronautics

Accelerations in flight. F. H. Norton and E.
T. Allen. *il* diags U S Nat Advisory Com
for Aeronautics 1920:483-8 '21

Aeronautics in theory and experiment. W:
L: Cowley and H. Levy. 2d ed. 331p E.
Arnold, London '20

Aeronautics; international aspects, national
control, commercial development, etc. G:
H. Houston. *Soc Auto Eng J* 6:293-7 My '20

Air conference, Oct. 12-15. *Engineer* 130:
372, 406-8, 431-3 O 15-29 '20; *Engineering*
110:512-15, 528-32 O 15-22 '20

Bumpiness in flying; effects of winds and other
weather conditions on the flight of airplanes.
C: Brooks and others. *diags Sci Am M* 1:
126-30 F '20

La chimie française et les problèmes de la
guerre: chimie et aéronautique. C: Mou-
reu. *Chimie & Ind* 4:393-402 S '20

Civil aviation and air services. F. H. Sykes.
il *Flying* 9:674-9+ D '20

Classification of the ground from the air.
H. A. Lloyd. *il* diags map *Flying* 9:680-2
D '20

Complete aeronautics. C. A. C: Winchester,
ed. [bibliog. p. 281-3] Standard art book
co., London '20

Complete airman. G. C. Bailey. 269p Methuen
& co., London '20

Development of aircraft, with special refer-
ence to the Zeppelin airships. P. Jaray. *il*
Aviation 10:424-6, 456-60 Ap 4-11 '21

Effects of wind upon the stability and ma-
neuverability of an airplane in flight. T. N.
Joyce. *diags Aviation* 8:18-19 F 1 '20

Excerpts from the report for the year 1919-
20 of the Advisory committee for aero-
nautics. *Engineer* 131:174 F 18 '21

Explanation of peculiarities observed in fly-
ing in the wind. J. G. Coffin. *diags Aviation*
7:381-5 D 1 '19

Factors affecting flight. W. G. Landon. *diags*
Aerial Age 13:55-6 Mr 28 '21

Aeronautics —Continued

- Flying weather in the southern plains states. J: A. Reihle. *Aviation* 10:339-40 Mr 14 '21
- Future of aviation. E. A. Deeds. *il Mech Eng* 42:28-31 Ja '20
- General theory of the steady motion of an airplane. G: De Bothezat. *U S Nat Advisory Com for Aeronautics* 1920:401-70 '21
- How aircraft will help astronomers, physicists and biologists in the study of fundamental questions. H. Woodhouse. *il diags Flying* 9: 91-6 Mr '20
- Limiting velocity in falling from a great height. E. B. Wilson. *U S Nat Advisory Com for Aeronautics* 1919:769-72 '20
- Meteorology in the service of aviation. G. Dobson. *Aeronautical J* 25:223-9 My '21; Excerpts. *Aerial Age* 13:350 Je 20 '21; Discussion. *Aeronautical J* 25:230-3 My '21
- Method of navigating aircraft. *diags Aerial Age* 11:647-8 Jl 19 '20
- Naval architecture in aeronautics. J. C. Hunsaker. *diags Engineering* 109:857-60 Je 25 '20; Same. *Aviation* 9:10-14 Ag 1 '20
- Naval architecture in aeronautics. J. C. Hunsaker. *diags Soc Auto Eng J* 7:504-20 D '20
- Opinions of British leaders on the future of aircraft. *Automotive Ind* 44:706-7 Mr 31 '21
- Physics of flight. D: L. Webster. *diags J Fr Inst* 189:553-80 My '20
- Present position of aircraft research and contemplated developments. E. L. Ellington. *Engineering* 110:504-5, 554-5 O 15-22 '20; Excerpt. *Engineer* 130:409-10 O 22 '20; Abstract. *Génie Civil* 77:506-7 D 18 '20; Discussion. *Engineering* 110:528-9, 540 O 22 '20; Discussion. *Engineer* 130:407 O 22 '20
- Primer of air navigation. H. E. Wimperis. 128p Constable & co., London '20
- Principles and practice of aerial navigation. J. E. Dumbleton. 172p C. Lockwood & son, London '20
- Problem of flapping flight. H. Chatley. *diags Aeronautical J* 25:492-7 S '21
- Rectilinear flight of aeroplanes. A. Rateau. *Mech Eng* 42:268-9+ My '20
- Les régimes lents, en aviation. A: Forissier. *Génie Civil* 76:205-7 F 21 '20
- Scientific methods in aeronautics. G. I. Taylor. *il diags Aeronautical J* 25:474-91 S '21
- Soaring flight. L. Prandtl. *il Aviation* 11:459 O 17 '21
- Some technical problems in aeronautics. *il Mech Eng* 43:526-8+ Ag '21; Same. *Aviation* 11:345-6 S 19 '21
- Supply of meteorological information. H. G. Lyons. *il Aviation* 7:346-8 N 15 '19
- Technique of flight. R. M. Hill. *Aeronautical J* 25:251-60, 301-11 My-Je '21
- Théorie analytique des avions en vol rectiligne et application au calcul des plus grandes distances franchissables. A. Rateau. *Génie Civil* 76:557-8 Je 19 '20
- Theory of an airplane encountering gusts. E. B. Wilson. *U S Nat Advisory Com for Aeronautics* 1918:83-9 '20
- Torsion of wing trusses at diving speeds. R. G. Miller. *U S Nat Advisory Com for Aeronautics* 1920:603-8 '21; Abstract. *Aviation* 10:438 Ap 4 '21
- Velocity and stresses in a glide. J. C. Hunsaker. *diags Aviation* 7:539-40 Ja 15 '20
- Wind tunnel balances. E: P. Warner and F. H. Norton. *il U S Nat Advisory Com for Aeronautics* 1919:613-48 '20

See also Aerodynamic laboratories; Aerodynamics; Aeronautics, Commercial; Aircraft; Airplane engines; Airplane stability and stabilizers; Airplanes; Airships; Aviation; Aviators; Balloons; Fish patrol, Aerial; Flight; Flying boats; Flying machines; Forest fire patrol, Aerial; Gliders; Helicopters; Hydrodrome; Hydroplanes; Ornithopter; Photography, Aerial; Police, Aerial; Postal service, Aerial; Seaplanes; Wireless telegraph in aviation; *also* International aircraft standards commission; Pan-American aeronautic congress

Bibliography

Aeronautical book and magazine list, with references to principal documents and pa-

pers of historical interest. (Air service information C. v.1, no.21) 45p '20 U. S. War department, Washington, D.C.
Bibliography of aeronautics, 1909-1916. 1493p United States National advisory commission for aeronautics

Congresses

France to organize first International air navigation congress. *Aerial Age* 13:622 S 5 '21

Exhibitions

- Air show brings back fond memories to old-time motor car men. L. G. Sullivan. *il Motor Age* 37:7-11 Ja 15 '20
- Aircraft makers exhibit the 1920 commercial models; second national show of the Manufacturers' aircraft association. *il Automotive Ind* 42:643-9+ Mr 11 '20
- Chicago aeronautical show. *il Aviation* 7:470-4 Ja 1 '20
- Chicago air show presents significant technical developments. *il Automotive Ind* 42: 293-9 Ja 22 '20
- Commercial development rules Olympia aero show. *il Automotive Ind* 43:301-7+ Ag 12 '20
- First post war aircraft exhibition held in France. W. F. Bradley. *Automotive Ind* 42: 1-2 Ja 1 '20
- Impressions of the Chicago aeronautical show. A. Klemin. *il Aviation* 7:522-5 Ja 15 '20
- International aero exhibition. *il (supp) diags Engineer* 130:52-4, 62, 78-80, 86 Jl 16-23 '20
- International aero exhibition. *il diags Engineering* 110:74-9, 82, 106-9, 118, 137-42, pl 14-15 Jl 16-30 '20
- London aero exhibition. J: J. Ide. *Aviation* 9:93-5 S 1 '20
- New York aeronautical exposition. *il Aerial Age* 10:763-75 Mr 8 '20
- Paris aeronautical exposition. *diags Aviation* 8:10-13 F 1 '20
- Paris aviation show. *il Engineer* 129:37, 63-4 Ja 9-16 '20
- VI^e exposition internationale. G. Espitalier. *il diags Génie Civil* 76:29-35 Ja 10 '20
- La VI^e exposition internationale d'aéronautique de Londres (9-20 juillet 1920). *il diags plans Génie Civil* 77:125-30, 153-6 Ag 14-21 '20

Experiments

- Experimental flying operations in Canada. *il map Aviation* 11:166-9 Ag 8 '21
- Experimental night flying by flight test section, McCook field. M. S. Fairchild. *Aerial Age* 13:516-17 Ag 8 '21
- Soaring and gliding experiments in Germany. S. Y. Beach. *il Aviation* 11:13-14 Jl 4 '21
- See also* Aeronautic research

History

History of aeronautics. E. C: Vivian. 521p Harcourt, Brace & co., New York '21

Laws and regulations

- Aerial ordinance for New York city. *Flying* 10:25-7 F '21; Same. *Aviation* 10:78 Ja 17 '21
- Aero tariff urged. *Aviation* 9:231 N 1 '20
- Aeronautics in the California legislature. *Aerial Age* 13:365 Je 27 '21
- Air legislation pending. *Aerial Age* 13:133+ Ap 18 '21
- American aviators in Canada. *Aviation* 11: 67 Jl 18 '21
- American bar association aviation committee makes report. *Aerial Age* 12:607 F 21 '21; Same. *Aviation* 10:139 Ja 31 '21
- Canada prohibits passenger stunting. *Aviation* 10:653 My 23 '21
- Federal air regulations important. F: B. Rentschler. *Soc Auto Eng J* 7:330 O '20
- Flying ordinance being prepared for New York city. F. H. La Guardia. *Aerial Age* 12:412 D 27 '20
- French aircraft customs regulations. P. E. Flandin. *Aviation* 10:392-3 Mr 28 '21
- French regulations issued. *Aerial Age* 12: 472 Ja 10 '21
- Ground engineering. H. W. S. Outram. *Aviation* 10:367-9 Mr 21 '21
- Laws for air travel. G. W. Harris. *Soc Auto Eng J* 7:474 N '20

Aeronautics—Laws and regulations—Cont.

- National registration and licensing. Aviation 10:199 F 14 '21
- Naval air legislation. Aviation 11:196 Ag 15 '21
- Need of federal control in commercial aviation. S. H. Philbin. *il* Flying 10:174-7 Je '21; Same. Soc Auto Eng J 9:151-4 Ag '21; Discussion. 9:245-6 O '21
- New rules prohibit army stunt flying. Aerial Age 13:512-13 Ag 8 '21
- Organization of governmental activities in aeronautics. U S Nat Advisory Com for Aeronautics 1920:10-18 '21
- Problems in aviation law. G: G. Bogert. 39p [Reprinted from The Cornell law quarterly]
- Quarantine regulations for aircraft. Aviation 9:328 N 22 '20
- Senator Wadsworth introduces bill to regulate flying and develop American aviation. Aerial Age 14:31-2+ S 19 '21; Aviation 11:304-6 S 12 '21
- Special report of the Aeronautic division of the S. A. E. on the regulation of commercial air navigation. Soc Auto Eng J 8:171-2 F '21
- Standardizing municipal air ordinances. Aviation 10:467-8 Ap 11 '21
- State and local air laws and ordinances. Aviation 10:591-2 My 9 '21
- Swiss air regulation. Aerial Age 13:304 Je 6 '21; Same. Flying 10:214-15 J1 '21
- Textbook of aerial laws, and regulations for aerial navigation, international, national and municipal, civil and military. H: Woodhouse. Stokes '20
- U. S. airmen barred by Canada on May 1. Aerial Age 13:52 Mr 28 '21
- Unlicensed flying in England. Aviation 11:348 S 19 '21
- Who dropped the monkey wrench on your head? H: Woodhouse. *il* Flying 9:38-43 F '20
- Who owns the air? M. W. Royse. Aviation 10:463-4 Ap 11 '21
- See also* Aeronautic code (proposed); Aviators—Licenses

Bibliography

- First preliminary report to the Executive committee of the Special committee on the law of aviation of the American bar association. 40p Charles A. Boston, 24 Broad St., New York, Ja 3 '21

Study and teaching

- Plans of the American airways to teach disabled veterans. *il* Aerial Age 13:566-7 Ag 22 '21
- Schools teaching aeronautics. Aerial Age 12:460 Ja 10 '21

Tables, calculations, etc.

- Absolute coefficients and the graphical representation of aerofoil characteristics. Aerial Age 13:441-3 J1 18 '21
- Aeroplane characteristic and performance table eliminates mathematical calculations. Aerial Age 13:525 Ag 8 '21
- Aeroplane flight endurance. Aerial Age 13:490-2 Ag 1 '21
- Angles of attack and air speeds during maneuvers. E. P. Warner and F. H. Norton. *il* diags U S Nat Advisory Com for Aeronautics 1920:611-20 '21
- Computations of airplane climb. F. W. Caldwell. Aviation 7:355-6 N 15 '19
- Deflection of beams of non-uniform section. Aerial Age 13:543-6 Ag 15 '21
- Experiments on thick wings with flaps. C. D. Hanscom. charts Soc Auto Eng J 8:271-6 Mr '21; Same. Aerial Age 13:79-82 Ap 4 '21; Discussion. Soc Auto Eng J 8:421-2 My '21
- New method of testing models in wind tunnels. W. Margoulis. Aerial Age 14:58-61 S 26 '21
- Performance of a vane-driven gear pump. R. H. Heald. diags Aerial Age 14:81-3+ O 3 '21
- Variation of aerofoil lift and drag coefficients with changes in size and speed. W. S. Diehl. Aerial Age 13:518-20 Ag 8 '21

Terminology

- Nomenclature of navigation. Aviation 11:7 J1 4 '21
- Nomenclature for aeronautics. U S Nat Advisory Com for Aeronautics 1918:70-8 '20
- Nomenclature for aeronautics. U S Nat Advisory Com for Aeronautics 1920:199-235 '21

Japan

- Imperial Japanese aviation. Aerial Age 13:208 My 9 '21

South America

- Aviation in South America. C. W. Webster. *il* Flying 8:986-7 Ja '20
- Effect of temperature and altitude of aerodrome in the taking off of aeroplanes. P. G. Gundry. diags Aeronautical J 25:290-300 Je '21

United States

- McCook field and American aeronautics. L. Cammen. *il* Mech Eng 42:441-4 Ag '20

Aeronautics, Commercial

- Aerial delivery of newspapers successful. *il* Aerial Age 12:105 O 4 '20
- Aerial league of America's stupendous campaign to popularize aeronautics, establish airports and extend the aerial mail service by organizing a unit in every community, university and organization. Aerial Age 12:143 O 11 '20
- Aerial transportation as a business proposition. G L. Martin. Soc Auto Eng J 8:347-9 Ap '21
- Aerial transportation of the immediate future. R. H. Upson. Soc Auto Eng J 8:593-7 Je '21
- Aeroplane displaces the automobile in the motion picture. J. Lachenbruch. *il* Aerial Age 11:53+ Mr 22 '20
- Air liner is designed for commerce. *il* plans Automotive Ind 41:964-7 N 13 '19
- Air mail—an economic revolution. Aviation 9:232 N 1 '20
- Air mail extension. C. C. Turner. Aviation 9:324 N 22 '20
- Air navigation. E. S. Gorrell. Soc Auto Eng J 7:411-12 N '20
- Air service and civilian aeronautics. H. E. Hartney. Aviation 10:307-9 Mr 7 '21
- Air transport demonstration at Mineola. *il* Aviation 11:536-7 N 7 '21
- Air transportation and the business man. V. E. Clark. Soc Auto Eng J 8:563-9 Je '21; Same. Flying 10:167-73 Je '21
- Airplane and advertising of the future. R. R. Updegraff. Ptr Ink 111:3-4+ My 27 '20
- Airplane as a commercial possibility. D. W. Douglas. *il* Sci Am M 1:339-43 Ap '20
- Airplane efficiency in public transportation. H. White-Smith. *il* Aviation 10:498-501 Ap 18 '21
- Analysis of the need for civil aviation. W. F. Durand. Automotive Ind 41:872-5, 922-4, 968-71, 1020-4 O 30-N 20 '19
- Can airways be made to pay? F. Searle. Automotive Ind 43:552-3 S 16 '20
- Civil aviation and air services. F. H. Sykes. Flying 9:674-9+ D '20; Same cond. Engineering 110:524-6 O 15 '20; Same cond. Engineer 130:385-6 O 15 '20; Discussion. Engineering 110:512-14 O 15 '20; Engineer 130:372 O 15 '20
- Coming aeronautical developments. Engineer 131:45-6 Ja 14 '21
- Commercial aeronautics and war. J. Valentine, jr. Aviation 11:137-8 Ag 1 '21
- Commercial aircraft for emergencies; the threatened railroad strike. Aviation 11:542 N 7 '21
- Commercial airplane development. Sci Am 122:696 Je 26 '20
- Commercial airship its operation and construction. T. Dawson. *il* map Flying 9:665-73 D '20; Same cond. Engineering 110:558-60 O 22 '20; Same cond. Engineer 130:501-2 N 19 '20; Discussion. Engineering 110:531-2 O 22 '20; Engineer 130:433 O 29 '20
- Commercial aviation in the eastern hemisphere. E: P. Warner. *il* map Soc Auto Eng J 9:123-30 Ag '21

Aeronautics, Commercial—Continued

- Commercial aviation, its development since the war and its scope in the future. F. H. Page. *Am Mach* 52:753-4 Ap 1 '20
- Commercial aviation progress. *Eng N* 85:678-9 O 7 '20
- Design requirements of commercial aviation. G. C. Loening. *Aerial Age* 12:516-17, 542-3 Ja 24-31 '21; Same. *Soc Auto Eng J* 8:135-44 F '21; Discussion. *Soc Auto Eng J* 8:419-21 My '21
- First semi-annual report of the Civil affairs division of the Army air service. *Aerial Age* 12:565, 586-7 F 7-14 '21
- How the world found one hundred uses for aeroplanes. H. Woodhouse. *il Flying* 9:561-8 O '20
- Large aircraft will make aerial transport lines public utilities. *Aerial Age* 12:165 O 18 '20
- Making airways pay; problems of civil flying. *il Flying* 9:619-24 N '20
- On the problems of commercial aeronautics. H. E. Hartney. *il Flying* 9:638-40 N '20
- Operation of civil aircraft in relation to the constructor. H. White-Smith. *il Flying* 10:47-59 Mr '21; Abstracts. *Engineer* 130:406 O 22 '20; *Engineering* 110:514 O 15 '20; Discussion. *Engineer* 130:406-7 O 22 '20; *Engineering* 110:514-15 O 15 '20
- Organization of civil aviation along international lines. W. Knight. *Aerial Age* 12:344-5 D 6 '20
- Over-cloud flying and commercial aeronautics. M. Jones. *diags Aviation* 8:402-8 Je 15 '20
- Rise of civil aviation. H. A. Halverson. *J Elec* 45:370-4 O 15 '20
- Some requirements of modern aircraft. R. T. Glazebrook. *diags Engineering* 110:683-4 N 19 '20
- Transportation's fourth estate. C. A. Tinker. *il Nation's Business* 8:13-16 Ag '20
- Travel by air. W. W. Kellett. *il Flying* 10:60-1 Mr '21
- La valeur de l'avion comme engin de transport commercial. Hirschauer. *Génie Civil* 79:214-15 S 3 '21
- What about our commercial aviation? G. Gaulois. *il Sci Am* 122:215+ F 28 '20
- What should be done to increase the civil use of airplanes? J. F. Hayford. *W Soc E J* 25:238-52 Ap 5 '20
- What the world is doing in aviation. A. Sinsheimer. *Automotive Ind* 42:393-6 F 5 '20
- Winged transportation; a survey of commercial air services here and abroad. L. d'Orcy. *il Sci Am* 124:168-9 F 26 '21
- See also* Aerial routes; Aircraft industry; Airplanes in agriculture; Airplanes in construction work; Photography, Aerial

Advertising

- Advertising to airplane passengers. *Ptr Ink* 113:129-30 D 23 '20
- Aviation publicity. *Aviation* 11:284 S 5 '21
- Travel by air now being promoted. *Ptr Ink* 112:28 S 16 '20

Costs

- Aerial transportation of the immediate future. R. H. Upson. *Soc Auto Eng J* 8:593-7 Je '21
- Airplane costs in hydro-electric work. E. W. Dichman. *il J Elec* 45:360-3 O 15 '20; Same. *Aviation* 10:134-6 Ja 31 '21; Same abr. *Eng & Contr* 54:470-1 N 10 '20
- Analysis of operation costs of aeroplane lines. W. B. Stout. *Aerial Age* 13:107 Ap 11 '21
- Comparison of the cost of transport and ton-miles by land, sea, and air. *Aeronautical J* 25:205-13 Ap '21; Excerpt. *Aerial Age* 12:638 F 28 '21; Discussion. *Aeronautical J* 25:214-20 Ap '21
- Cost of air travel. J. G. Vincent. *Aviation* 9:234 N 1 '20
- Cost of commercial flying. *Automotive Ind* 42:1097 My 13 '20
- Cost of operation for airplane service. L. H. Mueller. *J Elec* 45:368-9 O 15 '20
- Operation of civil aircraft in relation to the constructor. H. White-Smith. *il Flying* 10:47-59 Mr '21

Alaska

- Alaskan air pioneers. *Aerial Age* 12:221 N 1 '20

Australia

- Aviation in Australia. *il Flying* 10:131-2 My '21
- Commercial aviation in Australia. R. A. Hendy. *diags Aviation* 11:49 Jl 11 '21

Canada

- Canada's commercial air policy. *Aviation* 11:73 Jl 18 '21
- Canadian air progress—1920. map *Aviation* 10:372-4 Mr 21 '21
- Civil aviation in Canada. *il Aviation* 11:45 Jl 11 '21
- Experimental flying operations in Canada. *il map Aviation* 11:166-9 Ag 8 '21
- Longest commercial flight in Canada. *il map Pop Mech* 35:677 My '21
- See also* Aerial routes—Canada; Canada—Air board

China

- Aviation in China. *Aerial Age* 12:256 N 8 '20
- Aviation in China. De Senn Chung. *il Aviation* 11:511-12 O 31 '21

Colombia

- Commercial aviation in Colombia. *Flying* 10:59+ Mr '21
- Commercial aviation in Colombia. W. S. Clute. map *Flying* 9:694+ D '20

Ecuador

- Aviation in Ecuador. *Flying* 10:104+ Ap '21

Europe

- European nations encouraging commercial aviation. *Aviation* 9:356 N 29 '20
- European recognition of the possibilities of the airplane for commercial uses. E. A. Dixie. maps *Am Mach* 54:233-4 F 10 '21
- French and Dutch air services supplanting English control of air lines in Europe. *Am Mach* 54:888e My 19 '21
- See also* Aerial routes—Europe

France

- Civil aviation in 1921. de Lavergne. *Aviation* 10:745-7 Je 13 '21
- Developing a ground organization for civil aviation. W. F. Bradley. *il Automotive Ind* 45:572-6, 622-6 S 22-29 '21
- L'état actuel de l'aéronautique en France. E. Gouault. *Génie Civil* 77:11-13 Jl 3 '20
- French aircraft customs regulations. P. E. Flandin. *Aviation* 10:392-3 Mr 28 '21
- French forge ahead in channel air service. *Aviation* 10:364 Mr 21 '21
- French state aerodromes for civil use. *diags map Aviation* 10:638-9 My 16 '21
- French subsidies for transport aircraft. *Aviation* 7:490 Ja 1 '20
- New French aviation subsidies. *Aviation* 10:469 Ap 11 '21

Germany

- Commercial air lines in Germany. *Aerial Age* 12:568 F 7 '21
- Commercial aviation in Germany. *Aerial Age* 12:446 Ja 3 '21
- Commercial aviation in Germany. E. Hildesheim. map *Aviation* 11:135-6 Ag 1 '21
- Commercial aviation in Germany. W. Wronsky. *il Aviation* 10:402-3 Mr 28 '21
- German aviation. *Aerial Age* 14:160 O 24 '21
- Les tendances actuelles de l'aéronautique allemande. *Génie Civil* 78:464 My 28 '21

Great Britain

- Aeronautics in 1919. *il Engineer* 129:5-8, 31-6 Ja 2-9 '20
- Aeronautics in 1920. *il (supp) Engineer* 131:5-7, 40-1 Ja 7-14 '21; Discussion. E. V. Hammond. 131:42 Ja 14 '21
- Air ministry competitions, 1920. *Engineer* 131:41-2 Ja 14 '21; Same. *Aviation* 10:338 Mr 14 '21
- Air ministry competitions, 1920; tabulation. *Engineering* 110:343 S 10 '20

Aeronautics, Commercial—Great Britain—Cont.

- Aviation and air transport. F. H. Sykes. *il Flying* 10:133-7 My '21
- British governmental co-operation in commercial aeronautics. *Aerial Age* 13:443+ JI 18 '21
- British governmental support of privately owned airplane companies. *Am Mach* 54:392h-i Mr 3 '21
- British imperial air routes. *il Flying* 9:338+ Je '20
- British terms for disposal of airships. *Aerial Age* 13:376 Je 27 '21
- Civil aviation in England. *Aerial Age* 12:116 O 4 '20
- England to subsidize air transport. *Aviation* 10:277 F 28 '21
- Half-yearly report on British civil aviation. *Aerial Age* 13:394-5 JI 4 '21; Same. *Flying* 10:209-10 JI '21
- Imperial air communications. *Engineering* 112:320 Ag 26 '21
- Lloyd's aviation record. *Aerial Age* 13:160 Ap 25 '21
- La navigation commerciale aérienne en Grande-Bretagne. *Génie Civil* 77:456-60, 483-5, 506-8 D 4-18 '20
- Possibilities of airship services. Lord Montagu. *Aerial Age* 13:393 JI 4 '21; Same. *Aviation* 11:99-100 JI 25 '21
- Progress of civil aviation. *Engineering* 110:812 D 17 '20
- Progress of civil aviation; a digest of half-yearly report issued by the British air ministry. *Flying* 10:16+ F '21; Excerpts. *Aviation* 10:207-8 F 14 '21
- Status of civil aviation in England. F. H. Sykes. *il map Flying* 9:116-19 Mr '20
- See also* Great Britain—Air ministry

Italy

- Italian aviation. C. Ferrari. *Aviation* 10:177 F 7 '21
- Italian plane makers seek world aviation sales. *Automotive Ind* 42:843-5 Ap 8 '20
- See also* Aerial routes—Italy

Japan

- Aerial activity in Japan. A. E. Bryan. *Aviation* 10:504 Ap 18 '21

Latin America

- Air transport in Latin America. *Aviation* 11:72 JI 18 '21
- Latin-American countries need 10,000 aeroplanes for aerial transportation. H: Woodhouse. *Flying* 9:235-9 My '20

Peru

- Aviation in Peru. *Aerial Age* 13:269 My 30 '21

South Africa

- Aviation in South Africa. *Aerial Age* 13:572 Ag 22 '21

South America

- Commercial aviation in South America. *Aviation* 9:482 D 27 '20

United States

- Aeromarine pioneering. *il Aviation* 11:392-4 O 3 '21
- Air lines planned to Chicago. *Aerial Age* 12:167 O 18 '20
- Civilian aviation petitions president. *Aviation* 10:801-2 Je 27 '21
- Commercial aviation in Texas. C. A. Wright. *Flying* 9:110-11 Mr '20
- Commercial possibilities of aircraft in the West. H. H. Arnold. *il J Elec* 45:364-5 O 15 '20
- Dawn of American commercial aviation. L. d'Orcy. *il Sci Am* 123:546+ N 27 '20
- Exploring routes for western air traffic. *J Elec* 46:250-2 Mr 1 '21
- Fokker studying the American situation. *Aviation* 9:325 N 22 '20
- Group of progressive Americans organizing aerial transportation lines throughout the United States, unable to get deliveries of aeroplanes of American manufacture, acquire large number of aeroplanes from British government. *Flying* 9:334-5 Je '20

- Next steps in commercial aviation. J. J. Vincent. *il Flying* 10:87-90 Ap '21
- Our fiction becomes fact. C. A. Tinker. *Nation's Business* 8:64+ S '20
- Permanent aerial policy urged by prominent men. *Aerial Age* 13:390 JI 4 '21
- Prosperous outlook for aeronautics on sixteenth anniversary of the first flight. H: Woodhouse. *il Flying* 8:973-9 Ja '20
- Shall we put the airplane to work in America? *Automotive Ind* 42:693-6 Mr 18 '20
- Tip for the aircraft manufacturer and the prospective operators of commercial aircraft transportation companies. E. G. Allen. *Aerial Age* 13:297-8 Je 6 '21
- What the Weather bureau does for air pilots. *il Aviation* 10:595-7 My 9 '21
- See also* Aerial routes—United States; Aircraft industry—United States; Airplane industry and trade—United States

West Indies

- Plans of Aeromarine West Indies airways announced. *Aerial Age* 12:179 O 18 '20

Aeronautics, Military

- Aerial observation; H. E. Porter. 356p Harper '21
- Air service, air force, and air power. *Aviation* 10:522-3 Ap 25 '21
- Aircraft vs. capital ships. C. G. Grey. *Aviation* 10:163 F 7 '21
- Aircraft v. submarines. L. H. Strain. *Aeronautical J* 25:193-204 Ap '21; Same. *Flying* 10:202-6+ JI '21
- Aspects of service aviation; abstracts, with discussion. H. M. Trenchard. *Engineer* 130:432-3 O 29 '20; *Engineering* 110:530-1 O 22 '20; *Flying* 9:716-18+ Ja '21
- Aviation in Russia. *Aviation* 11:76-7 JI 18 '21
- Battleships to be bombed. *il Aviation* 10:328-30 Mr 14 '21
- Brig.-Gen. Mitchell's startling testimony; claims aircraft can render big naval battleships obsolete. *Aviation* 10:164-7 F 7 '21
- British air power and air policy; analysis of British air appropriations, 1921-1922. *Aviation* 10:600-4 My 9 '21
- Commercial aeronautics and war. J. Valentine, jr. *Aviation* 11:137-8 Ag 1 '21
- Deeds of the Kosciuszko escadrille. C. E. Fauntleroy. *Aviation* 9:318 N 22 '20
- Development of French naval aviation. J: J. Ide. *il diags plan Aviation* 7:340-5 N 15 '19
- Development of U.S. naval aviation. *il Aviation* 7:424-8 D 15 '19
- First pursuit group training in low bombing. *Aviation* 9:320 N 22 '20
- French aviation in 1921. de Laverigne. *Aviation* 10:745-7 Je 13 '21
- Future defensive navy; what relation should aeronautics have to the modern efficient navy? G. D. Wardrop. *il Flying* 10:6-12 F '21
- Future of naval aeronautics. G. C. Westervelt. *Soc Auto Eng J* 6:292-3 My '20
- German airship construction during the war. L. d'Orcy. *il diags Sci Am M* 3:455-8 My '21
- How U.S. can save \$452,000,000; the economy of airplanes as compared to battleships. H. E. Hartney. *il Aviation* 10:598-9 My 9 '21
- Japan's naval air service. *Aviation* 11:78 JI 18 '21
- National guard aero squadrons. *Aviation* 11:51 JI 11 '21
- Navy bureau of engineering—1920. *Aviation* 10:76-7 Ja 17 '21
- 101st signal battalion, N. Y. N. G. G. Layng. *il Wireless Age* 8:17-18 S '21
- Present status of military aeronautics in United States. C. T. Menoher. *Soc Auto Eng J* 6:290-2 My '20
- Recent progress in military aviation. H. S. Martin. *il Soc Auto Eng J* 8:335-8 Ap '21
- Le rôle futur de l'aviation dans la guerre navale. A. Poidlouë. *Génie Civil* 79:9-12 JI 2 '21
- Royal air force pageant. *il Aviation* 11:171 Ag 8 '21
- Scope and development of the signal corps. U.S.A. L. D. Wildman. *W Soc E J* 25:267-80 Ap 20 '20

Aeronautics, Military—Continued

Secretary Daniels on aeronautics; excerpts from the annual report of the secretary of the navy. Aviation 9:414-16 D 13 '20

Story of the part played by aviation with the British, German and American fleets. E. O. McDonnell. il Flying 8:905-11, 997-9; 9:33-5+ D '19-F '20

Torpedo controlled by airplane by means of wireless. E. T. Jones. diags Wireless Age 8:30-1 O '20

U.S. War dept. Division of military aeronautics, report of director of air service. 298p Govt. print. off., Washington '20

Weapons at sea; the place of aircraft and the battleship. E. G. Allen. Sci Am 125:25+ JI 9 '21

See also Airplanes, Military; Bombs, Aerial; Torpedoplanes; United States—Air service

Study and teaching

U.S. army school of military aeronautics at Cornell university. W. N. Barnard. il Sibley J 33:63-5 Je '19

See also Airplane mechanics

Aeronauts. *See* Aviators

Aeroplanes. *See* Airplanes

Aerostats. *See* Airships; Balloons

Aerotechnical institute of St Cyr. *See* Aerodynamic laboratories

Afghanistan

See also Hydroelectric plants—Afghanistan

Africa

Details of plan to rewater Africa. Pop Mech 34:571 O '20

See also Aerial routes—Africa; South Africa

Railroads

See Railroads—Africa

Agar-agar

Agar manufacture new California industry. E. B. Richardson. il Pop Mech 34:576-8 O '20

California's seaweed industry. J. L. Von Blon. il Sci Am 123:445+ O 30 '20

L'emploi des algues marines dans l'alimentation. M.-Y. Lemaire. Génie Civil 78:112-13 Ja 29 '21

Agate

Agate guides for fishing rods—a new American industry. R. H. Moulton. il Sci Am 122:189+ F 21 '20

Age

Is it wise to mark an age limit? S. E. Kiser. Ptr Ink 110:129-30+ F 5 '20

Agelacrinitidae

New agelacrinitid from the Chazy of New York. T. H. Clark. diags Am J Sci 50:69-71 JI '20

Agency (law)

Important decision on agency contracts with dealers. E. J. Buckley. Metal Work 93:88 Ja 16 '20

Law of agency, with questions and answers. A. W. Bays. 2d ed. 127p Callaghan & co., Chicago '21

See also Brokers; Partnership

Agglutination

Agglutinating solid powders by comparison. T. von Hagen. Sci Am M 2:151-2 O '20

Aggregate. *See* Concrete—Aggregate

Agitators

Process and equipment for refining benzene hydrocarbons. A. Thau. diags Chem & Met Eng 23:1065-71 D 1 '20

Agreements, Trade. *See* Trade agreements

Agricultural chemistry

Vocational chemistry for students of agriculture and home economics. J. J. Wilaman. 294p Lippincott '21

See also Fertilizers; Fruit products—Analysis; Soil analysis; Soil bacteriology

Agricultural colleges

See also Nebraska. University—College of agriculture

Agricultural colonies

Economic effects of colonies for the unemployed in Germany. Monthly Labor R 13:384-7 Ag '21

Immigrant farm colonies in southern New Jersey. S. Jacob. Monthly Labor R 12:1-22 Ja '21

Labor colonies for the feeble-minded. M. T. Waggaman. Monthly Labor R 11:416-23 S '20

State and the farmer; successful development of the California land settlement scheme H. A. Crafts. il Sci Am 123:494+ N 13 '20

Agricultural colonization

Federal land settlement policy. T. A. McElhanney. Can Eng 40:365-7 Ap 7 '21

Workings of the farm settlement system in California. E. Mead. J Elec 47:103 Ag 1 '21

Agricultural conference, 2d, Washington

2d agricultural conference, Washington, Oct. 29. Comm & Fin Chr 111:1806-7 N 6 '20

Agricultural credit

Approval by Senate of legislation providing for purchase of \$100,000,000 of farm loan bonds by treasury. Comm & Fin Chr 112:792 F 26 '21

Banker and agriculture. E. T. Meredith. Comm & Fin Chr 111:98-103 sec 2 N 20 '20

Conference of farm loan officials incident to reargument of suit testing farm loan act. Comm & Fin Chr 110:1931-2 My 8 '20

Country banks and farm finance. G. Huston. Comm & Fin Chr 113:161-4 sec 2 O 29 '21

Credit and farm prices. il Nation's Business 8:15-17 D '20

Denies adoption of radical deflation policy; extent of agricultural aid. W. P. G. Harding. Comm & Fin Chr 111:2284-6 D 11 '20

Farmers' credits. W. P. G. Harding. Comm & Fin Chr 113:1521-3 O 8 '21

Favors use of federal reserve earnings for cattle loans. W. P. G. Harding. Comm & Fin Chr 112:1810 Ap 30 '21

Federal farm-loan system in operation. A. C. Wiprud. 280p Harper '21

Federal farm loan system to be advertised. A. E. Haase. Ptr Ink 115:43-4 Je 2 '21

\$50,000,000 pool in aid of live stock industry. Comm & Fin Chr 112:2593 Je 18 '21

Form of credit needed for agriculture. H. Hoover. Comm & Fin Chr 113:469-70 JI 30 '21

Functioning of Federal farm loan system. C. E. Lobdell. Comm & Fin Chr 113:1831-2 sec 1 O 29 '21

Governor Harding of Federal reserve board proposes \$50,000,000 be made available for cattle raisers. Comm & Fin Chr 112:2478-9 Je 11 '21

Joint commission of agricultural inquiry on need of furnishing permanent machinery for farmers' credits. Comm & Fin Chr 113:1305 S 24 '21

More liberal credit policy for farmers advocated. W. G. McAdoo. Comm & Fin Chr 111:2471 D 25 '20

Rules under which War finance corporation will consider agricultural credits. Comm & Fin Chr 113:1303 S 24 '21

Rural credit plan presented in Ontario. Comm & Fin Chr 112:1091 Mr 19 '21

Text of agricultural amendment to War finance corporation act. Comm & Fin Chr 113:1202-4 S 17 '21

See also Federal farm loan act

Agricultural education

Technical agricultural education in Poland. Int Labour R 3:216-27 JI '21

Uncle Sam—motion picture producer. G. H. Dacy. il Sci Am 122:422+ Ap 17 '20

See also Agricultural engineering—Study and teaching

Consult the Agricultural Index for additional material

Agricultural engineering**Study and teaching**

Mechanical age for the farm; what Nebraska, through its state university, is doing to bring it about. R. P. Crawford. il Sci Am 123:426+ O 23 '20

Agricultural engineers, American society of.
See American society of agricultural engineers

Agricultural labor. See Farm labor

Agricultural machinery

Agricultural excavator performs many tasks.
il Pop Mech 35:391 Mr '21

Farm implements and machinery in France
and North Africa. H. L. Groves. U S Bur
For & Dom Com 191:1-36 '20

Machinery for the sugar-beet field. W. F.
Wilcox. Sci Am 122:643+ Je 12 '20

Motorized stock farm. Soc Auto Eng J 9:
325-6 N '21

Motorizing the farm. E. A. White. Soc Auto
Eng J 7:436 N '20

Notes on power farming. R. W. Lohman. il
chart diag Soc Auto Eng J 7:160-74+ Ag
'20; Discussion. 7:469-70 N '20

Operating speeds of agricultural implements.
P. White. Soc Auto Eng J 7:47-50 Jl '20;
Discussion. 7:467-9 N '20

Tractor drawn and driven machinery. il Motor
Age 37:23-5 F 12 '20

See also Cultivators, Motor; Farm en-
gines; Farm lighting plants; Grain binders;
Harvesting machinery; Hay making ma-
chinery; Plows; Tractors; also Advance-
Rumely company

Exhibitions

80th annual show of the Royal agricultural
society. il Engineer 132:10-12, 36-8, 64-6
Jl 1-15 '21; Engineering 112:7-10, 36-8 Jl
1-8 '21

Machinery at the Smithfield show. il En-
gineering 110:780-2 D 10 '20; Engineer 130:
582-3 D 10 '20

Power farm equipment at the Kansas City
show. F. M. Loomis. il Motor Age 37:18-19+
Mr 4 '20

Royal agricultural show at Darlington. il
Engineer 129:650, 654-5; 130:8-10, 32-3, 58-
9, Je 25-Jl 16 '20

Royal agricultural show at Darlington. il En-
gineering 110:10-12, 42-6, 71-3 Jl 2-16 '20

Royal agricultural society seventy-ninth
show reveals British tendencies in power
equipment. il Automotive Ind 43:154-6 Jl
22 '20

Smithfield club show; road locomotives. il
diags Engineer 128:583-4 D 12 '19

Manufacture

Works of Messrs. William Foster and co.,
ltd., Lincoln. il diags plan Engineering
109:847-50, pl 52-5 Je 25 '20

Prices

Report of the Federal trade commission on
the causes of high prices of farm imple-
ments. U S Fed Tr Comm 713p My 4 '20

Agricultural machinery industry

Eager for American farm machines; latest
farm equipment sought in markets of
Egypt, Algiers, Tunis, Morocco, Spain, Por-
tugal, Italy and Greece. G. P. Kievenaar.
Am Ind 21:37-41 D '20

Full-line trend on farm implement market-
ing and advertising. Ptr Ink 113:166+ N 18
'20

Manufacture and sale of farm equipment in
1920. Iron Tr R 69:222 Jl 28 '21

N.I.V.A. discusses difficulties of farm im-
plement industry. D: Beecroft. Automotive
Ind 45:751-4+ O 20 '21

N.I.V.A. looks to future of power farming;
27th annual convention. C. Jennings. Auto-
motive Ind 43:851-4 O 28 '20

Accounting

Accounting for the agricultural machinery
industry. W: R. Wright. J Account 29:
435-51 Je '20

Advertising

Campaign to keep the farmer's restive boy
at home. G. A. Nichols. Ptr Ink 112:3-4+
Jl 15 '20

Agricultural pests

Hay flame gun; destruction of locusts and
other pests. il Eng & Ind Management 5:574
My 19 '21

See also Crickets; Insects, Injurious and
beneficial

Agricultural publishers association

Agricultural publishers hear of 15-billion
farm market. Ptr Ink 117:25-7 N 3 '21

Agricultural quarantine. See Quarantine, Agri-
cultural

Agricultural societies

See also American farm bureau federa-
tion

Agriculture

Agricultural possibilities of aviation fields.
B. R. Taylor. il Flying 9:625 N '20

L'évolution de l'agriculture. A. Bruno.
Chimie & Ind 4:673-7 N '20

Science and the coming agriculture. C: H.
MacDowell. Chem & Met Eng 25:785-8 O
26 '21

Succeeding in scientific farming. R. F. Yates.
Sci Am 124:328 Ap 23 '21

Synthetic agriculture. H: Vendelmans. Sci
Am 125:81+ Jl 30 '21

See also Agricultural machinery; Air-
planes in agriculture; Alkali soils; Clearing
of land; Cotton; Drainage; Electricity on
the farm; Farm buildings; Farm labor;
Farm management; Farm produce; Farm-
ers; Farms; Feeding and feeding stuffs;
Fertilizers; Forests and forestry; Irrigation;
Live stock; Reclamation of land; Rice;
Roadside planting; Silage; Silos; Soil analy-
sis; Soil bacteriology; Soils; Trees; also
names of special products, e.g. Alfalfa,
Corn, Cotton, Flax, Sugar, Tobacco, Wheat
Consult the Agricultural Index for addi-
tional material

Bibliography

Agricultural books of 1920. W: M. Hepburn.
Special Lib 12:65-8 Ap '21

List of useful books on agriculture. 11p My
'20 Mass. Dept. of agriculture

Economic aspects

Agricultural economics. J. E. Boyle. 448p Lip-
pincott '21

Balance between agriculture and industry.
R. J. McFall. Annalist 18:438-40 N 7 '21

Business of farming. A. M. Loomis. Nation's
Business 8:18-19 My '20

Economic fallacy in "back to the farm" prop-
aganda. H. P. Gillette. Eng & Contr 54:
529-30 D 1 '20

How the \$5,000,000,000 slump in the price of
farm products will affect industry. Am
Mach 53:859-60 N 4 '20

Inter-relationship of general industry and food
production and distribution. H. C. Hoover.
W Soc E J 25:145-53 Mr 5 '20; Same. Min &
Sci P 120:383-6 Mr 13 '20

Shortening the route from farm to consumer.
J: T. Bartlett. Sci Am 123:277 S 18 '20

See also Farm labor; Farm produce

Statistics

Our harvests in 1919. Comm & Fin Chr 110:
21-3 Ja 3 sec 1 '20

Alaska

Uncle Sam's last free lands; interior Alaska.
J. P. Heritage. il Sci Am M 4:312-17 O '21

Egypt

Eager for American farm machines. G. P.
Kievenaar. Am Ind 21:37-41 D '20

Great Britain

Some phases of English agricultural policy.
Int Labour R 4:157-69 O '21

Greece

Eager for American farm machines. G. P.
Kievenaar. Am Ind 21:37-41 D '20

Hawaiian Islands

Conquering the stubborn soil. H. A. Crafts.
il Sci Am 122:223 F 28 '20

Agriculture—Continued

Hungary

- Agrarian reform in Hungary. Int Labour R 2:261-71 My '21
Agricultural labourers of Hungary. Int Labour R 1:137-47 Ja '21

Italy

- Eager for American farm machines. G. P. Kievenaar. Am Ind 21:37-41 D '20

New Jersey

- Immigrant farm colonies in southern New Jersey. S. Jacob. Monthly Labor R 12:1-22 Ja '21

Portugal

- Eager for American farm machines. G. P. Kievenaar. Am Ind 21:37-41 D '20

Scandinavia

- Agricultural conditions and labour agreements in Denmark and Sweden. Int Labour R 2:97-118 Ap '21

United States

- Addresses at the farm power meeting of the S.A.E. J. B. Davidson and others. Soc Auto Eng J 8:588-92 Je '21
Basic industry. Soc Auto Eng J 8:506+ My '21
Fruits of scientific farming. C. H. Claudy. Sci Am 122:216 F 28 '20

See also Irrigation—United States

Agriculture, Cooperative

- More and more farmers in co-operative buying and selling. Ptr Ink 111:84 Ap 8 '20

Agriochærus

- Two new forms of agriochærus. M. R. Thorpe. bibliog il Am J Sci 3:111-19 Ag '21

- Aguirre sugar company, Central. See Central Aguirre sugar company

- Allerons. See Airplane wings

Air

- Breath of life. C. N. Holmes. il Sci Am 124:141 F 19 '21
Formation of negative ions in air. L. B. Loeb. bibliog diags Phys R 17:89-115 F '21
Fresh air and production. J. F. Leonard. Ind Management 59:271 Ap '20
Joule-Thomson effect for air. F. G. Keyes. Am Chem Soc J 43:1452-70 Jl '21
Rapid method for determining the density of air. H. Bailey. Am Chem Soc J 43:1317-19 Je '21
Solubility of air in water and its relation to the performance of feed-water heaters. J. R. McDermet. Power 53:393-4 Mr 8 '21

See also Aerodynamics; Aeronautics; Air conditioning; Air flow; Atmosphere; Atmospheric electricity; Atmospheric temperature; Compressed air; Humidity; Meteorology; Oxygen; Ozone; Ventilation

Analysis

- Analyses of air from burning buildings. S. H. Katz. Am Soc Heat & V E J 27:62-3 Ja '21
Comparative tests of air dustiness with the dust counter, konimeter and sugar tube. S. H. Katz and L. J. Trostel. il chart diags Am Soc Heat & V E J 27:519-27; Discussion. 527-8 Jl '21
Copper flame test for halogens in air. A. B. Lamb and others. diag Am Chem Soc J 42:78-84 Ja '20
Determination of atmospheric impurities. O. Monnett. diags map Chem & Met Eng 23:1117-21, 1173-6 D 8-15 '20
Determination of carbon monoxide in air contaminated with motor exhaust gas. M. C. Teague. diags J Ind & Eng Chem 12:964-8 O '20
Efficiency of the Palmer apparatus for determining dust in air. S. H. Katz, E. S. Longfellow and A. C. Fieldner. il diags Am Soc Heat & V E J 26:687-700 N '20; Excerpt. Heat & Ven 18:53 Je '21
Efficiency of the sugar-tube method for determining dust in air. A. C. Fieldner, S. H. Katz and E. S. Longfellow. il diag Am Soc Heat & V E J 27:119-23 Mr '21

- Estimation of toxic water soluble dust with the Palmer apparatus. M. S. Iszard. bibliog J Ind Hygiene 2:344-7 Ja '21

- Furnace for the determination of moisture in dry CO₂-free air. J. A. Montgomery. diag plan Chem & Met Eng 23:937-8 N 10 '20

- Indicators for carbon dioxide and oxygen in air and flue gas. L. H. Milligan, D. O. Crites and W. S. Wilson. il diags U S Bur Mines Tech Pa 238:1-22 '20

- Keeping check on factory air. J. Boyer. il Sci Am 124:151+ F 19 '21

- Method for determining the finer dust particles in air. A. L. Meyer. bibliog diags J Ind Hygiene 3:51-6 Je '21

- Rapid determination of carbon monoxide in air. A. B. Lamb and A. T. Larson. diags Am Chem Soc J 41:1908-21 D '19

- Recherche de l'oxyde de carbone dans une atmosphère suspecte. A. Desgrez, A. Labat and A. Savès. diag Chimie & Ind 5:473-5 Ap '21

- Air, Compressed. See Compressed air

Air brake association

- Open executive committee meeting, Chicago, May 3. Ry Age 70:1082 My 6 '21; Ry Mech Eng 95:362-4 Je '21

- 27th annual convention, Chicago, May 4. Ry Age 68:1401-6 My 14 '20; Ry R 66:759-63, 805-7, 819-20 My 8-15 '20; Ry Mech Eng 94:348-54 Je '20

Air brake hose

- American railway association, mechanical division, master car builders' and master mechanics' specifications; standard air-brake and train air-signal hose. diag India Rubber W 63:427-8 Mr '21

- Device for installing hose fittings. il Elec Ry J 58:367-8 S 3 '21

- Hose dismantling and assembling machine. il Elec Ry J 58:326 Ag 27 '21

- Hose stripping machine. diags Ry Mech Eng 94:226 Ap '20

- Prolonging the life of air brake hose. R. I. Lillie. il Ry R 66:944-6 Je 5 '20

- Repairing air-brake hose connections. J. V. Hunter. il Am Mach 54:377-8 Mr 3 '21

- Report on train brake and signal equipment. diag Ry Age 71:378-9 Ag 20 '21; Same. Ry Mech Eng 95:588-9 S '21; Excerpts. Ry R 69:237-8 Ag 20 '21

Air brakes

- Air brakes in electric traction service. S. W. Dudley. il diags Elec J 17:540-55 D '20

- Car failures caused by improper brake maintenance. E. H. Wood. Ry R 67:775-7 N 20 '20

- Charting conditions of air-brake equipment. K. R. Lewis. chart Elec Ry J 57:535-6 Mr 19 '21

- Condition of brakes on freight cars. Ry R 67:984-5 D 25 '20

- D. and S. L. presents difficult operating problem. il map Ry R 69:357-61 S 17 '21

- Designing brake heads for uniform shoe wear. H. M. P. Murphy. diags Ry Mech Eng 95:107-8 F '21

- Double capacity air brakes on the Virginian railway. Elec Ry J 58:782 O 29 '21

- Files and gages for brake valve maintenance. diags Ry R 66:549-50 Ap 3 '20

- Freight train brake work in terminals from the revenue standpoint. C. C. Ferguson. Ry R 66:807+ My 15 '20

- Le frein continu compound à air comprimé système Kunze-Knorr. Lefevre. il diags plans Génie Civil 76:492-7, pl 7 My 29 '20

- Handling 9000 tons down a 1.6 per cent grade. il Ry R 68:515-21 Ap 2 '21; Abstract. Mech Eng 43:407 Je '21

- Improvements in train braking. il diags Sci Am 124:506-7 Je 25 '21

- Location of brake pipe ends at locomotive pilots. W. W. Wood. Ry R 66:762 My 8 '20; Same. Ry Mech Eng 94:351-2 Je '20

- Maintenance of air brake and safety car control equipment. J. C. McCune. il diags plan Elec Ry J 56:537-43 S 18 '20

- Marking another milestone in air brake achievement. il diags Ry R 68:885-94 Je 11 '21

Air brakes—Continued

New type brake slack adjuster. diags Elec Ry J 58:289-90 Ag 20 '21

Regulating brake cylinder piston travel; Durson slack adjuster. Ry Age 71:409-11 Ag 27 '21

Report on train brake and signal equipment. diags Ry Age 68:1897-9 Je 17 '20; Ry R 66:1048 Je 19 '20

Rochambeau car brake. il Ry R 67:716-17 N 6 '20

Spencer-Dawson tramcar brake. il diags Engineer 130:642-3 D 24 '20

Standard gages facilitate repairing valves in air brake department. F. A. Skinner. diags Ry Mech Eng 95:49 Ja '21

Terminal brake work from the revenue standpoint. C. C. Ferguson. Ry Mech Eng 94:352-4 Je '20; Same cond. Ry Age 68:1405-6 My 14 '20

Virginian demonstration of double-capacity brake. il diag Ry Mech Eng 95:428-32 JI '21; Excerpts. Ry Age 70:1407-10 Je 17 '21

Virginian Ry. will handle 16,000 tons in single train. Ry R 68:739-40 My 14 '21

The Westinghouse automatic and straight air-brake combined E. T. equipment and machinery. A. W. Deal. 347p A. W. Deal, Philadelphia '20

Westinghouse no. 4 brake pipe vent valve. diags Ry Mech Eng 93:745-6 D '19

See also Air brake hose; Brakes, Electro-pneumatic

Testing

Brake-rod testing. il Elec Ry J 57:1124 Je 18 '21

Terminal tests of air brakes. W. P. Borland. Ry Mech Eng 94:350-1 Je '20; Same. Ry R 66:760-2 My 8 '20; Same. Ry Age 68:1402-3 My 14 '20

Test rack for instructing air brake repairmen. N. J. Cline. il diag Ry Mech Eng 94:153 Mr '20

Air brakes, Airplane

Air brakes for aeroplanes. R. R. West. Engineer 128:570-2 D 5 '19

Air brakes, Automobile

Air brake for motor cars and trucks. il Pop Mech 35:257 F '21

Air brakes for trucks and trailers. diags Automotive Ind 43:773 O 14 '20

Airbrakes for the automobile. C. W. Geiger. il Sci Am 123:467+ N 6 '20

Air cleaners

Air cleaned through wet sponge. il Automotive Ind 42:817 Ap 1 '20

New form of air cleaner. P. S. Tice. il Automotive Ind 45:104-7 JI 21 '21

See also Air filters; Air washers

Air compressors

Advantages of portable over stationary compressors in anthracite rockwork. F. H. Wagner. il Coal Age 19:668-9 Ap 14 '21

Air compressor for isolated garages. S. E. Frew. il diags Pop Mech 35:603 Ap '21

Air compressor in the power plant. S. B. Redfield. il diags Power 52:368-73, 662-4 S 7, O 26 '20

Air compressor piston clearances. F. J. Foote. Elec Ry J 58:445-6 S 17 '21

Belliss air compressor. il diags Engineering 112:534-6, pl 31 O 14 '21

Better maintenance of air compressors. M. Purcell. Ry R 66:759-60 My 8 '20; Same cond. Ry Mech Eng 94:348-9 Je '20; Same cond. Ry Age 68:1401-2 My 14 '20

Black & Decker electric compressors, nos. 46 and 412. il Am Mach 42:1064-5 My 13 '20; Iron Age 105:1247 Ap 29 '20

Broom & Wade electrically-driven geared air compressors. il diags Engineer 129:98 Ja 23 '20

Chicago pneumatic class P portable compressor, designed for the contractor's requirements. il Munic Eng 58:sup40 My '20

Chicago pneumatic mine-car compressors. il Min & Sci P 122:143-4 Ja 22 '21

Chicago pneumatic tool co.'s improved portable compressor. il Min & Sci P 123:381 S 10 '21; Ry Mech Eng 95:527 Ag '21

Compressor overhauling practice in Buffalo.

J. W. Hulme. il Elec Ry J 55:608-9 Mr 20 '20

Device for removing air compressor pistons. J. H. Hahn. diag Ry Mech Eng 95:510 Ag '21

Electrically driven centrifugal compressors. R. S. Sage. il Gen Elec R 24:550-3 Je '21

Extended air lines giving way to portable compressors. D. E. Dunn. il Coal Age 17:928 My 6 '20

Four-stage air compressor constructed by Siebe Gorman and co. il diags Engineering 109:82, 84 Ja 16 '20

High-pressure air and gas compressors. il diags Engineering 110:800-2, 829-31, pl 73 D 17-24 '20; Compresseurs à gaz à haute pression à quatre et à six étages. diags Génie Civil 78:192-4 F 26 '21

Imperial type XCB compressor brought out by Ingersoll-Rand co. il Eng & Contr 56:381 O 19 '21; Textile World 60:2305 O 22 '21; Power Pl Eng 25:1076-7 N 1 '21

Indicator was faulty. G. H. Crawford. diags Power 52:261 Ag 17 '20

Ingersoll-Rand air compressors. il Iron Age 108:878 O 6 '21; Blast F & Steel Pl 9:627 O '21

Motor-driven air compressor; capacity 5000 cubic feet per minute. diags Engineering 110:67-9 JI 16 '20

Motor drives for air compressors. G. Fox. il Power 53:778-9 My 17 '21

National air-compressors. Min & Sci P 121:146 JI 24 '20

New high-speed turbo compressor. B. Gore. il Eng & Min J 110:717-18 O 9 '20; Discussion. A. G. McGregor. 110:894-5 N 6 '20

New machinery designed for railway shops. il Ry R 69:454 O 1 '21

Operation of Diesel air compressors. L. R. Ford. diags Power 54:222-3 Ag 9 '21

Portable air compressors in tunnel work. Eng & Contr 55:503 My 18 '21

Power to compress air. Power Pl Eng 25:826-7 Ag 15 '21

Prehistoric air compressor. F. Richards. diags Power Pl Eng 25:329-30 Mr 15 '21

650-B.H.P. electrically-driven air-compressor. il diag Engineer 129:482 My 7 '20

Sullivan WK-31 portable air compressor. il Eng & Contr 53:417-18 Ap 7 '20; Am Mach 52:859 Ap 15 '20; Coal Age 17:924-5 My 6 '20; Good Roads n s 19:237 My 5 '20

Turbo-compressor calculations. A. H. Blaisdell. diags Mech Eng 42:151-6 Mr '20; Abstract. Sibley J 34:152 O '20

Union engineering handbook; pumping machinery, air compressors, condensers. E. P. Ordway, comp. Union steam pump co., Battle Creek, Mich. '21

See also Air pumps; Airplane engines—Superchargers; Compressed air

Accidents

Air receiver ignition. Power Pl Eng 24:532, 759-61 My 15, Ag 1 '20

Avoiding compressor troubles. A. D. Risteen. Iron Tr R 69:489-92+ Ag 25 '21; Excerpts. Power 53:908-9 My 31 '21; Safety Eng 41:285 Je '21

Compressed-air explosions have element of mystery. Pop Mech 35:722 My '21

Explosion of high-pressure air line. E. D. Gardner. Power Pl Eng 25:430-1 Ap 15 '21; Same. Iron Age 107:1293-4 My 19 '21; Discussion. G. H. Kimball. Power Pl Eng 25:875 S 1 '21

Control

Automatic regulation of air compressors; abstract. R. Nitzschmann. diags Mech Eng 43:330-1 My '21

Five-step control adjusting work to load prevents power waste in compressors. il Coal Age 20:598 O 13 '21

Power saved by automatically stopping compressor when air is not needed. il Coal Age 20:596-7 O 13 '21

Régulateur de pression clearance controller monté sur les compresseurs d'air Ingersoll-Rand. diags Génie Civil 76:556-7 Je 19 '20

Air compressors—Continued**Lubrication**

- Air-compressor lubrication. W. F. Osborne. Power 51:495-7 Mr 30 '20
Automatic compressor oiling. il Elec Ry J 56:724 O 9 '20
Avoiding compressor troubles. A. D. Risteen. Iron Tr R 69:489-92+ Ag 25 '21
Lubricating oils for Diesel engine air compressors. Electrician 86:558 My 6 '21; Same. Engineer 131:508 My 13 '21
Lubrication of compressed air machinery. Power Pl Eng 25:235-7 F 15 '21
Lubrication specifications for high pressure compressors. Power 53:957 Je 14 '21
Neville lubricator applied to cross-compound air compressor. diag Ry Age 68:1651 Je 10 '20

Testing

- Reavell quadruplex air compressor and some tests thereon. il diags Engineer 132:98-100 Jl 22 '21
Testing small air compressors. W. A. Garvin. il Power 54:388 S 6 '21
Tests on small engines at high back pressures. A. E. Flowers, R. J. Pepper and C. Field. Chem & Met Eng 22:318-20 F 18 '20

Air conditioning

- Advance in air conditioning in school buildings. E. S. Hallett. diag plan Am Soc Heat & V E J 26:1-10 Ja '20; Same cond. Heat & Ven 17:25-9 F '20; Excerpts. Sci Am M 1:382 Ap '20; Abstract. Mech Eng 42:244 Ap '20; Discussion. Am Soc Heat & V E J 26:242-8 Mr '20
Air conditioning for paper mills. J. O. Ross. il diag Paper 26:13-19 Je 16 '20
Air conditioning in the industries. E. E. Leason. Chem & Met Eng 22:279-80 F 11 '20
Air conditioning prevents explosions ignited by static electricity. Chem & Met Eng 22:614 Mr 31 '20
Back to first principles; human ventilation requirements. R. Davies. Heat & Ven 18:41-3 O; 38-41 N '21
Drying as an air conditioning problem. A. W. Lissauer. Am Soc Heat & V E J 27:365-74 My '21; Discussion. 27:594-7 Jl '21
Experiments in air conditioning the home. E. R. Hayhurst. Am Soc Heat & V E 25:21-34; Discussion. 35 '19
Heating and giving modern factory a climate. diags plans Plumber 94:484-5, 508-9 N 5, 19 '20
Heating and ventilating a Denver high school. diags plan Dom Eng 95:407-10 My 28 '21
Heating and ventilating equipment. C. L. Hubbard. il diags Am Arch 119:367-72, 399-405 Mr 23-30 '21
Increasing the output of labor. J. E. Bullard. Am Mach 53:591-2 S 23 '20
Making weather to order; indoor meteorology. H. A. Mount. il Sci Am 124:188+ Mr 5 '21
Putting wind to work. C. A. Eddy. il Factory 24:970-2 Ap 1 '20
Spray infection. S. R. Douglas and L. Hill. bibliog il diags J Ind Hygiene 3:206-12 N '21

See also Air—Analysis; Air cleaners; Air filters; Air purification; Air washers; Dust; Heating; Humidity; Smoke prevention; Ventilation; *also* subdivision Heating and ventilation under various subjects, e.g. Churches—Heating and ventilation, Theaters—Heating and ventilation

Air conditions control, Division of. See Chicago, Illinois—Air conditions control, Division of

Air conference. See Great Britain—Air ministry

Air cushions (machinery)

- Pneumatic cushions in metal-drawing operations. J. Neison. il diags Mach 26:726-9 Ap '20

Air ducts. See Air pipes

Air engines

- Testing equipment for pneumatic motors; importance of performance records for portable air motors. J. V. Hunter. il Am Mach 54:894-6 My 26 '21

Air ejectors

- New developments in high vacuum apparatus. G. L. E. Kothny. diags Engineering 109:28-31 Ja 2 '20; Same. Int Marine Eng 25:364-71 Ap '20

Air extractors. See Air pumps

Air fans

- Air fans for driving generators on air-planes. G. F. Gray, J. W. Reed and P. N. Elderkin. il Mech Eng 41:527-30 Je '19; Same. Aviation 7:396-9 D 1 '19; Same. Eng & Ind Management 5:98-101 Ja 27 '21

Air filters

- Air filter for tractors. D. R. Van Horn. il Pop Mech 33:138 Ja '20
Air filtration technically considered. il Electrician 87:410-12 S 30 '21
Invincible wet air filter. il diag Electrician 86:799-801 Je 24 '21
Mechanical screenless air filters. E. Preger. diags Mech Eng 42:403-4 Jl '20; Same. Sci Am M 2:91-2 Jl '20
Resistance of several materials to the flow of air. A. E. Stacey, jr. il diag Am Soc Heat & V E J 27:355-64 My '21

Air flow

- Air flow meters. diags Power Pl Eng 24:83 Ja 1 '20
Air flow through poppet valves. G. W. Lewis and E. M. Nutting. diag U S Nat Advisory Com for Aeronautics 1918:52-69 '20
Calibration of nozzles for measurement of air flowing into a vacuum. W. L. De Baufre. il diags Mech Eng 42:607-9+ N '20
Development of an aircraft incidence meter. A. F. Zahm. il plan J Fr Inst 188:683-5 N '19; Same. Aviation 7:432 D 15 '19
Flow of air through small brass tubes. T. S. Taylor. Mech Eng 42:334-5 Je '20; Same cond. Power 51:1022 Je 22 '20
High efficiency air flow; visualization. F. W. Caldwell and E. N. Fales. il diag Am Soc Heat & V E J 26:403-14 My '20; Discussion. 26:563-4 Jl '20
Measurement of ventilating air. W. S. Weeks. il diags Min & Sci P 120:895-901 Je 19 '20
Physical basis of air-propeller design—study of flight vortices; abstracts. F. W. Caldwell and E. N. Fales. il charts diags Mech Eng 42:213-19+ Ap '20; Engineering 109:501-4, 534-7 Ap 16-23 '20
Problem of measuring air velocities. Heat & Ven 17:33 Jl '20
Resistance of several materials to the flow of air. A. E. Stacey, jr. il diag Am Soc Heat & V E J 27:355-64 My '21
Simplification of venturi-meter calculations. G. B. Warren. diag Mech Eng 42:220-1+ Ap '20
Sizing of ducts and flues for ventilating and similar apparatus. H. Eisert. Am Soc Heat & V E J 26:325-40 Ap '20; Discussion. 26:564-6 Jl '20
Small flow meters for air, especially orifice meters. E. Buckingham. U S Bur Stand Tech Pa 183:1-15 '21
Use of nozzles for measuring flow. W. Trinks. diags Power Pl Eng 25:1044-5 N 1 '21
What the wind looks like. E. N. Fales. il Pop Mech 34:19-21 Jl '20
See also Anemometer; Gas flow

Air guns

- New air gun is high-power weapon. L. W. Pedrose. il diag Pop Mech 34:10 Jl '20

Air harbors. See Air ports

Air heaters

- Air heaters; with discussion. W. H. Patchell. Engineering 112:92-4 Jl 15 '21; Same cond. Power 54:340-1 Ag 30 '21
Kritische bemerkungen über winderhitzer. E. Wurmbach. Stahl & Eisen 41:74-6 Ja 20 '21; Discussion. 41:1337-43 S 22 '21
Preheating air increases furnace efficiency. diag Power Pl Eng 25:248 F 15 '21
Use of preheated air for combustion. J. Van Brunt. il Blast F & Steel Pl 8:473-5 Ag '20

Air hoist cylinders

Speeding up machine tools with compressed air. F. A. McLean. *il Am Mach* 53:963-4 N 18 '20

Air lifts

Air lift. A. H. Blaisdell. *diags Power* 52: 818-20 N 23 '20

Air lift installation and operation. C: L. Riecke. *diags Power Pl Eng* 24:904-5 S 15 '20

Air lift pump. C: C. Phelps. *diags Power Pl Eng* 24:471-2 My 1 '20

Air lift pumping. *il Chem & Met Eng* 23:344 Ag 25 '20

Air lift pumping and water purification. J: Oliphant. *Am Water Works Assn J* 7:212-15 Mr '20

Air lift pumps. C: J. Deem. *Am Water Works Assn J* 7:216-20 Mr '20; Same cond. *Eng & Contr* 53:53-4 Ja 14 '20

Air-lift pumps—information required for design. R. M. Anderson. *diags Stevens Ind* 37:249-69 O '20

Air-lift removal of sludge from sewage tanks. W. G. Kirchoffer. *diag Eng N* 86: 953 Je 2 '21

Air-lift system of raising oil. R. Stirling. *Engineering* 109:725-6 My 28 '20

Air lift vs. pumping. *diag Coal Age* 18:810 O 14 '20

Displacement pump for elevating acid by compressed air. *il Chem & Met Eng* 25:757 O 19 '21

Experiences with air lift pumps. W. G. Kirchoffer. *il diag Munic Eng* 58:177-9+ Ap '20

Experiments on air lift pumping. J: S. Owens. *diags Engineering* 112:458-61 S 23 '21; Abstract. *Engineer* 132:312-13 S 23 '21; Discussion. *Engineering* 112:430 S 23 '21

Modern air-lift pumping plant. J: Oliphant. *diag Mech Eng* 43:482 Jl '21; Same. *Sci Am M* 4:90-1 Jl '21

Principles of the air lift pump. C. C. Herman. *diag Power Pl Eng* 24:350-1 Mr 15 '20

Pumping acid with compressed air. J: Oliphant. *il Chem & Met Eng* 22:408-10 Mr 3 '20

St Louis tunnels unwatered by air lift. E: E. Wall. *diags plans Eng N* 84:857-9 Ap 29 '20

To improve air-lift efficiency. J. E. M. Schult. *Coal Age* 18:953 N 4 '20

Unwatering by air lift in Grass Valley, California. G: J. Young. *il Eng & Min J* 110:63-5 Jl 10 '20

Unwatering the Tiro general mine by air-lift. S. F. Shaw. *diags Min & Met* 158: (sec 35) 1-34 F '20; Excerpt. *Sci Am M* 1:185-6 F '20

Use of air lift for regular mine drainage. A. H. Reed. *Eng & Min J* 111:353 F 19 '21

Air mail service. See Postal service, Aerial

Air meters. See Air flow

Air motors. See Air engines

Air pipes

Air duct design. L. Kraft. *diag Am Soc Heat & V E* 25:69-86; Discussion. 87 '19

Calculation of blower systems. J: L. Alden. *charts Power* 53:180-3 F 1 '21

Dampers and deflectors. C: L. Hubbard. *diags Dom Eng* 95:315-17 My 14 '21

Sizing of ducts and flues for ventilating and similar apparatus. H. Eisert. *Am Soc Heat & V E J* 26:325-40 Ap '20; Discussion. 26:564-6 Jl '20

Air pollution

Atmospheric pollution and its measurements. J. S. Owens. *Engineering* 110:437 O 1 '20

Determination of atmospheric impurities. O. Monnett. *diags map Chem & Met Eng* 23: 1117-21, 1173-6 D 8-15 '20; Excerpts. *Sci Am M* 4:85-6 Jl '21

Keeping check on factory air. J. Boyer. *il Sci Am* 124:151+ F 19 '21

Pollution of the air of Manchester and Salford. W: Thomson. *diag Engineering* 112:554 O 14 '21

Suspended impurity in city air. J. S. Owens. *Engineering* 112:555-6 O 14 '21

See also Dust; Mine air; Sewer air; Smelter fumes; Smoke; Ventilation

Air ports

Canadian airharbors. *diags Aviation* 11:448-50, 481-2 O 17-24 '21

Italian air routes and ports. *Aviation* 11:190-1 Ag 15 '21

Le mât d'amarrage pour dirigeable de la gare aérienne de Pulham (Angleterre). *il diags Génie Civil* 78:493-6 Je 11 '21

L'organisation des stations de dirigeables en Allemagne. J. Sabatier. *Génie Civil* 78:483 Je 4 '21

Pulham airship station. *Engineering* 111:399 Ap 1 '21

Standard charges for airport service. *Aviation* 9:490 D 27 '20

Thames as London's air port. *Aerial Age* 13: 16 Mr 14 '21; Same. *Flying* 16:152 My '21

See also Aerial routes

Air ports, Municipal

Municipal air port at Hartford, Conn. *Aviation* 10:608 My 9 '21

Air press

Air press for straightening steel sheets. N. McLeod. *diags Ry Mech Eng* 94:158 Mr '20

Air presses designed for car shop and reclamation work. F. S. Tinder. *diags Ry Mech Eng* 94:458 Jl '20

Air pressure. See Air resistance

Air propellers. See Airplane propellers

Air pumps

Air-pump capacities and incondensable-gas volumes in industrial vacuum-evaporator plant. E: Corner. *Engineering* 109:74-5 Ja 16 '20

Air pumps for condensing equipment. F. R. Wheeler. *diags Mech Eng* 41:926-30 D '19; Abstracts. *Power* 51:195-7 F 3 '20; Sibley J 34:23-4 F '20; Min & Met 160:28-30 Ap '20; Discussion. *Mech Eng* 42:38-9 Ja '20

Commercial production of extremely high vacuua. W: C. Ballard, jr. *diag Sibley J* 34:7+ Ja '20

Dalton's law applied to air-pump capacities. F. R. Wheeler. *Power* 51:296 F 24 '20

Delas air extractors. *il diags Elec R (Lond)* 89:551-2 O 21 '21

Dies for drawing an air pump part. J. Bingham. *diags Mach* 26:454-6 Ja '20

Priestley air pump. C. Sellers, jr., and H. W. Sellers. *il J Fr Inst* 190:876-80 D '20

School automatic hydraulically operated air pump; abstract. *diag Mech Eng* 43:195 Mr '21

Steam-jet air pumps for condensers. De W. M. Taylor. *diags Power* 51:995-9 Je 22 '20

See also Air compressors; Air lifts

Air purification

Back to first principles. R. Davies. *Heat & Ven* 18:38-41 N '21

Emploi des polysulfures alcalins pour neutraliser certaines vapeurs toxiques. A. Desgrez, H. Guillemard and A. Labat. *Chimie & Ind* 5:222-3 F '21

Emploi des pulvérisations liquides pour l'assainissement de l'air souillé par certains gaz toxiques. A. Desgrez, H. Guillemard and A. Savès. *Chimie & Ind* 4:814-17 D '20

Laying the dust with fog; the nebulizer—device for artificially producing mist. D. McClure. *il diags Sci Am M* 3:419-20 My '21

See also Air cleaners; Air conditioning; Air filters; Air washers; Air washing; Dust removal; Smoke prevention; Ventilation

Air resistance

Airplane gives new data on air resistance. *Elec Ry J* 55:324 F 14 '20

Determination of the resistance of airship models. R. H. Smith. *Aviation* 9:44-7 Ag 15 '20

Distribution of air pressure and wind velocity about the funnel of a vessel at sea. A. P. Thurston. *diags Engineering* 109:134-5 Ja 30 '20

Extract from a report of the resistance of spheres of small diameter in an airstream of high velocity. Capt. Toussaint and Lieut. Hayer. *diags Aerial Age* 13:199-200 My 9 '21

Fluid resistance of streamline bodies. J. R. Pannell. *diags Aviation* 9:220-1 N 1 '20

Air resistance—Continued

Ground-plane influence on airplane wings. A. F. Zahm and R. M. Bear. diags J Fr Inst 191:687-93, My '21; Same. Aerial Age 13:299-301 Je 6 '21; Same. Aviation 10:807-8 Je 27 '21

Head resistance due to radiators. R. V. Kleinschmidt and others. il diags U S Nat Advisory Com for Aeronautics 1919:247-64 '20

Introduction to the laws of air resistance of aerofoils. G. de Bothezat. diags U S Nat Advisory Com for Aeronautics 1918:90-158 '20

Resistance of aerofoils. W. F. Gerhardt. diags Aerial Age 13:152-4, 175-8; 14:201-3 Ap 25-My 2, N 7 '21 (to be cont)

Wind resistance of vessel's topside and superstructure surfaces. Marine Eng 26:637 Ag '21

Air routes. See Aerial routes

Air screws. See Airplane propellers

Air separation process

Air-separating process. plan Power 52:426 S 14 '20

Air separation process; elimination of economizer and boiler corrosion. il diags Power Pl Eng 24:561-6 Je 1 '20

Deactivator deaerating apparatus. diag Power 54:329 Ag 30 '21

Separation of dissolved gases from water. J. R. McDermet. il diag Mech Eng 42:273-8 My '20; Abstract. Sibley J 34:133 S '20

Air separators

G-R Stratton separator removes water from steam and compressed air. il Am Mach 54:527-8 Mr 24 '21

Stratton air separator. il Ry Mech Eng 94:613 S '20

Air service, Army. See United States—Air service, Army

Air service, Naval. See United States—Air service, Navy

Air service library. See United States—Air service library

Air service mechanics school

Air service mechanics school. Aviation 9:94 S 1 '20

Air shafts

Depth of water in airway when half-full. diag Coal Age 19:676, 1125; 20:182-3, 424-5 Ap 14, Je 23, Ag 4, S 15 '21

New air-shaft of the Davis-Daly copper company. Min & Sci P 121:880 D 18 '20

Widening an airway. Coal Age 17:26, 245, 718 Ja 1, 29, Ap 8 '20

Air signal valves

Air signal valve maintenance. J. Elder. diag Ry Mech Eng 94:352 Je '20; Same cond. Ry R 66:763 My 8 '20

Air speed indicators

Altitude effect on air speed indicators. M. D. Hersey, F. L. Hunt, and H. N. Eaton. diag U S Nat Advisory Com for Aeronautics 1920:693-717 '21; Abstract. Aviation 10:812 Je 27 '21

N.A.C.A. recording air speed meter. F. H. Norton. diags Aerial Age 14:151+ O 24 '21

Air speed nozzles

Development of air speed nozzles. A. F. Zahm. il plans U S Nat Advisory Com for Aeronautics 1918:322-34 '20

Air surveys. See Surveying, Aerial

Air testing

Study of the infiltration of air in buildings. O. W. Armspach. il diags Am Soc Heat & V E J 27:43-53 Ja '21

Air washers

Air washer and cooler for generators. A. M. Bacon. Power Pl Eng 24:406 Ap 1 '20

Effect of recent investigations on the design and operation of heating and ventilating equipment. C. L. Hubbard. il diags plan Am Arch 119:399-405 Mr 30 '21

Refrigeration in air conditioning. L. Nussbaum. A S R E J 7:170-2 S '20; Excerpt. Heat & Ven 18:47 My '21

Air washing

Air washing and humidification for school buildings. P. West. Am Soc Heat & V E 25:37-47; Discussion. 47-58 '19

Keeping factory temperatures where you want them; how air washers and coolers are used in factory ventilation. C. L. Hubbard. diags Factory 26:1195-8 My 15 '21

Warm in winter—cool in summer; system of heating and ventilating which keeps a Florida climate in an Ohio home the year round. il Plumber 94:583-4 D 31 '20

Aircraft

Aircraft and automobile materials of construction. A. W. Judge. 2v 739p; 594p Pitman '20-'21

Balanced control surfaces on aircraft. R. N. Wing. diags Aviation 8:57-8 F 15 '20

Census bureau's summary concerning aircraft manufacture. Automotive Ind 44:1363 Je 23 '21

Endurance of aircraft. Sci Am 122:56 Ja 17 '20

High altitude aircraft of the future. C. Eberhardt. diag Automotive Ind 45:418-20 S 1 '21

Report of committee on materials for aircraft. U S Nat Advisory Com for Aeronautics 1920:34-8 '21

Report on aircraft surveys; tabulation showing the number of aeroplanes, engines, balloons and dirigibles ordered by and delivered to the United States air service between April 6, 1917, and November 1, 1919. Aerial Age 11:221-3+ Ap 26 '20

U.S. naval aircraft. J. C. Hunsaker. il J Fr Inst 189:715-36 Je '20

See also Airplanes; Airships; Balloons; Flying boats; Flying machines; Gliders; Helicopters; Hydrodrome; Hydroplanes; Ornithopter; Seaplanes; Torpedoplanes

Marking

See Airplanes—Marking

Aircraft bombs. See Bombs, Aerial

Aircraft carriers. See Airplane carriers

Aircraft in mining. See Airplanes in mining

Aircraft industry

Demand for aircraft for civilian purposes increases. il Flying 9:20-2 F '20

Kinship of aircraft and automotive industries. J. R. Cautley. Automotive Ind 44:665-6 Mr 24 '21

Sane view of the aircraft engineering future. A. L. Clayden. Automotive Ind 43:551-2 S 16 '20

See also Airplane industry

Germany

German aircraft industry. E. P. Warner. Aviation 9:359 N 29 '20; Same. Aerial Age 12:348 D 6 '20

Germany grimly hopeful for her aircraft industry. W. F. Bradley. il Automotive Ind 43:1101-5 D 2 '20

United States

Anti-dumping injunction granted. Aviation 10:23 Ja 3 '21

U.S. commercial aircraft companies; directory and statistics, prepared by Manufacturers aircraft association. Aviation 10:299-301 Mr 7 '21; Same. Automotive Ind 44:559-61 Mr 10 '21

United States imports and exports of aircraft; years ending June 30, 1912-1920. Aviation 10:176 F 7 '21

See also Airplane industry—United States

Aircraft insurance. See Insurance, Aircraft

Airliner engineering company

Incorporation of Airliner engineering co. Aviation 10:535 Ap 25 '21

Airplane accidents. See Aviation—Accidents

Airplane carriers

Admiral Sims favors aircraft carriers. Aerial Age 12:663 Mr 7 '21

Denby urges aircraft carriers. Aerial Age 14:148 O 24 '21

Navy building battleships of new design. J. W. Kean. il Pop Mech 35:331-4 Mr '21

Airplane carriers—Continued

United States aircraft carrier Langley. *il Sci Am* 124:49 Ja 15 '21; *Aviation* 9:478-9 D 27 '20

Airplane compass. See Compass

Airplane engines

L'adaptation des moteurs à explosions aux hautes altitudes. J. Villey. *Génie Civil* 76:298 Mr 20 '20

Aero engine efficiencies. A. H. Gibson. *Aviation* 10:238-40 F 21 '21

Aero engines drive pumps and dynamos. *il Pop Mech* 34:693 N '20

Aeromarine eight cylinder B type motor. W. C. Bauer. *il diags Aviation* 8:23-4 F 1 '20

Aeromarine U-8 180 hp. engine. *il Aviation* 9:387-8 D 6 '20

Aeroplane engines in theory and practice. J. B. Rathbun. 464p Stanton and Van Vliet co., Chicago '21

Ancestors of the Liberty motor; origin and development of the internal combustion engine. C. W. Mitman. *il Sci Am M* 3:247-50 Mr '21

Army and navy development of aero engines. *il Aviation* 10:390-1 Mr 28 '21; Same. *Automotive Ind* 44:1007 My 12 '21; Same. *Aerial Age* 13:32+ Mr 21 '21

Automobile and aircraft engines in theory and experiment. A. W. Judge. *Rev. and enl. ed.* 642p Pitman '21

B.M.W. aero engines. *il diags Aerial Age* 12:14-15+ S 13 '20

B.M.W. 6 cyl. 185 Hp. engine. *il Aviation* 10:370-1 Mr 21 '21

Blast engine with reaction jet propulsion; abstract. *diag Mech Eng* 42:234 Ap '20

British test 1,000-horsepower aero engine. *il Pop Mech* 35:505 Ap '21

Curtiss C-6 engine has improved cylinder block and heavier crankshaft. *il Automotive Ind* 43:209 Jl 29 '20

Development of aero-engines since 1914; abstract. O. Schwager. *Aerial Age* 12:544 Ja 31 '21

Development of German aircraft engines. O. Schwager. *Aviation* 9:161-4, 186-9 O 1-15 '20

Development of 700 h.p. model W engine. *Aerial Age* 13:101 Ap 11 '21

Development of the aero engine. A. E. L. Chorlton. *Engineering* 111:81-2, 110-11, 143-4 Ja 21-F 4 '21

Diesel airplane engine German production. H. F. Blanchard. *il Pop Mech* 35:411-12 Mr '21

Enemy aircraft engines, detailed descriptions of certain of the engines in use and the German aeroplane engine trials. Iliffe & sons ltd., London and Coventry '19

Engine: the heart of the airplane. J. G. Vincent. *Aviation* 10:137-8 Ja 31 '21

Engineering division 1,000 horse-power engine. *Aerial Age* 13:255 My 23 '21

European aircraft trend is toward large water-cooled engines. *il Automotive Ind* 42:554-9 F 26 '20

L'évolution et les progrès de la mécanique appliquée; canons, moteurs d'aviation et locomotives à vapeur. *Génie Civil* 77:420-2 N 20 '20

Evolution of German aeronautical motors during the war. Harlaut. *Mech Eng* 43:738 N '21

Fiat aircraft engine 650 h.p. *il diags Aerial Age* 10:597-9, 629-31 F 2-9 '20

Fiat 600 h.p. aircraft engine. N. MacCoull. *il diags Aviation* 7:481-3+ Ja 1 '20

Firing orders of internal combustion engines. K. H. Condit. *il diags Am Mach* 52:792-4 Ap 8 '20

Four motor Breguet—Bugatti system. E. H. Lemonon. *Aerial Age* 12:398 D 20 '20

French competition for peace-time aero engines. *Aerial Age* 11:509-10, 548-9 Je 21-28 '20; Same *abr. Flying* 9:396-7 Jl '20

French rotary airplane engine uses a variable stroke. W. F. Bradley. *diags Automotive Ind* 43:862-3 O 28 '20

From Hispano-Suiza to Wright. *Aerial Age* 13:538 Ag 15 '21

Gallaudet multiple drive tested. *il Aviation* 11:279 S 5 '21

Gas turbines. A. J. Page. *Automotive Ind* 42:323 Ja 22 '20

German Diesel airplane engine. *il Aviation* 9:287-8 N 15 '20

Herman Haacke motor. *il diag Aerial Age* 12:612 F 21 '21

Immense air-craft engine rated at 700 horse-power. *Pop Mech* 35:842 Je '21

Induction systems. T. L. Sherman. *il diags Aviation* 11:40-3 Jl 11 '21

Instalment of an aeroplane engine. A. J. Rowledge. *il diags Aeronautical J* 25:145-58 Mr '21; Same. *Aviation* 10:685-8 My 30 '21; Abstract. *Aerial Age* 13:14 Mr 14 '21; Discussion. *Aeronautical J* 25:158-65 Mr '21

International aero exhibition. *il diags Engineering* 110:106-9, 118, 137-42 pl 14-15 Jl 23-30 '20

Isotta-Fraschini type V-6 engine. *diag Aviation* 8:203-4 Ap 1 '20

Keeping aero-engines warm in wintertime. D. Joy. *Aerial Age* 13:86 Ap 4 '21

Lorraine-Dietrich production of airplane engines. W. F. Bradley. *il diags Automotive Ind* 42:449-53 F 12 '20

McCook field builds 1,000 hp. engine. *Aviation* 10:640 My 16 '21

Maintaining airplane engine power at great altitudes. V. E. Clark. *Soc Auto Eng J* 6:245-9 Ap '20; Excerpts. *Gen Elec R* 23:474-5 Je '20

Modern aviation engines. K. H. Condit. *diags Am Mach* 52:396-8, 518-19; 53:20-2, 616-18, 936-8, 1042-4 F 19, Mr 4, Jl 1, S 30, N 18, D 2 '20

Moteur d'aviation admettant une masse constante et effectuant une compression constante à toute altitude. A. Witz. *Génie Civil* 78:278-9 Mr 26 '21

Les moteurs à explosions pour atmosphères raréfiées. J. Villey. *Génie Civil* 76:131-2 Ja 31 '20

Les moteurs d'aviation français en 1920. Martinot-Lagarde. *Génie Civil* 78:221 Mr 5 '21

Multiple-drive power unit for naval seaplane. *il Pop Mech* 36:670 N '21

Multiple-unit power plant for French airplane. *il Pop Mech* 36:182-3 Ag '21

Napier Cub engine. *il Automotive Eng* 11:146-7 Ap '21

Napier Lion engine 450-hp. *diags Aviation* 8:65-6 F 15 '20

Napier 1000 h.p. aero engine. *il Aerial Age* 12:637+ F 28 '21

Near-Diesel engine for the airplane. H. F. Blanchard. *il Sci Am* 124:65+ Ja 22 '21

New aircraft engines at the Paris aero show. *il Aviation* 8:54-6 F 15 '20

New series Vee type German Benz aero engines. E. Hildesheim. *il diags Automotive Ind* 43:59-61 Jl 8 '20

New Wright aeronautic engine succeeds the Hispano-Suiza. A. L. Clayden. *il diag Automotive Ind* 44:154-6 Ja 27 '21

New Wright aeronautical engine. *il diags Aviation* 9:420-3 D 13 '20

Next steps in commercial aviation. J. J. Vincent. *il Flying* 10:87-90 Ap '21

1000-horse power motor for aircraft. *Engineering* 112:252 Ag 12 '21

Packard aero engine type 2025. *il diag Aerial Age* 11:612-15 Jl 12 '20; *Aviation* 8:470-2 Jl 15 '20; *Automotive Ind* 43:104-5 Jl 15 '20

Possibilities of an aeronautical gas turbine. C. A. Norman. *chart diag Automotive Ind* 41:914-17 N 6 '19

Possibilities of the radial engine; abstract. J. B. Swan. *Aerial Age* 12:326 N 29 '20

Power-recuperating engines: principles of operation and design of valve gear. G. Funck. *diags Mech Eng* 42:354-5 Je '20; Same. *Sci Am M* 1:568-9 Je '20

Power required to drive aeronautic engine magnetos and generators. *Aviation* 9:157 O 1 '20

Problems in aeronautical research. H. R. M. Brooke-Popham. *Aerial Age* 13:14 Mr 14 '21

Radial engines; abstract. O. Schwager. *Aerial Age* 12:302 N 22 '20

Airplane engines—Continued

- Rausie E-6 airplane engine designed for commercial work. *il diags* Automotive Ind 43:204-5 J1 29 '20
- Rausie 175 H. P. aero engine. *il diags* Aerial Age 11:362-5 My 24 '20
- Report of committee on power plants for aircraft. U S Nat Advisory Com for Aeronautics 1920:28-34 '21
- Requirements of aeronautic powerplant development. G. J. Mead and L. E. Pierce. Soc Auto Eng J 9:23-32 J1 '21; Abstract. Automotive Ind 44:1153-6+ Je 2 '21; Summary. Aviation 11:344 S 19 '21; Discussion. Soc Auto Eng J 9:246-53 O '21
- Rolls-Royce aircraft engines described and illustrated. *il diags* Automotive Ind 43:210-14, 261-5, 316-20, 367-9 J1 29-Ag 19 '20
- Rumpler 1,000-h. p. engine. *diag* Aerial Age 14:131 O 17 '21
- La VI^e exposition internationale d'aéronautique de Londres (9-20 juillet 1920). *il diags* plan Génie Civil 77:153-6 Ag 21 '20
- Special Packard aero engine for altitude work. J. G. Vincent. *il diags* Aerial Age 12:631-3+ F 28 '21; Same. Aviation 10:260-2 F 28 '21
- Steam airplane? E. G. Still. Sci Am 124:247 Mr 26 '21
- Steam motors for aircraft. Aviation 9:88 S 1 '20
- Study of a steam turbine for airplanes. L. Acampora. Aviation 9:261-2 N 8 '20
- Superchargers and supercharging engines. G. E. A. Hallett. *diags* Aviation 7:533-6 Ja 15 '20; Same. Gen Elec R 23:468-73 Je '20; Discussion. Soc Auto Eng J 6:339-40 My '20
- Textbook of aero engines. E. H. Sherbondy and G. D. Wardrop. 363p Stokes '20
- Three engines in one. *il* Sci Am 125:259 O 8 '21
- 300-h.p. Benz aero engine. Aerial Age 13:206 My 9 '21
- 300 h.p. Benz aircraft engine. A. Heller. *diags* Aerial Age 12:587-9, 607-10 F 14-21 '21
- 300 h. p. Fiat model A-12 engine. *il* Aerial Age 13:415-16 J1 11 '21
- Twin piston Diesel engine designed for use in aircraft. *il diag* Automotive Ind 43:718-19 O 7 '20
- Two-cylinder air-cooled aircraft engine. *il* Automotive Ind 44:505 Mr 3 '21
- Ultimate airplane engine. J. G. Vincent. Aviation 10:567-9 My 2 '21
- Utilization of venturi tubes for power in airplanes; abstract. R. Gsell. Aerial Age 12:254 N 8 '20
- Variation of airplane engine speed with speed of flight. E. P. Warner. Automotive Ind 42:310-13 Ja 22 '20
- Viking sixteen cylinder airplane engine. *il* Motor Age 37:39 F 26 '20
- Wright aero engines. Aerial Age 12:322 N 29 '20
- Zeitlin variable-stroke aero engine. *diags* Engineering 110:137-9 J1 30 '20; Abstract. Mech Eng 42:582-3 O '20
- See also* Airship engines

Air injection

- Possibility of reactive propulsion in air. B. T. Koleroff. Aviation 10:624-5 My 16 '21

Clearance volume

- Instrument for measuring clearance volumes. H. C. Dickinson. *il diags* A S R E J 7:460-3 My '21
- Instrument for measuring engine clearance volumes. S. W. Sparrow. *il diags* Aerial Age 12:583-4 F 14 '21; Same. Automotive Ind 44:207-8 F 3 '21; Same. Automobile Eng 11:319-20 S '21

Cooling

- In defense of the air-cooled aircraft engine. S. D. Heron. Automotive Ind 45:30-1 J1 7 '21; Discussion. 45:181 J1 28 '21
- Methods of cooling airplane engines. A. L. Clayden. Automotive Ind 44:1292-3 Je 16 '21

Piston-cooling for internal combustion engines; abstract. W. Schlachter. Aerial Age 12:326 N 29 '20

See also Airplane engines—Radiators

Design

- Choice of density of admitted air in the design of aviation motors. J. Villey. Aerial Age 12:374 D 13 '20
- Cosmos radial airplane engine designed in England. M. W. Bourdon. *il diags* Automotive Ind 42:1314-19 Je 10 '20
- Design of aeroplane engines. J. Wallace. 238p Benn brothers, London '20
- Dynamometer hub and the flywheel of the engine. E. Everling. Aerial Age 13:464-5 J1 25 '21
- Engine shape as affecting airplane operation. G. C. Loening. *il diags* Soc Auto Eng J 6:417-21 Je '20
- Forward step in American airplane engines. J. G. Vincent. *il* Sci Am 123:226+ S 4 '20
- Increase in maximum pressures produced by preignition. S. W. Sparrow. Automotive Ind 43:520-1 S 9 '20
- Napier aero engine with new arrangement of cylinders. M. W. Bourdon. *il diags* Automotive Ind 41:1006-12+ N 20 '19
- Preliminary calculation of cylinder dimensions for aircraft engines. O. Schwager. Aerial Age 14:179-80+ O 31 '21
- Requirements of commercial airplanes; report of the Safety and economy committee of the Royal aeronautical society of Great Britain. Aviation 11:68-70 J1 18 '21
- Some possible lines of development in aircraft engines. H. R. Ricardo. *il diags* Engineering 111:28-30, 57-9 Ja 7-14 '21; Same. Automotive Ind 44:456-62 F 24 '21; Same. Aeronautical J 25:130-45 Mr '21; Abstract. Aerial Age 12:544 Ja 31 '21; Discussion. Aeronautical J 25:158-65 Mr '21
- Steadiness factor in engine sets. W. Margoulis. *diags* Aerial Age 12:659-61 Mr 7 '21
- Universal test engine. G. D. Angle. *il diags* Aviation 8:230-4 Ap 15 '20

Equipment

- Experimental centrifugal oil cleaner attached to Liberty engine. *il diag* Automotive Ind 43:610-11 S 23 '20

Failures

- Aeroplane crashes: engine troubles—a possible explanation. S. W. Sparrow. Aerial Age 13:132-3 Ap 18 '21; Same. Aviation 10:605-6 My 9 '21; Same. Automotive Ind 44:1197-8 Je 9 '21
- Cause of airplane engine failures and disasters. Sci Am M 3:467-8 My '21

Fuel

- Bureau of standards tests of various gasolines and benzol mixtures. Mech Eng 42:173-4 Mr '20
- Carbureting conditions characteristic of aircraft engines. P. S. Tice. Aerial Age 10:536-7 Ja 19 '20
- Casinghead gasoline impossible for altitude work. Automotive Ind 42:1207 My 27 '20
- Comparison of alcogas aviation fuel with export aviation gasoline. V. R. Gage. S. W. Sparrow and D. R. Harper. *diags* U S Nat Advisory Com for Aeronautics 1920:173-84 '21; Abstract. Automotive Ind 42:1018-20 Ap 29 '20; Same. Soc Auto Eng J 6:397-401 Je '20
- Comparison of hecter fuel with export aviation gasoline. H. C. Dickinson, V. R. Gage and S. W. Sparrow. *diags* U S Nat Advisory Com for Aeronautics 1920:187-94 '21; Abstract. Soc Auto Eng J 7:110-11 J1 '20; Same. Automotive Ind 42:1336-7 Je 10 '20; Same. Aviation 9:62-3 Ag 15 '20
- Dopes for gasoline. C. F. Kettering. Aviation 10:53 Ja 10 '21
- Effect of gasoline quality on engine performance. Automotive Ind 45:83 J1 14 '21
- High thermal efficiency in aeroplane service. S. W. Sparrow. *diags* Aerial Age 12:440-1 Ja 3 '21; Same. Automotive Ind 44:504-5 Mr 3 '21

Airplane engines—Fuel—Continued

Investigation of airplane fuels. E. W. Dean and C. Netzen. Aviation 7:537-8 Ja 15 '20

New process for the production of aircraft engine fuels. A: J. Paris, jr., and W. F. Paris. U S Nat Advisory Com for Aeronautics 1918:473-6 '20; Same. Sci Am M 1: 133-4 F '20; Same. Aerial Age 10:497-8 Ja 12 '20

Petrol engine efficiency. Engineering 111:652-3 My 27 '21

Possible developments in aero engines. Engineering 110:840 D 24 '20

Power characteristics of fuels for aircraft engines. H. C. Dickinson and others. U S Nat Advisory Com for Aeronautics 1918: 560-89 '20

Problem of fuel for aviation engines. diag Aerial Age 14:8-11+ S 12 '21; Abstract. Aviation 11:370 S 26 '21

Simple means for saving fuel on traffic flights. E. Kook. diags Aerial Age 13:439-41 Jl 18 '21

Some possible lines of development in aircraft engines. H. R. Ricardo. il diags Engineering 111:28-30, 57-9 Ja 7-14 '21; Same. Automotive Ind 44:456-62 F 24 '21; Same. Aeronautical J 25:130-45; Discussion. 158-65 Mr '21

See also Alcohol as fuel; Petrometer

Fuel feeding

Fuel feed systems for airplanes. L. B. Lent. diags Aviation 10:294-8 Mr 7 '21

Instructions to pilots for the use of mixture controls. Aerial Age 13:541-2 Ag 15 '21

K L fuel system. il diag Aerial Age 13:515-16 Ag 8 '21; Same. Aviation 11:201-3 Ag 15 '21

LePere vacuum fuel feed system for airplanes. il diags Automotive Ind 42:1450-1 Je 24 '20

Performance of a vane-driven gear pump. R. H. Heald. diags Aerial Age 14:81-3+ O 3 '21

Pumping plant for the airplane. Sci Am 125: 159 S 3 '21

Gearing

Experience with geared propeller drives for aviation engines. K. Kutzbach. diags Aerial Age 12:442-5, 466-9 Ja 3-10 '21

Rolls-Royce aircraft engines described and illustrated. il diags Automotive Ind 43:367-9 Ag 19 '20

Ignition

Comparative merits of Dixie magnetos and Delco battery ignition system when used on a Liberty 12 aero engine. Aviation 8: 291-2 My 1 '20; Same cond. Mech Eng 42: 289-90 My '20

Effect of temperature and pressure on the sparking voltage. L. B. Loeb and F. B. Silsbee. diags U S Nat Advisory Com for Aeronautics 1919:115-21 '20; Same. Sci Am M 1:218-20 Mr '20; Same. Aerial Age 10:691-3 F 23 '20

Generator cut-out for aircraft use. il diags Automotive Ind 44:494 Mr 3 '21

Ignition from the engineman's viewpoint. G: E. A. Hallett. il Soc Auto Eng J 7:475-9 N '20; Same, without il. Aviation 9:354-6 N 29 '20; Discussion. Soc Auto Eng J 8:307-13 Ap '21

Ignition is discussed by the metropolitan section S.A.E. P. M. Heldt. Automotive Ind 43:630-1 S 23 '20

Increase in maximum pressures produced by preignition. S. W. Sparrow. Soc Auto Eng J 7:397-8 O '20; Same. Aerial Age 12:204-5 O 25 '20

Method of measuring heat energy of ignition sparks; Measurement of heat energy per spark of various ignition systems. diags F. B. Silsbee and others. U S Nat Advisory Com for Aeronautics 1919:163-76 '20

Paquito ignition system. il diags Aviation 9:429 D 13 '20

Preignition and spark-plugs. S. W. Sparrow. diags Soc Auto Eng J 6:129-32 F '20; Discussion. 7:62-3 Jl '20

Subsidiary gap as a means for improving ignition. W. S. Gorton. U S Nat Advisory Com for Aeronautics 1919:179-90 '20

See also Magnetos; Spark plugs

Inspection

Aeroplane engine inspection. Aerial Age 10: 460-1 Ja 5 '20

Lubrication

Proper balancing of fuel, lubricant and motor. W: F. Parish. Mech Eng 42:164-5 Mr '20;

Same cond. Power Pl Eng 24:293 Mr 1 '20

Manufacture

Assembling Liberty motor connecting-rods. H. A. Carhart. il Am Mach 51:995-8 D 11 '19

Casting an aluminum head on a steel cylinder. E. H. Dix, jr. il Automotive Ind 45:474-5 S 8 '21

Connecting-rod forgings for the Liberty motor. H. A. Carhart. il Am Mach 52:89-92 Ja 8 '20

Converting a machine shop to emergency production. E. Sheldon. il diags Am Mach 52: 431-7 F 26 '20

Finishing Liberty motor connecting-rods. H. A. Carhart. il Am Mach 52:457-60 F 26 '20

Hispano-Suiza airplane engine. H. O. C. Isenberg. il diags Am Mach 50:1213-17; 51:55-8, 259-61, 365-8, 515-19, 703-10, 1091-6 Je 26, Jl 10, Ag 7, 21, S 11, O 9, D 25 '19

How Ford built Liberty motors. F. H. Colvin. il Am Mach 51:1037-41 D 18 '19

Liberty motor connecting-rods; machining. H. A. Carhart. il diags Am Mach 52:1148-52 My 27 '20

Lincoln motor production plan. I. J. Beatty. Factory 24:440-2, 623-6, 793-6, 967-70, 1144-7, 1547-9, 1705-7; 25:38-41 F 15-Apr 15, My 15-Je 1, Jl 1 '20

Machining airplane engine parts. il diags plans Mach 27:233-8 N '20

Machining the Liberty crankcases. H. A. Carhart. il diag Am Mach 52:1247-52, 1361-5 Je 10, 24 '20

Some metallurgical features of the Liberty engine. R. S. Archer. Chem & Met Eng 22: 176-8 Ja 28 '20

Mufflers

Investigation of the muffling problem for airplane engines. G. B. Upton and V. R. Gage. il diags U S Nat Advisory Com for Aeronautics 1919:125-60 '20; Abstracts. Mech Eng 42:233-4 Ap '20; Sci Am M 1:381 Ap '20

Performance

Effect of atmospheric pressure and temperature upon the performance of a petrol engine; the use of supercompression in aero engines. E. G. Ritchie. Aeronautical J 25: 421-54 Ag '21

Performance of a Liberty 12 airplane engine. S. W. Sparrow and H. S. White. U S Nat Advisory Com for Aeronautics 1920:561-78 '21

Performance of a 300-horsepower Hispano-Suiza airplane engine. S. W. Sparrow and H. S. White. U S Nat Advisory Com for Aeronautics 1920:581-600 '21

Some factors of airplane engine performance. V: R. Gage. diags U S Nat Advisory Com for Aeronautics 1920:651-77 '21

Radiators

Design factors for airplane radiators. S: R. Parsons. Soc Auto Eng J 6:437-42 Je '20

Effect of altitude on radiator performance. W. S. James and S. R. Parsons. U S Nat Advisory Com for Aeronautics 1919:267-75 '20

Effects of nature of cooling surface on radiator performance. S. R. Parsons and R. V. Kleinschmidt. U S Nat Advisory Com for Aeronautics 1920:151-9 '21

General analysis of airplane radiator problems. H. C. Dickinson, W. S. James and R. V. Kleinschmidt. U S Nat Advisory Com for Aeronautics 1919:217-21 '20; Same. Aerial Age 10:566-7 Ja 26 '20

Airplane engines—Radiators—Continued

- General discussion of test methods for radiators. H. C. Dickinson, W. S. James and W. B. Brown. diags U S Nat Advisory Com for Aeronautics 1919:225-44 '20
- Head resistance due to radiators. R. V. Kleinschmidt and others. il diags U S Nat Advisory Com for Aeronautics 1919:247-64 '20
- Heat dissipation and other properties of radiators. H. C. Dickinson, W. S. James and R. V. Kleinschmidt. U S Nat Advisory Com for Aeronautics 1919:279-305 '20
- Investigation of aircraft radiators at the Bureau of standards. S: R. Parsons. Aerial Age 11:476-8, 511-13 Je 14-21 '20
- Lamblin radiator. diags Aerial Age 12:347 D 6 '20
- Pressure drop in radiator air tubes. S. R. Parsons. il diags U S Nat Advisory Com for Aeronautics 1920:163-9 '21
- Properties of special types of radiators. S. R. Parsons. il U S Nat Advisory Com for Aeronautics 1920:133-47 '21; Same cond. Aviation 9:125-32 S 15 '20
- Radiateur pour moteurs d'avions, système Lamblin. diags Génie Civil 78:201 F 26 '21; (Lamblin radiator). Aerial Age 13:134 Ap 18 '21
- Radiators for aircraft engines. S. R. Parsons and D. R. Harper. Soc Auto Eng J 9:328-30 N '21
- Synopsis of aeronautic radiator investigations for years 1917 and 1918. H. C. Dickinson and R. V. Kleinschmidt. U S Nat Advisory Com for Aeronautics 1918:477-82 '20
- Testing of airplane radiators. Sci Am M 1: 465-6 My '20
- Turbulence in the air tubes of radiators for aircraft engines. S. R. Parsons. diags U S Nat Advisory Com for Aeronautics 1920: 623-33 '21; Résumé. Aviation 10:779 Je 20 '21
- Water flow through radiator cores. W. S. James. il U S Nat Advisory Com for Aeronautics 1919:307-16 '20

Repair

- Maintenance work on aviation engines. J: Houssman. diags Am Mach 54:30-1 Ja 6 '21

Specifications

- Specifications of American aircraft engines—1920-21; tabulation. A. Black and D. R. Black. Automotive Ind 44:414 F 17 '21
- Technical specifications of aircraft engines exhibited at the New York aircraft show. Automotive Ind 42:701 Mr 18 '20

Starting devices

- Bijur ignition end airplane starter. il Automotive Ind 43:863 O 28 '20; Aerial Age 12: 227 N 1 '20; Aviation 9:268 N 8 '20
- Engine cranker used at flying field. il Pop Mech 34:183 Ag '20
- Odier portable starter for aircraft engines. il Aviation 8:440 Jl 1 '20
- Starting of airplane engines. T. L. Sherman. il diags Aviation 8:115-18 Mr 1 '20
- Untold story of N. C. flying boats. Sibley J 33:109 D '19

Starting torque

- Starting torque on aviation engines. Aviation 10:266 F 28 '21

Superchargers

- Aeroplane performances as influenced by the use of a supercharged engine. G: de Bothezat. Aerial Age 12:174+ O 18 '20
- Aeroplane superchargers. W. G. Noack. diag Aerial Age 13:272-5, 322-5, 347-9+ My 30, Je 13-20 '21
- Calculated performance of airplanes equipped with supercharging engines. E. C. Kemble. U S Nat Advisory Com for Aeronautics 1920:507-53 '21
- Experiments with and practical use of superchargers in Germany. E. Hildesheim. il diags Automotive Ind 43:810-16 O 21 '20

- Factors involved in high airplane speed at great altitudes. H. C. Richardson. Soc Auto Eng J 6:203-7 Ap '20; Abstract. Automotive Ind 42:820-1 Ap 1 '20; Discussion. Soc Auto Eng J 7:13-14 Jl '20
- General Electric turbo supercharger for airplanes. S. A. Moss. il diag Aviation 8:146-51 Mr 15 '20; Same. Gen Elec R 23:476-85 Je '20; Same cond. Mech Eng 42:383-5 Jl '20; Same cond. Am Mach 53:345-8 Ag 19 '20; Abstract. Sibley J 34:134 S '20
- Problem of the turbo-compressor. R. Devil- lers. Aerial Age 12:107-8, 139-41, 171-3 O 4- 18 '20
- Rateau turbo-compressor. H. M. Buckwald. il diags Aviation 10:73-6 Ja 17 '21
- Some supercharger problems. Soc Auto Eng J 7:32 Jl '20
- Superchargers and supercharging engines. G: E. A. Hallett. diags Aviation 7:533-6 Ja 15 '20; Same. Gen Elec R 23:468-73 Je '20; Discussion. Soc Auto Eng J 6:339-40 My '20
- La suralimentation des moteurs d'avions en Allemagne. Lehr. Génie Civil 78:341-2 Ap 16 '21
- Les surpresseurs pour moteurs d'aéroplanes à commande par turbine, pour le vol aux hautes altitudes. il diag Génie Civil 78:55-6 Ja 15 '21
- Value of supercharging. H. C. Dickinson and G. V. Anderson. U S Nat Advisory Com for Aeronautics 1918:506-11 '20

Testing

- Altitude laboratory for the testing of aircraft engines. H. C. Dickinson and H. G. Boutell. il diags U S Nat Advisory Com for Aeronautics 1918:483-98 '20
- Carbureting conditions characteristic of aircraft engines. P. S. Tice. U S Nat Advisory Com for Aeronautics 1918:590-5 '20
- Compression ratio and thermal efficiency of airplane engines. S. W. Sparrow. charts Soc Auto Eng J 8:266-8+ Mr '21; Discussion. 8:424-5 My '21
- Effect of atmospheric pressure and temperature upon the performance of a petrol engine; the use of supercompression in aero engines. E. G. Ritchie. Aeronautical J 25: 421-54 Ag '21
- Effect of compression ratio, pressure, temperature, and humidity on power. H. C. Dickinson, W. S. James and G. V. Anderson. U S Nat Advisory Com for Aeronautics 1918:499-505, 512-20 '20; Same. Aerial Age 11:54-7, 154-7 Mr 22, Ap 12 '20
- Effects of water outlet temperature on engine output. Automotive Ind 42:1002-3 Ap 29 '20
- Experimental separation of engine losses develops interesting results. J. E. Schipper. il diag Automotive Ind 42:1338-41 Je 10 '20
- Flying an airplane engine on the ground. S. W. Sparrow. Aviation 8:195-9 Ap 1 '20; Same. Soc Auto Eng J 6:239-44 Ap '20
- Increase of power output with higher compression ratios; another of the McCook field engine tests. Automotive Ind 42:1158-9 My 20 '20
- Investigation of muffling problem for aeroplane engines. G. B. Upton and V. R. Gage. diags U S Nat Advisory Com for Aeronautics 1919:125-60 '20; Abstracts. Mech Eng 42:233-4 Ap '20; Sci Am M 1:381 Ap '20
- New engine-testing plant. R. S. McBride. il plan Am Mach 52:1061-3 My 13 '20; Same. Power 51:792-5 My 18 '20
- Performance of the Liberty engine. Automotive Ind 45:55 Jl 14 '21
- Performance of 300-hp. Hispano-Suiza airplane engine. Aviation 11:108 Jl 25 '21
- Pressure distribution round cylinders whose axes are perpendicular to the wind direction. Aerial Age 12:278 N 15 '20
- Some factors of engine performance. V. R. Gage. Soc Auto Eng J 6:403-8 Je '20
- Study of airplane engine tests. V: R. Gage. U S Nat Advisory Com for Aeronautics 1918:525-59 '20; Same. Automobile Eng 11: 16-21, 60-5 Ja-F '21; Same abr. Aviation 8:58 F 15 '20

Airplane engines—Testing—Continued

- Test of standard Hispano-Suiza engine. Automotive Ind 42:1105 My 13 '20
- Tests on Liberty, Benz and Mercedes engine manifolds. il diags Automotive Ind 42:1204-7 My 27 '20
- Torque reaction beds for engine tests. O. T. Steinitz. diags Aviation 7:536 Ja 15 '20
- Universal test engine. G. D. Angle. il diags Aviation 8:230-4 Ap 15 '20
- Work of the Bureau of standards in testing airplane engines. Sci Am M 1:191-2 F '20

Valves

- Air flow through poppet valves. G. W. Lewis and E. M. Nutting. diag U S Nat Advisory Com for Aeronautics 1918:52-69 '20
- Graphical analysis of valve gear. diags Automobile Eng 11:66-7 F '21
- Process costs. H. A. Eppston. J Account 29:266-75 Ap '20

Airplane fabric

- Airplane dopes and doping. W. H. Smith. U S Nat Advisory Com for Aeronautics 1918:410-14 '20; Same. Sci Am S 88:387+ D 27 '19

- Airplane wing coverings. C. J. Cleary. il Aviation 7:487-90 Ja 1 '20

- Coating aeroplane wings mechanically. G. Hopp. diag Aviation 9:96 S 1 '20

- La constitution et l'enduisage des voilures d'avions. A. Fuchs. Chimie & Ind 3:167-72 F '20

- Dopes and protective coverings. Aviation 10:502-4 Ap 18 '21

- Les enduits et vernis des ailes d'avions. C. Moureu. Chimie & Ind 4:398-402 S '20

- European practice in cellulose acetate and dopes during the war. P. Drinker. J Ind & Eng Chem 13:831-5; Bibliography. 835-6 S '21

- Examen dynamométrique des toiles enduites par les dissolutions d'éthers cellulosiques. L. Clément and C. Rivière. Chimie & Ind 3:440-4 Ap '20

- Fabric and dope, with special reference to deterioration of strength and tautness. F. W. Aston. Aerial Age 12:50-1 S 20 '20

- Modern wing coverings—materials used and their application. R. G. Dort. Aerial Age 10:456-7 Ja 5 '20

- Phenix fireproof dope. Aerial Age 11:870 S 6 '20; Same cond. Aviation 9:358 N 29 '20

- Structure of airplane fabrics. E. D. Walen. diags plan U S Nat Advisory Com for Aeronautics 1918:362-99 '20

- Tautometer for testing doped surfaces. diags Sci Am M 1:130-1 F '20

Airplane guns

- Aircraft machine guns. W. T. Gorton. il diags Aviation 10:724-7 Je 6 '21

Airplane industry and trade

See also Aircraft industry

Advertising

- Commercial airplane reaches stage of national advertising. E. T. Tandy. Ptr Ink 112:49-50+ S 2 '20

Contracts

- Co-ordination of army and navy practices in regard to experimental contracts for aircraft. Aerial Age 13:56-7 Mr 28 '21

Great Britain

- Vickers aircraft works, Weybridge. il Engineer 130:444-6, 454 N 5 '20

United States

- Aircraft tariff. C. M. Keys. Aerial Age 12:200 O 25 '20

- Stimulating the output of airplanes in America. Automotive Ind 42:1214-15 My 27 '20

- U.S. commercial aircraft companies; directory and statistics prepared by Manufacturers aircraft association. Aviation 10:299-301 Mr 7 '21; Same. Automotive Ind 44:559-61 Mr 10 '21

Airplane mechanics

- Organization of air service mechanics' regiments. C. M. Tichenor. Soc Auto Eng J 6:278-80 My '20

- World's largest trade school trains mechanics for U.S. naval air service. P. A. Jenkins. il Pop Mech 34:41-4 Jl '20

Airplane propellers

- Aeronautic propeller design. F. W. Caldwell. diags Soc Auto Eng J 8:467-80; Discussion. 419 My '21

- Air drive for motor cars. il Sci Am M 2:168-9 O '20

- Air-propelled automobile of French design. il Pop Mech 34:685 N '20

- Airplane propeller. 337p U.S. Air service, War department, Washington, D.C. '21

- Air screws in theory and experiment. A. Fage. 198p Van Nostrand '20; Review. Engineering 111:246-7 Mr 4 '21

- Approximating bending moments in air propellers. E. P. Warner. diag Aviation 8:430-1 Jl 1 '20

- Bakelite for airplane propellers. il Sci Am 124:34 Ja 8 '21

- Bakelite micarta propellers. il Aviation 8:354-7 Je 1 '20

- Correction of the propeller thrust coefficient curve for the slip stream resistance. U S Nat Advisory Com for Aeronautics 1920:555-8 '21

- Cranking airplane propellers with a flask of air. G. Gaulois. il Sci Am 122:425 Ap 17 '20

- Density classification of laminations for aeroplane propellers. E. F. Horn. Aerial Age 10:502 Ja 12 '20

- Difficulties encountered in balancing propellers made of quarter sawn material. E. F. Horn. il Aerial Age 10:601-2 F 2 '20

- Efficiency of aluminum leaf on airplane propellers. A. C. Knauss. Sci Am M 1:124-5 F '20

- Efficiency of tandem propellers. J. G. Coffin. Aviation 7:351 N 15 '19

- Experimental research on air propellers. W. F. Durand and E. P. Lesley. diags U S Nat Advisory Com for Aeronautics 1920:681-9 '21

- Experiments with a reversible propeller at McCook field. Automotive Ind 45:613 S 29 '21

- Extended theory of the airscrew; abstract. A. Betz. Aerial Age 12:354 D 6 '20

- Factors involved in high airplane speed at great altitudes. H. C. Richardson. Soc Auto Eng J 6:204-6 Ap '20

- General theory of blade screws. G. de Bothezat. diags U S Nat Advisory Com for Aeronautics 1918:159-260 '20

- German propeller has steel core rods with wood fillings. il diags Automotive Ind 42:900-1 Ap 15 '20

- Hart reversible pitch propeller. il Aviation 10:79-80 Ja 17 '21

- Inflow theory of the airscrew. M. A. S. Riach. diags Aeronautical J 25:20-4 Ja '21

- Introduction to propeller theory. A. Klemin. diags Aviation 8:152-3+ Mr 15 '20

- Leitner-Watts all-metal propeller. il diags Aerial Age 12:559-60 F 7 '21; Abstracts. Mech Eng 43:261 Ap '21; Sci Am M 3:380 Ap '21

- Metal airscrew. M. A. S. Riach. Aerial Age 12:518 Ja 24 '21

- Micarta airplane propellers. il Aviation 7:480 Ja 1 '20

- Moisture-resistant finishes for airplane woods. M. E. Dunlap. il U S Nat Advisory Com for Aeronautics 1920:127-9 '21

- Molded-fabric airplane propeller is warp-proof. il Pop Mech 36:39-40 Jl '21

- New propeller gives good results in army tests; molded bakelite construction. Automotive Ind 42:1407 Je 17 '20

- New type of airplane propeller, the Bourke. diag Aviation 11:203 Ag 15 '21; Same. Soc Auto Eng J 9:181 S '21

- Note on theories of screw propulsion. H. C. Watts. Aviation 9:295-7 N 15 '20

- Notes on propeller theory and design. A. Klemin. diags Aviation 8:396-401 Je 15 '20

- Oddy variable pitch and reversing propeller. A. M. Buckwald. il Aerial Age 12:299 N 22 '20

- Parker variable pitch air screw. B. Parker. il Aerial Age 12:610-11 F 21 '21

Airplane propellers—Continued

- Physical basis of air-propeller design—study of flight vortices; abstracts. F. W. Caldwell and E. N. Fales. *il charts diags Mech Eng* 42:213-19+ Ap '20; *Engineering* 109:501-4, 534-7 Ap 16-23 '20
- Propeller blade outline. *diags Aerial Age* 13:573 Ag 22 '21
- Reversible steel propeller. *Aerial Age* 13:207 My 9 '21; Same. *Aviation* 10:604 My 9 '21
- Shroud to increase propeller efficiency. *il Pop Mech* 33:409 Mr '20
- Slip-stream corrections in performance computation. E. P. Warner. *U S Nat Advisory Com for Aeronautics* 1919:603-10 '20
- Some foreign aerodynamic propeller balances. W. Knight. *diags Aviation* 8:15-17 F 1 '20
- Some Mediterranean seaplanes with a digression on airscrews. G. H. Bryan. *Aviation* 9:199-200 O 15 '20
- Super-speed propellers; air propellers with blade tip velocity above that of sound. *il Sci Am* 124:430 My 28 '21
- Treatise on airscrews. W. E. Park. 308p Dutton '21
- Unusual airplane propeller defies current practice. *il Pop Mech* 33:544 Ap '20
- Varying the airplane propeller pitch. M. A. Henry. *il Sci Am* 123:199 Ag 28 '20

Testing

- Experimental research on air propellers. W. F. Durand and E. P. Lesley. *il diags U S Nat Advisory Com for Aeronautics* 1918:261-321 '19; 1919:319-51 '20
- Model tests on propeller aerofoils. F. W. Caldwell and E. N. Fales. *U S Nat Advisory Com for Aeronautics* 1920:89-99 '21
- Propeller testing laboratory at McCook field. F. W. Caldwell. *il diags Sci Am M* 1:197-201 Mr '20
- Testing airplane propellers. *Sci Am* 122:333+ Mr 27 '20

Airplane races

- America's bid for the Gordon Bennett cup. A. C. Lescarbours. *il Sci Am* 123:253+ S 11 '20
- Aviation in California. *il Aerial Age* 13:33 Mr 21 '21
- Bennett cup winner uses novel cooling equipment. W. F. Bradley. *il diags Automotive Ind* 43:803-5 O 21 '20
- British aerial derby. *il Aviation* 11:220 Ag 22 '21
- Contest committee's report of Pulitzer trophy aeroplane race. *Aerial Age* 12:462 Ja 10 '20
- Deutsch de la Meurthe trophy race. *il diags Aviation* 11:477-8 O 24 '21
- Deux grandes épreuves d'aéronautique de 1920. *il Génie Civil* 77:325-8 O 23 '20
- First aerial contest for the Pulitzer trophy and Valentine liberty bond prizes. *Aerial Age* 12:245-6 N 8 '20
- French pilot wins Gordon Bennett race. *Aerial Age* 12:136 O 11 '20
- Gordon-Bennett airplane race. *Sci Am* 123:396 O 16 '20
- International Michelin cup contest; regulations. *Flying* 10:144+ My '21
- Italian 6-meter competition. *Aviation* 9:429 D 13 '20
- Last race for the Gordon Bennett cup. J. J. Ide. *il Sci Am* 123:451 O 30 '20
- Lessons of the Gordon Bennett race, 1920. W. Margolis. *Aviation* 10:691-2 My 30 '21
- Presentation of the Gordon Bennett trophy. *il Aviation* 9:265 N 8 '20
- Pulitzer air race. A. Klemin. *il Aviation* 9:382-4 D 6 '20
- Pulitzer race. *il Aerial Age* 12:343-4 D 6 '20
- Pulitzer trophy air race supplies engineering data. W. D. Richardson. *Automotive Ind* 43:1130-1 D 2 '20
- Pulitzer trophy contest. *Flying* 9:688 D '20
- Pulitzer trophy race. *il map Aviation* 9:378-81 D 6 '20
- Pulitzer trophy race. *il Soc Auto Eng J* 8:13 Ja '21
- Regulations for the Monaco meeting, 1921, organized by International sporting club of Monaco. *Flying* 10:62+ Mr '21

- Rules for the second annual contest for the Pulitzer trophy. *map Flying* 10:91-5 Ap '21; Same abr. *Aviation* 10:435-8 Ap 4 '21
- Schneider international marine flying trophy contest. *il Aerial Age* 12:147 O 11 '20
- U. S. air mail prize awards. *Aerial Age* 13:276 My 30 '21

Airplane resistance

- Correction of the propeller thrust coefficient curve for the slip stream resistance. *U S Nat Advisory Com for Aeronautics* 1920:555-8 '21
- Resistance of aerofoils. W. F. Gerhardt. *diags Aerial Age* 13:152-4, 175-8 Ap 25-My 2 '21

Airplane ribs. See Airplane wings**Airplane stability and stabilizers**

- Aeroplane balance. L. Huguet. *diags Aerial Age* 13:345-6, 371-3, 417-19 Je 20-27, Jl 11 '21
- Automatic aeroplane stabiliser. *il Elec R (Lond)* 88:148 F 4 '21
- Aveline automatic pilot. *il diag Engineer* 131:184-6 F 18 '21; *Engineering* 111:178-9 F 11 '21; *Aerial Age* 12:656-8+ Mr 7 '21; *Aviation* 10:363-4 Mr 21 '21; *Sci Am M* 3:359-60 Ap '21; *Automotive Ind* 44:748-9 Ap 7 '21
- Diagrams of airplane stability. H. Bateman. *diags U S Nat Advisory Com for Aeronautics* 1920:349-71 '21
- Effect of elevator weight. F. H. Norton. *Aviation* 9:458-9 D 20 '20
- Experiments with model airplanes. A. A. Merrill. *diag Aviation* 9:349; 10:132-3 N 29 '20, Ja 31 '21
- General theory of the steady motion of an airplane. G. De Bothezat. *U S Nat Advisory Com for Aeronautics* 1920:401-70 '21
- Inherent stability. *diags Aerial Age* 12:231 N 1 '20
- Notes on longitudinal stability and balance. E. P. Warner. *Sibley J* 34:98-102+ Jl '20; Same. *Aerial Age* 12:201-3 O 25 '20
- Stability and balance in airplanes. D. R. Husted. *Aviation* 8:193-4 Ap 1 '20
- Variation of yawing moment due to rolling. E. B. Wilson. *U S Nat Advisory Com for Aeronautics* 1918:79-82 '20

Airplane struts

- Efficiency of airplane struts. W. F. Wiley. *Aviation* 8:477-8 Jl 15 '20
- Location of interplane struts. A. S. Niles and B. C. Boulton. *diags Aerial Age* 12:75-9+ S 27 '20
- Resistance of navy no. 1 struts. A. F. Zahm. *Aviation* 7:256-7 O 15 '19
- Use of the hollow strut on the new airplanes. E. P. Warner. *diags Automotive Ind* 42:716-20 Mr 18 '20

Testing

- Investigation of the compressive strength of spruce struts of rectangular cross section and the derivation of formulas suitable for use in airplane design. J. E. Boyd. *U S Bur Stand Tech Pa* 152:1-43 '20; *Abstract. Aviation* 8:436 Jl 1 '20
- Non-injurious ultimate-strength tests for interplane struts. E. R. Maurer. *il diag Soc Auto Eng J* 9:201-7 S '21
- Tests of metal struts and beams for airplanes. J. S. Nicholson. *Eng N* 85:112 Jl 15 '20

Airplane surgical unit

- French surgery airplane. G. F. Paul. *il Aviation* 11:513 O 31 '21

Airplane tensiometer

- Airplane tensiometer. L. J. Larson. *il U S Nat Advisory Com for Aeronautics* 1918:335-8 '20

Airplane wings

- Absolute coefficients and the graphical representation of aerofoil characteristics. *Aerial Age* 13:441-3 Jl 18 '21
- Aerodynamic characteristics of aerofoils. *U S Nat Advisory Com for Aeronautics* 1920:259-336 '21; *Abstract. Aerial Age* 13:246 My 23 '21; Same. *Aviation* 10:747 Je 13 '21
- Aerodynamic properties of thick aerofoils suitable for internal bracing. F. H. Norton. *diags U S Nat Advisory Com for Aeronautics* 1919:691-712 '20

Airplane wings—Continued

- Aerofoil development. Aerial Age 13:123 Ap 18 '21
- Alula high-lift wing. il diags Aerial Age 11:836-8 Ag 30 '20
- Analysis of wing truss stresses. E: P. Warner and R. G. Miller. il diags U S Nat Advisory Com for Aeronautics 1920:239-56 '21
- Another new wing developed by Levaseur. il Aerial Age 12:297 N 22 '20
- Big cargo plane introduces new type wing. P. H. Woodruff. il Pop Mech 34:802-4 D '20
- Cable lengths and fitting angles. N. L. Kearney. diags Aerial Age 10:724-5 Mr 1 '20
- Collapsible wings for airplanes—why not? il Sci Am 122:139+ F 7 '20
- Design of aeroplane control surfaces, with special reference to balancing. H. B. Irving. il diags Aeronautical J 25:537-55 O '21
- Design of aeroplane control surfaces with special references to wing ailerons. H. B. Irving. Engineering 110:461-3, 493-4, 527-8 O 8-22 '20
- Determination of downwash. W. S. Diehl. Aerial Age 12:655-6 Mr 7 '21; Same. Aviation 10:635-7 My 16 '21
- Determination of the pressure law for wing surfaces. S. E. Slocum. Aerial Age 11:188-9+ Ap 19 '20
- Development of metal construction in aircraft. J. S. Nicholson. il diags Engineering 109:408-12 Mr 26 '20
- Effect of variation in load factor on structural weight of wings. R. A. Miller. Aerial Age 14:177-8 O 31 '21
- Elements of a general theory of airplane-wing design. W. C. Durfee. diags Mech Eng 41:728-9 S '19; Same. Sci Am S 88:367+ D 20 '19; Discussion. Mech Eng 41:729-30 S '19
- Experimental reinforced plywood truss ribs. B. C. Boulton. diags Aerial Age 13:539-41, 591-4 Ag 15, 29 '21
- Experiments on thick wings with flaps. C. D. Hanscom. charts Soc Auto Eng J 8:271-6 Mr '21; Same. Aerial Age 13:79-82 Ap 4 '21; Discussion. Soc Auto Eng J 8:421-2 My '21
- Extension airplane wing makes landing safer. il Pop Mech 35:341-2 Mr '21
- Fabric fastenings. E. D. Walen and R. T. Fisher. U S Nat Advisory Com for Aeronautics 1918:400-9 '20; Excerpt. Aerial Age 11:474-5 Je 14 '20
- German rival of the Handley-Page wing. il Aviation 10:179 F 7 '21
- Glenn Martin high-lift wing. diag Aerial Age 12:585 F 14 '21; Same. Aviation 10:212 F 14 '21
- Graphical method for the deflection of beams of non-uniform section. B. C. Boulton and H. M. Priest. diags Aerial Age 11:17-19 Mr 15 '20
- Ground-plane influence on airplane wings. A. F. Zahm and R. M. Bear. diags J Fr Inst 191:687-93 My '21; Same. Aerial Age 13:299-301 Je 6 '21; Same. Aviation 10:807-8 Je 27 '21
- Handley Page wing. F. H. Page. diags Aerial Age 13:37-8, 83-4+ Mr 21, Ap 4 '21; Same. Engineering 111:274-6 Mr 4 '21; Same. Aviation 10:427-30 Ap 4 '21; Same. Aeronautical J 25:263-78 Je '21; Discussion. Aerial Age 13:84+ Ap 4 '21; Aeronautical J 25:279-89 Je '21
- Handley Page wing patent. diags Aviation 9:197-9 O 15 '20
- High-lift wing and commercial aviation. il Sci Am 123:371 O 9 '20
- Importance of pigmented protective coverings. R. G. Dort. Aviation 7:304 N 1 '19
- Influence of span and load per square meter on the air forces of the supporting surface. A. Betz. diags Aerial Age 13:224-5 My 16 '21
- Internal bracing of aeroplane wings. A. H. Stuart. diags Engineering 112:301-2 Ag 26 '21
- Internally trussed wing. W: B. Stout. Aviation 10:200 F 14 '21
- Introduction to the laws of air resistance of aerofoils. G: de Bothezat. diags U S Nat Advisory Com for Aeronautics 1918:90-158 '20
- Lachmann aerofoil. diags Aerial Age 12:560 F 7 '21
- Méthode de travail perfectionnée, pour le lardage des ailes d'avion; abstract. Génie Civil 78:424 My 14 '21
- New Glenn Martin high lift wing. C. D. Hanscom. Aviation 11:316-17 S 12 '21
- New Handley Page aeroplane wing. diag Engineer 130:421 O 29 '20; Same. Sci Am M 3:66-7 Ja '21
- New Handley-Page wing. il diags Aerial Age 12:250 N 8 '20; Same abr. Aviation 9:288 N 15 '20
- New high performance wing. Aviation 9:124 S 15 '20
- New theory of the slotted wing. A. Betz. Automotive Ind 45:731 O 13 '21
- Optical determination of stresses in airplane spars. A. R. Low. diags Soc Auto Eng J 7:393 O '20
- Parker variable camber wing. H. F. Parker. il diags U S Nat Advisory Com for Aeronautics 1919:729-65 '20; Excerpt (Introduction). Sci Am M 2:264-7 N '20
- Preliminary choice of a wing section. W. F. Gerhardt, B. C. Boulton and L. V. Kerber. Aerial Age 11:839-41+ Ag 30 '20
- Properties of aerofoil sections. Aerial Age 13:246 My 23 '21; Same. Aviation 10:747 Je 13 '21
- Relation of rib spacing to stress in wing planes. A. F. Zahm. Aerial Age 12:19+ S 13 '20; Same. Soc Auto Eng J 7:391+ O '20
- Relative merits of biplane and triplane wing structures. Aviation 8:294 My 1 '20
- Resistance of aerofoils. W. F. Gerhardt. diags Aerial Age 13:152-4, 175-8; 14:201-3 Ap 25-My 2, N 7 '21 (to be cont)
- Selection of a wing section. R. J. Hoffman. Aviation 7:491-2 Ja 1 '20
- Something new in the way of airplane metal ribs. S. R. Winters. Sci Am 123:11 Jl 3 '20
- Sperry commercial monoplane wing. il Aviation 10:689 My 30 '21
- Strength of one-piece solid, built-up and laminated wood aeroplane wing beams. J: H. Nelson. il chart diags Aerial Age 10:661-3 F 16 '20; Same. U S Nat Advisory Com for Aeronautics 1918:354-61 '20
- Torsion of wing trusses at diving speeds. R. G. Miller. U S Nat Advisory Com for Aeronautics 1920:603-8 '21
- Touring airplane and the variable camber wing. J. D. Hill. diags Aviation 9:159-60 O 1 '20
- Two new Clark aerofoils. diags Aviation 8:394-5 Je 15 '20
- Types of airplane rib fastenings; diagrams. Automotive Ind 43:225 Jl 29 '20
- Variation of aerofoil lift and drag coefficients with changes in size and speed. W. S. Diehl. Aerial Age 13:518-20 Ag 8 '21
- Wing profiles. diags Aerial Age 11:127 Ap 5 '20
- Wragg adjustable compound aerofoil. C. A. Wragg. diags Aerial Age 12:346 D 6 '20
- See also Airplane fabric

Rib testing

- Approximate method of testing aeroplane wing ribs. N. W. McLachlan. diags Engineering 109:1-4 Ja 2 '20; Same. Aviation 8:59-63 F 15 '20
- Development of a 15-foot airplane wing rib. R. M. Wirka. il diags Aviation 7:386-8 D 1 '19

Testing

- Merits of different splices for airplane wing beams. H. D. Frary. diags Soc Auto Eng J 9:133-8 Ag '21
- Optical wing aligning device of the Langley field tunnel. F. H. Norton and D. L. Bacon. diags Aerial Age 12:610 F 21 '21
- Test of all-metal Junkers airplane wing. il Aviation 11:480 O 24 '21
- Trials of Sperry high lift wing. il Aviation 11:539 N 7 '21

Airplane wood. See Airplanes—Manufacture

Airplanes

- Aeronautics in 1920. il (supp) Engineer 131: 5-7, 40-1 Ja 7-14 '21
- Aeroplane handbook. A. J. Swinton, ed. 276p Aeroplane and general publishing co., 175-6 Piccadilly W 1 London '20
- L'aéroplane métallique géant Staaken des usines allemandes Zeppelin. il Génie Civil 78:63 Ja 15 '21
- Air transport demonstration at Mineola. il Aviation 11:536-7 N 7 '21
- Airco 18 aeroplane. il diags Engineering 110: 238-40, pl 25 Ag 20 '20
- Aircraft development. T. H. Bane. il Aviation 10:360-2 Mr 21 '21
- Aircraft for pleasure. B. W. Williams. il Sci Am 124:25+ Ja 8 '21
- Aircraft handbook. F. H. Colvin. 415p McGraw-Hill '21
- Aircraft of the future. C. H. Claudy. Sci Am 123:520+ N 20 '20
- Airplane, a practical discussion of the principles of airplane flight; 115 illustrations. F. Bedell. Van Nostrand '20
- Airplane as a commercial possibility. D. W. Douglas. il Sci Am M 1:339-43 Ap '20
- Airplane efficiency in public transportation. H. White-Smith. il Aviation 10:498-501 Ap 18 '21
- Airplane to have engines along and within wings. il Pop Mech 34:599 O '20
- Airplanes that are different. il Sci Am 122: 162 F 14 '20
- Albatros 8-seater cabin monoplane. E. Hildesheim. il diag Aviation 10:505 Ap 18 '21
- All-metal biplane for all-round use. F. A. Talbot. il Sci Am 122:63+ Ja 17 '20
- Angles of attack and air speeds during maneuvers. E. P. Warner and F. H. Norton. il diags U S Nat Advisory Com for Aeronautics 1920:611-20 '21
- Ansaldo A-300C. il diags Aviation 10:11-12 Ja 3 '21
- Ansaldo limousine. il Aerial Age 13:275 My 30 '21
- L'avion commercial allemand Sablatnig. Génie Civil 78:321 Ap 9 '21
- Avro triplane type 547. il diags Aerial Age 11:152-3 Ap 12 '20
- BaCo Skylark. il Aviation 10:626-8 My 16 '21
- Barnhart twin 15 Wampus-Kat. il Aviation 11:309-11 S 12 '21; Aerial Age 13:615-17 S 5 '21
- Bellanca announces five-seater. il Aerial Age 12:613 F 21 '21
- Bethlehem aircraft corporation Skylark. il Aerial Age 13:226-8 My 16 '21
- Bleriot Mammouth. diag Aviation 8:13 F 1 '20
- Bombing airplane becomes flying ambulance. il Pop Mech 35:847 Je '21
- Boulton & Paul commercial machine. il diags Aerial Age 11:290-2 My 10 '20
- Breguet Leviathan type XX. E. H. Lemonon. diag Aviation 10:532-4 Ap 25 '21
- Bristol Coupé and hydro-airplane. il Aviation 7:265 O 15 '19
- Bristol ten-seater aeroplane. il Engineer 132: 73 Jl 15 '21; Aerial Age 13:487-8 Ag 1 '21; Aviation 11:229 Ag 22 '21
- British air limousine. diags plans Automotive Ind 41:1070-1 N 27 '19
- Cable laying by aeroplane. Flying 10:154 My '21
- Central aircraft types. il diags Aerial Age 11:20-2 Mr 15 '20
- Comments on small airplanes competing for commercial aircraft. E. P. Warner. Sibley J 34:144-9+ O '20
- Commercial airplane. L. B. Lent. Aviation 11: 188-9 Ag 15 '21
- Commercial airplane development. Sci Am 122:696 Je 26 '20
- Commercial airplane in its present day development. G. E. Quisenberry. il diag plan Automotive Ind 42:998-1001 Ap 29 '20
- Cox-Klemin rebuilds Standard with Mercedes motor. il Aerial Age 14:31 S 19 '21
- Curtiss Eagle cabin plane. il Aviation 8:98 Mr 1 '20
- Curtiss Eagle commercial plane with Liberty engine. il Automotive Ind 43:1215 D 16 '20; Aviation 9:483 D 27 '20
- Curtiss Eagle transport airplane. il Aviation 7:309 N 1 '19
- D. H. cantilever monoplanes. Aerial Age 13: 86 Ap 4 '21
- Davis-Douglas cloudster. diag Aerial Age 12:297 N 22 '20
- Dayton-Wright R. B. racer. il Aviation 9: 190 O 15 '20
- De Havilland 18. Aerial Age 12:494 Ja 17 '21
- DH-18 limousine. Aerial Age 13:230 My 16 '21
- De Pischoff avionette. J. J. Ide. il Automotive Ind 44:210 F 3 '21
- Design and structure of the German metal airplane. diags Automotive Ind 42:1360-2 Je 10 '20
- Development of giant aircraft in Germany. il Aeronautical J 25:100-16, 166-88 F-Mr '21
- Diminutive triplane flies nimbly with easy control. il Pop Mech 36:187 Ag '21
- Do fish swim as airplanes fly? M. Tevis. Sci Am 123:469 N 6 '20
- Dornier all-metal cantilever monoplanes. E. Hildesheim. il Aviation 10:721-3 Je 6 '21
- Dornier C.III cabin airplane. il diags Aviation 10:720 Je 6 '21
- Dornier twin-engined monoplane, type G. 1. Aerial Age 13:422 Jl 11 '21
- Dutch passenger monoplane displays new features. il Pop Mech 36:652 N '21
- Dynamics of the airplane. K. P. Williams. 138p Wiley '21
- Early aeroplanes. Aerial Age 13:499 Ag 1 '21
- Edmond de Marçay aeroplanes. il Aerial Age 11:869-70 S 6 '20
- Farman Goliath transport airplane. il diags Aviation 7:477-9 Ja 1 '20
- Fiat airplane and engine. il Aviation 8:14 F 1 '20
- Fiat 10 passenger airplane. diag Aviation 11: 139 Ag 1 '21
- Fiat twelve-passenger aeroplane. diags Aerial Age 11:185-7 Ap 19 '20
- Flying single and twin engined airplanes. R. M. Hill. Aviation 10:273-6 F 28 '21
- Fokker commercial airplanes. il Aviation 9: 385-6 D 6 '20
- Fokker commercial express biplane type C II. il Aerial Age 13:151 Ap 25 '21; Same. Aviation 10:565-6 My 2 '21
- Fokker F.III 6-seater monoplane. il Aviation 10:717-18 Je 6 '21; Same. Aerial Age 13: 271-2 My 30 '21
- Forerunners of the flying liners. il Sci Am 122:667 Je 19 '20
- French surgery airplane. G. F. Paul. il Aviation 11:513 O 31 '21
- Friesley Falcon cabin airplane. il Aviation 10:656-7 My 23 '21; Same. Aerial Age 13: 225-6 My 16 '21
- Gallaudet C-3 Liberty tourist plane. il Aerial Age 11:771 Ag 16 '20
- General theory of the steady motion of an airplane. Aviation 11:204. Ag 15 '21
- German all-metal commercial machines. Aerial Age 13:302 Je 6 '21
- German sport monoplane. il Aviation 9:391 D 6 '20
- Glenn L. Martin commercial transport biplane. diags Aerial Age 12:392-4 D 20 '20; Same. Aviation 9:426-8 D 13 '20
- Grahame-White aero-limousine. il diags Aerial Age 12:46-7 S 20 '20
- Handley-Page type W.8. il Aviation 7:542 Ja 15 '20
- Hawa commercial triplanes. B. R. Dierfeld. il diags Aerial Age 13:34-5 Mr 21 '21
- Henri Potez aeroplanes. il Aerial Age 11: 645-6 Jl 19 '20
- How the world found one hundred uses for aeroplanes. H. Woodhouse. il Flying 9:496-503, 561-8 S-O '20
- Huff-Daland HD-4 training airplane. il Aviation 11:368-9 S 26 '21
- Huntington motorcycle engined monoplane. Aerial Age 12:449, 473 Ja 3-10 '21
- Impressions of airplanes at the show. A. Klemin. il diags Aviation 8:158-62 Mr 15 '20
- International aero exhibition. il Engineering 110:74-9, 82 Jl 16 '20
- JL all-metal airplane comprises novel engineering features. il Automotive Ind 43:808-9 O 21 '20

Airplanes—Continued

- Jacuzzi commercial monoplane designed to carry pilot and six passengers. *il* Automotive Ind 44:659-60 Mr 24 '21
- Jacuzzi seven-passenger monoplane. J: H. Kauke. *il* Aerial Age 12:561-2 F 7 '21; Same. Aviation 10:228-9 F 21 '21
- L. W. F. owl freight plane. *il* Aviation 8:103 Mr 1 '20
- Laird Swallow. *il* Aviation 9:119-20 S 15 '20; Aerial Age 12:253+ N 8 '20
- Lawson airplane C-2. *il* Aviation 7:315-16 N 1 '19
- Lawson midnight airliner. *il* diags Aerial Age 12:415-18 D 27 '20; Same. Aviation 10:17-18 Ja 3 '21
- Life of an airplane. Automotive Ind 42:821 Ap 1 '20; Same. Am Mach 52:879 Ap 22 '20
- Lincoln standard cruiser. *il* diags Aerial Age 12:319-21 N 29 '20
- Lincoln standard speedster. *il* diags Aerial Age 11:740-1 Ag 9 '20
- Linke-Hoffman central power plant giant biplanes. E. Hildesheim. *il* Aviation 7:391-3 D 1 '19
- Linke-Hoffman giant machines. *il* diags plan Aerial Age 10:533-5 Ja 19 '20
- Loening special monoplane. diags Aerial Age 12:394-5 D 20 '20
- Loughead sport biplane. *il* Aviation 8:367-8 Je 1 '20; Same cond. Aerial Age 11:434-5 Je 7 '20
- Mastery of the skies. *il* Sci Am 123:338-9+ O 2 '20
- Modified Le Pere fighter. *il* diag Aviation 11:221-2 Ag 22 '21
- Monoplanes or biplanes? A. Herbemont. *il* Aviation 11:420-2 O 10 '21
- Morane-Saulnier parasol type A. R. Aerial Age 12:398 D 20 '20
- Multi-engined commercial airplanes. D. W. McIlhiney. Aviation 11:506-7 O 31 '21
- New Ansaldo transport airplane. *il* Aviation 9:165 O 1 '20
- New commercial airplane designed in Europe. J: J. Ide. *il* Automotive Ind 45:658 O 6 '21
- New commercial monoplane is quickly dismantled. *il* Pop Mech 34:883 D '20
- New deal for the monoplane; Fokkers passenger-carrying airplane. *il* Sci Am 123:569 D 4 '20
- New French commercial airplanes. Aviation 11:48 Jl 11 '21
- New Langley controversy. G. Brewer. *il* Aviation 11:532; Discussion. C: M. Manly; C: D. Walcott. 11:532-5 N 7 '21
- New Longren biplane. *il* Aerial Age 14:55-6 S 26 '21; Aviation 11:336-7 S 19 '21
- New plane aims to be flivver of the air. *il* Pop Mech 36:705 N '21
- New planes advance commercial air possibilities. W: B. Stout. Automotive Ind 43:201-3 Jl 29 '20
- New type airplane will try for coast-to-coast record. *il* Pop Mech 36:12-13 Jl '21
- New Zeppelin-Staaken monoplane. *il* Aviation 11:505 O 31 '21
- Nieuport-Delage biplane, type 30-T. diags Aerial Age 14:37 S 19 '21
- Notes on small sized aeroplanes; abstract. A. R. Weigh. Aerial Age 12:254 N 8 '20
- One-man airplane for everybody's pocket-book; the de Pischoff avionette. *il* Sci Am 124:293 Ap 9 '21
- 1,000 h.p. Staaken monoplane. Aerial Age 13:134 Ap 18 '21
- Orenco commercial and military types. *il* diags Aerial Age 11:84-6+ Mr 29 '20
- Orenco type F 4-seater tourist plane. *il* Aviation 8:278-81 My 1 '20; Same. Aerial Age 11:253-6 My 3 '20
- Our latest aerial creations. *il* Sci Am 123:129 Ag 7 '20
- Pacific Hawk commercial airplane. *il* diags Aviation 9:47-8 Ag 15 '20
- Pioneer single-seater sportplane. *il* diags Aerial Age 11:370-1 My 24 '20
- Pischoff avionette. H. M. Buckwald. *il* diags Aviation 10:106-7 Ja 24 '21
- Plane that blows itself along. diag Sci Am 125:103 Ag 6 '21
- Possibilities of the large airplane. F. H. Norton. diags Aviation 10:48-50 Ja 10 '21
- Preparation of plane and motor for altitude flight. *il* Aerial Age 12:142 O 11 '20
- Racing airplane of the future; reprint of a study of probable future developments, originally published in the Scientific American of Oct. 22, 1910. J. B. Walker. *il* Sci Am 123:158+ Ag 14 '20
- Recent advances in aviation at McCook field. T. H. Bane. *il* Soc Auto Eng J 8:18-25 Ja '21
- Rectilinear flight of aeroplanes. A. Rateau. Mech Eng 42:268-9+ My '20
- Revolutionary improvements in aeroplane construction announced by Handley Page. Flying 9:171 Ap '20
- Saulnier three-engined monoplane. diags Aviation 11:71-2 Jl 18 '21
- Short all metal Silver Streak. *il* diags Aviation 9:217-19 N 1 '20
- Single-engined cabin airplanes. D. W. McIlhiney. Aviation 11:364-5 S 26 '21; Discussion. 11:489 O 24 '21
- La VI^e exposition internationale d'aéronautique de Londres (9-20 juillet 1920). *il* diags plans Génie Civil 77:125-30 Ag 14 '20
- Skylark. *il* Aviation 9:267 N 8 '20
- Slow speed airplane. F. H. Norton. diags Aviation 9:80-2 S 1 '20
- Small commercial airplanes of the British competition. E: P. Warner. Aviation 9:193-6 O 15 '20
- Smallest British airplane weighs 220 pounds. *il* Pop Mech 33:181 F '20
- Some recent Farman aeroplanes. Aerial Age 14:38 S 19 '21
- Some recent German airplanes. *il* Aviation 8:20, 21-2 F 1 '20
- Some requirements of modern aircraft. R. T. Glazebrook. diags Engineering 110:683-4 N 19 '20
- Sopwith Australia transport biplane. *il* diags Aerial Age 10:694-5+ F 23 '20
- Sopwith commercial and sporting types. *il* Aerial Age 11:219-20+ Ap 26 '20
- Spad Berline S.33. *il* diags Aerial Age 13:488-9 Ag 1 '21
- Sperry amphibious triplane. *il* Aviation 9:222-4 N 1 '20
- Sperry messenger airplane. *il* diags plan Aviation 9:285-6 N 15 '20
- Stinson greyhound. *il* Aerial Age 11:117 Ap 5 '20
- Stout bat-wing limousine. *il* Aviation 9:257 N 8 '20
- Stout bat-wing tested. Aviation 9:328 N 22 '20
- Stout internally trussed commercial plane of American design. *il* diags Automotive Ind 43:1213-15 D 16 '20; Same. Aerial Age 12:439-40 Ja 3 '21
- Strutless-type aeroplanes; abstract. E. Meyer. Mech Eng 43:400 Je '21
- Survival of the fittest among airplanes. *il* Sci Am 125:167 S 3 '21
- Tandem-plane aerial sedan may revolutionize flying. *il* Pop Mech 35:838 Je '21
- Technical features of the new aircraft models. diags Automotive Ind 42:698-700 Mr 18 '20
- Ten-ton aluminum airplane. W: H. Hunt. *il* Pop Mech 35:36-7 Ja '21
- Textbook of applied aeronautic engineering. H: Woodhouse. 324p Century '20
- Touring airplane and the variable camber wing. J. D. Hill. diags Aviation 9:159-60 O 1 '20
- Touring airplane has upper and lower berth. *il* Pop Mech 33:184 F '20
- Trans-oceanic airplane; multiple engines and transmission gears as aids to continuous flight. *il* Sci Am 123:471 N 6 '20
- Two new Hanriot airplanes. Aviation 11:373 S 26 '21
- Two recent French pursuit and racing planes. J: J. Ide. *il* Automotive Ind 44:209-10 F 3 '21
- Two-seater Avro Baby, type 543. diags Aviation 10:337-8 Mr 14 '21
- Unconventional sporting airplane a new French product. J: J. Ide. *il* Automotive Ind 45:707-8 O 13 '21
- Unusual in passenger-carrying airplanes; the giant Staaken monoplane. A. Longville. *il* Sci Am 123:609 D 18 '20

Airplanes—Continued

- Vickers aircraft works, Weybridge. *il* Engineer 130:444-6 N 5 '20
- Vickers Viking IV amphibian. *diags* Aviation 10:597 My 9 '21
- Vickers Vimy aeroplane ambulance. *il* *diags* Aerial Age 13:131-2 Ap 18 '21
- Vickers-Vimy commercial airplane. *il* Aviation 7:312 N 1 '19
- Viking amphibious seaplane. *il* Engineering 111:486-7, 492, pl 23 Ap 22 '21
- Waterman type O X-5 racing monoplane. *il* Aviation 11:197 Ag 15 '21; Same. Aerial Age 13:463-4 Jl 25 '21
- Waterman type 3-L400 airplane. *il* Aviation 9:191-2 O 15 '20; Same. Aerial Age 12:225-7 N 1 '20
- Westland limousine. *il* *diags* Aerial Age 10:495-6 Ja 12 '20
- Westland limousine aeroplane. *il* *diags* plans Engineering 111:196-7, 200 F 18 '21
- What Europe is doing in aviation. E. A. Dime. *il* Sci Am 122:489+ My 1 '20
- What should be done to increase the civil use of airplanes? J. F. Hayford. W Soc E J 25:238-52 Ap 5 '20
- What the all-metal airplane can do. *il* Sci Am 123:43 Jl 10 '20
- Winner of the London aerial derby, Mars I. *il* *diags* Aerial Age 14:7-8 S 12 '21
- World's largest airplane completed in Germany. *il* Pop Mech 33:890 Je '20
- Zeppelin Dornier C-3. Aerial Age 13:278 My 30 '21
- Zeppelin Staaken airplane. *il* Aviation 10:169 F 7 '21
- Zeppelin-Staaken all-metal monoplanes. Aerial Age 13:182 My 2 '21
- Zeppelin-Staaken 1000 hp. monoplane. *il* *diags* Aviation 11:398-401 O 3 '21

See also Aeronautics; Aeronautics, Commercial; Aircraft; Airplane engines; Airplane propellers; Airplane stability and stabilizers; Airships; Aviation; Fish patrol, Aerial; Flying boats; Flying machines; Forest fire patrol, Aerial; Hangars; Hydrodrome; Ornithopter; Seaplanes; Torpedo-planes

Carbureters

See Carbureters

Control

- Automatic means of control for commercial airplanes. *il* Pop Mech 36:222 Ag '21
- Aveline automatic pilot. *il* *diag* Engineer 131:184-6 F 18 '21; Engineering 111:178-9 F 11 '21; Aerial Age 12:656-8+ Mr 7 '21
- Various possibilities in airplane flying controls. Automotive Ind 45:569 S 22 '21

See also Airplane stability and stabilizers

Control surfaces

- Design of aeroplane control surfaces, with special reference to balancing. H. B. Irving. *il* *diags* Aeronautical J 25:537-55 O '21
- Design of aeroplane control surfaces with special references to wing ailerons. H. B. Irving. Engineering 110:461-3, 493-4, 527-8 O 8-22 '20

Design

- Adjustable camber and variable angle of incidence. T. P. Leaman. *diags* Aviation 9:59 Ag 15 '20
- Aeroplane structural design. T. H. Jones and J. D. Frier. 267p Pitman '20
- Aeroplanes of consistent strength. A. J. S. Pippard. Engineering 109:133-4 Ja 30 '20
- Air liner is designed for commerce. *il* plans Automotive Ind 41:964-7 N 13 '19
- Airplane performance and design charts. L. V. Kerber. Aviation 10:748-51, 780-4 Je 13-20 '21
- Airplane stress analysis. A. F. Zahm and L. H. Crook. *diags* U S Nat Advisory Com for Aeronautics 1919:797-870 '20
- Airplane with variable wing surface area. A. Longville. *il* Sci Am 123:597 D 11 '20
- Analysis of wing truss stresses. E. P. Warner and R. G. Miller. *il* *diags* U S Nat Advisory Com for Aeronautics 1920:239-56 '21
- L'avion monoplan Staaken de 1 000 chevaux, des Chantiers Zeppelin. *il* *diags* plans Génie Civil 79:171-2 Ag 20 '21

- Cable lengths and fitting angles. N. L. Kearney. *diags* Aerial Age 10:724-5 Mr 1 '20
- Characteristics of design effecting production, operation and maintenance of aircraft. P. Bishop. Aviation 8:319-23 My 15 '20
- Correcting the longitudinal balance of JN-6H airplanes. Aviation 8:357-8 Je 1 '20
- Deflection of beams of non-uniform section. Aerial Age 13:543-6 Ag 15 '21
- Design of aeroplane control surfaces, with special reference to balancing. H. B. Irving. *il* *diags* Aeronautical J 25:537-55 O '21
- Design of aeroplane control surfaces with special references to wing ailerons. H. B. Irving. Engineering 110:461-3, 493-4, 527-8 O 8-22 '20
- Design of monocoque fuselages. A. Elmen-dorf. *diags* Aviation 9:112-14 S 15 '20
- Design requirements of commercial aviation. G. C. Loening. Aerial Age 12:516-17, 542-3 Ja 24-31 '21; Same. Soc Auto Eng J 8:135-44 F '21; Discussion. 8:419-21 My '21
- Determination of sweepback for line-up. T. P. Wright. Aviation 8:394 Je 15 '20
- Development of metal construction in aircraft. J. S. Nicholson. *il* *diags* Engineering 109:357-62, 375-8, 408-12 Mr 12-26 '20
- Effects of staggering a biplane. F. H. Norton. Aerial Age 14:103-4 O 10 '21
- \$5000 contest for designs for aeroplanes capable of carrying twenty, fifty, one hundred, one hundred and fifty, and two hundred tons of useful load planned by the Aerial league of America. H. Woodhouse. Aerial Age 12:101-2+ O 4 '20
- Fuselage stress analysis. E. P. Warner and R. G. Miller. *diags* U S Nat Advisory Com for Aeronautics 1919:715-25 '20; Same. Aerial Age 11:119-22 Ap 5 '20
- Graphical method for the deflection of beams of non-uniform section. B. C. Boulton and H. M. Priest. *diags* Aerial Age 11:17-19 Mr 15 '20
- International aero exhibition. *il* (supp) *diags* Engineer 130:52-4, 62, 78-80, 86 Jl 16-23 '20
- Investigation of the compressive strength of spruce struts of rectangular cross section and the derivation of formulas suitable for use in airplane design. J. E. Boyd. U S Bur Stand Tech Pa 152:1-43 '20
- Load factors for aeroplanes and seaplanes. Engineering 109:511 Ap 16 '20
- Longitudinal airplane—is it practical? *il* Sci Am 122:545 My 15 '20
- Methods for calculating aeronautical polar curves. Le Sueur. Aerial Age 12:560 F 7 '21
- Naval architecture in aeronautics. J. C. Hunsaker. *diags* Engineering 109:857-60 Je 25 '20; Same. Aviation 9:10-14 Ag 1 '20
- Naval architecture in aeronautics. J. C. Hunsaker. *diags* Soc Auto Eng J 7:504-20 D '20
- New Levavasseur and Gastambide variable surface airplane. H. M. Buckwald. *il* *diags* plan Aviation 9:314-16 N 22 '20
- Notes on longitudinal stability and balance. E. P. Warner. Sibley J 34:98-102+ Jl '20; Same. Aerial Age 12:201-3 O 25 '20
- Parker variable camber wing. H. F. Parker. *il* *diags* U S Nat Advisory Com for Aeronautics 1919:729-65 '20
- Preliminary choice of a wing section. W. F. Gerhardt, B. C. Boulton and L. V. Kerber. Aerial Age 11:839-41+ Ag 30 '20
- Proposed transport airplane. *diags* Aviation 9:321 N 22 '20
- Remington-Burnelli airliner. Aviation 11:15, 101 Jl 4, 25 '21
- Remington-Burnelli airliner. *il* *diag* Aerial Age 13:420-1 Jl 11 '21
- Requirements of commercial airplanes; report of the Safety and economy committee of the Royal aeronautical society of Great Britain. Aviation 11:68-70 Jl 18 '21
- Requirements of the commercial airplane. W. B. Stout. Aviation 10:143-4 Ja 31 '21
- Retractable chassis as an aid to aeroplane speed and efficiency. J. V. Martin. *il* Aerial Age 12:274 N 15 '20
- Safety factors in airplane design. A. S. Niles. Eng N 87:490-1 S 22 '21

Airplanes—Design—Continued

- Some practical points in the structural design of aircraft. A. P. Thurston. *il* *diags* Engineering 111:335-7 Mr 18 '21
- Staggered spar sections. H. P. Hudson. *Aeronautical J* 25:556-8 O '21
- Structural analysis and design of the aeroplane. B. C. Boulton. *diags* Aerial Age 11:710-12, 742-4, 775-7 Ag 2-16 '20
- Technical aspects of service and civil aviation; abstracts. F. S. Barnwell. Engineering 110:529-30 O 22 '20; Engineer 130:431-2 O 29 '20; Flying 9:713-15+ Ja '21
- Theory and practice of aeroplane design. S. T. G. Andrews. 454p Dutton '20
- Trend of airplane design. *diags* Automotive Ind 42:170-3; 44:364-5+ Ja 15 '20, F 17 '21
- Use of the hollow strut on the new airplanes. E. P. Warner. *diags* Automotive Ind 42:716-20 Mr 18 '20
- Variable angle of incidence airplane. *diags* Aviation 7:541-2 Ja 15 '20
- Variable surface airplane. *il* Aviation 9:297 N 15 '20
- Variable wing area and variable camber. H. B. Irving. Aviation 9:19-21 Ag 1 '20
- Vibration of spars in aircraft. A. H. Stuart. *diags* Engineering 109:201 F 13 '20; Same. Aviation 8:290-1 My 1 '20
- La vie et les voyages aux très hautes altitudes; cabines closes, à pression constante, pour ballons et avions. Dr Guglielminetti. *il* *diags* Génie Civil 76:288-92 Mr 20 '20; Same *abr.* (More about high flying). *Sci Am M* 2:70-3 Jl '20; Excerpt. Aerial Age 12:489 Ja 17 '21
- Wisenant longitudinal aeroplane. M. A. Spicer. *il* Aerial Age 11:804-5 Ag 23 '20
- See also* Airplane propellers; Airplane struts; Airplane tensiometer; Airplane wings

Equipment and supplies

- Air fans for driving generators on airplanes. G. F. Gray, J. W. Reed and P. N. Elderkin. *il* Mech Eng 41:527-30 Je '19; Same. Aviation 7:396-9 D 1 '19; Same. Eng & Ind Management 5:98-101 Ja 27 '21
- Airplane protected from tampering. *Pop Mech* 34:614 O '20
- Making eyes on airplane cables. *il* Automotive Ind 42:453 F 12 '20
- Rubber aircraft parts. E. H. Wilson. Aviation 10:343 Mr 14 '21
- Rubber covering is not sufficient for leak-proof tanks. Automotive Ind 43:704 O 7 '20
- Underwriters' laboratories to classify electrical accessories for aircraft. Elec R 77:932 D 11 '20
- See also* Aeronautic instruments; Airplanes—Lugs; Brakes, Airplane; Compass; Fuelizer; Oxygen apparatus; Wireless telephone in aviation

Fireproofing

- Making the airplane and the aviator's suit fireproof. *il* *Sci Am* 124:487+ Je 18 '21
- Tests of fireproof airplane dope and equipment. Aviation 9:21-2 Ag 1 '20

Flotation gear

See Airplanes—Landing gear

Fuselage

- Breguet commercial airplane. *diags* Automotive Ind 43:475 S 2 '20
- Design of monocoque fuselages. A. Elmen-dorf. *diags* Aviation 9:112-14 S 15 '20
- Fuselage stress analysis. E. P. Warner and R. G. Miller. *diags* U S Nat Advisory Com for Aeronautics 1919:715-25 '20; Same. Aerial Age 11:119-22 Ap 5 '20
- Monocoque fuselage. L. D. Seymour. *il* *diags* Aviation 10:203+ F 14 '21

History

- Technical history of the aeroplane. F. M. Green. Flying 9:631-4, 686-7 N-D '20
- See also* Flying machines

Landing

- Great problem of landing; its bearing on the future of aviation. *il* *Sci Am M* 1:132 F '20

- Landing run and get-away for standard airplanes. A. Klemin. *diags* Soc Auto Eng J 6:231-6 Ap '20; Same. Aviation 8:247-50 Ap 15 '20

- Manœuvres of getting off and landing. R. M. Hill. *il* Aeronautical J 25:510-36 O '21

See also Airplanes—Shock absorbers; Aviation landing stations

Landing gear

- Air brakes for aeroplanes. R. R. West. *diags* Engineer 128:570-2 D 5 '19
- Automatic brake for aeroplanes. *diag* Aerial Age 14:38 S 19 '21
- Axles for airplane landing gear. *il* *diags* Am Mach 55:56 Jl 14 '21
- Development of tires and wheels. Aerial Age 13:205 My 9 '21; Same. Automotive Ind 44:1065 My 19 '21
- DH-4 emergency flotation gear. *il* Aviation 11:103 Jl 25 '21
- Electro-magnetic brakes for aeroplanes. Aerial Age 14:57+ S 26 '21
- Klemin amphibious gear. D. W. McIlhiney. *il* Aviation 10:271-2 F 28 '21
- Ski landing gears for airplanes. *il* Aviation 8:369 Je 1 '20

Launching

- Brief history of launching catapults. *il* Aviation 10:278 F 28 '21
- Effect of temperature and altitude of aerodrome in the taking off of aeroplanes. P. G. Gundry. Aeronautical J 25:290-300 Je '21
- Landing run and get-away for standard airplanes. A. Klemin. Soc Auto Eng J 6:235-6 Ap '20; Same. Aviation 8:250 Ap 15 '20
- Manœuvres of getting off and landing. R. M. Hill. *il* Aeronautical J 25:510-36 O '21
- New naval catapult launching device. *il* Aviation 11:545 N 7 '21

Load

- Load factors for aeroplanes and seaplanes. Engineering 109:511 Ap 16 '20
- Loads and calculations of army aeroplanes. Stelmachowski. Aerial Age 13:9-11 Mr 14 '21
- Some practical points in the structural design of aircraft. A. P. Thurston. *il* *diags* Engineering 111:335-7 Mr 18 '21
- Study of airplane ranges and useful loads. J. G. Coffin. *diags* U S Nat Advisory Com for Aeronautics 1919:539-67 '20
- Undercarriage design with reference to high wing-loading. Aerial Age 13:446 Jl 18 '21

Lugs

- Design of standard lugs. B. C. Boulton. *il* *diags* Aerial Age 12:634-7 F 28 '21; Abstract. Eng N 87:438-9 S 15 '21

Manufacture

- Address to the Engineering section of British association for the advancement of science. C. F. Jenkin. Engineering 110:290-2 Ag 27 '20
- Building airplanes for local use. I. B. Rich. *il* Am Mach 53:854-5 N 4 '20
- Construction of the metal aeroplane. Aerial Age 12:278 N 15 '20
- Data on the design of plywood for aircraft. A. Elmendorf. *il* *diags* U S Nat Advisory Com for Aeronautics 1920:109-22 '21
- Details of airplane manufacture. F. H. Colvin. *il* Am Mach 52:201-4 Ja 22 '20
- Details of large airplane work. *il* Am Mach 54:357-9 Mr 3 '21
- Development of metal construction in aircraft. J. S. Nicholson. *il* *diags* Engineering 109:357-62, 375-8, 408-12 Mr 12-26 '20
- Effect of kiln drying on the strength of airplane woods. *il* *diags* U S Nat Advisory Com for Aeronautics 1919:477-537 '20
- L'emploi du métal pour la construction des avions. G. Létang. Génie Civil 78:91 Ja 22 '21
- Find large supply of aircraft wood. Automotive Ind 42:339 Ja 22 '20
- Glues used in airplane parts. S. W. Allen and T. R. Truax. *il* *diags* U S Nat Advisory Com for Aeronautics 1919:387-408 '20
- Heat-treating of brazed fittings for aircraft. A. Black. Soc Auto Eng J 6:174-6 Mr '20; Same. Am Mach 52:1184-6 Je 3 '20

Airplanes—Manufacture—Continued

- Home of the Martin bomber. *il* Aviation 10:772-9 Je 20 '21
- Jigs, fixtures and aeroplanes. A. D. Wilt, jr. *il* Aerial Age 10:627-8 F 9 '20
- Kiln drying of woods for airplanes. H. D. Tiemann. *il* U S Nat Advisory Com for Aeronautics 1919:357-83 '20
- Kilndrying of wood in the airplane industry. M. A. Lee. *diags* Sibley J 33:66-7 Je '19
- Personal experiences in constructing metal airplanes. H. Junkers. Aviation 9:219 N 1 '20
- Plant of the Aeromarine plane and motor co., Keyport, N.J. A. Klemin. *il* Aviation 10:171, 174-6 F 7 '21
- Plywood in airplane construction. A. Elmen-dorf. Aviation 10:630-2, 660-3 My 16-23 '21
- Report on materials of construction used in aircraft and aircraft engines. C: F. Jen-kin. 162p H. M. Stationery off., London '20
- Supplies and production of aircraft woods. W. N. Sparhawk. *maps* U S Nat Advisory Com for Aeronautics 1919:411-71 '20
- Veneer or metal construction. W: B. Stout. Aviation 10:232 F 21 '21
- What is required to construct a modern air-plane. Mach 27:260 N '20
- Woods for airplane construction. Automotive Ind 42:1001 Ap 29 '20
- Woods used in aircraft construction. Aerial Age 14:65, 87, 113, 137 S 26-O 17 '21
- See also* Airplane wings

Marking

- International aircraft marking. L. d'Orcy. *il* Aviation 9:484-6 D 27 '20
- Proper insignia for U.S. aeroplanes. Aerial Age 12:497 Ja 17 '21

Model testing

- New method of testing models in wind tun-nels. W. Margoulis. Aerial Age 14:58-61 S 26 '21
- Some experiments with model airplanes. A. A. Merrill. *diags* Aviation 9:349; 10:132-3 N 29 '20, Ja 31 '21
- Value of model tests. J. W. Margoulis. *il* *diag* Aviation 10:40-2 Ja 10 '21

Models

- Construction of models for tests in wind tun-nels. F. H. Norton. *il* *diags* U S Nat Ad-visory Com for Aeronautics 1919:673-87 '20

Motors

See Airplane engines

Nomenclature

- Naming and classifying airplanes. Aviation 10:391 Mr 28 '21

Performance

- Aeroplane performance. D: Yelnik. Aerial Age 10:726-7 Mr 1 '20
- Aeroplane performances as influenced by the use of a supercharged engine. G: De Bothe-zat. Aerial Age 12:174+ O 18 '20
- Airplane performance and design charts. L. V. Kerber. Aviation 10:748-51, 780-4 Je 13-20 '21
- Applying the figure of merit. D. W. McIl-hiney. Aviation 11:544-5 N 7 '21
- Calculated performance of airplanes equipped with supercharging engines. E. C. Kemble. U S Nat Advisory Com for Aeronautics 1920:507-53 '21; Abstract. Aviation 10:530 Ap 25 '21
- Comparison of airplane performances. R. J. Hoffman. *il* Aviation 11:446-7 O 17 '21
- Estimating performance of an airplane. V. E. Clark. Aviation 7:349-50 N 15 '19
- Figure of merit for airplanes. D. W. McIl-hiney. *il* Aviation 9:254-7 N 8 '20
- Mail airplane performance. Aviation 10:342 Mr 14 '21
- Slip-stream corrections in performance com-putation. E: P. Warner. U S Nat Advisory Com for Aeronautics 1919:603-10 '20
- Study of airplane ranges and useful loads. J. G. Coffin. *diags* U S Nat Advisory Com for Aeronautics 1919:539-67 '20

Radiators

See Airplane engines—Radiators

Safety devices and measures

- Airplanes and safety. 127p Travelers insur-ance company, Hartford '21
- Can the airplane be made safe? H. A. Mount. *il* Sci Am 125A:28-9 N '21
- Floyd Smith aerial life pack. F. Smith. *il* Aviation 8:67-70 F 15 '20
- Imber safety tank. Aviation 11:347 S 19 '21
- Life raft is aid to airplane and its pilots. *il* Pop Mech 36:687 N '21
- Life saving raft for aircraft. *il* Aviation 11:52, 337 JI 11, S 19 '21
- Prevention of fire by self-sealing tanks. *diags* Aerial Age 13:564-5 Ag 22 '21
- Rubber armor for airplane gasoline tanks. *il* India Rubber W 62:726 Ag '20; Same cond. Soc Auto Eng J 7:555 D '20
- Various possibilities in airplane flying con-trols. Automotive Ind 45:569 S 22 '21
- See also* Aeronautic code (proposed)

Shock absorbers

- Elastic cord for airplane shock absorbers. *il* India Rubber W 63:6-7 O '20

Specifications

- American commercial airplanes—1919-1920; tabulation. Automotive Ind 42:174-5 Ja 15 '20
- American military and naval type airplanes; tabulation. Automotive Ind 42:176-7 Ja 15 '20
- British commercial air planes—1919-20; tab-ulation. Automotive Ind 42:178-9 Ja 15 '20
- British military and naval airplanes on which authentic data have been released since November 11, 1918; tabulation. Automotive Ind 42:180-7 Ja 15 '20
- German airplanes; tabulation. Automotive Ind 42:188-9 Ja 15 '20
- Navy specifications for an amphibian plane. Aviation 7:437-8 D 15 '19
- Navy specifications for two-place amphibian planes. Aviation 8:362 Je 1 '20
- Specifications of American airplanes, 1920-1921; tabulation. A. Black and D. R. Black. Automotive Ind 44:366-7 F 17 '21
- Specifications of foreign airplanes 1920-1921; tabulation. A. Black and D. R. Black. Automotive Ind 44:368-9 F 17 '21

Speed

- Accelerations in flight; N.A.C.A. report no. 99. Aviation 10:689 My 30 '21
- Factors involved in high airplane speed at great altitudes. H. C. Richardson. Soc Auto Eng J 6:203-7 Ap '20; Abstract. Automotive Ind 42:820-1 Ap 1 '20; Discussion. Soc Auto Eng J 7:13-14 JI '20
- Factors that determine the minimum speed of an aeroplane. F. H. Norton. Aerial Age 13:57-60 Mr 28 '21
- Maintaining airplane engine power at great altitudes. V. E. Clark. Soc Auto Eng J 6:245-9 Ap '20
- Note on measurement of speed of airplanes. S. H. Anderson. Aviation 10:233-4 F 21 '21
- Note on measurement of speed of airplanes. J. G. Coffin. *diags* Aviation 9:54-5 Ag 15 '20
- Les très grandes vitesses en aviation, par les moteurs à puissance constante. A: Forissier. Génie Civil 78:318 Ap 9 '21
- Variation of airplane engine speed with speed of flight. E: P. Warner. Automotive Ind 42:310-13 Ja 22 '20

Starting

See Airplane engines—Starting; Airplanes—Launching

Testing

- Aerotechnical institute of St Cyr; new ap-paratus for testing mechanical conditions governing the flight of airplanes. *il* Sci Am M 2:260-3 N '20
- Aircraft dynamometer hub. *diags* Engineer-ing 110:260-2 Ag 20 '20
- Destruction tests detect airplane faults. *il* Pop Mech 35:881 Je '21
- Effects of air currents tested with air-planes. E. H. Lemonon. *il* Pop Mech 36:372-3 S '21
- First transcontinental airplane test. Soc Auto Eng J 6:422-4 Je '20

Airplanes—Testing—Continued

- Mummert biplane tested successfully. *il Aerial Age* 13:473 J1 25 '21
- Performance test of Junker SL-6 with 185 hp., B.M.W. engine. *Aerial Age* 13:35-7 Mr 21 '21
- Preliminary report on free flight tests. E: P. Warner and F. H. Norton. *il diags U S Nat Advisory Com for Aeronautics* 1919: 571-99 '20; Same. *Aerial Age* 11:545-7, 579-81, 649-50+, 677-80 Je 28-J1 5, 19-26 '20
- Railway for testing full size airplanes. Dr Bendemann. *il diags Aviation* 9:455-7 D 20 '20
- Tests of the airliner. *il Aviation* 11:225 Ag 22 '21

See also Aerodynamic laboratories; Airplane engines—Testing; Airplanes—Model testing; Wind tunnels

Visibility

- Aeronautical camouflage. W: R. Weigler. *il Aerial Age* 11:288-9+ My 10 '20
- Visibility of aeroplanes and the appearance of objects viewed from above; abstract. M. Luckiesh. *Illum Engr* 13:14-16 Ja '20

Airplanes, Mail

- Glenn L. Martin airplanes for the Post Office department. *il Aviation* 7:475-6 Ja 1 '20
- Model J-2 mail plane. *il Aviation* 8:105-6 Mr 1 '20
- New U.S. mail airplane, type DH-M2. *il Aviation* 11:476 O 24 '21
- Thomas-Morse mail plane. A. H. Beggs. *il Sibley J* 34:44-5 Ap '20
- Thomas-Morse MB-4 mail plane. *il Aviation* 8:99-100 Mr 1 '20

Airplanes, Military

- Armored airplane—United States army's latest war device. *il Pop Mech* 36:721 N '21
- Comparative averages of characteristics for several pursuit and reconnaissance airplanes. R. Hall. *il Aviation* 7:298-300 N 1 '19
- DH-14 bomber. *Aerial Age* 13:158 Ap 25 '21
- Experimental types ordered by army. *Aviation* 9:491-2 D 27 '20
- Fly battle plane mounting 30 guns. *Aerial Age* 14:172 O 31 '21
- French twin-engined armored biplane. J: J. Ide. *il diags Automotive Ind* 45:359-60 Ag 25 '21
- G.A.X. aeroplane. *Aerial Age* 12:115 O 4 '20
- Gordon Bennett entry of the U.S. air service *il diags Aviation* 9:148-9 O 1 '20
- Gourdou-Leseurre pursuit airplane. C: Gourdou. *il diag Aviation* 8:243-5 Ap 15 '20
- J.L.12 armored attack airplane. *il Aviation* 11:538 N 7 '21; *Aerial Age* 14:199-200 N 7 '21
- Junker metal airplanes. *Automotive Ind* 42: 823 Ap 1 '20
- Junkers armored two-seater biplane, type J. 1. *il diags Aviation* 8:285-9 My 1 '20
- New French armored plane. *Aerial Age* 14:64 S 26 '21
- Night observation airplane U.S.X.B.1-A. *il diags Aviation* 10:292-3 Mr 7 '21
- Oreco military airplanes. *il diags Aviation* 7:531-2 Ja 15 '20
- U. S. G. A. X. ground attack airplane. *il Aviation* 10:433-4 Ap 4 '21
- VE-7 training aeroplane for the U.S. army air service. *il diags Aerial Age* 12:110-11+ O 4 '20
- Wibault machines. *Aerial Age* 13:8 Mr 14 '21

See also Airplanes, Shipboard

Airplanes, Shipboard

- Navy design competition for shipplane. *Aviation* 10:69-72 Ja 17 '21

Airplanes in advertising

- Aerial advertising from Maine to Florida. H. D. Copland. *il Aerial Age* 13:7 Mr 14 '21

Airplanes in agriculture

- Airplane duck patrol of the Sacramento valley. J: E. Hogg. *il Pop Mech* 35:7-12 Ja '21
- Artificial rainmaking by aircraft not yet successful. *Aerial Age* 12:350 D 6 '20

- Farmers to solve H.C.L. by aviation. *Aerial Age* 12:321 N 29 '20
- Planting grain fields by airplane. C. Gaines. *il Pop Mech* 34:650-2 N '20
- Spraying trees from an airplane. *Aviation* 11: 288 S 5 '21

Airplanes in construction work

- Airplane costs in hydro-electric work. E. W. Dichman. *il J Elec* 45:360-3 O 15 '20; Same. *Aviation* 10:134-6 Ja 31 '21; Same *abr. Eng & Contr* 54:470-1 N 10 '20
- Airplane in modern hydro-electric practice. R. C. Starr. *il J Elec* 45:357-9 O 15 '20
- Inspecting high-tension transmission lines by aeroplane. W. R. Power. *il N E L A Bul* 8: 467-8 Ag '21

Airplanes in forestry

- Experimental flying operations in Canada. *il map Aviation* 11:166-9 Ag 8 '21
- See also* Forest patrol, Aerial

Airplanes in mining

- Airplanes in mine rescue work. F. J. Bailey. *Sci Am M* 1:547 Je '20; Same. *Coal Age* 17: 1254-5 Je 17 '20
- Airplanes in mining operations. E. S. Bisbee. *Eng & Min J* 109:452 F 14 '20
- Pack train of eagles; use of aircraft in mining operations. E. S. Bisbee. *il Eng & Min J* 109:920-3 Ap 17 '20; Same. *Sci Am M* 1:544-6 Je '20

Airplanes in newspaper work

- Aircraft an aid to journalism. H. Mingos. *il Am Ind* 22:29-31 Ag '21

Airplanes in seal hunting

- Locating seals by aircraft. J. Hamilton. *Aviation* 10:802 Je 27 '21; Same. *Aerial Age* 13: 414 J1 11 '21
- Seal hunting by air. E. C. Middleton. *Aerial Age* 14:80-1 O 3 '21

Airships. See Airplane propellers**Airship engines**

- Airship engines. C. F. Abell. *Automotive Ind* 42:901 Ap 15 '20
- Fiat airship engines. *il Aviation* 7:313-14 N 1 '19
- Machinery of H.M. airships R. 33 and R. 34. *il diags (supp) Engineering* 109:433-4, 504-5 Ap 2, 16 '20
- New aircraft engines at the Paris aero show. *il Aviation* 8:54-6 F 15 '20
- Packard to develop dirigible engine. *Automotive Ind* 43:189 J1 22 '20
- Sunbeam-coatalen Cossack engine. *il Aerial Age* 13:465-6 J1 25 '21

Airship fabric

- Airship fabrics. J. W. W. Dyer. *bibliog Aeronautical J* 25:332-48; Discussion. 349-56 J1 '21
- Balloons, airships and rubberized fabric. C. P. Burgess. *il India Rubber W* 65:3-6 O '21
- Modern airship fabrics. *Textile World* 58:1685 S 11 '20
- New rubberized airship fabrics. *India Rubber W* 63:25 O '20
- Tropical exposure of airship fabric. G. Barr. *Aviation* 9:27-8 Ag 1 '20
- What the rubber chemists are doing. *India Rubber W* 63:103-4 N '20

Testing

- Permeameter for airship fabric. *il diag Engineering* 112:57-8 J1 8 '21

Airship sheds. See Hangars**Airships**

- Airship suspensions. R. H. Upson. *il Aviation* 8:479 J1 15 '20
- Airships for a transatlantic service. R. Upson. *map Aviation* 11:374-6 S 26 '21
- Airships for slow-speed heavy transport and their application to civil engineering. T. R. Cave-Browne-Cave. *Engineering* 110:331 S 3 '20; Excerpts. *Sci Am M* 2:259 N '20; Abstract. *Engineer* 130:257-8 S 10 '20
- Airship's passenger car has sleeping berths. *il Pop Mech* 35:425 Mr '21
- British ministry announces plan for airship development. *Aerial Age* 12:400 D 20 '20; Same. *Flying* 10:32 F '21

Airships—Continued

- Chalais-Meudon airship C. M. 5. *il* Automotive Ind 43:219 J1 29 '20
- Commercial airship, its operation and construction. T. Dawson. *il* map Flying 9:665-73 D '20; Same cond. Engineering 110:558-60 O 22 '20; Same cond. Engineer 130:501-2 N 19 '20; Discussion. Engineering 110:531-2 O 22 '20; Engineer 130:433 O 29 '20
- Commercial airships. H. B. Pratt. 235p T. Nelson and sons. London, New York '20
- Commercial preparedness and the airship. H. R. Baker and L. H. Butler. *il* Flying 9:385+ J1 '20
- La construction des dirigeables pour transports. Génie Civil 78:241 Mr 12 '21
- Development and present status of German airships. Automotive Ind 44:1057-63 My 19 '21
- Development of aircraft, with special reference to the Zeppelin airships. P. Jaray. *il* Aviation 10:424-6, 456-60 Ap 4-11 '21
- Disposition of power plants on airships. R. H. Upson. *il* Aviation 9:26 Ag 1 '20
- Dynamic lift and ceiling for airships. A. Klemin. *diag* plan Aviation 8:466-9; 9:16-18 J1 15-Ag 1 '20
- Effect of envelope pressure on airships. R. H. Upson. Aviation 7:429-30 D 15 '19
- Electrostatic effects on airships. G. S. Fulcher. Aviation 7:174-6 S 15 '19; Same *abr.* Sci Am S 88:348-9+ D 13 '19
- Employment of airships for the transport of passengers. U. Nobile. Aerial Age 13:202-3; 14:12-14, 33-7 S 5-19 '21
- First American commercial dirigible line. C. A. Tinker. Aerial Age 13:202-3 My 9 '21
- Fluid resistance of streamline bodies. J. R. Pannell. *diags* Aviation 9:220-1 N 1 '20
- Flying anglers troll for deep-sea fish. J: E. Hogg. *il* Pop Mech 34:321-2 S '20
- French practice in airship construction. J: J. Ide. *diags* Aviation 7:400+ D 1 '19
- Function and construction of the rip panel. J. F. Boyle and E. F. Hurley. *diags* Aviation 7:258-61 O 15 '19
- German airship construction during the war. L. d'Orcy. *il* *diags* Sci Am M 3:455-8 My '21
- German airships. *il* Soc Auto Eng J 7:347-8 O 20
- Goodyear type A pony blimp. *il* *diag* Aviation 7:529-30 Ja 15 '20
- Goodyear type AA pony blimp. *il* Aviation 8:241-2 Ap 15 '20
- Is airship travel profitable? Sci Am 125:214 S 24 '21
- Mastery of the skies. *il* Sci Am 123:338-9+ O 2 '20
- New York-London airship line service is planned. A. Sinsheimer. *diags* plans Automotive Ind 41:1099-1103+ D 4 '19
- Notes on the operation of nonrigid airships. U.S. Navy dept. 37p '20
- Pleads for dirigibles in peace. H: Julliot. *il* Am Ind 22:31-2 N '21
- Pony blimp for commercial use. *il* Sci Am 122:459 Ap 24 '20
- Possibilities of airship services. Lord Montagu. Aerial Age 13:393 J1 4 '21; Same. Aviation 11:99-100 J1 25 '21
- Size of airships. J. E. M. Pritchard. Engineering 109:184 F 6 '20
- Standardisation of data for aircraft calculation; abstracts with discussion. H. B. Wyn-Evans. Engineer 131:315 Mr 25 '21; Engineering 111:349-50 Mr 25 '21
- Trans-Atlantic airship transportation. Aviation 9:224 N 1 '20
- Transportation's fourth estate. C. A. Tinker. *il* Nation's Business 8:13-16 Ag '20
- Two types of airships used by French government. J: J. Ide. *il* Automotive Ind 43:1310-11 D 30 '20
- What airships can do. C. C. Turner. Aerial Age 14:134 O 17 '21
- World's airship types in 1921. L. d'Orcy. Aviation 11:286-7 S 5 '21
- World's airships—1914 to 1920. Automotive Ind 42:412-13 F 5 '20
- Zeppelins anxious to send ships here. *il* Aerial Age 12:271 N 15 '20
- Zodiac airship ZD-US 1. J: J. Ide. *il* Aviation 8:107-8 Mr 1 '20

Z.R.-2 may cross Atlantic in May. Aviation 10:170 F 7 '21

See also Aeronautics; Air ports; Airship engines; Airship fabric; Aviation

Anchorage

- Airship mooring and handling. F. L. C. Butcher. *diags* Aeronautical J 25:71-84; Discussion. 85-93 F '21
- Airship mooring gear. *diags* Engineering 111:423-4, 426 Ap 8 '21
- Dirigibles easily landed with one-man anchor. *il* Pop Mech 35:543 Ap '21
- Docking a giant dirigible at an aerial port. *il* Pop Mech 36:6-7 J1 '21
- Le mât d'amarrage pour dirigeable de la gare aérienne de Pulham (Angleterre). *il* *diags* Génie Civil 78:493-6 Je 11 '21
- Mooring mast holds airships in high winds. J: E. Hogg. *il* Pop Mech 35:43-4 Ja '21
- Mooring masts for airships. *il* Aviation 10:665 My 23 '21
- Mooring of airships by free wire systems. R. A. Frazer and L. F. G. Simmons. *diags* Aeronautical J 25:94-9 F '21
- U.S. navy builds new type of dirigible mooring. *il* Pop Mech 36:645 N '21
- Universal aircraft anchorage. *diags* plan Flying 10:22-4 F '21

Control

- Airship piloting. G. H. Scott. *diags* Aeronautical J 25:47-71 F '21; Abstract. Aerial Age 13:158 Ap 25 '21
- Directional stability and control of airships. R. H. Upson. *il* *diag* Aviation 8:200-2, 238-41 Ap 1-15 '20

Cost of operation

- Airships and steamships. Engineer 131:621-2 Je 10 '21

Equipment and supplies

- Appareil simple permettant d'obtenir la mesure de la dérive à bord d'un aéronef. Barbillion and Dugit. Génie Civil 79:314-15 O 8 '21
- Underwriters' laboratories to classify electrical accessories for aircraft. Elec R 77:932 D 11 '20

Failures

- Lesson from past experience. Engineer 132:244-5 S 2 '21
- Lesson of the ZR-2 disaster. L. d'Orcy. Sci Am 125:200 S 17 '21
- Loss of the airship R-38. Aviation 11:285 S 5 '21
- Loss of the R 38. Engineer 132:394 O 14 '21; Engineering 112:545 O 14 '21
- Navy blimp destroyed. Aerial Age 14:15 S 12 '21
- Wreckage of the ZR-2. *il* Sci Am 125:203 S 17 '21
- ZR-2 disaster. Aerial Age 13:611-12 S 5 '21
- ZR-2 disaster laid to faulty designs. Aerial Age 14:135 O 17 '21
- ZR-2's fatal flight. P. W. Hanna. *il* Pop Mech 36:499-504 O '21

Gas

- Hydrogen production for airships. P. L. Teed. Engineering 109:811 Je 18 '20
- Lift of hydrogen. P. L. Teed. Aviation 8:328-30 My 15 '20
- Maintenance of gas purity by purging. R. H. Upson. *il* Aviation 8:114 Mr '20
- See also* Balloon gas; Helium

Manufacture

- Aluminum in airship construction. E. V. Pannell. *il* Metal Ind 18:262 Je '20
- Building a rigid airship. *il* Sci Am 124:50-1 Ja 15 '21

Testing

- Determination of the resistance of airship models. R. H. Smith. Aviation 9:44-7 Ag 15 '20
- Model test for strength and deformation of non-rigid airship hulls. J. C. Hunsaker. *diags* Aviation 9:53-4 Ag 15 '20

Airships—Testing—Continued

Résumé of wind tunnel tests of airship envelopes. J. C. Hunsaker. *Aviation* 7:393; 8:110 D 1 '19, Mr 1 '20
Wind tunnel and airship model testing. R. N. Wing. *Aviation* 9:56-8 Ag 15 '20

Airships, Rigid

Aerial cruiser; details concerning the latest British rigid dirigible R-80. *il Sci Am* 123:400+ O 16 '20
Airship R. 38 (Z.R. 2). *Engineering* 111:723 Je 10 '21; *Engineer* 131:610-11, 620 Je 10 '21; *Aerial Age* 13:398 Jl 4 '21
Bending strength of ZR-2. *Sci Am* 125:178 S 10 '21
Britain's first commercial airship. *il Sci Am* 124:407 My 21 '21
British passenger airship G-FAAF. R. H. Upson. *il diags Aviation* 10:633-4 My 16 '21
Construction of ZR-1 progressing. *Aerial Age* 14:135 O 17 '21
Le dirigeable Britannique (R 36) pour le transport des voyageurs. P. Calfas. *il diags plan Génie Civil* 78:429-33 My 21 '21
Le dirigeable Britannique rigide R-80. *il diags Génie Civil* 77:225-30 S 18 '20
Effect of size upon performance of rigid airships. C. I. R. Campbell and H. May. *Engineering* 109:464-6 Ap 2 '20; *Abstract. Aviation* 9:82 S 1 '20; *Discussion. Engineer* 109:439-40 Ap 2 '20
Future developments of the rigid airship. P. L. Teed. *Sci Am M* 1:542-3 Je '20
H. M. airship R. 80. *il Engineering* 110:142-5, pl 18-19 Jl 30 '20
Latest ideas in dirigibles typified in R-80. *il Pop Mech* 35:260-1 F '21
Machinery of H. M. airships R. 33 and R. 34. *il diags (supp) Engineering* 109:433-4, 504-5 Ap 2, 16 '20
Operation of a rigid airship. L. H. Maxfield. *Aviation* 10:15-16 Ja 3 '21
Our ZR-2 airship and its shed. G. H. Dacy. *il Sci Am* 125:160+ S 3 '21
Passenger carrying airship R.36. *il diags Engineering* 111:454-6, 458, pl 22 Ap 15 '21
R-36, now the G-FAAF. *Aerial Age* 13:278 My 30 '21
Rigid airship performance. H. May and C. I. Campbell. *Engineer* 129:138-9 F 6 '20
Rigid airships. J. L. Bartlett. *diags Aeronautical J* 25:357-77 Jl '21
Rigid airships. C. J. R. Campbell. *Aerial Age* 13:134 Ap 18 '21
Schutte-Lanz airship. D. Ruehl. *Aviation* 9:165 O 1 '20; *Same. Aerial Age* 12:398 D 20 '20
Schutte-Lanz rigid airship construction. *Aerial Age* 13:470 Jl 25 '21
Scientists discover German dirigible secret. *Aerial Age* 13:77 Ap 4 '21
Speed and endurance of the rigid airship. E. H. Lewitt. *Aerial Age* 13:206 My 9 '21
Tension in diagonal airship bracing wires. E. H. Lewitt. *diags Aviation* 7:308 N 1 '19
Tomorrow's airships; a survey of what has been done in commercial aviation. G. Whale. *Sci Am* 125:80+ Jl 30 '21
Zeppelin airships, L64 and L71. *Aerial Age* 12:662 Mr 7 '21

Airships, Semi-rigid

Italian airship Roma. *il Aviation* 8:368 Je 1 '20; *Same. Aerial Age* 11:478 Je 14 '20
Italian semirigid airships observed at front. A. Halsted. *il Aviation* 10:341-2 Mr 14 '21
Italians adapt semi-rigid construction to large dirigible, the Roma. A. Black and D. R. Black. *il diags plan Automotive Ind* 43:758-9 O 14 '20
Parseval semi-rigid airship PL-27. R. Howard. *il Sci Am* 125:233 O 1 '21

Airways. See Aerial routes**Aishton, Richard Henry, 1860-**

R. H. Aishton remains president of the A.R.A. *por Ry Age* 68:705 Mr 5 '20

Akermanite

Binary system akermanite-gehlenite. J. B. Ferguson and A. F. Buddington. *Am J Sci* 50:131-40 Ag '20

Akron, Ohio

Land platting in Akron. *Pub Works* 49:253-4 S 18 '20

Living costs drop in Akron. *Elec Ry J* 58:51 Jl 9 '21

Rapid transit

Akron's motor bus route. *il diag Elec Ry J* 57:1164-7 Je 25 '21

Graduated return to induce economy; proposed service-at-cost franchise for Akron lines. *Elec Ry J* 56:1072-3, 1120 N 20-27 '20

Rerouting in Akron saves \$60,000. *map Elec Ry J* 56:309-10 Ag 14 '20

Water supply

Water works improvements at Akron. G. G. Dixon. *il Am Water Works Assn J* 7:315-21 My '20

Alabama**Architecture**

Ante-bellum houses of central Alabama. N. C. Curtis. *il Am Inst Arch J* 8:388-98 N '20

Industries and resources

See also Iron mines and mining—Alabama

Alabama power company

Alabama power company's system, its development and operation. J. M. Oliver, B. Nikiforoff and C. B. McManus. *il diag map plan Gen Elec R* 22:980-95 N '19

Alabandite

Crystal structure of alabandite. R. W. G. Wyckoff. *diags Am J Sci* 2:239-49 N '21

Aladdin company

How Aladdin keeps its customers sold. J. Henle. *il Ptr Ink M* 3:33+ S '21

Alameda, California

New city zoning ordinance of Alameda. C. E. Hewes. *Eng N* 84:46-7 Ja 1 '20

San Francisco bay site chosen for western naval base. *J Elec* 46:178 F 15 '21

Aland Islands

Aland Island's dispute between Finland and Sweden to be settled through League of nations. *Comm & Fin Chr* 111:1240-1 S 25 '20

Alanine

Umwandlung von malonsäure in glykokoll und von methyl-malonsäure in α -alanin. T. Curtius and W. Sieber. *Deutsche Chem Gesell Ber* 54:1430-7 Jl '21

Alaska

Future of interior Alaska. R. H. Stretch. *il map Min & Sci P* 120:595-9 Ap 24 '20

Road building in Alaska. J. G. Steese. *Good Roads n s* 21:127-30+ Mr 2 '21

See also Geology—Alaska; Railroads—Alaska

Description and travel

Rodeos north of Arctic circle; reindeer fairs in Alaska. L. W. Pedrose. *il Pop Mech* 34:687-91 N '20

Industries and resources

Alaska, America's greatest territorial possession, and its opportunities. *il Americas* 7:10-16 Ap '21

Alaska the future source of newsprint supply. *Paper* 26:9-10+ Ag 4 '20

Report of Advisory committee on conditions in Alaska. *Ry R* 67:175-7 Jl 31 '20

See also Agriculture—Alaska; Coal mines and mining—Alaska; Copper mines and mining—Alaska; Forests and forestry—Alaska; Gold mines and mining—Alaska; Mines and mineral resources—Alaska; Paper industry and trade—Alaska; Petroleum—Alaska; Tin mines and mining—Alaska; Water power—Alaska

Politics and government

Carrying justice into the Arctic. L. W. Pedrose. *il Pop Mech* 35:713-14 My '21

Alaska gold mines company

Alaska gold mines co. R. B. Brinsmade. *Min & Sci P* 122:149-50 Ja 29 '21

Alaska Juneau gold mining company

Alaska Juneau. Min & Sci P 122:623-4 My 7 '21

Alaska Juneau mill. V. C. Clauson. flow sheet il Min & Sci P 122:625-34 My 7 '21

Alaska-Yukon boundary commission

Report of the Alaska-Yukon boundary commission. Eng & Contr 53:82 Ja 21 '20

Alaskan flying expedition. See Aviation—Alaskan expedition

Albany, New York**Architecture**

Alterations to the City Hall at Albany, N.Y. il Am Arch 117:809-15, 820a-f Je 30 '20

Streets

Some municipal improvement policies of Albany. F. R. Lamagan. il Munic Eng 59:128-9 O '20

Albertolli, Giocondo, 1742-1840

Great ornamentalists; examples of the work of the celebrated designers, architectural draftsmen, and engravers. Ptg Art 37:447 Jl '21

Alcogas

Comparison of alcogas aviation fuel with export aviation gasoline. V. R. Gage, S. W. Sparrow and D. R. Harper. diags U S Nat Advisory Com for Aeronautics 1920: 173-84 '21; Abstract. Automotive Ind 42: 1018-20 Ap 29 '20; Same. Soc Auto Eng J 6:397-401 Je '20

Alcohol

Acid hydrolysis of sugar-cane fiber and cottonseed hulls. E. C. Sherrard and G. W. Bianco. J Ind & Eng Chem 12:1160-2 D '20

Alcohol and the chemical industries. J. M. Doran. J Ind & Eng Chem 13:564-5 Je '21

Alcohol as a by-product of the distillation of coal; abstract. E. de Loisy. Mech Eng 42:352 Je '20

Alcohol as raw material. J. W. Harrington. Annalist 18:78 Jl 25 '21

Alcohol from wood. J Fr Inst 189:461-2 Ap '20

Alcohol from wood as a motor fuel. Ry R 67:178 Jl 31 '20

Alcohol, how to use it, and denaturing formulas. H. G. Demerk. 37p Cara products co., Boston '21

Alcohol in fruit juices. Sci Am 122:66 Ja 17 '20

Alcohol is already being produced from coal on a commercial scale. Coal Age 17:1042 My 20 '20

Alcohol made from coal at Skinninggrove. C. F. Tidman. Coal Age 19:626 Ap 7 '21

Alcohol production from molasses. G. M. Appell. diag Chem Age 29:53-7 F '21

Alcohol—the important part it plays in the industries of the world—its position in Canada. P. A. Hill. Can Chem & Met 5:233 Ag '21

Carbohydrates and alcohol. S. Rideal. 219p Van Nostrand '21

Effect of alcohol on the toxicity of phenol towards yeast. E. I. Fulmer. J Phys Chem 25:10-18 Ja '21

Ethyl alcohol from coke oven gas. E. Bury and O. Ollander. Am Gas Eng J 112:179-83 Mr 6 '20; Abstract. Gas Age 45:294-5 Ap 10 '20

La fabrication synthétique de l'alcool à partir du gaz de houille. Génie Civil 76:76-7 Ja 17 '20

Farmer's practical treatise on fermentation, distillation and general manufacture of alcohol from farm products and the subsequent denaturing of alcohol for use as an article of commerce. E. T. De Vol. 68p De Vol & co., Omaha, Neb. '21

Fermentation process for the production of acetone, alcohol, and volatile acids from corncobs. W. H. Peterson, E. B. Fred and J. H. Verhulst. J Ind & Eng Chem 13:757-9 S '21

Future of industrial alcohols. B. R. Tunison. J Ind & Eng Chem 12:370-6 Ap '20

Indian source of fuel alcohol. Automotive Ind 42:959 Ap 22 '20

Industrial alcohol. A. Desborough. Engineer 130:208-9 Ag 27 '20; Abstract. Engineering 110:415 S 24 '20

Industrial alcohol. B. R. Tunison. il charts diags J Fr Inst 190:373-420 S '20

Industrial alcohol and its relation to prohibition enforcement from the manufacturer's standpoint. M. C. Whitaker. J Ind & Eng Chem 13:647-50 Jl '21

Industrial alcohol and prohibition enforcement. M. H. Ittner. Chem Age 29:211-12 Je '21; Same. Chem & Met Eng 24:1088-90 Je 22 '21

Industrial alcohol and prohibition enforcement; committee report. Chem & Met Eng 24:1088-93 Je 22 '21

Industrial alcohol can be made from coke-oven gases. Coal Age 17:910 My 6 '20

Industrial alcohol from rice straw; abstracts. C. H. Bedford. Engineer 132:8, Jl 1 '21; Automotive Ind 45:133 Jl 21 '21

Industrial alcohol status in Canada. Can Chem & Met 5:79-81 Mr '21

Industrial alcohol; where it is to come from, and some of the things we are to do with it. H. A. Mount. Sci Am 125:164+ S 3 '21

Manufacture of alcohol from coke-oven gas. C. F. Tidman. Blast F & Steel Pl 9:411, 519 Je, Ag '21

Manufacture of ethyl alcohol from sulphite liquor. N. Clementson. Can Chem & Met 5:160 Je '21

Manufacture of ethyl alcohol from wood waste. E. C. Sherrard. Chem Age 29:76-9 F '21; Excerpts. Sci Am M 3:275 Mr '21

Menace of prohibition to the alcohol using industries. chart Chem Age 29:236-7 Je '21

Report of the committee of N.W.D.A. on legislation. Oil Paint & Drug Rep 100:37-40 O 4 '21

Science and industrial alcohol. B. R. Tunison. il diags Chem & Met Eng 23:474-80 S 8 '20

La situation des industries du sucre et de l'alcool dans les régions dévastées. M. Pellet. Génie Civil 78:40-1 Ja 8 '21

Some catalysts which promote reaction between aniline and ethyl alcohol. T. B. Johnson, A. J. Hill and J. J. Donleavy. J Ind & Eng Chem 12:636-44 Jl '20

Sugar and alcohol from the nipa palm. Sci Am M 1:310 Ap '20

Symposium on industrial alcohols. chart Chem & Met Eng 21:557-9 O 29 '19

Vapor composition of alcohol-water mixtures. W. K. Lewis. J Ind & Eng Chem 12:496-9 My '20

Various methods of utilizing sulphite waste liquors. R. H. McKee. Paper 26:21-3+ Jl 21 '20

Yields of alcohol from wood waste. Chem & Met Eng 24:212 F 2 '21

See also Alcorub; Liquor traffic; Prohibition

Analysis

Determination of methyl alcohol in sulphite spirit (ethyl alcohol); abstract. C. J. West. Paper 28:22-3 My 25 '21

Improved Donigès test for the detection and determination of methanol in the presence of ethyl alcohol. R. M. Chapin. J Ind & Eng Chem 13:543-5 Je '21

Rapid volumetric method for determining alcohol. A. Lachman. J Ind & Eng Chem 13:230 Mr '21

Bibliography

Short bibliography of sulphite alcohol. C. J. West. Paper 25:19-20+ D 3 '19 (Reprinted by Arthur D. Little, Inc., Cambridge, Mass.)

Evaporation losses

Alcohol losses by evaporation ruled upon by revenue bureau. Oil Paint & Drug Rep 99: 48d sec 1 My 2 '21

Taxation

Alcohol for all manufacturing should be exempt from taxation. Oil Paint & Drug Rep 99:27+ sec 1 My 2 '21

Transportation

Supplemental regulations for dealing in and use of alcohol. Oil Paint & Drug Rep 99:39+ sec 1 Ja 10 '21

Alcohol, Denatured

Industrial alcohol. Engineering 111:687 Je 3 '21
Industrial alcohol under the new law and regulations. B. R. Tunison. Chem & Met Eng 22:513-18 Mr 17 '20

Alcohol, Wood

Chute process for the manufacture of wood alcohol valid. W. Gustin. Chem & Met Eng 22:1032-3 Je 2 '20

Critical study of methods for detection of methanol. J Fr Inst 190:570 O '20

Danger of wood alcohol. R. Hunt. J Ind & Eng Chem 12:197-8 F '20

Determination of methyl alcohol in sulfite liquor. C. J. West. Paper 27:28 S 22 '20

Determination of methyl alcohol in sulphite spirit (ethyl alcohol); abstract. C. J. West. Paper 28:22-3 My 25 '21

Improved Denigès test for the detection and determination of methanol in the presence of ethyl alcohol. R. M. Chapin. J Ind & Eng Chem 13:543-5 Je '21

Methyl alcohol from lignin. E. Heuser and H. Schmelz. Paper 27:25+ N 17 '20

Reaction between methyl alcohol and water and some related reactions. J. A. Christiansen. Am Chem Soc J 43:1670-2 Jl '21

Recommendations concerning the manufacture and use of wood alcohol. Monthly Labor R 10:501-5 F '20

Wood alcohol—coöperative caution. C: Baskerville. J Ind & Eng Chem 12:81-2 Ja '20

Wood alcohol no longer; hereafter methanol. C: Baskerville. J Ind & Eng Chem 12:910-11 S '20

Wood alcohol; what it is and why it is deadly to the human mechanism. H. E. Howe. il Sci Am 122:86 Ja 24 '20

Work of cellulose research institute; methyl alcohol from lignin. E. Heuser. Paper 28:17-21+ Ag 24 '21

Alcohol as fuel

Alcohol as locomotive fuel. Sci Am 125:102 Ag 6 '21

Alcohol-fuel mixtures. Soc Auto Eng J 7:345 O '20

Alcohol may permit use as motor fuel of heavy hydrocarbons. J. V. Meigs. Nat Pet N 12:49+ F 4 '20

Alcohol minor factor in motor fuel field, investigating Solon is told. Nat Pet N 12:25-6 Jl 7 '20

British power-alcohol research. Sci Am 124:430 My 28 '21

Carburetion of alcohol. A. W. Scarratt. Soc Auto Eng J 8:328-30 Ap '21; Same cond.

Automotive Ind 44:454-5 F 24 '21; Discussion. Soc Auto Eng J 9:172-3 S '21

Freezing points of alcohol-water mixtures. Automotive Ind 44:564 Mr 10 '21

Possibilities of alcohol as fuel. J. E. Pogue. Power 51:177 F 3 '20

Power alcohol. Engineer 130:481 N 12 '20

Recherches physico-chimiques sur les carburants liquides. G. Baume and others. diags Chimie & Ind 3:761-8 Je '20

Researches on alcohol as a fuel for internal combustion engines. H. B. Dixon. Automotive Ind 44:211-15 F 3 '21; Same, without tables. Soc Auto Eng J 7:521-4 D '20

Shall the corn fields run our cars? R. G. Skerrett. il Sci Am 123:274+ S 18 '20

Significance of alcohol in the motor fuel problem. B. R. Tunison. Automotive Ind 44:14-17 Ja 6 '21

Starting on alcohol. Soc Auto Eng J 9:319 N '21

Three new sources of fuel alcohol. Automotive Ind 42:80-3 Ja 8 '20; Same. Sci Am M 1:531-4 Je '20

Why not grow engine fuel? E. Hendrick. il Nation's Business 8:34+ Ag '20; Same abr. (Looks to benzol only as a help-out in motor fuel). Am Gas Eng J 113:87-8+ Jl 31 '20

See also Acetol; Benzol-alcohol mixture

Alcohols

Alkylation of aromatic amines by heating with aliphatic alcohols. A. J. Hill and J. J. Donleavy. J Ind & Eng Chem 13:504-9 Je '21

Dehydrogenation of primary and secondary alcohols by catalytic oxidation. C: Moureu and G. Mignonac. Chem & Met Eng 22:1083 Je 9 '20

Entropy changes at low temperature; ethyl and propyl alcohols and their equal molal mixture. G. E. Gibson, G. S. Parks and W. M. Latimer. Am Chem Soc J 42:1542-50 Ag '20

Higher alcohols. Sci Am M 3:181 F '21

Oxydative katalytische dehydrierung von alkoholen. F. Zetzsche. Deutsche Chem Gesell Ber 54:1092-8 My '21

Purification and some physical properties of certain aliphatic alcohols. R. F. Brunel, J. L. Crenshaw and E. Tobin. diag Am Chem Soc J 43:561-77 Mr '21

Reaction between alcohols and aqueous solutions of hydrochloric and hydrobromic acids. J. F. Norris and R. S. Mulliken. Am Chem Soc J 42:2093-8 O '20

Sulfide alcohol, or butyl mercapto-ethyl alcohol. T. C. Whitner, jr. and E. E. Reid. Am Chem Soc J 43:636-8 Mr '21

See also Arylamino alcohols; Benzyl alcohol; Isopropyl alcohol

Alcorub

From tank cars to bottles. Ptr Ink 116:41-2+ Ag 11 '21

Aldehyde ammonia

Vulcanization tests on hexamethylene tetramine, formaldehyde aniline and aldehyde ammonia. C. S. Williams. India Rubber W 65:101-6 N '21

Aldehydes

Comparative hydrolysis of fibrin and gelatin in the presence of various aldehydes. G: E. Holm and R. A. Gortner. Am Chem Soc J 42:632-40 Mr '20

Investigation on the influence of negative groups of different character on the reactivity of hydrogen atoms carried by the same carbon atom. B. M. Gupta. Chem Soc J 119:298-304 Mr '21

Methiodides of the condensation products of some cyclic aldehydes with quinaldine and alpha picoline, and their possible value as indicators in acidimetry. L: F. Werner. Am Chem Soc J 42:2309-14 N '20

New reaction of aldehydes. R. De Fazi. Chem Soc J 120 pt 1:568-70 Ag '21

γ -oxy-aldehyde; über den γ -phenyl- γ -oxy- η -butyraldehyd. B. Helferich and O. Locher. Deutsche Chem Gesell Ber 54:930-5 My '21

Reaction between acid halides and aldehydes. H. E. French and R. Adams. Am Chem Soc J 43:651-9 Mr '21

Reaction between acid halides and aldehydes. L. H. Ulich and R. Adams. Am Chem Soc J 43:660-7 Mr '21

Über die kondensation von glycin-anhydrid mit aldehyden. Eine neue synthese von *d,l*-phenyl-alanin und *d,l*-tyrosin. T. Sasaki. Deutsche Chem Gesell Ber 54:163-8 Ja '21

Alden family

Alden house at Duxbury, Mass. S. Baxter. il plan Arch Rec 49:398-407 My '21

Alden house. See Duxbury, Massachusetts—Alden house

Alexander, Hubbard Foster

Sketch. A. M. Sutton. por System 39:207-9 F '21

Alexander, James S.

Builders of business. G: Mortimer. System 40:416-18 O '21

Alexanderson, Ernst Fredrik Werner, 1878-

Sketch. por Elec W 77:397 F 12 '21

Alexanderson system. See Wireless apparatus—Alexanderson system

Alexandria, Virginia

Washington's town plan for Alexandria; original manuscript acquired by the Library of Congress. Eng N 86:1085 Je 23 '21

Alfalfa

Eliminating the middleman in hay. J: T. Bartlett. Ptr Ink 111:65-6+ My 6 '20

Food value of alfalfa used as a table vegetable. G. Haberlandt. Sci Am S 88:298+ N 22 '19

Alfalfa seed

Distribution of nitrogen in the alfalfa seed.
H. G. Miller. *Am Chem Soc J* 43:906-13 Ap '21

Algae

Algae cause odors from Monona lake at Madison, Wisconsin. *Eng N* 85:907-8 N 4 '20

Application of copper sulphate to basin walls for control of algae. G: F. Gilkison. *il Am Water Works Assn J* 8:88-90 Ja '21; Same. *Eng & Contr* 54:468-9 N 10 '20; Same. *Can Eng* 39:596 D 9 '20; Same. *Munic Eng* 59:216 D '20; Same. *Pub Works* 50:260 Mr 26 '21

California's seaweed industry. J: L. Von Blon. *il Sci Am* 123:445+ O 30 '20

Development, detection and prevention of algal troubles in reservoirs. A. F. Girvan. *Eng & Contr* 53:747 Je 30 '20

Microscopic water contaminators. M. C. Kahn. *il Sci Am M* 2:28-32 Jl '20

Occurrence of structures like Walcott's Algonkian algae in the Permian of England. O. Holtedahl. *il diags Am J Sci 5th ser* 1:195-206 F '21

La récolte mécanique des plantes marines. P. Gloess. *il Chimie & Ind* 3:387-90 Mr '20

Treatment to counteract algae growths in large reservoirs. W: W. Brush. *Am Water Works Assn J* 7:149-52 Mr '20; Same. *Eng & Contr* 53:432-3 Ap 14 '20

Troubles with algae in the Skaneateles water supply of Syracuse. *Am Water Works Assn J* 7:237-8 Mr '20

See also Agar-agar; Kelp

Algaroba. *See* Mesquite tree

Algebra

Extension of Heaviside principle to operator functions. A. Press. *Electrician* 86:349-50 Mr 25 '21

See also Functions, Algebraic; Vector analysis

Alhambra

Alhambra; views. *Am Inst Arch J* 9:13-15 Ja '21

Alinement charts. *See* Charts, Calculating; Nomography

Alinement indicators

Crank shaft alignment indicator. *il Engineer* 131:335 Ap 1 '21; Same. *Power* 53:975 Je 14 '21

Aliphatic alcohols. *See* Alcohols

Aliphatic diazo-compounds. *See* Diazo compounds

Alizarin

Alizarine dyeing. W: Scott. *Color Tr J* 7:38-42 Ag '20

Alizarin viridine

Fixation of alizarine viridine in printing; abstract. G. Stein. *Color Tr J* 8:176-7 My '21

Alkali halides

Negative adsorption of alkali haloids by wood charcoal. A. Pickles. *diag Chem Soc J* 119:1278-80 Ag '21

Alkali metal compounds

Über verbindungen des pyridins mit den alkalimetallen. B. Emmert and R. Buchert. *Deutsche Chem Gesell Ber* 54:204-9 F '21

Alkali metals

Mass spectra of the alkali metals. F. W. Aston. *diag Philos Mag 6th ser* 42:436-41, pl 15 S '21

Solutions of metals in non-metallic solvents; the conductance of the alkali metals in liquid ammonia. C: A. Kraus. *diag Am Chem Soc J* 43:749-70 Ap '21

See also Caesium; Potassium; Sodium; Rubidium

Alkali soils

Reclaiming salt surfeited soils. G: A. Dacy. *Sci Am* 123:177 Ag 21 '20

Soil alkali: its origin, nature, and treatment. F. S. Stewart. 258p Wiley '20

Alkalies

Alkali deposits of western Canada. L. H. Cole. *Can Chem & Met* 5:171 Je '21; Same *abr. Can Eng* 40:460 My 12 '21

Alkali works in 1920. *Engineering* 112:190-1 Jl 29 '21

Contributions to the stoichiometry of adsorption; adsorption of cations of the alkalis and alkaline earths. S. Odén and H. Andersson. *J Phys Chem* 25:311-31 Ap '21

Mechanism of the action of fused alkalis; the action of fused potassium hydroxide on phenylglyceric acid. H: R. Le Sueur and C. C. Wood. *Chem Soc J* 119:1697-1700 O '21

Rise and development of the electrolytic alkali and chlorine industry in Europe. J: B. C. Kershaw. *il diags Chem & Met Eng* 24:77-82, 119-22, 167-70 Ja 12-26 '21

See also Alkali metals; Ammonia; Ammonium hydroxide; Potassium; Sodium; Sodium hydroxide

Alkoxyl groups

Preparation of esters by direct replacement of alkoxyl groups. M. Reimer and H. R. Downes. *Am Chem Soc J* 43:945-51 Ap '21

Alkyl cyano-acetic esters

Alkyl cyano-acetic esters. J: C. Hessler and R. M. Lamb. *Am Chem Soc J* 43:205-8 Ja '21

Alkyl ethers

Alkyl ethers of starch. C. J. West. *Paper* 27:16+ O 6 '20

Alkyl nitrates

Action of alkyl nitrates on piperidine. D: T. Gibson and A. K. Macbeth. *Chem Soc J* 119:438-42 Ap '21

Alkylation

Alkylation of aromatic amines by heating with aliphatic alcohols. A. J. Hill and J: J. Donleavy. *J Ind & Eng Chem* 13:504-9 Je '21

Constitution of the nitroprussides; the alkylation of nitroprussic acid. G: J. Burrows and E. E. Turner. *Chem Soc J* 119:1450-2 S '21

All America cables

Public utility uses advertising as strict commercial proposition. *Ptr Ink* 113:54+ D 30 '20

All-American cooperative congress

All-American cooperative congress, Cleveland, Ohio, Feb. 10-12. F. E. Parker. *Monthly Labor R* 12:602-5 Mr '21

All-American farmer-labor cooperative congress

Meeting, Chicago, February 12-14. *Monthly Labor R* 10:958-60 Ap '20

Allegheny river bridge; Pittsburgh. *See* Pittsburgh, Pennsylvania—Bridges

Allen, John Robins, 1869-1920

Sketch. *por Heat & Ven* 17:49 N '20; *Mech Eng* 42:711 D '20

Veteran engineering research worker. *por Power* 51:636-7 Ap 20 '20

Allentown, Pennsylvania**Sewerage**

Sewage treatment at Allentown. H. F. Bascom. *il Pub Works* 51:269-72 O 8 '21

Allied architects' association of Los Angeles
What of the individual architect? *Arch Forum* 35:76 Ag '21

Allied chemical and dye corporation

Election of officers and directors of the Corporation and subsidiaries. *Chem & Met Eng* 24:7-8 Ja 5 '21

Allier river

Résultats du concours interdepartemental de projets pour un canal latéral à l'Allier; puits-écluses, système Maire. *diags map plans Génie Civil* 78:307-11 Ap 9 '21

Allis-Chalmers manufacturing company

7th annual report for fiscal year ended Dec. 31, 1919. *Comm & Fin Chr* 110:1651 Ap 17 '20

8th annual report for the year ended December 31, 1920. *Comm & Fin Chr* 112:1881 Ap 30 '21

Heavy forging plant in Wisconsin. *il diags plan Iron Age* 104:1315-19 D 25 '19; *Chem & Met Eng* 21:576-7 O 29 '19

Allophanic ester

Action of ammonia and amines on the substituted ureas and urethanes; allophanic ester. F. B. Dains and E. Wertheim. *Am Chem Soc J* 43:2303-9 N '20

Alloxanic acid

Derivatives of alloxanic acid (5-hydroxyhydantoin-5-carboxylic acid). H. Biltz and F. Max. *Chem Soc J* 120 pt 1:617-18 Ag '21

Alloxantin

Dreiwertiger kohlenstoff als chromophor bei der halochromie der alloxantine und verwandter stoffe. A. Hantzsch. *Deutsche Chem Gesell Ber* 54:1267-79 Je '21; Abstract. *Chem Soc J* 120 pt 1:619-20 Ag '21

Alloys

Alloy for chemical apparatus—iron, molybdenum and chromium; patent. *Chem & Met Eng* 24:36 Ja 5 '21

Alloys of interest to brass foundrymen; aluminum alloys used in aircraft. *Foundry* 48:604a Ag 1 '20

Alloys of interest to the brass founder; alloys used in famous statuary. *Foundry* 48:284a Ap 1 '20

Alloys of the past and present. C. G. Fink. *il Chem & Met Eng* 23:471-3 S 8 '20

Anti-friction bearing metals. P. W. Priestley. *Metal Ind* 19:66-7 F '21

Aus der metallgiesserei. C. Irresberger. *diags Stahl & Eisen* 41:301-4 Mr 3 '21

Bearing metals and their industrial value. Czochralski. *Brass W* 17:245-8, 281-3 S-O '21; Discussion. 17:283-6 O '21

Brasses containing nickel. L. Guillet. *Iron Age* 107:1380 My 26 '21

Coefficients of equivalence in ternary alloys. L. Guillet and A. Portevin. *diags Chem & Met Eng* 24:609-12 Ap 6 '21

Effects of metallic structure upon properties. H. S. Rawdon. *il Chem & Met Eng* 24:523-7 Mr 23 '21

Electric furnaces for non-ferrous alloys. H. W. Gillett. *Am Electrochem Soc Trans v* 39 (preprint 24):277-95 Ap '21; Same. *Foundry* 49:468-74 Je 15 '21; Abstract. *Electrician* 87:295-6 S 2 '21

Electrical production of alloys. R. M. Major. *Am Electrochem Soc Trans v* 37 (preprint 33):441-7 Ap '20

L'emploi des alliages légers et ultra-légers dans la construction mécanique et notamment dans l'industrie automobile. *Génie Civil* 79:86-7 Jl 23 '21

Few alloying problems. J. L. Jones. *diags Metal Ind* 18:7-8 Ja '20

Force-field theory and electric resistivity of steel; abstracts. E. D. Campbell. *Engineering* 110:812-13 D 17 '20; *Elec R (Lond)* 88:70 Ja 21 '21

Fundamental problems in alloys research. H. E. Howe. *Am Electrochem Soc Trans v* 37 (preprint 24):359-65 Ap '20

Hall effect and the Nernst effect in magnetic alloys. A. W. Smith. *Phys R* 17:23-37 Ja '21

Metal substitutes. A. Wuerth. *Sci Am M* 3:54-8, 145-9 Ja-F '21

Model for representing the constitution of ternary alloys. W. Rosenhain. *il diags Engineering* 109:527-9 Ap 16 '20

Physical properties of materials; strengths and related properties of metals and certain other engineering materials. U S Bur Stand Circ 101:1-52 '21

Planning for a co-operative research in alloys. *Automotive Ind* 41:876-7 O 30 '19

Practical alloying; a compendium of alloys and processes for brass founders, metal workers and engineers. J. F. Buchanan. 2d ed. 205p Penton pub. co. '20

Practical foundry mixtures. F. W. Loll. *Metal Ind* 19:8, 63 Ja-F '21

Preventing segregation of metals in alloys. *diag plan Foundry* 48:919-20 N 15 '20

Principles of alloying to resist corrosion. O. P. Watts. *il Am Electrochem Soc Trans v* 39 (preprint 10):81-4 Ap '21; Same. *Iron Tr R* 68:1451-2 My 26 '21; Same. *Brass W* 17:267 S '21

Les progrès récents des méthodes de contrôle des produits métallurgiques. L. Guillet. *diags Génie Civil* 77:232-6, 255-7, 268-73, 291-3, 313-16 S 18-O 16 '20

Properties of die castings. C. Pack. *Iron Tr R* 66:1621 Je 3 '20

Report on investigation of bearing metals. Paper 27:26-7+ Mr 2 '21

Some theoretical principles of alloying. R. J. Anderson. *il diag Chem & Met Eng* 23:317-20 Ag 25 '20

Special alloys. *Brass W* 17:221 Ag '21

Structural properties of metals and alloys. R. W. Woodward. *il diag Am Mach* 55:596-9, 636-8 O 13-20 '21

Study of impact tests on alloys. A. B. Wilson. *il Foundry* 48:616-17+ Ag 1 '20

Symposium on electrically produced alloys. *Chem & Met Eng* 22:730-1 Ap 21 '20

La théorie des alliages métalliques et ses principales conséquences industrielles. L. Guillet. *diags Chimie & Ind* 5:371-83, 500-7 Ap-May '21

Thermal, electrical and magnetic properties of alloys. A. W. Smith. *J Fr Inst* 192:69-105, 157-202 Jl-Ag '21

Thermo-electromotive force and alloy research. J. L. Haughton. *il diags Engineering* 109:803-7 Je 11 '20

X-ray analysis of three series of alloys. M. R. Andrews. *Phys R* 18:245-54, pl 1 S '21

See also Aluminum alloys; Amalgams; Babbitt metal; Biakmetal; Brass; Bronze; Copper alloys; Critical point; Duralumin; Fray metal; Gun metal; Iron alloys; Iron nickel alloys; Magnesium alloys; Metallurgy; Monel metal; Nichrome; Nickel alloys; Nickel-chromium alloys; Pyrophoric alloys; Solder and soldering; Solutions, Solid; Steel alloys; Stellite; Thermalloy; Zisium; Ziskon; *also* Alloys research association

Nomenclature

Nomenclature and standardizations of metals and alloys. R. E. Search. *Metal Ind* 18:553-5 D '20

Patents

Alloys of interest to brass foundrymen; non-ferrous alloys recently patented. *Foundry* 48:998a; 49:18a D 15 '20-Ja 1 '21

Patented alloys of importance. E. G. Jarvis. *Brass W* 17:99-100 Ap '21

Recently patented nonferrous alloys. *Foundry* 48:566a Jl 15 '20

Specifications

A.S.T.M. changes specifications. *Foundry* 48:559-60 Jl 15 '20; *Iron Age* 106:18-20 Jl 1 '20

Non-ferrous metal specifications of the S.A.E. *Soc Auto Eng J* 8:182-7 F '21

Report of committee B-2 on non-ferrous metals and alloys. *Am Soc T M Pro v* 20 pt 1:234-44; Discussion. 245-50 '20

Tentative specifications for non-ferrous alloys for railway equipment in ingots, castings, and finished car and tender bearings. *Am Soc T M Pro v* 20 pt 1:528-32 '20

Standards

Nomenclature and standardizations of metals and alloys. R. E. Search. *Metal Ind* 18:553-5 D '20

Alloys research association

Alloy research association formed. *Foundry* 49:93 F 1 '21

Alloys research association. *Ind Management* 58:374 N '19

Informational service launched. *Chem & Met Eng* 23:1271 D 29 '20

Planning for a co-operative research in alloys. *Automotive Ind* 41:876-7 O 30 '19

Allyl compounds

Comparison of the activity of certain unsaturated groups with the activity of the allyl group in certain ethers. S. G. Powell and R. Adams. *Am Chem Soc J* 42:646-52 Mr '20

Preparation of some allyl compounds. S. Coffey and C. F. Ward. *Chem Soc J* 119:1301-6 Ag '21

Allylene. See Propine

Alma-Tadema, Laurence

House of a great artist: Sir Laurence Alma-Tadema's residence in St John's wood. *il* Am Arch 118:409-10 S 29 '20

Almadén, Spain

Almadén quicksilver mine. C. De Kalb. Econ Geol 16:301-12 Je '21

Almonds

Advertising

Almond growers extend market to whole year. H. E. Agnew. *Ptr Ink* 113:93-4+ O 14 '20

Alpha rays

Collisions of α -particles with hydrogen nuclei. C. G. Darwin. *diags Philos Mag* 6th ser 41:486-510 Mr '21

Practical methods for the determination of radium: alpha-ray method, gamma-ray method, miscellaneous. S. C. Lind. *il diag J Ind & Eng Chem* 12:469-72 My '20

Range and ionization of the α particles from radium C and thorium C. G. H. Henderson. *Philos Mag* 6th ser 42:538-51, pl 17 O '21

Alphabet

See also Chinese language—Alphabet

Alpine plants

Anatomical reduction in some alpine plants. C. C. Forsaith. *Sci Am M* 3:271-2 Mr '21

Alsace

Industries and resources

Alsatian potash industry. H: Vigneron. *il diags map Chem & Met Eng* 24:655-61 Ap 13 '21

See also Mines and mineral resources—Alsace

Alsberg, Carl L., 1877-

Dr C. L. Alsberg director of Stanford university food research institute. *por Chem & Met Eng* 24:648 Ap 13 '21

Alternating current motors. See Electric motors, Alternating current

Alternating currents. See Electric currents, Alternating

Alternation of generations

Alternation of generations; general law governing the development of both plants and animals. L. Maltruchot. *Sci Am M* 3:405-8 My '21

Alternators. See Electric generators, Alternating current

Altimeter

Special altimeter now made for the automobile. *il Pop Mech* 34:519 O '20

Altitude, Influence of

High altitudes and the human organs. *Aerial Age* 12:278 N 15 '20

Seven and half miles high in mock flight. *il Pop Mech* 34:841 D '20

Some physical and psychical effects of altitude. C: A. Swan. *Aviation* 8:154, 155-7 Mr 15 '20

See also Aviation—Medical aspects; Aviators—Diseases and hygiene

Altitude records. See Aviation—Altitude records

Alum

Coagulation of water with alum by prolonged agitation. W. F. Langelier. *il diags plan Eng N* 86:924-8 Je 2 '21

Dose of alum for clarification of water by precipitation. J. Morison. *Eng & Contr* 55:462 My 11 '21

Experience of the Montreal water and power company in the manufacture of filter alum. J. O. Meadows. *Am Water Works Assn J* 7:841-3 N '20; Same. *Can Eng* 38:597 Je 24 '20; Same. *Eng & Contr* 54:42 Jl 14 '20; Same. *Eng N* 85:59-60 Jl 8 '20; Discussion. *Am Water Works Assn J* 7:843-4 N '20

New method of applying alum directly to filter beds at Oshkosh, Wis. R. A. Maddock. *Eng & Contr* 54:553 D 8 '20

See also Aluminum sulfate

Alumina

Adsorption by precipitates. H. B. Weiser and E. B. Middleton. *J Phys Chem* 24:630-63 N '20

Alumina; basic aluminum nitrate; patent. *Chem & Met Eng* 24:38 Ja 5 '21

Alumina, corundum and alumina-thermic corundum in refractories. A. Granger. *Engineering* 112:537 O 14 '21

Alumina; patent. *Chem & Met Eng* 23:1270 D 29 '20

Procédés divers pour extraire l'alumine de l'argile. *Génie Civil* 78:117 Ja 29 '21

Aluminum

Acid-resisting qualities of aluminum. *Chem & Met Eng* 22:230-1 F 4 '20

Action on aluminum of hard industrial waters. R. Seligman and P. Williams. *Engineering* 109:362-4 Mr 12 '20

Aluminum. *Min & Sci P* 122:784 Je 4 '21

Aluminum additions and sulphur segregation. M. C. Smith. *diags Iron Age* 105:1426-7 My 20 '20; Discussion. G: F. Comstock. 105:1784 Je 24 '20

Aluminum alloy pistons. E. V. Pannell. *diags Metal Ind* 19:15-17 Ja '21

Aluminium and its alloys in engineering. J: G. A. Rhodin. *Engineer* 131:488-9, 501, 531-2, 559, 586-7+, 622-3, 635-6, 659-60 My 6-Je 24 '21

Aluminum and its light alloys. P. D. Merica. *U S Nat Advisory Com for Aeronautics* 1918:350-3 '20

Aluminium electrolytic arrester, with an introduction on electrical disturbances. A. G. Ramsey. *diags Inst E E J* 57:sup306-11 '19

Aluminum for transmission lines. *Sci Am M* 3:280 Mr '21

Aluminum from labradorite. *Sci Am* 123:430. O 23 '20

Aluminum in airship construction. E. V. Pannell. *il Metal Ind* 18:262 Je '20

Aluminum in the German electrical industry; abstract. F. Broadbent. *Elec W* 75:1436 Je 19 '20

Aluminum in the rubber industry. *il India Rubber W* 62:513-14 My '20

Aluminum industry. *Min & Sci P* 123:507 O 8 '21

Aluminum industry in Norway. H. B. Saeter. *Metal Ind* 19:150 Ap '21

Aluminium, its manufacture, manipulation and marketing. G: Mortimer. 152p Pitman '20

Aluminum piston design. E. G. Gunn. *diags Automotive Ind* 42:362-4 Ja 29 '20; Discussion. *Soc Auto Eng J* 6:309-11 My '20

Aluminum pistons. F. Jardine and F. Jehle. *diags Soc Auto Eng J* 8:397-403 My '21; Same. *Aerial Age* 13:228-9, 250-3 My 16-23 '21

Aluminum pistons for Diesel engines. *diags Power* 52:854 N 30 '20

Aluminum producers of the world. *Metal Ind* 19:190 My '21

Aluminum rolling-mill practice. R. J. Anderson and M. B. Anderson. *Chem & Met Eng* 22:489-91, 545-50, 599-604, 647-50, 697-702 Mr 17-Ap 14 '20

Bauxite and aluminum. J. M. Hill. *U S Geol S Min Res of U S* 1918,pt 1:513-26 '20

Bauxite and aluminum in 1919. J. M. Hill. *U S Geol S Min Res of U S* 1919,pt 1:33-40 '20

Bauxite and aluminum in 1920. J. M. Hill. *U S Geol S Min Res of U S* 1920,pt 1:29-36 '21

Building motors on the Pacific coast; making aluminum alloy pistons. F. H. Colvin. *il Am Mach* 54:46-7 Ja 13 '21

Can we use lighter metals? R. E. Berg. *il diags Motor Age* 37:7-9 Mr 11 '20

Cast aluminum dashboards and instrument boards in wider use. M. W. Bourdon. *il Automotive Ind* 44:259-60 F 10 '21

Decreasing unsprung weight by the use of aluminum. A. H. Edgerton. *Soc Auto Eng J* 6:26-8 Ja '20; Discussion. 7:75-6 Jl '20

Density of aluminum from 20 to 1,000 deg. C. J. D: Edwards and T. A. Moormann. *diags Chem & Met Eng* 24:61-4 Ja 12 '21

Aluminum—Continued

- Diffusion of solid copper in liquid aluminum. R. J. Anderson. *il Chem & Met Eng* 23:575-7 S 22 '20
- Electric arc welding applied to aluminum. F. J. Heyes. *Elec R (Lond)* 88:127-8 Ja 28 '21
- L'emploi de l'aluminium pour les lignes électriques. *Génie Civil* 77:509-11 D 18 '20
- L'emploi des alliages légers et ultra-légers dans la construction mécanique et notamment dans l'industrie automobile. *Génie Civil* 79:86-7 JI 23 '21
- Evaluation of aluminum dross. F. K. Bezzenberger. *J Ind & Eng Chem* 12:78-9 Ja '20
- L'exposition des nouvelles applications industrielles de l'aluminium, du magnésium, du calcium et du sodium. *Génie Civil* 79:36-9 JI 9 '21
- German aluminum industry; abstract. *Elec W* 75:448 F 21 '20
- Honeycombs of aluminum. *Sci Am* 124:181 Mr 5 '21
- Increasing use of alloyed aluminum as an engineering material. G. M. Rollason. *il Ind Management* 59:387-90, 456-61 My-Je '20; Same cond. *Mech Eng* 42:495-500 S '20
- Influence of small quantities of aluminum upon the properties of brass. J. Czochralski. *Brass W* 17:64 Mr '21
- Lesson on aluminum and sales contracts. W. Gustin. *Chem & Met Eng* 22:419-20 Mr 3 '20
- Machining aluminum automobile parts. *il diags Mach* 27:115-19 O '20
- Machining aluminum pistons. P. T. Lennon. *diags Am Mach* 52:1175-6 Je 3 '20
- Manufacture of aluminum. *Min & Sci P* 121:15 JI 3 '20
- New aluminum solder successful. *Aviation* 9:358 N 29 '20
- Le nickelage de l'aluminium et de ses alliages. L. Guillet. *il Génie Civil* 76:437-8 My 8 '20; Same abr (Nickel-plating aluminum and alloys). *Sci Am M* 2:267 N '20
- Oxy-acetylene welding of cast and sheet aluminum. P. W. Blair. *Metal Ind* 19:402 O '21
- Practicability of soldering aluminum. A. N. Fleming. *il Sheet Metal Worker* 11:427+ D 24 '20
- Precision machine work in the production of aluminum pistons. J. E. Schipper. *il Automotive Ind* 45:722-5 O 13 '21
- Preventing rust at high temperatures; aluminum-coated metals that will go to the melting point without formation of scale. R. June. *il Sci Am* 123:404+ O 16 '20
- Problems and possibilities of the aluminum piston. W. Rosenhain. *Automotive Ind* 44:1264-6+ Je 16 '21
- Protecting the surface of aluminum from corrosion. M. Tevis. *Sci Am* 122:321+ Mr 20 '20
- Recrystallisation of aluminium on heating. H. C. H. Carpenter and C. F. Elam. *il Engineering* 111:302-7 Mr 11 '21; Abstract. *Engineering* 131:286 Mr 18 '21; Discussion. *Engineering* 111:316 Mr 18 '21
- Relative value of aluminum and steel as body panel material. E. J. Bartlett. *Automotive Ind* 45:173-4 JI 23 '21
- Resistance and constancy of aluminum contacts; abstract. R. Richter. *Elec W* 76:888 O 30 '20
- Revision of the atomic weight of aluminum; the analysis of aluminum bromide—preliminary paper. T. W. Richards and H. Krepelka. *diag Am Chem Soc J* 42:2221-32 N '20
- Some future problems of chemistry; inventory of our natural resources and the coming of the aluminum age. I. W. D. Hackh. *Sci Am M* 2:309-11 D '20
- Status of aluminum in the automobile engine. J. E. Schipper. *il diags Automotive Ind* 43:468-70 S 2 '20
- Status of the aluminum industry in Germany during and after the war. L. Desrois. *Chem & Met Eng* 23:298-9 Ag 18 '20
- Use of aluminum conductors for transmission lines; abstract. *Elec W* 76:791 O 16 '20

Use of aluminum for electric transmission lines; abstract. M. Dusaughey. *Chem & Met Eng* 24:313-14 F 16 '21

Use of aluminum in the present and the future motor car. F. Jehle. *il diag Soc Auto Eng J* 6:367-72 Je '20

Waddell aluminum piston. *diags Automotive Ind* 45:170 JI 28 '21

What is aluminum? E. V. Pannell. *Metal Ind* 18:224 My '20

Working sheet aluminum. A. Eyles. *diags Mach* 27:1138-40 Ag '21

World's output of aluminum. *Iron Age* 107:969 Ap 14 '21; Same. *Eng & Min J* 112:10 JI 2 '21

See also Alumina; Alunite; Bauxite; Corundum; Sillimanite

Analysis

Determination of metallic aluminium and of aluminium oxide in commercial metal. J. H. Capps. *diag J Ind & Eng Chem* 13:808-12 S '21

Volumetric determination of aluminium in its salts. A. Tingle. *J Ind & Eng Chem* 13:420-2 My '21

See also Aluminum alloys—Analysis

Metallography

Ferric sulphate as a new etching reagent in the metallography of aluminum. R. J. Anderson. *Metal Ind* 19:69-70 F '21

Specifications

Tentative specifications for aluminum for use in the manufacture of iron and steel. *Am Soc T M Pro v* 20 pt 1:586-8 '20

Tentative specifications for aluminum ingots for remelting and for rolling; Tentative specifications for aluminum sheet. *Am Soc T M Pro v* 20 pt 1:543-8 '20

Aluminum alloys

Alloys of interest to brass foundrymen; aluminum alloys used in aircraft. *Foundry* 48:604a Ag 1 '20

Aluminum alloys. Z. Jeffries. *il Soc Auto Eng J* 7:295-9+ S '20; Same cond. *Aviation* 9:154-7 O 1 '20; Same cond. *Mach* 27:383-4 D '20

Aluminum alloys for castings and forgings. R. E. Carpenter. *Mach* 27:241 N '20

Aluminum alloys patented in the United States and abroad. *Foundry* 48:524a JI 1 '20

Aluminium and its alloys in engineering. J. G. A. Rhodin. *Engineer* 131:488-9, 501, 531-2, 559, 586-7+, 622-3, 635-6, 659-60 My 6-Je 24 '21

Aluminum and its light alloys. P. D. Merica. *U S Nat Advisory Com for Aeronautics* 1918:350-3 '20

Aluminum casting alloy; patent. T. D. Stay. *Chem & Met Eng* 23:988 N 17 '20

Aluminum-copper alloys. R. J. Anderson. *diag Am Electrochem Soc Trans v* 40 (preprint 16):207-36 S '21

Analyze loss in aluminum shops. R. J. Anderson. *Foundry* 49:143-7, 188-91 F 15-Mr 1 '21

Castings of light aluminum alloys. R. J. Anderson. *bibliog il Iron Age* 107:433-6 F 17 '21

Constitution and age-hardening of the alloys of aluminum with magnesium and silicon. D. Hanson and M. L. V. Gayler. *il diags Engineering* 112:519-22, pl 29-30 O 7 '21; Discussion. *Engineering* 112:484 S 30 '21

Constitution and metallography of aluminum and its light alloys with copper and with magnesium. P. D. Merica, R. G. Waltenberg and J. R. Freeman, jr. *il diags U S Bur Stand Sci Pa* 337:105-19 '19; Same. *Min & Met* 151:1031-49 JI '19; Abstract. *Chem & Met Eng* 21:551-2 O 29 '19; Discussion. *Min & Met* 157:(sec 12):85-9 Ja '20

Constitution of the alloys of aluminium and magnesium. D. Hanson and M. L. V. Gayler. *il Engineering* 110:788-91, 819-21 D 10-17 '20

Cracks in aluminum-alloy castings. R. J. Anderson. *Min & Met* 178:43-4 O '21

Aluminum alloys—Continued

- Developments in alloyed aluminum. R. E. Carpenter. *il Soc Auto Eng J* 7:86-8 J1 '20
- Experiments in manufacturing no. 12 alloy. R. J. Anderson. *il Chem & Met Eng* 23:883-7 N 3 '20
- Foundry methods for light aluminum: copper alloys. R. J. Anderson. *Chem & Met Eng* 23:735-7 O 13 '20
- Hardness of certain aluminum alloys. R. E. Search. *il Metal Ind* 18:403-5, 514-17 S, N '20
- Heat treatment of the alloys of aluminum. *Automotive Ind* 42:1351 Je 10 '20
- Increasing the scope of aluminum alloys. F. Jehle. *il diag Automotive Ind* 41:1025-7 N 20 '19
- Increasing use of alloyed aluminum as an engineering material. G. M. Rollason. *il Ind Management* 59:387-90, 456-61 My-Je '20; Same cond. *Mech Eng* 42:495-500 S '20
- Investigate hard spots in aluminum. R. J. Anderson and J. H. Capps. *il Foundry* 48:337-42 My 1 '20
- Iron-pot melting practice for aluminum alloys. R. J. Anderson. *Metal Ind* 19:189-90, 246-7 My-Je '21
- Losses in aluminum and aluminum-alloy melting. R. J. Anderson. *Brass W* 17:154-6 Je '21; Same. *Foundry* 49:520-2 J1 1 '21
- Manufacture of rich copper: aluminum alloys or hardeners. R. J. Anderson. *il Chem & Met Eng* 23:617-21 S 29 '20
- Mechanism of solidification of a copper:aluminum alloy. J. D. Edwards. *Chem & Met Eng* 24:217-20 F 2 '21
- Preparation and reflective properties of some alloys of aluminum with magnesium and with zinc. R. G. Waltenberg and W. W. Coblentz. *U S Bur Stand Sci Pa* 363:653-7 '20
- Relationship between specific gravity and composition of light aluminum alloys. B. W. Hales. *Engineer* 129:439-40 Ap 30 '20
- Researches on aluminium alloys; summary of the eleventh report to the alloys research committee. W. Rosenhain, S. L. Archbutt and D. Hanson. *Engineering* 112:613-15, 644-5 O 28-N 4 '21; Same. *Engineer* 132:461-3, 489-90 O 28-N 4 '21; Discussion. *Engineering* 112:594-6 O 28 '21; *Engineer* 132:447 O 28 '21
- Some theoretical principles of alloying. R. J. Anderson. *il diag Chem & Met Eng* 23:317-20 Ag 25 '20
- Utilization of aluminum for engine cylinders. W. Rosenhain. *Automotive Ind* 42:912-13 Ap 15 '20
- See also* Aluminum bronze; Duralumin; Zisium; Ziskon

Analysis

- Rapid and systematic method for the analysis of light aluminum casting alloys. R. M. Berry. *J Ind & Eng Chem* 12:998-1000 O '20

Specifications

- Tentative specifications for light aluminum casting alloys. *Am Soc T M Pro v* 20 pt 1: 549-53 '20

Testing

- Charpy impact test as applied to aluminum alloys. E. H. Dix, jr. *Min & Met* 160:31 Ap '20
- Fatigue and impact fatigue tests of aluminum alloys. W. A. Gibson. *il Am Soc T M Pro v* 20 pt 2:115-32; Discussion. 133-6 '20
- Some tests of light aluminum casting alloys—the effect of heat treatment. P. D. Merica and C. P. Karr. *il diags U S Bur Stand Tech Pa* 139:1-31 '19; Abstract. *J Fr Inst* 188: 691-3 N '19
- Testing aluminum castings. E. H. Dix, jr. *il Automotive Ind* 45:681 O 6 '21
- Aluminum bromide**
- Revision of the atomic weight of aluminum; the analysis of aluminum bromide—preliminary paper. T. W. Richards and H. Krepelka. *diag Am Chem Soc J* 42:2221-32 N '20

Aluminum bronze

- Casting aluminum bronze. A. D. Wilson. *il Foundry* 49:800-4 O 15 '21
- Formulas for the brass foundryman; data on aluminum bronze. *Foundry* 48:644a Ag 15 '20
- Impact strength of monel metal and aluminum bronze. G. F. Comstock. *Chem & Met Eng* 25:816 N 2 '21
- Self annealing in aluminum bronze. A. B. Wilson. *il Foundry* 48:776-8 O 1 '20
- Still process for casting aluminum bronze. P. H. G. Durville. *diags Metal Ind* 18:115-Mr '20

Aluminum chloride

- Effect of aluminum chloride upon clays. H. P. Reinecker and J. S. George. *Am Cer Soc J* 3:994-6 D '20
- Use of aluminium chloride and ferric chloride in the preparation of phenolphthalein. C. F. Ward. *Chem Soc J* 119:850-2 Je '21

Aluminum dust

- Aluminum dust explosions. *Sci Am* 123:271 S 18 '20
- Disastrous explosion of aluminum dust. D. J. Price. *il diags plans Chem & Met Eng* 23: 915-19 N 10 '20

Aluminum founding

- Aluminum casting. *diags Metal Ind* 18:449 O '20
- Aluminum casting. F. A. Livermore. *Brass W* 17:231-3 Ag '21
- Aluminum castings. Z. Jeffries. *il Mech Eng* 42:427-31 Ag '20; Excerpts. *Iron Tr R* 66: 1622-3 Je 3 '20
- Aluminum die-castings. F. A. Livermore. *Chem & Met Eng* 25:664 O 5 '21
- Analyze loss in aluminum shops. R. J. Anderson. *Foundry* 48:989-92; 49:16-21, 54-7, 104-11, 143-7, 188-91, 235-9 D 15 '20-Mr 15 '21
- Blowholes, porosity, and unsoundness in aluminum-alloy castings. R. J. Anderson. *il diag U S Bur Mines Tech Pa* 241:1-31 '19
- British aluminum foundry practice. *il Metal Ind* 18:163-5, 221-4 Ap-May '20
- Casting aluminum kettles. W. J. Reardon. *diags Metal Ind* 19:152 Ap '21
- Casting aluminum:zinc alloys. F. A. Livermore. *Chem & Met Eng* 25:516 S 14 '21
- Casting an aluminum head on a steel cylinder. E. H. Dix, jr. *il Automotive Ind* 45: 474-5 S 8 '21
- Casting losses in aluminum-foundry practice in the United States. R. J. Anderson. *Metal Ind* 18:318 J1 '20; Same cond. *Am Mach* 53:60 J1 8 '20
- Causes for defects in aluminum. C. Vickers. *Foundry* 48:691-2 S 1 '20
- Causes of piping in aluminum ingots. J. D. Edwards and H. T. Gammon. *diag Chem & Met Eng* 24:338-40 F 23 '21
- Constitution of gas atmospheres in aluminum-alloy melting furnaces. R. J. Anderson and J. H. Capps. *il diags Chem & Met Eng* 25:54-60 J1 13 '21; Discussion. H. M. St John. 25:452 S 7 '21
- Cracks in aluminum-alloy castings. R. J. Anderson. *Min & Met* 178:43-4 O '21
- Electrical melting of alloys. H. W. Gillett. *il diags Foundry* 48:531-9 J1 1 '20
- Foundry methods for light aluminum: copper alloys. R. J. Anderson. *Chem & Met Eng* 23:735-7 O 13 '20
- Gases in aluminum furnaces and their analysis. R. J. Anderson and J. H. Capps. *il Chem & Met Eng* 24:1019-21 Je 8 '21
- Investigate hard spots in aluminum. R. J. Anderson and J. H. Capps. *il Foundry* 48: 337-42 My 1 '20
- Iron-pot melting practice for aluminum alloys. R. J. Anderson. *Metal Ind* 19:189-90, 246-7, 285-7, 360-2, 397-9 My-J1, S-O '21
- Losses in aluminum and aluminum-alloy melting. R. J. Anderson. *Brass W* 17:154-6 Je '21; Same. *Foundry* 49:520-2 J1 1 '21
- Modern founding for aluminum castings. F. L. Prentiss. *il diag Iron Age* 105:535-9 F 19 '20
- Testing aluminum castings. E. H. Dix, jr. *il Automotive Ind* 45:681 O 6 '21

Aluminum founding—Continued

- Testing aluminum castings. E. V. Pannall. Automotive Ind 45:431 S 1 '21
 Trouble with aluminum castings. Foundry 49:699-700 S 1 '21

See also Aluminum bronze

Aluminum hydrate. See Aluminum hydroxide

Aluminum hydroxide

- Alumina hydrate in mechanically filtered water. N. J. Howard and F. Hannan. Can Eng 38:461-2 My 13 '20
 Hydrous oxides; hydrous aluminum oxide. H. B. Weiser. J Phys Chem 24:505-38 O '20
 Residual aluminum compounds in water filter effluents. A. Wolman and F. Hannan. bibliog Chem & Met Eng 24:728-35 Ap 27 '21; Same cond. Eng & Contr 55:473-5 My 11 '21

Aluminum leaf

- Efficiency of aluminum leaf on airplane propellers. A. C. Knauss. Sci Am M 1:124-5 F '20

Aluminum oxide. See Alumina

Aluminum-potassium sulfate. See Kalinite

Aluminum silicate. See Sillimanite

Aluminum sulfate

- Alum testing. P. W. Codwise. Paper 26:13-15 Ap 7 '20
 Manufacture of alum cake; patent. Chem & Met Eng 25:846 N 2 '21
 Rate of solution of sulphate of aluminum. J. W. Ellms, A. G. Levy and L. A. Marshall. Am Water Works Assn J 8:426-32 Jl '21; Same. Eng & Contr 56:136-7 Ag 10 '21
 Residual aluminum compounds in water filter effluents. A. Wolman and F. Hannan. bibliog Chem & Met Eng 24:728-35 Ap 27 '21; Same cond. Eng & Contr 55:473-5 My 11 '21; Abstract. Eng N 86:844-5 My 19 '21
 Testing and calculating aluminum sulphate solutions. C. H. Capen, jr. Eng N 87:574-5 O 6 '21
 See also Alum

Aluminum sulfide

- Darstellung von thio-amiden mit hilfe des aluminiumsulfids. K. Kindler and F. Finndorf. Deutsche Chem Gesell Ber 54:1079-80 My '21

Alundum

- Alundum filtering element is used in new extractor. il Pop Mech 35:222 F '21
 Using alundum as a polishing abrasive. Mach 27:520 F '21

Alunite

- Alunite in South Central Texas. J. G. Braun. Eng & Min J 111:225 Ja 29 '21
 Alunite potash industry. Eng & Min J 109:1217 My 29 '20
 Cadmium, alunite, and aluminite. Eng & Min J 112:179 Jl 30 '21

Amalgamated association of iron, steel and tin workers

- Amalgamated association of iron, steel and tin workers. J. S. Robinson. (Series 38 no. 2) 166p '20 Johns Hopkins Univ Studies in Historical and Political Science.
 Amalgamated defeated in East. Iron Tr R 67:1692-3 D 16 '20

Amalgamated association of street & electric railway employees of America

- 17th convention, Atlanta, Ga., Sept. 12-20. Elec Ry J 58:556 O 1 '21

Amalgamated sugar company

- Official statement to the New York stock exchange in connection with the listing of its eight per cent cumulative sinking fund first preferred stock. Comm & Fin Chr 110:2575-8 Je 19 '20

Amalgamation

- Amalgamation and cyanidation. Min & Sci P 123:317-18 S 3 '21
 Amalgamation in tube mills. E. E. Carter. flow sheet diag Eng & Min J 110:983-4 N 20 '20
 Amalgamation, with special reference to steaming of amalgamation plates. Chem & Met Eng 22:711 Ap 14 '20
 Steaming amalgamating plates. Min & Sci P 121:20 Jl 3 '20

Amalgams

- Electro endosmosis and the preparation of solid alkali amalgams. S. B. Frank and J. R. Withrow. Am Chem Soc J 42:671-5 Ap '20

Structure of gold amalgams as determined by metallographic methods. S. A. Braley and R. F. Schneider. diag Am Chem Soc J 43:740-6 Ap '21

Thermodynamic treatment of concentrated solutions, and applications to thallium amalgams. G. N. Lewis and M. Randall. Am Chem Soc J 43:233-54 F '21

Transition phenomena in amalgams. A. W. Gray. Min & Met 165:18-19 S '20

Vapor pressures of cadmium, lead and tin amalgams. J. H. Hildebrand, A. H. Foster and C. W. Beebe. Am Chem Soc J 42:545-8 Mr '20

Amalgams, Dental. See Dental metallurgy

Amazon valley

- "And I did not see a snake—"; industrial possibilities of the Amazon valley. J. F. Barry. Nation's Business 8:18-19 D '20

Ambulances

- Bombing airplane becomes flying ambulance. il Pop Mech 35:847 Je '21
 Inspection-ambulance motor trolley on the Mesopotamian railways. il diag plans Engineering 109:126-8 Ja 23 '20
 Vickers Vimy aeroplane ambulance. il diag Aerial Age 13:131-2 Ap 18 '21

America (yacht)

- Yacht "America" to be preserved at Annapolis. Sci Am 124:362 My 7 '21

American academy in Rome

- American academy in Rome; its unique American educational work in Italy. Am Arch 116:783-4 D 24 '19

American academy in Rome; professor Muñoz's lectures. Review by G. H. Edgell. il Am Inst Arch J 8:151-3 Ap '20

Competition for the fellowships of the American academy in Rome. R. Guernsey. il Arch Rec 50:227-34 S '21

American agricultural chemical company

- Conditions in the fertilizer trade. R. S. Bradley. Chem Age 29:363 S '21

American architecture. See Architecture, American

American association for the advancement of science

- Chicago meeting. Chem & Met Eng 24:83-4 Ja 12 '21

See also Science service

American association of advertising agencies

- Advertising agency association committees. Ptr Ink 114:68 Ja 27 '21

5th annual convention, Philadelphia, Oct. 10-12. Ptr Ink 117:68 O 20 '21

Qualifications for membership in the American association of advertising agencies. Ptr Ink 115:177+ Ap 14 '21

American association of engineers

- American association of engineers passes 20,000 membership mark. Munic Eng 59:56 Ag '20

A. A. E. rejects plan for salaried president. Eng N 86:870-1 My 19 '21

Employment service of A. A. E. E. B. Miller. Eng N 86:66-7 Ja 13 '21

First annual conference on employment and education. Eng & Contr 54:520-1 N 24 '20

Future of the American association of engineers. L. K. Sherman. Eng N 84:999 My 20 '20; Same. Eng & Contr 53:599 My 26 '20

2d annual railroad conference, Chicago, March 15. Ry R 66:472-5 Mr 20 '20; Eng N 84:633 Mr 25 '20

6th annual convention, St Louis, May 10-11. Eng N 84:1022-5 My 20 '20; Eng & Contr 53:581-2 My 19 '20; Munic Eng 58:240-1 Je '20

American association of freight traffic officers

- Annual meeting, Chicago, Sept. 19. Ry Age 71:593 S 24 '21

- American association of hosiery and underwear manufacturers**
Exhibit of knitting machinery and supplies at Philadelphia. *il Textile World* 57:3279+ My 1 '20
- American association of Mexico**
Forms new society, Americans in Mexico. *Nat Pet* N 13:67+ Mr 2 '21
- American association of operating engineers**
Southern operating engineers form new association. *Elec W* 77:899 Ap 16 '21
- American association of petroleum geologists**
Association of petroleum geologists—its relation to the industry. *W. E. Pratt. Nat Pet* N 13:39+ F 9 '21
5th annual meeting, Dallas, Texas, March 13-20. *Eng & Min J* 109:762-3 Mr 27 '20
- American association of port authorities**
Convention, Chicago, Sept. 30-Oct. 2. *Eng N* 85:720 O 7 '20
10th annual convention, Seattle, Wash., Oct. 11-14. *Eng N* 87:706 O 27 '21
- American association of state highway officials**
5th annual meeting, Louisville, Ky., Dec. 8-11. *Eng N* 83:1029, 1032-3 D 11 '19
State officials confer on highway policies. *Eng N* 86:696 Ap 21 '21
Text of important resolutions adopted at the fifth annual meeting at Louisville. *Good Roads n s* 18:276-8 D 31 '19
- American association of traveling passenger agents**
46th annual convention, Salt Lake City, Sept. 12-15. *Elec Ry J* 58:791-2 O 29 '21
- American association of variable star observers**
American association of variable star observers and its work. *R. S. Dugan. Sci Am* 124:192 Mr 5 '21
- American association of woollen and worsted manufacturers**
13th annual meeting, New York. *Textile World* 56:2919-21 N 15 '19
14th annual meeting. *Textile World* 58:3839+, 3998-9 D 4-11 '20
- American bankers' association**
46th annual convention, Washington, D.C., Oct. 19-22. *Comm & Fin Chr* 111:91-204 sec 2 N 20 '20
47th annual convention, Los Angeles, Calif., Oct. 4-7. *Comm & Fin Chr* 113:91-218 sec 2 O 29 '21
- American bar association**
American bar association aviation committee makes report. *Aerial Age* 12:607 F 21 '21; *Same. Aviation* 10:139 Ja 31 '21
- American boiler manufacturers' association**
32d annual convention, French Lick Springs, Ind., May 31-June 2. *Power* 51:982-5 Je 15 '20; *Iron Tr R* 66:1669 Je 10 '20
33d annual convention, Bedford Springs, Pa., June 20-22. *Power* 54:40-1 Jl 5 '21
- American bureau of shipping**
Activities of the American bureau of shipping. *Marine Eng* 26:37-8 Ja '21
American bureau of shipping. *S. Taylor. Gen Elec R* 24:98 F '21
- American car and foundry company**
21st annual report. *Comm & Fin Chr* 110:2684-5 Je 26 '20
22d annual report for 1921. *Comm & Fin Chr* 113:90-1 Jl 2 '21; *Excerpts. Ry Age* 71:89 Jl 9 '21
- American ceramic society**
A. C. S. creates office of full time secretary. *Brick & Clay Rec* 59:104-5 Jl 26 '21
Executive meeting, New York, Sept. 15-17. *Chem & Met Eng* 25:649-50 O 5 '21
Membership lists, May 1, 1920. *Am Cer Soc J* 3:pt 2, 69-112 Ag '20
Summer meeting, Canton, O., July 25-27. *Chem & Met Eng* 25:225-8 Ag 10 '21; *Brick & Clay Rec* 59:184-7 Ag 9 '21
Summer meeting, Chicago. *Chem & Met Eng* 23:369-71 S 1 '20
22d annual meeting, Philadelphia, Feb. 23. *Chem & Met Eng* 22:438-42 Mr 10 '20
23d annual meeting, Columbus, Ohio, Feb. 21-24. *Chem & Met Eng* 24:419-22 Mr 9 '21; *Brick & Clay Rec* 58:380-3+ Mr 8 '21
- Year book 1920-1921; with list of members. *Am Cer Soc J* 4 pt 2:2-150 Je '21
- American chemical society**
Council meeting in Chicago. *J Ind & Eng Chem* 12:938-9 O '20
Dye division holds successful meeting in New York. *Textile World* 60:1624-5+ S 17 '21
59th meeting, St Louis, April 12-16. *Chem & Met Eng* 22:768-80 Ap 28 '20; *Textile World* 57:2803, 3003+ Ap 17-24 '20; *J Ind & Eng Chem* 12:500-3 My '20
First regular meeting of the New York section, Oct. 10. *Chem & Met Eng* 21:557-9 O 29 '19
In the alembic of publicity. *J. W. Harrington. map J Ind & Eng Chem* 12:705-6 Jl '20
Industrial excursions of the Chicago meeting, Sept. 8-10. *Chem & Met Eng* 23:835-40 O 27 '20
Lessons from the last meeting. *Chem & Met Eng* 22:765 Ap 28 '20
60th meeting, Chicago, Sept. 6-10. *Chem & Met Eng* 23:556-65 S 22 '20
60th meeting, Chicago, Sept. 6-10; program of papers. *J Ind & Eng Chem* 12:1022-5 O '20
61st meeting, Rochester, N.Y., April 25-29. *Textile World* 59:2840, 3050-1 Ap 30-My 7 '21; *Chem & Met Eng* 24:821-40 My 11 '21; *Oil Paint & Drug Rep* 99:27+ sec 1 My 2 '21; *J Ind & Eng Chem* 13:378-405 My '21
62d meeting, New York, Sept. 6-10. *Chem & Met Eng* 25:540-52 S 21 '21; *J Ind & Eng Chem* 13:865 O '21
- American chicle company**
American chicle company's factory, Long Island City, N.Y. *il Arch Rec* 48:553-6 D '20
Modern industrial plant of the American chicle company. *W. E. Groben. Arch & Bldg* 52:102-4, pl 139-40 D '20
- American concrete institute**
Convention, Chicago, Feb. 16-18. *Eng N* 84:443-4 F 26 '20; *Concrete* 16:127-9 Mr '20
17th convention, Chicago, Feb. 14-16. *Concrete* 18:107-8 Mr '21; *Eng N* 86:355-6 F 24 '21
- American concrete pipe association**
Brief history. *G. E. Warren. Concrete* 16:206-7 Ap '20
Convention, Chicago, Feb. 18-19. *Concrete* 18:150-1 Mr '21
- American cotton association**
Meeting, New York. *Textile World* 59:3748-50 Je 4 '21
Objects of American cotton association. *Textile World* 57:1105+ F 7 '20
- American cotton manufacturers association**
History of A.C.M.A. for twenty-five years. *Textile World* 59:3752-4+ Je 4 '21
Papers and addresses at convention. *Textile World* 59:3780+ Je 4 '21
24th annual convention, Richmond, Virginia, May 25-26. *Textile World* 57:3961, 3970-2+ My 29 '20
25th annual convention, Philadelphia, May 27-28. *Textile World* 59:3743+ Je 4 '21
- American cotton oil company**
Annual report for the fiscal year ended August 31 1920. *Comm & Fin Chr* 111:2054-5 sec 1 N 20 '20
Annual report for the fiscal year ended August 31 1921. *Comm & Fin Chr* 113:1992 N 5 '21
- American drop forge association**
7th annual convention, Atlantic City, N.J., June 17-19. *Iron Age* 105:1787-9 Je 24 '20; *Iron Tr R* 66:1817-18 Je 24 '20
8th annual convention, Chicago, June 22-24. *Iron Age* 107:1762-5 Je 30 '21
- American drug manufacturers' association**
10th annual meeting, New York, April 12-15. *Oil Paint & Drug Rep* 99:26-7+ sec 1 Ap 18 '21
- American druggists syndicate**
Annual report of President C. H. Goddard, February, 1920. *Comm & Fin Chr* 110:774-5 F 21 '20

American dyes institute

Activities of American dyes institute. W: R. Corwine. Textile World 59:963+ F 5 '21

American electric railway accountants' association

Annual meeting, Atlantic City, N.J., Oct. 11-13. Elec Ry J 56:835-7 O 16 '20

25th annual convention, Atlantic City, Oct. 3-5. Elec Ry J 58:695-9 O 15 '21

American electric railway association

American electric railroad association—its record and possibilities. H. C. Clark. pors Elec Ry J 55:284-91 F 7 '20

39th annual convention, Atlantic City, N.J., Oct. 12-14. Elec Ry J 56:799-811 O 16 '20

40th annual convention, Atlantic City, Oct. 3-7. Elec Ry J 58:609-23 O 8 '21

9th annual mid-year meeting, Cleveland, O., Jan. 8. Elec Ry J 55:86-8 Ja 10 '20

10th annual mid-year meeting, Chicago, Feb. 10. Elec Ry J 57:313-16 F 12 '21

Discussion on association reorganization. Elec Ry J 58:362-6, 402, 444 S 3-17 '21

Executive committee holds important meeting. Elec Ry J 57:776-8 Ap 23 '21

Industry on road to better days; address at 39th annual convention, Atlantic City, N.J. J: H. Pardee. Elec Ry J 56:748-50 O 16 '20

Reorganization. Elec Ry J 58:523 S 24 '21

Library

Classification system of library. J. R. Kelley. Eng & Contr 55:595 Je 15 '21

American electric railway claims association

Annual convention, Atlantic City, Oct. 3-5. Elec Ry J 58:735-7 O 22 '21

Meetings, Atlantic City, Oct. 11-14. Elec Ry J 56:908-21 O 30 '20

American electric railway engineering association

Annual convention, Atlantic City, Oct. 3. Elec Ry J 58:624-42 O 8 '21

Assignments and appointments. Elec Ry J 55:61 Ja 3 '20

Meeting, Atlantic City, N.J., Oct. 11-14. Elec Ry J 56:824-34 O 16 '20

American electric railway transportation & traffic association

11th annual convention, Atlantic City, Oct. 11-14. Elec Ry J 56:812-23 O 16 '20

12th annual convention, Atlantic City, Oct. 3-7. Elec Ry J 58:643-55 O 8 '21

American electrochemical society

Fall meeting, Lake Placid, N.Y., Sept. 29-Oct. 1. J. W. Richards. J Ind & Eng Chem 13:1076-8 N '21

36th general meeting, Chicago, Sept. 23-26. Chem & Met Eng 21:520-7 O 22 '19

37th general meeting, Boston, April 8-10. Chem & Met Eng 22:725-34 Ap 21 '20; Elec R 76:657-60 Ap 17 '20; Elec W 75:917-19 Ap 17 '20; Iron Age 105:1105-9 Ap 15 '20; Iron Tr R 66:1118-19 Ap 15 '20; Foundry 48:343-4 My 1 '20; J Ind & Eng Chem 12:503-5 My '20

38th general meeting, Cleveland, Sept. 30-Oct. 2. Chem & Met Eng 23:719-26 O 13 '20; Iron Age 106:903-5 O 7 '20; Iron Tr R 67:984 O 7 '20

39th general meeting, Atlantic City, N.J., April 21-23. Iron Age 107:1119-22 Ap 28 '21; Iron Tr R 68:1166 Ap 28 '21; Chem & Met Eng 24:813-20 My 11 '21; Metal Ind 19:198 My '21

40th general meeting, Lake Placid, N.Y., Sept. 29-Oct. 1. Iron Age 108:879-81 O 6 '21; Blast F & Steel Pl 9:673 N '21

American electroplaters' society

Convention; a description of the plating and finishing shops of Rochester, N.Y. G. R. Ellis. il Metal Ind 18:255-61 Je '20

8th annual convention, Rochester, N.Y., July 1-3. Metal Ind 18:303-7 Jl '20; Chem & Met Eng 23:125 Jl 21 '20

9th annual convention, Indianapolis, June 29-July 2. Brass W 17:185-92 Jl '21; Chem & Met Eng 25:122 Jl 20 '21

9th annual convention, Indianapolis, Ind., June 29-July 2. E. Bullock. Metal Ind 19:229-35, 269-73 Je-Jl '21

9th annual convention; program. Brass W 17:128-32 My '21

American engineering council. See Federated American engineering societies—American engineering council

American engineering societies, Federated. See Federated American engineering societies

American engineering standards committee

Activities of American engineering standards committee. Am Mach 53:400-1 Ag 26 '20

Activities of American engineering standards committee. P. G. Agnew. N E L A Bul 8:244-5 Ap '21

Activities of the American engineering standards committee. Mach 26:647, 1179-80; 27:778 Mr, Ag '20, Ap '21

American engineering standards committee. A. A. Stevenson. Am Soc Heat & V E J 26: supXLIII-XLIX S '20; Abstract. Min & Met 162:13-14 Je '20

Report. Elec Ry J 57:734-5 Ap 16 '21; Eng & Min J 111:757 Ap 30 '21; Eng N 86:729-30 Ap 28 '21; Am Mach 54:784 My 5 '21

What is now being done, nationally and internationally, and how the work is handled. Iron Age 105:1258-9 Ap 29 '20

American farm bureau federation

American farm bureau federation's proposal of credit to Germany—criticisms of the plans. Comm & Fin Chr 111:2178-9 D 4 '20

Farmer's protest against the high cost of distribution. J. R. Howard. Ptr Ink 112:3-4+ Ag 12 '20

How will marketing organizations affect methods of distribution? C. W. Burkett. Ptr Ink 115:116+ Je 23 '21

Making farmers a national force. J. R. Howard. Am Ind 21:16-18 Ja '21

Relation of the farm bureau movement to marketing and advertising. G: A. Cullen. Ptr Ink 112:121-2+ Ag 19 '20

American federation of arts

Convention, New York. B: J. Lubshez. Am Inst Arch J 8:258-9 Jl '20

American federation of labor

40th convention, Montreal, June 7. Monthly Labor R 11:380-3 Ag '20

41st annual convention, Denver, Colo., June 13-25. Comm & Fin Chr 112:2709 Je 25 '21; Monthly Labor R 13:413-16 Ag '21

See also Loyal labor legion of New York city

American foundrymen's association

All ready for Columbus convention. il Foundry 48:709-16+ S 15 '20

25th annual meeting, Columbus, Oct. 4-8. Iron Tr R 67:911-14 S 30 '20; Foundry 48:799-806 O 15 '20; Am Mach 53:788f-g+ O 21 '20; Chem & Met Eng 23:765-7 O 20 '20; Iron Age 106:988-95, 1049-53 O 14-21 '20; Iron Tr R 67:1055-60 O 14 '20; Metal Ind 18:443-7 O '20; Mech Eng 42:724 D '20

American freight claim agents' association. See American railroad association—Freight claim agents' section

American gas association

Emergency gas conference, New York, May 17. Gas Age 45:493-9 Je 10 '20

Functions of A. G. A. sections. Am Gas J 115:54-5+ Jl 16 '21

Gas companies will not again have the control they have had of the movement of gas-burning merchandise to their consumer. C: W. Person. Am Gas Eng J 112:319-20+ Ap 24 '20

Gas company members. Gas Age 47:349-50 Ap 25 '21

How the A. G. A. helped gas industry. O. H. Fogg. Gas Age 46:333-5 N 10 '20

Ideals of the American gas association. O. H. Fogg. Am Gas J 115:51-2 Jl 16 '21

Mission of the American gas association. G: B. Cortelyou. Am Gas Assn General Sessions sec v 2:17-25 '20; Same. Am Gas Eng J 113:431-3 N 20 '20; Same cond. Gas Age 46:408-9 N 25 '20

National clearing house for ideas. W. S. Greenough. Am Gas J 115:60-1 Jl 16 '21

Prospects and performance. G: B. Cortelyou. Gas Age 46:465-6 D 10 '20

American gas association—Continued

2d annual convention, New York, Nov. 15-18. Gas Age 46:397-407, 465-7 N 25-D 10 '20; Am Gas Eng J 113:417-18 N 20 '20

Special session meetings at 2d annual convention, New York. Gas Age 46:437-41 N 25 '20

Technical section, A.G.A., making headway. Am Gas J 114:463-4 My 28 '21

What the American gas association has accomplished. Am Gas J 115:49-50+ J1 16 '21

American gear manufacturers association

4th annual meeting, Detroit, April 29-May 1. Iron Age 105:1311-14 My 6 '20; Mach 26:925 Je '20

4th annual meeting, Detroit, April 29-May 1. P. M. Heldt. Automotive Ind 42:1048-50 My 6 '20

5th annual convention, Cincinnati, April 27-30. Iron Age 107:1183-6 My 5 '21; Am Mach 54:800f My 5 '21; Iron Tr R 68:1260 My 5 '21; Mach 27:950 Je '21; Mech Eng 43:424-5 Je '21

5th annual convention, Cincinnati, April 27-30. P. M. Heldt. Automotive Ind 44:945-9 My 5 '21

Semi-annual convention, Rochester, N.Y., Oct. 13-15. Am Mach 55:657-8 O 20 '21; Iron Tr R 69:1026-7 O 20 '21; Iron Age 108:1001-6 O 20 '21; Mach 28:200-1 N '21

Semi-annual convention, Rochester, N.Y., Oct. 13-15. P. M. Heldt. Automotive Ind 45:755-7 O 20 '21

Semi-annual meeting, Boston, Mass., Oct. 13-16. Elec Ry J 54:389-90 N 15 '19; Iron Age 104:1122-3 D 4 '19

Semi-annual meeting, Lake Mohonk, Ulster co., N.Y., Oct. 27-29. Mach 27:329-31 D '20; Iron Age 106:1205-7 N 4 '20

Semi-annual meeting, Ulster county, New York, Oct. 27-29. P. M. Heldt. Automotive Ind 43:901-4 N 4 '20

American general contractors association

Achievements. Pub Works 48:467 My 29 '20

American hardwood manufacturers' association

Hardwood men ask modification of injunction pending Supreme court's decision on appeal. Am Lumberman 2346:52-3 My 1 '20

Open competition plan hearing held. Am Lumberman 2339:45-9; 2340:45+; 2345:56+ Mr 13-20, Ap 24 '20

Open-price bureau and scheme to sustain price declared unlawful. Coal Age 17:710-13 Ap 8 '20

2d annual meeting, Memphis, Tenn., Dec. 16. Am Lumberman 2327:48-50+ D 20 '19

American independent petroleum association

Annual petroleum congress, Chicago. il Nat Pet N 12:42-50+ Mr 17 '20

Independent petroleum association opens its annual congress at Kansas City. Oil Paint & Drug Rep 99:9 sec 2 Mr 28 '21

American institute of accountants

Aims of the Institute. C. H. Nau. J Account 31:321-8 My '21

Historical sketch; present organization. C. H. Nau. J Account 31:103-9 F '21

Proceedings of the annual meeting held at Washington, District of Columbia, Sept. 21-22, 1920. J Account 30:275-86 O '20

American institute of architects

Architect and organization. G. Brown. Am Arch 117:393-7 Mr 31 '20

Architects and organization. Arch Forum 34:76 F '21

Disciplinary procedure of the American institute of architects. H. W. Sellers. Eng N 84:677-80 Ap 1 '20

53d annual convention, Washington, D.C., May 5-7. Am Arch 117:601-10, 613, 633-46 My 19-26 '20; Arch Forum 32:179-82 My '20; Am Inst Arch J 8:220-7 Je '20

54th annual convention, Washington, D.C., May 11-13. Am Arch 119:573-9 My 25 '21; Arch Forum 34:153-4, 156 My '21

Question of state societies. il charts maps Am Inst Arch J 8:185-94 My '20

Standardization and the A.I.A. Am Arch 117:578-80 My 12 '20

Synopsis of committee reports. Am Arch 117:614-19 My 19 '20

Post-war committee

Architect and the Post-war committee. G. Brown. Am Arch 117:299-302 Mr 10 '20

Architects' movement to improve relations with the engineers and with the public. Heat & Ven 17:37-9 F '20

Chart of the organization of the Post-war committee on architectural practice. Am Inst Arch J 7:529 D '19

English opinion. J. Murray. Am Inst Arch J 7:538-9 D '19

Post-war committee—an American opinion. H. K. Holsman. Am Inst Arch J 8:60-2 F '20

Report on architectural practice at 53d annual convention. Am Arch 117:606-10, 613 My 19 '20

What did the Post-war committee accomplish? Am Inst Arch J 8:268-71 J1 '20

American institute of baking

1st annual report. Sci Am M 3:86 Ja '21

American institute of banking

Institute clearing house. R. B. Locke. Comm & Fin Chr 113:173-4 sec 2 O 29 '21

Report at American bankers' association. G. B. Perry. Comm & Fin Chr 111:142-3 sec 2 N 20 '20

American institute of chemical engineers

12th annual meeting, Savannah, Georgia, Dec. 2-6. Chem & Met Eng 21:660-2 N 26 '19

12th annual meeting, Savannah, Ga., Dec. 2-6. J. C. Olsen. J Ind & Eng Chem 12:85-6 Ja '20

12th semi-annual meeting, Montreal, June 26-July 5. Chem & Met Eng 23:49-52 J1 14 '20

13th semi-annual meeting, Detroit, June 20-25. Chem & Met Eng 25:6-10 J1 6 '21

13th winter meeting, New Orleans, Dec. 5-9. Chem & Met Eng 23:1198-1202 D 22 '20; J Ind & Eng Chem 13:89-90 Ja '21

American institute of chemistry (proposed)

American institute of chemistry. Chem Age 29:50, 95-6, 127-8 F-Ap '21

American institute of chemistry; some history of chemical organization in Great Britain and some comparisons. il Chem Age 29:301-4 Ag '21

Observations on the project and answers to the New Jersey chemical society's questionnaire. Chem Age 29:22-4 Ja '21

Question that will not down. Chem & Met Eng 24:193 F 2 '21; Discussion. 24:240-2 F 9 '21

American institute of electrical engineers

Annual meeting, New York, May 20. Am Inst E E J 40:531-2 Je '21

Discussion on the super power system for the Northeast Atlantic seaboard; symposium. Am Inst E E J 39:766-77 Ag '20; Abstract. Elec Ry J 55:435-8 F 28 '20

Electrical engineers institute elects officers. Elec R 78:877-8 My 28 '21

Meeting, Pittsburgh, Mar. 12. Elec Ry J 55:597-600 Mr 20 '20

Midwinter convention, New York, Feb. 18-20. Elec W 75:486-92 F 28 '20; Elec Ry J 55:401 F 21 '20

9th midwinter convention, New York city. Elec Ry J 57:364 F 19 '21; Am Inst E E J 40:250-1 Mr '21; Power 53:366-7 Mr 1 '21

Progress of the Institute. C. Townley. Elec R 76:60 Ja 10 '20

Technical committee reports. Elec W 76:19-20 J1 3 '20

36th annual convention, White Sulphur Springs, W. Va., June 29-July 2. Elec R 77:61-4 J1 10 '20; Elec W 76:57-66 J1 10 '20

37th annual convention, Salt Lake City, June 21-24. Elec W 77:1469-72; 78:7-13 Je 25-J1 2 '21; J Elec 47:63-4 J1 15 '21

356th meeting, New York, Dec. 12. Elec R 75:1023-4 D 20 '19

American institute of laundering

American institute of laundering. L. C. Breed. Ind Management 60:217 S '20

American institute of mining and metallurgical engineers

A.I.M.E. meeting will include three tours. Eng & Min J 112:423-4 S 10 '21

American institute of mining and metallurgical engineers—Continued

- Annual banquet, Feb. 17. Eng & Min J 109:496-503 F 21 '20
- Annual fall meeting of Metals division, Columbus, Oct. 4-8. Iron Tr R 67:911-14 S 30 '20
- Directory. Min & Met 161:(sec 2) 1-277 My '20
- Early days of the institute. pors. Min & Met 177:4-19 S '21
- Engineering lifted from back room of blueprints to first order of national importance. H. Hoover. Min & Met 171:17-19 Mr '21
- Engineers from country over visit anthracite region. R. D. Hall. il Coal Age 20:463-5, 503-4 S 22-29 '21
- Engineers visit copper and iron ranges. R. D. Hall. il Coal Age 18:527-32, 575-81 S 9-16 '20
- 5th annual meeting of the Woman's auxiliary. Min & Met 171:23-7 Mr '21
- Industrial organization session. T. T. Read. Eng & Min J 109:505 F 21 '20
- Institute membership and professional status. Min & Sci P 122:248-9 F 19 '21
- Institute of metals division meeting, New York, Feb. 15. Metal Ind 19:105-7 Mr '21
- Institute publications. P. E. Barbour. Min & Met 177:23-4 S '21
- Institute's part in the improvement of industrial relations. Min & Met 164:8-11 Ag '20
- Lake Superior milling and smelting practice. Chem & Met Eng 23:365-7 S 1 '20
- National meeting of Institute of metals division, New York, Feb. 17. Metal Ind 18:68-72 F '20; Eng & Min J 109:506-7 F 21 '20
- Official institute reports for the year 1919. Min & Met 158:(sec 2) 1-16 F '20
- 121st meeting, New York city, Feb. 16-19. Min & Met 159:(sec 1) 9-31 Mr '20; Chem & Met Eng 22:343-8, 391-7 F 25-Mr 3 '20; Iron Age 105:609-11 F 26 '20; Iron Tr R 66:623-6 F 26 '20
- 122d meeting, Lake Superior region, Aug. 20-Sept. 3. Min & Met 166:6-11 O '20; Eng & Min J 110:446-56 S 4 '20; Mech Eng 42:600 O '20
- 123d meeting, New York, Feb. 14-17. Chem & Met Eng 24:329-32 F 23 '21; Coal Age 19:405-7, 457-8 Mr 3-10 '21; Iron Age 107:503-5 F 24 '21; Iron Tr R 68:544-6 F 24 '21; Min & Met 171:5-16 Mr '21; Eng & Min J 111:340-51 F 19 '21
- 124th meeting, Wilkes-Barre, Pa., Sept. 12-15. Eng & Min J 112:485-91 S 24 '21
- Semi-centennial meeting, Wilkes-Barre, Pa., Sept. 12-15. H. A. Megraw. il Min & Met 178:15-23 O '21
- Sessions on oil and gas, New York, Feb. 16. Eng & Min J 109:521-3 F 21 '20

Petroleum section

- 1st independent meeting, St Louis, Sept. 21-22. Eng & Min J 110:685-6 O 2 '20
- American institute of textile chemists and colorists**
- Organization. Chem Age 29:434 O '21
- American international corporation**
- Report of the president to the stockholders at the annual meeting, April 7, 1920. Comm & Fin Chr 110:1319-21 Mr 27 '20
- Report of the president to the stockholders at the annual meeting, April 6, 1921. Comm & Fin Chr 112:1159-61 Mr 19 '21
- American iron and steel institute**
- Address of head of great Creusot works. E. Schneider. Iron Age 104:1064 N 27 '19
- 16th general meeting, New York, Oct. 24. Chem & Met Eng 21:545-7 O 29 '19; Iron Age 104:1132-4 D 4 '19
- 17th general meeting, New York, May 28. Iron Age 105:1579-98 Je 3 '20; Iron Tr R 66:1598-1616 Je 3 '20
- 18th general meeting, New York. Iron Age 106:1103-24 O 28 '20; Iron Tr R 67:1190-1 O 28 '20; Chem & Met Eng 23:822-4 O 27 '20; Blast F & Steel Pl 8:587 N '20; Mech Eng 42:724-5 D '20

19th general meeting, New York, May 27. Iron Age 107:1455-60 Je 2 '21; Iron Tr R 68:1510-11, 1514-15 Je 2 '21; Blast F & Steel Pl 9:343-4 Je '21

American iron, steel and heavy hardware association

12th annual convention, Montreal, June 7-9. Iron Age 107:1619-20+ Je 16 '21; Iron Tr R 68:1669 Je 16 '21

American leather chemists association

18th annual meeting, Atlantic City, June 9-11. Chem & Met Eng 24:1094-6 Je 22 '21

American locomotive company

American locomotive in 1921-22. S. Patterson. Annalist 18:345 O 10 '21

Annual report, 1920. Ry Age 70:573 Mr 11 '21

American manufacturers' export association

Annual meeting, New York city, Oct. 14. Am Mach 53:788h-i O 21 '20

American medical association

Record of engineers suggested by doctors' system; Association's method of keeping in touch with history and practice of 160,000 physicians. E. Judson. Eng N 84:875-6 Ap 29 '20

American meteorological society

New society of interest to engineers. R. E. Horton. Eng N 84:927 My 6 '20

American mining congress

Mining men discuss standardization plans. R. D. Hall. Coal Age 18:1109, 1143-6 N 25-D 2 '20

22d annual convention, St Louis, Mo., Nov. 17-21. Eng & Min J 108:814-22 N 22 '19

22d annual convention, St Louis, Nov. 17. R. D. Hall. Coal Age 16:797-802 N 13 '19

23d annual convention at Denver; with text of resolutions. Eng & Min J 110:1028-43 N 27 '20

24th annual meeting, Chicago. Eng & Min J 112:703-6 O 29 '21

24th annual session, Chicago, Oct. 17-22. C. E. Leshner. Coal Age 20:687-91 O 27 '21

American newspaper publishers association

Newsprint and labor two most important topics at A.N.P.A. 34th annual convention, New York, April 21-23. Ptr Ink 111:17-20 Ap 29 '20

35th annual meeting, New York, April 27-29. Ptr Ink 115:33-6+ My 5 '21

Bureau of advertising

Bureau of advertising's most useful year. Ptr Ink 115:73-4 Ap 28 '21

Newspapers develop new business through Bureau of advertising. Ptr Ink 111:35-6 Ap 22 '20

American oil chemists' society

12th annual meeting, Chicago, May 16-17. Chem & Met Eng 24:957-9 Je 1 '21

American order of steam engineers

35th annual convention in conjunction with the American supplymen's association, Allentown, Pa., June 6. Power 53:1030 Je 21 '21

American paper and pulp association

43d annual convention, New York, April 12-15. Paper 26:254+ Ap 21 '20

44th annual convention, New York. Paper 28:34-48 Ap 20 '21

Developments in the A.P.P.A. in 1920. H. P. Baker. Paper 28:42-5+ Ap 20 '21

American petroleum institute

Annual meeting, Washington, D.C., Nov. 17-19. Eng & Min J 110:1051 N 27 '20

Annual meeting, Washington, D.C., Nov. 17-19. C. F. Clarkson. Soc Auto Eng J 7:500-3 D '20

Cheerful view of gasoline situation at Petroleum institute. J. C. Dalton. Automotive Ind 43:1073-6 N 25 '20

Faith oil problems will be conquered, features Institute meeting. Nat Pet N 12:25-6 N 24 '20

Help the small man in the oil business. J. F. Lucey. Nat Pet N 12:33+ D 29 '20

American petroleum institute—Continued

Plan for financing work of American petroleum institute. Nat Pet N 12:36+ N 10 '20
Relation of Institute to the industry. Nat Pet N 12:29 O 20; 29 O 27; 31 N 3 '20

American photoengravers' association

24th annual convention, Cleveland, June 17-19. Inland Ptr 65:473-4 JI '20

American public health association

47th annual meeting, New Orleans, Oct. 27-30. Eng N 83:882-3 N 13 '19

American pulp and paper mill superintendent's association

Increased production urged at Superintendents' convention, Buffalo, June 4-5. Paper 26:11-12+ Je 9 '20

Meeting, Glens Falls, Sept. 15. Paper 27:9-10 S 22 '20

3d annual convention, New York, June 3-5. Paper 28:9-11 Je 8 '21

American railroad association

A.R.A. organizes joint committee on automatic train control. Ry Age 69:738 O 29 '20

Annual meeting, Chicago, Nov. 17. Ry Age 69:893, 923-7 N 19-26 '20; Ry R 67:767-9 N 20 '20

Commission on car service and troop movement bureau. Ry R 66:424-5 Mr 13 '20

Committees present progress reports at meeting in Chicago, Nov. 18-19. Ry Age 67:822-4 O 24 '19

R. H. Aishton remains president of the A. R. A. Ry Age 68:705-11 Mr 5 '20

See also Freight claim prevention congress

Car service division

Reorganization of car service division, A.R.A. Ry Age 71:253-4 Ag 6 '21

Equipment painting section

1st convention, Boston, Sept. 14. Ry Age 69:529-30 S 24 '20; Ry Mech Eng 94:641-52 O '20

Freight claim agents' section

Convention, Atlantic City, June 17-18. Ry R 66:1108 Je 26 '20

30th annual convention, Chicago, May 17-19. Ry Age 70:1231-2 My 27 '21

Freight station section

1st meeting, Chicago, June 21-23. Ry Age 71:27-8 JI 2 '21

Mechanical division

2d annual convention, Atlantic City, N.J., June 9-16. Ry R 66:965-8, 1027-49 Je 12-19 '20; Ry Age 68:1629-44, 1737-54, 1793-1810, 1841-57, 1881-1910 Je 10, 12, 15-17 '20

Medical and surgical section

1st annual meeting, Boston, June 3-4. Ry Age 70:1341 Je 10 '21

Perishable freight division

Organization. Ry R 67:103 JI 17 '20

Purchases and stores division

1st annual meeting, Atlantic City, N.J., June 14-16. Ry R 66:1083-93 Je 26 '20; Ry Age 68:1813-22, 1859-74, 1911-12 Je 15-17 '20

Annual meeting, Chicago, June 9-11. Ry R 68:937-42 Je 18 '21; Ry Age 70:1355-62, 1397-8 Je 10-17 '21; Am Mach 54:1104e Je 23 '21

Safety section

Safety section of A.R.A. holds first meeting. W: S. Wollner. Ry Age 71:629 O 1 '21

Signal section

Annual meeting, Chicago, June 6-8. Ry Age 70:1329-32 Je 10 '21; Ry R 68:906-9 Je 11 '21

4th meeting, New York, Dec. 2-3. Ry Age 67:1057-8 N 28 '19

Meeting, Chicago, March 15-16. Ry R 66:485-7 Mr 20 '20

Meeting, New York city, Dec. 2-3. Ry Age 69:1015-16 D 10 '20

Signal engineers' 25th annual convention, Alexandria Bay, N.Y., July 14-16. Ry Age 69:147-8 JI 23 '20

Telegraph and telephone section

2d meeting, Chicago, Dec. 3-5. Ry Age 67:1233-5 D 26 '19

Meeting, Winnipeg, Manitoba, Sept. 22-24. Ry Age 69:571-2 O 1 '20

Annual meeting, Cleveland, Ohio, Sept. 21-23. Ry Age 71:585-7 S 24 '21

American railway bridge and building association

29th annual convention, Cleveland, Oct. 21-23. Ry Age 67:977-82 N 14 '19

30th annual convention, Atlanta, Ga., Oct. 26-28. Ry Age 69:759-64, 803-4 O 29-N 5 '20; Ry R 67:702-3 N 6 '20

31st annual convention, New York, Oct. 18-20. Ry R 69:525-32 O 22 '21; Eng N 87:706 O 27 '21; Ry Age 71:781-8 O 22 '21

American railway development association

Annual meeting, New York city, May 11-13. Ry Age 70:1129-30, 1171-3 My 13-20 '21

American railway engineering association

21st annual convention, Chicago, Mar. 16-18. Elec Ry J 55:652-3, 689, 695-8 Mr 27-Apr 3 '20; Eng N 84:613-16, 643-4 Mr 25 '20; Ry R 66:475-7, 497-9 Mr 20 '20

22d annual convention, Chicago, March 15-17. Ry R 68:435-49 Mr 19 '21; Eng N 86:515-18 Mr 24 '21; Elec Ry J 57:631-6 Ap 2 '21

American railway express company

Express company consolidation. Ry Age 69:110 JI 16 '20

Express consolidation approved by commission; combination of companies into American railway express. Ry Age 69:1119-20 D 24 '20

Express contract approved. Ry Age 69:1154-5 D 31 '20

Express situation; abstracts. G: C. Taylor. Ry R 66:740-1 My 1 '20; Ry Age 68:1288-9 Ap 30 '20

How the American railway express co. secures greater service from its motor trucks. B. K. Rhoads. Eng & Contr 52:340-1 S 17 '19

Keying up the inside staff to its sales responsibility. E. T. Tandy. Ptr Ink 114:3-4+ Mr 10 '21

Labor board raises wages of railway expressmen. Ry R 67:236-8 Ag 14 '20; Same. Ry Age 69:271-2 Ag 13 '20

Railroads and the express service. S. W. Todd. Il Ry R 66:548-9 Ap 3 '20

Report for fiscal year ending Dec. 31 1920. Comm & Fin Chr 113:1979-80 N 5 '21

American railway tool foremen's association

10th annual convention, Chicago, Sept. 1-3. Ry Age 69:442 S 10 '20; Ry R 67:386-7 S 11 '20; Ry Mech Eng 94:653-9 O '20

American relief administration

American relief administration's food drafts for engineers. H. Hoover. map Min & Met 167:9-11 N '20

Food-draft system of the American relief administration. E. Rickard. Min & Sci P 121:739-40 N 20 '20

American road builders' association

Annual meeting, New York, Nov. 7. Good Roads n s 18:217-18 N 12 '19

17th annual convention, Louisville, Ky., Feb. 9-13. Good Roads n s 19:87-90+ F 18 '20

18th annual convention, Chicago, Feb. 9-12. Good Roads n s 21:93-6+ F 16 '21; Eng N 86:315-16 F 17 '21

History of association, executive officers and program for 17th annual convention. Good Roads n s 19:63-7 F 4 '20

Organization and history. pors Good Roads n s 21:65-70 F 2 '21

Presidential address at annual meeting, Nov. 7. G: P. Coleman. Good Roads n s 18:213-14 N 12 '19

American-Scandinavian foundation fellowships

Twenty fellowships will be awarded to American students. Chem & Met Eng 22:485 Mr 17 '20

American short line railroad association

New department of Short line association negotiates larger divisions. Ry Age 69:967-8 D 3 '20

Short line association increases activities. Ry Age 70:125-6 Ja 7 '21

Special meeting, Washington, April 15-16. Ry Age 68:1237-49 Ap 23 '20

American smelting and refining company

American smelting directors reply to Karl Eilers. Eng & Min J 111:236-7 Ja 29 '21

Control of American smelting & refining co. assailed by Karl Eilers. Eng & Min J 110:1229-30 D 25 '20

Control of American smelting & refining co. defended. Eng & Min J 111:28-30 Ja 1 '21

Eilers defeated; Guggenheims win A. S. & R. election. Eng & Min J 111:637 Ap 9 '21

Eilers v. Guggenheims. Min & Sci P 122:2-3, 7-13, 63-4, 179-82, 226-8 Ja 1-8, F 5-12 '21

Karl Eilers v. Guggenheims: letter to fellow-stockholders. K. Eilers. Min & Sci P 122:166, 264-6, 396 Ja 29, F 19, Mr 19 '21

Karl Eilers v. Guggenheims: letter to stockholders. S. Guggenheim. Min & Sci P 122:199 F 5 '21

22d annual report for the calendar year ended December 31, 1920. Comm & Fin Chr 112:1152-7 Mr 19 '21

American social hygiene association

Advertising to conquer the hush-hush idea. Ptr Ink 111:26-7+ Je 17 '20

American society for municipal improvements

25th convention, New Orleans, Nov. 4-7. Munic J 47:276-7 N 8 '19

26th annual convention, St Louis, Oct. 12-15. Eng N 85:814-15 O 21 '20; Pub Works 49:385-7, 461-3 O 23, N 13 '20; Munic Eng 59:172 N '20

27th annual convention, Baltimore, Oct. 25-28. Eng N 87:745-6 N 3 '21; Elec Ry J 58:830-1 N 5 '21

American society for steel treating (formerly American steel treaters' society)

American society for steel treating. E. F. Cone. Iron Age 106:629-33 S 9 '20

1st convention, Chicago, Sept. 23-27. Ry Mech Eng 93:663-8 N '19

2d convention, Philadelphia, Pa., Sept. 14-18. Am Mach 53:648-9 S 30 '20; Chem & Met Eng 23:565-8, 635-6 S 22-29 '20; Iron Age 106:781-7 S 23 '20; Iron Tr R 67:710-13, 838-41 S 9, 23 '20; Ry Mech Eng 94:661-8 O '20; Mech Eng 42:652-3 N '20

3d annual convention and exhibition in Indianapolis, Sept. 19-24. Il Iron Tr R 69:671-3, 799, 802+ S 15, 29 '21; Iron Age 108:649-54, 807-10 S 15, 29 '21; Ry Mech Eng 95:645-7 O '21

American society for testing materials

Annual address by the President, J. A. Capp, June 22, 1920. Am Soc T M Pro v 20 pt 1:30-42 '20

Annual report of the Executive committee. Am Soc T M Pro v 20 pt 1:43-112 '20

Committee D-13 on textile materials holds well attended sessions in New York. Textile World 59:1977+ Mr 19 '21

Review of the technical papers presented before the meeting at Asbury Park, N.J., June 22-25. Chem & Met Eng 22:1189-92 Je 30 '20

Society enlarges scope of activities. Nat Pet N 12:44+ Je 30 '20

Test for softening point of fireclay brick adopted. diags Power 52:636 O 19 '20

Testing materials society broadens work in oil products. Nat Pet N 12:53-4 N 3 '20

23d annual meeting, Asbury Park, N.J., June 22-25. Am Arch 118:57-60 Jl 14 '20; Elec Ry J 56:21-2 Jl 3 '20; Eng N 85:12-16 Jl 1 '20; Foundry 48:559-60 Jl 15 '20; Iron Age 106:17-22 Jl 1 '20; Iron Tr R 67:21-4 Jl 1 '20; Ry Age 68:1969-72 Je 25 '20

24th annual meeting, Asbury Park, N.J., June 20-24. Eng N 86:1126-31 Je 30 '21; Iron Age 107:1757-61 Je 30 '21; Chem & Met Eng 24:1145-6 Je 29 '21; Iron Tr R 68:1804 Je 30 '21; Ry Age 70:1439-40 Je 24 '21; Textile

World 59:4157 Je 25 '21; Elec Ry J 58:103-4 Jl 16 '21; Metal Ind 19:273 Jl '21; Oil Paint & Drug Rep 100:35 sec 1 Jl 4 '21

American society of agricultural engineers

Annual meeting, Chicago, Dec. 28-30. W Soc E J 26:sup33-4 F '21

American society of civil engineers

Against participation in non-technical activities. R. Smillie and others. Eng N 84:642 Mr 25 '20

Am. Soc. C. E. arguments for and against federation. Eng N 85:663-5 S 30 '20

67th annual meeting, New York, Jan. 21-22. Eng N 84:199-200 Ja 22 '20; Mech Eng 42:197-8 Mr '20

Annual convention, Houston, Tex., April 27. Eng N 86:782-3 My 5 '21

Annual meeting, New York. Eng N 86:139-40 Ja 20 '21

Charles Warren Hunt relieved from active duty as secretary, Am. Soc. C. E. Eng N 84:214-16 Ja 29 '20

Civil engineers at New York condemn amendments and proposal to join federation. Eng N 85:525-6+ S 9 '20

Complete vote on Am. Soc. C. E. questionnaire. Eng N 84:848 Ap 29 '20

Comprehensive organization of engineers opposed. Eng N 84:442 F 26 '20

Organizing conference, Washington, D.C., June 3-4. Eng N 84:883-4 Ap 29 '20

Progress versus stagnation is issue in Am. Soc. C. E. affairs. A. P. Davis. Eng N 85:443-4 S 2 '20

Proposed revised constitution and by-laws of Am. Soc. C. E. Eng & Contr 55:286-7 Mr 23 '21

Results of the questionnaire. Eng N 84:795-6 Ap 22 '20

Shall the Am. Soc. C. E. enter the field of civic and economical affairs? Eng N 84:536-7 Mr 11 '20

Vote on Am. Soc. C. E. questionnaire! Eng N 84:735-6 Ap 8 '20

Votes against federation plan. Eng N 84:835-6 Ap 22 '20

What will the American society of civil engineers do with its proceedings? Eng N 85:774-5 O 21 '20

American society of heating and ventilating engineers

26th annual meeting, New York, Jan. 27-29. Dom Eng 90:289-91+ F 7 '20; Metal Work 93:155-62 Ja 30 '20; Am Arch 117:231 F 18 '20; Heat & Ven 17:37-47 Mr '20; Am Soc Heat & V E J 26:197-304 Mr '20

27th annual meeting, Philadelphia, Jan. 26-28. Plumber 95:17-18, 75-9 Ja 14, F 11 '21; Dom Eng 94:293-6+ F 5 '21; Heat & Ven 18:41-6 F '21; Sheet Metal Worker 12:18-19 F 4 '21; Am Soc Heat & V E J 27:137-227 Mr '21

New York chapter discusses oil as a substitute fuel. Heat & Ven 16:39-41 D '19

Proceedings semi-annual meeting—1921. Am Soc Heat & V E J 27:549-620 Jl '21

Semi-annual meeting, Cleveland, June 14-17. Heat & Ven 18:41-7 Jl '21; Dom Eng 95:630-2+ Je 25 '21; Power 53:1071-2 Je 28 '21; Sheet Metal Worker 12:381-2 Je 24 '21; Plumber 96:19-21 Jl 1 '21

Semi-annual meeting, St Louis, Mo., May 26-28. Am Soc Heat & V E J 26:497-584 Jl '20; Metal Work 93:809-10; 94:15 Je 18, Jl 2 '20; Dom Eng 91:437-42+ Je 5 '20; Power 51:944-5 Je 8 '20

25th semi-annual meeting, Pittsburgh, Pa., June 10-12, 1919. Am Soc Heat & V E 25:215-18 '19

Standard measure of ventilation adopted at St Louis meeting. May 26-28. charts plan Heat & Ven 17:38-43 Je '20

Directories

List of members. Am Soc Heat & V E J 26:sup3-40 S '20

Research bureau

Report. Metal Work 93:557-61 Ap 30 '20

Research bureau. Am Soc Heat & V E J 26:604-7 S '20

Technical requirements in the heating profession. J. D. Hoffman. Dom Eng 95:213-14+ Ap 30 '21

American society of heating and ventilating engineers—Research bureau—*Continued*
 Work of the Research bureau. J: R. Allen. Am Soc Heat & V E J 26:759-65; Discussion. 766-9 N '20

American society of lubricating engineers
 1st convention, Chicago, Oct. 12-13. Power 54:700 N 1 '21

American society of mechanical engineers
 A.S.M.E. affairs. Mech Eng 42:133-48 sec 2 O '20
 40th anniversary meeting, Nov. 5. Am Mach 53:965-6 N 18 '20; Iron Age 106:1252-5 N 11 '20; Power 52:798-9 N 16 '20; Mech Eng 42:712-15 D '20
 40th annual meeting, New York, Dec. 2-5. Elec R 75:1024-6 D 20 '19; Iron Age 104:1175-7 D 11 '19; Iron Tr R 65:1589-92 D 11 '19; Power 50:725-8 N 11 '19; Mach 26:407-8 Ja '20; Mech Eng 42:32-42 Ja '20
 41st annual meeting, New York, Dec. 7-10. Am Mach 53:1156-7 D 16 '20; Elec Ry J 56:1247-50 D 18 '20; Iron Age 106:1616-18 D 16 '20; Iron Tr R 67:1666-8 D 16 '20; Power 52:996-1000 D 21 '20; Ry Age 69:1009-14 D 10 '20; Mach 27:429-30 Ja '21; Mech Eng 43:37-8 Ja '21
 Mechanical engineers discuss automotive trend. G. Wiedeman. Automotive Ind 41:1161+ D 11 '19
 Mechanical engineers view labor situation. Iron Age 104:1177-9 D 11 '19
 New officers. Am Mach 51:965-6 N 27 '19
 President Cooley's address, annual meeting, 1919. Mech Eng 42:43-7 Ja '20
 Recommend new by-laws for student branches. Eng N 83:991 D 11 '19
 Spring convention, St Louis, May 24-27. Mech Eng 42:386-98 Jl '20; Am Mach 52:1327-30 Je 17 '20; Mach 26:1081-2 Jl '20
 Spring meeting, Chicago, May 23-26. Iron Age 107:1402+, 1483-4 My 26-Je 2 '21; Power 53:946-8 Je 7 '21; Mech Eng 43:461-4 Jl '21; Am Mach 54:975 Je 2 '21
 Spring meeting of the Textile division, Providence, R.I. Textile World 59:2543+ Ap 16 '21
 Spring meeting, St Louis, May 24-27. Elec Ry J 55:1107 My 29 '20; Iron Age 105:1602-4 Je 3 '20; Iron Tr R 66:1617-23, 1626-8 Je 3 '20; Power 51:941-2 Je 8 '20
 Work of the Boiler code committee. Mech Eng 42:47-9, 126-7 Ja-F '20

American society of mechanical inspectors
 1st annual convention and exhibit, New York city, Feb. 2-6. Mach 26:614-15 Mr '20

American society of refrigerating engineers
 Alphabetical and geographical lists of members. A S R E J 7:86-111 Jl '20
 Alphabetical list of members. A S R E J 8:71-84 Jl '21
 8th western meeting, Chicago, May 25-27. Chem & Met Eng 24:1074-5 Je 15 '21; Power 53:948-9 Je 7 '21
 15th annual meeting, New York, Dec. 1-3. Power 50:730 N 11 '19
 16th annual meeting, New York, Dec 6-8. Power 52:1037 D 28 '20
 Spring meeting, St Louis, May 26-28. Power 51:943-4 Je 8 '20

American society of safety engineers
 Safety engineering. Am Arch 117:777 Je 16 '20

American society of sanitary engineering
 15th annual convention, St Louis, Mo., Sept. 7-9. Dom Eng 92:596-8+ S 18 '20; Metal Work 94:373-7 S 17 '20
 16th annual convention, Cincinnati, Sept. 6-8. Dom Eng 96:526-30 S 17 '21; Sanitary & Heat Eng 96:206-11 S 23 '21

Sanitary inspection and test bureau
 Bureau of tests and inspections organized. Sanitary & Heat Eng 96:196+ S 23 '21

American specification institute
 American specification institute. Am Arch 120:174-5 Ag 31 '21
 Movement to organize the American specification institute. Am Arch 118:643-4, 792-4, 825-6; 119:119, 172-3 N 17, D 15-22 '20, F 2, 16 '21
 Plan and scope of the American specification institute. Am Arch 119:671-2 Je 22 '21

American steamship owners' association
 Shipowners form strong society. il pors Marine R 50:371-5 Jl '20
 Team work for the merchant marine. il pors Int Marine Eng 25:562-6 Jl '20

American steamship owners mutual protection and indemnity association, inc.
 How claim problems are solved. Marine R 51:318-19 Jl '21

American steel treaters' society. See American society for steel treating

American supply and machinery manufacturers association
 Annual meeting, Atlantic City, May 16-18. Am Mach 54:928c My 26 '21; Iron Age 107:1382-3, 1429-32 My 26 '21; Iron Tr R 68:1466-7 My 26 '21
 Combined meeting of machinery dealers and manufacturers at Atlantic City. Am Mach 52:1156-8 My 27 '20
 1921-1922 officers. Am Mach 54:1064d Je 16 '21

American supplymen's association
 Annual convention in conjunction with the American order of steam engineers, Allentown, Pa., June 6. Power 53:1030 Je 21 '21

American telephone and telegraph company
 Annual report of the directors to the stockholders for the year ending December 31 1919. Comm & Fin Chr 110:978-83 Mr 6 '20
 Annual report of the directors to the stockholders for the year ending Dec. 31, 1920. Comm & Fin Chr 112:1033-8 Mr 12 '21
 Bell telephone service in 1921 to be best yet, president Thayer says. Elec W 77:616-17 Mr 12 '21
 Developments and research in telephony shown in annual report of president for 1920. Elec R 78:630-2 Ap 16 '21

American tobacco company
 American tobacco company ties up sales talk with advertising copy. R. Bostick. Ptr Ink 116:3-4+ Ag 25 '21

American tool works company, Cincinnati
 Worth-while training department. L. C. Morrow. il Am Mach 53:893-6 N 11 '20

American trona corporation
 American operations of the Consolidated gold fields of South Africa. Min & Sci P 121:881-2 D 18 '20
 American trona corporation. C. G. Fowler. Min & Sci P 122:743-4 My 28 '21

American water works and electric company (incorporated)
 7th annual report—year ending June 30 1921. Comm & Fin Chr 113:1466-7 O 1 '21

American water works association
 Address of retiring president. C. E. Davis. Can Eng 38:587-8 Je 24 '20; Same. Eng & Contr 54:35 Jl 14 '20
 Constitution, list of past presidents, list of officers 1920-1921, list of sections, list of committees 1920-1921, roll of honor and list of members. Am Water Works Assn J 7:supl-134 S '20
 Constitution, list of past presidents, list of officers 1921-1922, list of sections, list of committees 1921-1922, list of members. Am Water Works Assn J 8:supl-85 S '21
 1st general meeting of Canadian section, Toronto. Can Eng 40:211-16 F 10 '21
 40th annual convention, Montreal, June 21-24. Can Eng 39:101-5+ Jl 1 '20; Eng N 85:6-8 Jl 1 '20; Pub Works 49:5-8, 32-3 Jl 3-10 '20
 41st annual meeting, Cleveland, Ohio, June 6-10. Pub Works 50:527-9, 546-8; 51:6-8 Je 18-Jl 2 '21; Munic Eng 60:247-9 Je '21; Eng N 86:1049+ Je 16 '21
 Presidential address. C. E. Davis. Am Water Works Assn J 7:652-6 S '20

American welding society
 1st annual convention, New York, April 22. Ry Age 68:1290 Ap 30 '20; Ry Mech Eng 94:380 Je '20
 1st regular meeting, New York city, Oct. 24. Elec W 74:909 O 25 '19
 2d annual convention, New York, April 27-30. Elec W 77:1068-9 My 7 '21

American welding society—Continued

Year of preparation in welding. C. A. Adams.
Elec W 75:321-2 F 7 '20

American wholesale coal association

Annual convention, Pittsburgh, June 1-3.
Coal Age 17:1226-7 Je 10 '20

Annual convention, Washington, June 7-8.
Coal Age 19:1091-2 Je 16 '21

American wholesale lumber association

American wholesalers' code of ethics. Am
Lumberman 2351:66 Je 5 '20

Organization. Am Lumberman 2349:47-51+
My 22 '20

American wood preservers' association

16th annual meeting, Chicago, Feb. 10-12. Ry
Age 68:491-5 F 13 '20; Ry R 66:252-4 F 14
'20

17th annual convention, San Francisco, Jan.
25-27. Ry Age 70:321-2 F 4 '21

American woolen company

American woolen co. relieves house shortage.
S: Sayward. il plans Textile World 57:1227+
F 7 '20

21st annual report for the year ending De-
cember 31, 1919. Comm & Fin Chr 110:1886-7
My 1 '20

22d annual report covering the year 1920.
Textile World 59:1696 Mr 5 '21; Same. Comm
& Fin Chr 112:946-7 Mr 5 '21

American writing paper company

Builders of business; George A. Galliver. P:
F. O'Shea. System 40:555-6+ N '21

American zinc institute

2d annual meeting, Chicago, May 10-11. P.
R. Coldren. Eng & Min J 109:1133 My 15
'20

3d annual meeting, St Louis, May 9-10. Sheet
Metal Worker 12:294-5 My 27 '21

Zinc as applied to building construction. E:
S. Gellatly. Sheet Metal Worker 12:74-6 Mr
4 '21

Americanization

Americanism fostered by industry. F. A. Kel-
ler. Textile World 57:935+ F 7 '20

Americanism in Americanization. B. K.
Baghdigian. 198p Burton pub. co., Kansas
City, Mo. '21

Americanization. Min & Sci P 121:3-4 Jl 3
'20

Americanization. E. E. Bohner. Factory 25:
1054 O 1 '20

Americanization. C: R. Hook. Min & Met 172:
15 Ap '21

Americanization and production. F. H. Rindge,
jr. Ind Management 61:340-1 My 1 '21

Americanization in Chicago; report. F. D.
Loomis. 40p Chicago community trust '20

Americanization methods at coal and metal
mines. R. Linton. Min & Met 179:19-22 N
'21

Americanization problem. E. E. Bach. Min
& Met 164:8-9 Ag '20

Building both citizens and team-workers.
Factory 24:654+, 1166+, 1634+, 1810+; 25:
434+, 728+, 1274+; 26:491+, 1246+; 27:389+
Mr 1, Ap 15, My 15-Je 1, Ag 1, S 1-O 15 '20,
F 15, My 15, S '21

Classes for foreign-born adults; organization
and maintenance. 33p State board of educa-
tion, Hartford, Conn. '20

Engineer's thoughts on Americanization. J:
F. Druar. Munic Eng 59:98+ S '20

Important labor questions are discussed at
National association of corporation schools
meeting. Iron Age 105:1661-3 Je 10 '20

Industrial Americanization. L. D. Burlingame.
il Mach 28:30-2 S '21

Making of Americans. Nation's Business 8:46
F; 81+ Mr '20

New homes for old. S. P. Breckinridge. 355p
Harper '21

Practical Americanization needs. J: F. Tins-
ley. Am Ind 21:22-3 O '20

Problem of Americanization. P: Roberts.
246p Macmillan '20

What industries can do for Americanization.
H. T. Waller. Metal Work 92:674-5 D 5 '19;
Same. Sci Am 123:9 Jl 3 '20

See also Foreign language press; Immi-
grants in the United States

Bibliography

Bibliography on Americanization. 12p Cali-
fornia. University. University extension di-
vision. '20

Spirit of America. M. L. Sutliff. New York
Public Library Branch Library News 6:74-6
D '19

America's cup races. See Yacht racing

Amesite

New description of amesite. E. V. Shannon.
Am J Sci 49:96-8 F '20

Amides

Darstellung von thio-amiden mit hilfe des
aluminiumsulfids. K. Kindler and F. Finn-
dorf. Deutsche Chem Gesell Ber 54:1079-80
My '21

Interaction of sulphur monochloride and or-
ganic acid amides. K. G. Naik. Chem Soc
J 119:1166-70 Jl '21

Quantitative reduction by hydriodic acid of
halogenated malonyl derivatives; the amides
and s.-di-alkyl- and- aryl-substituted
amides of mono- and di-bromomalonic acid.
J: V. Backes, R. W. West and M. A. White-
ley. Chem Soc J 119:359-79 Ap '21

Amines

Action of ammonia and amines on the sub-
stituted ureas and urethanes; allophanic
ester. F. B. Dains and E. Wertheim. Am
Chem Soc J 43:2303-9 N '20

Addition of aromatic amines to bromonitro-
styrene. D: E. Worrall. Am Chem Soc J 43:
919-25 Ap '21

Alkyl amines as solvents. H. M. Elsey. Am
Chem Soc J 42:2080-5 O '20

Alkylation of aromatic amines by heating
with aliphatic alcohols. A. J. Hill and J:
J. Donleavy. J Ind & Eng Chem 13:504-9
Je '21

Conductivity and viscosity of solutions in
dimethylamine, trimethylamine, ethylamine,
diethylamine, triethylamine, and propyla-
mine. H. M. Elsey. diags Am Chem Soc J
42:2454-76 D '20

Optische untersuchungen über die konstitu-
tion aromatischer amine. H. Ley and G.
Pfeiffer. Deutsche Chem Gesell Ber 54:363-
78 Mr '21

Researches on amines; the preparation of
aminoacetanilide. A. J. Hill and E. B.
Kelsey. Am Chem Soc J 42:1704-11 Ag '20

Zur kenntnis des tetranitro-methans; über-
führung tertiärer amine in sekundäre
nitrosamine. E. Schmidt and R: Schu-
macher. Deutsche Chem Gesell Ber 54:
1414-19 Jl '21

See also Methyl amines

Amino-acetanilide

Researches on amines; the preparation of
amino-acetanilide. A. J. Hill and E. B.
Kelsey. Am Chem Soc J 42:1704-11 Ag '20

Amino acids

Application of the Van Slyke method to hydro-
lyzed protein extracts of silage crops. R. E.
Neidig and R. S. Snyder. Am Chem Soc J
43:951-9 Ap '21

Esterification of alpha amino acids. H. A.
Shonle and H. H. Mitchell. Am Chem Soc
J 42:1265-77 Je '20

Preparation of amino-alcohols and cholines
from natural amino-acids; abstract. P.
Karrer and others. Chem Soc J 120 pt 1:
228-30 Ap '21

Some amino-acids from the globulin of the
coconut as determined by the butyl alcohol
extraction method of Dakin. C. O. Johns
and D. B. Jones. J Fr Inst 191:127 Ja '21

Study of the determination of amino acids by
means of the hydrogen electrode. E. L.
Tague. Am Chem Soc J 42:173-84 F '20

Amino compounds

Esters of aminobenzoic acids. H. C. Brill.
Am Chem Soc J 43:1320-3 Je '21

Nitro- and amino-derivatives of *m*-hydroxy-
benzoic acid. V: Froelicher and J. B. Cohen.
Chem Soc J 119:1425-32 S '21

Tautomerie des α -amino-pyridins und seiner
derivate. A. E. Tschitschibabin, R. A.
Konowalowa and A. A. Konowalowa.
Deutsche Chem Gesell Ber 54:814-22 Ap
'21

Aminobenzoic acids

Esters of aminobenzoic acids. H. C. Brill.
Am Chem Soc J 43:1320-3 Je '21

Aminonaphtholdisulfonic acid

Contribution to the estimation of H-acid. H:
R. Lee. J Ind & Eng Chem 13:1049-51 N
'21

Aminophenols

Manufacture of ortho-aminophenol. H. M.
Gensel. Color Tr J 9:140-1 O '21

Molecular rearrangement in the acylation of
certain aminophenols. L. C. Raiford. Am
Chem Soc J 41:2068-80 D '19

Über die oxydation *meta*-substituierter o-
amino-phenole. K. v. Auwers, E. Borsche
and R. Weller. Deutsche Chem Gesell Ber
54:1291-1316 Je '21; Abstract. Chem Soc J
120 pt 1:571-3 Ag '21

Aminophenylaminocamphor. See Camphoryl-
phenylenediamine

Aminophenylpropiophenone

β -amino- β -phenylpropiophenone. A. McKenzie
and F. Barrow. Chem Soc J 119:69-76 Ja '21

Aminopiperonaldehyde

6-aminopiperonaldehyde and its derivatives.
A: Rilliet and L: Kreitmann. Chem Soc J
120 pt 1:567-8 Ag '21

Aminoquinoline

Über die einwirkung von methyljodid auf α -
und γ -amino-chinolin. A. E. Tschitschi-
babin. Deutsche Chem Gesell Ber 54:822-5
Ap '21

Ammeters

A B C of ammeter shunts. V: H. Todd. il
diags Power 53:301-2 F 22 '21

Alternating current instruments; discussion of
the theory, construction, and application of
voltmeters, ammeters and watt-hour meters.
V: H. Todd. il diags Power Pl Eng 25:370-4
Ap 1 '21

Checking direct-current switchboard shunt
ammeters. H. C. Yeaton. diags Power 52:
903 D 7 '20

Interpreting the ammeter reading. R. E.
Berg. il diags Motor Age 38:14-16 Jl 22 '20

Reducing the ammeter to its simplest form.
il Sci Am 125:189 S 10 '21

Selecting ammeters for various current mea-
surements. V: H. Todd. il diags Elec R 77:
683-5 O 30 '20

Switchboard-meter connections—direct-cur-
rent voltmeters and ammeters. E. A. Rein-
man. diags Power 53:380-2 Mr 8 '21

Voltmeters and ammeters. V: H. Todd. il
diags Power Pl Eng 25:276-80 Mr 1 '21

Testing

Potentiometer-type resistance box facilitates
testing station ammeters. P. E. Alger. il
diags Elec W 77:262-3 Ja 29 '21

Ammines. See Ammino compounds

Ammino compounds

Complex metallic ammines; cis-succinatodi-
ethylenediaminecobaltic salts, and other co-
baltamine salts containing a seven-mem-
bered ring in the complex. J. C. Duff. Chem
Soc J 119:385-90 Ap '21

Polyjodide von ammoniakaten. F. Ephraim
and P. Mosimann. Deutsche Chem Gesell
Ber 54:385-96 Mr '21

Über ammoniakate von salzen der pikrin-
säure und der *p*-dichlor-benzol-sulfonsäure.
F. Ephraim. Deutsche Chem Gesell Ber
54:402-6 Mr '21

Über die löslichkeit von salzen aromatischer
säuren und deren ammoniakaten. F. Eph-
raim. Deutsche Chem Gesell Ber 54:965-73
My '21; Abstract. Chem Soc J 120 pt 1:508-9
Jl '21

Wismut und quecksilberjodid-verbindungen
von ammoniakaten. F. Ephraim and P. Mosi-
mann. Deutsche Chem Gesell Ber 54:396-401
Mr '21

Ammonia

Action of ammonia on acetone. T: S. Patter-
son and A. McMillan. Chem Soc J 119:269-71
Mr '21

Ammonia and benzene column stills. A. Thau.
diags Chem & Met Eng 23:1203-7 D 22 '20

Ammonia coils for cooling water. A. G. Sol-
omon. Power 52:176-7 Ag 3 '20

Ammonia-gas masks. Gas Age 48:109 Ag 6
'21

Ammonia gas problem and its solution. E:
F. Miller. Sci Am M 3:560 Je '21

Ammonia in refrigeration. A. G. Solomon. il
Power Pl Eng 24:576-8 Je 1 '20

Ammonia protection. Power Pl Eng 25:628-9
Je 15 '21

Ammonia still waste liquor. E. A. Dieterle.
Gas Age 46:427-8 N 25 '20

Behavior of ammonia in refrigerating plants.
J: H. Ryan. il diag Power 52:613-14 O 19
'20

Bureau of standards report of progress in the
determination of the fundamental constants
of refrigeration engineering. A S R E J 7:
343-65 Ja '21

Catalyst for the oxidation of ammonia. G. A.
Perley. Chem & Met Eng 22:125-9 Ja 21 '20

Commercial oxidation of ammonia. G: A. Per-
ley. il J Ind & Eng Chem 12:5-16, 119-29
Ja-F '20

Distillation of ammonia. B. S. Davisson. J
Ind & Eng Chem 12:176-7 F '20

Einwirkung von wässrigem ammoniak auf
benzile unter luftabschluss. A. Schönberg.
Deutsche Chem Gesell Ber 54:242-4 F '21

Equilibrium in the system ammonia:ammo-
nium nitrate:ammonium thiocyanate. H. W.
Foote and S. R. Brinkley. diags Am Chem
Soc J 43:1018-31 My '21

Equilibrium in the system ammonia—am-
monium thiocyanate. H. W. Foote and M. A.
Hunter. Am Chem Soc J 42:69-78 Ja '20

Feed-water heaters and ammonia receivers.
A. G. Solomon. Power Pl Eng 25:527-9 My 15
'21

Ionization of aqueous solutions of ammonia
in the presence of urea. W. M. Burke. diag
Am Chem Soc J 42:2500-6 D '20

Isometrics of the ammonia superheated
region and the vapor pressure of liquid
ammonia. F: G. Keyes. A S R E J 7:371-9
Mr '21

Nitrogen in the arts and industries. G: W.
Phillips and J. N. Taylor. Sci Am M 4:
256-60 S '21

Precautions when pumping ammonia from
coils. B. E. Hill. il Power 51:718-19 My 4 '20

Preparation of nitrogen and hydrogen mixture
by decomposition of ammonia. R. O. E.
Davis and L. B. Olmstead. diag J Ind &
Eng Chem 12:316-17 Ap '20

La production industrielle de l'acide nitrique
par oxydation de l'ammoniaque. C: L. Par-
sons. il diags Chimie & Ind 4:575-92 N '20

Production of ammonia formates from cya-
nides, ferrocyanides, and cyanized briquets.
G. W. Heise and H. E. Foote. diag J Ind
& Eng Chem 12:331-6 Ap '20

Reaction between chlorine and ammonia. W:
A. Noyes and A. B. Haw. diags Am Chem
Soc J 42:2167-79 N '20

Solutions of metals in non-metallic solvents;
the conductance of the alkali metals in
liquid ammonia. C: A. Kraus. diag Am
Chem Soc J 43:749-70 Ap '21

Some factors governing the sorptive capa-
city of charcoal; sorption of ammonia by
cocoa-nut charcoal. J. B. Firth. Chem Soc
J 119:926-31 Je '21

Specific volume of anhydrous liquid ammonia.
C. S. Cragoe and D. R. Harper. diags A S
R E J 7:113-39 S '20

Strength of ammoniacal liquor. diag Gas Age
45:20 Ja 10 '20

Suggestions for conserving ammonia. C. T.
Baker. Power Pl Eng 24:1041 N 1 '20

Testing for ammonia leaks in refrigerating
plants. B. E. Hill. il Power 51:955-6 Je 15
'20

Two indirect methods of finding the weight
of ammonia in circulation in compression
refrigeration. J. W. Gavett, jr. diags Power
51:1042-5 Je 29 '20; Discussion. G. H.
Crawford. 52:348-9 Ag 31 '20

Vapor pressure of ammonia. C. S. Cragoe, C.
H. Meyers and C. S. Taylor. il diag U S
Bur Stand Sci Pa 369:1-35 '20; Same. A S
R E J 6:307-43 Mr '20; Same cond. Am
Chem Soc J 42:206-29 F '20

Ammonia—Continued

- Vapor pressure of ammonia-salt solutions. R. O. E. Davis, L. B. Olmstead and F. O. Lundstrum. *Am Chem Soc J* 43:1580-3 J1 '21
- Vapor pressure of lithium nitrate:ammonia system. R. O. E. Davis, L. B. Olmstead and F. O. Lundstrum. *Am Chem Soc J* 43:1575-80 J1 '21
- What becomes of the ammonia in refrigerating systems; discussion. G. L. Reuschline. *A S R E J* 6:131-8 S '19
- Where the ammonia charge goes. J. E. Porter. *Power* 51:618-19 Ap 20 '20
- See also* Concrete, Effect of ammonia on

Manufacture

- Action of steam and gases on yields of ammonia from carbonization of oil shales and coal. A. J. Franks. *Chem & Met Eng* 23:1149-54 D 15 '20
- Ammonia and the nitrides, with special reference to their synthesis. E. B. Maxted. 120p J. & A. Churchill, London '21
- Ammonia from coal. *Gas Age* 45:24-5 Ja 10 '20
- Ammonia from coal distillation. *Sci Am M* 4:309-11 O '21
- Apparatus for catalytic synthesis of ammonia; patent. *diag Chem & Met Eng* 23:539 S 15 '20
- Artificial ammonia; the Claude process. J. Boyer. *il Sci Am* 124:110 F 5 '21
- Beiträge zur erhöhung der ammoniakausbeute bei der destillation der steinkohle; die gewinnung des im koksofengase enthaltenen zyanwasserstoffs durch umwandlung in ammoniumsulfat. F. Sommer. *diags Stahl & Eisen* 41:852-9 Je 23 '21
- Catalysts for ammonia; patent. *Chem & Met Eng* 23:77 J1 14 '20
- Direct synthetic ammonia process. R. S. Tour. *bibliog il diag J Ind & Eng Chem* 12:844-52 S '20
- Electrically heated bomb for ammonia synthesis. R. O. E. Davis and H. Bryan. *diags J Ind & Eng Chem* 12:287-8 Mr '20
- L'emploi des pressions très élevées pour la synthèse de l'ammoniaque. G. Claude. *Génie Civil* 76:130 Ja 31 '20
- L'état actuel de la synthèse de l'ammoniaque par les hyperpressions. G. Claude. *Génie Civil* 78:218 Mr 5 '21; Abstract (Present status of the synthesis of ammonia by the hyper-pressure method). *Chem & Met Eng* 24:706 Ap 20 '21
- La fabrication de l'hydrogène pour la synthèse de l'ammoniaque. G. Claude. *Génie Civil* 78:398-9 My 7 '21
- La fabrication synthétique de l'ammoniaque au moyen des très hautes pressions (procédé Georges Claude). *Génie Civil* 77:13-16 J1 3 '20
- Haber ammonia process at Oppau. *Engineering* 111:500 Ap 22 '21
- Improvements in the ammonia-soda process. J. H. MacMahon. *diag Chem Age* 29:364-6 S '21
- Industrial applications of hydrogen; synthetic production of ammonia. H. L. Barnitz. *Sci Am M* 3:341-2 Ap '21
- Industrial employment of extremely high pressures; production of synthetic ammonia. *Sci Am M* 1:511-12 Je '20
- Manufacture of synthetic ammonia at Oppau, Germany. *diags Chem & Met Eng* 24:305-8, 347-50, 391-4 F 16-Mr 2 '21
- New Italian process for the manufacture of synthetic ammonia. *Chem & Met Eng* 23:945 N 10 '20
- Preparing ammonia by the Haber process; patent. *diag Chem & Met Eng* 23:637 S 29 '20
- Purification of compressed gases in testing catalysts for ammonia synthesis. R. O. E. Davis. *diags J Ind & Eng Chem* 12:289-90 Mr '20
- Some interpretations of the ammonia synthesis equilibrium. R. S. Tour. *J Ind & Eng Chem* 13:298-300 Ap '21
- La synthèse de l'ammoniaque, en Allemagne et en France. *Génie Civil* 79:350-1 O 22 '21

- La synthèse de l'ammoniaque et les hautes pressions. G. Claude. *il Chimie & Ind* 4:5-18 J1 '20; Abstract (Synthetic ammonia). *Chem & Met Eng* 23:395 S 1 '20
- Synthetic ammonia. *Sci Am* 123:430 O 23 '20

Tables

- Bureau of standard tables of the properties of ammonia. *A S R E J* 7:250-61 Ja '21
- Tables of physical properties of various refrigerants and steam. F. E. Matthews. *A S R E J* 7:414-17 Mr '21
- Temperature and pressure tables for saturated ammonia. *Power* 53:96-7 Ja 18 '21
- Total heat diagrams for ammonia. E. F. Mueller and C. H. Meyers. *A S R E J* 7:419-25 My '21

Ammonia compressors

- Ammonia compressor-rod packing. W. H. Motz. *diags Power* 53:543-5 Ap 5 '21
- Ammonia-compressor troubles. J. C. Moran. *diags Power* 52:533-5 O 5 '20
- Experiences with an old time compressor. M. C. Jackson. *diags Power* 54:605-6 O 18 '21
- High-speed ammonia compressor. *il diags Engineering* 112:507-8, 510 O 7 '21
- High speed ammonia compressors; discussion. *A S R E J* 6:147-51 S '19
- Insulating the suction pipe of the ammonia compressor. M. A. Kolb. *diags Power* 53:787-8 My 17 '21
- Mean effective pressure of ammonia compressor. D. H. Stokes. *Power* 52:886 D 7 '20
- Notes on refrigeration. R. L. Tullis. *diags Power* 53:709-10 My 3 '21
- Nouveaux compresseurs d'ammoniaque, système Vilter. *diags Génie Civil* 77:513 D 18 '20
- On the road with the refrigerating troubleman. J. C. Moran. *diags Power* 51:509-11 Mr 30 '20
- Refrigeration for the practical engineer. B. E. Hill. *Power* 51:382 Mr 9 '20
- Refrigeration study course; low temperature ammonia compression. H. J. Macintire. *diags plan Power* 51:669-71 Ap 27 '20
- Refrigeration study course—the ammonia compressor. H. J. Macintire. *diags Power* 51:220-2 F 10 '20; Abstract (Les compresseurs d'ammoniaque pour la réfrigération). *Génie Civil* 78:113 Ja 29 '21
- Refrigeration study course—the high-speed ammonia compressor. H. J. Macintire. *il diags Power* 51:769-72 My 11 '20
- Repairing an ammonia compressor. R. L. Tullis. *diag Power* 52:1024 D 28 '20
- Rotary compressor and its application in mechanical refrigeration; with discussion. W. G. E. Rolaff. *diags A S R E J* 7:1-13 J1 '20
- Two new Vilter high-speed ammonia compressors. *il diags Power* 50:804-6 D 16 '19

Failures

- Accident to ammonia compressors. *diags Power* 54:544 O 4 '21
- Explosion of an ammonia compressor. *il Locomotive* 33:241-2 O '21

Lubrication

- Practical refrigeration for the operating engineer—regulation of pressures and temperatures. B. E. Hill. *il Power* 51:583 Ap 13 '20
- Refrigerating-machinery lubrication. *Power* 51:647-9 Ap 20 '20; Same. *Power Pl Eng* 24:483-4, 578-9 My 1, Je 1 '20

Ammonia concentrators

- 30-inch ammonia concentrator. J. S. Unger. *il Gas Age* 45:26-7 Ja 10 '20

Ammonia condensers

- Ammonia condensers as the operating man sees them. B. E. Hill. *diag Power* 52:660-1 O 26 '20
- Ammonia condensers; some hints regarding their care and operation. W. A. Darter. *diag Power Pl Eng* 24:849-51 S 1 '20
- Cleaning the double-pipe ammonia condenser. A. G. Solomon. *diags Power* 51:169-70 F 3 '20
- Economy at the Finney avenue ice plant, St Louis. C. Wilkie. *il chart diags Power* 51:990-4 Je 22 '20

Ammonia condensers—Continued

- Hints on refrigeration practice. A. G. Solomon. *diag Power Pl Eng* 24:394-6 Ap 1 '20
- Operations of condensers. W. H. Motz. *diags Power* 53:734-6 My 10 '21
- Proper selection of ammonia condensers. W. H. Motz. *Power* 53:659-62 Ap 26 '21
- Purging air out of ammonia systems. N. G. Near. *Power Pl Eng* 25:627-8 Je 15 '21
- Purging ammonia condensers. R. J. Solomon. *diag Power Pl Eng* 24:1143 D 1 '20; Discussion. 25:139-40, 187-8 Ja 15-F 1 '21
- Refrigeration study course—the ammonia condenser. H. J. Macintire. *diags Power* 51:301-3 F 24 '20
- Water distributing device for condensers. G. M. Kleucker. *diags A S R E J* 7:22-3 Jl '20; Same. *Power* 54:151 Jl 26 '21; Discussion. *A S R E J* 7:23-8 Jl '20
- Water trough for atmospheric ammonia condensers. J. R. Petrie. *diags Power* 54:524 O 4 '21

Ammonia containers

- Some tests on welded ammonia containers. E. A. Fessenden. *il diags A S R E J* 7:281-305 Ja '21

Ammonia engine

- Closed-cycle ammonia motor. E. Garuffa. *diag Mech Eng* 43:744-5 N '21

Ammonia explosions

- Inflammability and explosion of ammonia. B. E. Hill. *Locomotive* 33:76-8 Jl '20

See also Ammonia compressors—Failures

Ammonia pipe lines. *See* Piping (refrigerating plants)**Ammonia pumps.** *See* Pumps, Ammonia**Ammonia soda process**

- Improvements in the ammonia-soda process. J. H. MacMahon. *diag Chem Age* 29:364-6 S '21

Ammonium carbonate

- Interaction of carbon disulfide with ammonium carbonate. F. A. Gilfillan. *Am Chem Soc J* 42:2072-80 O '20

Ammonium chloride

- Improvements in the ammonia-soda process. J. H. MacMahon. *diag Chem Age* 29:364-6 S '21

- Reaction between chlorine and ammonia. W. A. Noyes and A. B. Haw. *diags Am Chem Soc J* 42:2167-73 N '20

- Ternary system ammonium chloride-manganous chloride-water. F. W. J. Clendinnen and A. C. D. Rivett. *Chem Soc J* 119:1329-39 Ag '21

- Transition of dry ammonium chloride. A. Smith, H. Eastlack and G. Scatchard. *diags Am Chem Soc J* 41:1961-9 D '19

Ammonium fluorides

- Acclimatization of yeast to ammonium fluoride and its reversion in wort. E. I. Fulmer. *J Phys Chem* 25:455-72 Je '21

- Titration of ammonium acid fluoride. W. S. Chase. *J Ind & Eng Chem* 12:567-8 Je '20

Ammonium halides

- Addition compounds of ammonia with the ammonium halides. J. Kendall and J. G. Davidson. *Am Chem Soc J* 42:1141-5 Je '20

- Crystal structures on the ammonium halides above and below the transition temperatures. G. Bartlett and I. Langmuir. *Am Chem Soc J* 43:84-91 Ja '21

Ammonium hydrosulfide

- Reactions of accelerators during vulcanization. C. W. Bedford and L. B. Sebrell. *J Ind & Eng Chem* 13:1034-8 N '21

Ammonium hydroxide

- Reagent chemicals; proposed specification for sulfuric, nitric, and hydrochloric acids, and for ammonium hydroxide. W. D. Collins. *J Ind & Eng Chem* 13:735-7 Ag '21

Ammonium mercuric iodides

- Methyl and ethyl ammonium mercuric iodides: their preparation, crystallography, and optical properties. G. S. Jamieson and E. T. Wherry. *diags Am Chem Soc J* 42:136-45 Ja '20

Ammonium nitrate

- Equilibrium in the system ammonia:ammonium nitrate:ammonium thiocyanate. H. W. Foote and S. R. Brinkley. *diags Am Chem Soc J* 43:1018-31 My '21

- Formaldehyde method for determining ammonium nitrate. J. T. Grissom. *J Ind & Eng Chem* 12:172-3 F '20

- Properties of plastic crystals of ammonium nitrate. W. N. Bond. *diags Philos Mag* 6th ser 41:1-21, pl 1-2 Ja '21

Transportation

- Railway tank wagon for ammonium nitrate. *il diags Engineer* 129:176-7 F 13 '20

Ammonium persulfate

- Use of ammonium persulphate for revealing the macrostructure of iron and steel. H. S. Rawdon. *il U S Bur Stand Sci Pa* 402:715-23 '20; Same. *Iron Age* 106:965-8 O 14 '20

Ammonium phosphate

- Solubility of mono- and diammonium phosphate. G. H. Buchanan and G. B. Winner. *diags J Ind & Eng Chem* 12:448-51 My '20

Ammonium sulfate

- Ammonia sulphate as weed killer. *Gas Age* 47:244 Mr 25 '21

- Ammonium sulphate; patent. *Chem & Met Eng* 23:1132; 24:402 D 8 '20, Mr 2 '21

- Beiträge zur erhöhung der ammoniakausbeute bei der destillation der steinkohle; die gewinnung des im koksofengase enthaltenen zyanwasserstoffs durch umwandlung in ammonium-sulfat. F. Sommer. *diags Stahl & Eisen* 41:852-9 Je 23 '21

- British neutral sulphate process. E. V. Evans. *Gas Age* 47:44-6 Ja 25 '21

- Caking of sulphate of ammonia. C. G. Atwater and J. F. W. Schulze. *Chem & Met Eng* 22:373-4 F 25 '20

- Chemical soil food kills weeds and aids grass. *il Pop Mech* 35:848 Je '21

- Data from Washburn's testimony. *Chem & Met Eng* 22:862 My 5 '20

- L'évolution dans la récupération et le traitement des sous-produits de la carbonisation de la houille. C. Berthelot. *il diags Chimie & Ind* 5:384-97 Ap '21

- Melting point of ammonium sulfate. J. Kendall and A. W. Davidson. *diag J Ind & Eng Chem* 13:303-4 Ap '21

- Nitrogen catechism; an economic survey of the nitrogen fertilizer situation. *Chem Age* 29:57-9 F '21

- Sulphate of ammonia plant at Leamington gas works. *il diags plan Engineering* 112:135-7, pl 7 Jl 22 '21

See also Ammonium persulfate

Ammonium sulfide

- Reduction of certain aromatic nitro-compounds by ammonium sulphide. A. Korczyński and S. Piasecki. *Chem Soc J* 120 pt 1: 517-18 Jl '21

Ammonium sulfonitrate

- Explosion of the nitrate plant at Oppau. *il map Chem & Met Eng* 25:818-22 N 2 '21

Ammonium thiocyanate

- Equilibrium in the system ammonia:ammonium nitrate:ammonium thiocyanate. H. W. Foote and S. R. Brinkley. *diags Am Chem Soc J* 43:1018-31 My '21

- Equilibrium in the system ammonia—ammonium thiocyanate. H. W. Foote and M. A. Hunter. *Am Chem Soc J* 42:69-78 Ja '20

- Equilibrium in the system ammonia:water:ammonium thiocyanate. H. W. Foote. *Am Chem Soc J* 43:1031-8 My '21

Ammono acids

- Metallic salts of pyrrol, indol and carbazol. E. C. Franklin. *J Phys Chem* 24:81-99 F '20

See also Benzene sulfonnitramide

Ammonoids

- On ammonoids from the Abo sandstone of New Mexico and the age of the beds which contain them. E. Böse. *Am J Sci* 49:51-60 Ja '20

Ammunition —Continued

Recovery of nitre and pitch from smoke candles. E. R. Thomas. *Sci Am M* 1:131 F '20

See also Gunpowder; Projectiles; Shells (projectiles); Smokeless powder

Amorphous oxides

Catalytic decomposition of certain phenol silver salts; the constitution of the amorphous oxides. W. H. Hunter and G. H. Woollett. *Am Chem Soc J* 43:135-51 Ja '20

Amorphous substances

Amorphous metal hypothesis. Z. Jeffries and R. S. Archer. *bibliog Chem & Met Eng* 25: 697-704 O 12 '21

Amortization

Amortization of war facilities. A. F. Van Pelt. *Ind Management* 60:301-5, 345-51 O-N '20; Same. *Automotive Ind* 43:1318-22 D 30 '20

Amosite. See Asbestos**Ampère, Andre Marie, 1775-1836**

Centennial of the discoveries of Oersted, Arago, and Ampère. C. E. Magnusson. *Am Inst E E J* 39:1031-3 D '20

Epoch-making discoveries of the years 1819 and 1820. E. Thomson. *Am Inst E E J* 39: 1021-7 D '20; Same. *Gen Elec R* 23:975-83 D '20

Oersted's and Ampère's discoveries. M. I. Pupin. *Am Inst E E J* 39:1028-31 D '20

One hundred years ago today; anniversary of discovery of fundamental electromagnetic laws by Ampère and Oersted. *por Elec W* 76:570-3, 736 S 18, O 9 '20

Sketch. *por J Elec* 47:64 Jl 15 '21

Ampere-hour meters

Ampere-hour meters for use on electric vehicles. *Electrician* 85:695 D 10 '20

Amphitheaters

Architectural reasons for bare heads in theaters. *Sci Am M* 2:248 N '20

Construction of arena where Dempsey and Carpentier fought. *il Bldg Age* 43:63 Jl '21

Le nouveau cirque de Copenhague, en béton armé. *il diags plan Génie Civil* 76:273-5 Mr 13 '20

See also Arlington amphitheater; Stadia

Amplifiers

Basic theory of electron-tube amplifiers. M. Latour. *diags Elec W* 76:870-2 O 30 '20

Design and construction of audion amplifying transformers, radio and audio types. E: T. Jones. 16p The Experimenter publishing co., inc., New York '20

Design of multiple-stage amplifiers using three-electrode thermionic valves. C. L. Fortescue. *diags Inst E E J* 58:65-74; Discussion. 74-82 Ja '20

Detecting efficiency of the resistance-capacity coupled electron tube amplifier. E. O. Hurlburt. *diags Phys R* 18:165-77 S '21

Detector and three-stage radio frequency amplifier. F: J. Rumford. *diags Wireless Age* 8:25-6 S '21

High amplification at short wave lengths. P. F. Godley. *il diags plan Wireless Age* 7:11-14 F '20

High-speed radio messages graphically recorded by means of amplifiers for very low frequency; abstract. Abraham and Bloch. *diags Elec W* 75:1325 Je 5 '20

Measurements on audio-frequency amplifiers. L. M. Hull. *diags Wireless Age* 8:12-16 Je '21

Method of amplifying electrical variations of low frequency. W. H. Eccles and F. W. Jordan. *diags Electrician* 85:176 Ag 13 '20

Oscillatory value relay: a thermionic trigger device. L. B. Turner. *diags Inst E E J* 57:sup50-9; Discussion. 59-65 '19

Physical and optical societies' annual exhibition. *il diags Electrician* 86:131-3 Ja 28 '21

Regenerative receiver vs. cascade amplifier. H. W. Lewis. *diags Wireless Age* 7:20-2 F '20

Submarine detection in an alternating magnetic field. J. B. Whitehead and L. O. Grondahl. *diags Am Inst E E J* 39:381-3 Ap '20

Thermionic amplifiers. W. D. Owen. *il Elec R (Lond)* 88:528-9 Ap 22 '21

Les tubes a décharge électronique et leurs applications. P. Letheule. *diags Génie Civil* 76:472-5 My 22 '20

Two-step audio frequency amplifier. C. F. Smith. *diags Wireless Age* 8:26+ Mr '21

Use of amplifiers for the measurement of slight differences of potential. A. Blondel. *Elec W* 74:897 O 25 '19

V. T. detector and four stage amplifier resistance coupled. C: R. Leutz. *il diags Wireless Age* 7:24-6 Ja '20

Vacuum-tube amplifier used to study heart beats. *Elec W* 77:902 Ap 16 '21; *Pop Mech* 35:676 My '21

See also Audion; Pilotron; Vacuum tubes; Wireless megaphone

Amusement parks

Making a losing park pay; secrets of New Orleans' success. *il Elec Ry J* 55:442-3 F 28 '20

Manufacturing fun at Idora Park, Oakland, California. *il J Elec* 45:178-80 Ag 15 '20

Some new mechanical amusement devices. *il Sci Am* 125:269+ O 15 '21

Amyl alcohol

See also Sulfite liquor

Amylases. See Diastase**Amynodontidæ**

New amynodonts in the Marsh collection. E: L. Troxell. *il Am J Sci* 2:21-34 Jl '21

Anaconda copper mining company

Anaconda chimney largest and tallest in the world. *il Pub Works* 48:181-3 Mr 13 '20

Some features of the geological department of the Anaconda copper mining company. P. Billingsley. *Min & Sci P* 120:907-8 Je 19 '20

Analysis, Electrochemical. See Electrochemical analysis**Analytic chemistry. See Chemistry, Analytic****Analytic mechanics. See Mechanics, Analytic****Analyzers. See Field glasses****Anaphylaxis**

Anaphylaxia: its role and its treatment. C: Richet. *Sci Am M* 4:221-4 S '21

Anarchism**Bibliography**

Social movements. S. Zimand. p. 256-60 H. W. Wilson co. '21

Anatomy, Comparative

Significance of size; how magnitude conditions the functioning of living organisms. O: Hartmann. *Sci Am M* 4:212-14 S '21

Anay

Anay, a new edible-fruited relative of the avocado. S. F. Blake. *Sci Am S* 88:296 N 15 '19

Anchor bolts. See Bolts and nuts**Anchor chains. See Chains, Anchor****Anchors**

Is the anchor safe? P. Harnden. *il Sci Am* 123:35 Jl 10 '20

Jet anchor for dredges. J: C. Oakes. *diags Eng & Contr* 56:282 S 21 '21

Lock grip stockless anchor improves old style. *il Marine R* 51:476 O '21

Locking device gives stockless anchors positive gripping action. *il Marine Eng* 26: 602-3 Ag '21

Anderson, Frederick Paul, 1867-

New director of the Research laboratory. *por Heat & Ven* 18:51 S '21; *Sanitary & Heat Eng* 96:176 S 9 '21; *Sheet Metal Worker* 12: 548 S 2 '21

Anderson, John, 1872-

Sketch. G: H. Wallace. *por Power Pl Eng* 24: 879-80 S 15 '20

Anderson, L. D.

Mining engineers of note. *por Eng & Min J* 112:19 Jl 2 '21

Andropogon

Essential oil from andropogon iwarancusa, Jones, and the constitution of piperitone. J: L. Simonsen. *Chem Soc J* 119:1644-54 O '21

Anemometer

La comparabilité des anémomètres. C.-E. Brazier. Génie Civil 78:341 Ap 16 '21

Directional hot-wire anemometer; its sensitivity and range of application; abstract. J. S. G. Thomas. Elec W 76:1179 D 11 '20

Measurement of ventilating air. W. S. Weeks. il Min & Sci P 120:895-6 Je 19 '20

Method for rapid removal of powder smoke in tunnels. W. S. Weeks and G. L. Wolflin. il diags Eng & Min J 112:699-700 O 29 '21

Null-deflexion constant current type of hot-wire anemometer, for use in the determination of slow rates of flow of gases, together with an investigation of the effect of the free convection current upon such determinations. J. S. G. Thomas. diag Philos Mag 6th ser 41:716-32 My '21

Portable direct-reading anemometer for the measurement of ventilation of coal mines. J. T. MacGregor-Morris. il diag Electrician 85:227-9 Ag 27 '20; Same. Engineering 110:279-80 Ag 27 '20

Thermal effect produced by a slow current of air flowing past a series of fine heated platinum wires, and its application to the construction of hot-wire anemometers of great sensitivity, especially applicable to the investigation of slow rates of flow of gases. J. S. G. Thomas. diags Philos Mag 6th ser 41:240-58 F '21

Anesthetics

Esters of aminobenzoic acids. H. C. Brill. Am Chem Soc J 43:1320-3 Je '21

New dental anesthetic. Sci Am 124:489 Je 18 '21

See also Benzyl alcohol; Chloroform; Ether; Ethyl chloride; Procaine

Ang-khak. *See* Red rice**Angkor-Thom, Indo-China**

Thousand-year-old Far-East city being restored. F. Dickie. il Pop Mech 33:423-5 Mr '20

Angle Irons

Modern anglesmithing. M. Nicholls. diags plan Marine Eng 26:135-7 F '21

Angle of contact. *See* Surface tension**Angle plates**

Built-up adjustable angle plate for light drilling. H. H. Parker. diags Am Mach 53:279 Ag 5 '20

Angles

Accurate angle-measuring device. E. A. Dixie. il Am Mach 52:835-6 Ap 15 '20

Another solution to a little question of trigonometry. E. T. Goodchild. diag Am Mach 53:277 Ag 5 '20

Astronomical device for measuring angles to one ten-thousandth of a second. Am Mach 54:120f Ja 20 '21

Finding angle of spring clamp. diags Mach 27:894 My '21

Laying out angles. C. E. Josselyn. diag Am Mach 53:633-4 S 30 '20

Measuring the angles of tapered plugs with two sizes of wires. V. E. Ayre. diag Mach 26:360 D '19

La mesure des angles en radians. J. Maître. diag Génie Civil 78:10-12 Ja 1 '21

Table of diagonals for 45° triangles, measuring from one inch to twenty feet on the sides. Dom Eng 97:200 O 29 '21

See also Trisection of angles

Anglo-American corporation of South Africa
Organization, resources and operations. Eng & Min J 112:718-19 O 29 '21**Anglo-Saxon architecture.** *See* Architecture, Anglo-Saxon**Aniline**

Aniline. T. Midgley, jr. Soc Auto Eng J 7:312 O '20

Estimation of aniline in commercial anilines. J. W. Sanderson and W. J. Jones. Color Tr J 6:100 Mr '20

Preparation of *p*-phenylenediamine and aniline from their corresponding chlorobenzenes. A. J. Quick. Am Chem Soc J 42:1033-42 My '20

Some catalysts which promote reaction between aniline and ethyl alcohol. T. B. Johnson, A. J. Hill and J. J. Donleavy. J Ind & Eng Chem 12:636-44 J1 '20

Some physical constants of pure aniline. C. L. Knowles. J Ind & Eng Chem 12:881-3 S '20

Aniline-acetic acid

Binary system, aniline-acetic acid. E. A. O'Connor. Chem Soc J 119:400-3 Ap '21

Aniline black

Colored resists under aniline black. P. W. Pluzanski. Color Tr J 8:51 F '21

Printing aniline black; abstract. E. Jentsch. Color Tr J 7:159-60; 8:49 N '20, F '21

Production of aniline black. Color Tr J 6:131-2 Ap '20

Aniline colors. *See* Coal-tar colors**Aniline compounds**

Anilino-bleiverbindungen. H. Mandal. Deutsche Chem Gesell Ber 54:703-8 Ap '21

Aniline poisoning

Aniline poisoning in the rubber industry. P. A. Davis. bibliog J Ind Hygiene 3:57-61 Je '21

Industrial blood poisons in anilin manufacture. Monthly Labor R 10:1475-6 Je '20

Aniline tumors. *See* Bladder tumors**Animal experimentation**

Animal tissue that does not die; how a bit of chicken heart has been alive and growing for more than the chick's span of life. H. A. Mount. Sci Am 125:10 J1 2 '21

See also Transplantation (physiology)

Animal heat. *See* Temperature, Animal and human**Animal intelligence**

Animal mind; comparative intelligence of animals. R. L. Garner. diags Sci Am M 3:395-9 My '21

Do animals ever use artificially improved tools? W. Boelsche. il Sci Am M 1:212-13 Mr '20

Animal locomotion

Speed of animals and birds in flight. L. D. Lewis. Pop Mech 35:46 Ja '21

See also Flight

Animal products

Future of the animal products industry. W. D. Richardson. il Chem & Met Eng 23:481-6 S 8 '20

See also names of special products, e.g. Fish skins, Horsehair, Ivory, Leather, Rawhide, Wool

Animals

Sense of direction in animals. R. Brun. Sci Am S 88:362-3+ D 20 '19

See also Aviators' pets; Birds; Fishes; Horses; Insects; Live stock; Snakes; Veterinary medicine

Animals, Habits and behavior of

Animal behavior as a factor in the formation of bone beds. E. M. Kindle. Sci Am M 4:207 S '21

Evolution of efficiency in the animal kingdom. J. S. Szymanski. il diags Sci Am M 1:305-6 Ap '20

See also Imitation

Animals, Size of

Significance of size; how magnitude conditions the functioning of living organisms. O. Hartmann. Sci Am M 4:212-14 S '21

Animals, Treatment of

Town to be operated for the benefit of animals and as an object lesson in good government. C. L. Delbridge. 53p Delbridge co., St Louis '20

Animals in art

Wild animal models at the zoo. W. T. Hornaday. il Sci Am 122:134 F 7 '20

Anisidine

Essigsäure-derivate des *p*-anisidins. J. Halberkann. Deutsche Chem Gesell Ber 54:1152-67 Je '21; Abstract. Chem Soc J 120 pt 1:562-3 Ag '21

Anisotropic liquids. *See* Liquid crystals

Anisotropy

Ein neuer fall von anisotropie im schmelzpunkt. A. Müller. Deutsche Chem Gesell Ber 54:1481-2 JI '21

Examination of ores and metals in polarized light. F. E. Wright. diags Min & Met 158: (sec 9) 1-12 F '20

Annealing

American malleable cast iron. H. A. Schwartz. il diags plan Iron Tr R 69:233-8, 354-9+ JI 28, Ag 11 '21

Anneal malleable in tunnel kiln. H. E. Diller. il diags plan Foundry 48:638-44 Ag 15 '20

Anneal steel with pulverized coal. C. H. Gale. Foundry 49:29 Ja 1 '21

Annealing of glass. L. H. Adams and E. D. Williamson. il diags J Fr Inst 190:597-631, 835-70 N-D '20

Annealing steel castings with fuel oil. R. R. Hillman. Iron Age 107:247-9 Ja 27 '21

Annealing with gas. W. A. Ehlers. il Sci Am 122:488+ My 1 '20

Anneals malleable with oil fuel. W. F. Hoernke. il Foundry 49:323-5 Ap 15 '21; Same. Iron Tr R 68:1728-30 Je 23 '21

Chantaine rotary flame pot annealing furnace. diags Engineering 109:754 Je 4 '20; Same. Iron Age 106:390 Ag 12 '20

Common wall of new double chamber annealing oven reduces radiation. diags plan Iron Tr R 67:453 Ag 12 '20

Concerning the annealing and characteristics of glass. A. Q. Tool and J. Valasek. bibliog diags U S Bur Stand Sci Pa 358:537-71 '20

Design electric annealing furnace. C. E. Chaney. diags Foundry 49:720-3 S 15 '21

Effective annealing of metal products. L. R. W. Allison. il Iron Age 105:599-600 F 26 '20

Electricity applied to annealing. G. P. Mills. Foundry 49:366-8 My 1 '21

Graphitization of white cast iron. R. S. Archer. il Min & Met 158:(sec 10) 1-8 F '20; Same. Foundry 48:192-4 Mr 1 '20

Material handling equipment is important factor in new sheet mill. E. L. Shaner. il Iron Tr R 67:1266-70 N 4 '20

Metallography and heat treating of steels. W. J. Merten. il Blast F & Steel Pl 9: 114-18 Ja '21

New annealing oven saves heat. diags plans Foundry 48:569-70 JI 15 '20

New oven secures uniform anneal. il diags Foundry 48:768-71 O 1 '20

Preserving polish of metals during annealing. Automotive Ind 43:1315 D 30 '20

Preventing rail fractures resulting from minute fissures. Sci Am M 1:165-6 F '20

Recommended practice for annealing carbon-steel castings. Foundry 48:948a D 1 '20

Le recuit du fer électrolytique. il Génie Civil 77:118-19 Ag 7 '20

Removal of internal stress in 70:30 brass by low temperature annealing. H. Moore and S. Beckinsale. il diags Engineering 109:393-5 Mr 19 '20; Abstract. Iron Age 105:992 Ap 1 '20

Self annealing in aluminum bronze. A. B. Wilson. il Foundry 48:776-8 O 1 '20

Sheet, pair and annealing furnaces. C. F. Poppleton. diags Iron Age 106:714-17, 770-2 S 16-23 '20

Steel foundry starts operations: Vulcan iron works, Wilkes-Barre, Pa. il diags Foundry 48:221-6 Mr 15 '20

Tests cupola malleable annealing. F. H. Cole. il Foundry 49:644-5 Ag 15 '21

Unusual grain growth due to critical strain. A. P. Knight. il Chem & Met Eng 25:829-30 N 2 '21

See also Glass; Iron; Steel; Steel, Heat treatment of

Annealing pots

Shop specializes in annealing pots. il Foundry 49:11-15 Ja 1 '21

Annidalln. See Aristol**Antarctic exploration**

New antarctic expedition now under way. il Pop Mech 36:641 N '21

Southward, ho!; airplane, ship, and sledges to carry explorers on completest survey of the polar continent. P. A. Jenkins. il maps Pop Mech 33:485-92 Ap '20

Antares

Star larger than Betelgeuse. Sci Am 125:231 O 1 '21

Antenna circuits. See Wireless circuits

Antennae, Wireless. See Wireless antennae

Anthracene

Anthracene and anthraquinone. E: de B. Barnett. 436p Baillière, Tindall and Cox, London '21

Concerning alizarine and vat dyes. Color Tr J 7:81-2 S '20

Formation of anthracene from benzene and ethylene. J. E. Zanetti and M. Kandell. J Ind & Eng Chem 13:208-11 Mr '21

Studies in the anthracene series. E: de B. Barnett and J. W. Cook. Chem Soc J 119: 901-13 Je '21

Synthesis of anthracene from naphthalene. C. W. Colver and W. A. Noyes. Am Chem Soc J 43:898-905 Ap '21

Anthracite coal. See Coal

Anthracite coal commission

Award of the Anthracite coal commission and resultant wage rates. Monthly Labor R 11:716-33 O '20

President Wilson accepts majority report of Anthracite coal commission; summary of report. Comm & Fin Chr 111:946-8 S 4 '20

Anthracite slush. See Culm

Anthracite

Anthracite: a new domestic and metallurgical fuel made by coking anthracite fines with coal-tar pitch. D. Markle. il Coal Age 20: 296-9 Ag 25 '21; Same cond. Iron Tr R 69:753-5 S 22 '21; Excerpts. Min & Met 176:28-9 Ag '21; Same. Sci Am M 4:186-7 Ag '21

Anthraquinone

Abbaureaktionen in der anthrachinon-reihe. K. Fries and W. Hartmann. Deutsche Chem Gesell Ber 54:193-200 F '21

Anthracene and anthraquinone. E: de B. Barnett. 436p Baillière, Tindall and Cox, London '21

Anthraquinone production by the Thatcher process co. Chem Age 29:262 JI '21

Temperature control in production of anthraquinone by catalytic oxidation. diags Chem & Met Eng 24:1027-8 Je 8 '21

Anthraquinonediimide

Some derivatives of anthraquinonedi-imide. L. P. G. Keffler. Chem Soc J 119:1476-82 S '21

Anthrax

Anthrax as an occupational disease. J: B. Andrews. il U S Bur Labor Statistics Bul 267:1-186 '20

Anthrax problem in horsehair. H: F. Smyth. bibliog J Ind Hygiene 2:423-32 Mr '21

Chemical potential of phenol in solutions containing salts; and the toxicity of these solutions towards anthrax and staphylococcus. J. S. Laird. J Phys Chem 24:664-72 N '20

Toxicity towards anthrax and staphylococcus, of solutions containing phenol and sodium chloride. J. S. Lemon. J Phys Chem 24:570-84 O '20

Wastes at tannery chlorinated to guard against anthrax. Eng N 87:599 O 13 '21

Anthropogeography

Principles of human geography. E. Huntington and S. W. Cushing. 430p Wiley '20

Anthropology

Practical value of anthropology. A. E. Jenks. Sci Am M 3:466 My '21

Anthropometry

Cult of the sound body; apparatus employed in modern physiological laboratories to test physical development. T. V. Davidson. il Sci Am M 3:33-6 Ja '21

New physical test for a man; abstract. D. A. Sargent. Sci Am M 3:559-60 Je '21

Anti-aircraft guns. See Guns, Anti-aircraft

Antibodies. See Antigens and antibodies

Anticlines

Anticlines near Maverick Springs, Fremont county, Wyoming. A. J. Collier. il maps U S Geol S Bul 711-H:149-66 '20

Anticosti Island

Post-glacial terraces of Anticosti island. W. H. Twenhofel and W. H. Conine. diag Am J Sci 5th ser 1:268-78 Mr '21

Anti-dimming compositions

Anti-dimming compositions. Sci Am M 1:187-8 F '20

Anti-freezing solutions. See Automobile engines—Cooling**Antigens and antibodies**

Antibody studies; a preliminary report on the chemical nature of bacterial antibodies. F. M. Huntoon, P. Masucci and E. Hannum. Am Chem Soc J 42:2654-61 D '20

Anti-litter bureau. See New York (city)—Sanitary affairs**Antimonial lead.** See Lead antimony alloys**Antimony**

Antimony. Min & Sci P 122:456 Ap 2 '21
 Antimony and its uses. Min & Sci P 120:299 F 28 '20
 Antimony in 1920. Chem & Met Eng 25:199 Ag 3 '21
 Antimony in 1920. K. C. Li. Eng & Min J 111:149 Ja 22 '21
 Antimony in 1920. F. C. Schrader. diags U S Geol S Min Res of U S 1920, pt 1:73-84 '21
 Antimony price recession. Eng & Min J 110:843 O 23 '20
 Crystalline structure of antimony and bismuth. A. Ogg. Philos Mag 6th ser 42:163-6 Jl '21
 Deposits of antimony. Min & Sci P 123:269 Ag 20 '21
 Review of antimony during 1919. K. C. Li. Eng & Min J 109:170-1 Ja 17 '20
 Revision of the atomic weight of antimony; the analysis of antimony bromide. H. H. Willard and R. H. McAlpine. il diag Am Chem Soc J 43:797-818 Ap '21
 Séparation de l'étain et de l'antimoine. A. Kling and A. Lassieur. Chimie & Ind 4:155-6 Ag '20
 Source and the uses of antimony. T. T. Read. Metal Work 93:146-7 Ja 30 '20
 Treating antimony ores. G. P. Hulst. Am Inst Min Bul 153:1603-4 S '19; Same. Chem & Met Eng 21:727 D 10 '19
 Uses of antimony. Min & Sci P 123:292 Ag 27 '21

Analysis

Analyses of antimony. Foundry 49:434a Je 1 '21
 Dosage rapide de l'antimoine dans le plomb antimonieux. L. Bertiaux. Chimie & Ind 4:467-72 O '20

Antimony alloys

Effect of increasing proportions of antimony and of arsenic respectively upon the properties of admiralty gun-metal. R. T. Rolfe. il Engineering 110:689-91, 752-4 N 19, D 3 '20

See also Lead antimony alloys

Antimony bromide

Revision of the atomic weight of antimony; the analysis of antimony bromide. H. H. Willard and R. K. McAlpine. il diag Am Chem Soc J 43:797-818 Ap '21

Antimony potassium tartrate. See Tartar emetic**Antimony sulfide**

Blackening of red rubber tubes. India Rubber W 63:27-8 O '20
 Crimson antimony. J. M. Bierer. India Rubber W 63:17-18 O '20

Antimony sulfuret

Antimony sulphuret, its manufacture and use. D. A. Shirk. India Rubber W 64:638-9 Je '21

Antioch, California**Water supply**

Antioch wins injunction in suit over brackish water. map Eng N 86:513 Mr 24 '21

Antioch college

Antioch plan; training for administration and proprietorship at a small college. A. E. Morgan. Eng N 86:108-11 Ja 20 '21; Discussion. 86:233, 349-50, 480, 651 F 3, 24, Mr 17, Ap 14 '21

Antipyrilaminodiacetic acid

Additive compounds of antipyrilaminodiacetic acid and its salts with neutral salts. R. G. Fargher and H. King. Chem Soc J 119:292-8 Mr '21

Antiseptics

Preparation of some alkyl derivatives of resorcinol and the relation of their structure to antiseptic properties. T. B. Johnson and F. W. Lane. Am Chem Soc J 43:348-60 F '21

See also Carvacrol; Disinfection and disinfectants; Iodoform paper; Phenols

Antitoxins

Relieving fatigue by means of toxins; a new method of stimulating animal organisms. M. Claus. Sci Am M 2:205-6 N '20

See also Chemotherapy

Ants

Instinct of orientation in ants. R. Brun. diags Sci Am M 1:51-7 Ja '20

See also Termites

Antwerp

Industrial Belgium and the port of Antwerp are approaching pre-war levels. il Americas 7:6-12 Je '21

Apartment hotels

Apartment hotel at 305 West End avenue, New York city. Arch & Bldg 53:8, pl 8-11 Ja '21
 Kitchenette apartment. C. A. Erikson. il plans Arch Forum 32:9-14, 69-76 Ja-F '20
 Notably good example of the alteration movement in New York. il diag plans Am Arch 118:691-5 D 1 '20
 Town house club, 71 Central Park West, New York city. Arch & Bldg 52:84-5, pl 108-11 S '20

Apartment houses

Apartment building, Chestnut street, Boston. il plans Arch Forum 33:211-12, pl 94-6 D '20
 Apartment building for moderate rentals. E. H. Janes. il plans Arch Forum 31:183-94 D '19
 Apartment building, Sheridan road, Chicago, Ill.; views and plans. Arch Forum 33:pl 65-6 N '20
 Apartment house, Concourse and 183d Street, Bronx, New York; views and plans. Arch Forum 33:pl 46-7 S '20
 Apartment house; do present conditions warrant its construction? il diags plans Bldg Age 42:19-21 Jl '20
 Apartment house no. 1067 Fifth avenue, New York city. Am Arch 116:pl 222-4 D 31 '19
 Apartment house, 290 Park avenue, New York. Arch & Bldg 53:29, pl 45-6 Ap '21
 Apartment house, 325 Riverside drive, New York. Arch & Bldg 53:23, pl 39-40 Mr '21
 Apartment house, 910 Fifth avenue, New York. Arch & Bldg 53:22, pl 31-3 Mr '21
 Apartment houses at Jackson Heights, N.Y. il plan Arch Forum 33:29-30 Jl '20
 Applying the co-operative method of financing to inexpensive types of apartment buildings. Arch Forum 33:111-12 S '20
 Are apartments necessary? Am Arch 118:78 Jl 21 '20
 Building and selling homes on co-operative plan; Jackson Heights plan of tenant-ownership. il plans Bldg Age 43:29, 31-3 Ap '21
 Business aspects of a successful co-operative apartment development. il plans Arch Forum 34:109-13 Mr '21
 Converting private houses into small apartments. il plans Am Arch 118:597-601 N 10 '20
 Co-operative ownership to meet the present shortage of buildings. Arch Forum 33:31-5 Jl '20
 Details of lower stories of a Philadelphia house. il plan Bldg Age 42:48-9 N '20
 Electric servantless apartment. il Elec W 77:779 Ap 2 '21
 Emersonian and Carlton apartments, Baltimore, Md.; views and plans. Arch Forum 33:pl 10-12 Jl '20
 Financing of apartment house projects. Arch Forum 31:195-200 D '19
 Flat building suitable for a narrow lot. il plans Bldg Age 43:46 O '21

Apartment houses—Continued

- Four-apartment building like private house. il plan Pop Mech 34:800 N '20
- Garden apartments in cities. J: T. Boyd, jr. il diags plans Arch Rec 48:53-74, 121-35 JI-Ag '20
- Group ownership of apartments. Am Arch 118:378-9 S 22 '20
- Housing at Kingston, New York; view and plans. Am Arch 118:382a-b S 22 '20
- Interesting points from official investigation of the co-operative plan of apartment ownership. Arch Forum 33:55-7 Ag '20
- Moderate size apartment houses prove good investments; cost table. H. C. Crocker. il plan Bldg Age 43:36-8 Ja '21
- Modern six family apartment house. il plan Bldg Age 43:46 N '21
- Multiform housing and the architect. A. J. Thomas. Am Inst Arch J 9:94-5 Mr '21
- New apartment house plan has developed good results. Am Arch 118:379 S 22 '20
- Notes on the Concrete housing conference, Chicago. il plans Arch Forum 32:123-6 Mr '20
- Small apartments made more efficient. H. C. Crocker. il plan Bldg Age 43:53-4 Mr '21
- Successful co-operative apartment buildings. F: Culver. il plans Arch Forum 33:187-9 N '20
- Tendencies in apartment house design. F. C. Brown. il plans Arch Rec 49:488-502; 50:45-63, 198-213 Je-S '21
- Yankee apartments for Belgium. M. Quinet. Am Ind 22:21 Ag '21
- See also Apartment hotels; Tenement houses
- Apes**
- Gorillas, chimpanzees and orang-utans. M. Tevis. il Sci Am M 4:121-5 Ag '21
- Apex law.** See Mining law
- Apo-tricyclol**
- Das apo-tricyclol, ein abkömmling des cyclopropanols und seine ketisierung. P. Lipp and C. Padberg. Deutsche Chem Gesell Ber 54:1316-29 Je '21; Abstract. Chem Soc J 120 pt 1:559-61 Ag '21
- Appalachian mountains**
- Piedmont terraces of the northern Appalachians. J. Barrell. diags maps Am J Sci 49:227-58, 327-62, 407-28 Ap-Je '20
- Appalachian trail**
- Appalachian trail; a project in regional planning. B. Mackaye. map Am Inst Arch J 9:325-30 O '21
- Apple sirup**
- Waste apples yield rich sirup by new process. Pop Mech 35:814 Je '21
- Apples**
- Odorous constituents of apples; emanation of acetaldehyde from the ripe fruit. F: B. Power and V: K. Chesnut. Am Chem Soc J 42:1509-26 JI '20
- Physiology of the apple. Sci Am M 3:401 My '21
- Applewood**
- Markets for applewood. Sci Am 124:507 Je 25 '21
- Applications for position**
- How to choose and get a better job. E: J. Kilduff. 216p Harper '21
- How to get a job through help wanted advertisements. J. Penn. 57p Self-advancement society, New York '21
- Selling your own service. C. S. Rindsfoos. Eng & Contr 53:60 Ja 21 '20
- What the employment manager wants to know. Factory 25:542-3 Ag 15 '20
- See also Employment systems
- Appraisals.** See Valuation
- Apprentices**
- American apprenticeship and industrial education. P. H. Douglas. 348p Columbia university, New York; Longmans '21
- Apprentices here and in Europe. A. Ellsworth. Am Mach 51:880 N 13 '19
- Apprentices here and in Europe. J: Parker. Am Mach 51:934 N 27 '19

- Apprenticeship course for machine fixers. W: Baum. Textile World 60:571+ JI 23 '21
- Apprenticeships not to be unduly restricted. Ry R 68:748-50 My 14 '21
- Benefits derived from apprentice training. J: H. Linn. Ry Age 70:714 Mr 18 '21
- Building men to produce more. M. D. McFarlane. Factory 26:194-6 Ja 15 '21
- Canadian apprenticeship system. Ry R 69:210-12 Ag 13 '21
- Fundamental trade issue—the apprenticeship principle. S. Scrimshaw. Dom Eng 90:624-5 Mr 27 '20
- Give the boy a square deal. A. C. Eynon. Sanitary & Heat Eng 96:67-8 JI 29 '21
- Home for apprentices. F. H. Colvin. il Am Mach 53:671-2 O 7 '20
- How to solve the apprentice problem. Dom Eng 94:396-7 F 19 '21
- Important labor questions are discussed at National association of corporation schools meeting. Iron Age 105:1661-3 Je 10 '20
- Modern apprenticeships and shop training methods. E. V. Oberg. 118p Industrial press, New York '21
- Modern method of apprentice training. J. E. Goss. il Iron Age 107:1305, 1349-50 My 19 '21
- Modernizing the apprenticeship; methods used by the Taft-Peirce mfg. co., Woonsocket, R.I. E. Oberg. il Mach 27:220-4 N '20
- More apprentices needed in building trades. W: M. Calder. Eng & Contr 55:92 Ja 26 '21
- Die ordnung des lehrlingswesens im bezirk der Nordwestlichen gruppe des vereins deutscher eisen- und stahlindustrieller. P. Schmerse. Stahl & Eisen 41:370-4, 1375-7 Mr 17, S 29 '21
- Orleans railway company's system of engineering apprenticeship. M. Marchand. Eng & Ind Management 5:692-4 Je 16 '21
- Paris-Orleans apprentice work organized. M. Lacoïn and M. Chassagne. il Ry Mech Eng 95:313-16 My '21; Same cond. Génie Civil 77:537-8 D 25 '20; Same cond. Elec Ry J 57:686 Ap 9 '21
- Pre-apprenticeship experiments in France. Factory 27:80 JI '21
- Production and instruction in an apprentice school. P: F. O'Shea. il Am Mach 52:505-8 Mr 4 '20
- Programs of apprenticeship and special training in representative corporations. J. V. L. Morris. il Am Mach 53:565-8, 657-9, 765-6, 847-52, 951-2, 1078-80, 1172-4; 54:13-14, 230-2, 310-12, 505-7, 778-9, 1081-3; 55:131-3, 545-8 S 23-O 7, 21, N 4, 18, D 9, 23 '20, Ja 6, F 10, 24, Mr 24, My 5, Je 23, JI 28, O 6 '21
- Providing skilled workmen for the future. S. Scrimshaw. Metal Work 93:720-3 Je 4 '20
- Railroad shop's apprentice school. J. V. Hunter. il Am Mach 54:97-8 Ja 20 '21
- Report of the committee on apprentice systems of the American electric railway engineering association. Elec Ry J 58:625-6; Discussion. 626 O 8 '21
- Report on apprenticeship in the building industry, Great Britain. Monthly Labor R 10:1193-6 My '20
- Rules governing sheet metal apprentices. Sheet Metal Worker 12:542 S 2 '21
- Santa Fe apprentice system. A. A. Klein. Ry R 66:116-18 Ja 17 '20
- Santa Fe apprentice system. F. W. Thomas. W Soc E J 25:404-10 JI 20 '20; Same cond. Ry Age 68:1349-51 My 7 '20
- Standardized training of textile apprentices. E. Szepesi. il chart Textile World 59:865+ F 5 '21
- Student apprentice course. A. W. Forbes. Am Mach 54:786 My 5 '21
- Suggestions for solving the apprenticeship problem. G: F. Reeke. Dom Eng 96:69-70 JI 9 '21; Same cond. Sanitary & Heat Eng 96:44-5 JI 15 '21
- To train shipyard apprentices. V. G. Iden. il Marine R 50:203-7 Ap '20
- Training apprentice plumbers in Erie, Pa. Sanitary & Heat Eng 96:39+ JI 15 '21
- Training apprentices for permanent jobs. N. G. Shidle. diags Automotive Ind 43:923-5+ N 4 '20

Apprentices —Continued

- Training future mechanics. E. Oberg. *il* Mach 27:26-30 S '20
 Training of apprentices. Eng & Ind Management 5:380-1 Mr 31 '21
 Training of shipyard apprentices; committee report. Engineering 109:311-12 Mr 5 '20; Engineer 129:254 Mr 5 '20
 Training 300 apprentice die-makers with one instructor. N. G. Shidle. *diags* Automotive Ind 43:472-5 S 2 '20
 Westinghouse electric & mfg. co. trains executives in its own plants. *il* Iron Age 105:869-72 Mr 25 '20

See also Corporation schools; Employees, Training of; Industrial education

Law

- Apprentices and short time; employers and indentures. Eng & Ind Management 6:154 Ag 11 '21

Apricots

- Valuable uses found for apricot pits. *il* Pop Mech 34:572-3 O '20

Aquariums

- Aquarium at Miami, Florida, rivals any in the world. H. S. White. *il* Pop Mech 35:806-7 Je '21
 Sheet bronze aquarium and stand with fountain operated by two tanks. W. H. Gruening. *il* *diag* Metal Work 94:135-8 Jl 30 '20

See also New York (city)—Aquarium

Aqueducts

- L'achèvement de l'aqueduc des Pouilles (Italie méridionale). *il* *diags* map Génie Civil 77:91-5, 105-9 Jl 31-Ag 7 '20
 Aqueducts ancient and modern. Sci Am 124:162 F 26 '21
 Changes in cleanness coefficient of Sudbury river aqueduct. F. I. Winslow. Eng N 86:1132 Je 30 '21
 Cross connections on the Elan aqueduct of the Birmingham corporation waterworks. F. W. Macaulay. Engineer 130:501 N 19 '20; Same. Engineering 110:670 N 19 '20

See also Catskill aqueduct; Winnipeg aqueduct

Aqueous pressure. *See* Crystallography

Aquitania (steamship)

- Aquitania as an oil burner. *il* Sci Am 123:151+ Ag 14 '20
 Cunard liner Aquitania, converted to an oil burner, returns to service. Int Marine Eng 25:635 Ag '20
 Oil burning installation of the Aquitania. *il* Marine Eng 25:817-21 O '20
 Oil fuel equipment of the Aquitania. Engineer 129:620-1 Je 18 '20
 Oil fuel installation on the Aquitania. Engineering 109:832-3 Je 18 '20

Arago, François Jean Dominique, 1786-1853

- Centennial of the discoveries of Oersted, Arago, and Ampère. C. E. Magnusson. Am Inst E E J 39:1031-3 D '20
 Epoch-making discoveries of the years 1819 and 1820. E. Thomson. Am Inst E E J 39:1021-7 D '20; Same. Gen Elec R 23:975-83 D '20

Arapaho Indians

- Circles give Arapahoe Indian village racial appeal. F. Steele. *il* *diag* plan Pop Mech 34:806-10 D '20

Arbitration

- Arbitration agreements made binding in New York state by Walton law—text of the law. Comm & Fin Chr 111:749 Ag 21 '20
 La clause compromissoire et le compromis; leur application dans le droit français. A. Lainé. Génie Civil 78:298-9 Ap 2 '21
 New York arbitration law. C. H. Blake, jr. Am Arch 120:243-4 S 28 '21
 When you arbitrate. C. C. Sherlock. Am Mach 54:130-2 Ja 27 '21

Arbitration, Industrial

- Adjustment of labor disputes in packing house industries. Monthly Labor R 11:101-5 Jl '20
 Arbitration agreement of San Francisco building contractors and workers. Eng & Contr 55:190 F 23 '21

- Award in the Fort Smith (Arkansas) spelster company case. E. T. Gundlach. Monthly Labor R 11:1300-4 D '20
 Codification of the Ship building labor adjustment board awards, decisions, and authorizations. 341p U.S. Shipping board, Washington '21
 Comment on industrial conference plan. Iron Age 105:137-8 Ja 8 '20
 Compulsory arbitration aggravates unrest. D. E. Felt. Ptr Ink 112:125+ Ag 12 '20
 Conciliation and arbitration in collective labour disputes in France. Int Labour R 3:166-78 Jl '21
 Conciliation and arbitration in Great Britain; the development of arbitration during the war. Int Labour R 1:371-90 Mr '21
 Employee representation indorsed; president's second Industrial conference reports. Iron Age 105:875-9 Mr 25 '20
 Final report of Industrial conference and Gompers' attack. Ry R 66:518-19 Mr 27 '20
 How will it work?; symposium. Nation's Business 8:22-4 F '20
 Industrial arbitration and conciliation in Italy. Int Labour R 2:56-66 Ap '21
 Industrial conference declares for employee representation; summary of final report. Ind Management 59:348-54 My '20
 National arbitration plan offered by members of the Industrial conference. Iron Tr R 66:169-71 Ja 8 '20
 New arbitration agreement affecting building trades in San Francisco. Monthly Labor R 12:612 Mr '21
 Organizing national labor board. Iron Tr R 66:1007-10, 1054-5 Ap 1-8 '20
 Plan for national industrial arbitration. Ind Management 59:1-7 Ja '20
 Preliminary statement of president's industrial conference. Monthly Labor R 10:60-8 Ja '20; Same. Comm & Fin Chr 110:40-2 Ja 3 sec 1 '20; Same *abr.* Am Ind 20:14-17 F '20; Same *cond.* Ry Age 68:169-71 Ja 9 '20; Excerpt. Eng N 84:49-51 Ja 1 '20; Excerpt. Min & Met 158:(sec 1) 18-19 F '20; Excerpts. Elec W 75:39 Ja 3 '20; Excerpts. W Soc E J 24:sup19-21 Ja 5 '20; Summary. Ry R 66:17-19 Ja 3 '20
 Preparing for a wage arbitration. Elec Ry J 57:481-3 Mr 12 '21
 Proceedings of the first Industrial conference (called by the President) October 6 to 23, 1919. 285p National industrial conference, Washington, D.C. '20
 Report of Industrial conference. Ry Age 68:1062-3 Mr 26 '20
 Report of second Industrial conference. Am Ind 20:11-18 Ap '20
 Selected articles on the compulsory arbitration and compulsory investigation of industrial disputes. L. T. Beman. 4th ed. 303p H. W. Wilson co. '20
 Strike of packing employees averted through government mediation. Comm & Fin Chr 112:1233-5 Mr 26 '21
 Time and job analysis in management. W. O. Lichtner. Ind Management 60:201-7 S '20
 What the industrial report means to the American manufacturer. H. Tipper. Automotive Ind 42:774-5 Mr 25 '20
See also Courts, Industrial; Strikes; *also* Railway board of adjustment

Bibliography

Some references to material on arbitration of disputes between railroad companies and employees by government boards of arbitration. 21 min. p U.S. Bur. of railway economics library, Washington, D.C.

Arbitration, International

See Hague. Permanent court of international justice

Arbor press

- New note in printing plants. *il* Inland Ptr 64:729 Mr '20

Arbors and mandrels

- Arbor for threaded end mills. W. Older. *il* Am Mach 52:847-8 Ap 15 '20
 Bath expanding mandrels. *il* Am Mach 55:370 S 1 '21
 Expanding arbors. E. A. Dixie. *diags* Am Mach 53:664 O 7 '20

- Arc, Electric. See Electric arc
- Arc lamps. See Electric lamps, Arc
- Arc welding. See Electric welding, Arc
- Arca system of control
Automatic hydraulically operated regulating system. *il diags* Iron Age 106:1185-7 N 4 '20
- Arched bridges. See Bridges, Arched
- Arched trusses. See Trusses
- Archeology
Looking backward four thousand years; the story of a digger's luck that opened an Egyptian wonder house. A. A. Hopkins. *il Sci Am* 124:366 My 7 '21
See also Cliff dwellings; Egypt—Antiquities
- Arches
Arch brick work; formulas and tables for fantail or taper arches. A. D. Williams. *diag* Iron Age 106:1264-5 N 11 '20
Learning the truth about arches. G. H. Dacy. *il Sci Am* 125:77 Jl 30 '21
To spring a groined arch between high column and low walls. P. Thompson. *diag* Eng N 87:515-16 S 29 '21
Trainshed roof of steel arches instead of columns. *il diags* plan Eng N 85:350-2 Ag 19 '20
See also Bridges, Arched
- Arches, Concrete
Build 97-ft. concrete arch in one month. Eng N 87:747 N 3 '21
Long-span concrete roof arches for Chicago garage. *il diags* Eng N 86:167-9 Ja 27 '21
Novel concrete arches for garage roof supports. G. E. Warren. *il diags* Concrete 16:210-12 My '20
Test of a concrete floor arch. *il diags* Engineer 130:408-9 O 22 '20
- Architects
Address at 54th annual convention of the American institute of architects. H: H. Kendall. Am Arch 119:575-7 My 25 '21
Agenda for architects; memoranda of procedure and progress. Am Inst Arch J 9:sup3-22 Ja '21
Architect and public service. G. Brown. Am Arch 117:1-4 Ja 7 '20
Architect and the government. G. Brown. Am Arch 117:169-72 F 11 '20
Architect; the quest of the definition. W: L. Steele. Am Inst Arch J 9:107-9 Ap '21
Architects and draughtsmen. Am Inst Arch J 9:19-21 Ja '21
Architects and the professional movement. Am Inst Arch J 8:161-2 Ap '20
Architects and the public. F. S. Swales. Am Arch 117:359-62, 372-4 Mr 24 '20
Architect's control of furniture and decoration. *il* Arch Forum 34:17-20 Ja '21
Architects join engineers in state federation in Minnesota. Eng N 85:43+ Jl 1 '20
Architects' movement to improve relations with the engineers and with the public. Heat & Ven 17:37-9 F '20
Architect's signature on his work. L. V. Solon. *il* Arch Rec 48:173-6 Ag '20
Architectural engineer; being a discussion of the inter-professional relations of the architect, the architectural engineer and the engineer. R. W. Yardley. Am Arch 117:27-30 Ja 7 '20; Discussion. 117:341-2 Mr 17 '20
Architectural profession in the present day. R: W. Tudor. Am Inst Arch J 8:125-7 Mr '20; Same. Eng & Contr 53:318-20 Mr 24 '20
Best sort of client. Am Arch 117:277-8 Mr 3 '20
Competition for the federal buildings, 1792-1793. F. Kimball and W. Bennett. *il* plans Am Inst Arch J 7:521-8; 8:117-24 D '19, Mr '20
Co-operation between engineers, architects and construction men. Eng & Contr 52:257 Ag 27 '19
Crossover practice; an argument on the issues of the Pittsburgh bridge case. F. C. Shenehon. Eng N 84:1254 Je 24 '20
Debate on the relations of the architect to client, draftsman and builder. Am Arch 117:681-7 Je 2 '20
Development of architectural practice through local co-operation. C. S. Taylor. Arch Forum 33:109-10 S '20
Digressionists. H. V. Magonigle. Am Inst Arch J 9:71-2 Mr '21
Disciplinary procedure of the American institute of architects. H. W. Sellers. Eng N 84:677-80 Ap 1 '20
Interior decoration commissions. Arch Forum 34:105-6 Mr '21
Minneapolis architects have a colony. Am Arch 119:88 Ja 26 '21
Owner's duty to the architect. Arch Forum 34:71-4 F '21
Public's faith in the architect: his integrity never a matter of debate. Am Arch 117:37 Ja 14 '20
Relation of engineer to architect. F. C. Shenehon. Eng N 84:174-5 Ja 22 '20; Same. Eng & Contr 53:224-5 F 25 '20
Relationship between the architect and the engineer. K. Berle. Am Arch 119:4-5 Ja 5 '21
Report of the committee on relations with architects, contractors and builders. Am Gas Assn Commercial sec v 1:191-203; Discussion. 221-3 '19
Resolutions of Engineers' society of western Pennsylvania on bridge design by architects. Eng N 84:223 Ja 29 '20
Small-town architect and his problem. R. Bryan. *il* Am Arch 118:852-4 D 29 '20
Straight talks with architects. chart *diag* Arch Forum 35:105-8, 147-50 S-O '21
Study of definitions of professional engineer and engineering. A. D. Flinn, A. W. Kiddle and H. W. Craver. Am Arch 118:334 S 8 '20
Succeeding in architecture. R. F. Yates. Sci Am 125:64 Jl 23 '21
Suspicious client. Am Arch 118:574-5 N 3 '20
Talk to clients. P. E. Nobbs. Am Inst Arch J 9:227-32 Jl '21
Training for the practice of architecture. C: H. Moore. Arch Rec 49:56-61 Ja '21
What is an architect? J: W. Simpson. Am Arch 118:6-9 Jl 7 '20
See also Allied architects' association of Los Angeles; Architects' offices; Architectural education; Architectural societies; Architecture; Rotch traveling scholarship; also names of architects, e.g. McIntire, Samuel, Piranesi, Giovanni Battista
- Accounting
Organization, management and an accounting system for an architect's office. H. P. Van Arsdall. Am Arch 118:179-87 Ag 11 '20
- Advertising
Another profession's ethics yields to advertising. Ptr Ink 112:101+ Jl 1 '20
Office sketches to promote business; illustrated by sketches by Alfred Hopkins. *il* plans Am Arch 118:33-41, 48d-e Jl 14 '20
Selling architecture to the man on the street. S. H. Myers. Arch Forum 33:192 N '20
- Fees
Flat fee as a measure of equity. J: L. Mauran. Am Inst Arch J 8:385-6 N '20
- Law
Architects' right to compensation on postponement of work. Bldg Age 43:42-3 N '21
Architect's right to pay for sketches. Bldg Age 43:61-2 My '21
Architectural quicksands. C. H. Blake, jr. Am Arch 118:97-8, 137-40, 174-6, 316-18, 373-5, 433-5, 506-8, 569-72, 743-4, 821; 119:390+, 484-6 Jl 28-Ag 11, S 8, 22, O 6, 20, N 3, D 8, 22 '20, Mr 30, Ap 20 '21
Law as to architectural practice. J: Simpson. Am Arch 117:74-8 Ja 21 '20
Legal department. C. H. Blake, jr. See bi-monthly numbers of the American architect and the architectural review
Right to follow another's building model. Bldg Age 43:40-1 S '21
See also Architects—Licenses

Architects—Continued

Licenses

- Architectural registration matters. E. S. Hall. Am Arch 119:116-18 F 2 '21
 Joint registration laws. Arch Forum 33:232 D '20
 Legal regulation of standards of architectural practice. E. S. Hall. Am Inst Arch J 9:92-3 Mr '21; Excerpts. Am Arch 119:199 F 23 '21
 Minnesota's new registration law. Bldg Age 43:38-9 Jl '21
 National certification of architects. W. W. Beach. Arch Forum 33:150-2 O '20
 Proposed architects' registration act submitted to Ontario legislature. Can Eng 40:439-40 My 5 '21
 Proposed joint registration law for architects and engineers. R. E. Schmidt. Am Inst Arch J 8:131-2 Mr '20
 Registration of architects and engineers. D. E. Waid. Am Arch 120:14, 16 Jl 6 '21
 Registration of architects, engineers, and land surveyors. Am Inst E E J 40:70-1 Ja '21
 Rights to practice—senior and junior. W. P. Bannister. Am Inst Arch J 9:155-6 My '21
 Architects' and surveyors' assistants' / professional union
 First national convention, London. Eng & Contr 53:753 Je 30 '20
 Architects' offices
 Architect's offices solving high cost of office rent. C. A. Ziegler. plans Am Arch 120:8-9+, pl 15a-d Jl 6 '21
 Cooperative offices for architects in Minneapolis, Minn. E. H. Hewitt. il plans Am Inst Arch J 9:41-7 F '21; Same. Heat & Ven 18:27-30 Ap '21
 Office of an architect and engineer. E. G. Perrot. il chart plans Am Arch 118:121-3 Jl 28 '20
 Unique offices that help to advertise your business. il Bldg Age 43:30-1+ Ag '21

Management

- Architectural management. F. B. Ellis. Am Arch 119:397-8, 428, 436-7 Mr 30-Apr 6 '21
 Business elements in an architect's office. Arch Forum 34:31-5 Ja '21
 Department of specifications; office equipment. Am Arch 120:50-2+ Jl 20 '21
 New conception of the relation of an architect to his draftsmen. G. B. Cummings. Eng & Contr 53:220-1 F 25 '20; Same. Am Inst Arch J 8:87-8 F '20
 Organization, management and an accounting system for an architect's office. H. P. Van Arsdall. Am Arch 118:129-36, 179-87 Ag 4-11 '20
 Organization which renders a complete building service. chart Arch Forum 34:225-6 Je '21
 Studies in co-operation and draughting room management. G. B. Cummings. Am Inst Arch J 8:195-6 My '20; Same. Eng & Contr 53:595-6 My 26 '20
 Architects' small house service bureau of Minnesota
 Architects small house service bureau, inc., of Minnesota. E. H. Brown. Am Inst Arch J 8:196-7 My '20
 History of the bureau and working drawings sheets. E. H. Brown. diags map plans Am Inst Arch J 9:135-40 Ap '21
 Architectural acoustics. See Acoustics, Architectural
 Architectural competitions. See Architecture—Competitions
 Architectural decoration. See Decoration and ornament
 Architectural drawing
 Architectural drawing. O. S. Teale. 3d ed. 238p U. P. C. book co. '20
 Draftsman's own data file. H. V. Walsh. Arch Forum 33:201-3 D '20
 See also Architectural rendering; Blueprints
 Architectural education
 Architectural education in England and France. Am Inst Arch J 9:74-6 Mr '21

Next step in architectural education. A. Kelsey. Arch Forum 32:65-8 F '20

Report of the standing committee on education to the 53d annual conference of the American institute of architects. Am Arch 117:694-6 Je 2 '20

State departments of architecture. E. T. Huddleston. Am Arch 118:287-90 S 1 '20

Training for the practice of architecture. C. H. Moore. Arch Rec 49:56-61 Ja '21

See also Architecture—Study and teaching; Rotch traveling scholarship

Architectural iron work. See Iron work, Architectural

Architectural league of New York

Architectural league exhibition in New York; a fire and its lessons. il Am Arch 117:137-50, 152a-152e F 4 '20

36th annual exhibition. il Am Arch 119:475-83, 487, 490a-h, 491 Ap 20 '21; Bldg Age 43:30-2 My '21

Architectural libraries

See also Royal institute of British architects library

Architectural models

Latero-sectional models of Bellows and Aldrich. S. Baxter. il diags Arch Rec 46:529-34 D '19

Model making by architects. il Am Arch 118:749-50 D 8 '20

Model of Milan cathedral. il Arch & Bldg 52:39, 40 Mr '20

Use of models to secure business. il Bldg Age 43:54 N '21

Architectural rendering

Architectural rendering in wash. H. V. Magonigle. 160p Scribner '21

Arthur Byne's renderings and water-colors. M. Stapley. il plan Arch Rec 47:425-35 My '20

Philip L. Small's architectural sketches. L. V. Solon. il Arch Rec 47:25-37 Ja '20

Architectural societies

Architect's true relation to his professional organization. F. E. Davidson. Am Arch 118:42+ Jl 14 '20

See also American institute of architects; Société des architectes diplômés, Paris

Architecture

Aerial photography and architecture. P. P. Cret. il Am Inst Arch J 9:8-12 Ja '21

Architects and the public. F. S. Swales. Am Arch 117:359-62, 372-4 Mr 24 '20

Architectural expression in concrete. F. J. Helmlé. il diags plans Arch Forum 34:11-16 Ja '21

Architecture and its new obligations. J. T. Boyd, jr. Arch Rec 50:158-60 Ag '21

Case for modern architecture. J. W. Simpson. Am Arch 119:238, 243 Mr 2 '21

Crisis in architecture. A. J. Penty. Am Inst Arch J 8:55-60, 145-50, 208-12, 252-5, 316-22 F, Ap, Je-Jl, S '20

Design and tradition. A. Fenn. 376p Chapman and Hall, Ltd., London '20

Does architecture need a salesman? E. S. Hall. Arch Forum 32:49-52 F '20; Same abr. Eng & Contr 53:711-12 Je 23 '20

Enjoyment of architecture. T. F. Hamlin. 349p Scribner '21

Foundations of classic architecture. W. H. Goodyear. Am Arch 117:269-74 Mr 3 '20

Future of architecture. H. Barnes. Am Arch 118:858 D 29 '20

Genesis of architectural engineers. E. A. Roth. Arch & Bldg 53:69-70 S '21

Groundwork of architecture. E. G. Perrot. 34p E. G. Perrot, Philadelphia '21

Handbook of architectural practice. Press of the American institute of architects, Inc., New York '20

International architecture. H. Barnes. Am Inst Arch J 8:9-10 Ja '20

Is architecture a simultaneous art? D. J. Varon. Arch Rec 47:479-80 My '20

Land drainage; how it affects architecture and landscape architecture. F. W. Ives. map Arch Forum 35:55-8 Ag '21

Modern architecture. J. W. Simpson. Eng & Contr 55:653 Je 29 '21

Proportion in architecture. W. H. Ritter. il diags Arch Forum 35:51-4 Ag '21

Architecture—Continued

- Relation of painting to architecture. G: Bellows. il Am Arch 118:847-51 D 29 '20
 Relation of sculpture to architecture. A. S. Calder. il Am Arch 118:723-32, 775-82 D 8-15 '20
 Relationship between architecture and building. L: J. Horowitz. Am Arch 119:2-3 Ja 5 '21
 Reminiscences of an architectural practice. il Am Arch 120:177-82 S 14 '21
 State departments of architecture. Am Arch 117:42-6 Ja 14 '20
 Volute in architecture and architectural decoration. R. Newcomb. il diag map III U Eng Exp Sta Bul 121:1-77 '21
See also Amphitheaters; Arches; Architects; Architectural drawing; Architectural rendering, and other headings beginning Architectural; Arlington amphitheater; Armories; Art galleries and museums; Auditoriums; Automobile sales buildings; Automobile service stations; Bank buildings; Barns and stables; Bathhouses; Baths; Bridges; Building; Building materials; Capitol buildings; Cathedrals; Cellars; Chimneys; Church architecture; Clocks; Clubhouses; College architecture; Color in architecture; Columns; Community centers; Concrete construction; Concrete houses; Cornices; Cottages; Courthouses; Courts (architecture); Cyclorama; Decoration and ornament; Department stores; Domes; Doors; Doorways; Façades; Factories; Farm buildings; Fire houses; Fireplaces; Fireproof construction; Floors; Foundations; Fountains; Garages; Gateways; Grain elevators; Greenhouses; Gymnasiums; Hangars; Heating; High buildings; Homes (institutions); Hospitals; Hotels; House decoration; House painting; Industrial buildings; Ironwork, Architectural; Laboratories; Library architecture; Loft buildings; Machine shops; Market buildings; Masonry; Memorials; Mercantile buildings; Mine buildings; Mine shaft houses; Moldings; Monuments; Mortuary chapels; Moving picture theaters; Mural painting and decoration; Naval architecture; Newspaper offices; Office buildings; Orphanages; Partitions; Pavements; Mosaic; Pergolas; Plumbing; Power plants—Construction; Prisons; Public buildings; Public comfort stations; Pyramids; Railroads—Buildings; Railroads—Stations; Restaurants; Roofs; Schoolhouses; Sheet metal work, Architectural; Sing Sing prison; Stadia; Stairways; Steel construction; Store buildings; Strains and stresses; Strength of materials; Studios; Subway stations; Swimming pools; Terra cotta; Theaters; Theaters, Open-air; Tombs; Towers; Trellis work; Trusses; Tuberculosis, Hospitals and sanatoriums for; Vaulting; Ventilation; Walls; Warehouses; Windows; Woodwork; Young women's Christian association buildings; also subdivision Architecture under names of cities, e.g. Chicago, Illinois—Architecture; Los Angeles, California—Architecture; New York (city)—Architecture; Portland, Oregon—Architecture; Prague—Architecture

Bibliography

- Art and architecture after the war; a list of references. F. Weitenkampf. Arch Rec 46:485-9 N '19
 Books on architecture, decoration and furniture in the library of the Peabody institute. 23p Peabody institute, Baltimore, Maryland '20
 Literature and architecture; collection in the library of the Royal institute of British architects. R. Dircks. il Am Inst Arch J 9: 201-12, 233-9 Je-Jl '21
 Works of an English critic, Lawrence Weaver. C: O. Cornelius. Arch Rec 48: 551-2 D '20

Competitions

- Architectural competitions. Am Arch 118:644 N 17 '20

- Beaux-Arts institute of design; awards. il Am Arch 119:313-18, 516-23, 609-11, 651-3; 120:41-3+, 119-22 Mr 16, Ap 27, Je 8, 22, Jl 20, Ag 17 '21
 Le Brun scholarship competition, 1920-21. il plans Am Inst Arch J 9:85-91 Mr '21
 Committee on competitions of American institute of architects. R: F. Schmidt. Am Arch 117:617-19 My 19 '20
 Competition for the federal buildings, 1792-1793. F. Kimball and W. Bennett. il plans Am Inst Arch J 7:521-8; 8:117-24 D '19, Mr '20
 Criticism and comment. F. S. Swales. Am Arch 118:45+ Jl 14 '20
 Extracts from the program architectural competition for Milwaukee county general hospital design. plans Am Arch 118:635-7 N 17 '20
 Program of competition for a new group of buildings for the New Britain, Connecticut, state normal school. Am Arch 119: 59-61, pl 70a-g Ja 19 '21
 Proposal to revise the competition code. Am Inst Arch J 9:54-5 F '21
 Reply to An opinion on competitions. H: K. Holsman. Am Arch 117:153-5 F 4 '20
 Shadows and straws. Am Inst Arch J 8: 247-50 Jl '20
 Southern intercollegiate competitions; first prize designs for the years 1917-1920. il Am Arch 119:523-7 Ap 27 '21
 Summary of program of architectural competition for the remodeling of a New York city tenement block. Am Arch 117:497 Ap 21 '20
 Winning designs in the competition for the fellowship in architecture of the American academy in Rome. il Arch Rec 48:236-41 S '20

Designs and plans

- Architecture and engineering efficiently combined in sub-station at Flushing, Long Island. W: W. Knowles. il diag plans Am Arch 117:195-204 F 11 '20
 Posts and lintels; some suggestions on proportions for architectural designers. il Am Arch 120:205-8 S 14 '21
 Right to follow another's building model. Bldg Age 43:40-1 S '21
 Work of N. Max Dunning. il plans Am Arch 119:111-16, 122a-g, 176a-f F 2, 16 '21
See also Architecture, Domestic—Designs and plans

Details

- Details of early southern architecture; two famous mansions of Virginia. il diag Arch Forum 34:139-42; 35:67-70 Ap, Ag '21
 Early American domestic architecture. il diag plans Arch Forum 32:53-60; 33:101-8, 175-82, 219-26; 34:47-54 F, S, N-D '20, F '21
 English architectural decoration. A. E. Bullock. il diag Arch Rec 47:154-68, 527-43; 48:39-51, 224-35 F, Je-Jl, S '20
 House at Mount Kisco, N.Y.; the residence of Eugene Meyer, esq. il diag plans Arch Forum 33:123-30, pl 49-54 O '20
 Italian renaissance details; a collection of measured drawings by W: D. Foster. il diag plans Arch Forum 32:119-22, 245-8; 33:143-6 Mr, Je, O '20
 Rustication of the Ruccellai palace and the Strozzi palace, Florence, Italy. il diag Am Arch 120:82-b Ag 3 '21
See also Blinds; Decoration and ornament; Doorways; Fireplaces; Stairways; Windows

Exhibitions

- Architectural league exhibition in New York; a fire and its lessons. il Am Arch 117:137-50, 152a-152e F 4 '20
 Engineer at the architectural exhibit. Eng & Contr 55:282-3 Mr 23 '21
 Exhibit by American architects at the Salon of French artists. Am Inst Arch J 9:292-3 S '21
 Thirty-third annual Chicago architectural exhibition. il Am Arch 117:719-21, 725-6 Je 9 '20
See also Building trades—Exhibitions

Architecture—Continued

Moving picture settings

Architectural problems in motion picture production. J. H. MacFarland. il Am Arch 118:65-70 Jl 21 '20

Architecture and the motion picture. C. A. Ziegler. il Am Arch 119:543-9 My 11 '21

Architecture of motion picture settings. il Am Arch 118:1-5, 12a-h Jl 7 '20

Photoplay architect. J. Lachenbruch. il Am Arch 120:219-23 S 28 '21

Orders

Course in theoretical and practical architecture. F. S. Scarlata. 153p F. S. Scarlata, Port Huron, Mich. '21

Restoration

Thousand-year-old Far-East city being restored. F. Dickie. il Pop Mech 33:423-5 Mr '20

Study and teaching

Instruction in architecture in the A. E. F. art training center at Bellevue, Seine-et-Oise, France. G. H. Gray. Am Inst Arch J 8:63-6 F '20

See also Architectural education

Belgium

Reconstructing the farm buildings of Belgium. il Am Inst Arch J 8:251, 261-5 Jl '20

Dalmatia

Architect abroad with Hoover's legion. A. P. Shaw. il Am Arch 116:543-7+ O 29 '19

England

See also Architecture, Domestic—England

France

History of French architecture from the death of Mazarin till the death of Louis XV. R. T. Blomfield. 2v 128 l 200 pl. G. Bell and sons, London '21

See also Architecture, Domestic—France

Italy

See also Architecture, Domestic—Italy; Architecture, Italian; Florence, Italy—Architecture

Mexico

Impressions of the colonial architecture of Mexico. W. H. Kilham. il Arch Forum 34: 38-44, 85-90 F-Mr '21

See also Architecture, Domestic—Mexico

Porto Rico

Recent civic architecture in Porto Rico, Adrian C. Finlayson, architect. S. Baxter. il plans Arch Rec 48:137-58 Ag '20

See also Porto Rico—Capitol

Spain

Castles in Spain. G. G. King. il Am Inst Arch J 9:294-301 S '21

See also Architecture, Spanish

United States

Roosevelt and the fine arts. L. Wood. Am Arch 117:715-17 Je 9 '20

What architects may think about in 1921. Am Arch 119:11-13+ Ja 5 '21

See also Architecture, American; Architecture, Colonial; Architecture, Domestic—United States; also subdivision Architecture under names of cities, e.g. New York (city)—Architecture

Architecture, American

British architects and American architecture. Am Inst Arch J 8:413-16 D '20

British architects and American architecture. Am Arch 117:630-1 N 17 '20

Exhibit by American architects at the Salon of French artists. Am Inst Arch J 9:292-3 S '21

Indigenous architecture. G. W. Maher. Am Arch 117:335-6 Mr 17 '20

Indigenous architecture, Chicago school. G. W. Maher. Am Arch 117:555-6 My 5 '20

Review of American architecture as shown in the recent exhibition of the Societe des artistes franais. Am Arch 120:109-10 Ag 17 '21

See also Architecture—United States; Architecture, Domestic—United States

Architecture, Anglo-Saxon

Saxon architectural styles. N. T. Bacon. diags Arch Rec 47:477-9 My '20

Architecture, Baroque

Prague—as a city of the Baroque. S. Brinton. il Am Arch 119:343-9 Mr 23 '21

Architecture, Buddhist. See Temples, Buddhist

Architecture, Colonial

Alden house at Duxbury, Mass. S. Baxter. il plan Arch Rec 49:398-407 My '21

Details of early southern architecture; two famous mansions of Virginia. il diags Arch Forum 34:139-42 Ap '21

Early architecture of Pennsylvania. A. L. Kocher. il diags Arch Rec 48:512-30; 49:30-47, 134-55, 232-48, 310-30, 408-22, 518-35; 50:26-43, 146-57, 214-26 D '20-S '21

Interesting rooms of a remodeled colonial dwelling. il Arch Forum 34:69-70 F '21

Old stone houses of Esopus. H. M. Hastings. il Arch Rec 49:91-5 Ja '21

Survey of existing colonial architecture in Maine. F. H. Porter. il Am Arch 120:149-51 Ag 31 '21

Two colonial interiors from Beaufort, S.C. V. C. Salomonsky. diags Arch Rec 49:267-71 Mr '21

Architecture, Departments of

State departments of architecture. Am Arch 117:42-6 Ja 14 '20

State departments of architecture. E. T. Huddleston. Am Arch 118:287-90 S 1 '20

See also New York (state)—Architecture, Department of

Architecture, Domestic

Beautiful home without walls or doors. J. A. Ford. il plan Pop Mech 36:668-70 N '21

Built-in furniture. il diags Bldg Age 42:28-32 Ap '20

Electricity, small dwellings and garden cities. J. S. Whybrew. plans Electrician 86:408-10 Ap 8 '21

Home building simplified; what inventors are doing by way of giving the home builder more house for less money. M. A. Henry. il diag Sci Am 125:78-9+ Jl 30 '21

House of a great artist; Sir Laurence Alma-Tadema's residence in St John's Wood. il Am Arch 118:409-10 S 29 '20

Interiors adapted from the Italian. W. F. Wheeler. il plans Arch Forum 35:112-17, 155-9 pl 45-6 S-O '21

Ledge stone house. E. S. Wills. il Am Arch 117:67-73. pl 16-24 Ja 21 '20

Moderate priced house of tile and stucco. il Bldg Age 43:52-4 Ja '21

Stucco on hollow tile. il diags plan Bldg Age 42:20-5 F '20

Wanted: an inexpensive house. H. A. Mount. il Sci Am 123:596+ D 11 '20

What to think about when you plan a house. il plans Bldg Age 43:19-21 Je '21

See also Apartment houses; Architecture, Colonial; Bathrooms; Bedrooms; Blinds; Bungalows; Closets; Clubhouses; Concrete houses; Cottages; Country houses; Courts (architecture); Doorways; Farm buildings; Farmhouses; Fireplaces; Heating; House decoration; Housing problem; Housing projects; Landscape gardening; Log cabins; Mantels; Miners' houses; Plumbing; Porches; Stairways; Tenement houses

Designs and plans

Aid national own your own home movement; whole-souled co-operation by tin roofing and furnace heating trade. il diags plans Sheet Metal Worker 12:397-9 Jl 8 '21

Architectural styles or types for small-houses. K. W. Dalzell. il plans Bldg Age 42:42-7 My '20

Architecture of the small concrete house. R. B. Williamson. il diags plans Concrete 18: 15-19, 61-5 Ja-F '21

Architecture, Domestic—Designs and plans

—Continued

- Artistic and practical homes for the average man. J. Axelrod. 56p J. Axelrod, St Paul, Minn. '21
- Artistic development of the standardized house. il plans Am Arch 117:571-8, pl 584a-f My 12 '20
- Attractive brick house that cost only \$4500 to build. il plans Bldg Age 43:42 S '21
- Attractive design for a country house. il plans Bldg Age 42:46-51 Ap '20
- Attractive homes constructed with walls of hollow tile. il plans Bldg Age 42:25-7 Je '20
- Back-plastered stucco house construction. il plans Concrete 18:274-8 Je '21
- Before and after; a brief story of the remodeling of an old-fashioned house. C. S. Keefe. il plans Bldg Age 42:37-8, 44-5 Mr '20
- Belmont residence at Sand Point, L.I. Arch & Bldg 52:83-4, pl 104-5 S '20
- Block of small houses at Cambridge, Mass.; view and plans. Bldg Age 42:49 Ja '20
- Brick and shingle house at Champaign, Ill.; and other houses. Arch & Bldg 53: Dwelling house series 2-4 F '21
- Brick house of moderate cost; quantity survey. il plans Bldg Age 43:30-1 N '21
- Building better homes at Garden City. il plans Bldg Age 43:21-5, 42-4 Ja '21
- Building monolithic concrete houses on Long Island. F. F. Wilson. il diags plans Concrete 18:33-6 Ja '21
- Building plans for modern homes. F. H. Gowing. 160p F. H. Gowing, Boston '21
- Built: an inexpensive house. A. J. McCloy. Sci Am 124:127 F 12 '21
- Cambria steel co. building 100 concrete houses. il diags plans Concrete 19:2-5+ J1 '21
- Casa Dorinda, a California country house; house of Mrs William H. Bliss, Montecito. il diags plan Arch Forum 34:9-10, pl 1-5 Ja '21
- La cité-jardin Heyplaat de la Rotterdamsche Droogdok Maatschappij à Rotterdam. C. Lemaire. il plans Génie Civil 78:165-9 F 19 '21
- City house development of greater New York. il plans Arch Forum 34:103-4, pl 44 Mr '21
- Cold-proof house in Saskatoon. R. Patton. il diags plans Concrete 16:8-11 Ja '20
- Colonial house. Arch & Bldg 52:Dwelling house series 13 D '20
- Comfortable little homes built for less than \$10,000. W. S. Moore. il plans Bldg Age 43: 19-21 Ag '21
- Competition for plan and equipment of a model kitchen. plans Am Arch 118:745-8 D 8 '20; Same abr. Bldg Age 43:50-1 Ja '21
- Designs for American homes. H. G. Outwater. 113p Dodd, Mead & co., New York '21
- Development at Bronxville, N.Y. il diags plans Bldg Age 42:34-7 My '20
- Dutch colonial house. Arch & Bldg 53:Dwelling house series 14 Ag '21
- Dutch colonial house with modified gambrel roof at Maplewood, N.J.; view and plans. Bldg Age 42:42 F '20
- Easy-to-keep house. M. D. Morrill. diags plans Concrete 16:37-42 Ja '20
- Economical designs of plumbing. W. Hutton. plans Bldg Age 42:59-60 My '20
- Eight-room shingle house at Nutley, N.J. Arch & Bldg 52:Dwelling house series 4 Ap '20
- Euclid Golf, Cleveland, Ohio. H. D. Smith. il plans Arch Forum 34:165-72 My '21
- Floor plans of typical concrete block houses at Morgan park. il plans Concrete 16:23, 54-6 Ja '20
- Four concrete houses in Syracuse. H. Whipple. il diags plans Concrete 18:3-7, 106 Ja, Mr '21
- Four houses of widely varying types built at Maplewood, N.J. K. W. Dalzell. il plans Bldg Age 41:390-1 D '19
- Georgian house, with special reference to the house of J. Randolph Robinson, esq., at Westbury, Long Island. plan Am Arch 117: 5-6, front, pl 1-7 Ja 7 '20
- Good design in rectangular type of house. il plans Bldg Age 41:366 N '19
- Government plans for small houses. Concrete 19:127-8 S '21
- Helps for plan hunters. M. F. Roberts. il plans Concrete 18:37-9 Ja '21
- Home builders' guide. L. O. Bjostad. 48p Bjostad & Gustafson, Duluth, Minn. '21
- Home builder's plan book. 84p Building plan holding corporation, New York '21
- Home of beauty. 2d ed. 70p American face brick assn., Chicago '21
- Home of our movie stars. Bldg Age 43:42-3 O '21
- House and garage at Milwaukee, Wis. il plans Bldg Age 42:52-4 Ag '20
- House at Fieldston, N.Y., designed for an artist. diags plans Bldg Age 42:36-7 Ag '20
- House at Lansdowne, Pa.; views and plans. Bldg Age 42:48-9 Mr '20
- House at Maplewood, N.J.; views and plans. Bldg Age 41:362-3 N '19
- House at Mount Kisco, N.Y.; the residence of Eugene Meyer, esq. il diags plans Arch Forum 33:123-30, pl 49-54 O '20
- House at Spuyten Duyvil, New York city. il plans Am Arch 117:667-73 Je 2 '20
- House at Williamstown, Mass.; views and plans. Am Arch 118:794a-d D 15 '20
- House designs and plans. Bldg Age 43:40-7 Mr '21
- House erection on quantity production basis at Walkerville, Ontario. plan Eng & Contr 55:618 Je 22 '21
- House for practical convenience. il plans Arch Forum 33:183-6 N '20
- House for simplified house-keeping; house of L. G. French, White Plains, N.Y. il diags plans Bldg Age 42:23-6 J1 '20
- House in Brooklyn, N.Y.; views and plans. Arch Forum 32:pl 29-32 F '20
- House in Hackensack, New Jersey. Arch & Bldg 53:73-4, Dwelling house series 17, S '21
- House in the southern colonial style; residence of the Hon. Lathrop Brown, St James, Long Island, N.Y. il plans Arch Forum 33: 89-92, pl 33-8 S '20
- House of A. K. Wampole, esq., Guilford, Md.; views and plans. Arch Forum 32:pl 65-8 My '20
- House of Albert G. Milbank, esq., Huntington, Long Island, New York. plan Am Arch 118:351, 354a-e S 15 '20
- House of Allan Shelden, Detroit, Mich.; views and plans. Arch Forum 34:pl 88 Je '21
- House of Amos D. Carver, esq., Locust Valley, L. I., N. Y.; views and plans. Am Arch 120:113, 118a-j Ag 17 '21
- House of Andrew V. Stout, Redbank, N.J.; views and plans. Am Arch 119:586a-h My 25 '21
- House of B. Austin Cheney, New Haven, Conn.; views and plans. Am Arch 119:586k-o My 25 '21
- House of B. D. Benson, Passaic, N. J.; views and plans. Am Arch 118:606a-g N 10 '20
- House of Burton Etherington, Germantown, Pa. il plans Am Arch 118:812-17 D 22 '20
- House of C. M. MacNeill, 15 East 91st street, New York; views and plans. Am Arch 116: pl 200-4 D 10 '19
- House of Chapin S. Pratt, Lawrence Park West, N.Y. Am Arch 120:274i-l, 277 O 12 '21
- House of Charles L. Denison, Passaic, N.J.; views and plans. Am Arch 118:382d-f S 22 '20
- House of Chester S. Hardy, Fitchburg, Mass.; views and plans. Am Arch 117:310d-f Mr 10 '20
- House of Clarence McDaniel, Hartsdale, New York; views and plans. Am Arch 119:398e-h Mr 30 '21
- House of Dr W. R. Parks, Evanston, Ill.; views and plans. Arch Forum 33:pl 48 S '20
- House of E. M. Richards, West Newton, Mass.; views and plans. Am Arch 117:468g-i Ap 14 '20
- House of ex-president Woodrow Wilson, Washington, D.C. Arch Forum 34:pl 37-9 Mr '21
- House of Francis L. Coolidge, esq., Milton, Mass. Arch Forum 35:pl 41-3 S '21
- House of Fred B. Smith, Baldwin, Long Island, N.Y. Arch Forum 34:pl 60-1 Ap '21

Architecture, Domestic—Designs and plans

—Continued

- House of Fred J. Carver, Seattle, Wash.; views and plans. Bldg Age 43:43-6 F '21
- House of George Crompton, Pocasset, Mass.; views and plans. Am Arch 117:pl 612h-j My 19 '20
- House of George E. Cranmer, Denver, Colorado. Am Arch 118:674a-h N 24 '20
- House of George L. Osborn, Brookline, Mass.; views and plans. Am Arch 117:310a-c Mr 10 '20
- House of George S. Johns, St Louis county, Mo.; views and plans. Am Arch 118:862e-g D 29 '20
- House of Gifford L. Simonds, Fitchburg, Mass.; views and plans. Am Arch 117:374d-g Mr 24 '20
- House of Guido Doering, St Louis, Mo. Am Arch 128:706f-i D 1 '20
- House of Guy C. Foster, Tenafly, N.J. Bldg Age 43:42+ Ap '21
- House of H. Bellas Hess, Huntington, L.I., N.Y.; views and plans. Am Arch 120:82c-j Ag 3 '21
- House of H. W. Bell, Ardsley, New York. Am Arch 120:274g-h, 276 O 12 '21
- House of James T. Whitehead, esq., Detroit, Mich.; views and plans. Arch Forum 33:pl 92-3 D '20
- House of John W. Griffin, Fieldston, N.Y. Am Arch 119:556f-k, 557 My 11 '21
- House of Judge W. W. Watson, Passaic, N.J.; views and plans. Am Arch 118:382g-i S 22 '20
- House of L. H. Shearman, Lakeville, L.I., N.Y.; views and plans. Am Arch 120:152b-o, 153 Ag 31 '21
- House of Lawrence D. Beggs, Harford, Pa.; views and plans. Am Arch 118:474h-j O 13 '20
- House of Mr William Rogers, Braintree, Mass.; view and plans. Bldg Age 42:41 F '20
- House of Mrs A. J. Antelo Devereux, Dark Harbor, Me.; views and plans. Arch Forum 35:pl 24-7 Ag '21
- House of Mrs C. P. Adams, Dallas, Texas; views and plans. Am Arch 118:862a-d D 29 '20
- House of Mrs. H. J. Davis, Scarsdale, N.Y. Arch Forum 33:pl 25-8 Ag '20
- House of Mrs Helen S. Pearson, Miami, Florida; views and plans. Am Arch 118:824a-e D 22 '20
- House of Mrs I. F. Wardell, Stamford, Conn.; views and plans. Am Arch 116:pl 205-10 D 17 '19; Arch Forum 33:pl 90-1 D '20
- House of Mrs Louis Gassner, Hillsboro, Cal.; views and plans. Am Arch 120:82k-n Ag 3 '21
- House of Mrs P. H. Lombard, Pocasset, Mass.; views and plans. Am Arch 117:732d-f Je 9 '20
- House of Mrs Theodosia Pleadwell, Washington, D.C.; view and plans. Arch Forum 33:75 Ag '20
- House of Morris Rosenwald, esq., Chicago, Ill.; views and plans. Arch Forum 31:pl 91-3 D '19
- House of Philip P. Barber, esq., Tenafly, N.J.; view and plans. Arch Forum 34:pl 16 Ja '21
- House of R. E. Lewis, Hartsdale, N.Y. il Am Arch 119:556a-e, 557-8 My 11 '21
- House of Raymond S. Clark, esq., Great Neck, Long Island, N.Y.; views and plans. Arch Forum 33:pl 79-80 N '20
- House of Reeve Schley, esq., Far Hills, N.J.; views and plans. Arch Forum 32:pl 85-9 Je '20
- House of Rev. William M. Crane, Richmond, Mass. Arch Forum 34:75, pl 25-6 F '21
- House of Richard U. Sherman, Utica, N.Y.; views and plans. Am Arch 117:342a-d, 342h Mr 17 '20
- House of Robert Cushman, Brookline, Mass.; views and plans. Am Arch 117:374a-c Mr 24 '20
- House of Samuel Outerbridge, esq., Oyster Bay, Long Island, N.Y. Arch Forum 33:pl 55-7 O '20
- House of Theodore A. Steinmuller, esq., Baltimore, Md.; views and plans. Arch Forum 31:pl 94 D '19
- House of Thomas Newbold, 15 East 79th street, New York; views and plans. Am Arch 116:pl 196-9 D 10 '19
- House of W. G. Kaelber, Rochester, N.Y., and house near Dayton, Ohio; views and plans. Bldg Age 42:43-5 S '20
- House of W. W. Nichols, Rochester, N.Y.; views and plans. Am Arch 117:336, 342d-g Mr 17 '20
- House of William Ladd, Cedarhurst, L.I., New York. Am Arch 120:274a-f, 275 O 12 '21
- House of William V. Kelley, esq., Lake Forest, Ill. Arch Forum 33:pl 17-24 Ag '20
- House on Westview avenue, Philadelphia, Pa.; view and plans. Bldg Age 42:46-7 Mr '20
- House plans and views. Bldg Age 43:35-41 Ap; 51-8 My '21
- House with garage for 50-foot lot. il plans Concrete 18:245-6 My '21
- Houses at Erie, Pa., developed by United States housing corporation; views and plans. Bldg Age 42:42-6 Ja '20
- Houses at Maplewood, N.J.; views and plans. Bldg Age 42:44 F '20
- Housing by employers in the United States. L. Magnusson. il plans U S Bur Labor Statistics Bul 263:1-283 '20
- How a woman builds houses to sell at a profit for \$4,000. K. Gleason. il diags plans Concrete 18:8-14 Ja '21
- How an enterprising retail lumber concern meets the demand for low priced homes. il plans Am Lumberman 2352:54 Je 12 '20
- How to build stucco houses. W. Clay. il diags plans Bldg Age 43:37-9 Je '21
- How to plan, finance and build your home. 155p Architects' small house service bureau of Minnesota, inc., Minneapolis '21
- Ideas for house plan hunters. diags plans Concrete 16:200-1 Ap '20
- Influence for better small house design. F: L Ackerman. il plans Arch Forum 32:167-70 Ap '20
- Log houses. il diags plans Bldg Age 42:19-24 Ap '20
- Low cost suburban house at Randolph, New York. il diags plans Bldg Age 42:40-1 Ja '20
- Modern Cotswold at St Martins, Pa. H. D. Eberlein. il plans Arch Forum 33:7-16 Jl '20
- More plans for back-plastered stucco houses. Concrete 18:239-42 My '21
- Notes from England with special references to the work of Richardson & Gill, architects. H. J. Birnstingl. il diags plans Arch Forum 32:61-4 F '20
- Office sketches to promote business; illustrated by sketches by Alfred Hopkins. il plans Am Arch 118:33-41, 48d-e Jl 14 '20
- Pidgeon Hill residence of Meredith Hare, H. Croly. il plans Arch Rec 48:179-91 S '20
- Plans for a six-room concrete house. il plans Concrete 18:181 Ap '21
- Plans of a six-room colonial cottage. il plans Concrete 19:29 Jl '21
- Portfolio of current architecture. Arch Rec 49:440-53, 503-11 My-Je '21
- Possibilities of brick as a home building material. V: D. Abel. il diag plans Bldg Age 42:45-52 Jl '20
- Principles of small house design. J: T. Boyd, jr. il Arch Rec 46:403-18, 556-68; 47:58-75, 132-53, 233-64, 291-322, 436-55, 482-500; 48:242-56 N '19-Je, S '20
- Prize designs for stucco houses. il diags plans Concrete 18:182-5 Ap '21
- Rebuilding the city of Halifax. A. J. R. Curtis. il diags plan Bldg Age 43:21-3 F '21
- Residence at Allendale, N.J.; Zanesville, Ohio. Arch & Bldg 52:Dwelling house ser 7-8 O '20
- Residence of C. E. Carter, Tenafly, N.J.; House of R. N. Thatcher, Montclair, N.J. Arch & Bldg 53:Dwelling house series 5-6 Mr '21
- Residence of Herbert S. Drew, Belmont, Mass.; Residence of John R. Hoyt, Great Neck, L.I.; Residence of Mrs C. O. Baring, Hartsdale, N.Y.; views and plans. Arch Rec 49:79-90 Ja '21

Architecture, Domestic—Designs and plans
—Continued

- Residence of J. Harleston Parker, esq., Boston, Mass. F. C. Brown. il plans Arch Rec 46:498-517 D '19
- Residence of Julian Eltinge, esq., Los Angeles, California. E. Grey. il plan Arch Rec 49:99-113 F '21
- Residence of Miss E. S. Cushing, Waban, Mass.; views and plans. Arch Rec 50:70-4 JI '21
- Residence of Mrs Alexis L. Ehrman, Ather-ton, Cal.; view and plans. Arch Rec 48:459-60 N '20
- Residence of the late F. W. Woolworth, esq., Glen Cove, L.I. H. Croly. il plans Arch Rec 47:195-213 Mr '20
- Residence of William R. Coe, Oyster Bay, L.I. J. T. Boyd, jr. il plan Arch Rec 49:194-224 Mr '21
- Robert L. Bacon, jr., house. il plan Am Arch 117:397-9, pl 408a-g Mr 31 '20
- Saving of work is motive of unusual house. P. H. Woodruff. il plans Pop Mech 35:65-8 Ja '21
- Semi-detached four family house. G. A. Luckey. il diags plans Bldg Age 42:54-7 JI '20
- Servantless house on one floor. il plan Con-crete 18:121 Mr '21
- Seven-room house at Lansdowne, Pa.; views and plans. Bldg Age 42:46 F '20
- Seven-room stucco house and five room frame house; with quantity surveys. Bldg Age 43:24-8 O '21
- Simple dignified hollow tile house. il plans Bldg Age 43:50-1 N '21
- Six-room house for small corner lot. il plan Bldg Age 43:19-20 O '21
- Six room house that can be built on small lot. il diags plans Bldg Age 43:35-7 Ag '21
- Small concrete houses—attractive, quickly built and low in cost. il diags plans Bldg Age 43:24-6 Ag '21
- Small country house at Belmont, Mass.; views and plans. Arch Forum 31:217 D '19
- Small country house in Belmont, Mass.; view and plans. Arch Forum 33:153 O '20
- Small English country house at Hartsdale, N.Y.; view and plans. Arch Forum 33:231 D '20
- Small house at Yonkers, N.Y. il plans Arch Forum 34:151 Ap '21
- Small house plan idea. Concrete 19:167 O '21
- Small houses at moderate cost: prize-winning designs in the recent small house com-petition. il plans Bldg Age 43:20, 22-4, 28, 30 Ap '21; Excerpt (plans). Am Arch 119:305, 307, 309-12 Mr 16 '21
- Solving the concrete house design problem. R. B. Williamson. Arch & Bldg 53:56-7, Dwelling house series 11-12 JI '21
- Some houses of Paterson, N.J.; views and plans. Am Arch 118:578a-h N 3 '20
- Some post-war housing developments in New England. T. S. Rogers. il plans Arch Forum 34:213-18, pl 39-90 Je '21
- Some work of George Washington Smith. W. W. Kent. il plans Arch Forum 35:45-50 Ag '21
- Standarized small houses. M. D. Morrill. il diags plans Bldg Age 42:19-25, 41-3 Je '20
- Stone used effectively in a small house. il plans Bldg Age 42:53-4 S '20
- Stucco and clapboards form interesting com-bination. il diags plans Bldg Age 41:400-4 D '19
- Stucco and half timbered house at Lawrence Park, N.Y.; view and plans. Bldg Age 42:43 F '20
- Stucco house. 95p Atlas Portland cement co., New York, Chicago '21
- Study in brick. il plans Bldg Age 43:37 O '21
- Successful house and garage unit. Arch & Bldg 53:50+, pl 92a Je '21
- Texas residential development. il plans Arch Forum 35:73-5 Ag '21
- Thousand-dollar house and its near relatives. J. R. Richardson. il plan Sci Am 124:127 F 12 '21
- Two-family house at Mount Vernon, N.Y.; view and plans. Bldg Age 42:45 F '20
- Two-family houses are popular; with cost data. il plans Bldg Age 43:41-2 Je '21

- Two homes that reflect the spirit of country life. il plans Bldg Age 43:19-20 JI '21
- Two popular small house designs. il plans Bldg Age 43:23 N '21
- Type of patio dwelling possessing many de-sirable features. il plans Bldg Age 42:37-9 N '20
- United States housing corporation plans. Concrete 16:270-1 Je '20
- United States housing corporation proposed development at Ilion, N.Y., and Charleston, W. Va. diags plans Concrete 16:228-9 My '20
- Unusual bungalow of colonial design; resi-dence of John R. Pushee, Southern Pines, N.C. il plans Bldg Age 43:19-21 N '21
- Unusual side hill residence. il diags plans Bldg Age 43:36-7 N '21
- Well-designed and planned six-room house at Maplewood, N.J. il diags plans Bldg Age 42:19-21 Ja '20
- Well-planned two-family house. C: A. Byers. il plan Bldg Age 42:25-7 Ap '20
- Workman's home. L. H. Allen. il plans Sci Am S 88:358-9 D 13 '19
- See also Bungalows; Cottages; Miners' houses

Remodeling

See Houses, Remodeled

Balkan states

See Housing problem—Balkan states

England

- Building a nation; social aspects of Eng-land's housing program. L. Veiller. il Arch Rec 48:407-16 N '20
- Crisis in architecture. A. J. Penty. diags plans Am Inst Arch J 8:316-22 S '20
- English homes of the Norman and Plantag-anet periods. il Am Arch 120:76-9 Ag 3 '21
- Lugger's Hill, Broadway in Worcestershire. H. D. Eberlein. il plans Arch Forum 33:45-50 Ag '20
- Notes from England with special references to the work of Richardson & Gill, archi-tects. H. J. Birnstingl. il diags plans Arch Forum 32:61-4 F '20

See also Housing problem—Great Britain

France

- How France is building new and better low-cost houses. M. D. Morrill. il diags plans Bldg Age 43:36-8 S '21
- See also Housing problem—France; Hous-ing problem—Paris

Italy

- Cigliano, San Casciano, Val Di Pesa. H. D. Eberlein. il plan Arch Rec 50:133-45 Ag '21
- Cortile of the Palazzo Peretti in Rome. H. D. Eberlein. il diag plan Arch Rec 48:107-20 Ag '20
- L'Ombrellino, at Pian de'Giullari near Flor-ence, Italy. H. D. Eberlein. il plan Arch Rec 48:441-51 N '20
- Villa Capponi at Arcetri, near Florence, Italy. H. D. Eberlein. il Arch Rec 49:114-33 F '21
- Villa Frullino near Florence. H. D. Eberlein. il plans Arch Rec 49:18-29 Ja '21
- Villa Galileo (Il Giojello), at Pian de' Giul-lari, near Florence, Italy. H. D. Eberlein. il plan Arch Rec 48:3-13 JI '20
- Villa Madama Rome. H. D. Eberlein. il plans Arch Rec 49:253-66, 346-57 Mr-Ap '21
- Villa Pazzi (La Vacchia), Pian de'Giullari, near Florence, Italy. H. D. Eberlein. il plan Arch Rec 48:495-511 D '20
- Villas of the Veneto; the Villa Berchet, on the Terraglio, near Mestre. H. D. Eberlein and R. B. C. M. Carrère. il plan Arch Forum 34:157-64 My '21
- Villas of the Veneto; the Villa Cerato at Montecchio Precalcino. H. D. Eberlein and R. B. C. M. Carrère. il diags plan Arch Forum 34:77-84 Mr '21
- Villas of the Veneto; the Villa Emo at Fan-zolo. H. D. Eberlein and R. B. C. M. Car-rère. il diags plan Arch Forum 34:1-8 Ja '21

Mexico

- Passing of the House of the tiles. S. Baxter. il Arch Rec 46:493-6 N '19

Architecture, Domestic—Continued

Russia

Russian working-class dwellings. T. W. Clark. *il Am Inst Arch J* 8:260 J1 '20

United States

Ante-bellum houses of central Alabama. N. C. Curtis. *il Am Inst Arch J* 8:388-98 N '20
 Architectural league exhibition in New York; house of C. E. Chambers, Riverdale, N.Y. *Am Arch* 117:152a-e F 4 '20
 Details of early southern architecture. *il diags Arch Forum* 35:67-70 Ag '21
 Domestic architecture of California. W: W. Kent. *il Arch Forum* 32:95-100, 151-6 Mr-Apr '20
 Early American domestic architecture. *il diags plans Arch Forum* 32:53-60; 33:101-8, 175-82, 219-26; 34:47-54 F, S, N-D '20, F '21
 Early brick houses of Salem county, New Jersey. H. D. Eberlein. *il diags Am Arch* 120:139-48 Ag 31 '21
 Hillside house; the property of George Howe, esq., Chestnut Hill, Philadelphia. P. P. Cret. *il plan Arch Rec* 48:82-106 Ag '20
 House at Elizabeth, N.J., designed and owned by H. G. Morse, architect; views. *Am Arch* 120:118k-m Ag 17 '21
 House at Greenwich, Conn. R. F. Whitehead. *il plan Arch Rec* 49:287-99 Ap '21
 House at Oceanic, New Jersey; views. *Am Arch* 117:188a-d F 11 '20
 House at Oyster Bay, L.I., N.Y.; views and plan. *Am Arch* 117:436d-i Ap 7 '20
 House in Washington, D.C., of George Oakley Totten, architect. *il plan Am Arch* 120:1-7 J1 6 '21
 House of A. W. Bliss, Marion, Mass.; views. *Am Arch* 116:pl 153-4 O 29 '19
 House of Edward A. Clark, Marion, Mass.; views. *Am Arch* 116:pl 146-8 O 22 '19
 House of F. H. Kennard, Newton Centre, Mass.; views. *Am Arch* 116:pl 155 O 29 '19
 House of G. S. Gaylord, Neenah, Wis.; views. *Am Arch* 120:118n-p Ag 17 '21
 House of George W. Olmstead, Ludlow, Pa.; views. *Am Arch* 117:468a-f Ap 14 '20
 House of H. R. Rea, Sewickley, Pa.; views. *Am Arch* 117:pl 612a-e My 19 '20
 House of James J. Hill, Old Westbury, L.I., N.Y.; views. *Am Arch* 119:16a-h Ja 5 '21
 House of L. H. Shearman, Lakeville, L.I., N.Y.; views and plans. *Am Arch* 120:152b-o, 153 Ag 31 '21
 House of Ralph Isham, Santa Barbara, Cal.; views. *Am Arch* 119:44a-d Ja 12 '21
 House of Robert J. Thorne, Lake Forest, Ill.; views. *Am Arch* 119:265-7+ Mr '21
 House of S. H. P. Pell, Fort Ticonderoga, N.Y.; views. *Am Arch* 120:pl 14a-h J1 6 '21
 Houses at Chestnut Hill, Pa.; views. *Am Arch* 119:pl 616a-h Je 8 '21
 Old houses, Connecticut; views. *Am Inst Arch J* 8:113-15 Mr '20
 Old Salem houses. W. H. Hunt. *il Am Arch* 119:507-13, 522a-f Ap 27 '21
 Post-war housing. *il plans Am Arch* 118:809-17 D 22 '20
 Residence of Grenville T. Emmet, esq.; views. *Arch Rec* 46:476-83 N '19
 Residence of Heatly C. Dulles, esq., Villa Nova, Pa. E. B. Gilchrist. *il plan Arch Rec* 49:2-17 Ja '21
 Residence of Julian Eltinge, Los Angeles, California. F. Grey. *il plan Arch Rec* 49:99-113 F '21
 Residence of Mr Joseph E. Tilt, Chicago; views. *Am Arch* 119:pl 428h-k Ap 6 '21
 Residence of Mrs B. F. Pepper, Chestnut Hill, Philadelphia. W: L. Bottomley. *il Arch Rec* 48:370-83 N '20
 Residence of the late F. W. Woolworth, esq., Glen Cove, L.I. H. Croly. *il plans Arch Rec* 47:195-213 Mr '20
 Samuel McIntire, housewright-architecture, Salem, Mass. W. H. Hunt. *il Am Arch* 119:415-22, pl 428a-e Ap 6 '21
 Six and seven-room duplex houses that are being built in New York. *il Bldg Age* 43:46 J1 '21

Southern California home of H. L. Hitchcock, built of double wall concrete. C. M. Winslow. *il plan Concrete* 19:54-7 Ag '21

Survey of existing colonial architecture in Maine. F: H. Porter. *il Am Arch* 120:149-51 Ag 31 '21

Turtle Bay gardens, New York city. A. W. Colton. *il plan Arch Rec* 48:467-93 D '20

Villa Carola, the residence of Mr and Mrs Isaac Guggenheim, Port Washington, L.I. *il plans Arch Forum* 32:145-50, pl 49-58 Ap '20

See also Architecture, Colonial

Architecture, Dutch

Old stone houses of Esopus. H. M. Hastings. *il Arch Rec* 49:91-5 Ja '21

Architecture, Greek

Greek design; with discussion. J. Hambidge. *diags Am Inst Arch J* 8:288-95 Ag '20

Hambidge theory of symmetry and proportion in Greek architecture as relating to architectural design. J. A. Kane. *diags Am Arch* 120:261-5 O 12 '21; Discussion. 120:316-17 O 26 '21

Architecture, Italian

Interiors adapted from the Italian. W. F. Wheeler. *il plans Arch Forum* 35:112-17, pl 45-6 S '21

Italian renaissance details; a collection of measured drawings by W: D. Foster. *il diags plans Arch Forum* 32:119-22, 245-8; 33:143-6 Mr, Je, O '20

See also Architecture, Domestic—Italy

Architecture, Mayan

See also Southwest museum, Los Angeles

Architecture, Medieval

See also Prague—Architecture

Architecture, Renaissance

Italian renaissance details. *il diags Arch Forum* 32:119-22, 245-8; 33:143-6 Mr, Je, O '20

Renaissance architecture and its critics. A. D. F. Hamlin. *il Arch Rec* 47:408-24 My '20

Architecture, Russian

Slav temperament in architecture. L. V. Solon. *il Arch Rec* 47:371-6 Ap '20

Architecture, Spanish

Arthur Byrne's renderings and water-colors. M. Stapley. *il plan Arch Rec* 47:425-35 My '20

Domestic architecture of California. W: W. Kent. *il Arch Forum* 32:95-100, 151-6 Mr-Apr '20

Impressions of the colonial architecture of Mexico. W. H. Kilham. *il Arch Forum* 34:38-44, 85-90 F-Mr '21

Mission Inn at Riverside, California. D. J. Baum. *il plan Am Arch* 118:201-7 Ag 18 '20

Passing of the House of the tiles. S. Baxter. *il Arch Rec* 46:493-6 N '19

Some recent California architecture; the work of Louis Christian Mullgardt, architect. *il plans Arch Forum* 33:51-4 Ag '20

See also Architecture—Spain

Arcs

Laying out a circular arc when center is unknown or unavailable. W: S. Ayars. *Am Mach* 54:112-13 Ja 20 '21

Arctic exploration

Tractor to figure in Arctic exploration. *il Pop Mech* 34:483 O '20

Arctics. *See Overshoes*

Area measurement

Area measurement of leather. F: J. Schlink. *il diags U S Bur Stand Tech Pa* 153:1-47 '20
 Areas of segments of circles. D. W. Starkey. *diag Eng N* 84:880 Ap 29 '20

Formulas for finding the area of a circular segment. W: W. Johnson. *diag Mach* 26:870 My '20

Handy chart for finding the area of a ring. W. F. Schaphorst. *Metal Ind* 19:362 S '21

Argentina

See also Automobile industry and trade—Argentina; Iron industry and trade—Argentina; Irrigation—Argentina; Paint industry—Argentina; Petroleum—Argentina; Railroads—Argentina; Roads—Argentina

Argentina—Continued**Commerce**

- Advertising methods in Argentina, Uruguay, and Brazil. J. W. Sanger. *il U S Bur For & Dom Com* 190:1-55 '20; Excerpts. *Ptr Ink* 111:160+ My 13 '20
- Construction materials and machinery in Argentina and Bolivia. W. W. Ewing. *il U S Bur For & Dom Com* 188:1-152 '20
- Electrical goods in Argentina, Uruguay, and Brazil. P. S. Smith. *il U S Bur For & Dom Com* 184:1-74 '19
- Textile markets of Argentina, Uruguay, and Paraguay. L. S. Garry. *il U S Bur For & Dom Com* 194:1-151 '20
- Trade with the Argentine Republic. Engineering 110:646 N 12 '20

Economic conditions

- Argentine oil and labor conditions. M. R. Lamb. *Eng & Min J* 112:221-2 Ag 6 '21
- Cost of living in Argentina. *Monthly Labor R* 11:1194-6 D '20
- Economic position of Argentina during the war. L. B. Smith, H. T. Collings and E. Murphey. *diags maps U S Bur For & Dom Com misc ser* 88:1-131; Bibliography. 132-4 '20
- Fuel in Argentina. V. L. Havens. *il Power* 52:649-50 O 26 '20

Argon

- Chemical loafer, and how it was put to work; rôle of argon in the latest incandescent lamps. E. W. Davidson. *il Sci Am* 123:58 J1 17 '20

Argonne cemetery

- Argonne cemetery of the A. E. F. at Romagne-Sous-Montfaucon, France. P. H. Elwood, jr. *il plans Arch Rec* 47:506-10 Je '20

Argumentation

- Proof's the thing! H. Viets. *Eng N* 85:266-7 Ag 5 '20

Aristol

- Aristol. G. H. Woollett. *Am Chem Soc J* 43: 553-61 Mr '21

Arithmetic, Commercial

- Business mathematics. E. I. Edgerton and W. E. Bartholomew. 305p Ronald Press '21
- Exercises in business practice. H. E. Cowan and H. W. Loker. 100p Ginn '21
- Mathematics of accounting and finance. S. Walton and H. A. Finney. 274p Ronald press '21
- Vocational arithmetic. C. E. Paddock and E. E. Holton. 232p Appleton '20

See also Accounting; Bookkeeping; Business; Decimal system; Interest; Metric system; Multiplication

Arithmetic, Mental

- Mental multiplication and division of large numbers. V. A. Bailey. *Philos Mag* 6th ser 42:390-7 S '21

Arizona

See also Coal mines and mining—Arizona; Copper mines and mining—Arizona; Geology—Arizona; Gold mines and mining—Arizona; Hydroelectric plants—Arizona; Mines and mineral resources—Arizona; Roads—Arizona; Silver mines and mining—Arizona

Arkansas

- Business man's America; Arkansas. A. W. Douglas. *il Nation's Business* 8:17-20 Ap '20

See also Gasoline industry—Arkansas; Mines and mineral resources—Arkansas; Petroleum industry and trade—Arkansas; Roads—Arkansas

Arkansas river

- Overflow channels proposed for Pueblo flood protection. *map Eng N* 87:570 O 6 '21

Arlington amphitheater

- Arlington memorial amphitheater. *il diags plans Arch Forum* 34:91-6, pl 33-6 Mr '21

Armatures

- Armature slot wedges. F. J. Aimutis. *il Elec J* 16:524-5 D '19
- Broken leads in armature windings. *Elec J* 17:81-2 F '20

- Calculating stresses in armature bands. H. E. Weightman. *Elec W* 76:192 J1 24 '20
- Checking armature and axle bearing wear. J: S. Dean. *Elec J* 17:588-9 D '20
- Direct-current armature windings. J. Gintz. *diags Elec R* 76:523-7, 683-6, 897-900 Mr 27, Ap 24, My 29 '20
- Effect of short-time overloads on railway motor armatures. J. K. Stotz. *Elec J* 17:473-4 O '20
- Eliminating troublesome crossing of wires in armature coils. C. A. Johnson. *diags Elec W* 76:482 S 4 '20
- Locating faults in armature windings—single-parallel windings. B. A. Briggs. *diags Power* 54:525-7 O 4 '21
- Locating faults in direct-current armatures—coils and windings. B. A. Briggs. *diags Power* 54:358-60 S 6 '21
- Locating faults in direct-current armatures—single-series windings. B. A. Briggs. *diags Power* 54:671-4 N 1 '21
- Longitudinal and transverse heat flow in slot-wound armature coils. C. J. Fechheimer. *Am Inst E E J* 40:244-8, 332-40, 421-30 Mr-My '21
- Number of bars and torque of squirrel-cage armatures; abstract. W. Stiel. *Elec W* 77: 1005 Ap 30 '21
- Operation of direct-current machinery with compensating windings. H. M. Phillips. *il diags Power* 53:620-4 Ap 19 '21
- Problem course in electricity; generator armatures. H. H. Bliss. *diags J Elec* 46: 204-5 F 15 '21
- Record of large turbogenerator armature breakdowns. F. D. Newbury. *Elec J* 17: 353-4 Ag '20; Same. *Elec Ry J* 56:224 J1 31 '20; Same. *Elec R* 77:287-8 Ag 21 '20; Same. *Power* 52:235 Ag 10 '20
- Screw device for forcing armature on shaft. J. Dixon. *diags Elec W* 75:903-4 Ap 17 '20
- Uncommon armature connections. M. A. Meyers. *diags Power* 53:740-1 My 10 '21
- See also* Commutators; Magnetomotive force

Baking

- Almost laborless dipping and baking plant; Cold Spring shops of the International railway. *il Elec Ry J* 55:386-7 F 21 '20
- Armature and field coil bake oven in the shops of the Newport News & Hampton railway, gas & electric company at Hampton, Va. *il Elec Ry J* 55:399-400 F 21 '20
- Armature baking reduces number of direct-current motor repairs. *il Elec W* 77:491-2 F 26 '21
- Observations on armature dipping and baking. E. C. Parham. *Elec W* 78:125-6 J1 16 '21; Discussion. I. B. Steifel. 78:781 O 15 '21
- Procedure to follow in dipping and baking armatures. J: S. Dean. *il Elec W* 77:1055-7 My 7 '21
- Thorough system of baking coils, armatures and stators. L. E. Wood. *Elec W* 78:275-6 Ag 6 '21

Cleaning

- Home-made air ejector makes armature cleaning a more pleasant job. *il Elec Ry J* 55:577 Mr 20 '20

Manufacture

- Forming armature coils. E. M. Love. *diags Pop Mech* 35:622 Ap '21
- Production methods in armature manufacture. N. G. Shidle. *il diag Automotive Ind* 45:318-20 Ag 18 '21

Repair

- Defects of 1,200-volt armatures corrected with amber baking varnish. *Elec Ry J* 55:381-2 F 21 '20
- Keeping armature repair records. *Elec Ry J* 58:783 O 29 '21
- Operating requirements when baking armatures. C. A. Aubrey. *diag Elec W* 74:889 O 25 '19
- Piece work reduces cost of motor repairs. *Elec W* 75:375-6 F 14 '20
- Repair shop has efficient armature bake oven. *il diag plan Elec Ry J* 56:132 J1 17 '20

Armatures—Repair—Continued

Repairing large alternating-current generators—work on the core. N. L. Rea. *il diags* Power 54:400-3 S 13 '21

Testing

Armatures and field coils tested by transformer action. A. J. Morroni. *diags Elec W* 75:387 F 14 '20

Bar-to-bar test of small armatures made rapidly. H. I. Mickle. *il diags Elec W* 78:27-8 J1 2 '21

How to locate faults in direct-current armatures. W. A. Darter. *diags Power* 51:660-1 Ap 27 '20

Kick method of locating reversed coils. F. W. Gay. *diags Elec W* 77:884 Ap 16 '21

Locating solid ground in armature. F. W. Gay. *diags Elec W* 77:775-6 Ap 2 '21

Winding

Armature winding and induction motor diagrams. C. Sylvester. *diags Elec R (Lond)* 89:366-7 S 16 '21

Elementary principles of continuous-current armature winding. F. M. Denton. 102p Pitman '21

Machine winds armature in twenty minutes. *il Pop Mech* 36:398 S '21

Rewinding a direct-current armature. W. A. Hefner. *il Power* 52:295-7 Ag 24 '20

Some pointers to follow when rewinding armatures. J. S. Dean. *Elec W* 78:423 Ag 27 '21

Winding railway motor armatures. J. B. Stiefel. *il Elec J* 17:485-8 O '20

Armenia

President Wilson's message to Congress urging that the United States accept mandate over Armenia; report of Harbord commission. *Comm & Fin Chr* 110:2257-60 My 29 '20

Armies

See also Soldiers; *also* subdivision Army under names of countries, e.g. Great Britain—Army, United States—Army

Water supply

Javellization. E: Bartow. *il Am Water Works Assn J* 7:193-7 Mr '20

New mobile water purification unit. *diag Eng & Contr* 56:142 Ag 10 '21

Water consumption in army camps. G: A. Johnson. *Am Water Works Assn J* 7:102-7 Ja '20

Water supply of an army division in Palestine. J. E. Pringle. *il Can Eng* 38:219-22 F 19 '20

Water supply of the American expeditionary forces. E: Bartow. *il J Ind & Eng Chem* 12:903-7 S '20

Water supply of the service of supplies, A. E. F. J. J. Hinman, jr. *Am Water Works Assn J* 7:179-87 Mr '20

Water supply problem in a combat division. L. A. Fritze. *Am Water Works Assn J* 7:117-26 Ja '20

Water supply system of Camp McClellan, Alabama. M. R. Scharff. *diag map Am Water Works Assn J* 7:103-16 Ja '20

Armor plate

Armor-plate and gun-forging plant of U.S. navy, South Charleston, W.Va. R. M. Freeman. *il diags plans Mech Eng* 42:657-68+ D '20; Same abr. *Iron Age* 106:1458-62, 1600-4 D 2, 16 '20; Same cond. *Iron Tr R* 67:1669-74+ D 16 '20

Government armor plate factory; naval ordnance plant, South Charleston, W. Va., compared with 1897 project. S. G. Koon. *il plans Iron Age* 107:1365-71 My 26 '21

United States naval ordnance plant, South Charleston, W. Va. W: J. Priestley. *il Blast F & Steel Pl* 9:254-9 Ap '21

Testing

Trials of the German armour plates. *il Engineering* 112:419, 604, 610-11 S 16, O 28 '21

Armored automobiles. *See* Automobiles, Armored

Armored motor trucks. *See* Motor trucks, Armored

Armories**Lighting**

Illumination of armories and gymnasiums. A. L. Powell and A. B. Oday. *il Elec R* 76:969-75 Je 12 '20

Armour and company, Kansas City, Kansas

Armour system of power-plant accounting. O. A. Anderson. *Power* 53:128-31, 170-4, 219-22 Ja 25-F 8 '21

New Armour plant at Kansas City. *il diags plan Power* 52:966-9 D 21 '20

Record system of steam and motor pumping costs. O. A. Anderson. *il Power* 53:886-92 My 31 '21

Armour & company, South Saint Paul, Minnesota

Packing plant of Armour & company. *Arch & Bldg* 52:34-6, pl 25-30 Mr '20

Armour fertilizer works

Armour fertilizer works. C. H. Jones. *il diag plan Chem & Met Eng* 24:333-7, 379-84 F 23-Mr 2 '21

Armour institute of technology, Chicago

Armour institute of technology and its work. *il Elec R* 78:859+ My 28 '21

Arms and armor

Helmets and body armor in modern warfare. *il Sci Am* 123:159+ Ag 14 '20

Rare South sea armor. F. Dickie. *il Sci Am* 122:461 Ap 24 '20

Armstrong manufacturing company

When your market goes back on you. *Ptr Ink* 117:77-8+ O 27 '21

Army camps. See Camps, Military**Army ordnance association**

1st annual meeting, Aberdeen Proving Ground, Md., Oct. 24-25. *Am Mach* 51:871-5 N 13 '19

Army supply bases

Army supply base at Charleston. *il Marine R* 50:409-10 J1 '20

Base aids Norfolk's commerce. *il map plan Marine R* 50:290-3 My '20

Base insures Newark's growth. *il diags plan Marine R* 50:227-9 Ap '20; Same abr. *Iron Tr R* 66:1072-3 Ap 8 '20

Big Boston terminal will promote port development. *diag plan Marine R* 50:133-6 Mr '20

Bridge cranes at the Boston army base. *il Int Marine Eng* 25:221-3 Mr '20

Freight handling at marine terminals. A. K. West. *il diags Int Marine Eng* 25:598-600 J1 '20

Material-handling in Brooklyn army base. *il Textile World* 57:1199+ F 7 '20

New Orleans army supply base. *Arch & Bldg* 52:12-13, pl 9-12 Ja '20

New terminal at Philadelphia. *il map plan Marine R* 50:346-50 Je '20

Planning and progress on a big construction job. C: Penrose. *il charts diag Eng N* 84: 554-61, 627-33 Mr 18-25 '20

United States army supply base, Brooklyn, N.Y. *il diags plans Am Arch* 116:651-8, pl 179-85 N 26 '19

United States army supply base, New Orleans, La. A. P. Hoover. *il diags plan Am Arch* 116:669-80 N 26 '19

Cost

Cost-plus contract satisfactory on Boston army base. *il Eng N* 84:326-9 F 12 '20

Electric equipment

Equipment of army supply base at Philadelphia. *il Elec R* 76:715-18 My 1 '20

Arnold, Bion J., 1861-

Portrait. *Elec W* 76:864 O 30 '20

Sketch. W. Painter. *por Power Pl Eng* 24: 130-2 Ja 15 '20

Arnold, Horace Lucian

Portrait. *Ind Management* 61:280 Ap 1 '21

Arnold stone, brick, and tile plant, Jacksonville

Arnold stone, brick and tile plant, Jacksonville. *il plan Concrete* 18:291-2 Je '21

Arrhenius, Svante August, 1859-
Portrait. Power 52:57 JI 13 '20
Presentation of the Franklin medal. por J
Fr Inst 190:91-121 JI '20

Arsanilic acid

Improved method for the preparation of primary arsanilic acid. H. C. Cheetman and J. H. Schmidt. Am Chem Soc J 42:828-9 Ap '20

Arsenals

Employees

Employees advisory plan of the arsenals. N. D. Baker. Ind Management 58:400-2 N '19

Government demands open shop; refuses to deal with trade unions in operation of arsenals. T. C. Dickson. Iron Tr R 67:1734-5 D 23 '20

Arsenates

Separation and detection of arsenate and arsenite. G. W. Sears. Am Chem Soc J 43:466-70 Mr '21

See also Calcium arsenates

Arsenic

Arsenic, bismuth, selenium, and tellurium in 1920. V: C. Heikes. U S Geol S Min Res of U S 1920,pt 1:51-65 '21

Arsenic in 1919. J. M. Hill. U S Geol S Min Res of U S 1919,pt 1:19-21 '20

Arsenic in 1919. A. E. Wells. Eng & Min J 109:214 Ja 17 '20

Arsenic in 1920. A. E. Wells. Eng & Min J 111:149 Ja 22 '21

Arsenic industry in Japan. Chem & Met Eng 23:1007 N 24 '20

Automatic detector for arsenic in gases; patent. diag Chem & Met Eng 24:38 Ja 5 '21

Detection of arsenic in sulfur. H. S. Davis and M. D. Davis. J Ind & Eng Chem 12:479-80 My '20

Determination of the electrolytic potential and overvoltage of arsenic. V. B. Marquis. Am Chem Soc J 42:1569-73 Ag '20

Effect of arsenic in steel. P. E. McKinney. Chem & Met Eng 23:294 Ag 18 '20; Same. Iron Age 106:725 S 16 '20; Same, without table. Sci Am 124:47 Ja 15 '21

Effect of increasing proportions of antimony and of arsenic respectively upon the properties of admiralty gun-metal. R. T. Rolfe. J Engineering 110:689-91, 752-4 N 19, D 3 '20; Abstract, with discussion. Engineer 130:299 S 24 '20

Electro-analytical separation of nickel (cobalt) from arsenic. N. H. Furman. Am Chem Soc J 42:1789-93 S '20

Pure metallic arsenic. C. H. Jones. bibliog il Chem & Met Eng 23:957-60 N 17 '20

Rapid method for quantitative determination of arsenic in commercial sulfuric acid. A. A. Kohr. J Ind & Eng Chem 12:580-1 Je '20

Recherche et dosage de l'arsenic. A. Kling and A. Lassieur. il Chimie & Ind 4:153-5 Ag '20

Removal of arsenic from zinc electrolyte by means of hydrogen sulphide. H. R. Hanley. plan Chem & Met Eng 24:693-6 Ap 20 '21

Smelting sulphur and arsenic ores in China. R. Slessor. diags Eng & Min J 112:695-6 O 29 '21

Bibliography

Pure metallic arsenic. C. H. Jones. Chem & Met Eng 23:959-60 N 17 '20

Arsenic, Commercial. See Arsenic trioxide

Arsenic compounds

Aromatic arsenic compounds. W. A. Jacobs and M. Heideberger. Am Chem Soc J 43:1632-45, 1646-54 JI '21

Cyclic arsenic compounds of the aromatic series; abstract. H. Wieland and W. Rheinheimer. Chem Soc J 120 pt 1:371-4 My '21

Experiments on the production of compounds containing arsenic as a centre of optical activity. G. J. Burrows and E. E. Turner. Chem Soc J 119:426-37 Ap '21

Reactions of the arsines; preliminary paper—condensation of primary arsines with aldehydes. R. Adams and C. S. Palmer. Am Chem Soc J 42:2375-8 N '20

Some additive compounds derived from arsines. G. J. Burrows and E. E. Turner. Chem Soc J 119:1448-50 S '21

Zur kenntnis organischer arsenverbindungen; die einwirkung von bromcyan auf cyclopentamethylen-phenyl-arsin. W. Steinkopf and A. Wolfram. diag Deutsche Chem Gesell Ber 54:848-57 Ap '21

Zur kenntnis organischer arsenverbindungen; die einwirkung von bromcyan auf triäthylarsin. W. Steinkopf and J. Müller. Deutsche Chem Gesell Ber 54:841-7 Ap '21

Zur kenntnis organischer arsenverbindungen; über die einwirkung von halogenalkyl auf kakodyle und eine neue bildung von tetraalkyl- (bezw. -aryl-) arsoniumtrijodiden. W. Steinkopf and G. Schwen. diag Deutsche Chem Gesell Ber 54:1437-65 JI '21; Abstract. Chem Soc J 120 pt 1:694-6 S '21

See also Arsenates; Arsenicals; Arsenites

Arsenic poisoning

Discussion of the etiology of so-called aniline tumors of the bladder. A. Hamilton. bibliog J Ind Hygiene 3:16-28 My '21

Is prophylaxis feasible in arsenous dust?; symposium. Safety Eng 42:100-2 S '21

Scleroderma as a possible manifestation of chronic arsenic poisoning; abstract. S: Ayres, jr. J Ind Hygiene 2:sup217-18 Ap '21

Arsenic trichloride

Chlorovinylchloroarsines. S. J. Green and T. S. Price. Chem Soc J 119:448-53 Ap '21

Preparation of arsenic trichloride from white arsenic and phosgene. L. H. Milligan, W. A. Baude and H. G. Boyd. J Ind & Eng Chem 12:221-3 Mr '20

Arsenic trioxide

Adsorption of arsenious oxide by metastannic acid. T. R. Briggs and W. J. Bartlett. Am Electrochem Soc Trans v 37 (preprint 34):449-59 Ap '20

Hazards from arsenous oxide in copper smelting. Eng & Min J 111:941 Je 4 '21

Manufacture of arsenic trioxide. G: Vie. diags Chem & Met Eng 24:527-8 Mr 23 '21

Manufacture of white arsenic. E. C. Williams. Eng & Min J 110:671-3 O 2 '20

Arsenicals

Phenylacetic-para-arsonic acid. G: R. Robertson and J. Stieglitz. Am Chem Soc J 43:179-81 Ja '21

Quantitative pathological studies with arsenic compounds. C: W. Hooper, A. C. Kolls and K. D. Wright. (U.S. Hygienic laboratory. Bul. 128) 84p [bibliog. p. 22-4] U.S. Public health service, Washington '21

Study of arsenical compounds related to arsphenamine. G: W. Raiziss and J. L. Gavron. Am Chem Soc J 43:582-5 Mr '21

See also Salvarsan

Analysis

Electrometric analysis of arsenicals. C: S. Robinson and O. B. Winter. diag J Ind & Eng Chem 12:775-8 Ag '20

Estimation of arsenic in organic compounds. G: R. Robertson. Am Chem Soc J 43:182-5 Ja '21

Arsenites

Separation and detection of arsenate and arsenite. G: W. Sears. Am Chem Soc J 43:466-70 Mr '21

Arsine poisoning

Arsine poisoning. Chem & Met Eng 23:1243 D 29 '20

Arsines. See Arsenic compounds

Arsonic acids

Das am ring-kohlenstoff gebundene halogen und sein ersatz durch andere substituenten; die darstellung von arsin- und sulfonsäuren. K. W. Rosenmund. Deutsche Chem Gesell Ber 54:438-40 Mr '21

Arsphenamine. See Salvarsan

Art

Art after the war. il Am Arch 117:306-8 Mr 10 '20

Art in structures. G: S. Binckley. Eng N 85:1024-6 N 25 '20

Art —Continued

Visual illusions in the arts; tricks of lighting, color and form for painters, sculptors and architects. M. Luckiesh. *il diags Sci Am M* 3:497-501 Je '21

See also Architects; Architecture; Bronzes; Decoration and ornament; Design; Enamel and enameling; Engraving; Esthetics; House decoration; Mural painting and decoration; Painting; Photography; Sculpture; Stained glass

Bibliography

Art and architecture after the war: a list of references. F. Weitenkamp. *Arch Rec* 46:485-9 N '19

Study and teaching

Experiments in art-teaching in the schools. *Am Arch* 119:89-90 Ja 26 '21

Study of applied art. *Textile World* 60:1400 S 3 '21

See also Art education; Art schools

New York city

Architectural league exhibition in New York; a fire and its lessons. *il Am Arch* 117:137-50, 152a-152e F 4 '20

Russia

Modernist movement in art is analyzed. *il Am Arch* 117:376 Mr 24 '20

Art, Buddhist

See also Temples, Buddhist

Art, Commercial

Art movement and your product. R. Dickinson. *Ptr Ink M* 2:33-4 Ja '21

Art's untold opportunity in American industry. W. F. Purdy. *Am Ind* 20:21-3 Jl '20

Economy in art departments. M. Davidson. *Ptr Ink M* 2:65-6 D '20

They have discovered America's richest source of design. R. Dickinson. *il diags Ptr Ink M* 2:13-16+ F '21

See also Advertisements, Pictorial

Art, Decorative. *See* Decoration and ornament

Art, Egyptian

Revival of Egyptian art contemplated by decorators. *Am Arch* 117:252-3 F 25 '20

Art, Greek

Dynamic symmetry and the Greek vase, by J. Hambidge; criticism of review in *The Nation*. W. H. Goodyear; G. A. Eisen. *Am Arch* 118:669, 673-4, 701-2 N 24-D 1 '20

Dynamic symmetry; the rediscovery of the basic principles of Greek art. *il diags Sci Am M* 4:23-8 Jl '21

Symmetry and proportion in Greek art. J. Hambidge. *diags Am Arch* 116:597-605 N 12 '19

See also Architecture, Greek

Art, Hindu

Understanding the art of India. *Am Inst Arch J* 9:153-5 My '21

Art, Monastic

Monastic art. *Am Arch* 117:430+ Ap 7 '20

Art, Prehistoric. *See* Art, Primitive

Art, Primitive

Artists of the glacial period; prehistoric rock paintings recently discovered in eastern Spain. H. Obermair. *il Sci Am M* 3:199-200 Mr '21

Prehistoric rock paintings of Spain. *Sci Am* 124:211 Mr 12 '21

Art commissions

See also New York (city)—Art commission

Art directors' club exhibition

Art directors' exhibition. E. E. Calkins. *il Ptr Ink M* 2:15-17+ Ap '21

Art education

Plea for education in art and public taste. H. K. Holsman. *Am Inst Arch J* 8:104-7 Mr '20

See also Art schools

Art galleries and museums

Art gallery of Old Lyme, Conn. *il diag plans Am Arch* 120:184-7 S 14 '21

New Freer art gallery, Washington, D.C. *Am Arch* 116:755 D 17 '19

Restoration of the Fine arts building of the World's Columbian exposition, Chicago. G. W. Maher. *il Arch Forum* 35:35-7 Jl '21

Roosevelt and the fine arts; a national gallery of art. G. Brown. *Am Arch* 116:739-52 D 17 '19

Lighting

Lighting for art galleries and public buildings. E. H. Parker. *il Elec R* 79:375-6, 543-5 S 10, O 8 '21

Art industry and trade**Advertising**

When selling art is a business. I. Vornhold. *il Ptr Ink M* 3:35+ O '21

Art schools

A. E. F. art training center, Bellevue, France. P. L. Small. *Arch Rec* 46:447-50 N '19

Instruction in architecture in the A. E. F. art training center at Bellevue, Seine-et-Oise, France. G. H. Gray. *Am Inst Arch J* 8:63-6 F '20

Artesian wells

Depletion of ground-water supplies. R. E. Horton. *bibliog diags map Am Water Works Assn J* 8:167-81 Mr '21; Same abr. *Eng & Contr* 55:379-81 Ap 13 '21

Experiences in an artesian well contract. J. Donohue. *Munic Eng* 58:260+ Je '20

Réparation du tubage d'un puits artésien à Carrières-sous-Poissy (Seine-et-Oise). *diags Génie Civil* 78:239 Mr 12 '21

Water supply of Memphis, Tennessee. J. N. Chester and D. E. Davis. *Am Water Works Assn J* 8:377-96 Jl '21

Artichoke

Inulin in the globe artichoke. R. Okey and A. W. Williams. *Am Chem Soc J* 42:1693-6 Ag '20

Artificial daylight. *See* Daylight, Artificial

Artificial leather. *See* Leather, Artificial

Artificial limbs

How men walk with artificial legs. R. du Bois-Reymond. *diags Sci Am M* 1:36-9 Ja '20

Artificial mother-of-pearl. *See* Mother-of-pearl, Artificial

Artificial silk. *See* Silk, Artificial

Artificial wool. *See* Wool, Artificial

Artillery

Artillery motorization as related to caterpillar traction. G. W. Dunham. *il diags Soc Auto Eng J* 6:161-73 Mr '20

Caterpillar artillery. *il Engineering* 111:215-17 F 25 '21

Development of artillery matériel. G. F. Jenks. *il diags Mech Eng* 43:167-72 Mr '21

New motor equipment for the army's artillery. *Automotive Ind* 43:10+ Jl 1 '20

Recent development of artillery automotive material. J. B. Haney. *il Soc Auto Eng J* 8:375-9 Ap '21

Types of artillery equipment used by the American expeditionary forces in France with a brief discussion of their uses and the reasons for their adoption. C. C. Williams. *il J Fr Inst* 190:301-21 S '20

See also Guns (ordnance)

Artillery, Coast

Heavy coast artillery. D. A. Tomlinson. *diags W Soc E J* 24:375-98 Je '19

Artillery, Railway

Railway carriages for naval artillery. F. C. Coleman. *il Ry R* 66:494-5 Mr 20 '20

Artiodactyls

New tertiary artiodactyls. R. S. Lull. *il diags Am J Sci* 50:83-130, pl 1 Ag '20

Artists

Artist and artisan. W. A. Delano. *Am Inst Arch J* 9:260-3 Ag '21

See also Architects

Aryl compounds

Über die reduktionsstufen von arylderivaten der salpetersäure. K. H. Meyer and W. Reppe. Deutsche Chem Gesell Ber 54:327-37 F '21

Arylamino alcohols

Heterocyclic compounds of N-arylamino alcohols. R. E. Rindfusz and V. L. Harnack. diags Am Chem Soc J 42:1720-5 Ag '20

Arylazides

Arylhydroxylamines and arylazides: a comparison; abstract. E. Bamberger. Chem Soc J 120 pt 1:716-23 O '21

Arylazoglyoxalinecarboxylic acids

Arylazoglyoxalinecarboxylic acids. R. G. Fargher. Chem Soc J 119:158-64 F '21

Arylhydroxylamines

Arylhydroxylamines and arylazides: a comparison; abstract. E. Bamberger. Chem Soc J 120 pt 1:716-23 O '21

Behaviour of arylhydroxylamines towards the hydrogen haloid acids; abstract. E. Bamberger. Chem Soc J 120 pt 1:723-5 O '21

Arylpyridines

Arylated pyridines and their relationships to the corresponding pyrylium compounds; abstract. W. Dilthey and others. Chem Soc J 120 pt 1:735-7 O '21

Arylsulfonic chlorides

Über die einwirkung von organomagnesiumverbindungen auf arylsulfochloride. E. Wedekind and D. Schenk. Deutsche Chem Gesell Ber 54:1604-12 J1 '21; Abstract. Chem Soc J 120 pt 1:664 S '21

Arylsulfonylnaphthylenediamines

Arylsulphonylnaphthylenediamines and their sulphonic acids. G. T. Morgan and W. R. Grist. Chem Soc J 119:602-10 My '21

Arylthiol thiocyanates

Beiträge zum valenzproblem des schwefels; über aryl-schwefelrhodanide. H. Lecher and K. Simon. Deutsche Chem Gesell Ber 54:632-8 Ap '21

Asbestos

Active demand for asbestos wire. Elec W 76:548-9 S 11 '20

Amosite—a new type of asbestos. Eng & Min J 109:264 Ja 24 '20

Asbestos. O. Bowles. Power Pl Eng 24:418 Ap 15 '20

Asbestos, a Canadian specialty. F. C. C. Lynch. il Min & Sci P 120:531-3 Ap 10 '20

Asbestos and what it means to America. R. G. Skerrett. il Sci Am M 4:245-8 S '21

Asbestos building material has many good properties. il plans Pop Mech 36:735 N '21

Asbestos in America. S. R. Winters. Sci Am 123:325 O 2 '20

Asbestos in architecture. R. G. Skerrett. il Sci Am 123:572+ D 4 '20

Asbestos in 1919. J. S. Diller. U S Geol S Min Res of U S 1919, pt 2:299-307 '21

Asbestos in 1920. O. Bowles. Eng & Min J 111:155 Ja 22 '21

Asbestos industry in 1919. O. Bowles. Eng & Min J 109:224-5 Ja 17 '20

Asbestos mining in Quebec, Canada. Min & Sci P 122:503 Ap 9 '21

Black Lake asbestos area. W. D. Hubbard. il diags. Eng & Min J 112:365-8 S 3 '21; Discussion. 112:523, 564 O 1-8 '21

Block magnesia vs. asbestos cement in boiler lagging. W. H. Bosworth. Ry R 67:388-9 S 11 '20

Geologic explorations for asbestos. Eng & Min J 111:57 Ja 8 '21

History of asbestos paper. O. Bowles. Chem & Met Eng 22:208-9 F 4 '20

Our mineral supplies; asbestos. J. S. Diller. U S Geol S Bul 666:51-4 '19

Rôle of asbestos. R. Howard. il Sci Am 123:42+ J1 10 '20

Value of sheet asbestos on hot pipes. Mech Eng 42:69, 188-9 Ja, Mr '20

World's supply of asbestos. Min & Sci P 123:26 J1 2 '21

Asbestos shingles. See Shingles, Asbestos

Ash cans

Corrugated barrel and how made. L. Broemel. il diags Sheet Metal Worker 12:532-5 S 2 '21

Ash content. See Coal—Ash content

Ash handling

Advantages of mechanical handling. E Reed. il diag Electrician 86:9-14 D 31 '20

American high-duty ash conveyor. il diag Power 52:866 N 30 '20

Ash disposal in modern power plants. G. S. Hamilton. il diags plan Blast F & Steel Pl 8:378-83 Je '20

Ash disposal systems. il Power Pl Eng 25:63-6 Ja 1 '21

Ash-handling plant at Poplar electric power station. il diags Engineering 112:231-3 Ag 5 '21

Ash hauling cost reduced. il Sci Am 125:206 S 17 '21

Ash removal by sluicing. diag Eng & Contr 53:273 Mr 10 '20

Cinder disposal by means of the steam conveyor. il Ry R 66:951 Je 5 '20

Coal and ash handling mechanism for an office building. W. F. Leggett. il diag Eng & Contr 54:648-9 D 29 '20

Coal and ash handling plant at the new power station, Rotherham. il diags plans Eng & Ind Management 5:308-10 Mr 10 '21

Coal and ash handling systems for power plant boiler houses. W. F. Leggett. il Munic Eng 60:32+ Ja '21

Coal and ashes handling installation. H. J. Edsall. il diags plan Textile World 57:2501+ Ap 3 '20

Combusco ash conveyor. diags Power 54:330 Ag 30 '21

Economical handling of railway waste material. il Eng & Contr 54:597 D 15 '20

Handling ashes from twenty-two boilers by centrifugal pumps. A. Baalack. il Elec W 75:1006-7 My 1 '20

Large railroad ash-handling plants of two types. diags plans Eng N 86:172-5 Ja 27 '21

Management of the power plant. R. June. il diags Textile World 55:2089+, 2719+, 3711+ Ap 5, My 3, Je 14 '19; Same. Elec R 75:691-2; 76:109-11, 308-10 O 25 '19, Ja 17, F 21 '20

Mechanical removal of ashes. Elec W 77:247 Ja 29 '21

Novel coal handling at the McKeesport tin plate company's plant. il diags Power 51:178-9 F 3 '20

Pneumatic ash conveyor. il Pub Works 48:89-90 F 7 '20

Power drives for rolling mills. W. O. Rogers. diags Power 51:295 F 24 '20

Railroad ash-handling plant has buckets and crane. diags Eng N 87:310 Ag 25 '21

Reducing coal and ashes handling costs. H. J. Edsall. il diag Textile World 60:1931+, 2869+ O 1, N 12 '21

Saving by proper ash-handling equipment. H. E. Collins. diags plan Power 53:581-2 Ap 12 '21; Same. Eng & Ind Management 6:226-7 Ag 25 '21; Discussion. R. H. Beaumont. Power 53:1023 Je 21 '21

Sluicing ashes shows low cost. A. W. Morgan. diags plan Elec W 76:16 J1 3 '20; Same. Eng & Contr 54:45 J1 14 '20

Speeding up the handling of ashes. Sci Am 124:252 Mr 26 '21

Steam-jet ash-conveyor performance. M. A. Walker. Power 54:149 J1 26 '21

Vacuum system of ash removal. diags plan Heat & Ven 17:39-40 O '20

Ash hoppers

Molding a deep cast-iron hopper. M. E. Duggan. diags Mach 27:655-6 Mr '21

Ash piles

Weight of a conical pile of ashes. N. G. Near. chart Power Pl Eng 25:418 Ap 15 '21

Ash pits

Locomotive ash-pit and coaling station at Communipaw, New Jersey. il diags Engineering 112:125-7 J1 15 '21

Railway ashpit cleaned by steam jets from the locomotives. il Eng N 87:476 S 22 '21

Railway ashpits of new design. diags Eng N 83:1007-8 D 11 '19

Recording of ash-pit loss from chain-grate stokers; abstracts. E. G. Bailey. chart diags Elec R 78:967-72 Je 18 '21; Mech Eng 43:381-5 Je '21; Power Pl Eng 25:650-2 J1 1 '21

Ash pits —Continued

Report of the American railway bridge and building association on the construction and maintenance of cinder pits; with discussion. diags Ry Age 71:781-2 O 22 '21

Water-sealed ash pit for large underfeed stokers. diag Elec R 76:157 Ja 24 '20

Ashes, Coal. See Coal ash

Ashes, Coke. See Coke ash

Ashes, Wood. See Wood ash

Asia

Exploration in southeastern Asia. M. H. Loveman. Eng & Min J 108:869-70 D 6 '19

See also China; Far East; India; Japan

Asia Minor**Commerce**

Industrial status of Asia Minor. Sci Am 122: 692 Je 19 '20

Economic conditions

Change in the changeless East. F. Simpich. il Nation's Business 9:24-5 Ag '21

Asiago, Italy

Asiago recovers from war's devastation. il Bldg Age 42:55-6 S '20

Aspergillus oryzae. See Polyzime

Asphalt

American asphalt industry. P. Hubbard. Chem Age 29:331-3 Ag '21

Application of gas to asphalt melting. C. H. Kallstedt. il diags Am Gas Assn Commercial sec v 2:86-103 '20

Asphalt and allied substances in 1918. C. C. Osbon. diags map U S Geol S Min Res of U S 1918, pt 2:447-94 '20

Asphalt and related bitumens in 1920. K. W. Cottrell. U S Geol S Min Res of U S 1920, pt 2:45-53 '21

Asphalt production, refining and storing. H. Spencer. il diags Pub Works 49:570-2, 591-2 D 18-25 '20; Same. Can Eng 40:343-7 Mr 31 '21; Same cond. Good Roads n s 20: 192+ O 20 '20

Asphalts and allied substances, their occurrence, modes of production, uses in the arts and methods of testing. H. Abraham. 2d ed. 608p Van Nostrand '20

Asphaltum may make steel in California. Nat Pet N 12:40 Ja 14 '20

Chemical investigation of the asphalt in the tar sands of northern Alberta. V. K. Kriebel and W. F. Seyer. diag Am Chem Soc J 43: 1337-49 Je '21

La fabrication synthétique des pierres d'asphalte par le procédé Zimmer; abstract. Krohnke. Chimie & Ind 5:65 Ja '21

Forming asphalt from petroleum residue. diag Chem & Met Eng 25:715 O 12 '21

Lake asphalt industry. J. S. Miller, jr. il Chem & Met Eng 22:749-54 Ap 21 '20; Abstract. Munic Eng 60:16-21 Ja '21

Largest asphalt refinery in the world at Port Neches, Texas. il Munic Eng 59:130-2 O '20

Mining for city streets; Pitch-lake, Trinidad, the world's greatest natural source of asphalt. F. D. Hopley. Nation's Business 8:69+ O '20

Petroleum and asphalt in Venezuela. A. H. Redfield. bibliog Eng & Min J 111:354-7, 393-5 F 19-26 '21

Products from dry distillation of Matita asphaltum. C. Nicolescu-Otin. Chem & Met Eng 23:631-3 S 29 '20

Sheet-asphalt mines in Kentucky supply pavements. J. C. Kelly. il Pop Mech 34: 874-6 D '20

Taking all factors into consideration gas can be proved least expensive as well as most economical fuel for asphalt melting. C. H. Kallstedt. Am Gas Eng J 113:345-8+ O 30 '20

Where the asphalt comes from. il Sci Am S 88:337 D 6 '19

See also Asphalt plants; Pavements, Asphalt; Roads, Asphalt

Specifications

Elimination of unnecessary tests from asphalt cement specifications. R. R. Barrett. Good Roads n s 20:229-30+ N 10 '20

Tentative specifications for asphalt for use in damp-proofing and waterproofing. Am Soc T M Pro v 20 pt 1:716-19 '20

Terminology

Terms used in connection with asphalt for highway work. Can Eng 38:181-2 Ja 29 '20; Same. Munic Eng 58:19-21 Ja '20

Testing

Tentative test for specific gravity of asphalts and tar pitches sufficiently solid to be handled in fragments. diag Am Soc T M Pro v 20 pt 1:767-9 '20

Asphalt association

2d annual convention, New York, April 13. Eng N 86:744 Ap 28 '21; Can Eng 40:417-18 Ap 28 '21

Asphalt pavements. See Pavements; Asphalt

Asphalt plants

Hetherington combination asphalt kettle and steam boiler. diags Pub Works 49:203-4 Ag 28 '20

Light, portable asphalt plant for city street patching. il Eng N 83:1068 D 25 '19

Making asphalt pavement with gas. H. L. Smith. il Gas Age 48:167-8 Ag 13 '21

New Merriman asphalt plant shows many improvements. Munic Eng 59:sup32 D '20

Preparation and use of sheet asphalt surfacing. P. Hubbard. Can Eng 40:423-5, 441-3 Ap 28-My 5 '21

Asphalt plants, Municipal

Denver's municipal asphalt plant. Pub Works 49:200 Ag 28 '20

List of municipally owned asphalt plants in the United States, Canada and some other countries. C: A. Mullen. Pub Works 48:337-8 Ap 17 '20

Manhattan borough asphalt plant. il Pub Works 50:21-4 Ja 8 '21

Methods and cost of municipal asphalt plant operations at Chatham, Ont. C. H. R. Fuller. Eng & Contr 56:234 S 7 '21

New Philadelphia asphalt plant has 4,000-sq. yd. daily capacity. H. T. MacFarland. il Eng N 87:102-3 Jl 21 '21

Asphalt roads. See Roads, Asphalt

Asphaltite

Vanadiferous asphaltites of central Peru. J: G. Baragwanath. il map Eng & Min J 111:778-81 My 7 '21

Aspirators

Design of aspirators for sterilizing water. A. E. Walden. diags Mech Eng 42:562-4 O '20

Aspirin. See Acetyl-salicylic acid

Assaying

Assaying quicksilver ores. R: G. Place. diags Eng & Min J 109:1313 Je 12 '20

Detection and estimation of platinum in ores. C. W. Davis. U S Bur Mines Tech Pa 270: 1-23; Bibliography. 23-5 '21

Determination of gold. Eng & Min J 109:1169 My 22 '20

Experiences of a custom assayer. E. C. D. Marriage. Eng & Min J 110:906 N 6 '20

Inaccurate assay reports. G. L. Sheldon. Eng & Min J 112:331 Ag 27 '21

Routine assaying at the Globe & Phoenix mine, southern Rhodesia. H. R. Edmands. diags Min & Sci P 121:452-4 S 25 '20

Sampling of gold bullion. Min & Sci P 122: 422 Mr 26 '21

Stories from a laboratory. A. R. Ledoux. Eng & Min J 109:1309-11; 110:159-61 Je 12, Jl 24 '20

Time-saving devices in an assay office. F. L. Smith. il diags Eng & Min J 110:111-12 Jl 17 '20

Tonopah extension assay office. G: L. Christian. Min & Met 173:29-30 My '21

Umpire assays of gold and silver ores. C. A. Grabill. Min & Sci P 121:615-16 O 30 '20

Volatilization in assaying. F: P. Dewey. Min & Met 158:(sec 31) 1-16 F '20; Same. Chem & Met Eng 22:797-802 Ap 28 '20; Excerpt. Min & Sci P 120:458 Mr 27 '20

See also Ore sampling

Assembling methods

- Assembling Cleveland parts. F. H. Colvin. *il* Am Mach 53:1097-8 D 9 '20
- Assembly methods that speed production. B. Dudley, jr. *il* Factory 27:619-20 N '21
- Building over an old plant to get doubled output. O. L. Smith. *il* Factory 25:869-73 S 15 '20
- Building Quad trucks for the army. H. Satterthwaite. *il* Am Mach 52:509-13 Mr 4 '20
- Car assembly plant. diag plan Motor Age 37:36-7 My 13 '20
- Caterpillars and their construction. K. H. Condit. *il* diag Am Mach 52:343-8 F 12 '20
- Economy and efficiency increased by new final assembly system. N. G. Shidle. *il* diags plan Automotive Ind 45:69-72 J1 14 '21
- Jig for assembling gears and collar on shafts. F. Server. diags Mach 27:442-3 Ja '21
- Methods of motor assembly. *il* Am Mach 54:641-5 Ap 14 '21
- Modern chassis assembly plant; methods of the Standard motor co., ltd. *il* Automobile Eng 11:102-4 Mr '21
- Motor car assembling at Hudson plant. *il* Iron Age 105:1219-21 Ap 29 '20
- Pre-assembly in ship construction. R. D. Gatewood. *il* diags plan Am Mach 52:1-6, 171-6 Ja 1, 22 '20
- Production expansion obtained in the assembly track layout. J. E. Schipper. *il* Automotive Ind 42:1211-13 My 27 '20
- Progressive assembly conveyors. C. W. Starker. *il* Mach 27:831-2 My '21
- Putting system in assembly. C. Pretz. *il* Factory 27:484 O '21
- Putting the motor together; methods used by Chandler motor car co. F. H. Colvin. *il* Am Mach 52:896-7 Ap 22 '20
- Re-organisation of assembly shops. R. Stelling and W. R. Hall. *il* diag Eng & Ind Management 5:544-7 My 12 '21
- Routine of assembling a small tractor in quantity. *il* Automotive Ind 42:1208-9 My 27 '20
- Speed in production and economy in space possible in assembly line. J. E. Schipper. *il* Automotive Ind 42:766-70 Mr 25 '20
- Turning trucks into assembling rooms. C. Timm. *il* Factory 26:191-2 Ja 15 '21
- See also* Selective assembly

Assessment

- Application of unit basis for determining land values for assessments. W. L. Miller. Eng & Contr 54:233-4 S 8 '20
- Extending benefits assessments to street railways. Eng N 85:594 S 23 '20
- See also* Valuation

Associated advertising clubs of the world

- Associated clubs to build up educational work. Ptr Ink 115:33-6 Je 23 '21
- Departmental programmes for Indianapolis convention taking form. Ptr Ink 111:85-6+ Ap 29 '20
- General sessions convention speakers announced. Ptr Ink 111:81-2+ My 6 '20
- Needed reorganization in vigilance work. S. C. Lambert. Ptr Ink 117:17-19 N 3 '21
- Programme for national convention of Associated advertising clubs. Ptr Ink 115:184-8 My 19 '21
- 16th annual convention, Indianapolis. Ptr Ink 111:17-18 Je 10 '20
- 17th annual convention, Atlanta, June 12-18. Ptr Ink 115:8+ Je 16 '21; Inland Ptr 67:510 J1 '21
- Some high spots of the advertising convention. H. Hillman. Inland Ptr 65:474-5 J1 '20
- Truth in advertising dominant note at Indianapolis convention. Ptr Ink 111:41-2+ Je 17 '20

Associated business papers

- 15th annual convention, New York, Oct. 20-22. Ptr Ink 113:17-20 O 28 '20
- Speed the revival of industry is business paper convention aim. Ptr Ink 117:10+ O 27 '21

Associated dress Industries of America

- Why doesn't dress association try advertising to remove glut? Ptr Ink 110:17-20 F 12 '20

Associated employers of Indianapolis

- Indorse American plan league to establish rationality in employment. Iron Tr R 67:1339-45, 1348-50 N 11 '20

Associated general contractors of America

- General contractors in convention approve broad plans for association activity. Eng N 86:235+ F 3 '21
- General contractors perfect organization. Eng N 84:441+ F 26 '20

Associated industries of Seattle

- How Seattle fights unfair labor unions. Iron Age 106:1055-6 O 21 '20

Associated manufacturers of electrical supplies

- Annual meeting, New York, March 18. Elec R 76:534-6 Mr 27 '20
- 6th annual meeting, New York, March 15. Elec W 77:669-70 Mr 19 '21; Elec R 78:511-12 Mr 26 '21
- Summer meeting, New London, Conn., June 27-30. Elec R 79:24-5 J1 2 '21

Association advertising. See Advertising, Association**Association and associations**

- L'extension de la capacité civile des syndicats professionnels (loi du 12 mars 1920). P. Razous. Génie Civil 76:275-7 Mr 13 '20
- Histoire de la liberté d'association en France depuis 1789. P. Nourrisson. 2v L. Tenin, Paris '20

See also Advertising, Association; Benefit societies; Commercial associations; Cooperation; Corporations; Manufacturers' associations; Professional associations; Trade associations; Trade unions; *also* names of associations, e.g. American electric railway association

Association of Canadian building and construction industries

- Association now has nearly 500 members. J. C. Reilly. Can Eng 40:152 Ja 20 '21
- Construction industries conference at Ottawa. Can Eng 38:212-16 F 12 '20
- 3d annual conference, Winnipeg, Jan. 19-21. Can Eng 40:159-65 Ja 27 '21

Association of Edison illuminating companies

- Central-station financing. H. M. Addinsell. Elec W 76:725-7 O 9 '20
- 39th convention, New London, Conn., Sept. 13-16. Elec W 76:589 S 18 '20
- 36th annual meeting (the 40th convention), Spring Lake Beach, N.J., Sept. 12-15. Elec R 79:475 S 24 '21; Elec W 78:583-4 S 17 '21

Association of electric railway men

- Arc welding and motor maintenance discussed at meeting, Mansfield, Ohio, Dec. 7, 1920. *il* chart diags Elec Ry J 57:537-43 Mr 19 '21

Association of governmental labor officials of the United States and Canada

- 8th annual convention, New Orleans, May 2-5. Monthly Labor R 12:1122-5 Je '21

Association of iron and steel electrical engineers

- 14th annual convention, New York, Sept. 20-24. Iron Age 106:853-4 S 30 '20; Iron Tr R 67:938-9+ S 30 '20; Elec R 77:531-4 O 2 '20; Elec W 76:673-6 O 2 '20; Power 52:556-8 O 5 '20; Mech Eng 42:652 N '20
- 15th annual convention, Chicago, Sept. 19-24. Iron Age 108:826-9 S 29 '21; Iron Tr R 69:826-7 S 29 '21; Blast F & Steel Pl 9:598-600 O '21; Power 54:540-2 O 4 '21

- Growth and the accomplishments of the association. B. W. Gilson. Elec J 17:359-60 S '20

Association of national advertisers

- 11th annual convention, Lakewood, N.J., Dec. 6-8. Ptr Ink 113:17-20+ D 16 '20
- Semi-annual convention, Atlantic City, N.J., May 12-14. Ptr Ink 115:93-4 My 19 '21

Association of natural gasoline manufacturers

- 53 casinghead gasoline manufacturers join to solve industry's problems. J. B. Gambrell, jr. Nat Pet N 13:21-2 Ap 27 '21

Association of petroleum geologists, American. See American association of petroleum geologists

- Association of professional engineers of the Province of Manitoba**
Act incorporating the Manitoba association. Can Eng 38:385-7 Ap 15 '20
- Association of professional engineers of the Province of New Brunswick**
Engineering profession act; text of bill. Can Eng 38:465-8 My 13 '20
- Association of public representatives of urban transit**
Conference at Cleveland, Jan. 25, to discuss various topics connected with transportation. Elec Ry J 57:261-2 F 5 '21
- Association of railway accounting officers**
32d annual meeting, Atlantic City, N.J., May 12. Ry Age 68:1457-65 My 21 '20
33d annual meeting, Atlantic City, June 8-10. Ry Age 70:1343-54, 1403-6 Je 10-17 '21
- Association of railway claim agents**
31st annual convention, Atlantic City, N.J.; May 19-21. Ry Age 68:1686 Je 11 '20
- Association of railway electrical engineers**
11th annual convention, Chicago, Oct. 28-31. Ry Age 67:889-90 O 31 '19
12th annual convention, Chicago, Oct. 19-22. Ry Age 69:795-6 N 5 '20
- Association of railway executives**
Executives plan for resumption of private operation. Ry Age 68:194-5 Ja 9 '20
Meeting, Chicago, April 9. Ry R 66:648-9 Ap 17 '20
Meeting, New York, Oct. 29. Ry Age 69:799 N 5 '20; Ry R 67:704-5 N 6 '20
Views of executives on proposed legislation. Ry Age 68:196-204 Ja 9 '20
- Association of scientific apparatus makers**
2nd annual convention, Washington, April 22-23. Chem & Met Eng 22:860 My 5 '20
- Association of stock exchange firms**
Formation of surety company by Association of stock exchange firms. Comm & Fin Chr 110:1930-1 My 8 '20
- Association of street cleaning officials, International.** See International association of street cleaning officials
- Association of wood-using industries**
Initial meeting, Sept. 28. Sci Am M 2:370 D '20
- Association of worsted and woolen spinners**
Annual meeting, New York. Textile World 59:3263 My 14 '21
- Associations, Commercial.** See Commercial associations
- Associations, Professional.** See Professional associations
- Associations, Trade.** See Trade associations
- Asthma**
Observations and investigations on the anaphylactic bronchial asthma from paraphenylenediamine dyes. C. Gerdon. J Ind Hygiene 3:sup4-6 My '21
- Astoria, Oregon**
Shipping facilities of the port of Astoria. R. R. Bartlett. il diags map Int Marine Eng 25:104-9 F '20
- Astronomical clocks.** See Clocks
- Astronomical instruments**
Astronomical device for measuring angles to one ten-thousandth of a second. Am Mach 54:120f Ja 20 '21
Fixed stars that are not fixed; how their motions are detected by the blink microscope. J. F. Springer. diag Sci Am 124:390+ My 14 '21
Procédé de synchronisation des rouages d'horlogerie et des pendules employés en astronomie. d'Azambuja. diag Génie Civil 79:334-5 O 15 '21
See also Interferometer; Sextant; Telescope
- Astronomical observatories**
Observatory in Germany to test Einstein theory. il Pop Mech 36:643 N '21
See also United States naval observatory
- Astronomical photography**
Celestial photography for amateurs. D. B. McLaughlin. il Sci Am M 1:388-9 My '20
- Defect in astronomical photographs. Sci Am 125:39 J1 16 '21
Photographing stars near the sun's edge. Pop Mech 35:906-7 Je '21
Planet Venus photographed in daylight. Pop Mech 36:346 S '21
- Astronomy**
Glacial and genial epochs; an astronomical explanation of the glacial periods. F. J. B. Cordeiro. Sci Am M 2:197-8 N '20
Prehistoric astronomy; interpretation of some remarkable rock carvings in Scandinavia. M. Schoemfeld. il Sci Am M 3:301-3 Ap '21
See also Earth; Orbits; Sky; Solar system; Stars; Sun
- Astrophysics**
Internal constitution of the stars. Engineering 110:352-3 S 10 '20
See also Spectrum
- Asymmetry**
Study of the possible asymmetry of the aliphatic diazo compounds. C. S. Marvel and W. A. Noyes. Am Chem Soc J 42:2259-78 N '20
- Atchison, Topeka & Santa Fe railroad**
Annual report for 1920. map Ry Age 70:1061-2 My 6 '21
Atchison, Topeka & Santa Fe. map Ry Age 69:431-2 S 10 '20
Santa Fe apprentice system. F. W. Thomas. W Soc E J 25:404-10 J1 20 '20; Same cond. Ry Age 68:1349-51 My 7 '20
25th annual report for the fiscal year ending December 31, 1919. Comm & Fin Chr 110:1980-3 My 8 '20
26th annual report for the fiscal year ending Dec. 31, 1920. Comm & Fin Chr 112:1876-9 Ap 30 '21
- Athletics**
H. O. Bodine and the Industrial athletic and recreation association. L. Anson. System 39:44-6 Ja '21
How athletic contests have built plant loyalty in 31 factories. H. O. Bodine. il Factory 25:199-203 J1 15 '20
Science of athletics; what is it that distinguishes the star from the mediocre performer? C. W. Paddock. Sci Am 125:256 O 8 '21
Workers knit into compact organization by athletics. L. H. Butler. Ptr Ink 114:117-18+ Ja 27 '21
- Atkinson, Llewelyn B.**
President of the Institution of electrical engineers; an appreciation. por Electrician 85:591-2 N 19 '20
- Atlanta, Georgia**
- Public works**
City, county and state affairs in Atlanta. Eng N 84:94-6 Ja 8 '20
- Rapid transit**
Atlanta making electrical survey. il Elec Ry J 58:435-6 S 17 '21
- Water supply**
New coagulation basin for Atlanta. diags plan Eng N 84:958 My 13 '20
- Atlanta, Battle of**
Battle of Atlanta; memorial museum. il Am Arch 118:210-11 Ag 18 '20
- Atlantic City, New Jersey**
- Hotels**
Hotel Ambassador, Atlantic City. Arch & Bldg 52:72-4, pl 84-94, 98 Ag '20
Novel method in foundation work proves economical. il Am Arch 118:513-16 O 20 '20
Ritz-Carlton hotel, Atlantic City, N.J. Arch & Bldg 53:71-2, pl 132-8 S '21
- Atlantic Coast Line railroad**
Annual report for fiscal year ended Dec. 31, 1919. Comm & Fin Chr 110:2201-2 My 22 '20
Annual report for fiscal year ended Dec. 31, 1920. Comm & Fin Chr 112:2204-5 My 21 '21

- Atlantic Coast Line railroad—Continued**
Annual report, 1920; editorial. map Ry Age 71:57-8 J1 9 '21
Report for fiscal year ended June 30, 1921. Comm & Fin Chr 113:1882-3 sec 1 O 29 '21
- Atlantic gulf & West Indies steamship lines**
Annual report—for the twelve months ending December 31 1919. Comm & Fin Chr 111:601-3 Ag 7 '20
Annual report for the twelve months ending Dec. 31, 1920. Comm & Fin Chr 113:740-2 Ag 13 '21
- Atlantis**
Legendary islands of the north Atlantic. L. G. Hall. Sci Am M 4:362-3 O '21
Legendary islands of the north Atlantic; the mystery of the islands of Atlantis and Brasil and their influence upon Columbus. A. A. Hopkins. maps Sci Am M 4:14-18 J1 '21
- Atlas powder company**
Showing the advertising to the stockholders. W. H. Dawson. Ptr Ink 110:53-4+ F 26 '20
- Atlases**
Commercial atlas of foreign countries. 2d ed. 349p Rand '21
- Atmosphere**
Cloudland studies. J. Dewar. Engineering 111:144-5 F 4 '21
Data of geochemistry. F. W. Clarke. U S Geol S Bul 695:42-58 '20
Dust of the upper air; abstract. J. W. Redway. Sci Am M 4:176 Ag '21
Exploring rocket; the missile that could be shot to the moon, and its true purpose. Sci Am 122:161+ F 14 '20
Getting a line on the higher atmospheres. S. R. Winters. il Sci Am 125:233+ O 1 '21
Method of reaching extreme altitudes; experiments with rockets and powders. R. H. Goddard. il diags Sci Am M 1:101-7 F '20
Problems relating to rotating fluid in the atmosphere. G. Green. Philos Mag 6th ser 41:665-75 Ap '21
Recent progress in the investigation of the upper layers of the atmosphere. K. Schölich. Sci Am M 1:546 Je '20
Relative spectral transmission of the atmosphere. E. Karrer and E. P. T. Tyndall. il diags U S Bur Stand Sci Pa 389:377-408 '20
Rockets may explore ether. il Pop Mech 33:324-7 Mr '20
See also Air; Dust figures; Meteorology
- Atmospheric electricity**
Aluminium electrolytic arrester, with an introduction on electrical disturbances. A. G. Ramsey. diags Inst E E J 57:sup306-11 '19
Capturing electricity from the air. T. A. Marchmay. il Sci Am M 3:39-43 Ja '21
Electrical conditions of the earth and atmosphere. A. E. Baines. Sci Am S 88:290-1 N 15 '19
Electrical phenomena occurring at high levels in the atmosphere. S. Chapman. diags Inst E E J 57:sup209-16 '19; Same. Sci Am S 88:198-9, 202, 323 S 27, N 29 '19; Discussion. Inst E E J 57:217-22 '19
See also Auroras; Lightning
- Atmospheric nitrogen corporation**
Significant combination. J Ind & Eng Chem 12:107-8 F '20
- Atmospheric pressure**
Effect of atmospheric pressure and temperature upon the performance of a petrol engine; the use of supercompression in aero engines. E. G. Ritchie. Aeronautical J 25:421-54 Ag '21
- Atmospheric temperature**
Daily temperature cycle by months. H. Evans. Heat & Ven 18:41 Ap '21
Relation of the death rate to the wet bulb temperature; a review of Dr Huntington's interpretation of the death rate by climographs. E. V. Hill and J. J. Aeberly. Am Soc Heat & V E J 26:471-9 My '20; Discussion. 26:575-9 J1 '20
- Relation of wet bulb temperature to health. O. W. Armspach. Am Soc Heat & V E J 26:480-8 My '20; Discussion. 26:575-9 J1 '20
Some temperature probabilities for March. R. Davies. Heat & Ven 18:37-9 F '21
Some temperature probabilities for April. R. Davies. Heat & Ven 18:39-41 Mr '21
- Atomic refraction.** *See* Refraction, Atomic
- Atomic theory**
Atomic theory and low voltage arcs in caesium vapor. P. D. Foote and W. F. Meggers. il diags U S Bur Stand Sci Pa 386:309-26 '20; Abstract. J Fr Inst 190:254-6 Ag '20
Question of priority. J Fr Inst 190:725-6 N '20
- Atomic weights**
Atomic weight of germanium. J. H. Müller. diags Am Chem Soc J 43:1085-95 My '21
Atomic weight of lead from a Japanese radioactive mineral. T. W. Richards and J. Sameshima. Am Chem Soc J 42:928-30 My '20
Comparison of the atomic weights of terrestrial and meteoric nickel; the reduction of nickelous oxide. G. P. Baxter and L. W. Parsons. Am Chem Soc J 43:507-18 Mr '21
Determination of the atomic weight of thulium. C. James and O. J. Stewart. Am Chem Soc J 42:2022-3 O '20
Isotopes and atomic weights. F. W. Aston. il diags Engineering 111:203-5 F 18 '21
Mass-spectra and atomic weights. F. W. Aston. diags Chem Soc J 119:677-87 My '21
Natural systems for the classification of isotopes, and the atomic weights of pure atomic species as related to nuclear stability. W. D. Harkins. Am Chem Soc J 43:1038-60 My '21; Abstract. Chem Soc J 120 pt 2:445-7 J1 '21
Observations on the rare earths; the purification and atomic weight of samarium. A. W. Owens, C. W. Balke and H. C. Kremers. Am Chem Soc J 42:515-22 Mr '20
Poids atomiques et nombres atomiques. S. Miall. Chimie & Ind 4:189-92 Ag '20
Recalculation of the atomic weights. F. W. Clarke. 4th ed., rev. and enl. (Memoirs v. 16, no. 3) 418p National academy of sciences, Washington '20
Report of the International committee on atomic weights for 1919-20. F. W. Clarke, T. E. Thorpe and G. Urbain. Am Chem Soc J 41:1881-7 D '19
Report of the International committee on atomic weights for 1920-21. Am Chem Soc J 42:1761-4 S '20
Revision of the atomic weight of aluminum; the analysis of aluminum bromide—preliminary paper. T. W. Richards and H. Krepelka. diags Am Chem Soc J 42:2221-32 N '20
Revision of the atomic weight of antimony; the analysis of antimony bromide. H. H. Willard and R. K. McAlpine. il diags Am Chem Soc J 43:797-818 Ap '21
Revision of the atomic weight of cadmium; electrolytic determination of cadmium in cadmium sulfate. G. P. Baxter and C. H. Wilson. Am Chem Soc J 43:1230-41 Je '21
Revision of the atomic weight of lanthanum. G. P. Baxter, M. Tani and H. C. Chapin. Am Chem Soc J 43:1080-5 My '21
Revision of the atomic weight of silicon; the analysis of silicon tetrachloride. G. P. Baxter, P. F. Weatherill and E. O. Holmes, jr. Am Chem Soc J 42:1194-7 Je '20
Revision of the atomic weight of tin. B. Brauner and H. Krepelka. diags Am Chem Soc J 42:917-25 My '20
Revision of the atomic weight of tin. H. Krepelka. Am Chem Soc J 42:925-8 My '20
Revision of the atomic weight of tin; the electrolytic determination of tin in tin tetrachloride. G. P. Baxter and H. W. Starkweather. diags Am Chem Soc J 42:905-17 My '20
Revision of the atomic weight of zinc; electrolytic determination of zinc in zinc chloride. G. P. Baxter and J. H. Hodges. Am Chem Soc J 43:1242-51 Je '21

Atomic weights—Continued

- Search for an alkali element of higher atomic weight than cesium. L. M. Dennis and R. W. G. Wyckoff. *Am Chem Soc J* 42:985-90 My '20
- 26th annual report of committee on atomic weights. G. P. Baxter. *Am Chem Soc J* 42:327-33 Mr '20
- Twenty-seventh annual report of committee on atomic weights; determinations published during 1920. G. P. Baxter. *Am Chem Soc J* 43:383-90 Mr '21
- Atomizers, Mechanical.** See Oil burners
- Atoms**
- Abundance of atomic species as related to Rutherford's theory of nuclear structure. W: D. Harkins. *Phys R* 17:388-9 Mr '21
- Architecture of the atom. O. R. Foster. *diags Sci Am* 122:544+ My 15 '20
- Arrangement of atoms in crystals. W. L. Bragg. *Engineering* 109:761-2 Je 4 '20
- Atomic model based upon electromagnetic theory. A. C. Crehore. *Philos Mag* 6th ser 42:569-92 O '21
- Atomic structure of metals in solid solution. A. L. Feild. *Chem & Met Eng* 21:566-70 O 29 '19
- Atoms and metals. Z. Jeffries and R. S. Archer. *Chem & Met Eng* 24:507-12 Mr 23 '21
- Attempts to detect the presence of neutrons in a discharge tube. J. L. Glasson. *diags Philos Mag* 6th ser 42:596-600 O '21
- Birth of an atom. R. D. Rusk. *diags Pop Mech* 33:676-7 My '20
- Breaking up of nitrogen. E. Regner. *Sci Am M* 2:138-41 O '20
- Building up of atoms. E. Rutherford. *Engineering* 110:382 S 17 '20
- Collisions of α -particles with hydrogen nuclei. C. G. Darwin. *diags Philos Mag* 6th ser 41:486-510 Mr '21
- Constitution and stability of atom nuclei. W: D. Harkins. *diags Philos Mag* 6th ser 42:305-39, pl 12 S '21
- Constitution of atoms. O. Masson. *Philos Mag* 6th ser 41:281-5 F '21
- Copernican atom radiating energy; physical interpretation of Planck's quantum rule. A. C. Crehore. *diags Phys R* 17:544-8 Ap '21
- Copernican atomic model based on electromagnetic theory. A. C. Crehore. *diag Phys R* 17:541-4 Ap '21
- Electricity and matter. E. Rutherford. *il diags Engineering* 111:345-7, 379-81 Mr 25-Ap 1 '21; *Abstract. Electrician* 86:457-9 Ap 15 '21
- Escapements and quanta. J. Larmor. *Philos Mag* 6th ser 42:592-4 O '21
- Forces within a static atom. I. Langmuir. *Phys R* 18:104 Ag '21
- Future developments of theoretical chemistry. I. Langmuir. *Chem & Met Eng* 24:553-7 Mr 30 '21
- Das innere des atoms. S. Valentiner. *diags Stahl & Eisen* 41:465-72 Ap 7 '21
- Is the atom the ultimate magnetic particle? A. H. Compton and O. Rognley. *J Fr Inst* 191:380 Mr '21
- Langmuir's theory of the arrangement of electrons in atoms and molecules. C: R. Bury. *Am Chem Soc J* 43:1602-9 Jl '21
- Magnitudes of atoms. T. W. Richards. *diag Am Chem Soc J* 43:1584-91 Jl '21
- Nature of matter; principle of force and demonstration of the existence of the atom. H. Maxim. *Sci Am M* 4:4-6 Jl '21
- New physics. A. C. Crehore. *J Elec* 43:561-3; 44:568-71 D 15 '19, Je 1 '20
- On non-radiating atoms. J. Larmor. *Philos Mag* 6th ser 42:595 O '21
- Present theories of atomic structure. S. Dushman. *diags Am Inst E E J* 39:119-31 F '20
- Probable normal state of the helium atom. E. C. Kemble. *Philos Mag* 6th ser 42:123-33 Jl '21
- Some dimensions of the atom. L. St C. Broughall. *diags Philos Mag* 6th ser 41:872-6 Je '21
- Some remarkable models of atomic and molecular structure. O. R. Foster. *il Chem & Met Eng* 23:690-2 O 6 '20

Sources of power known and unknown. O. Lodge. *Sci Am M* 1:108-12 F '20; Same abr. *Eng & Contr* 53:345-7 Mr 31 '20

Stability of atoms as related to the positive and negative electrons in their nuclei, and the hydrogen, helium, H_2 , theory of atomic structure. W: D. Harkins. *diags Am Chem Soc J* 42:1956-97 O '20

Structure of atoms and its bearing on chemical valence. I. Langmuir. *J Ind & Eng Chem* 12:386-9 Ap '20

Structure of the helium atom. I. Langmuir. *diags Phys R* 17:339-53 Mr '21

What a study of atoms and electrons tells us of the stars. H: N. Russell. *Sci Am* 125:12+ Jl 2 '21

X-rays and atomic structure. A. Trowbridge. *Sci Am M* 2:357-60 D '20

See also Atomic theory; Atomic weights; Electrons; Refraction, Atomic; Stereochemistry

Atractylol

Sesquiterpene groups: machilol and atractylol; abstract. S. Takagi. *Chem Soc J* 120 pt 1:732-3 O '21

Atrolactic acid

Studies in the resolution of racemic acids by optically active alcohols; the resolution of atrolactic and α -hydroxy- β -phenylpropionic acids by *l*-menthol. H: Wren and E: Wright. *Chem Soc J* 119:798-803 Je '21

Atropine sulfate

Atropine sulfate from datura stramonium. H. W. Rhodehamel and E. H. Stuart. *J Ind & Eng Chem* 13:218-20 Mr '21

Attar of rose

Attar of roses; French and Bulgarian methods of producing the essential oil of rose petals. M. Tevis. *il Sci Am M* 3:409-13 My '21

Attritiometer

Durability of furs and fabrics. L. A: Hausman. *il diags Sci Am M* 4:252-4 S '21

Auburn, New York**Water supply**

Water pollution at Auburn, New York, decided to be a violation of the state penal code. J. W. Ackerman. *Am Water Works Assn J* 7:41-3 Ja '20

Auctions**Advertising**

Business that is different. R. Dickinson. *Ptr Ink M* 3:40+ Jl '21

Audion

Audion circuits galore. E. T. Jones. *diags Wireless Age* 8:27 O '20

Audion—its action and some recent applications. L. De Forest. *il diags J Fr Inst* 190:1-38 Jl '20

Audion oscillator. R. A. Heising. *diags Am Inst E E J* 39:365-76, 471-84 Ap-My '20

Merlin of today; what the audion of De Forest has done and what it may yet do. C. H. Claudy. *il Sci Am* 122:540+ My 15 '20

Les tubes à décharge électronique et leurs applications. P. Letheule. *il diag Génie Civil* 76:508-9 Je 5 '20

Audit bureau of circulations

A.B.C. aims blow at delinquent subscriptions. *Ptr Ink* 113:17 O 21 '20

A.B.C. to seek abolition of government statement of circulation. *Ptr Ink* 114:33-6 F 17 '21

Audit bureau of circulations' latest decisions. *Ptr Ink* 110:33-6 Mr 25 '20

Audit bureau of circulations to hear both sides. *Ptr Ink* 111:66+ Ap 29 '20

Business rapidly coming back; annual meeting of A. B. C. *Ptr Ink* 117:113+ N 3 '21

How advertisers use reports of the Audit bureau of circulations. L. B. Jones. *Ptr Ink* 113:49-50+ O 21 '20

How Audit bureau of circulations is helping to conserve paper. S. Clague. *Ptr Ink* 112:65-6+ Jl 22 '20

Improvements in circulation audit methods during fifty years. *Ptr Ink* 113:77-8+ N 25 '20

Publishers themselves bring audit changes. L. B. Jones. *Ptr Ink* 111:49-50 Ap 29 '20

Auditing

Audit disclosures. H. D. Grant. Administration 2:533-9 O '21

Auditing features of the mining industry.

J. C. Hooker. J Account 29:241-59 Ap '20

Auditing federal reserve banks. F. Oakey. J Account 32:334-41 N '21

Payroll audit—the duties of the auditor. G. Whiting. J Account 29:260-5 Ap '20

Supervising the work of the accounting staff. J: R. Wildman. J Account 30:245-51 O '20

Traveling auditor. H. W. Joyce. J Account 32:342-6 N '21

See also Accounting; Auditors' reports

Study and teaching

American institute examination. November, 1919. S. Walton and H. A. Finney. J Account 29:67-75 Ja '20

American institute of accountants board of examiners, May, 1920; examination in auditing. J Account 29:401-4 Je '20; Answers. S. Walton and H. A. Finney. 30:69-80 Jl '20

American institute of accountants examination in auditing, November, 1920; questions. J Account 30:401-9 D '20; Answers. 31:221-30 Mr '21

American institute of accountants examination in auditing, May, 1921; questions. J Account 31:401-3 Je '21; Answers. 32:213-27 S '21

Auditoriums

Acoustics of large auditoriums. C. R. Fountain. Phys R 17:385-6 Mr '21

Civic forum for New York city. il diag plans Am Arch 117:10-13 Ja 7 '20

Cleveland auditorium. il diag plans Am Arch 119:21-5 Ja 5 '21

Erecting Cleveland auditorium roof with traveling falsework. H. E. Gage. il diags plans Eng N 85:800-1 O 21 '20

Portland public auditorium, Portland, Ore.: views and plans. Arch Forum 33:pl 1-6 Jl '20

Steel framing for public hall in Cleveland. diags plan Eng N 84:414-15 F 26 '20

Town Hall, New York city; views and plans. Am Arch 119:137+, 150a-e F 9 '21

See also Amphitheaters; Theaters

Heating and ventilation

Observations of an auditorium having air inlets in the window sills. S: R. Lewis. diags plans Am Soc Heat & V E J 26:415-22 My '20

See also Theaters—Heating and ventilation

Lighting

Theater and auditorium fixtures and illumination. H. A. Harris. il Elec R 78:246-8 F 12 '21

Auditors' reports

How to write a report. W. A. Staub. J Account 30:169-73 S '20

Auger bits

Mephisto bits; how they are made. S. A. Hand. il Am Mach 52:11-14 Ja 1 '20

Removable auger bit as a safety device. il Coal Age 18:739-42 O 7 '20

Augite

Augite from Vesuvius and Etna. H: S. Washington and H. E. Merwin. Am J Sci 5th ser 1:20-30 Ja '21

Aunt Jemima mills company, St Joseph, Missouri
Aunt Jemima comes to life. G. A. Nichols. Ptr Ink 110:17-20+ Mr 18 '20

Aura

Aura made visible with dicyanin screens. Sci Am 125:180 S 10 '21

Auroras

Aurora borealis; a mystery of nature, elucidated during the course of the last few decades. C. Störmer. il Sci Am M 4:9-13 Jl '21

Electrical phenomena occurring at high levels in the atmosphere. S. Chapman. diags Inst E E J 57:sup209-16 '19; Same. Sci Am S 88:198-9, 202, 323 S 27, N 29 '19; Discussion. Inst E E J 57:217-22 '19

Radio service not affected by aurora borealis. Wireless Age 8:7 Jl '21

Recent results of northlight investigations and the nature of the cosmic electric rays. L. Vegard. Philos Mag 6th ser 42:47-87, pl 2 Jl '21

What is the aurora borealis? il Sci Am 125:67+ Jl 23 '21

Australasia

See also Mines and mineral resources—Australasia

Australia

River regulation in Australia. Engineering 110:380-1 S 17 '20

See also Electricity supply—Australia; Geology—Australia; Iron industry and trade—Australia; Labor and laboring classes—Australia; Mines and mineral resources—Australia; Railroads—Australia; Shipbuilding—Australia; Street railroads—Australia; Wages—Australia; Waterways—Australia

Commerce

Trade of Australia. Elec R (Lond) 89:546-7 O 21 '21

Trade prospects in Australia. Engineering 110:318 S 3 '20

Finance

See Finance—Australia

Industries and resources

Development of Australian industries during the war. Mach 27:114 O '20

Industrial development of Australia. E. L. Little. Am Mach 53:842-3 N 4 '20

Infant steel industry of Australia. C. F. Poppleton. plan Iron Age 105:7-11 Ja 1 '20

See also Mines and mineral resources—Australia; Steel works—Australia

Austria

See also Electric industries—Austria; Electric plants (central stations)—Austria; Railroads—Austria; Street railroads—Austria; Water power—Austria

Economic conditions

Emil Gluckstadt, Danish banker who will aid Austria an international figure. J. Moritzen. Annalist 17:423 Ap 11 '21

Financial aid for Austria urged. F. Vanderlip and S. Untermeyer. Comm & Fin Chr 113:1118-19 S 10 '21

See also Labor laws and legislation—Austria; Wages—Austria

Industries and resources

Business in Poland and Austria. E. P. Bicknell. il Am Ind 21:40-2 F '21

Present position of Austrian industry. Am Mach 54:664b-c Ap 14 '21

Reversion of Austrian industries to peace conditions. Monthly Labor R 11:611-12 S '20

Situation of the Austrian iron and machine industry. Am Mach 54:348 F 24 '21

Situation of the Austrian machine industry. Am Mach 53:1207-8 D 23 '20

See also Automobile industry and trade—Austria; Electric industries—Austria; Paper industry and trade—Austria; Water power—Austria

Auto-transformers. *See* Electric transformers

Autobus. *See* Motor buses

Autocar company

Every man his own capitalist in the Autocar company. B: H. Lambe. Nation's Business 9:18 Ag '21

Autogenous welding. *See* Electric welding; Welding; Welding, Oxyacetylene

Automatic machinery. *See* Machinery, Automatic

Automatic stop. *See* Railroads—Automatic stop

- Automatic substation.** See Electric substations, Automatic
- Automatic train stop.** See Railroads—Automatic stop
- Automatons**
Automaton displays uncanny musical skill. *il Pop Mech* 33:801 Je '20
- Automobile accessories.** See Automobile industry and trade—Automobile accessories; Automobiles—Equipment; Gasoline service stations—Automobile accessories
- Automobile accidents**
Accident record shows improvement. *Elec Ry J* 58:244 Ag 13 '21
Automobile fatalities. F: S. Crum. 22p '20 Prudential insurance company of America, Newark, N.J.
Autos killed 7,969 in 1919. *Elec Ry J* 57:58 Ja 1 '21
British roadside breakdowns. *il Sci Am* 125:73 Jl 30 '21
Incursive somniphathy. D. O. Skinner. *Sci Am* 124:167 F 26 '21
Maryland's road accident map shows great danger of speed. H. D. Williar, jr. *il diags Pub Roads* 4:15-16 S '21; Same. *Eng & Contr* 56:331 O 5 '21
Prevention of automobile accidents. *Soc Auto Eng J* 7:139 Ag '20
Symposium on automobile hazards at annual convention of American electric railway claims association. R. Stickle and others. *Elec Ry J* 56:913-21 O 30 '20
Towing the wrecked car. *il Sci Am* 125:101 Ag 6 '21
Traffic regulations and safety work. J. M. Quigley. *Elec Ry J* 58:606-7 O 8 '21
See also Grade crossing accidents
- Automobile brakes.** See Air brakes, Automobile; Brakes, Automobile
- Automobile driving**
American stand on the left hand drive in England. *Automotive Ind* 43:281 Ag 5 '20
L'art de bien conduire une automobile, un cycle-car, une motorcyclette. L. Baudry de Saunier. 238p E. Flammarion, Paris '21
Incursive somniphathy. D. O. Skinner. *Sci Am* 124:167 F 26 '21
Right-hand steering. B. Jacobsson. *Automotive Ind* 45:629 S 29 '21
- Automobile engineering**
Address. C: M. Manly. *Soc Auto Eng J* 6:143-6+ Mr '20
Elements of automobile fuel economy. W. S. James. *diags Soc Auto Eng J* 8:543-62 Je '21; Excerpt. *Automotive Ind* 44:1201-5 Je 9 '21; Discussion. *Soc Auto Eng J* 9:263-8 O '21
Engineering possibilities as indicated by the progress of science; with discussion. C: F. Kettering. *Soc Auto Eng J* 7:56-61 Jl '20
Kinematics of the universal joint. P. Cormack. *diags Automobile Eng* 11:301-5 S '21
See also Automobile engines; Automobile mechanics; Automobile research; Automobiles
- Study and teaching**
- Automobile engineering. R. S. King. *Eng Educ* 11:139-42 N '20
- Automobile engines**
Air-cooled sleeve-valve engine; abstract. *Sci Am M* 2:188 O '20
Automobile and aircraft engines in theory and experiment. A. W. Judge. Rev. and enl. ed. 642p Pitman '21
Beaver two-passenger car engines. *il Automotive Ind* 43:458-9 S 2 '20
Beginnings of the motor car. *Sci Am* 122:240 Mr 6 '20
British twin-six motor car engine. *il diags Engineer* 129:252-4 Mr 5 '20; Excerpts. *Mech Eng* 42:298-9 My '20
Comments upon fuels, lubricants, engine and piston performance. W: C. Davids. *Soc Auto Eng J* 6:425-7 Je '20
Continental engine an exceptional production job. *il diags Automotive Ind* 42:400-2 F 5 '20
Continental issues a new engine. *il Motor Age* 37:31-2+ Ja 8 '20
Crankshaft vibrations in multi-cylinder engines. A. A. Remington. *Automobile Eng* 11:298 S '21
Crossley building chassis with smaller four-cylinder engine. M. W. Bourdon. *il Automotive Ind* 45:355-6 Ag 25 '21
Defects in motor vehicles and their remedy. F. Strickland. *diags Engineering* 110:202-4 Ag 13 '20
Developing a high-compression automotive engine. F. C. Ziesenheim. *diags Soc Auto Eng J* 9:5-19 Jl '21; Excerpts. *Automotive Ind* 44:1106-8 My 26 '21; Discussion. *Soc Auto Eng J* 9:268-75 O '21
Development of the internal combustion engine. T. B. Murray. *Sci Am M* 1:350-6 Ap '20
Diesel engine and automobiles. C: Day. *diags Sci Am M* 1:135-8 F '20; Abstract. *Power* 52:838 N 23 '20
Diesel type of engine for motor vehicle work. *diag Automotive Ind* 41:501+ Mr 3 '21
Dorman internal-combustion engines. *il diags (supp) Engineering* 109:342-4 Mr 12 '20
Duplex car and engine. *diags Mech Eng* 42:178 Mr '20; Same. *Sci Am M* 1:274 Mr '20
Engine with clearance volume and valve timing both variable; experimental engine with hydraulic device for raising and lowering crankshaft. *diags Automotive Ind* 43:1314-15 D 30 '20
Engineering notes on the racing cars. *il Automotive Ind* 42:1246-7 Je 3 '20
Engines exhibited at New York show. P. M. Heldt. *il diags Automotive Ind* 44:53-8 Ja 13 '21
Erd has new series of heavy duty engines. *il Motor Age* 36:30-1 D 11 '19
Firing order of 1920 engines; tabulation. *Motor Age* 38:53 O 14; 44 O 21 '20
Firing orders of internal combustion engines. K. H. Condit. *il diags Am Mach* 52:792-4 Ap 8 '20
General data on automobile motors. F. H. Colvin. *Am Mach* 52:621-3 Mr 18 '20
Herschell-Spillman four and six cylinder engines in passenger car line. *il Automotive Ind* 42:846-7 Ap 8 '20
Herschell-Spillman two new engine designs. *il Motor Age* 37:30-1 Ap 15 '20
High-speed light engine has quick take-down feature; Oberting engine. *diags Automotive Ind* 43:254-5 Ag 5 '20
Important changes feature the new Jordan model. J. E. Schipper. *il diags Automotive Ind* 45:654-7 O 6 '21
Internal-combustion engine as developed by the automotive industry. J. G. Vincent. *il diags plan Soc Auto Eng J* 7:235-56 S '20
Knight engine adapted to two-unit farm lighting system. *diags Automotive Ind* 42:14-17 Ja 1 '20
LaFayette—an eight. *il diags Motor Age* 37:12-17 Ja 8 '20
LaFayette eight-cylinder automobile has light weight feature. J. E. Schipper. *il diags Automotive Ind* 43:356-62 Ag 19 '20
Lanchester 1920 model has new features. *il diags Automotive Ind* 42:18-20 Ja 1 '20
Lightness, simplicity and accessibility feature LaFayette engines. J. E. Schipper. *il diags Automotive Ind* 42:397-9 F 5 '20
Limits of slow running; abstract. A. Johnson. *Mech Eng* 42:466-7 Ag '20
Lincoln car has an eight-cylinder, 60 deg. Vee engine. J. E. Schipper. *il Automotive Ind* 43:554-7 S 16 '20
Mercedes-Knight shows many detail improvements. H. F. Blanchard. *il Automotive Ind* 43:756-7 O 14 '20
More miles per gallon. O. C. Berry. *Chem & Met Eng* 25:64-8 Jl 13 '21
Nash engine is adapted to four-cylinder practice. R. E. Berg. *diags Automotive Ind* 43:1055-8 N 25 '20
New block-cast six-cylinder engine. J. E. Schipper. *il diag Automotive Ind* 45:310-11 Ag 18 '21
New crank motion embodied in engine. P. M. Heldt. *diag Automotive Ind* 42:405-7 F 5 '20
New four-cylinder engine to be a stock product. J. E. Schipper. *diags Automotive Ind* 44:694-5 Mr 31 '21

Automobile engines—Continued

- New four cylinder engine, Turmo, of conventional design. J. E. Schipper. il diags Automotive Ind 44:800-2 Ap 14 '21
- New model Lexington car uses Ansted engine. J. E. Schipper. il diags Automotive Ind 44:4-7 Ja 6 '21
- New principle of engine suspension. S. E. Slocum. diags Soc Auto Eng J 8:54-6 Ja '21; Abstract. Mech Eng 43:200 Mr '21
- Non-detachable head used in new stock Highway engine. J. E. Schipper. il diags Automotive Ind 44:844-6 Ap 21 '21
- Paige announces new engine for big six model. J. E. Schipper. il diags Automotive Ind 43:507-9 S 9 '20
- Paige uses own engine for first time. il Motor Age 37:29-32 Ja 22 '20
- Racing car petrol engines. Engineering 111: 718-19 Je 10 '21
- Reducing the cold engine troubles. J. E. Schipper. diags Automotive Ind 41:1014-15 N 20 '19
- Relative merits of large slow-speed and small high-speed engines. W. S. James. Soc Auto Eng J 8:561-2 Je '21
- Revolving air-cooled engine. diag Automotive Ind 44:219-20 F 3 '21
- Rigid construction and clean appearance features of new engine designed by F. S. Spring and H. L. Elfes. J. E. Schipper. il Automotive Ind 44:493-4 Mr 3 '21
- Rochester-Duesenberg engine. il Motor Age 37:34-5 Ja 8 '20
- Running balance and uniformity of crankshaft effort in 8-cylinder 60 degree Vee engines. P. M. Heldt. diags Automotive Ind 44:1427-9 Je 30 '21
- Saxon offers changed design and construction in new model. J. E. Schipper. il diags Automotive Ind 42:748-51 Mr 25 '20
- Single-sleeve-valve engine with outside sleeves. diag Mech Eng 42:235-6 Ap '20
- Specially designed engine for the Liberty car. P. M. Heldt. il diag Automotive Ind 43:558-61 S 16 '20
- Studebaker selects lighter six for large production. J. E. Schipper. il diags Automotive Ind 42:501-4 F 19 '20
- Studies of the automobile; the past, and the problem of the present time. G. B. Upton. Sibley J 35:58-60+ Ap '21
- Studying conditions within the cylinder by indicator cards. il Automotive Ind 42:562-4 F 26 '20
- White four-cylinder motor car engine. diags Engineering 111:140 F 4 '21
- Why the 183 cubic inch engine made good. R. E. Berg. diags plan Motor Age 38:10-11+ S 9 '20
- See also* Automobiles; Carbureters; Cylinders (engines); Fuelizer; Gas and oil engines; Motor cycle engines; Motor cycles; Motor truck engines; Piston rings; Tractor engines; Tractors

Bearings

- Boring machine for crankshaft bearings. E. Gardner. il Pop Mech 33:610-12 Ap '20
- Lapping and running-in machine. A. B. Bass-off. diags Mach 28:5-7 S '21
- Manufacture and use of die-cast engine bearings. H. C. Skinner. il diags Automotive Ind 42:1160-2 My 20 '20
- New type engine bearing. R. E. Berg. il diags Motor Age 37:20-1+ Ap 15 '20

Cooling

- Air cooling of petrol engines. A. H. Gibson. Engineering 109:211-13, 241-3 F 13-20 '20; Same. Automotive Ind 42:1109-13, 1154-7 My 13-20, '20; Excerpt. Engineer 129:173-4 F 13 '20
- Anti-freezing solutions. O. B. Zimmerman. Soc Auto Eng J 9:307-10; Discussion. 310-12 N '21
- Design of cooling surfaces for air-cooled engines. W. B. Brown. diags Automotive Ind 42:1352-5 Je 10 '20
- Fins for air-cooled engines. diag Automobile Eng 11:213 Je '21
- New method of cooling automotive engines. P. M. Heldt. il diags Automotive Ind 44: 1103-5 My 26 '21

- Radiator cooling fans. G. W. Hoyt. Soc Auto Eng J 6:138-9 F '20
- La voiture Enfield-Allday, à moteur refroidi par l'air. diags Génie Civil 77:59 JI 17 '20
- See also* Automobile engines; Automobile engines—Radiators

Cylinders

See Automobile engines—Manufacture.

Design

- Adapting engines to the use of available fuels; abstract, with discussion. J. G. Vincent. Soc Auto Eng J 6:327-31 My '20
- Advise reduction of weight and power in future automobile design. Nat Pet N 12: 97+ S 8 '20
- Aircraft practice in the 1920 Napier. M. W. Bourdon. il diags plan Automotive Ind 41: 1056-60 N 27 '19
- Analyzing the question of the stroke-bore ratio. E. G. Ingram. diags Automotive Ind 41:1016-19 N 20 '19
- Briscoe has notable production feature; diagrams. Automotive Ind 42:71-2 Ja 8 '20
- Cameron air cooled in a "comeback." il diags Automotive Ind 41:1164-6 D 11 '19
- Carburetion as applied to the design of automobile engines. E. S. MacPherson. diags Automotive Ind 42:1348-50 Je 10 '20
- Design and construction of the 183 cu. in. engine. S. Gerster and W. F. Bradley. diags Automotive Ind 42:757-9+, 808-11 Mr 25-Apr 1 '20
- Details of Diesel-engine design for use on motor vehicles; abstract. E. Frey. Mech Eng 42:355-6 Je '20
- Drayton two-stroke engine. diags Automobile Eng 11:14-15 Ja '21
- Effect on fuel economy of refinements in engine design. L. Mantell. diags Automotive Ind 45:161-7 JI 28 '21
- Failure of connecting rods at high speeds. G. Wiedeman. Automotive Ind 42:1254-5 Je 3 '20; Discussion. 43:476-7+ S 2 '20
- Future of automotive industry depends on heavier fuel. diags Nat Pet N 12:43+ JI 7 '20
- Heavy crankshaft features new Marmon engine. J. E. Schipper. il diags Automotive Ind 42:347-53 Ja 29 '20
- Heavy-duty high-speed engine; with discussion. O. E. Griner and M. A. Smith. il Soc Auto Eng J 7:89-95 JI '20
- High-speed engines of small piston displacement. L. Chevrolet and C. W. Van Ranst. il diags Soc Auto Eng J 8:368-73; Discussion. 373-4 Ap '21
- Interesting development in engine construction; the new Caunt design. diags Motor Age 38:33 JI 8 '20
- Longer wheelbase and larger engine in new Haynes. J. E. Schipper. il diags plan Automotive Ind 45:764-7 O 20 '21
- Needs in engine design. F. H. Trego. Soc Auto Eng J 6:14-15 Ja '20; Discussion. 6:311-12 My '20
- New Buick four similar to six of same make. J. E. Schipper. il diags Automotive Ind 45: 255-8 Ag 11 '21
- New model of single sleeve valve engine. il diag Automotive Ind 43:1270-1 D 23 '20
- Next step in engine design. Automotive Ind 44:1327-8 Je 16 '21
- Original lubrication features on Supreme engines. P. M. Heldt. il diags Automotive Ind 43:660-3 S 30 '20
- Problems in designing an engine camshaft. D. T. Hastings. diags Automotive Ind 41: 1072-80, 1116-24 N 27-D 4 '19
- Six-cylinder edition of the Packard car. J. E. Schipper. il diags Automotive Ind 43: 654-8 S 30 '20
- Some of the changes in the new engine models of the Waukesha motor co. J. E. Schipper. il diags Automotive Ind 42:702-3 Mr 18 '20
- Tendencies in British engine design noted at Olympia. M. W. Bourdon. il diags Automotive Ind 43:1060-5+ N 25 '20
- Tendencies in engine design. L. H. Pomeroy. il diags Soc Auto Eng J 6:29-43, 308-9 Ja, My '20

Automobile engines—Design—Continued

- To produce new eight-cylinder engine for use in Oldsmobile chassis. J. E. Schipper. *il diags Automotive Ind* 44:642-6 Mr 24 '21
Trend of design in the United States of America. *diags Automotive Eng* 11:215-17 Je '21
Turner-Moore engine has unusual oil system and valve setting. *il diags Automotive Ind* 42:946-7 Ap 22 '20

Exhaust

- Automobile exhaust gases in tunnels; abstracts. A. C. Fieldner. *Soc Auto Eng J* 6:269 Ap '20; *Sci Am M* 1:548 Je '20
Chemical problems in the ventilation of vehicular tunnels. A. C. Fieldner. *Heat & Ven* 18:33-4 Ja '21
Danger of automobile exhaust gas. V. H. Manning. *Sci Am M* 1:64-6 Ja '20
Gasoline losses due to incomplete combustion in motor vehicles; abstracts. A. C. Fieldner, A. A. Straub and G. W. Jones. *il diags plan J Ind & Eng Chem* 13:51-7 Ja '21; *Soc Auto Eng J* 8:295-305 Ap '21; Discussion. *J Ind & Eng Chem* 13:57-8 Ja '21; *Soc Auto Eng J* 8:451-66 My '21
Induction and exhaust pipes. *diags Automotive Eng* 11:150-2 Ap '21
Physiological effects of automobile exhaust gas and standards of ventilation for brief exposures. Y. Henderson and others. *bibliog diags J Ind Hygiene* 3:79-92, 137-46 Jl-Ag '21

Fans

- Radiator cooling fans. G. W. Hoyt. *Soc Auto Eng J* 6:138-9 F '20

Fuel

- Acetylene as an automobile fuel. *Automotive Ind* 43:1072 N 25 '20
Acetylene for automobiles. *Engineering* 110:450 O 1 '20
Adapting engines to the use of available fuels; abstract, with discussion. J. G. Vincent. *Soc Auto Eng J* 6:327-31 My '20
Adapting engines to use of available fuel. J. G. Vincent. *il diags Automotive Ind* 42:408-11 F 5 '20
Air-temperature regulation effects on fuel economy. R. E. Fielder. *diag Soc Auto Eng J* 8:119-22 F '21; Discussion. 8:451-66 My '21
Alcohol may permit use as motor fuel of heavy hydrocarbons. J. V. Meigs. *Nat Pet N* 12:49+ F 4 '20
Alcohol minor factor in fuel field. J. L. Lewis. *Soc Auto Eng J* 7:146 Ag '20
Analysis of elements which govern automobile fuel economy. H. C. Dickinson, S. W. Sparrow and R. L. Wales. *Automotive Ind* 44:1421-6 Je 30 '21
Benzole-alcohol experiments on omnibuses. G. J. Shave. *Engineering* 110:623-4 N 5 '20; Abstract. *Soc Auto Eng J* 7:556-7 D '20
Bettering the efficiency of existing engines. H. C. Gibson. *Soc Auto Eng J* 6:7-13 Ja '20; Discussion. 6:340-2 My '20
Bureau of standards on fuel economy of automobile engines. *Am Mach* 55:328c Ag 25 '21
Character of various fuels for internal combustion engines. H. T. Tizard and D. R. Pye. *Automobile Eng* 11:55-9, 98-101, 134-7 F-Ap '21
Combustion of fuels in internal-combustion engines. C. F. Kettering. *Soc Auto Eng J* 7:224-7 S '20
Combustion of naphthalene solutions in internal combustion engines. L. S. Palmer. *il Automotive Eng* 11:31-4 Ja '21; Discussion. 11:77-8 F '21; Correction. 11:118 Mr '21
Comparison of kerosene and gasoline for heavy duty engines. P. S. Tice. *Automotive Ind* 43:111-13 Jl 15 '20
Composite fuels and the internal combustion engine. J. E. Pogue. *Nat Pet N* 12:23-4 Ja 21 '20; Same. *Soc Auto Eng J* 6:47-8 Ja '20
Condensation temperatures of gasoline- and kerosene-air mixtures. R. E. Wilson and D. P. Barnard. *diags J Ind & Eng Chem* 13:906-12 O '21; Same. *Soc Auto Eng J* 9:313-19 N '21

- Cooperation of the automotive and oil industries. C. F. Kettering. *Soc Auto Eng J* 8:43-5 Ja '21
Current fuel research. *Soc Auto Eng J* 8:131-4 F '21
Developing a high-compression automotive engine. F. C. Ziesenheim. *diags Soc Auto Eng J* 9:5-19 Jl '21; Excerpts. *Automotive Ind* 44:1106-8 My 26 '21; Discussion. *Soc Auto Eng J* 9:268-75 O '21
Discussion at the summer meeting of S.A.E. *Soc Auto Eng J* 7:121-6 Ag '20
Efficiency of weak mixtures. R. W. A. Brewer. *Automotive Ind* 44:1071 My 19 '21
Elements of automobile fuel economy. W. S. James. *diags Soc Auto Eng J* 8:543-62 Je '21; Excerpt. *Automotive Ind* 44:1201-5 Je 9 '21; Discussion. *Soc Auto Eng J* 9:263-8 O '21
L'emploi des pétroles lampants dans les moteurs d'automobiles. A. Grebel. *Génie Civil* 78:289-95 Ap 2 '21; Same. *Soc Ing Civils Bul* 74:250-69 Ap '21
Forward step in automotive fuels. *Sci Am* 122:512+ My 8 '20
French cars make excellent showing in fuel competition. W. F. Bradley. *Automotive Ind* 43:1078-9 N 25 '20
Fuel economy chief topic of discussion at auto engineers' session. *Nat Pet N* 13:25-6 Ja 19 '21
Fuel economy paramount in the S.A.E. meeting. P. M. Heldt. *il diags Automotive Ind* 43:1-6 Jl 1 '20
Fuel problem data; abstracts from recent papers. *Soc Auto Eng J* 7:117-21 Ag '20
Fuel problem in relation to engineering viewpoint. A. L. Nelson. *il diags Soc Auto Eng J* 8:101-15 F '21; Same. *Engineering* 111:642-6, 696-8 My 27-Je 3 '21; Same cond. *Automotive Ind* 44:162-70 Ja 27 '21; Discussion. *Soc Auto Eng J* 8:451-66 My '21
Fuel research developments. C. F. Kettering. *il diags Soc Auto Eng J* 9:291-6+ N '21
Fuel research session of the Society of automotive engineers. *il Automotive Ind* 44:1148-50 Je 2 '21
Fuel shortage latest motor problem. *Motor Age* 37:21 My 20 '20
Fuel situation demands conservation. *Automotive Ind* 42:1443-4 Je 24 '20
Fuels for motor vehicles. *Engineering* 109:85-6 Ja 16 '20
Future of automotive industry depends on heavier fuel. *diags Nat Pet N* 12:43+ Jl 7 '20
Gas-Co-Lator attacks the fuel problem. *il diags Motor Age* 37:33 Ja 22 '20
Gasoline and other motor fuels. C. Ellis and J. V. Meigs. 709p Van Nostrand '21
Gasoline-benzol motor fuel is found satisfactory for taxicabs. J. R. Battle. *Nat Pet N* 13:30 S 14 '21
Gasoline economy now consideration in designing automobiles. *Nat Pet N* 12:43+ O 20 '20
German government will create standard motor fuel. B. R. Dierfeld. *Automotive Ind* 43:501-6 S 9 '20
Hawaiian motors run on molasses. *Sci Am* 123:147 Ag 14 '20
Improvements in fuel utilization. F. C. Mock. *diag Automotive Ind* 45:80-1 Jl 14 '21
Increased mileage should be aim of motor designers. *Nat Pet N* 12:29 Jl 21 '20
Influence of various fuels on the performance of internal combustion engines. H. R. Ricardo. *Automobile Eng* 11:51-4, 92-7, 130-3, 169-75, 201-5, 242-7, 279-84 F-Ag '21; Same abr. *Automotive Ind* 44:804-7, 856-62, 1003-7: 45:8-13+, 211-16, 465-70+, 516-19 Ap 14-21. My 12, Jl 7, Ag 4. S 8-15 '21
Little change in character of motor fuel over past year. *Nat Pet N* 13:24 F 23 '21
Le meeting automobile du Mans (30 octobre 1920); les épreuves de consommation. G. Birlé. *diags Génie Civil* 77:503-6 D 18 '20
Mixture of benzol, xylol, toluol and gasoline, properly made far superior as motor fuel to ordinary run of gasoline. R. E. Krueger. *Am Gas Eng J* 112:337-8, 348-50 My 1 '20

Automobile engines—Fuel—Continued

- Motor fuel from vegetation. T. A. Boyd. *J Ind & Eng Chem* 13:836-41 S '21
- Motor fuel symposium at the meeting of the Washington, D.C., section, A.C.S. Chem & Met Eng 23:1231-2 D 22 '20
- Motor fuels. E. W. Dean. *il J Fr Inst* 189:269-302 Mr '20; Same. *Soc Auto Eng J* 6:107-17 F '20; Abstract. *Aviation* 7:436 D 15 '19; Abstract. *Engineer* 130:64-5 JI 16 '20
- Naphthaline solutions as motor fuel. *Automotive Ind* 43:1330 D 30 '20
- Nearly 65 miles on one gallon of benzol. W. F. Bradley. *il Automotive Ind* 44:1364-5 Je 23 '21
- New test for motor fuels. *Automotive Ind* 44:741 Ap 7 '21
- New type engine must solve gasoline problem. N. A. C. Smith. *Automotive Ind* 42:730-1 Mr 18 '20; Same. *Am Gas Eng J* 112:224+ Mr 20 '20; Same. *Am Ind* 20:34-5 Ap '20; Excerpt. *Eng & Min J* 109:889 Ap 10 '20
- Possible fuel savings in automotive engines. H. C. Dickinson and S. W. Sparrow. *il chart diags Soc Auto Eng J* 8:3-9 Ja '21
- Problems of fuel combustion. C. F. Kettering. *diags Motor Age* 37:18-19+ My 6 '20; Same cond. *Automotive Ind* 42:1119 My 13 '20
- Progress in fuel matters features annual S. A. E. meeting. H. Chase. *Automotive Ind* 44:101-3 Ja 20 '21
- Refiners can get dope from oil to obviate motor knock. C. F. Kettering. *Nat Pet N* 12:55-6 N 24 '20
- Relation of motor and oil industries. C. F. Kettering. *Nat Pet N* 12:48-50 Mr 17 '20
- Report on the utilization of present fuels in present engines. *diags Soc Auto Eng J* 7:25-9 JI '20; Same cond. *Automotive Ind* 42:1445-7+ Je 24 '20; Discussion. *Soc Auto Eng J* 7:446-8 N '20
- Researches on alcohol as a fuel for internal combustion engines. H. B. Dixon. *Automotive Ind* 44:211-15 F 3 '21; Same, without tables. *Soc Auto Eng J* 7:521-4 D '20
- Résumé of Bureau of standards fuel study. H. C. Dickinson. *Soc Auto Eng J* 8:482-6; Discussion. 451-66 My '21
- Significance of alcohol in the motor fuel problem. B. R. Tunison. *Automotive Ind* 44:14-17 Ja 6 '21
- Some angles of the fuel question. R. E. Berg. *il Motor Age* 38:9+ JI 8 '20
- Some of the factors involved in fuel utilization. P. S. Tice. *Soc Auto Eng J* 7:190-4 Ag '20
- Symposium shows many companies doing fuel research work. *Nat Pet N* 13:71+ Ja 26 '21
- 10,000-mile automobile run on benzole establishes its reliability and suitability as motor fuel. *Am Gas Eng J* 112:80-1 Ja 31 '20
- Testing of motor fuels. *il diags Automotive Ind* 45:712-15, 768-72 O 13-20 '21
- Total sensible heats of motor fuels and their mixtures with air. R. E. Wilson and D. P. Barnard. *diag J Ind & Eng Chem* 13:912-15 O '21
- Treatment of motor fuel to suppress knock in engine. T. Midgley, jr. *il diags Nat Pet N* 13:33-6+ Ja 12 '21
- Use of heavy fuel in automotive engines. H. M. Crane. *Soc Auto Eng J* 7:147-8 Ag '20
- Utilization of present automotive fuel. F. C. Mock. *Soc Auto Eng J* 8:26-7 Ja '21
- What happens in the combustion of an engine. R. E. Berg. *diag Motor Age* 38:12-13 JI 1 '20
- Where are we getting in efforts to solve the fuel problem? H. Chase. *diags Automotive Ind* 44:1241-50 Je 16 '21
- Why our motor fuel supply must be conserved. H. Chase. *Automotive Ind* 45:251-4 Ag 11 '21
- See also Alcohol as fuel; Automobile engines—Exhaust; Gas and oil engines—Fuel; Gasoline; Kerosene; Petrometer

Cost

- Price of motor fuels. *Engineer* 129:245-6 Mr 5 '20

Gas

- Compressed gas for motor vehicles. *Eng & Contr* 52:488-9 O 29 '19
- L'emploi du gaz pauvre pour la propulsion des véhicules. *diags Génie Civil* 76:396-7 Ap 24 '20
- Gas producer on motor car substitute for gasoline. *il Pop Mech* 33:230 F '20
- Novel gas producer evades high cost of gasoline. *il Pop Mech* 35:846 Je '21
- Producer gas as a fuel for automotive vehicles. P. M. Heldt. *Automotive Ind* 45:461-4, 507-11 S 8-15 '21
- Producer gas for motor vehicles. D. J. Smith. *Engineering* 109:59-64, 92-5 Ja 9-16 '20; Same cond. *Engineer* 129:122-4 Ja 30 '20; Abstracts. *Mech Eng* 42:176-8 Mr '20; *Sci Am M* 1:274-6 Mr '20; *Power Pl Eng* 24:440-1 Ap 15 '20
- Use of gas as automobile fuel. A. Grebel. *Gas Age* 45:448-9 My 25 '20

Fuel feeding

- Auto intake-pipe fitment saves much gasoline. *il Pop Mech* 36:241 Ag '21
- La carburation par le pétrole lampant et l'action de paroi. G. Lumet. *Soc Ing Civils Bul* 74:291-301 Ap '21
- Carburetion and distribution of low-grade fuels. O. H. Ensign. *il diags Soc Auto Eng J* 7:19-24+ JI '20
- Carburetion of heavy fuels. *Soc Auto Eng J* 7:392+ O '20
- Carburetion requirements of a typical gas engine. P. S. Tice. *il Automotive Ind* 42:1452-7 Je 24 '20
- Controlling and atomizing fuel by variable engine pressures. J. G. Willet. *diags Soc Auto Eng J* 7:51-5 JI '20; Same. *Nat Pet N* 12:83+ D 15 '20
- Effect of mixture ratio and temperature on power and economy. C. S. Kegerreis. *Automotive Ind* 45:610-12 S 29 '21
- Effects of changes in mixture ratio and inlet temperature. W. E. Lay. *Automotive Ind* 43:466-7 S 2 '20
- Eliminating crankcase dilution by manifold development. G. P. Dorris. *il Soc Auto Eng J* 9:35-6 JI '21; Discussion. 9:260-3 O '21
- Essentials retained in Webb Jay system. *Automotive Ind* 45:737+ O 13 '21
- Fuel feeder uses cylinder pressure. *diag Automotive Ind* 43:58 JI 8 '20
- Intake-manifold temperatures and fuel economy. W. S. James, H. C. Dickinson and S. W. Sparrow. *il diags Soc Auto Eng J* 7:131-6 Ag '20; Same cond. *Sci Am M* 2:273-4 N '20; Discussion. *Soc Auto Eng J* 7:409, 451-60 N '20
- Loss of around 25% in motor fuel through poor carburetion. *Nat Pet N* 12:27-8 D 22 '20
- More miles per gallon. *Soc Auto Eng J* 7:357-8 O '20
- More miles to the gallon of gas. *il Sci Am* 122:699 Je 26 '20
- New positive fuel feed utilizes a pulsater device. *diags Automotive Ind* 42:801 Ap 1 '20
- Packard fuel feeding device for automobile engines. *il Eng & Contr* 54:637-8 D 29 '20
- Packard fuelizer. L. M. Woolson. *il diags Soc Auto Eng J* 8:240-3; Discussion. 243-8+ Mr '21
- Study in charge proportioning with heavy fuels. P. S. Tice. *il diag Automotive Ind* 43:266-9 Ag 5 '20
- See also Airplane engines—Fuel feeding; Automobile engines—Manifolds; Carbureters

Ignition

- Combustion phenomena revealed by indicator cards. V. R. Gage. *diags Automotive Ind* 45:110-15 JI 21 '21
- Elements of automobile fuel economy. W. S. James. *diags Soc Auto Eng J* 8:543-62 Je '21; Excerpt. *Automotive Ind* 44:1201-5 Je 9 '21; Discussion. *Soc Auto Eng J* 9:263-8 O '21
- Nature of flame movement in a closed cylinder. C. A. Woodbury, H. A. Lewis and A. T. Canby. *il diag Soc Auto Eng J* 8:209-18 Mr '21; Discussion. 9:237-42 O '21

Automobile engines—Ignition—Continued

- Turbulence. H. L. Horning. diags Soc Auto Eng J 8:579-87 Je '21; Same. Automobile Eng 11:347-52 O '21; Excerpts. Automotive Ind 44:1142, 1144-7+ Je 2 '21; Discussion. Soc Auto Eng J 9:256-60 O '21
- Underlying principles of electrical ignition. B. F. Bailey. diags Soc Auto Eng J 8:570-5; Discussion. 575-6+ Je '21

Ignition devices

- Advantages of magneto ignition. A. D. T. Libby. il diags Soc Auto Eng J 7:277-87; Discussion. 287-90 S '20
- Alternating current battery ignition system. diags Automotive Ind 43:103 J1 15 '20
- Analysis of the automatic ignition advance mechanism. C. H. Hindl. il diag Automotive Ind 45:312-14 Ag 18 '21
- Automotive ignition systems. E. L. Consoliver and G. L. Mitchell. 269p McGraw-Hill '20
- Battery-ignition systems. J. H. Hunt. il diags Soc Auto Eng J 7:537-45; Discussion. 545-8 D '20
- Bosch producing a battery ignition system. il Automotive Ind 45:209-10 Ag 4 '21
- Cause of static phenomena on ignition cables. H. F. Geist. diags Automotive Ind 42:804-7 Ap 1 '20
- Coil ignition for motor cars. C. Sylvester. 228p Pitman '21
- Compact battery ignition system designed by Vital Paquit. il diag Automotive Ind 43:1162-3 D 9 '20
- Compact form of Westinghouse ignition set on 1920 car models. il Automotive Ind 42:754-5 Mr 25 '20
- Electric ignition. Engineer 129:451-2 Ap 30 '20
- Flexible closed circuit type of ignition. il diags Automotive Ind 41:1258-60 D 25 '19
- Ignition circuit characteristics as determined by engine requirements. H. F. Geist. Automotive Ind 43:666-70 S 30 '20
- Ohmer line shows latest practice in ignition apparatus. il Automotive Ind 42:552-3 F 26 '20
- Recent ignition practice in Great Britain. F. H. Hutton. il diag Automotive Ind 41:1052-5 N 27 '19
- Refinements in a battery ignition system. J. E. Schipper. il diags Automotive Ind 44:602-3 Mr 17 '21

See also Automobiles—Electric equipment; Gas and oil engines—Ignition; Interrupters; Magnetos

Lubrication

- Dilution of crankcase oil. W. F. Parish. charts Soc Auto Eng J 8:231-4; Discussion. 234-7+ Mr '21
- Engine lubrication. E. L. Bass. diags Automobile Eng 11:321-4 S '21
- General research session of the Society of automotive engineers. Automotive Ind 44:1151-2 Je 2 '21
- Lubrication. il Motor Age 37:38-9 My 13 '20
- Lubrication of timing-gears. E. Planche. il Soc Auto Eng J 9:107-8 Ag '21
- Meeting lubrication requirements in high speed engines. A. P. Brush. diags Automotive Ind 42:1302-4 Je 10 '20
- Pits for draining customers' cars boost motor oil trade. il Nat Pet N 13:22-3 F 23 '21
- Proper balancing of fuel, lubricant and motor. W. F. Parish. Mech Eng 42:164-8+ Mr '20; Same cond. Automotive Ind 42:464-7 F 12 '20; Same cond. Nat Pet N 12:30-3 F 11 '20; Same cond. Power Pl Eng 24:293-7 Mr 1 '20; Same cond. Power 51:565-8 Ap 6 '20

See also Automobiles—Lubrication; Gas and oil engines—Lubrication

Manifolds

- Air-temperature regulation effects on fuel economy. R. E. Fielder. diag Soc Auto Eng J 8:119-22 F '21; Discussion. 8:451-66 My '21
- Design of intake manifolds for present heavy fuels. F. C. Mock. diags Soc Auto Eng J 6:189-94 Mr '20
- Designing a compact intake manifold. il diags Automotive Ind 43:416-17 Ag 26 '20

- Designing a more efficient intake manifold. W. D. Bell. il Automotive Ind 42:1334-5 Je 10 '20
- Drill jig for exhaust manifold. F. H. Colvin. il diags Am Mach 53:322-3 Ag 12 '20
- Eliminating crankcase dilution by manifold development. G. P. Dorris. il Soc Auto Eng J 9:35-6 J1 '21; Discussion. 9:260-3 O '21
- Exhaust-heated manifold patents. diags Automotive Ind 44:846 Ap 21 '21
- Future of automotive industry depends on heavier fuel. diags Nat Pet N 12:43+ J1 7 '20
- Heater for intake manifold. W. S. Robinson. diag Pop Mech 35:300 F '21
- Hot-spot manifold; discussion. Soc Auto Eng J 7:121-2 Ag '20
- Induction gases. C. C. Hinkley. diag Automotive Ind 44:1333-4 Je 16 '21
- Intake flow in manifolds and cylinders. P. S. Tice. il Soc Auto Eng J 8:282-4 Mr '21
- Intake manifold practice in Europe. W. F. Bradley and S. Gerster. diags Automotive Ind 44:1370-5 Je 23 '21
- Intake-manifold temperatures and fuel economy. W. S. James, H. C. Dickinson and S. W. Sparrow. il diags Soc Auto Eng J 7:131-6 Ag '20; Same cond. Sci Am M 2:273-4 N '20; Discussion. Soc Auto Eng J 7:409, 451-60 N '20
- New auto-engine manifold gives hot-spot effects. il Pop Mech 35:579 Ap '21
- Oxy-acetylene welding fixtures for making manifolds. C. C. Phelps. il diags Am Mach 52:663 Mr 25 '20
- S.A.E. recommends the hot spot manifold. il diags Motor Age 38:14+ J1 1 '20

Manufacture

- Accelerating cylinder production. il Foundry 48:311-18 Ap 15 '20
- Automatic milling of connecting rods for production. G. M. Meyncke. il diag Automotive Ind 43:114-15 J1 15 '20
- Automobile castings made in green sand. Foundry 48:327-8 Ap 15 '20
- Automobile cylinders in the machine shop; how they are handled at five big shops. F. H. Colvin. il diags Am Mach 52:705-18 Ap 1 '20
- Automobile engine pistons as a stock proposition. E. Sheldon. il Am Mach 53:437-41 S 2 '20
- Cast-iron and aluminum pistons; the Studebaker and Oakland. F. H. Colvin. il diags Am Mach 53:416-21 Ag 26 '20
- Comparative methods of machining automobile engine connecting rods; Packard, Cadillac, Peerless, Chandler, Franklin. F. H. Colvin. il diags Am Mach 52:1023-35 My 13 '20
- Cylinder blocks manufactured in an efficient manner. J. E. Schipper. il plan Automotive Ind 44:72-7 Ja 13 '21
- Cylinder cores made in green sand. il plan Foundry 48:861-6 N 1 '20
- Cylinders in the Oakland shop. F. H. Colvin. il diags Am Mach 53:571-4 S 23 '20
- Dies for automobile oil filler cup. J. Bingham. diags Mach 26:495-7 F '20
- Formerei von auto-zylinderblöcken. C. Irresberger. il diags Stahl & Eisen 41:1217-22, 1529-33 S 1, O 27 '21
- Future of cast iron in the automobile industry. Eng & Ind Management 5:20-1 Ja 6 '21
- How cylinders are made in England. H. C. Estep. il plan Foundry 48:933-9 D 1 '20
- How Ford cylinder blocks are cast. P. Dwyer. il plans Foundry 49:751-8 O 1 '21; Same. Iron Tr R 69:739-46 S 22 '21
- How we make automobile cylinders. F. H. Colvin. il diags Am Mach 52:123-6 Ja 15 '20
- Improved method of machining pistons lowers costs. il diags Automotive Ind 42:709-11 Mr 18 '20
- Machining automobile engine pistons. R. E. Flanders. il diags Mach 26:710-13 Ap '20
- Machining motor pistons. C. H. Dengler. diags Mach 27:878-9 My '21
- Machining operations on a six-cylinder and crankcase block. P. M. Heldt. il Automotive Ind 43:712-16 O 7 '20

Automobile engines—Manufacture—Continued

- Machining operations on the Nash motor. E: K. Hammond. *il diag Mach* 26:1069-72 J1 '20
- Machining over 200 cylinder blocks per hour. F. H. Colvin. *il diags Am Mach* 52:563-9 Mr 11 '20
- Machining Packard connecting-rods. *il Mach* 26:953-7 Je '20
- Machining the connecting rods of two well known motors; Oakland and Studebaker. *il diags Am Mach* 53:829-34 N 4 '20
- Machining the Rolls-Royce cylinders. F. H. Colvin. *il Am Mach* 54:785-6 My 5 '21
- Making 21,000 pistons a day. F. H. Colvin. *il diags Am Mach* 52:819-28 Ap 15 '20
- Methods of making the Winton, Franklin, White, Packard pistons. F. H. Colvin. *il diags Am Mach* 52:927-34 Ap 29 '20
- Multiple drilling in a British automobile works. *il plans Automobile Eng* 11:248-50 J1 '21
- Multiple drilling in automobile plants. *il Mach* 26:958-63 Je '20
- Producing 17,000 connecting rods a day; methods used by the Ford motor co. F. H. Colvin. *il diags Am Mach* 52:1199-1203, 1305-9 Je 3, 17 '20
- Putting the motor together; methods used by Chandler motor car co. F. H. Colvin. *il Am Mach* 52:896-7 Ap 22 '20
- Routine factory tests and final inspection of Packard engines. J. E: Schipper. *il Automotive Ind* 44:1162-3 Je 2 '21
- Seventy-five operations give accuracy in connecting rod production. J. E: Schipper. *il Automotive Ind* 43:522-6 S 9 '20
- Special features in cylinder block production. J. E: Schipper. *il Automotive Ind* 45:116-22 J1 21 '21
- Specifying steel for automobiles. L. Aitchison. *Iron Tr R* 66:775-8 Mr 11 '20
- Status of aluminum in the automobile engine. J. E: Schipper. *il diags Automotive Ind* 43:468-70 S 2 '20
- Steel chart for engine manufacture. *Automotive Ind* 44:128 Ja 20 '21
- Studebaker methods of cylinder production. *il diags Am Mach* 53:575-9 S 23 '20
- Utilization of special machines in cylinder block production. J. E: Schipper. *il Automotive Ind* 44:756-61 Ap 7 '21
- Works of the Daimler co., ltd. *il Automobile Eng* 11:285-90 Ag '21
- Works practice of Messrs. Wolseley motors, ltd. *il diag Automobile Eng* 11:306-13 S '21

See also Automobile parts

Mufflers

- Dies for automobile muffler housings. J. Bingham. *diags Mach* 26:396-7 Ja '20
- Tests of automobile engine mufflers at University of Michigan. U S Nat Advisory Com for Aeronautics 1919:158-60 '20

Piston displacement

- High-speed engines of small piston displacement. L: Chevrolet and C. W. Van Ranst. *il diags Soc Auto Eng J* 8:368-73; Discussion. 373-4 Ap '21
- Passenger cars compared on displacement per ton-foot basis. P. M. Heldt. *Automotive Ind* 44:495-6 Mr 3 '21; Discussion. 44: 666-7 Mr 24 '21

Radiators

- Auto radiator repairing and rebuilding. S. Greenbaum. *il Metal Work* 93:112-14 Ja 23 '20
- Automotive radiators. K. F. Walker. *il Soc Auto Eng J* 7:549-53 D '20; Discussion. E. H. Lockwood. 8:127-8 F '21
- Cast radiators; S. A. E. Standards report. *diags Soc Auto Eng J* 8:187-9 F '21
- Directions on repairing automobile radiators. R: H. Terpening. *il diags plan Sheet Metal Worker* 11:253-6+, 286-7, 315-17, 342-3, 368-9, 397-8, 430-1 O 1-N 12, 26, D 10, 24 '20
- Field of automobile work is widening. *Metal Work* 93:761-2 Je 11 '20
- German developments in radiator construction. B. R. Dierfeld. *il diags Automotive Ind* 43:1068-9 N 25 '20

- Getting more radiator repairing business. R: H. Terpening. *il Sheet Metal Worker* 12: 188-90, 225-6 Ap 15-29 '21
- Making and assembling an automobile radiator. R: H. Terpening. *diags Sheet Metal Worker* 12:323-4 Je 10 '21
- Making the case for an auto radiator. R: H. Terpening. *diags Sheet Metal Worker* 12: 405-6 J1 8 '21
- New motor vehicle radiator. *il plan Engineer* 129:484 My 7 '20
- Radiator repairing and auto sheet metal work. R: H. Terpening. *il Sheet Metal Worker* 12:289-90 My 27 '21
- School equipment for radiator repairing. *il Sheet Metal Worker* 12:641-2+ O 14 '21
- Soldering radiator tubes. *diags Motor Age* 37: 45 Ap 29 '20
- Special methods for making radiators. F. H. Colvin. *il Am Mach* 53:176-7 J1 22 '20
- Taking the leaks out of the radiator business. *il Motor Age* 38:16+ J1 15 '20
- Three profitable R's—repair—rebuild—replace radiators. *il Sheet Metal Worker* 11:455-6 Ja 7 '21
- Useful pointers for radiator repairmen. R: H. Terpening. *Sheet Metal Worker* 12:464 Ag 5 '21

See also Motor truck engines—Radiators

Rating

- Horsepower ratings for tax in other countries. P. M. Heldt. *Automotive Ind* 43:1066-7 N 25 '20
- Suggested rating rule for racing cars. H. M. Crane. *Soc Auto Eng J* 8:118 F '21

Repair

- Balky motor; some of the things to look for when the automobile refuses to do its duty. V: W. Pagé. *Sci Am* 124:227+ Mr 19 '21
- Carbon and other motor troubles. I. B. Rich. *Am Mach* 55:291 Ag 25 '21
- Cylinder grinding in motor repair shops. *diags Am Mach* 55:342-3, 387-8 S 1-8 '21
- Eagle process for scored cylinder repairs. *il Motor Age* 37:33 My 20 '20
- Modern Ford engine repairing. L. M. Manley. *il diag Am Mach* 52:381-4 F 19 '20
- Piston work in motor repairing. *diags Am Mach* 55:473-4 S 22 '21
- Service on a production basis; regrinding work of the Trindl co., Chicago. *il Motor Age* 38:16-17 Ag 12 '20
- Servicing the Overland four. *il diags Motor Age* 37:40-1 F 26; 36-7 Mr 4; 37-9 Mr 11; 33-5 Mr 18; 38-9 Mr 25; 56-7 Ap 1; 40-1 Ap 8; 35-7 Ap 15; 36-7 Ap 22; 38-9 Ap 29; 40-1 My 6; 34-5 My 13 '20
- Signal board speeds battery service. J: A. Ford. *il Pop Mech* 35:512-15 Ap '21
- Systematizing engine work. *il Motor Age* 37: 18-19 Ap 15 '20

See also Automobile engines—Radiators

Specifications

- 1921 specifications of stock engines for passenger cars, trucks and tractors; tabulation. *Automotive Ind* 44:388-9 F 17 '21
- Specifications of stock engines for passenger cars, trucks and tractors; tabulation. *Automotive Ind* 42:220-3 Ja 15 '20

Starting devices

See Automobiles—Starting devices

Starting torque

- Proper method of measuring starting torque of engines. P. J. Kent. *Automotive Ind* 44: 28-9 Ja 6 '21

Supercharging

- Some experiments on supercharging in a high-speed engine. H. R. Ricardo. *diags Automobile Eng* 11:219-24 Je '21; Excerpts. *Automotive Ind* 45:61-8 J1 14 '21; Excerpts. *Engineer* 132:327-8 S 23 '21; Discussion. *Automobile Eng* 11:292-4 Ag '21
- Supercharging engines. C. H. T. Alston. *Automobile Eng* 11:337-41 O '21

Automobile engines—Continued

Testing

- Comparative tests with a hot spot device. R. E. Berg. *il Automotive Ind* 43:1170-3 D 9 '20
- Design of a laboratory for carburetion investigation. *il diag Automotive Ind* 42:906-11 Ap 15 '20
- Electric dynamometer test of the Pierce Arrow engine. K. Parker. *il diags Am Inst E E J* 39:819-21 S '20
- Fuel problem in relation to engineering viewpoint. A. L. Nelson. *il diags Soc Auto Eng J* 8:101-15 F '21; Same. *Engineering* 111:642-6, 696-8 My 27-Je 3 '21; Same cond. *Automotive Ind* 44:162-70 Ja 27 '21; Discussion. *Soc Auto Eng J* 8:451-66 My '21
- Intake-manifold temperatures and fuel economy. W. S. James, H. C. Dickinson and S. W. Sparrow. *il diags Soc Auto Eng J* 7:131-6 Ag '20; Same cond. *Sci Am M* 2:273-4 N '20; Discussion. *Soc Auto Eng J* 7:409, 451-60 N '20
- New type aluminum piston in Cole. *il Motor Age* 38:13+ Ag 26 '20
- Organization and method in the testing laboratory. P. S. Tice. *Automotive Ind* 42:1061-3 My 6 '20
- Report on engine tests at the S.A.E. summer meeting. *il diags Soc Auto Eng J* 7:228-31 S '20
- Résumé of Bureau of standards fuel study. H. C. Dickinson. *Soc Auto Eng J* 8:482-6; Discussion. 451-66 My '21
- Routine factory tests and final inspection of Packard engines. J. E. Schipper. *il Automotive Ind* 44:1162-3 Je 2 '21
- Tuning and testing; how the American automobile engine is tested for flaws. G. Gaulois. *Sci Am* 123:545+ N 27 '20

Timing

- How to time an engine. R. E. Berg. *diag Motor Age* 38:40-2 S 16 '20

Valves

- Details of valve mechanism on new Premier. *diags Motor Age* 37:30 Ja 8 '20
- Graphical analysis of valve gear. *diags Automobile Eng* 11:66-7 F '21
- Grinding valves and adjusting tappets. *Motor Age* 37:44 My 6 '20
- Guy rotary disk valve engine. *il diag Automotive Ind* 44:1198 Je 9 '21
- High speed engine with positively operated valves. *il diags Automotive Ind* 44:157-9 Ja 27 '21
- Micrometer adjustment for valve stems. *diags Automotive Ind* 43:459 S 2 '20
- Monel metal for engine valves. *Automotive Ind* 42:904 Ap 15 '20
- New device cleans valves while engine runs. *il Pop Mech* 35:752 My '21
- Overhead valve gear. *diags Automobile Eng* 11:214 Je '21
- Poppet valve manufacture requires special equipment. J. E. Schipper. *il Automotive Ind* 44:1382-5 Je 23 '21
- Problems in designing an engine camshaft. D. T. Hastings. *diags Automotive Ind* 41:1072-80, 1116-24 N 27-D 4 '19
- Rotary valve not moved by pressure in cylinder. *diags Automotive Ind* 41:1217 D 18 '19
- Standard mechanical operations in tractor service; cleaning and valve grinding process. J. C. Thorpe and G. H. Radebaugh. *il Motor Age* 38:36-7 Ag 12; 36-7 Ag 19; 35-6 Ag 26; 36-7 S 2; 34-5 S 16 '20
- Straker-Squire valve rocker arm construction. *diags Automotive Ind* 42:755 Mr 25 '20
- Valve failures and valve steels. L. Aitchison. *Automotive Ind* 41:1264-8 D 25 '19; Excerpts. *Engineer* 128:641-2 D 26 '19
- Valve timing for 1920 cars; tabulation. *Motor Age* 38:50 S 16; 50 S 23 '20
- Winters flexible choke valve. *diags Automotive Ind* 44:1418 Je 30 '21

Automobile factories

- Auto body plant built of reinforced concrete; Fisher body Ohio co.'s new plant. V. E. Winell. *il plan Concrete* 18:160-4 Ap '21

Automobile manufacturing plant of the Studebaker corporation at South Bend, Indiana. *il Arch & Bldg* 52:95-8, pl 125-38 N '20

Beating the coal strike. *il Motor Age* 36:19-22 D 18 '19

Building motors on the Pacific coast; construction and arrangement of the shop. F. H. Colvin. *il Am Mach* 54:221-4 F 10 '21

Developing an industrial plant layout. A. T. Doud. *plans Ind Management* 62:149-52 S '21

Ford uses large refrigeration plant in making automobiles. E. H. Peterson. *il diags Power* 51:366-70 Mr 9 '20

Handling materials in an automobile plant. F. H. Colvin. *il plans Am Mach* 55:292-6 Ag 25 '21

Labour-saving devices in a motor car works. *il Engineer* 130:132-3, 136 Ag 6 '20

Mass production of motor cars. *il Electrician* 84:498-9 Ap 30 '20

Meeting power needs of growing factory. F. C. Vogan. *il diags Power Pl Eng* 25:885-91 S 15 '21

More power for automobile building; new plant of Cadillac motor car co. *il diags map plans Power Pl Eng* 25:101-10 Ja 15 '21

Das neue gusswerk der oesterreichischen waffenfabriksgesellschaft (automobilabteilung) in Steyr. C. Irresberger. *il diags Stahl & Eisen* 41:105-10, 288-93, 401-6 Ja 27, Mr 3, 24 '21

Plant of Ford motor car company, Kearny, N.J.; views. *Arch & Bldg* 52:pl 22-3 F '20

See also Automobile engines—Manufacture; Automobiles—Manufacture; Motor trucks—Manufacture; Tractors—Manufacture

Employees

New basis in the French metal trades. W. F. Bradley. *Iron Age* 104:1139-41 D 4 '19

Survey reveals wages lower than estimated by current opinion. *Automotive Ind* 43:976-7 N 11 '20

Lighting

Lighting in modern automobile factories. *Elec W* 76:788 O 16 '20

Management

Accurate methods in keeping stock records. F. J. Huntley. *Automotive Ind* 44:125-8 Ja 20 '21

Advantages of contact with the vehicle in road use. J. E. Schipper. *Automotive Ind* 44:1251-3 Je 16 '21

Balancing factory equipment for efficient manufacture. J. E. Schipper. *Automotive Ind* 44:841-3 Ap 21 '21

Central control system in the Franklin plant. F. D. Jones. *il Mach* 27:745-9 Ap '21

Cutting overhead cost instead of wages in a large Detroit automobile company. D. F. Kennedy. *Iron Age* 108:79-81 Jl 14 '21

Englishman's view of American production methods; Ford factory at Trafford Park, near Manchester. *Automotive Ind* 43:930 N 4 '20

Material flows steadily with efficient intraplant trucking. N. G. Shidle. *il plan Automotive Ind* 44:1208-10 Je 9 '21

Production methods of Rolls-Royce plant, Springfield, Mass. *il Iron Age* 107:555-9 Mr 3 '21

Profiting from the scrap heap in the automotive factory. W. C. Hirsch. *Automotive Ind* 42:1270-2 Je 3 '20

Relation between factory service and engineering departments. B. B. Bachman and E. V. Rippingille. *Automotive Ind* 45:323-6 Ag 18 '21

Shop production-control and accounting systems. A. G. Drefs. *Soc Auto Eng J* 7:33-8 Jl '20; Same cond. *Automotive Ind* 43:22-5 Jl 1 '20; Discussion. *Soc Auto Eng J* 7:470-2 N '20

Some production problems which influence design. H. Chase. *Automotive Ind* 44:1259-60+ Je 16 '21

Automobile factories—Management—Continued
Winning the worker to the time study plan. Automotive Ind 42:666-8 Mr 11 '20

Works organisation; production engineer's planning department in an automobile factory. diags Eng & Ind Management 6:377-82 O 6 '21

Automobile fuel. See Automobile engines—Fuel

Automobile headlights. See Automobiles—Lighting

Automobile industry and trade

Are your dealers discontented? a good many dealers are! Automotive Ind 44:1-3 Ja 6 '21
Assured future of the automobile. Sci Am 123:606 D 18 '20

Automobile industry and its future. L. P. Ayres. 32p diags The Cleveland trust co. '21

Automobile trade reflects hopeful view of prospects for 1921 sales. V. B. Guthrie. Nat Pet N 13:29 Ja 19 '21

Automobiles stressed too strongly. J: W. Hill. Foundry 49:48-50 Ja 15 '21

Automotive dealers can enrich farmers. F. M. Loomis. Motor Age 37:88-9 Ja 29 '20

Branches replacing Willys distributors. Automotive Ind 45:741+ O 13 '21

Budget control system which is producing results. N. G. Shidle. chart Automotive Ind 44:269-75 F 10 '21

Commercial bribery is unfair competition and must be eliminated. Automotive Ind 42:468-9 F 12 '20

Les contestations sur les prix contractuels, notamment dans les ventes d'automobiles. Génie Civil 76:534-6 Je 12 '20

Crime against the small town dealer. C. Jennings. Automotive Ind 44:439-41 Ap 7 '21

Current development of automotive industries. J. E. Schipper. Soc Auto Eng J 6:381-6 Je '20

Curtailed credits help to balance inventories. J. E. Schipper. Automotive Ind 42:1468-9 Je 24 '20

Dealers resentful because of expense on new cars. C. Jennings. Automotive Ind 44:227-8 F 3 '21

European war factories near peace time output. W. F. Bradley. Automotive Ind 43:51-5 Jl 8 '20

Exported cars are making market for parts and equipment. Automotive Ind 44:668-9 Mr 24 '21

Factors of territorial analysis. N. G. Shidle. Automotive Ind 45:21-3 Jl 7 '21

Financing the dealer's stock in trade. J. H. Newmark. Ptr Ink 114:73-4+ Mr 24 '21

Forward step in practical merchandising research. N. G. Shidle. Automotive Ind 45:427-9 S 1 '21

Frankness essential between manufacturer and dealer. C. Jennings. Automotive Ind 43:151-3 Jl 22 '20

Future of the automobile industry. Am Mach 53:959 N 18 '20

Getting the best out of the dealer organization. N. G. Shidle. Automotive Ind 45:601-3 S 29 '21

Getting the new car ready. Motor Age 37:16-17 Mr 4 '20

How one large firm trains its sales representatives, International harvester co. N. G. Shidle. il Automotive Ind 43:1228-30 D 16 '20

How the industry can help to build its best market; the farm. N. G. Adair. Automotive Ind 43:351-4 Ag 19 '20

Human study a necessary factor in automotive sales. H. Tipper. Automotive Ind 44:1213-15 Je 9 '21

Industry's present opportunity for public service. C. Jennings. Automotive Ind 44:1411-12 Je 30 '21

Is the dealer an important cog in the wheel? C. Jennings. Automotive Ind 44:715-16 Mr 31 '21

Job for every man; how the Locomobile company of America in Philadelphia has organized its business. charts Motor Age 37:16-17 F 19 '20

Kinship of aircraft and automotive industries. J: R. Cautley. Automotive Ind 44:665-6 Mr 24 '21

Malleable castings production as related to the automotive industry. Automotive Ind 44:708-11 Mr 31 '21

Methods of the automobile industry in financing instalment sales. J. H. Newmark. Ptr Ink 114:110+ Mr 17 '21

Motor car factor overestimated. J: W. Hill. il Iron Tr R 68:45-9 Ja 6 '21

Motor car industry dangerously inflated, says manufacturer. F. R. Pleasonton. Annalist 17:541-2 My 16 '21

Motor trade telegram code. W: M. Saunders. 558p Van Nostrand '21

Mutual benefit should be major thought in dealer contract. C. Jennings. Automotive Ind 44:468-9 F 24 '21

Optimism rules M. & A. M. A. credit meeting. J. C. Dalton. Automotive Ind 43:601-3+ S 23 '20

Parts service cuts profits of dealers. Automotive Ind 44:534 Mr 3 '21; Discussion. 44:718 Mr 31 '21

Practical data gathered for use in selling cars. N. G. Shidle. Automotive Ind 45:351-4 Ag 25 '21

Rumors and June 30—our industrial brakes. C. Jennings. Automotive Ind 44:1041-3 My 19 '21

Sales charts based on average life of a vehicle. W. C. Marshall. charts Automotive Ind 44:1436-8 Je 30 '21

Service dominant idea at M.A.M.A. credit meeting. J: C. Dalton. Automotive Ind 45:551-4+ S 22 '21

Some interesting bits of information on foreign trade. il Automotive Ind 44:229-30 F 3 '21

Some suggestions to prevent the winter slump. il map Motor Age 38:8-9 O 14 '20

Taking advantage of changing conditions in foreign market. G: E. Quisenberry. Automotive Ind 45:328-9 Ag 18 '21

Team work needed in bucking the sales resistance line. C. Jennings. Automotive Ind 44:1361-3 Je 23 '21

Tell your banker—he is sole judge of loans. Motor Age 38:19-20 S 23 '20

There is an automotive future; speak well of it. C. Jennings. Automotive Ind 43:1151-3 D 9 '20

Utility value automobile advertising needed to hold public and banker support. A. R. Howell. Ptr Ink 113:17-20+ O 7 '20

What dealers think about merchandizing new models. C. Jennings. Automotive Ind 44:276-8 F 10 '21

What has the manufacturer done to disturb dealers?: allotments of cars and drive-aways. C. Jennings. Automotive Ind 44:176-7 Ja 27 '21

Why automobile editors are press agent misanthropes. W. D. Endenburn. Automotive Ind 41:1276-7 D 25 '19

See also Automobile factories; Automobile service stations; Automobiles—Prices; Electric vehicles; Garages; Motor truck industry and trade; Tractor industry and trade; also Ford motor company; General motors corporation, Motor vehicle signal manufacturers association; Studebaker corporation; Stutz motor car company

Accounting

Cost accounting as a basis for selling cars. C. Jennings. Automotive Ind 44:151-2 Ja 27 '21

Advertising

Advertising should interpret the dominant idea of the institution. E: S. Jordan. Ptr Ink 116:17-20 S 15 '21

Advertising the industry when it needs the ad. C. Jennings. Automotive Ind 43:768-70 O 14 '20

American advertising possibilities in South America. A. Sinsheimer. Automotive Ind 42:84-5 Ja 8 '20

Automobile publicity which can be made real news. L. G. Sullivan. Motor Age 38:16-17+ Jl 8 '20

Automotive advertising must emphasize utility. Ptr Ink 114:124+ Ja 13 '21

Breaking bad habits in publicity. M. W. Sohn. Automotive Ind 42:86-7 Ja 8 '20

Automobile industry and trade—Advertising —Continued

- Carving out new market in overbuilt industry. G. A. Nichols. *Ptr Ink* 117:35-6+ N 3 '21
- Does a quality article suffer loss of dignity when priced? R. Cole. *Ptr Ink* 115:141-2+ My 26 '21
- Experience in foreign automobile advertising. F. Dickinson. *Automotive Ind* 44:1118-21 My 26 '21
- Future of automobile newspaper publicity. C. Jennings. *Automotive Ind* 42:1417-18 Je 17 '20
- General motors to spend five millions in advertising. G. A. Nichols. *Ptr Ink* 116:3-4+ S 29 '21
- Get yours—it's guff, but it's free. F. A. D. Seelye. *Automotive Ind* 42:771-3 Mr 25 '20
- How a ride week helped one Illinois dealer's business. *Motor Age* 37:13 Ap 8 '20
- Keeping up dealer-morale. R. W. Johnson. *Ptr Ink* 114:121-2 Mr 24 '21
- Localizing your advertising. *il Motor Age* 36:33 D 18 '19
- Makers' eighteen-year experience advertised in advance of new product. G. A. Nichols. *Ptr Ink* 113:37-40+ D 9 '20
- Ought the boss to write the copy? the example of president Jordan, of the Jordan motor car co. H. Wiseman. *Ptr Ink* 116:53-4+ Ag 4 '21
- Perfection of workmanship reflected by advertising; Stevens-Duryea motor cars. D. W. Kingsley. *Ptr Ink M* 3:55-6 Jl '21
- Personality and service as publicity mediums. S. S. Grogan. *Automotive Ind* 42:32-3 Ja 1 '20
- Reaching the prospect who can't make up his mind. R. W. Johnson. *Ptr Ink* 116:42+ Jl 14 '21
- Right method of selling cars on a buyers' market. C. Jennings. *il Automotive Ind* 43:1301-5 D 30 '20
- Selling a high-priced car with good copy and typography. W. A. Kittredge. *Ptg Art* 37:313-17 Je '21
- What a newspaper man thinks of automobile publicity copy. R. E. Lee. *Automotive Ind* 41:929 N 6 '19
- What is wrong with present automobile news? P. E. Chamberlain. *Motor Age* 38:14 Ag 26 '20
- What is wrong with present automobile news? L. G. Sullivan. *Motor Age* 38:16-17+ Jl 1 '20
- What you may expect from foreign advertising. A. B. Cole. *Automotive Ind* 44:1216-18 Je 9 '21
- Willys-Overland plan for localized advertising. W. M. Canaday. *Ptr Ink* 110:121-2+ Mr 18 '20
- Word that cost millions. J. H. Newmark. *Ptr Ink* 113:177+ N 25 '20

Automobile accessories

- Accessories are part of your service. G. R. Volz. *il Motor Age* 37:33-4 Ap 1 '20
- Accessory exhibit at the Olympia show. diags *Automotive Ind* 42:11-13 Ja 1 '20
- Giving service to sell accessories. *il Motor Age* 38:15+ Ag 12 '20
- New York shows many new motor car devices. *il Motor Age* 37:35-43 Ja 15 '20

See also Automobiles—Equipment and supplies; Gasoline service stations—Automobile accessories

Prices

See Automobiles—Prices

Service

- Advantages of contact with the vehicle in road use. J. E. Schipper. *Automotive Ind* 44:1251-3 Je 16 '21
- Better instruction and service books are needed. J. H. Pile. *Automotive Ind* 42:722-3 Mr 18 '20
- Building good will. *Motor Age* 38:17 Jl 22 '20
- Convincing owners of the necessity for inspection and repairs when recommended by the service station. *il Motor Age* 38:14-15 S 30 '20

Co-operation, personnel, good work; these are the three factors essential in the sale of service. A. Rawson. *Motor Age* 37:34-5 Ja 22 '20

Do you fill the bill? *il Motor Age* 37:7-8 Ap 29 '20

Factory service managers admit an obligation to owner. J. H. Pile. *Automotive Ind* 43:1028-9 N 18 '20

Farce of service. *Motor Age* 38:9+ Ag 5 '20

Four angles to the service problem. R. C. Rognon. *Motor Age* 37:23-4, 34 Ja 15 '20

Free service report. *Motor Age* 37:10-12 My 6 '20

Functions of the ideal service department from a sales point of view. F. E. Moskovics. *Motor Age* 37:16-17 Je 10 '20

Getting your story across. L. G. Sullivan. *Motor Age* 37:7-10 Je 10 '20

Good service to sell; G. L. Murden & son. *Motor Age* 37:18-19 Ap 22 '20

Help your customers save gasoline. R. E. Berg. *Motor Age* 38:17+ S 2 '20

Improved service obtained by training service men in automobile industry. *Automotive Ind* 44:562-4 Mr 10 '21

It costs less to hold a customer than to get a new one. G. C. Hubbs. *Automotive Ind* 44:180-1 Ja 27 '21

Keeping the car sold. A. G. Prosperi. *Motor Age* 38:19 Jl 8 '20

Make your service a real partner to sales. *Motor Age* 37:7-8 Je 17 '20

Preaching service from the factory; how the Nordyke & Marmon co. educated dealers' service men. *il Motor Age* 37:14-15 Mr 11 '20

Reduce service costs to bring more car buyers. L. C. Reichel. *Motor Age* 36:23 D 4 '19

Relation between factory service and engineering departments. B. B. Bachman and E. V. Rippingille. *Automotive Ind* 45:323-6 Ag 18 '21

Salesmanship of service in the export field. F. S. Phillips. *Automotive Ind* 43:530 S 9 '20

Second post war convention of factory service managers. *Automotive Ind* 42:1273+ Je 3 '20; *Motor Age* 37:14-15 Je 3 '20

Service gains in importance at automobile show. B. M. Ikert. *Motor Age* 37:22 Ja 15 '20

Service managers who have made good. *Motor Age* 37:15 Ap 22; 23 Ap 29; 20 My 6; 17 My 13; 17 Je 17 '20

Service on a production basis; regrinding work of the Trindl co., Chicago. *il Motor Age* 38:16-17 Ag 12 '20

Service the present motor car problem. R. C. Rognon. *Motor Age* 36:19-20 D 25 '19

Service work you don't get. *il Motor Age* 37:18+ Ap 1 '20

Servicing the owner's imaginary troubles. F. C. Russell. *Motor Age* 38:14-15+ S 23 '20

Shall we divorce the shop? *Motor Age* 37:7-8 My 20 '20

To expect good factory service you must meet the factory half way. M. B. Davey. *Motor Age* 37:12-13 F 19 '20

To what extent is the independent repair man a manufacturers' problem? L. C. Voyles. *Automotive Ind* 42:870-1 Ap 8 '20

Vehicle maker's responsibility for repairing of assembled units. E. A. Haskins. *Automotive Ind* 42:922-3 Ap 15 '20

What a dealer thinks of free service. R. S. Montooth. *Motor Age* 37:24 Ja 8 '20

What the service department expects of the salesman. R. B. Perry. *Motor Age* 37:17 Je 10 '20

When the factory assumes the service burden. H. N. Davock. *Automotive Ind* 45:24-9 Jl 7 '21

Where is the cheese factory; map the surrounding country so you will know where to send the service car. *Motor Age* 37:32 Ap 1 '20

Why not advertise service? L. G. Sullivan. *Motor Age* 37:9 Ap 1 '20

Worth while instruction book. *il Motor Age* 37:15 Ap 8 '20

Automobile industry and trade—Service—Cont.

Your house policy, your employees' loyalty, your contact with your patrons—these are the three great factors in selling service intelligently. P. E. Chamberlain. Motor Age 36:13-16 D 18 '19

Your service is the most important end of your business; sell it intelligently. P. E. Chamberlain. Motor Age 36:8-9 D 11 '19

See also Automobile service stations; Motor truck industry and trade—Service; Tractor industry and trade—Service

Statistics

Automotive statistics. M. Tuttle. 80p Motor list company, Des Moines '21

Belgian and Spanish car imports. Automotive Ind 45:480 S 8 '21

Statistics don't tell the whole story. N. G. Shidle. Automotive Ind 45:451-3 S 8 '21

Value of automotive statistics is in proper analysis. C. Jennings. Automotive Ind 45:101-3 J1 21 '21

Used cars

Are your used cars selling? il Motor Age 38:12-14 Ag 12 '20

Chicago dealers stage annual used car show. il Motor Age 37:26-7 My 6 '20

New approach to the second-hand problem. Ptr Ink 112:85-6+ Ag 12 '20

Problem of the used car. Ptr Ink 113:49-50+ N 25 '20

Used-car business in the South. Motor Age 38:14+ S 2 '20

Argentina

Discussion of the car census of Argentina. D: Beecroft. Automotive Ind. 43:328-9 Ag 12 '20

Austria

Austrian industry slowly gaining in production. B. R. Dierfeld. Automotive Ind 43:1178 D 9 '20

Belgium

Belgian exports and imports for 1920; tabulation. Automotive Ind 44:970 My 5 '21

Belgian factories recover from the German invasion. W. F. Bradley. Automotive Ind 42:650-3 Mr 11 '20

Brazil

America predominant in Brazilian car imports. map Automotive Ind 43:992 N 11 '20

Brazil holds great possibilities as a car market. A: Sinsheimer. Automotive Ind 41:926-8 N 6 '19

Bulgaria

Bulgaria needs American automobiles. A. M. Gheorghiew. Automotive Ind 41:1222-3 D 18 '19

Canada

Automotive outlook in Canada. G. C. Porter. Automotive Ind 41:899-901 N 6 '19

Automotive products made in Canada expand in quantity and volume. Automotive Ind 42:816-17 Ap 1 '20

Canada has 403,111 cars and trucks in use. G. C. Porter. map Automotive Ind 44:399-402 F 17 '21

Canada registers 355,433 cars and trucks. G. C. Porter. Automotive Ind 42:243-6 Ja 15 '20

Central America

Growing automotive markets of Central America. Automotive Ind 43:175-6 J1 22 '20

Chile

Road building in Chile should mean a demand for U.S. cars. Automotive Ind 41:980-1 N 13 '19

China

Chinese famine is a boost to automotive industry. D. D. Patterson. Automotive Ind 44:1018-20 My 12 '21

Economic situation in the Far East makes American car market. R. C. Penfield. Automotive Ind 42:1022-3 Ap 29 '20

Colombia

Exporting to Colombia and Venezuela. Automotive Ind 43:325 Ag 12 '20

Europe

Automotive situation in the allied and associated countries. C. C. Hanch and H. E. Coffin. Soc Auto Eng J 6:373-7 Je '20

France

Economic difficulties retard car output in France. W. F. Bradley. Automotive Ind 42:1095-7 My 13 '20

French automobile exports from 1906 to 1913. Automotive Ind 42:117 Ja 15 '20

French exports gain 854 per cent in year. Automotive Ind 44:731 Mr 31 '21

French manufacturers ask prohibition of automobile imports. W. F. Bradley. Automotive Ind 43:831 O 21 '20

New basis in the French metal trades. W. F. Bradley. Iron Age 104:1139-41 D 4 '19

Post-war review of French automobile trend. W. F. Bradley. il chart diags Automotive Ind 41:902-8 N 6 '19

Why the French automobile production program failed. W. F. Bradley. Automotive Ind 44:689-91+ Mr 31 '21

Germany

Airplane and automobile in Germany to-day. W. F. Bradley. il Automotive Ind 42:893-5 Ap 15 '20

Automotive industry in Germany faces heavy demands. Automotive Ind 42:568-9 F 26 '20

First German automobile show in ten years. W. F. Bradley. il Automotive Ind 45:758-63 O 20 '21

German automobile and aircraft industries. Automotive Eng 11:25-7 Ja '21

German automobile industry. Automotive Ind 42:1393 Je 17 '20

German passenger car industry after the war. B. R. Dierfeld. Automotive Ind 42:1196-8 My 27 '20

Germany reveals extent of automotive exports. B. R. Dierfeld. Automotive Ind 44:997-9 My 12 '21

Germany soon to be bidding for export trade. W. F. Bradley. il Automotive Ind 43:1001-4, 1051-4 N 18-25 '20

Present status of German automobile industry. B. R. Dierfeld. Automotive Ind 44:412-13+ F 17 '21

Great Britain

Britain demands light two and four-passenger small engine cars. M. W. Bourdon. il diags Automotive Ind 42:505-8 F 19 '20

Britain registers 853,900 cars to May. Automotive Ind 45:40 J1 7 '21

British production methods show improvement. M. W. Bourdon. Automotive Ind 44:24-5 Ja 6 '21

Business of \$150,000,000 in 1923 planned by British combine. Automotive Ind 42:38-9 Ja 1 '20

Miracles required if British output reaches 60,000 cars. M. W. Bourdon. Automotive Ind 41:1125 D 4 '19

1922 a light car year in Great Britain. Automotive Ind 45:531 S 15 '21

Revival of the motor industry. Electrician 86:259 F 25 '21

Trend of automobile manufacturing practice in England. R. E. Flanders. Mach 27:482 Ja '21

India

Practical analysis of British India as a market for American motor vehicles. C: S. Turner. Automotive Ind 45:527-30, 577-81 S 15-22 '21

Italy

Italian factories increase exports. Automotive Ind 44:430 F 17 '21

Puzzling production difficulties confront the Italian factories. W. F. Bradley. Automotive Ind 42:746-7 Mr 25 '20

Japan

Automotive exports to Japan. Automotive Ind 42:1067 My 6 '20

Automobile industry and trade—Japan—Cont.

Automotive industry in Japan. Am Mach 54: 702 Ap 21 '21

Economic situation in the Far East makes American car market. R. C. Penfield. Automotive Ind 42:1022-3 Ap 29 '20

Status of American motor vehicles in Japan. L. Schnare. Automotive Ind 45:277 Ag 11 '21

Jugoslavia

Jugoslavia has large automobile trade possibilities. G. Gordon-Smith. Automotive Ind 43:676-7 S 30 '20

Use of motor vehicles in Jugoslavia. Automotive Ind 43:878 O 28 '20

Netherlands

Detailed analysis of Holland as market for American automotive products. C. S. Johnston. Automotive Ind 44:1386-8 Je 23 '21

New Zealand

New Zealand has potential market for 25,000 cars. Automotive Ind 42:518-19 F 19 '20

U. S. leads in New Zealand imports. Automotive Ind 45:281 Ag 11 '21

Norway

Norway bans passenger car imports. Automotive Ind 44:567 Mr 10 '21

Panama Canal Zone

Medium priced car popular in Panama. Automotive Ind 42:88-9 Ja 8 '20

Peru

Automobile in Peru. Automotive Ind 45:781 O 20 '21

Trails of Peru have been converted into highways. A. Sinsheimer. Automotive Ind 42:570-2 F 26 '20

Russia

Russia as a prospective buyer of automotive products. N. G. Kousnetzoff. Automotive Ind 42:419-21 F 5 '20

South Africa

Future of South Africa as an automotive market. map Automotive Ind 43:326-7 Ag 12 '20

Right kind of an export service station. M. Edwards. il Automotive Ind 43:728-9 O 7 '20

South America

American advertising possibilities in South America. A. Sinsheimer. Automotive Ind 42: 84-5 Ja 8 '20

Spain

American cars gain favor in Spain. A. Sinsheimer. Automotive Ind 42:472 F 12 '20

Selling American cars in Spain. Automotive Ind 45:273-6 Ag 11 '21

Sweden

Future of automobile sales in Sweden. Automotive Ind 41:1175 D 11 '19

Sweden as a present and prospective market. Automotive Ind 43:1125 D 2 '20

United States

American automotive product in the world's trade. Automotive Ind 42:1070-1 My 6 '20

American car abroad. J. W. Alexander. Nation's Business 8:18-19 N '20

American farmers potential market for 8,500,000 cars in ten years. Automotive Ind 42:1199 My 27 '20

American manufacturer's attitude toward foreign trade. Automotive Ind 43:1071-2 N 25 '20

Automobile industry. Mach 27:793-4 Ap '21

Automobiles and people. map Sci Am 121: 629 D 27 '19

L'automobilisme aux États-Unis. Génie Civil 76:374-5 Ap 17 '20

Automotive business survives adversity in North Dakota. D. Beecroft. il Automotive Ind 45:51-5 Jl 14 '21

Automotive exports for four months of 1920 fiscal year; tabulation. Automotive Ind 42: 134 Ja 15 '20

Automotive exports from England, France and Italy increase. Automotive Ind 44:320-1 F 17 '21

Automotive industries greatly expanded. Iron Age 105:70-3 Ja 1 '20

Billion dollar mark passed in automotive exports. G. E. Quisenberry. Automotive Ind 44:397-8 F 17 '21

Car for every thirteen and one-half people. Motor Age 38:7-9 S 30 '20

Choosing an outlet for the automotive export trade. Automotive Ind 42:1169-71 My 20 '20

Comparative automobile statistics, 1919 and 1914. Automotive Ind 44:1133 My 26 '21

Co-operative trading in the automotive export field. G. E. Quisenberry. Automotive Ind 43:128-9 Jl 15 '20

8,887,572 cars and trucks registered in the U.S. during 1920. Automotive Ind 44:61-3 Ja 13 '21; Excerpt (table). Nat Pet N 13: 21+ Ja 26 '21

Export trading in a competitive buyers' market. Automotive Ind 43:251-3 Ag 5 '20

Export trading is not an impulse undertaking. G. E. Quisenberry. Automotive Ind 43:751-3 O 14 '20

Exports of automobiles and tires for January, 1921; tabulation. Automotive Ind 44: 717 Mr 31 '21

Exports of automobiles and tires for February, 1921; tabulation. Automotive Ind 44: 819 Ap 14 '21

Exports of automobiles and tires for March, 1921; tabulation. Automotive Ind 44:1069 My 19 '21

Exports of automobiles and tires for April, 1921; tabulation. Automotive Ind 44:1389 Je 23 '21

Exports of automobiles and tires for May, 1921; tabulation. Automotive Ind 45:77 Jl 14 '21

Exports of automobiles and tires for June, 1921. Automotive Ind 45:327 Ag 18 '21

Exports of automotive parts 1907-1919; tabulation. Automotive Ind 42:132-3 Ja 15 '20

Exports of automotive parts 1907-1920; tabulation. Automotive Ind 44:363 F 17 '21

Exports of passenger automobiles for the fiscal years 1907 to 1919 inclusive; tabulation. Automotive Ind 42:130-1 Ja 15 '20

Exports of passenger automobiles for the years 1907 to 1920 inclusive; tabulation. Automotive Ind 44:330-1 F 17 '21

Factors to be studied in merchandising analysis. Automotive Ind 44:894-6 Ap 28 '21

Facts and figures of the automobile industry. 96p National automobile chamber of commerce, 366 Madison av, N.Y. '21

Foreign import duties on American automotive products; tabulation. Automotive Ind 44:868-9 Ap 21 '21

Future production and its problems. Automotive Ind 42:112-13 Ja 15 '20

Growth of motor vehicle production capacity. Automotive Ind 44:316-19 F 17 '21

Growth of the automobile. il Sci Am 122:3 Ja 3 '20

History of the American motor car industry told graphically and in figures. il Sci Am 124:1 Ja 1 '21

Import duties on automotive products; tabulation. Automotive Ind 42:192 Ja 15 '20

Important factors in development of foreign trade. G. E. Quisenberry. Automotive Ind 44:279-80 F 10 '21

Importer's experiences with exported American cars. C. Jennings. Automotive Ind 44: 767-9 Ap 7 '21

Imports of passenger cars for nine years; tabulation. Automotive Ind 44:333 F 17 '21

Imports of passenger cars for 12 years; tabulation. Automotive Ind 42:133 Ja 15 '20

Industry's production \$3,594,814,620 in 1920. Automotive Ind 44:986 My 5 '21

Keep your credit clutch in! Motor Age 38: 7-8 Jl 8 '20

Motor vehicles in United States number 9,180,316. Eng N 86:330 F 24 '21

N.A.C.C. resumes export managers' meetings. D. Beecroft. Automotive Ind 43:754-5 O 14 '20

Automobile industry and trade—United States
—Continued

- N. A. C. C. statistics show achievements of industry in 1920. *Automotive Ind* 44:46 Ja 6 '21
- 9,231,941 motor cars and trucks registered by the states in 1920. A. P. Anderson. *Pub Roads* 3:21-8 Ap '21; Same abr. *Eng N* 86:683-5 Ap 21 '21; Same abr. *Eng & Contr* 55:349-50 Ap 6 '21
- 9,245,195 motor cars and trucks registered first six months, 1921. A. P. Anderson. *Pub Roads* 4:13-14 S '21; Same abr. *Eng & Contr* 56:331-2 O 5 '21
- 9,257,575 cars and trucks in mid-year registration census. *Automotive Ind* 45:151-4 Jl 28 '21
- Publicity and foreign trading for the automotive industry. *Automotive Ind* 43:77-9 Jl 8 '20
- Revised registration figures show trend of sales. *Automotive Ind* 44:301-8 F 17 '21
- Sales entry into the foreign markets for automotive equipment. *Automotive Ind* 42:1266-7 Je 3 '20
- Sales in the larger markets of the export field. *Automotive Ind* 42:1120-1 My 13 '20
- Saner days in the auto trade. J; N. Willys. *il Nation's Business* 8:17-18 N '20
- 7,523,664 vehicles registered in United States during 1919. map *Automotive Ind* 42:107-11 Ja 15 '20
- 7,904,271 motor vehicles in use in United States. map *Automotive Ind* 43:401-6 Ag 26 '20
- Stage is set—now for a selling campaign. C. Jennings. *Automotive Ind* 44:1191-3 Je 9 '21
- Tide in export trade is turning. G: E. Quisenberry. *Automotive Ind* 44:918-19 Ap 28 '21
- Wages, prices and production. *Engineering* 112:225 Ag 5 '21
- What the new tariff bill means to the automotive industry. C. Jennings. *Automotive Ind* 45:1-2 Jl 7 '21
- Where they want American motors. G. P. Kievenaar. *Am Ind* 21:37-40 N '20
- Why southern ports cannot compete for export shipments. H. H. Dunn. *Automotive Ind* 44:969-70 My 5 '21
- Why Studebaker is selling all the cars it can make. A. R. Erskine. *Ptr Ink* 116:25-7+ Ag 11 '21
- World census of cars, trucks and motorcycles. *Automotive Ind* 43:226-7 Jl 29 '20

Directories

- 1920 directory of passenger car makers; tabulation. *Motor Age* 37:126 Ja 29 '20

Venezuela

- Exporting to Colombia and Venezuela. *Automotive Ind* 43:325 Ag 12 '20
- Venezuela looks to the United States for cars and trucks. H. C. Plummer. *Automotive Ind* 42:619-21 Mr 4 '20

Automobile insurance. See Insurance, Automobile

Automobile laws and regulations

- Automobile headlighting regulation. C. H. Sharp and W. F. Little. *il Sci Am M* 1:347-50 Ap '20; Abstract. *Illum Engr* 13:129-30 Ap '20
- Automobile should be major factor in highway traffic. *Automotive Ind* 43:1179-80 D 9 '20
- Confliction between motor vehicle laws of Kansas and Nebraska. *Motor Age* 38:45 O 21 '20
- Fire danger in parked automobiles. J: C. McDonnell. *Eng N* 86:213 F 3 '21
- Five thousand automobile bills will come before forty-two legislatures in January. D: Jameson. *Nation's Business* 8:19-20 N '20
- Japanese car taxes and registration. *Automotive Ind* 42:1418 Je 17 '20
- Lighting and equipment laws of various states. *Automotive Ind* 42:1164-5 My 20 '20
- Making a going vehicle out of the legislative committee. C. Jennings. *Automotive Ind* 43:1323 D 30 '20
- Many measures to affect cars are offered in Massachusetts. *il Motor Age* 37:34-5 F 19 '20

Motor-car headlights and rearlights in relation to traffic requirements. J. W. T. Walsh. *il diags Illum Engr* 13:114-18; Discussion. 118-29 Ap '20

Parking automobiles in Palatka, Florida. *il Pub Works* 48:311-12 Ap 10 '20

Parking dead line in Los Angeles. *diag Elec Ry J* 55:623 Mr 20 '20

Recent motor vehicle lighting laws in the chief Canadian provinces. *Automotive Ind* 44:402 F 17 '21

San Francisco's traffic convention and street safety show. C. W. Geiger. *il Sci Am* 123:431+ O 23 '20

Trend of motor-vehicle legislation. R. K. Tomlin, jr. *Eng N* 87:354-65 S 1 '21; Abstract. *Soc Auto Eng J* 9:243-4 O '21

Wisconsin proposes new laws for automobile lamps. *Elec R* 76:281-2 F 14 '20

See also Automobiles—Taxation; Highway law; Manufacturers' liability; Motor trucks—Laws and regulations; Motor vehicles—Law; Traffic regulations

Automobile lenses**Advertising**

When the product is ready the market will be. H. E. Agnew. *Ptr Ink* 116:112+ Jl 14 '21

Automobile lighting. See Automobiles—Lighting

Automobile locks

Automobile lock that locks. *il diags Sci Am* 124:434 My 28 '21

Automobile locking-device classification and theft insurance. A. R. Small. *Soc Auto Eng J* 9:95-100; Discussion. 100-6 Ag '21

Automobile mechanics

Bonus system for mechanics. *Motor Age* 37:13+ Mr 18 '20

Getting tomorrow's mechanics. *il Motor Age* 38:12-14 S 16 '20

Government's automotive shop schools produce many skilled machinists. H. F. Podhaski. *il Am Mach* 53:1544-5 D 2 '20

Making the shop pay; a combination salary and bonus system. J. M. Bohler. *Motor Age* 38:10-12 O 21 '20

Mechanics of tomorrow; the automotive trades school of Cincinnati. *il Motor Age* 37:10-11+ My 20 '20

Men trained for automotive work in typical training school. N. G. Shidle. *il Automotive Ind* 43:276-7 Ag 5 '20

Recruiting mechanics from public schools; course in mechanical training has been inaugurated in Frankfort high school, Philadelphia. *il Motor Age* 37:10-11 Ap 15 '20

Tomorrow's mechanics; how Free high school of Kalispell, Mont., is helping to solve a serious problem of the automotive dealer. *il Motor Age* 38:15-16 Jl 15 '20

Tomorrow's mechanics; what a school in New Orleans is doing to develop recruits for the automotive dealer's repair business. *il Motor Age* 38:9 Jl 29 '20

Tomorrow's mechanics—where are they coming from? *il Motor Age* 37:17+ Je 3 '20

Trained mechanics—better work. *il Motor Age* 38:15 S 23 '20

U. S. army training courses for automobile mechanics. H. F. Podhaski. *Automotive Ind* 43:1126-7 D 2 '20

Automobile parts

Any repair part—instantly. *Motor Age* 38:17+ Jl 15 '20

Cutting costs in the manufacture of small units. J. E. Schipper. *il Automotive Ind* 44:26-7 Ja 6 '21

Drop forgings in automobile construction. *Automotive Ind* 44:124 Ja 20 '21

Exports of automotive parts 1907-1920; tabulation. *Automotive Ind* 44:363 F 17 '21

Factory service relations with dealers. J. H. Pile. *Automotive Ind* 44:1117 My 26 '21

Fits, tolerances and heat treatments applied in production. C. T. Bates. *il Automotive Ind* 44:1314-26 Je 16 '21

How to arrange and keep repair parts stock systematically. *Motor Age* 37:20 Ap 1 '20

Automobile parts—Continued

Making an easy job of ordering repair parts. K. Herrick. *diag* Motor Age 37:10-12+ Mr 18 '20

Need for researches on automobile parts. W. T. Magruder. *Soc Auto Eng J* 8:255-6 Mr '21

Parts service cuts profits of dealers. *Automotive Ind* 44:534 Mr 3 '21; Discussion. 44:718 Mr 31 '21

Production milling of group parts. G. M. Meyncke. *il Mach* 26:1036-7 J1 '20

Production of automotive parts in the small town. J. E. Schipper. *il Automotive Ind* 42:865-8 Ap 8 '20

Rust prevention by Browning process. W. C. Marshall. *Automotive Ind* 44:556-8 Mr 10 '21

Selling spare parts with export cars. C. Jennings. *Automotive Ind* 43:1176-7 D 9 '20

Should factories make parts for awhile? Motor Age 38:10+ Ag 26 '20

Some new parts seen at the New York show. P. M. Heldt. *diags Automotive Ind* 44:160-1 Ja 27 '21

Steels for automobile parts; abstracts. W. H. Hatfield. *Sci Am M* 2:59-61 J1 '20; *Soc Auto Eng J* 7:327-8 O '20; *Automotive Ind* 43:760-3 O 14 '20

Where parts can be obtained for orphan passenger cars and trucks. Motor Age 37:55 Ap 22; 51 Ap 29; 45 My 6; 55 My 13 '20

Where parts for old models of cars in production can be obtained. Motor Age 37:51 My 20; 54 My 27 '20

Automobile racing

Bugatti winner of French international light car race. W. F. Bradley. *il Motor Age* 38:27+ O 7 '20

Chevrolet wins at Indianapolis in American made Monroe. J. E. Schipper. *diags Automotive Ind* 42:1243-6 Je 3 '20

Daring driving wins Targa Florio for Andre Boillot. W. F. Bradley. *Automotive Ind* 41:1226-7 D 18 '19

Decade brings great races at Indianapolis. *il Motor Age* 37:14-17 My 27 '20

De Palma wins Elgin race. B. M. Ikert. *Motor Age* 38:7-9 S 2 '20

Design features brought into relief by Grand Prix. W. F. Bradley. *il Automotive Ind* 45:303-5 Ag 18 '21

Duesenberg, driven by Murphy, shows way to Europeans. *Automotive Ind* 45:193+ J1 28 '21

Four-cylinder Bugatti wins French light car race. *il Automotive Ind* 43:622-4 S 23 '20

French desire American competition in Grand Prix race. W. F. Bradley. *Automotive Ind* 43:274-5 Ag 5 '20

Le Grand-Prix de l'automobile-club de France en 1921; le circuit du Mans (24 et 25 juillet). *il map Génie Civil* 70:121-4 Ag 6 '21

Industry learns through racing. Motor Age 38:7 Ag 26 '20

Milton smashes more world marks. Motor Age 37:25 Ap 29 '20

New designing gets test at Indianapolis. R. E. Berg. *il Motor Age* 37:8-10 My 27 '20

1919 is a "filler in" in motor car racing. L. G. Sullivan. *il Motor Age* 36:7-13 D 25 '19

Racing's influence on automotive design. *Automotive Ind* 42:268-73 Ja 15 '20

Small engine has made good! performance of racers at Indianapolis. L. G. Sullivan. *il Motor Age* 37:8-11 Je 3 '20

Small engines cut pit stops in half. R. E. Berg. *il Motor Age* 37:11-13+ Je 10 '20

Timing the hundred-mile-per-hour racer. R. Howard. *il Sci Am* 123:299+ S 25 '20

What automobile racing does to the delicate machinery called man. *il Sci Am* 123:281 S 18 '20

Automobile radiator repair shops

Making and assembling an automobile radiator. R. H. Terpening. *diags Sheet Metal Worker* 12:323-4 Je 10 '21

Radiator repairing and auto sheet metal work. R. H. Terpening. *il Sheet Metal Worker* 12:289-90 My 26 '21

School equipment for radiator repairing. *il Sheet Metal Worker* 12:641-2+ O 14 '21

Advertising

Getting more radiator repairing business. R. H. Terpening. *il Sheet Metal Worker* 12:188-90, 225-6 Ap 15-29 '21

Automobile radiators. See Automobile engines—Radiators

Automobile research

Bureau of standards annual report shows extent of automotive research. *Automotive Ind* 44:178-9 Ja 27 '21

Cooperation in research. W. E. Lay. *il diags plan Soc Auto Eng J* 9:155-8 Ag '21

Much useful automotive research in progress at Bureau of standards. H. Chase. *diags Automotive Ind* 44:750-5 Ap 7 '21

Research in the automotive industry. H. C. Dickinson. *Soc Auto Eng J* 9:81-3 Ag '21

Suggested programme for automobile research. G. W. Watson. *Automobile Eng* 11:225-30 Je '21; Discussion. 11:257-9 J1 '21

Automobile sales buildings

Architecture and the automobile industry. W. C. Rowland. *il diags plans Arch Forum* 34:199-206, pl 79-81 Je '21

Automobile sales and service building. *il plans Arch Forum* 34:65-6, pl 27 F '21

Automobile sales and service building; Nichols auto sales building. Terra Haute, Ind. *il plans Bldg Age* 43:30 S '21

Automobile show room and repair shop, Des Moines, Iowa; view and plan. *Bldg Age* 42:48-9 S '20

Display room of the Eller motor company, Cleveland, Ohio. *il Arch Rec* 48:535-41 D '20

Exorbitant rents results in new motor row. B. W. Rubin. *diags plan Motor Age* 36:20-1 D 11 '19

Noyes-Buick building, Boston, Mass. *il Am Arch* 119:195-7+, pl 206b-e F 23 '21

Planning of automobile sales and service buildings. F. A. Fairbrother. *il plans Arch Forum* 33:39-44, 93-100 Ag-S '20

Show room that works 24 hours a day; Elgin motor car sales co., Chicago. *il diags Motor Age* 38:13 O 21 '20

See also Automobile service stations

Automobile schools

Government's automotive shop schools produce many skilled machinists. H. F. Podhaski. *il Am Mach* 53:1544-5 D 2 '20

Mechanics of tomorrow; the automotive trades school of Cincinnati. *il Motor Age* 37:10-11+ My 20 '20

Men trained for automotive work in typical training school. N. G. Shidle. *il Automotive Ind* 43:276-7 Ag 5 '20

Sales school develops permanent business builders. N. G. Shidle. *Automotive Ind* 43:1174-5 D 9 '20

Tomorrow's mechanics; how Free high school of Kalispell, Mont., is helping to solve a serious problem of the automotive dealer. *il Motor Age* 38:15-16 J1 15 '20

Tomorrow's mechanics; what a school in New Orleans is doing to develop recruits for the automotive dealer's repair business. *il Motor Age* 38:9 J1 29 '20

Trained mechanics—better work. *il Motor Age* 38:15 S 23 '20

Training school for foreign representatives. G. E. Quisenberry. *Automotive Ind* 43:478-9 S 2 '20

U. S. army training courses for automobile mechanics. H. F. Podhaski. *Automotive Ind* 43:1126-7 D 2 '20

Where can I get a good electrical man?; Ambu engineering institute, Chicago, where automotive electrician is taught. *il Motor Age* 38:14-15 J1 8 '20

Automobile service stations

Are you all set? Motor Age 37:7-8 Mr 4 '20

Built for a task; Gem city auto co., Frankfort, Ind. Motor Age 37:14+ Ap 15 '20

Complete service station; Rowe, Young & Cooley—Westcott distributors for Chicago. *il Motor Age* 38:15+ J1 1 '20

Electric service station affording good suggestions; the E. S. Cowie electric co., inc. *il Motor Age* 38:17 S 9 '20

Have you thought of adding a paint department. *il Motor Age* 37:12-13+ Je 17 '20

Automobile service stations—Continued

- House behind the car. il Motor Age 37:11-14 F 5 '20
- How Buick plant employes get service on cars. il Motor Age 38:8-9 Ag 26 '20
- Is it better to service trucks and tractors separate from passenger cars or keep all under one roof? Motor Age 37:8-9+ Mr 18 '20
- Motor service station. il Am Mach 55:535-8 O 6 '21
- On the job; Simon sales co. service station, Detroit. G. R. Volz. il plans Motor Age 38:7-9 O 21 '20
- One of the best ways to hold trade is to make your building inviting. il Motor Age 37:10-13 Ap 1 '20
- Plan for three-story Ford sales and service station. diags plans Motor Age 37:35 Je 17 '20
- Planning of automobile sales and service buildings. F. A. Fairbrother. il plans Arch Forum 33:39-44, 93-100 Ag-S '20
- Providing owners with the best possible service facilities: sales and service building of A. C. Hine co., Hartford, Conn. il Motor Age 38:14-15+ J1 29 '20
- Right kind of an export service station. M. Edwards. il Automotive Ind 43:728-9 O 7 '20
- Selling accessories from the car. F. M. Loomis. il Motor Age 38:10-11 J1 22 '20
- Selling preventive service; Lone star motor co. il Motor Age 37:11-13 Ap 22; 19-21 Ap 29 '20
- Service floor. B. M. Ikert. il diags Motor Age 37:7-11+ Ja 22 '20
- Service station on wheels. il Motor Age 37:9-11 Ap 29 '20
- Who should service a car's equipment? Motor Age 37:9+ Je 17 '20
- Working to a plan. il plans Motor Age 37:14-15+ Mr 4 '20
- See also* Garages; Gasoline service stations

Equipment

- Can I afford it? B. M. Ikert. il Motor Age 37:7-9+ Mr 25 '20
- Fitting out the ideal service station for electric service. B. M. Ikert. il diags plans Motor Age 36:7-12 D 18; 28-9 D 25 '19; 37:40-1 Ja 1 '20
- Keeping your men interested in their work. il diags Motor Age 38:10-13 J1 8 '20
- Service charges with and without equipment. il Motor Age 38:10-11 Ag 19 '20
- Tooling up for the spring drive. R. E. Berg. il diag Motor Age 37:21-3 Ap 1 '20

Forms, blanks, etc.

- Adopting and maintaining a flat-rate plan for repair work charges. Motor Age 38:10-11+ S 23 '20
- Baseball score board for the shop. Motor Age 37:10-11+ My 13 '20
- Commission on repair parts. Motor Age 37:15 Ap 15 '20
- How one big service station gets out its invoices promptly and checks its work. Motor Age 36:24-5 D 11 '19
- How the Conde motor supply co. systematized their service. Motor Age 37:16-17+ Ap 22 '20
- Keep a check on your service work. Motor Age 37:32 F 12 '20
- Know how your business stands; charting your records. Motor Age 38:7-9 Ag 12 '20
- Only three forms used in service station. K. Herrick. Motor Age 37:36-7 Ja 8 '20
- Pre-delivery service on the new car; R. C. Hamlin, Los Angeles. il Motor Age 37:10-11 Je 17 '20
- Shop forms to better your service. Motor Age 38:12-13 J1 15 '20
- Standard master service sheet designed to standardize each repair operation. H. C. Skinner. chart Motor Age 36:7-10 D 4 '19
- Two forms only in this service system. Motor Age 37:18-19+ Mr 25 '20
- Two ideas that help your service. Motor Age 37:14-15 F 19 '20
- Verbal orders don't go. il Motor Age 37:28-31 F 5 '20

- Where minute man service obtains. K. Herrick. il Motor Age 37:10-12+ Mr 25 '20
- Working to a master sheet. Motor Age 37:16-17 Ap 8 '20
- Would this simple service form fit your work?; Druecker service station, Milwaukee. Motor Age 38:27 O 21 '20

Management

- Are you as a dealer awake to these conditions? B. M. Ikert. il Motor Age 38:7-9 Ag 5 '20
- Big returns from a small investment by progressive methods; service station of J. Lawrence Hill, Rochester, N.Y. il Motor Age 38:10-11 Ag 5 '20
- Finding the hidden profits in your repair shop. il Motor Age 37:10-12 Mr 11 '20
- Half-dozen ways you can check your service losses. il Motor Age 38:8-9 S 16 '20
- If I ever run a service station. il Motor Age 38:19+ J1 1 '20
- Keeping your men interested in their work. il diags Motor Age 38:10-13 J1 8 '20
- Making the shop pay; a combination salary and bonus system. J. M. Bohler. Motor Age 38:10-12 O 21 '20
- Selling service. E. V. Derks. Motor Age 37:19+ Ap 8 '20
- Service on a budget system. Motor Age 37:20-1 Ap 8 '20
- Seven ways to promote your summer service. B. M. Ikert. il Motor Age 37:14-17 Ap 1 '20
- Taking personal interest in customers. il Motor Age 37:10-11+ Ap 8 '20
- 2622 jobs without a complaint. H. M. Holt. Motor Age 37:8-11+ F 19; 20-3 F 26 '20
- What do your customers think of you? B. M. Ikert. chart Motor Age 38:7-8+ S 23 '20

Women's rooms

- And now your parlor. T. Wilder. il diags Motor Age 37:26-7 Ap 1 '20

Automobile signals

- AGA highway lighthouses; flashing beacons of three colors show the kind and degree of danger at curves, etc. il Good Roads n s 21:163 Mr 16 '21
- Automobile direction indicator. A. D. Spencer. diags Pop Mech 34:638 O '20
- Automobile signals for danger spots. G. H. Dacy. il Sci Am 123:467+ N 5 '20
- Britain's motor signals. Sci Am 123:570 D 4 '20
- Finger signals for the motorist. R. G. Skerrett. il Sci Am 122:305 Mr 20 '20
- New auto signal uses incandescent neon gas. il Pop Mech 36:645 N '21
- Unisco flashing highway danger signal. il Elec R 78:956 Je 11 '21

Automobile sleds. See Motor sleds**Automobile steel. See Steel, Automobile****Automobile tires. See Tires, Automobile****Automobile touring**

- Motor tourists' camp at Denver has all conveniences. E. C. Mac Mechen. il Pop Mech 34:513-17 O '20
- Touring in the auto. H. F. Johnson. il diags Pop Mech 35:626-8, 788-91 Ap-My '21
- Tours and detours. J. M. Bird. il Sci Am 125A:6-8+ N '21

See also* Motor caravans*Automobile traffic. See Road traffic; Street traffic****Automobiles**

- Air drive for motor cars: the Helica; driven by an airplane propeller. il Sci Am M 2:168-9 O '20
- Air-propelled automobile of French design. il Pop Mech 34:685 N '20
- American built light car; the Moller. H. Chase. il diag Automotive Ind 44:1415-16 Je 30 '21
- Automobile and the private estate. T. S. Rogers. diags Arch Forum 32:113-16, 171-4, 253-4+; 33:69-72 Mr-Ap, Je, Ag '20
- Automobile designed to jump obstacles. il Pop Mech 36:54-5 J1 '21
- Automobile engineering; a general reference work. 6v. American technical society, Chicago '21

Automobiles—Continued

- Automobile for operating over snow. *il* Automotive Ind 44:704 Mr 31 '21
- Automobile handbook. L. E. Brookes. 706p F. J. Drake & co., Chicago '21
- Automobile owner's guide. F. B. Scholl. 338p Appleton '20
- Automotive engineering. R. H. Hall and R. L. Curry. 261p Monitor binding and ptg. co., Ft. Scott, Kan. '20
- Automotive milestones; opinions expressed by the leading automobile manufacturers. A. C. Lescarbours. *Sci Am* 124:6+ Ja 1 '21
- Average car. R. E. Berg. *il* Motor Age 37:19-23 Ja 29 '20
- Aviation practice features Farman six cylinder. *il* Automotive Ind 41:866-7+ O 30 '19
- Belgian show includes new cars with many previously exhibited. W. F. Bradley. *il* diags Automotive Ind 44:64-71 Ja 13 '21
- Body changes mark new Buick. *il* Motor Age 38:19-20+ Ag 19 '20
- Branham automobile reference book. 320p Ben P. Branham co., Automobile division, Chicago '20
- Briscoe has notable production feature. *il* diags Automotive Ind 42:70-3 Ja 8 '20; Motor Age 37:32-3 Ja 1 '20
- Britain demands light two and four-passenger small engine cars. M. W. Bourdon. *il* diags Automotive Ind 42:505-8 F 19 '20
- British Daimler to produce new four-cylinder chassis. M. W. Bourdon. *il* Automotive Ind 45:458 S 8 '21
- British light car becoming increasingly popular because of its economy. M. W. Bourdon. *il* Automotive Ind 44:647-9+ Mr 24 '21
- Buick changes make for durability and quietness. J. E. Schipper. *il* diags Automotive Ind 43:408-10 Ag 26 '20
- Buick—new four similar to six of same make. J. E. Schipper. *il* diags Automotive Ind 45:255-8 Ag 11 '21
- Cadillac model 61 embodies design refinements. J. E. Schipper. *il* diags Automotive Ind 45:555-8 S 22 '21
- Car especially designed for use in Australia; the Eco. *il* Automotive Ind 45:409-10 S 1 '21
- Comparison of European and American automobile practice. M. Olley. *Soc Auto Eng J* 9:109-15; Discussion. 115-17 Ag '21
- Details are given of French cars in Indianapolis race. *il* Motor Age 37:31-2 My 27 '20
- Digest of New York show cars. *il* Motor Age 37:26-33 Ja 15 '20
- Duesenberg car has straight eight engine and four wheel brakes. P. M. Heldt. *il* diags Automotive Ind 43:1007-9+ N 18 '20
- Durant—technical features of new car. P. M. Heldt. *il* diags Automotive Ind 45:306-8 Ag 18 '21
- Economy and performance demands. J. G. Vincent. *Soc Auto Eng J* 8:507-8 My '21
- English comment on the American made automobile. Automotive Ind 42:1359 Je 10 '20
- European factories develop small cars. Automotive Ind 45:42 Jl 7 '21
- Features of the British post war cars. M. W. Bourdon. *il* diags Automotive Ind 41:1204-16 D 18 '19
- Ferris car completely equipped. *il* Motor Age 37:32 F 5 '20
- Fiat racer in Italian Grand Prix. Automotive Ind 45:721 O 6 '21
- Ford speedster design. *il* Motor Age 37:35 Ap 8 '20
- Gasoline automobiles. J. A. Moyer. 261p McGraw-Hill '21
- Haynes—longer wheelbase and larger engine. J. E. Schipper. *il* diags plan Automotive Ind 45:764-7 O 20 '21
- Hispano-Suiza new model is high priced six cylinder. *il* diags Automotive Ind 41:868-70 O 30 '19
- Hispano-Suiza six in production. *il* Motor Age 37:32-3 My 13 '20
- Hudson—refinements in control characterize the new Hudson. J. E. Schipper. *il* diags Automotive Ind 45:604-6 S 29 '21
- Influence exerted by the automobile on the machine-tool industry. *Mech Eng* 43:529-34 Ag '21
- Information; elementary electricity, motor car electric systems, the gas engine from an ignition point of view, driving the car. H. E. Phillips. 492p H. E. Phillips & co., Union City, Ind. '20
- King eight models announced. *il* Motor Age 36:25-7 D 25 '19
- Kingsbury light car. diags Engineering 110:708 N 26 '20
- Kissel has new coupé body. *il* Motor Age 36:28-9 D 11 '19
- LaFayette—an eight. *il* diags Motor Age 37:12-17 Ja 8 '20
- LaFayette eight-cylinder automobile has light weight feature. J. E. Schipper. *il* diags Automotive Ind 43:356-62 Ag 19 '20
- Lancia produces a novel twelve cylinder model. *il* Automotive Ind 41:862-3+ O 30 '19
- Leach power plus built to meet the demand for an individual car. *il* Motor Age 37:23 F 5 '20
- Lexington greatly simplified. *il* Motor Age 37:25 Ja 1 '20
- Leyland eight-cylinder motor car. diags Engineering 110:668-9 N 19 '20
- Limousine luxuriously fitted for touring. J. A. Ford. *il* Pop Mech 34:868-9 D '20
- Lincoln eight a conservative design. *il* Motor Age 38:29-31 S 9 '20
- Lorraine Dietrich builds low-priced six cylinder. *il* Automotive Ind 41:860-1 O 30 '19
- Marmon 34 has cast iron cylinders. *il* Motor Age 37:26-9 Ja 1 '20
- Mechanical engineers discuss automotive trend. G. Wiedeman. Automotive Ind 41:1161+ D 11 '19
- Mercedes—Europe's latest offering. *il* Motor Age 38:14-15 O 21 '20
- Motorizing the rural church. O. R. Geyer. *il* Sci Am 124:385+ My 14 '21
- National sedan low. *il* diags Motor Age 37:35 Ap 22 '20
- New American midget auto is replica of big cars. *il* Pop Mech 35:647 My '21
- New H.C.S. *il* Motor Age 37:38-9 My 6 '20
- New passenger cars at Chicago. *il* Motor Age 37:26-32 Ja 29 '20
- New Tulsa built for oil fields. *il* Motor Age 38:31 Jl 15 '20
- 1920 cars in brief. *il* Motor Age 37:34-77 Ja 29 '20
- Novel motor car. *il* Engineer 128:572-3 D 5 '19
- Novelties are prominent at the automobile salon. *il* diags Automotive Ind 43:1005-6+ N 18 '20
- One example of British light car practice. M. W. Bourdon. *il* diags Automotive Ind 44:950-4 My 5 '21
- Packard brings out new single six. *il* Motor Age 38:16-17+ S 30 '20
- Paige enters 1920 with new six cylinder design. J. E. Schipper. *il* Automotive Ind 42:446-8 F 12 '20
- Paige six a larger car. *il* Motor Age 38:32-3+ S 9 '20
- Passenger car serial numbers. Motor Age 37:48 F 5; 66 F 12; 50 F 19; 52 F 26; 52 Mr 4; 63 Mr 11; 54 Mr 18; 56 Mr 25; 72 Ap 1; 56 Ap 8; 54 Ap 15 '20
- Porter car shown at New York salon. *il* Motor Age 36:24-5 D 4 '19
- Post-war review of French automobile trend. W. F. Bradley. *il* chart diags Automotive Ind 41:902-8 N 6 '19
- Premier car of refinement. *il* diags Motor Age 37:30-2 Ja 1 '20
- Questions and answers relating to modern automobile design, construction, driving and repair. V. W. Pagé. rev. and enl. ed. 701p Henley '21
- Racing car with two engines. V. Pagé. *il* Sci Am 122:599+ My 29 '20
- Rolls-Royce—some unusual features of the car. F. H. Colvin. *il* Am Mach 55:85-6 Jl 21 '21
- Rotary unit light car. diags Engineering 110:701 N 26 '20

Automobiles—Continued

- Saxon offers changed design and construction in new model. J. E. Schipper. *il diags Automotive Ind* 42:748-51 Mr 25 '20
- Sea-going automobile. *il Sci Am* 123:67 JI 17 '20
- Seating and other car improvements. W. J. P. Moore. *Automotive Ind* 45:178-80 JI 28 '21
- Severin six a western product. *il Motor Age* 37:31 Mr 18 '20
- Shaw a newcomer in motordom. *il diag Motor Age* 37:33 Ap 15 '20
- Sheridan in four and eight cylinder models. *il diags Motor Age* 38:18-19 S 30 '20
- Six-cylinder Minerva car. *diags Engineering* 110:862, pl 75 D 31 '20
- Stanwood six. *il Motor Age* 38:30 Ag 5 '20
- Studebaker 1920, light six-cylinder. *il Motor Age* 37:34-5 Ja 1 '20
- Studies of the automobile. G. B. Upton. *Sibley J* 35:58-60+, 80-1+, 120-4 Ap-My, S '21
- Tendencies of British chassis design noted at Olympia. M. W. Bourdon. *il diags Automotive Ind* 43:1113-17 D 2 '20
- Trend of motor car development. *Sci Am* 122:416 Ap 17 '20
- Turning the idle automobile into a farm tractor. *il Sci Am* 124:313 Ap 16 '21
- Use of aluminum features in 1920 Premier. *il Automotive Ind* 41:1112-13 D 4 '19
- Vest-pocket automobile; European super-flivvers that are designed to get 75 miles, or more, out of a gallon of gas. *il Sci Am* 124:346-7 Ap 30 '21
- What if our autos all stopped? C: Clifton. *Nation's Business* 8:21-2 N '20
- What is the average life of cars and trucks? P. M. Heldt. *Automotive Ind* 44:589-91+ Mr 17 '21
- See also* Altimeter; Automobile engines; Automobile industry and trade; Cycle cars; Electric trucks; Electric vehicles; Garages; Jitney buses; Motor buses; Motor caravans; Motor cycles; Motor trucks; Petrometer; Street cleaning apparatus, Motor; Tires, Automobile; Tractors; *also* other headings beginning Automobile

Axles

- Columbia rear axle. F. H. Colvin. *il Am Mach* 54:29-30 Ja 6 '21
- Defects in motor vehicles and their remedy. F. Strickland. *Engineering* 110:463-4 O 8 '20
- Dies for automobile rear axle housings. J. Bingham. *diags Mach* 26:1067-8 JI '20
- Direct multiple-speed automobile rear-axle drives. H. C. McBrair. *il diags Soc Auto Eng J* 6:258-64 Ap '20
- Fixture for testing alignment of automobile front axles. C. F. George. *diags Am Mach* 55:482 S 22 '21
- How to lighten front axle sections without decreasing strength. H. S. Jandus. *diags Automotive Ind* 44:1206-7 Je 9 '21
- Machining Columbia rear-axle housing. F. H. Colvin. *il Am Mach* 54:27-9 Ja 6 '21; Correction. 54:653 Ap 14 '21
- Machining two Peerless rear-axle parts. F. H. Colvin. *il Am Mach* 55:510-12 S 29 '21
- Russell 1-ton axle for pneumatic tired trucks. *diags Automotive Ind* 44:798 Ap 14 '21
- Specifications of stock axles; tabulation. *Automotive Ind* 42:224-5 Ja 15 '20
- Specifications of stock axles; tabulation. *Automotive Ind* 44:390-1 F 17 '21
- Starting the standardization of hub and axle design. J. E. Schipper. *diags Automotive Ind* 42:993-6 Ap 29 '20
- Stub-axle stresses. J. L. Napier. *diags Automotive Eng* 11:82-3 Mr '21
- See also* Automobiles—Gearing; Motor trucks—Axles

Bearings

- Annular ball bearings—extra large type—light series; Ball and roller bearings division Standards committee report. *diag Soc Auto Eng J* 6:4 Ja '20
- Annular (radial) ball bearing tolerances; tabulation. *Automotive Ind* 42:218-19 Ja 15 '20

- Ball bearing: in the making, under test, and on service. H: L. Heathcote. *diags Automotive Eng* 11:180-7 My '21
- Bearing mounting practice. *Automotive Ind* 42:217 Ja 15 '20
- Defects in motor vehicles and their remedy. F. Strickland. *diags Engineering* 110:271-2 Ag 27 '20
- Dimensions and numbers of standardized ball bearings. *Motor Age* 38:55 Ag 12; 51 Ag 19; 49 Ag 26; 50 S 2 '20
- Lapping main and connecting-rod bearings. *diags Motor Age* 37:16-17 Mr 18 '20

Bibliography

- Index to Motor age maintenance data sheets. *Motor Age* 37:77 Ap 1 '20

Bodies

- American and British bodywork at Olympia compared. M. W. Bourdon. *il diags Automotive Ind* 43:1256-61 D 23 '20
- Automobile body construction. P. E. Stone. *Soc Auto Eng J* 8:404-5; Discussion. 406-9 My '21
- Automobile body design. W: Brewster. *il Soc Auto Eng J* 6:215-18 Ap '20; Discussion. 6:315-16 My '20
- Better body construction needed. *Automotive Ind* 43:1285 D 23 '20
- Body engineer and his relation to the automotive industry. K. Forbes. *Soc Auto Eng J* 8:366-7 Ap '21; Discussion. 8:436-9 My '21
- Body fashions of 1920. B. M. Ikert. *il Motor Age* 37:24-5 Ja 29 '20
- Body features at the New York show. G: J. Mercer. *il Automotive Ind* 42:300-5 Ja 22 '20
- Can automobile body weight be reduced? C: A. Heergeist. *diags Soc Auto Eng J* 8:285-7 Mr '21; Discussion. 8:432-4 My '21
- Closed bodies for low-priced quantity output. G: J. Mercer. *il diag Automotive Ind* 43:56-8 JI 8 '20
- Columbia shows its closed models. *Motor Age* 36:30 D 18 '19
- Conservative body lines predominated at New York salon. G: J. Mercer. *il Automotive Ind* 43:1164-6 D 9 '20
- Dashes and body panels of metal covered veneer. *diags Automotive Ind* 44:1056 My 19 '21
- Demountable body turns any automobile into traveling camp for the whole family. *il Pop Mech* 35:680-1 My '21
- Design of the forward part of the automobile. G: J. Mercer. *diags Automotive Ind* 43:158-60 JI 22 '20
- Designing a custom body. *il diags Motor Age* 37:19 My 20 '20
- Elbow lines of European cars. M. W. Bourdon. *diags Automotive Ind* 44:554-5 Mr 10 '21
- Four body styles in Scripps-Booth line. *il Motor Age* 37:36-7 Ja 1 '20
- Getting patterns for auto speedster bodies. R: H. Terpening. *diags Sheet Metal Worker* 12:433-4+ JI 22 '21
- Growing popularity of sedan features body exhibit. G: J. Mercer. *il Automotive Ind* 41:1104-11 D 4 '19
- How current practice in body design differs from earlier practice. G: J. Mercer. *il Automotive Ind* 44:808-11 Ap 14 '21
- Lincoln body designs show constructive thought. G: J. Mercer. *il diags Automotive Ind* 43:1106-8 D 2 '20
- Mitchell shows closed car models for 1920. *il Motor Age* 36:29 D 18 '19
- New method of automobile body suspension. G: J. Mercer. *diags Automotive Ind* 44:1261-3 Je 16 '21
- Passenger-automobile body-designing problems. A. F. Johnson. *Soc Auto Eng J* 8:306 Ap '21
- Passenger car bodies at the show. G: J. Mercer. *diags Automotive Ind* 44:81-2 Ja 13 '21
- Patching body panels—a new and important service problem. G: J. Mercer. *diag Automotive Ind* 45:321-2 Ag 18 '21
- Plywood as material for automobile body construction. A. Elmendorf. *il Automotive Ind* 45:414-17 S 1 '21

Automobiles—Bodies—Continued

- Plywood body for five-passenger sedan weighs 120 lb. diags Automotive Ind 42:959 Ap 22 '20
- Practical motor body building. C. W. Terry. 340p Spon '21
- Refinement, style and comfort aim in new body designs. G. J. Mercer. il Automotive Ind 43:1312-13 D 30 '20
- Refinements in body design to be seen on many 1921 models. G. J. Mercer. il Automotive Ind 44:652-3 Mr 24 '21
- Relative value of aluminum and steel as body panel material. E. J. Bartlett. Automotive Ind 45:173-4 Jl 28 '21
- Sedan body to meet the present day requirements. G. J. Mercer. diags plan Automotive Ind 42:848-9+ Ap 8 '20
- Sheet metal work for automobiles. F. H. Colvin. il Am Mach 53:1165-8 D 23 '20
- Some examples of modern passenger car bodies designed in Germany. B. R. Dierfeld. il Automotive Ind 44:897-9 Ap 28 '21
- Standardization and co-operation features of S.A.E. body session. N. G. Shidle. Automotive Ind 44:108-9 Ja 20 '21
- Style in automobile bodies. G. J. Mercer. diags Soc Auto Eng J 8:123-6 F '21; Discussion. 8:434-6 My '21
- Substitutes for ash in automobile bodies. Soc Auto Eng J 9:181 S '21; Same. Sci Am M 4:377 O '21
- Trend of automobile body design. P. M. Heldt. Automotive Ind 41:1061-3 N 27 '19
- Trend of automobile body design. G. J. Mercer. Soc Auto Eng J 7:263-70; Discussion. 270-3 S '20
- Use and value of wood in building bodies. G. J. Mercer. diags Automotive Ind 42:914-16 Ap 15 '20
- Zinc welding for automobile bodies. il Sheet Metal Worker 12:42+ F 18 '21
- See also* Automobiles—Tops; Automobiles—Upholstery

Bolts

- Shackle bolt sizes for 1920 cars; tabulation. Motor Age 38:47 O 7 '20

Brakes

See Brakes, Automobile

Care

- All-year car. V. W. Pagé. il diags Sci Am 122:12+ Ja 3 '21
- Some simple pointers on how to keep a car. H. Hollingshead. Sci Am 125A:39 N '21
- Where is that rattle? the commoner automobile noises, their causes, and how to locate them. V. W. Pagé. il Sci Am 124:8+ Ja 1 '21
- See also* Automobile driving; Automobiles—Cleaning; Automobiles—Failures; Automobiles—Repair

Chassis

- Chassis design for fuel economy. A. L. Putnam. Soc Auto Eng J 8:167-8 F '21; Discussion. 8:441-8 My '21
- Chassis details of new models point to design improvement. J. E. Schipper. il Automotive Ind 42:512-13 F 19 '20
- Chassis session of the S.A.E. P. M. Heldt. diags Automotive Ind 44:103-6 Ja 20 '21
- Detail refinements characterize Sizaire Berwick chassis. M. W. Bourdon. diags Automotive Ind 44:203 F 3 '21
- Disposition nouvelle pour la suspension des châssis d'automobiles. diags Génie Civil 78:484 Je 4 '21
- 11 h.p. Riley chassis. il diags Automobile Eng 11:43-50 F '21
- Engineering features of a popular British runabout. M. W. Bourdon. il diags plan Automotive Ind 45:404-6 S 1 '21
- 15.9 h.p. Humber chassis. il diags Automobile Eng 11:234-41 Jl '21
- Flexible shaft-joint progress; with discussion. C. A. Schell. Soc Auto Eng J 7:30-2 Jl '20
- Isotta-Fraschini 50 h.p. chassis. il diags Automobile Eng 11:2-8 Ja '21
- Lafayette chassis. il diags Automobile Eng 11:84-91 Mr '21

- Making wooden sills for chassis frames. il diags Mach 27:673 Mr '21
- Mechanical features of the Rolls-Royce chassis. P. M. Heldt. il diags Automotive Ind 44:595-600 Mr 17 '21
- New British chassis incorporates many novelties. M. W. Bourdon. il Automotive Ind 45:6-7 Jl 7 '21
- New high-grade British chassis is designed for production. M. W. Bourdon. il diags Automotive Ind 44:699-702 Mr 31 '21
- Overland model four chassis. il diags Automobile Eng 11:163-8 My '21
- Refinements in chassis construction. J. E. Schipper. Automotive Ind 44:58-60+ Ja 13 '21
- 10 h.p. Wolseley chassis. il diags Automobile Eng 11:122-8 Ap '21
- 10.5 h.p. Horstman chassis. il diags Automobile Eng 11:273-7 Ag '21
- Three post-war Wolseley chassis. M. W. Bourdon. diags Automotive Ind 44:20-3 Ja 6 '21
- Two chassis models on the Humber 1920 program. M. W. Bourdon. diags Automotive Ind 41:1250-2 D 25 '19
- Vauxhall producing two chassis types. M. W. Bourdon. diags Automotive Ind 44:254-5 F 10 '21

Cleaning

- Cleaning automobile mechanism by spraying. Sci Am 124:43 Ja 15 '21
- Cleaning cars by air and water. F. R. Tate. il Motor Age 38:11+ Ag 12 '20
- Turbine auto washer cleans without harming finish. il Pop Mech 36:400 S '21

Clutches

- American and British practice in clutch design. H. Chase. diags Automotive Ind 44:1302-13 Je 16 '21; Same. Soc Auto Eng J 9:39-52 Jl '21; Discussion. 9:275-8 O '21
- Clutches, transmissions and universal joints. H. Chase. il diags Automotive Ind 44:79-81 Ja 13 '21
- Hubbard oil clutch. diags Automotive Ind 44:1212 Je 9 '21
- Machining clutch parts on turret lathes; tooling equipment used in the plant of the Borg & Beck co., Chicago, Ill. il diags Mach 27:156-9 O '20
- Merchant & Evans clutch and oil-tight universal. diags Automotive Ind 42:770 Mr 25 '20
- Standardization of clutch facings. Soc Auto Eng J 9:285-6 O '21

See also Splines

Cost of operation

- Automobile cost accounting; report of 1920 A. G. A. committee. Am Gas Assn Accounting sec v 2:92-6; Discussion. 96-8 '20
- See also* Electric trucks—Cost of operation; Motor trucks—Cost of operation

Dashboards

- Cast aluminum dashboards and instrument boards in wider use. M. W. Bourdon. il Automotive Ind 44:259-60 F 10 '21

Design

- Automotive milestones; opinions expressed by the leading automobile manufacturers. A. C. Lescarbours. Sci Am 124:6+ Ja 1 '21
- Design of the forward part of the automobile. G. J. Mercer. diags Automotive Ind 43:158-60 Jl 22 '20
- Design tendencies in 1921 American passenger car chassis. H. Chase. Automotive Ind 44:309-11 F 17 '21
- Design tendencies in 1921 British passenger car chassis. M. W. Bourdon. Automotive Ind 44:322-3, 350-1 F 17 '21
- Designing a custom body. il diags Motor Age 37:19 My 20 '20
- Developments of British design as seen at Olympia. M. W. Bourdon. diags Automotive Ind 41:1149-60 D 11 '19
- 11 h.p. Riley chassis. il diags Automobile Eng 11:43-50 F '21
- European automobile design for 1921. diags Sci Am 124:9+ Ja 1 '21

Automobiles—Design—Continued

- Examples of European practice in three and four-point suspension. M. W. Bourdon. diags Automotive Ind 44:1419-20 Je 30 '21
- 15.9 h.p. Humber chassis. il diags Automobile Eng 11:234-41 Jl '21
- Guy eight-cylinder motor car. diags Engineering 110:770-2 D 10 '20
- Isotta-Fraschini 50 h.p. chassis. il diags Automobile Eng 11:2-8 Ja '21
- Lafayette chassis. il diags Automobile Eng 11:84-91 Mr '21
- Mechanical tendencies revealed at Grand Central palace. P. M. Heldt. diags Automotive Ind 42:59-61+ Ja 8 '20
- Need for greater service accessibility in car design. T. F. Cullen. diags Soc Auto Eng J 8:257-64 Mr '21; Discussion. 8:598-600 Je '21
- New Continental cars shown at Olympia. W. F. Bradley. il diags Automotive Ind 43:1218-24 D 16 '20
- New designing gets test at Indianapolis. R. E. Berg. il Motor Age 37:8-10 My 27 '20
- New German car has novel design features. B. R. Dierfeld. diags Automotive Ind 45:703-6 O 13 '21
- New life for roadster body design. G. J. Mercer. diags plan Automotive Ind 44:1001-2 My 12 '21
- One four and one six-cylinder chassis comprise Benz line. B. R. Dierfeld. il diags Automotive Ind 45:56-60 Jl 14 '21
- Overland model four chassis. il diags Automobile Eng 11:163-8 My '21
- Passenger cars compared on displacement per ton-foot basis. P. M. Heldt. Automotive Ind 44:495-6 Mr 3 '21; Discussion. 44:666-7 Mr 24 '21
- Public desires as related to design. P. M. Heldt. Automotive Ind 45:401-3 S 1 '21
- Racing's influence on automotive design. Automotive Ind 42:268-73 Ja 15 '20
- Reactionary country exports radical car. il Automotive Ind 43:1269 D 23 '20
- Refinement of details; the trend of design for 1920 shows no radical changes, but many improvements to mechanism and bodies. V. Pagé. il diags Sci Am 122:6-7+ Ja 3 '20
- Some production problems which influence design. H. Chase. Automotive Ind 44:1259-60+ Je 16 '21
- Taking advantage of the other man's knowledge. N. G. Shidle. Automotive Ind 44:1256-8 Je 16 '21
- Talk on accessibility. R. E. Berg. Motor Age 37:9+ My 20 '20
- 10 h.p. Wolseley chassis. il diags Automobile Eng 11:122-8 Ap '21
- 10.5 h.p. Horstman chassis. il diags Automobile Eng 11:273-7 Ag '21
- Tendencies in design. J. E. Schipper. Motor Age 37:14-18+ Ja 29 '20
- Trend in passenger car design. P. M. Heldt. Automotive Ind 42:114-17 Ja 15 '20
- Trend of design for 1921. V. W. Pagé. il diags Sci Am 124:4-5+ Ja 1 '21
- Why American, British and continental car designs differ. M. Olley. diags Automotive Ind 44:547-53 Mr 10 '21
- See also* Automobile engines—Design; Automobiles—Bodies; Automobiles—Chassis; Automobiles—Weight

Electric equipment

- Auto electrician's guide for starting, lighting and ignition systems. 961p Michigan state auto school, Detroit '21
- Automatic current control for automobile batteries. il Pop Mech 35:878 Je '21
- Automobile electrical systems. D: P. Moreton and D. S. Hatch. 591p U. P. C. book co. '21
- Automobile switches designed for rapid construction. il diags Automotive Ind 43:766-7 O 14 '20
- Common wiring symbols. Motor Age 37:42 My 20 '20
- Eclairage et démarrage électriques des automobiles par dynamo bicomposé, système Blériot-Phi. il diags Génie Civil 77:273-6 O 2 '20
- Electric system. R. E. Berg. diags Motor Age 37:48-51 My 6 '20

- Electrical equipment of motor cars. il diags Engineer 129:366-8, 403-5 Ap 9-16 '20
- Electrical equipment of the motor car. D: P. Moreton and D. S. Hatch. 506p U. P. C. book co. '21
- Electricity on the automobile. Gen Elec R 23:185 Mr '20
- Insulated cable; S.A.E. electrical equipment division report. Soc Auto Eng J 9:57-9 Jl '21; Same. India Rubber W 64:829-30 Ag '21; Discussion. Soc Auto Eng J 9:59-60 Jl '21
- Interpreting the ammeter reading. R. E. Berg. il diags Motor Age 38:14-16 Jl 22 '20
- Interpreting the voltmeter reading. R. E. Berg. diags Motor Age 38:16-17 Ag 5 '20
- Lighting and starting of motor cars by electricity. C. H. Stephenson. il diags Electrician 85:224-7 Ag 27 '20
- Oscillograph measurements of the instantaneous values of current and voltage in the battery circuit of automobiles. G: W. Vinal and C. L. Snyder. il U S Bur Stand Tech Pa 186:1-23 '21
- Problem course in electricity; automobile generators and batteries. H. H. Bliss. diags J Elec 46:572-4 Je 1 '21
- Simplified guide to correct automobile wiring. G: Roudanez. 966p Automobile engineering co., Chicago '21
- Simplified guide to correct automobile wiring; internal diagrams. G: Roudanez. 149p Automobile engineering co., Chicago '21
- Single unit starting and lighting system developed in France; the Dynastart. il diags Automotive Ind 41:1257+ D 25 '19
- Some electrical stunts on a Ford car. Elec R (Lond) 89:41-2 Jl 8 '21
- Some newly developed electrical equipment. diags Automotive Ind 45:671 O 6 '21
- Specifications for starting and lighting storage batteries for military automobile and truck service. India Rubber W 63:327-8 F '21
- Specifications of the electrical equipment found on 1920 passenger cars. Motor Age 38:46-9 O 21 '20
- Theory and practice of regulating the generator output. J. T. Fitzsimmons. diags Automotive Ind 42:1356-8 Je 10 '20
- Third brush regulation in automobile generators. T. R. Knowles. diags Automotive Ind 42:1300-1+ Je 10 '20
- Wiring diagram charts. Motor Age 36:45 D 11:50 D 18; 47 D 25 '19; 37:52 Ja 1; 52 Ja 8; 61 Ja 15; 50 Ja 22; 119 Ja 29; 51 F 5; 73 F 12; 45 F 19; 53 F 26; 53 Mr 4; 53 Mr 11; 55 Mr 18; 57 Mr 25; 73 Ap 1; 63 Ap 8; 55 Ap 15; 59 Ap 22; 54 Ap 29; 57 My 6; 47 My 13; 49 My 20; 55 My 27; 47 Je 3; 45 Je 10; 46 Je 17; 46 Je 24; 38:47 Jl 1; 45 Jl 8; 42 Jl 15; 41 Jl 22; 42 Jl 29; 45 Ag 5; 47 Ag 12; 48 Ag 19; 47 Ag 26; 49 S 2; 49 S 9; 49 S 16; 49 S 23; 45 S 30; 45 O 7; 45 O 14; 40 O 21 '20
- See also* Automobile engines—Ignition; Automobile engines—Ignition devices; Automobiles—Lighting; Automobiles—Starting devices; Magnetos; Storage batteries

Equipment and supplies

- Adjustable and folding seats used on many British cars. M. W. Bourdon. il Automotive Ind 44:502-3 Mr 3 '21
- German car incorporates unusual technical features. diags Automotive Ind 42:1056-7 My 6 '20
- Glass and its unstudied problems in automotive construction. W: C. Hirsch. Automotive Ind 43:426-9 Ag 26 '20
- Land yacht, ahoy! here she blows! il Motor Age 37:56+ F 12 '20
- Making the automobile complete; some interesting motor car accessories. diags Sci Am 122:9+ Ja 3 '20
- Removable track for rubber tired road vehicles. il Automotive Ind 44:970 My 5 '21
- Sled runners with plow attachment for light cars. P. P. Avery. diags Pop Mech 33:293 F '20
- Where equipment selling is real merchandising. D: Beecroft. Motor Age 37:16-17 Je 17 '20

Automobiles—Equipment and supplies—Cont.

Writing desk is fixture in luxurious town car.
il Pop Mech 33:57 Ja '20

See also Air brakes, Automobile; Automobile engines; Automobile engines—Mufflers; Automobile industry and trade—Automobile accessories; Automobile locks; Automobiles—Bolts; Automobiles—Electric equipment; Automobiles—Mud guards; Automobiles—Windshields; Brakes, Automobile; Carbureters; Fuelizer; Magnetos; Shock absorbers; Spark plugs; Tires, Automobile

Exhibitions

An American's view of the Olympia show.
J. G. Perrin. Automotive Ind 43:1280-1 D 23 '20

Automobile shows back to pre-war basis.
D. S. Hatch. il Motor Age 37:7-10 Ja 1 '20

Belgian show includes new cars with many previously exhibited. W. F. Bradley. il diags Automotive Ind 44:64-71 Ja 13 '21

Body features at the New York show. G. J. Mercer. il Automotive Ind 42:300-5 Ja 22 '20

Chicago dealers stage annual used car show.
il Motor Age 37:26-7 My 6 '20

Chicago's show maintenance signboard. B. M. Ikert. il Motor Age 37:9-13+ Ja 29 '20

Closed cars predominate at Philadelphia show. il Motor Age 37:12-13 Ja 22 '20

Engineering and merchandising in 1920 show.
J. E. Schipper. il Automotive Ind 42:51-8 Ja 8 '20

Exhibitors at the Chicago show. Motor Age 37:24-7 Ja 22 '20

Exhibits at the motor car show. Engineering 110:649-50 N 12 '20

First German automobile show in ten years.
W. F. Bradley. il Automotive Ind 45:758-63 O 20 '21

Industrial-automotive is keynote of Twin Cities show. il Motor Age 37:43-4 F 12 '20

Kansas City has a much improved show. il Motor Age 37:45 F 12 '20

Merchandising interests strong at Chicago show. il Automotive Ind 42:343-6 Ja 29 '20

Motor car show. il Engineer 130:450-1, 476-8, 498-500 N 5-19 '20

Motor car show at Olympia. il diag Engineer 128:460-2, 479-84, 512-14, 530-2 N 7-28 '19

New York automobile show, Jan. 3-10. Mech Eng 42:130-1 F '20

New York show promises big business. D. S. Hatch. il Motor Age 37:7-11 Ja 8 '20

Novelties not abundant at New York show. Automotive Ind 44:51-2 Ja 13 '21

Paris air show not commercial success. W. F. Bradley. il Motor Age 37:14 Ja 22 '20

Public at London show interested in economical car. M. W. Bourdon and others. il Automotive Ind 43:951-8 N 11 '20

Some lessons of the motor exhibition. Engineering 110:644-6 N 12 '20

Some new parts seen at the New York show. P. M. Heldt. diags Automotive Ind 44:160-1 Ja 27 '21

Ten American and six foreign cars at automobile salon. il Automotive Ind 41:1049-51 N 27 '19

Trend to light cars and fuel economy in Paris show. W. F. Bradley. Automotive Ind 45:701-2 O 13 '21

Trends shown by statistics of New York show. Automotive Ind 44:129 Ja 20 '21

Failures

Causes of roadside breakdowns. Automotive Ind 44:771 Ap 7 '21

Fenders

Auto bumper convertible into emergency tow bar. il Pop Mech 36:351 S '21

Combining quality with efficiency in fender enameling. J. E. Schipper. il Automotive Ind 45:270-2 Ag 11 '21

Effective method of fitting and finishing fenders. il Automotive Ind 43:168-9 Jl 22 '20

Laminated wood for the automobile bumper. il Sci Am 124:374 My 7 '21

Pattern for nose on an automobile fender. diag Sheet Metal Worker 11:339 N 12 '20

Saving the pedestrian. il Sci Am 124:475 Je 11 '21

Filling stations

See Gasoline service stations

Fuel

See Automobile engines—Fuel

Gearing

Application and manufacture of silent chain.
J. E. Schipper. il diag Automotive Ind 45:773-8 O 20 '21

Art of welding gears and pinions. F. H. Sweet. Blast F & Steel Pl 8:684-5+ D '20

Automobile gear making centralized; new works of General motors corporation. il Iron Age 106:245-50 Jl 29 '20

Clutches, transmissions and universal joints.
H. Chase. il diags Automotive Ind 44:79-81 Ja 13 '21

Compound gearset design. il Sci Am 125:50+ Jl 16 '21

Compressed cotton used for silent gear. il Motor Age 37:35 Mr 4 '20; Same. Automotive Ind 42:863 Ap 8 '20

Development of the roller chain drive. G. M. Bartlett. diags Automotive Ind 45:363-6 Ag 25 '21

Developments in transmission. S. Bramley-Moore. diags Engineering 111:89-92, 122-4, 151-3 Ja 21-F 4 '21; Same. Soc Auto Eng J 8:350-64 Ap '21; Same cond. Automobile Eng 11:70-5 F '21; Discussion. 11:116-18, 324-6 Mr. S '21

Direct multiple-speed automobile rear-axle drives. H. C. McBrair. il diags Soc Auto Eng J 6:258-64 Ap '20

Effect of gear ratio on car economy. J. N. Golten and A. Neumann. Automotive Ind 43:1167-9 D 9 '20

Electric heat-treating of automobile gears.
G. H. Gibson. plan Elec W 75:1375-6 Je 12 '20

Fixtures for testing automobile gears. il Mach 27:270-3 N '20

Ford differential spider and gear case. il Am Mach 54:371-3 Mr 3 '21

Friction drive revived in new Kelsey six-cylinder car. il diags Automotive Ind 43:1204-6 D 16 '20

Front-wheel drive. Sci Am 123:503 N 13 '20

Gear ratios for 1920 passenger cars; tabulation. Motor Age 38:50 S 9 '20

Gearing calculations by the compressive stress method. J. Jandasek. diags Automotive Ind 45:512-15, 564-8 S 15-22 '21

Gears for motor transmissions. F. H. Colvin. il Am Mach 54:606-9 Ap 7 '21

Improved method of machining transmission gears. il diags Automotive Ind 43:617-18 S 23 '20

Laursen hydraulic gear shift eliminates conventional lever. il Motor Age 37:34 Ja 22 '20

Lubrication of timing-gears. E. Planche. il Soc Auto Eng J 9:107-8 Ag '21

Machining and inspecting transmission cases. F. H. Colvin. il diags Am Mach 55:143-7 Jl 28 '21

Machining automobile transmission gears.
R. E. Flanders. il diags Mach 26:644-7 Mr '20

Machining the Wrigley automobile transmission gear. I. W. Chubb. il diags Am Mach 55:176-8, 252-5, 333-8 Ag 4, 18, S 1 '21

Making a gear shifter fork. F. H. Colvin. il Am Mach 55:328 Ag 25 '21

Making the Peerless ring gear, spider and gears. F. H. Colvin. il Am Mach 55:465-7 S 22 '21

Methods used by transmission specialists. F. H. Colvin. il Am Mach 54:537-40 Mr 31 '21

Modern plant devoted to gears for service replacements; automotive gear works, Atlanta, Ga. il Motor Age 38:10-11 Jl 29 '20

New auto differential gear prevents wheel slippage. il Pop Mech 35:906 Je '21

New gear box of Swedish origin. diags Automotive Ind 45:706 O 13 '21

New transmission designed to facilitate gear shifting. il diags Automotive Ind 44:1366-7 Je 23 '21

Operation and care of the Ford gearset. diags Motor Age 38:12-13 O 14 '20

Automobiles—Gearing—Continued

- Problems of the front end drive in automobiles. J. E. Schipper. *il* diags plans Automotive Ind 44:1296-1301 Je 16 '21
- Proposed methods of automotive gear inspection. Automotive Ind 44:609-10 Mr 17 '21
- Roller-chain sprockets; S.A.E. chain division report. Soc Auto Eng J 9:55-7 Jl '21
- Specifications of stock gearsets; tabulation. Automotive Ind 42:226 Ja 15 '20
- Specifications of stock gearsets; tabulation. Automotive Ind 44:392 F 17 '21
- Transmission and control gear for Angus-Sanderson motor car. *il* Engineering 109:210-11 pl 11 F 13 '20
- Triple gear for Ford transmissions. *il* Am Mach 53:680-1 O 7 '20
- See also* Automobiles—Steering gear

Heating

- Le chauffage des voitures automobiles. diags Génie Civil 78:219 Mr 5 '21
- Motor-car warming apparatus. diags Engineering 110:472 O 8 '20

History

- Duryea gets place in National museum. Automotive Ind 43:1196 D 9 '20; Am Mach 53:1163-4 D 16 '20
- Rise of the automobile. *il* Sci Am 123:334-5+ O 2 '20

Hubs

- See* Automobiles—Wheels

Ignition

- See* Automobile engines—Ignition devices

Insurance

- See* Insurance, Automobile

Law

- See* Automobile laws and regulations

Lighting

- Atwater Kent starting and lighting on Packard six. J. E. Schipper. diags Automotive Ind 43:1216-17 D 16 '20
- Automobile headlighting regulation. C. H. Sharp and W. F. Little. *il* Sci Am M 1:347-50 Ap '20; Abstract. Illum Engr 13:129-30 Ap '20
- Bellows-front spotlight used from inside auto. *il* Pop Mech 36:244 Ag '21
- Bleriot-Scott single unit lighting equipment. *il* diags Electrician 85:496-8 O 29 '20
- British adaptation of starting and lighting equipment. F. H. Hutton. *il* diags Automotive Ind 41:1002-4 N 20 '19
- Devices for controlling headlight glare. *il* diags Automotive Ind 44:1199-1200 Je 9 '21
- Focus-indicator for headlights. L. O. Gron-dahl. Illum Eng Soc 16:164-8; Discussion. 168-72 no 6 '21
- Headlight regulation discussed at meeting of Illuminating engineering society. P. M. Heldt. Automotive Ind 45:661-4 O 6 '21
- Improved automobile searchlight. *il* J Elec 44:190 F 15 '20
- Improving the Mazda automobile headlight lamp. L. C. Porter. *il* chart diags Gen Elec R 23:67-71 Ja '20; Same. Sci Am M 1:344-6 Ap '20
- Lamp nomenclature. diags Soc Auto Eng J 9:64-5 Jl '21
- Latest Bleriot Phi starting and lighting equipment. *il* diags Electrician 86:657-9 My 27 '21
- Lighting and equipment laws of various states. Automotive Ind 42:1164-5 My 20 '20
- Motor-car headlights and rearlights in relation to traffic requirements. J. W. T. Walsh. *il* diags Illum Engr 13:114-18; Discussion. 118-29 Ap '20
- New anti-glare headlight. *il* diag Motor Age 37:33+ Mr 25 '20
- Recent motor vehicle lighting laws in the chief Canadian provinces. Automotive Ind 44:402 F 17 '21
- Report of committee on automobile headlighting specifications, 1918-19. Illum Eng Soc 14:500-2; Discussion. 502-11 no 9 '19

- Report of the committee on automobile headlighting specifications. diag Illum Eng Soc 15:848-63; Discussion. 863-6 no 9 '20
- Rules governing the performance of automobile headlights on the road and specifications for laboratory tests of headlighting devices for approval by state authorities. Illum Eng Soc 15:284-9 no 4 '20
- Searchlight-effect headlights have no glare. *il* Pop Mech 36:562 O '21
- Side-lamp glasses; Lighting division Standards committee report. *il* diag Soc Auto Eng J 6:60-2 Ja '20
- Standardised tests of motor car headlights. Engineer 130:641 D 24 '20
- Survey of voltage conditions in automobile lighting. H. H. Magdsick and H. Karg. Illum Eng Soc 15:519-28 no 8 '20
- See also* Automobiles—Electric equipment

Lubrication

- Alemite system of chassis lubrication. *il* Motor Age 37:39 F 26 '20
- Defects in motor vehicles and their remedy. F. Strickland. Engineering 110:855-6 D 31 '20
- Lubricating and industrial oil engineering. J. R. Battle. Nat Pet N 12:49+ Ap 7; 57+ Ap 28 '20
- Vanoiler automatic oil cup. diag Automotive Ind 43:967 N 11 '20
- See also* Automobile engines—Lubrication

Manifolds

- See* Automobile engines—Manifolds

Manufacture

- Aircraft and automobile materials of construction. A. W. Judge. 2v 739p; 594p Pitman '20-'21
- Assembling Cleveland parts. F. H. Colvin. *il* Am Mach 53:1097-8 D 9 '20
- Automotive demands give strong impetus to drop forging development. Automotive Ind 44:1066-8 My 19 '21
- Automotive development largely responsible for die-casting growth. Automotive Ind 44:814-17 Ap 14 '21
- Building motors on the Pacific coast; Hall-Scott motor car company, Berkeley, Calif. F. H. Colvin. *il* Am Mach 53:1117-21, 1215-20; 54:46-7, 133-6, 221-4 D 16, 30 '20, Ja 13, 27, F 10 '21
- Building over an old plant to get doubled output. O. L. Smith. *il* Factory 25:869-73 S 15 '20
- Cadillac grinding practice; description of methods employed in the grinding department of a plant building high-grade automobiles. E. K. Hammond. *il* Mach 27:103-7 O '20
- Can we use lighter metals? R. E. Berg. *il* diags Motor Age 37:7-9 Mr 11 '20
- Dies for shaping an automobile body panel. J. Bingham. diags Mach 27:25 S '20
- Economy and efficiency increased by new final assembly system. N. G. Shidle. *il* diags plan Automotive Ind 45:69-72 Jl 14 '21
- Enameling in the automobile industry. M. R. Armstrong. *il* charts Elec J 18:6-9 Ja '21
- Equipment for interchangeable manufacturing. E. Buckingham. *il* diags Mach 26:828-33, 927-32 My-Je '20
- Frames for Fords. F. H. Colvin. *il* Am Mach 54:368-71 Mr 3 '21
- Franklin transmission case. F. H. Colvin. *il* Am Mach 53:1001-4 N 25 '20
- Grinding in the automotive industry. P. M. Heldt. *il* diags Automotive Ind 45:421-6 S 1 '21
- How can automotive production costs be lowered? G. M. Meyncke. Automotive Ind 44:539-41 Mr 10 '21
- Increasing the scope of aluminum alloys. F. Jehle. *il* diag Automotive Ind 41:1025-7 N 20 '19
- Lumber used in motor vehicle manufacture. A. Koehler. Automotive Ind 44:1114-16 My 26 '21; Abstract. Sci Am M 3:274-5 Mr '21

Automobiles—Manufacture—Continued

- Machining aluminium automobile parts. il diags Mach 27:115-19 O '20
- Machining and testing a large transmission case. F. H. Colvin. il diags Am Mach 52:237-9 Ja 29 '20
- Machining auto starter frames. R. Mawson. il Am Mach 55:296-8 Ag 25 '21
- Machining automobile steering knuckles. R. E. Flanders. il diags plans Mach 26:911-15 Je '20
- Machining automobile transmission gears. R. E. Flanders. il diags Mach 26:644-7 Mr '20
- Making auto specialties by roll process. il Sheet Metal Worker 12:11+ F 4 '21
- Making dies for forming automobile parts. R: Dale. diags Iron Age 108:1127-9 N 3 '21
- Making wooden sills for chassis frames. il diags Mach 27:673 Mr '21
- Manufacturing methods on a light car. il Automobile Eng 11:206-11 Je '21
- Mass motor car works. diag Engineer 128:627-8 D 26 '19
- Methods used by transmission specialists. F. H. Colvin. il Am Mach 54:537-40 Mr 31 '21
- Modern automobile spring manufacturing; Detroit steel products co. D. F. Kennedy. il Iron Age 107:19-23 Ja 6 '21
- Modern chassis assembly plant; methods of the Standard motor co., ltd. il Automobile Eng 11:102-4 Mr '21
- Motor car assembling at Hudson plant. il Iron Age 105:1219-21 Ap 29 '20
- New heat treating plant for motor parts. C. A. Armstrong. il plan Blast F & Steel Pl 9:665-7 N '21
- Plywood and its uses in automobile construction. A. Elmendorf. il diags Soc Auto Eng J 6:299-306 My '20; Discussion. 7:390 O '20
- Production expansion obtained in the assembly track layout. J. E. Schipper. il Automotive Ind 42:1211-13 My 27 '20
- Production methods in the British automobile plants. M. W. Bourdon. Automotive Ind 42:1461-2 Je 24 '20
- Progressive production methods applied to body building. G. J. Mercer. il Automotive Ind 45:73-6 Jl 14 '21
- Relation of power presses and dies to the automobile industry. H. J. Hinde. diag Engineering 112:523 O 7 '21
- Rotary furnace for automobile parts. A. D. Dauch. il Iron Age 108:666-7 S 15 '21; Same. Elec W 78:565-6 S 17 '21
- Running the gauntlet of quality production. R. Howard. il Sci Am 123:278+ S 18 '20
- Sheet metal work for automobiles. F. H. Colvin. il Am Mach 53:1165-8 D 23 '20
- Sidelights on automobile building. I. B. Rich. Am Mach 52:1352 Je 24 '20
- Some sheet metal body work; operations involved in making metal bodies for Ford cars. il Am Mach 54:318-19 F 24 '21
- Special fixture for milling rails for automobile frames. R. A. Wilson. il diags Am Mach 52:1353-4 Je 24 '20
- Special fixtures in the Peerless shop. il Am Mach 55:549-50 O 6 '21
- Special machines and fixtures in the Franklin plant, Syracuse, N.Y. F. D. Jones. il diags Mach 27:823-30 My '21
- Specification and testing of castings. W. Rosenhain. Automotive Ind 45:217-19 Ag 4 '21
- Speed in production and economy in space possible in assembly line. J. E. Schipper. il Automotive Ind 42:766-70 Mr 25 '20
- Speed marks auto parts molding. D. M. Avey. il diag Foundry 47:852-7 D 1 '19
- Substitute metals in automobile construction. B. R. Dierfeld. Automotive Ind 43:1309 D 30 '20
- Three automobile pattern problems. W. Neubecker. diag Metal Work 93:409-10. 451, 547-8+ Ap 2-9, 30 '20
- Transplanting Rolls-Royce methods to the U.S. F. H. Colvin. il diags Am Mach 54:625-7 Ap 14 '21
- Trend of automobile manufacturing practice in England. R. E. Flanders. Mach 27:482 Ja '21
- Trip through the Overland works. Sibley J 34:169-70+, 183+ N-D '20

Use of aluminum in the present and the future motor car. F. Jehle. il diag Soc Auto Eng J 6:367-72 Je '20

Vertical turret machine and its work; machining a front spring hanger bolt and steering knuckles for automobiles. F. R. Daniels. il diags Mach 26:399-403 Ja '20

See also Automobile engines—Manufacture; Automobile factories; Automobile parts; Automobiles—Fenders; Japanning; Steel, Automobile

Mud guards

Novel aids to the mud guard. il Sci Am 124:129 F 12 '21

Painting

Automobile painting an opportunity for dealers to extend service. Motor Age 37:16-17 Je 24 '20

Eight steps in repainting a car. Motor Age 37:46 F 26 '20

Have you thought of adding a paint department. il Motor Age 37:12-13+ Je 17 '20

Preserving the automobile finish. W. H. Cole and E. J. Cole. Automotive Ind 42:802 Ap 1 '20

Relation of the chemical engineer to the manufacture and application of automobile finishes. C. D. Holley. il diag Chem & Met Eng 25:873-6 N 9 '21

Requisites of a paint department. G. K. Franklin. Motor Age 38:12-13 Ag 5 '20

What you should know about painting cars. G. K. Franklin. Motor Age 38:18+ Jl 1 '20

Why not a paint shop? il Motor Age 37:24-5 Ap 1 '20

See also Japanning

Parking

See Automobile laws and regulations

Prices

Buyers' guide to car body styles; tabulation. Motor Age 37:127-9 Ja 29 '20

Few facts on price situation. Motor Age 38:10-11 S 30 '20

Ford did it! now what about it? C. Jennings. Automotive Ind 43:651-3 S 30 '20

Price changes in current models; tabulation. Automotive Ind 44:1349 Je 16 '21

Price reductions tending to stabilize and stimulate industry. Motor Age 38:7-11 O 7 '20

Public not deterred by price situation. Automotive Ind 44:86+ Ja 13 '21

Shall car prices swing upward or downward? C. Jennings. Automotive Ind 43:101-3 Jl 15 '20

Radiators

See Automobile engines—Radiators; Automobile radiator repair shops

Registration

Kansas adopts weight as motor vehicle license basis. Automotive Ind 45:3 Jl 7 '21

Motor vehicle registration and license fees by states; tabulation. Automotive Ind 42:274-5 Ja 15 '20

Motor vehicle registrations, licenses and revenues in 1919. Eng & Contr 54:206-7 S 1 '20

Repair

Adopting and maintaining a flat-rate plan for repair work charges. Motor Age 38:10-11+ S 23 '20

Autogenous welding; what it is and how it is applied. il Motor Age 38:8-9 Jl 22; 16-17 Jl 29; 32-3 Ag 5; 30-1 Ag 12; 34-5 Ag 19; 34 Ag 26; 34-5 S 2; 36-7 S 9; 36-7 S 16; 36-7 S 23; 32-3 S 30; 32-3+ O 7; 32-3 O 14; 30-1 O 21 '20

Automobile work and the machine shop. D. A. Hampson. Am Mach 52:1001-2, 1059-60 My 6-13 '20

Automotive service methods and equipment. H. Campbell. il Am Mach 55:619-23, 710-13, 789-91, 870-3 O 20, N 3, 17, D 1 '21

Don't send the damaged parts to the junk pile; sheet metal restoration service. il Motor Age 38:15+ S 16 '20

Automobiles—Repair—Continued

- Electro-deposition in automotive repair work. B. H. Thomas. diag Automotive Ind 43:418-20 Ag 26 '20; Same. Mach 27:381-2 D '20; Abstract. Motor Age 38:17+ O 14 '20
- Field of automobile work is widening. Metal Work 93:45-6, 205-6 Ja 9, F 13 '20
- First aid to the car, or highway hints and helps. H. W. Slauson. 225p Harper & brothers pub. '21
- Ford car, construction and repair. J: R. Bayston. 148p American technical society, Chicago '21
- Give the owner a report of the work done. Motor Age 37:9 Je 24 '20
- Making an easy job of ordering repair parts. K. Herrick. diag Motor Age 37:10-12+ Mr 18 '20
- Modern methods of Ford repairing. J. H. Pile. 251p U. P. C. book co. '20
- Need for greater service accessibility in car design. T. F. Cullen. diags Soc Auto Eng J 8:257-64 Mr '21; Discussion. 8:598-600 Je '21
- Oats in the carbureter. il diag Motor Age 37:28-9 Ap 1 '20
- Practically all work done in garage repair shop that requires heat can be done with gas. H. L. Wolfe. Am Gas Eng J 113:449-50 N 27 '20
- Repairing damaged automobile sheet metal parts. R: H. Terpening. diags plans Sheet Metal Worker 12:255-7 My 13 '21
- Servicing the Overland four. il diags Motor Age 37:18-21 F 19; 40-1 F 26; 36-7 Mr 4; 37-9 Mr 11; 33-5 Mr 18; 38-9 Mr 25; 56-7 Ap 1; 40-1 Ap 8; 35-7 Ap 15; 36-7 Ap 22; 38-9 Ap 29; 40-1 My 6; 34-5 My 13; 36-7 My 20; 40-1 My 27; 32-3 Je 3; 30-1 Je 10 '20
- Use of gas in automobile and tire repair shops. H. L. Wolfe. il diags Am Gas Assn Commercial sec v 2:179-91 '20
- Various uses of the crane puller in repair shops. il Motor Age 37:31 My 13 '20
- Welding and its relation to the repair industry. L. Campbell, jr. il Soc Auto Eng J 7:42-6 Jl '20

See also Automobile service stations; Automobiles—Failures; Garages—Management

Seats

- Adjustable and folding seats used on many British cars. M. W. Bourdon. il Automotive Ind 44:502-3 Mr 3 '21
- Reversible automobile seat. G. A. Luers. il Pop Mech 36:630 O '21
- Seating and other car improvements. W. J. P. Moore. Automotive Ind 45:178-80 Jl 28 '21

Shock absorbers

See Shock absorbers

Size

- Automobile and the private estate. T. S. Rogers. diag Arch Forum 32:171-4 Ap '20

Specifications

- British passenger car chassis specifications; tabulation. M. W. Bourdon. Automotive Ind 44:324-5 F 17 '21
- Detail specifications model T Lexington car. diag Automotive Ind 44:7-8 Ja 6 '21
- Export specifications of American passenger cars; tabulation. Automotive Ind 44:332 F 17 '21
- Motor age monthly passenger car specification tables. Motor Age 38:48-51 O 7 '20
- 1920 passenger automobiles listed with their technical specifications. Automotive Ind 42:118-23 Ja 15 '20; Same. Motor Age 37:130-5 Ja 29 '20
- Specifications of American passenger car chassis for 1921; tabulation. Automotive Ind 44:312-15 F 17 '21
- Specifications of British passenger cars; tabulation. Automotive Ind 42:125 Ja 15 '20
- Specifications of continental passenger car chassis; tabulation. W. F. Bradley. Automotive Ind 44:326-7 F 17 '21
- Trend and specifications of Continental passenger cars; tabulation. Automotive Ind 42:126-9 Ja 15 '20

Speed

- Acceleration of the automobile and its measurement. P. M. Heldt. diags Automotive Ind 42:1329-33 Je 10 '20
- Automobile records. Automotive Ind 44:328-9 F 17 '21
- Chart for speed of cars and trucks for a large range of reduction ratio and wheel size when any two of the three factors engine speed, reduction ratio and car speed are known. Motor Age 37:43 Ap 22 '20
- Economy of passenger automobiles at various speeds. E. Planche. Mech Eng 42:705-6 D '20
- Most economical driving speed. Automotive Ind 43:781 O 14 '20

Springs

- Adjustable spring shackles take up wear and prevent rattle. J. E: Schipper. diags Automotive Ind 45:361-2 Ag 25 '21
- Automatic control employed in spring production. J. E: Schipper. il Automotive Ind 44:506-9 Mr 3 '21
- Automobile road springs. N. E. Hendrickson. diags Automobile Eng 11:330-1 O '21
- Correct anchorage of the cantilever spring. M. W. Bourdon. diags Automotive Ind 42:902-4 Ap 15 '20
- Defects in motor vehicles and their remedy. F. Strickland. diags Engineering 110:796 D 17 '20
- Holding the road; a discussion of the fundamental principles affecting the inter-action of wheels, springs, and roads. J. L. Napier. diags Automobile Eng 11:266-72 Ag '21
- Modern automobile spring manufacturing; Detroit steel products co. D. F. Kennedy. il Iron Age 107:19-23 Ja 6 '21
- Quarter-elliptic springs; their influence on steering. diags Automobile Eng 11:162 My '21
- Spring shackles require lateral rigidity. diags Automotive Ind 44:220 F 3 '21
- Springs and spring suspensions. E. Pavray. diags Soc Auto Eng J 6:49-55 Ja '20; Discussion. 6:316-21 My '20
- Springs of new popular car are peculiarly arranged. diag Pop Mech 33:176 F '20
- See also Automobiles—Vibration; Motor trucks—Springs

Standards

- Automotive engineering standardization and progress. C. F. Clarkson. Soc Auto Eng J 7:356-7 O '20; Same. Aviation 9:158 O 1 '20; Same. Am Mach 53:891-2 N 11 '20
- Completion of front hub standards postponed. J. E: Schipper. Automotive Ind 44:116-17 Ja 20 '21
- Current standardization work. Soc Auto Eng J 7:558-61; 8:512-13; 9:118, 209-12, 285-7, 345-7 D '20, My, Ag-N '21
- Hub standardization is getting under way. J. E: Schipper. Automotive Ind 42:1391-3 Je 17 '20
- Hub, wheel and tire standardization. W. J. P. Moore. Automotive Ind 44:907-10 Ap 28 '21
- Industrial standardization. G: W. Watson. Automobile Eng 11:356-8 O '21; Abstract. Engineer 132:431 O 21 '21
- Many important subjects to be considered at S. A. E. standards meeting. diags Automotive Ind 44:1046-9 My 19 '21
- Move to unify all interests in hub standardization work. J. E: Schipper. diag Automotive Ind 44:592-4 Mr 17 '21
- Need for standardization of hub designs. J. E: Schipper. diags Automotive Ind 42:793-5 Ap 1 '20
- Progress in S.A.E. and government standards work. Automotive Ind 45:453 S 8 '21
- Reports of divisions of the Standards committee. diags Soc Auto Eng J 6:4-6, 57-75 Ja '20
- Result of letter ballot on standards. Soc Auto Eng J 6:202 Ap '20
- S. A. E. standardization work in 1919. diags Automotive Ind 42:227-42 Ja 15 '20
- Standard automobile screws, castle and plain nuts. diags Motor Age 38:44 S 30 '20

Automobiles—Standards—Continued

- Standardization as brought about by the Society of automotive engineers. B. B. Bachman. Soc Auto Eng J 9:33-4+ J1 '21
Standards committee meeting. diags Soc Auto Eng J 7:195-210 Ag '20
Standards committee meeting of S.A.E. P. M. Heldt. diags Automotive Ind 44:111-15 Ja 20 '21
Standards committee meeting, West Baden, Ind., May 24. Soc Auto Eng J 9:55-74 J1 '21
Standards committee reports of the S.A.E. diags Soc Auto Eng J 8:169-99 F '21
Standards report adopted without radical changes. diags Automotive Ind 43:15-21 J1 1 '20
Starting the standardization of hub and axle design. J. E. Schipper. diags Automotive Ind 42:993-6 Ap 29 '20
Suggestion for the simplification of hub standardization. C. T. Meyers. Automotive Ind 42:1172-3 My 20 '20
Unprecedented number of items before Standards committee. P. M. Heldt. diags Automotive Ind 42:314-22 Ja 22 '20

Starting

- Starting on alcohol. Soc Auto Eng J 9:319 N '21

Starting devices

- Atwater Kent starting and lighting on Packard six. J. E. Schipper. diags Automotive Ind 43:1216-17 D 16 '20
B. M. starting device. diags Automobile Eng 11:168 My '21
Bleriot-Scott single unit lighting equipment. il diags Electrician 85:496-8 O 29 '20
British adaptation of starting and lighting equipment. F. H. Hutton. il diags Automotive Ind 41:1002-4 N 20 '19
British impulse starter. il Automotive Ind 43:253 Ag 5 '20
Electric starting systems for automobiles. F. C. Barton. il diags Gen Elec R 23:186-93 Mr '20; Same. Sci Am M 1:535-9 Je '20
Electrical equipment of motor cars. diags Engineer 129:403-5 Ap 16 '20
Flywheel starter ring-gears. F. H. Colvin. il diags Am Mach 53:513-15 S 9 '20
Latest Bleriot Phi starting and lighting equipment. il diags Electrician 86:657-9 My 27 '21

See also Automobiles—Electric equipment

Steering gear

- Carrico steering gear. diags Automotive Ind 42:1249 Je 3 '20
Cause and cure of front wheel wabbling. A. L. Clayden. diags Automotive Ind 43:411-14 Ag 26 '20
Compound-cam steering gear cannot be reversed. il Pop Mech 35:545 Ap '21
Defects in motor vehicles and their remedy. F. Strickland. diags Engineering 110:271-2 Ag 27 '20
Development of the drag link results in many improvements. V. A. Davisson. diags Automotive Ind 42:956-8 Ap 22 '20
Machining steering arms on Daniels automatics. il Mach 27:714 Mr '21
Marles steering gear. diag Automotive Ind 43:961 N 11 '20
Ross steering gear for passenger cars. diag Automotive Ind 45:160 J1 28 '21
S. S. C. O. steering gear lock. diag Automotive Ind 42:364 Ja 29 '20
Steering wheels and road rules in England. Nation's Business 8:40 D '20

Taxation

- Horsepower ratings for tax in other countries. P. M. Heldt. Automotive Ind 43:1066-7 N 25 '20
Importance of taxes to automotive vehicle sales. C. Jennings. Automotive Ind 44:789-90+ Ap 14 '21
Industry as whole must unite on plan. Automotive Ind 44:424+ F 17 '21
Motor taxation. Engineering 110:811-12 D 17 '20

Sales significance of the new British automobile taxes. Automotive Ind 42:1163 My 20 '20

Sane statement of the necessity of the automobile. A. Macauley. Automotive Ind 44:795-8 Ap 14 '21

Taxation of petrol vehicles. Engineering 109:483-4 Ap 9 '20

Treasury imposes excise taxes on garagemen and others engaged in repairs to automobile tops or bodies. Automotive Ind 44:137+ Ja 20 '21

See also Motor trucks—Taxation; Motor vehicles—Taxation

Testing

Overlands win in Yosemite economy run. il Motor Age 37:25 My 27 '20

Track tests cars under road conditions. il Pop Mech 33:26-7 Ja '20

Theft

Automobile locking-device classification and theft insurance. A. R. Small. Soc Auto Eng J 9:95-100; Discussion. 100-6 Ag '21

Fighting the auto thief. il Sci Am 122:63+ Ja 17 '20

Ingenuities of the auto thief. P. H. Woodruff. il Pop Mech 33:386-8 Mr '20

Thief-proof alarm for the automobile. il Sci Am 125A:60 N '21

See also Automobile locks

Tops

All-weather top for the open passenger car. G. J. Mercer. diags Automotive Ind 42:1106-8 My 13 '20

Combination roof construction for enclosed bodies. G. J. Mercer. diags Automotive Ind 45:14-15 J1 7 '21

Design problems in new semi-Victoria touring top. G. J. Mercer. diag Automotive Ind 44:347 Ap 21 '21

How current practice in body design differs from earlier practice. G. J. Mercer. il Automotive Ind 44:308-11 Ap 14 '21

Latest model automobile has sliding roof. il Pop Mech 36:529 O '21

Permanent top viewed with favor in many quarters. Automotive Ind 45:711 O 13 '21

Seasonable announcement of spring top. il Automotive Ind 44:601 Mr 17 '21

Winter top improves appearance and utility of car. G. J. Mercer. il Automotive Ind 43:1255 D 23 '20

Towing

Towing the wrecked car. il Sci Am 125:101 Ag 6 '21

Transmission

See Automobiles—Gearing

Transportation

Le camionnage automobile des colis livrés par les compagnies de chemins de fer. de Lalande. Génie Civil 78:91-2 Ja 22 '21

Carbo steel decks for carrying automobiles. il Ry Age 69:108 J1 16 '20

Crating automobiles for export. Sci Am M 3:81 Ja '21

Double decked automobile ferry with a Winton Diesel electric drive. R. Z. Dickie. plans Int Marine Eng 25:556-8 J1 '20

Rule governing loading of boxed automobiles on flat and open top cars. diags Ry Age 68:1894-6 Je 17 '20

Water borne transportation for automotive shipments. G. E. Quisenberry. il Automotive Ind 43:28-30 J1 1 '20

Trimmings

Plea for rust-proof nickel trimmings. Motor Age 37:31 Ap 15 '20

Protection of automobile parts. C. H. Proctor. Metal Ind 18:263-4 Je '20

Tubing and hose

Tubing and hose sizes for 1919 and 1920 cars. Motor Age 38:46 J1 1; 44 J1 8; 44 J1 15 '20

Upholstery

Curled hair for car upholstery. C. A. Podesta. Automotive Ind 44:962 My 5 '21

Automobiles—Continued**Vibration**

Measurement of vehicle vibrations. B: Liebowitz. *il diags Soc Auto Eng J* 6:17-25 Ja '20; Discussion. 6:321-6 My '20

Weight

Can automobile body weight be reduced? C: A. Heergeist. *diags Soc Auto Eng J* 8:285-7 Mr '21; Discussion. 8:432-4 My '21

Consequential advantages of weight reduction. L. H. Pomeroy. *Soc Auto Eng J* 8:396 My '21

Decreasing unsprung weight by the use of aluminum. A. H. Edgerton. *Soc Auto Eng J* 6:26-8 Ja '20; Discussion. 7:75-6 Jl '20

Weights of 1921 cars on which Kansas bases license fee. *Automotive Ind* 45:330-1 Ag 18 '21

Wheels

All-steel one-piece wheel made by drop forging. *il Pop Mech* 36:439 S '21

Completion of front hub standards postponed. J. E: Schipper. *Automotive Ind* 44:116-17 Ja 20 '21

Dies for automobile wheel hub. J. Bingham. *diags Mach* 26:603-4 Mr '20

Dies for Ford automobile hub plates. C. J. Hueber. *diags Mach* 27:524 F '21

Drop forged steel wheel. *il Automotive Ind* 44:755 Ap 7 '21

Handling wheel production with economy of space. J. E. Schipper. *il Automotive Ind* 43:216-19 Jl 29 '20

Harvey steel disk wheel. *diags Automotive Ind* 43:1206 D 16 '20

Hub standardization. J: Younger. *Automotive Ind* 44:568-9 Mr 10 '21; Discussion. 44:907-10, 1220-1 Ap 28, Je 9 '21

Hub standardization is getting under way. J. E: Schipper. *Automotive Ind* 42:1391-3 Je 17 '20

Hubs—wood and metal wheels: S.A.E. Standards report; with discussion. *diags Soc Auto Eng J* 8:192-9 F '21

Johnson wire wheel and demountable rims. *diags Automotive Ind* 43:1169 D 9 '20

Move to unify all interests in hub standardization work. J. E: Schipper. *diag Automotive Ind* 44:592-4 Mr 17 '21

Need for standardization of hub designs. J. E: Schipper. *diags Automotive Ind* 42:793-5 Ap 1 '20

Production of pressed steel wheels is successfully accomplished. J. E: Schipper. *il Automotive Ind* 45:668-71 O 6 '21

Rey steel disk wheel. *il Automotive Ind* 45:228 Ag 4 '21

Single-disc metal wheels. A. L. Putnam. *Soc Auto Eng J* 7:437; Discussion. 442-5 N '20

Skid-chain fastening for cast steel disk wheels. *il diags Automotive Ind* 44:811 Ap 14 '21

Starting the standardization of hub and axle design. J. E: Schipper. *diags Automotive Ind* 42:993-6 Ap 29 '20

Steel spoked and disk wheels popular on British cars. M. W. Bourdon. *il diags Automotive Ind* 44:18-19 Ja 6 '21

Studies of the automobile. G. B. Upton. *Sibley J* 35:120-4 S '21

Suggestion for the simplification of hub standardization. C. T. Meyers. *Automotive Ind* 42:1172-3 My 20 '20

Transparency of moving automobile wheels. A. T. Jones. *Sci Am* 125A:66 N '21

Wheel alignment indicator. *il Sci Am* 125:103 Ag 6 '21

Wire wheels. C. S. Walker. *diags Soc Auto Eng J* 7:441-2; Discussion. 442-5 N '20

See also Tires, Automobile

Windshields

Design of wind screens for the rear seat. M. W. Bourdon. *il Automotive Ind* 45:260-4 Ag 11 '21

Automobiles, Armored

Auto-bandit chaser for Denver. E. C. Mac-Mechen. *il Pop Mech* 35:161-2 F '21

Automobiles, Care of. *See* Automobiles—Care

Automobiles, Electric. *See* Electric vehicles

Automobiles, Industrial

Use of motor vehicles by water department. G: H. Finneran. *Eng & Contr* 54:367 O 13 '20

See also Motor trucks

Automobiles, Military

Delage offers the only car built for military service. *il diags Automotive Ind* 41:960-3 N 13 '19

Automobiles, Steam

Again the steam automobile. *il plan Sci Am* 122:220+ F 28 '20

Coats steam car. *il Mech Eng* 43:404 Je '21; Same. *Sci Am M* 3:567 Je '21

Improved steam auto has gas-car advantages. *il diag Pop Mech* 34:53 Jl '20

Reagan automotive steam engine. *il Automotive Ind* 45:326 Ag 18 '21

Scott standard steam car. *il Motor Age* 37:50-2 Ap 1 '20

Stanley steam car power plant. F. H. Colvin. *il Am Mach* 54:955-8 Je 2 '21

Stanley steamer coupé design. *il Motor Age* 37:17 Ap 15 '20

Statement regarding steam automotive apparatus. J: Sturges. *Automotive Ind* 42:1370-1 Je 10 '20

Steam automotive system. L. L. Scott. *Soc Auto Eng J* 6:313-14 My '20

Word for the steam automobile. H. G. Bou-tell. *Sci Am* 123:105 Jl 31 '20

See also Motor trucks, Steam

Automobiles, Used. *See* Automobile industry and trade—Used cars

Automobiles, Wireless controlled

Army develops automobile controlled by radio. *il Pop Mech* 36:526 O '21

Radio controlled auto at McCook field. *Aerial Age* 13:547, 595 Ag 15, 29 '21

Radio controlled automobile. *il Sci Am* 125:253 O 8 '21

Automobiles and roads

Elements of automobile fuel economy. W. S. James. *diags Soc Auto Eng J* 8:543-62 Je '21; Excerpt. *Automotive Ind* 44:1201-5 Je 9 '21; Discussion. *Soc Auto Eng J* 9:263-8 O '21

Holding the road; a discussion of the fundamental principles affecting the inter-action of wheels, springs, and roads. J. L. Napier. *diags Automobile Eng* 11:266-72 Ag '21

Road construction to build up the exports of automobiles. G: E. Quisenberry. *il Automotive Ind* 44:516-17 Mr 3 '21

Road experiments of the Bureau of public roads. *Pub Works* 49:363-4 O 16 '20

Road vehicles and their relation to road surfaces. R. G. H. Clements. *Engineering* 112:129-30; Discussion. 119-20 Jl 15 '21

Roads and vehicle maintenance. R. E. B. Crompton. *diag Automobile Eng* 11:29-31 Ja '21; Discussion. 11:75-7 F '21

See also Motor trucks and roads; Road traffic

Automobiles in war and army service**Bibliography**

Automotive vehicles in the great war. C. J. West. *Soc Auto Eng J* 6:409-16 Je '20

Automotive association, Illinois. *See* Illinois automotive association

Automotive bankers, National association of. *See* National association of automotive bankers

Automotive wood wheel manufacturers' association

Service system for wood wheels organized by mail. S. C. Lambert. *Ptr Ink* 115:89-90 Je 2 '21

Auxochromes

Kombinierte auxochrome. H. Kauffmann. *Deutsche Chem Gesell Ber* 54:795-802 Ap '21

Über thio-phenole; über thiophenol-äther des triphenyl-methans und die auxochrome wirkung der alkylmercaptogruppen. K. Brand and O: Stallman. *Deutsche Chem Gesell Ber* 54:1578-85 Jl '21

Average

Usual misleading and the correct statement of averages. H: Hess. Mech Eng 41:954-5 D '19; Same. Mach 26:748 Ap '20

Aviation

Across the Central American Andes. il Aviation 11:107-8 JI 25 '21
 Aerial transportation, aerial touring and air travel. See monthly numbers of Flying beginning January 1921
 Aviation day at Mineola. il Aviation 11:483-4 O 24 '21
 Cloud flying. B. Eytinge. Aerial Age 13:461, 467 JI 25 '21; Same cond. Aviation 11:192-3 Ag 15 '21
 Cross-country flight from Lincoln, Neb., to Mexico City. L. A. Winship. Aviation 10:408 Mr 28 '21
 Daily weather report for aviators by radio from U.S. Weather bureau. Aerial Age 13:298-9 Je 6 '21
 Deux grandes épreuves d'aéronautique de 1920. il Génie Civil 77:325-8 O 23 '20
 England-Australia flight. il Sci Am 122:35 Ja 10 '20
 First flight over a peak of the Rockies. J. A. Chapman. il Pop Mech 33:100-1 Ja '20
 Flight round the world. Aerial Age 14:176 O 31 '21
 Flight through the Grand Canyon of the Colorado. Aviation 11:255 Ag 29 '21
 Flying guide and log book. B. S. Eytinge. 1921 ed. enl. and rev. 150p Wiley '21
 Fundamentals in flying. S: D. Mott. Sci Am 121:607+ D 20 '19
 Gordon-Bennett airplane race. Sci Am 123:396 O 16 '20
 Hartford aerial meet. Flying 10:216+ JI '21
 Hawaii from the air: first aerial survey of our possessions in the Pacific. C. Carriel. il map Flying 10:127-30 My '21
 Hints on flying right hand tractors. Aerial Age 12:205 O 25 '20
 Influence of aviation on cities and farms. C. F. Redden. Aviation 10:20 Ja 3 '21
 Lesson of the flight to Australia. Sci Am 122:268 Mr 13 '20
 Long distance flying. H. Douglas. Aviation 10:298 Mr 7 '21
 Longest seaplane flight made by flying boat Santa Maria. W. W. Wyman. Aerial Age 14:173 O 31 '21
 My New York-Washington aerial Pullman flight in the Lawson cloudland liner. E. J. David. Flying 8:766-8. 855-8 O-N '19
 National aviation meet held in Kokomo, Ind., Sept. 22-25. Aerial Age 14:149 O 24 '21
 Over-cloud flying and commercial aeronautics. M. Jones. diags Aviation 8:402-8 Je 15 '20
 Peculiar visual phenomena revealed by airmen; bottom of ocean visible from airships and balloons. F. Linke. Aerial Age 12:441, 445 Ja 3 '21
 Recent advances in aviation at McCook field. T. H. Bane. il Soc Auto Eng J 8:18-25 Ja '21
 Recovering the Pearson plane. Aviation 11:198-9 Ag 15 '21
 Review of aviation in 1920. Aerial Age 12:459+ Ja 10 '21; Same. Aviation 10:83-4 Ja 17 '21
 Rules for the Monaco hydro-aeroplane competitions, April 18-May 2, 1920. Flying 9:100-1 Mr '20
 Rules of the British seaplane competition. Aviation 7:266-7 O 15 '19
 Second German soaring competition. il Aviation 11:426-7 O 10 '21
 South pole mapping expedition. Aviation 10:16 Ja 3 '21
 Successful meet at Curtiss field. Aerial Age 14:148 O 24 '21
 Touring Europe by air. Aerial Age 14:184 O 31 '21
 Trans-African flight attempts reveal aviation handicaps. Automotive Ind 42:822-3 Ap 1 '20
 Twenty international and national aerial contests to be discussed at Atlantic City, May 20th to May 30th. il Flying 9:240-5 My '20

Washington-St Thomas marine corps flight. Aerial Age 13:207 My 9 '21; Same. Aviation 10:607 My 9 '21

When his majesty flies—or takes cover. H: Woodhouse. il Flying 9:378-81+ JI '20

Winged submarines for high altitude flying. Sci Am M 2:3 JI '20

See also Aerial derby around the world; Aerial routes; Aerodynamic laboratories; Aeronautics; Aeronautics, Commercial; Airplane races; Airplanes; Altitude, Influence of; Aviettes; Aviators; Balloon races; Flying boats; Parachutes; Seaplanes; United States—Air service; United States—Air service, Navy; Wind tunnels; Wireless telegraph in aviation

Accidents

Accidents in commercial aviation. Aerial Age 14:175-6 O 31 '21
 Aerial stunts and public safety. Sci Am 123:272 S 18 '20
 Aeroplane disaster. Aerial Age 13:292 Je 6 '21
 Analysis of aircraft accidents. Aviation 11:371-2 S 26 '21
 Aviation becoming safer. Automotive Ind 42:412-13 F 5 '20
 Morgantown crash. Aviation 10:742-4 Je 13 '21
 Mortality statistics of the air. Automotive Ind 42:190-1 Ja 15 '20
 Safety of flying. Aerial Age 12:315 N 29 '20
 To render travel by air safe. Sci Am 123:296 S 25 '20

See also Airplane engines—Failures; National safety council—Committee on aeronautics

Alaskan flying expedition

Alaskan flying expedition. St C. Streett. il map Soc Auto Eng J 8:222-9 Mr '21
 Alaskan flying expedition; remarkable achievement for the army air service. il maps Flying 9:626-30 N '20
 Army flight to Alaska. il map Flying 9:450-1 Ag '20
 Army-plane flight to Nome successful. map Pop Mech 34:511 O '20
 Return of the Alaskan expedition. il Aerial Age 12:251-2 N 8 '20; Same abr. Soc Auto Eng J 7:554 D '20

Altitude records

Bureau of standards method of altitude computation. L. D. Seymour. Aviation 8:246 Ap 15 '20
 Calibration of barographs used in airplane altitude measurements. Sci Am M 2:80 JI '20
 Considérations sur le vol aux très grandes altitudes. A. Rateau. Génie Civil 76:298-9 Mr 20 '20
 Evaluation of altitude records; abstract. E. Everling. Aerial Age 12:322 N 29 '20
 F.A.I. aviation records. Aerial Age 12:448 Ja 3 '21
 How altitude records are estimated. Pop Mech 34:366 S '20
 How it feels way up in the air; what a man goes through making an altitude record. Am Ind 22:31-2 Ag '21
 Lieut. MacReady establishes new altitude record of 40,800 feet. il Aerial Age 14:100 O 10 '21
 MacReady's altitude flight. il Aerial Age 14:127-8 O 17 '21
 Major Schroeder's record altitude flight. Mech Eng 42:255-6 Ap '20; Same. Aviation 8:293-4 My 1 '20
 Major Schroeder's true altitude 33,000 ft. il Aviation 8:361 Je 1 '20
 Meteorological reports reveal curious facts as to change of wind direction at various altitudes. Aviation 9:288 N 15 '20
 New altitude record of 40,800 ft. made by Lt. John A. MacReady, A. S., on a Lepère C:11 airplane. il Aviation 11:423-5 O 10 '21
 Official reports of altitude records of Major Schroeder and Roland Rohlf. A: Post. il charts Flying 8:983-5 Ja '20

Aviation—Altitude records—Continued

Seeking the seven-mile ceiling. R. Howard. Sci Am 122:273 Mr 13 '20
Two-man altitude flight. Aerial Age 13:351 Je 20 '21; Same. Aviation 11:21 Jl 4 '21; Same cond. Soc Auto Eng J 9:22 Jl '21

Lafayette flying corps

Lafayette flying corps—an epic of the air. P. J. Roosevelt. Aviation 9:263 N 8 '20

Lighthouses

See Aerial routes—Lighting

Medical aspects

Aerial passenger travel at high altitudes. diags Sci Am M 1:49-51 Ja '20

Medical problems of flying, including reports nos. 1-7 of the Air medical investigation committee. Gt. Brit. Privy council. Medical research council. 272p H. M. Stationery off., London '20

Therapeutic value of flying. Flying 10:132 My '21

La vie et les voyages aux très hautes altitudes; cabines closes, à pression constante, pour ballons et avions. Dr Guglielminetti. il diags Génie Civil 76:288-92 Mr 20 '20; Same abr. (More about high flying). Sci Am M 2:70-3 Jl '20; Excerpt. Aerial Age 12:489 Ja 17 '21

See also Altitude, Influence of; Aviators—Diseases and hygiene

Safety devices and measures

Aviation fatalities. Sci Am 125:58 Jl 23 '21
Effective study of aviation hazards begun. Automotive Ind 43:1026-7 N 18 '20

Safety in aviation. E. S. Martin. Aviation 10:336 Mr 14 '21

Safety in flight. R. K. B. Wild. Aviation 9:121-3, 150-4 S 15-O 1 '20

Underwriters' laboratories and aviation. A. R. Small. Aviation 10:21-2 Ja 3 '21

Why I quit stunts. H. J. Runser. il Aerial Age 13:437 Jl 18 '21

See also Aeronautic code (proposed); Airplanes—Safety devices and measures

Speed calculations

New system of determining ground speed of an aeroplane in flight. J. W. Jones. Aerial Age 13:610 S 5 '21

Speed calculations. Aviation 10:534 Ap 25 '21

Speed records

F.A.I. aviation records. Aerial Age 12:448 Ja 3 '21

New speed record. Aviation 9:327 N 22 '20
San Francisco to New York in 33 hrs. 20 min. il Aviation 10:331-3 Mr 14 '21

See also Airplane races

Transatlantic flight

Log of H. M. A. R34 journey to America and back. E. M. Maitland. 168p Hodder and Stoughton, London '21

Some lessons of the transatlantic flight. H. C. Richardson. Aviation 8:445-6 Jl 1 '20

Trans-Pacific flight

Possibilities of a trans-Pacific flight. G. C. Westervelt. map Aviation 9:83-6 S 1 '20

Trans-Pacific flight. Aviation 9:235 N 1 '20

Aviation clubs

Active aero clubs. Aviation 10:404-5 Mr 28 '21

Aviation engines. See Airplane engines; Airship engines

Aviation fields

Agricultural possibilities of aviation fields. B. R. Taylor. il Flying 9:625 N '20

Climatological factors governing the selection of air routes and flying fields. C. L. Meisinger. Aerial Age 12:368-9+ D 13 '20; Same. Aviation 9:423-5 D 13 '20; Same. Sci Am M 3:68-70 Ja '21

Crissy field, San Francisco, Calif. il Aviation 11:428 O 10 '21

Names of army air stations. Aviation 10:344 Mr 14 '21

Opening of Curtiss flying field. Aviation 10:655 My 23 '21

Tampa's new aviation field. Aviation 11:516 O 31 '21

See also Airships—Anchorage

Aviation landing stations

Developing a ground organization for civil aviation. W. F. Bradley. il Automotive Ind 45:572-6, 622-6 S 22-29 '21

Effect of temperature and altitude of aerodrome in the taking off of aeroplanes. P. G. Gundry. diags Aeronautical J 25:290-300 Je '21

French state aerodromes for civil use. diags map Aviation 10:638-9 My 16 '21

Landing fields are a major problem in development of air traffic. diags Automotive Ind 43:928-9 N 4 '20

Municipal landing fields and air ports. G. S. Wheat. 96p Putnam '20

Over 1200 landing fields listed in the United States. Soc Auto Eng J 6:307 My '20

Promoting a municipal field. R. B. Eckley. Aviation 11:510 O 31 '21

Seaplane landing stations in New York. Aerial Age 14:150 O 24 '21

Sewage treatment at English aerodromes. D. Balfour. Pub Works 49:197-8 Ag 28 '20

See also Air ports

Aviation schools

Aeromarine co. opens flying-boat school. Aviation 10:536 Ap 25 '21

Army air service schools. Aerial Age 12:207 O 25 '20; Same cond. Aviation 9:234 N 1 '20

Army balloon service offers opportunities. R. L. Foster. il Aerial Age 12:273 N 15 '20

Civilian aviation schools. R. H. Depew, jr. Aviation 10:231-2 F 21 '21

Requirements for admission to air service engineering school at Dayton. Aerial Age 13:107-8+, 130-1 Ap 11-18 '21; Excerpt. Aviation 10:507 Ap 18 '21

Aviation sickness. See Aviators—Diseases and hygiene

Aviators

Research in the psychology of aviation; abstract. H. M. Johnson. Sci Am M 2:84 Jl '20

Who's who in American aeronautics. Aviation 10:365-6, 395-6, 431-2, 461-2, 496-7, 528-9, 570-1, 593-4, 629, 658-9, 690, 719, 753-4, 809-10; 11:18-19, 46-7, 74, 102, 194-5, 226, 253-4, 312-14, 342, 402, 430, 454, 508-9, 540-1 Mr 21-Je 13, 27-Jl 25, Ag 15-29, S 12-19, O 3-17, 31-N 7 '21

See also Altitude, Influence of

Clothing

Commercial aviator's uniform. il Aerial Age 13:344 Je 20 '21

Electrically heated aviator's clothing. il Aerial Age 10:458-9 Ja 5 '20

Making the airplane and the aviator's suit fireproof. il Sci Am 124:487+ Je 18 '21

Diseases and hygiene

Aerial passenger travel at high altitudes. diags Sci Am M 1:49-51 Ja '20

Aviation medicine in the A.E.F. W. H. Wilmer. 322p U.S. War dept. Division of military aeronautics, Washington, D.C. '20
Medical problems of flying. Aerial Age 12:615 F 21 '21; Same. Aviation 10:244 F 21 '21

Medical problems of flying, including reports nos. 1-7 of the Air medical investigation committee. Gt. Brit. Privy council. Medical research council. 272p H. M. Stationery off., London '20

La vie et les voyages aux très hautes altitudes; cabines closes, à pression constante, pour ballons et avions. Dr Guglielminetti. il diags Génie Civil 76:288-92 Mr 20 '20; Same abr. (More about high flying). Sci Am M 2:70-3 Jl '20

Licenses

British aerial navigators' certificates. Aerial Age 12:83-5 S 27 '20

British pilots required to pass examination in navigation. Flying 10:102-4 Ap '21

Aviators—Licenses—Continued

- Tests for aviator's certificates. Aviation 10: 202 F 14 '21
 Why civilian air pilots should be licensed by the federal government. L. H. Bauer. Flying 10:101+ Ap '21

Aviators' pets

- Aerial mascots—how animals behave in the air. il Flying 9:572-3 O '20

Aviettes

- Aviette prize won. Aerial Age 13:436-7 JI 18 '21
 Le concours de l'aviette (prix Peugeot) gagné par G. Poulain, le 9 juillet 1921. il Génie Civil 79:65-6 JI 16 '21
 Construction and design of aviettes. diags Aerial Age 11:653, 717, 749, 781 JI 19, Ag 2-16 '20
 Successful motorless aviette test. Aerial Age 13:365 Je 27 '21
 Suggestion for building an aviette. Aerial Age 11:845 Ag 30 '20

Axes**Manufacture**

- Modern methods facilitate ax manufacturing. F. B. Jacobs. il diags Iron Tr R 69:747-52 S 22 '21

Axle generators. See Car lighting

Axles

- Axles for airplane landing gear. il diags Am Mach 55:56 JI 14 '21
 La genèse des fissurations de certains essieux. il Génie Civil 76:516-17 Je 5 '20
 Railway wheels and axles. T. H. Sanders. Engineering 109:99-100 Ja 16 '20
 Standard specifications for cold-rolled steel axles; English and French. diag U S Bur For & Dom Com Industrial Standards 149: 1-14 '21
 See also Automobiles—Axles; Bearings; Car axles; Motor trucks—Axles; Tractors—Axles

Manufacture

- Axle machining equipment. il Engineer 130: 512 N 19 '20
 Machining front axles. F. H. Colvin. il Am Mach 53:553-5 S 16 '20
 Manufacturing Clark rear axles. E. K. Hammond. il diags Mach 26:801-6, 936-40 My-Je '20
 Shop practice in an axle plant. il Mach 27: 166-8 O '20
 T.C.M. semi-automatic axle machine. il Am Mach 55:364 S 1 '21

Azimuth

- Table of corrections to obtain back azimuths. S. W. Tay. Eng N 85:1262 D 30 '20

Azo compounds

- Aromatic arsenic compounds; azo dyes derived from arsanilic acid. W. A. Jacobs and M. Heidelberger. Am Chem Soc J 43:1646-54 JI '21
 Azo compounds from diketo-hydrindene. A. K. Das and B. N. Ghosh. Am Chem Soc J 43:1739-41 JI '21
 Kinetics of the reduction of azo-compounds; abstract. H. Goldschmidt and A. Braanaas. Chem Soc J 120 pt 2:184-5 Mr '21
 New azo mordant dyes; patent. diag Color Tr J 9:167-8 O '21
 Syntheses in the cinchona series; aminoazo and hydroxyazo dyes derived from certain 5-amino cinchona alkaloids and their quinoline analogs. W. A. Jacobs and M. Heidelberger. Am Chem Soc J 42:2278-86 N '20
 Syntheses in the cinchona series; azo dyes derived from hydrocupreine and hydrocupreidine. M. Heidelberger and W. A. Jacobs. Am Chem Soc J 41:2131-47 D '19

Azonium iodide

- Studies in substituted quaternary azonium compounds containing an asymmetric nitrogen atom; additive compounds of thiocarbamide with azonium iodides. B. K. Singh and M. Lal. Chem Soc J 119:210-11 F '21

Aztec Springs. See Yucca house national monument

B**B. V. D. company**

- Infringement case. Ptr Ink 116:77-8 S 1 '21

Babbitt metal

- Application of babbitt metals. L. D. Staplin. il diags Power 52:1019-20 D 28 '20; Same. Am Mach 54:15-16 Ja 6 '21
 Composition and use of babbitt metals. B. H. Jarvis. il diags Power 51:616-18 Ap 20 '20
 Conservation of tin in bearing metals, bronzes and solders. G. K. Burgess and R. W. Woodward. Am Mach 51:883-5 N 13 '19
 Notes on bronze and babbitt bearings. W. K. Frank. il Eng Soc W Pa 35:349-79 N '19; Same cond. Iron Age 105:943-6 Ap 1 '20; Same cond. Ry Mech Eng 94:276-80 My '20; Discussion. Eng Soc W Pa 35:380-94 N '19
 Properties of white metal bearing alloys at elevated temperatures. J. R. Freeman, jr., and R. W. Woodward. il diags U S Bur Stand Tech Pa 188:1-16 '21; Same. Soc Auto Eng J 8:149-54+ F '21; Abstract. Metal Ind 19:68 F '21
 Selecting the proper babbitt. H. S. Hood. Am Mach 52:1271-2 Je 10 '20
 Selection of babbitt metal. L. D. Staplin. Power 52:748-9 N 9 '20

Specifications

- Tentative specifications for white metal bearing alloys. diags Am Soc T M Pro v 20 pt 1:538-42 '20

Babbitting

- Anchoring babbitt linings to castings. M. E. Duggan. diags Mach 27:890 My '21
 Approved methods of babbitting railway motors. J. S. Dean. il Ry R 69:8-9 JI 2 '21
 Babbitts and babbitting in steel plants. T. D. Lynch. Blast F & Steel Pl 8:433-6 Ag '20; Abstract. Elec W 76:724 O 9 '20
 Centrifugal babbitt lining machine. il Mach 27:497 Ja '21
 Correct temperatures must be held in babbitting motor bearings. J. S. Dean. il Elec W 78:831-2 O 22 '21
 Crosshead babbitting devices eliminate machining. il diags Ry Mech Eng 95:187-8 Mr '21
 How to rebabbitt a shaft bearing. G. H. Radebaugh. il Brick & Clay Rec 58:222-3+ F 8 '21
 Indexing jig for babbitting locomotive crossheads. N. McLeod. diags Mach 26:1172-3 Ag '20
 Method of casting long babbitt lined nuts without shortening the lead or reducing their diameter. M. H. Ball. diags Am Mach 55:650 O 20 '21
 New armature bearing babbitting press. il diag Elec Ry J 57:1135-6 Je 18 '21
 Rebabbitting engine bearings. il Power 54: 56-7 JI 12 '21
 Rebabbitting engine parts. H. Hamkens. diags Power 52:383-6, 497-500 S 7, 28 '20
 See also Bearings

Babylonia

- Did the Babylonian astronomers possess telescopes? H. Hein. il diag Sci Am M 1: 489-91 Je '20

Bacillus pyocyaneus

- Examples of selective adsorption by B. pyocyaneus. W. C. Moore. Am Electrochem Soc Trans v 37 (preprint 19):293-303 Ap '20

Back strain

- When are disabilities of the back arising out of pathological conditions reportable accidents? R. B. Crain and B. J. Slater. bibliog J Ind Hygiene 3:197-201 N '21

Back yards

- Making the most of the back yard. diag Am Arch 118:575+ N 3 '20
 Turtle Bay gardens, New York city. A. W. Colton. il plan Arch Rec 48:467-93 D '20

Backwater computations. See Hydraulics

Bacon, Roger

Roger Bacon manuscript. *Sci Am* 124:362 My 7 '21

Roger Bacon manuscript; investigations into its history, and the efforts to decipher it. *J. M. Bird. il Sci Am M* 3:492-6 Je '21

Roger Bacon manuscript; what it looks like, and a discussion of the probabilities of decipherment. *il Sci Am* 124:421, 432+ My 28 '21; Discussion. 124:509 Je 25 '21

Bacteria. See Bacteriology**Bacteriology**

American progress in the bacteriological sugars. E. H. Eitel. *il J Ind & Eng Chem* 12:1202-5 D '20

Bacteria as chemical reagents. A. I. Kendall. *Chem & Met Eng* 24:56-60 Ja 12 '21

Bacteria being killed by magnetic fields. *Sci Am* 125:221 S 24 '21

Counting bacteria. J. Boyer. *il Sci Am* 125:29+ JI 9 '21

Dirty money and disease. J. Boyer. *il Sci Am M* 4:344-6 O '21

Food of the small sea herring and ammonia and amines as end products of its decomposition. F. C. Weber and J. B. Wilson. *Am Chem Soc J* 42:841-9 Ap '20

Laboratory manual in general microbiology. Michigan agricultural college. 2d ed. 471p Wiley '21

Rate of speed at which bacteria travel. *Sci Am* 123:441 O 30 '20

Solvents produced by bacteria. H. E. Hall. *Chem Age* 29:103-4 Mr '21

See also Antigens and antibodies; *Bacillus pyocyaneus*; *Ptomaine poisoning*; *Soil bacteriology*; *Water—Bacteriology*

Baekeland, Leo Hendrik, 1863-

Romance of invention. C. H. Claudy. *il Sci Am* 121:580+ D 13 '19

Baeyer strain theory. See Cyclic compounds**Baffles**

Baffle-wall development. K. L. Martin. *diags Power Pl Eng* 24:466-8 My 1 '20

Baffling oil fired water tube boilers. K. L. Martin. *diags Textile World* 58:1527+ S 4 '20

Making one-piece baffles—patching boiler settings. *il diags Power* 54:638-40 O 25 '21

Proper baffling of boilers an important item. *diags Elec R* 77:31-2 JI 3 '20

Recent practice in baffling boilers. K. L. Martin. *il diags Power Pl Eng* 25:315-17 Mr 15 '21

Smoke-burning device adds to furnace efficiency. *diags Pop Mech* 35:597 Ap '21

Special lap tile for boiler baffles. L. E. Brown. *diags Power* 54:690 N 1 '21

Suspension baffle walls for locomotives. *il Ry Age* 68:645 F 27 '20

Bag houses

Zinc-oxide plant of the Utah zinc company. A. B. Parsons. *flow sheet il diags plan Min & Sci P* 121:759-64 N 27 '20

Bag tying machine

Electric machine will tie paper bag in a second. *il Pop Mech* 36:349 S '21

Bagasse

Acid hydrolysis of sugar-cane fiber and cottonseed hulls. E. C. Sherrard and G. W. Blanco. *J Ind & Eng Chem* 12:1160-2 D '20

Paper from bagasse. *Sci Am M* 1:283 Mr '20

Paper from bagasse. C. J. West. *Paper* 26:26+ Mr 17 '20

Paper making qualities of Hawaiian bagasse. *Hawaii Exp Sta Rep Bul* 46:1-51 '19

Preservation of bagasse in sugar-cane mill control. G. L. Spencer. *J Ind & Eng Chem* 12:1197 D '20

Suitability of bagasse as a source of paper. F. Heim, J. Maheu and L. Matrod. *il Paper* 27:11-14+ S 15 '20

Analysis

Rotary digester for use in bagasse analysis. G. L. Spencer. *J Ind & Eng Chem* 13:640 JI '21

Bagasse as fuel

Bagasse as a fuel. *diag Power Pl Eng* 25:44-6 Ja 1 '21

Baggage

To reduce the heavy excess baggage charges. J. G. Condon. *Ptr Ink* 114:25-6 Ja 27 '21

Baggage and express cars

Carloads of safes; portable steel compartments. *il Sci Am M* 3:353-4 Ap '21

Container car in express service on N.Y.C. lines. *il Ry Age* 70:315-16 F 4 '21; Same. *Ry Mech Eng* 95:171-2 Mr '21

New container car for store-door delivery freight service. *il Eng N* 86:557-8 Mr 31 '21

Baggage handling

Electric trucks prove indispensable in handling baggage. *il Elec W* 77:1040-3 My 7 '21

Baghdad railway

Baghdad railway. *il Engineering* 110:174-5, 184 Ag 6 '20; Same. *Eng & Contr* 54:320-1 S 29 '20

Baghdad railway. D. G. Heslop. *il (supp) map diags plans Engineer* 130:469-70, 480, 523-7, 551-4, 560, 601-3 N 12, 26-D 3, 17 '20; Abstract. *Eng N* 86:423-5 Mr 10 '21

Le chemin de fer de Bagdad. P. Calfas. *il diags maps Génie Civil* 78:25-9 Ja 8 '21

Bags

Burlap supplants boxes for shipping. *Iron Tr R* 66:1410 My 13 '21

See also Golf bags; Mail bags

Manufacture

Machine turns 2,500 bags inside out in hour. *il Pop Mech* 34:378 S '20

Bags, Paper. See Paper bags**Bahai temple, Chicago**

Exotic temples for our two greatest cities. A. A. Hopkins. *il Sci Am* 123:159 Ag 14 '20

Model for the Bahai temple. J. R. Reid. *il plan Arch Rec* 47:501-5 Je '20

Bailey, Alexander Davidson, 1882-

Sketch. E. S. Butt. *por Power Pl Eng* 24:1166-7 D 15 '20

Bailments

Law of bailments. T. Rich. *Eng & Ind Management* 5:240-1, 325-6 F 24, Mr 17 '21

Bain, Harry Foster, 1872-

Appointed president of Bureau of mines. *Am Gas Eng J* 114:41 Ja 8 '21; *Coal Age* 19:32 Ja 6 '21; *Chem & Met Eng* 24:179 Ja 26 '21; *Eng & Min J* 111:73 Ja 8 '21; *Min & Sci P* 122:38 Ja 8 '21

Bakelite

Cast-iron molds for bakelite products. L. C. Lotz. *diags Mach* 26:1061 JI '20

Decision in bakelite patent suit. *Chem & Met Eng* 25:279-80 Ag 17 '21; *J Ind & Eng Chem* 13:769 S '21; *Ind Management* 62:181 S '21

Sizing paper with bakelite. C. J. West. *Paper Trade Journal* 73:52 O 13 '21

See also Phenols

Bakelite micarta

Bakelite for airplane propellers. *il Sci Am* 124:34 Ja 8 '21

Bakelite micarta propellers. *il Aviation* 8:354-7 Je 1 '20

Conrad patents, the noiseless gear, using bakelite micarta, void for lack of invention. W. Gustin. *Chem & Met Eng* 25:795-6 O 26 '21

New propeller gives good results in army tests; molded bakelite construction. *Automotive Ind* 42:1407 Je 17 '20

Baker, Charles Whiting, 1865-

Charles Whiting Baker to develop new field. *por Eng N* 85:479 S 2 '20

Bakers and bakeries

American direct-fired coal ovens ideal for converting to gas. R. V. Howes. *Am Gas Eng J* 113:302, 310-12 O 16 '20; Abstract. *Gas Age* 46:448 N 25 '20

Automatic electric bake oven. J. M. Strait and J. C. Woodson. *il diag Elec J* 18:296-300 JI '21

Commercial baking by wire. J. M. Strait. *il Elec W* 77:1494 Je 25 '21

Gas applied to baking industry. T. King. *il Gas Age* 48:38-41 JI 11 '21

Bakers and bakeries—Continued

Gas in biscuit baking. *il* Am Gas Eng J 112: 201-2 Mr 13 '20

See also Biscuits; Bread; *also* American institute of baking

Advertising

Baker campaign convinces women bread is cheap. W. Brindley. *Ptr Ink* 112:113-14 J1 8 '20

Bakers use same plan to sell bread. *il* *Ptr Ink* 110:106, 109+ Ja 1 '20

Balance factor

Balance-factor in the solution of power problems. H. B. Dwight. *diag Elec R* 78: 737-9 My 7 '21

Balance sheets

Estimated balance sheet and estimated statement of profit and loss. J. O. McKinsey. *Administration* 2:227-44 Ag '21

This year's serious reading balance sheets. J. H. Collins. *Ptr Ink* 117:3-4+ O 13; 93-4+ O 27 '21

Translating a balance sheet into words of one syllable. *Annalist* 17:496-7 My 2 '21

Treatment of commitments of purchasers, etc., on certified balance-sheets. H. N. Sweet. *J Account* 31:167-72 Mr '21

Balancer sets

Automatically closing neutral on balancer set. J. A. Toilek. *diag Elec W* 75:903 Ap 17 '20

Device for the rapid determination of the current distribution on the line side of a three-phase interconnected-star static balancer operating on a four-wire system. S. A. Stigant. *diags Inst E E J* 57:sup201-8 '19

Balances

Cheap and simple micro-balance. J. H. Shaxley. *diags plan Engineer* 128:619 D 19 '19

New laboratory balance most sensitive made. *Pop Mech* 35:430 Mr '21

Weighing the ten-millionth of a milligram; the quartz micro-balance. A. Gradenwitz. *il Sci Am* 124:445+ Je 4 '21

See also Aerodynamic balances

Balancing machines

Locomotive wheel balancing machine. *il diags Engineer* 129:354-5 Ap 2 '20; *Ry Mech Eng* 94:719-20 N '20

Martin rotor balancing apparatus. *il diags Engineering* 110:864-5 D 31 '20; Same. *Elec R (Lond)* 88:101-2 Ja 28 '21; Same. *Sci Am M* 3:378 Ap '21; Same cond. *Mech Eng* 43: 271-2 Ap '21; Discussion. *Engineering* 111: 74-5, 195 Ja 21, F 18 '21

Precision balancing machine. *il Am Mach* 55: 653-4 O 20 '21

Rotor balancing machine. *il diag Engineering* 110:737-8 D 3 '20

Balancing of machinery

Balance of high-speed electric dynamos and motors. H. D. Wheeler. *il diags Electrician* 87:136-8 J1 29 '21

Balancing engines; with special reference to internal combustion engines. C. H. Peabody. *diags Marine Eng* 26:407-9, 477-80 My-Je '21

Balancing grinding wheels. W. B. Bennett. *diags Am Mach* 54:80 Ja 13 '21

Balancing high-speed rotors. A. Schein. *il diags Am Mach* 55:121-5 J1 28 '21

Balancing of rotors. W. H. Martin. *Engineering* 110:865 D 31 '20

Balancing of turbines and propellers. J. J. King-Salter. *diags Engineering* 109:491-4 Ap 9 '20; Same cond. *Engineer* 129:381-3 Ap 9 '20; Discussion. *Engineering* 109:473-4 Ap 9 '20

Balancing steam turbines. O. G. A. Pettersson. *diags Power* 51:562 Ap 6 '20

Dynamic and static balancing. E. K. Hammond. 58p Industrial press, New York '21

Dynamic balancing of high-speed rotating machinery; abstract. H. Heymann. *Elec W* 75:172 Ja 17 '20

Dynamic balancing stand. *il Mach* 27:830 My '21

Four years of balancing practice. N. W. Akimoff. *il diags Eng & Ind Management* 6: 116-18 Ag 4 '21

Menace of vibration. E. V. Amy. *Sci Am M* 1:337-8 Ap '20

Slow speed vs. high speed balancing. N. W. Akimoff. *Am Mach* 53:925-6 N 18 '20

Transmission to a distance of ground vibrations due to machinery with reciprocating masses; abstract. *diag Mech Eng* 42:693-4 D '20

Vibration and balancing of engines. R. L. Daugherty. *diags Sibley J* 34:46-51 Ap '20

Weighed and found wanting. G. H. Wallace. *diags Power Pl Eng* 25:428-9 Ap 15 '21

Balata

Balata industry in the colony of Surinam. J. B. Percival. *India Rubber W* 61:251-3 Ja '20

Manufacture of balata belting. *diags India Rubber W* 63:236-8 Ja '21

Baldwins, ltd.

Baldwins, ltd., adds new plant. J. Horton. *il Iron Tr R* 67:1133-8 O 21 '20

Bale tiering machine

Terminal warehouse bale tiering machine. *il Textile World* 57:2496+ Ap 3 '20

Baling (textiles)

Baling piece goods. R. A. S. Reoch. *Textile World* 57:2817 Ap 17 '20

Baling presses

Doorless baler. *il Textile World* 59:2119 Mr 26 '21

Reeves-Boggs scrap-baling press. *il Am Mach* 54:620-1 Ap 7 '21

200-ton electric baling press. *il diags Engineering* 109:92 Ja 16 '20; *Electrician* 84: 446-7 Ap 23 '20

Ball bearings

Advantages of ball bearings. *Paper* 27:100-1 N 10 '20

Anti-friction bearings in the steel mill. A. M. MacCutcheon. *diags Blast F & Steel Pl* 9: 600-7 O '21

Ball bearing: in the making, under test, and on service. H. L. Heathcote. *diags Automobile Eng* 11:180-7 My '21; Discussion. 11:259-62 J1 '21

Ball-bearing mine locomotives need few repairs. *il Coal Age* 17:914-15 My 6 '20

Ball bearings. *Soc Auto Eng J* 9:290 N '21

Ball bearings for electric motors. W. F. Higgs. *Electrician* 86:797 Je 24 '21

Ball bearings for railway cars. *diags Ry Mech Eng* 95:23-4 Ja '21; Correction. E. F. Maas. 95:146 Mr '21

Ball bearings in textile machinery. A. G. Webster. *il Textile World* 59:2301+ Ap 2 '21

Ball-gaging machine. C. Ruiz. *diags Mach* 27:682-3 Mr '21

Carburizing cold-rolled ball races. S. P. Rockwell. *Mach* 26:667-8 Mr '20

Comparison of various types of ball bearings. H. R. Reynolds and R. W. Sellew. *diags Am Mach* 54:1065-7 Je 23 '21

Destructive effect of current on ball bearings of electric cars. H. Angstrom. *il diags Elec Ry J* 57:941-4 My 21 '21; Abstract. *Mech Eng* 43:545-6 Ag '21

Economies from use of ball bearings. J. T. Porter. *Elec Ry J* 58:288 Ag 20 '21

Economy of ball bearings in relation to power factor. C. I. Heikes. *Elec W* 78:827 O 22 '21

Effect of radial play on life of ball bearings. R. W. Sellew. *Mech Eng* 42:706 D '20; Same. *Mach* 27:474 Ja '21

Efficient journal bearings; ball and roller bearings compared. *Iron Age* 107:1605-6 Je 16 '21

L'emploi des roulements à billes dans les constructions navales. H. Bursée. *diags plan Génie Civil* 76:487-90 My 29 '20

Facts regarding bearings. L. A. Shepard. *Ry Mech Eng* 95:312 My '21

Fafnir ball-bearing line-shaft box. *il Mach* 27:798-9 Ap '21

Fitting ball bearings to a sleeve-bearing machine. E. J. Soares. *diags Elec W* 76: 130 J1 17 '20

Ball bearings—Continued

- How are steel ball bearings made and polished? il diags Motor Age 37:50-1 Ap 8 '20
- Langhaar ball bearing. il diags Mach 27:294-6 N '20
- Load-carrying capacity of the single-row groove-type ball bearing. A. Palmgren. diags Soc Auto Eng J 7:335-9 O '20
- Load characteristics of radio-thrust bearing. F. W. Gurney. diags Am Mach 50:1233-6 Je 26 '19; Discussion. F. C. Goldsmith. Am Mach 52:1190-6 Je 3 '20
- Load-speed capacities of radial ball bearings. R. W. Sellow. Mech Eng 42:534-5 S '20
- Lubrication of ball bearings. H. R. Trotter. Mech Eng 41:811-15 O '19; Abstract. Power 50:848-9 D 16 '19; Abstract. Iron Tr R 65:1583-5 D 11 '19; Abstract. Textile World 57:521+ Ja 24 '20; Abstract. Iron Age 105:264-5 Ja 22 '20; Abstract. Am Mach 52:730-2 Ap 1 '20
- Maintaining ball bearings on safety car motors. H. E. Krouse. Elec Ry J 57:559 Mr 19 '21
- Manufacture of ball bearings. il diags Engineering 111:415-18, 445-9, pl 18-21 Ap 8-15 '21
- Manufacturing three-area contact ball bearings. F. R. Daniels. il diags Mach 26:1107-11; 27:34-6 Ag-S '20
- Mounting and care of small ball bearings for maximum service. G. R. Bott. Elec J 17:322-3 Ag '20
- New ball bearing journal boxes. diags Elec Ry J 57:957-8 My 21 '21
- Press work on the Bailey ball thrust bearing. J. V. Hunter. il Am Mach 53:456-8 S 2 '20
- Principles and practice of swivelling ball bearings. W. E. Baker. diags Engineering 109:37-9, 69-71 Ja 9-16 '20
- S.K.F. bearings applied to electrical machinery. diags Electrician 86:639-40 My 20 '21
- Skefko ball hub bearing on horse-drawn vehicles. il Engineering 109:715 My 28 '20
- Speed limit of ball bearings. W. J. A. London. diags Power 52:896-7 D 7 '20; Discussion. H. R. Trotter. 53:236 F 8 '21
- Substituting ball bearings for brass-lined ones reduces motor repairs. J. C. Kendall. diags Elec W 75:957 Ap 24 '20
- Use of ball bearings in electric motors. Elec R (Lond) 88:89 Ja 21 '21
- Use of ball bearings in paper machinery. il Paper 26:11-13+ Ag 25 '20
- Washing ball bearings. E. A. Dixie. il Am Mach 53:69 Jl 8 '20
- What is the difference between roller and ball bearings? A. Danielson. diags Am Mach 53:857-8 N 4 '20

See also Bearings; Disk bearings

Standards

- Annular ball bearings; S. A. E. Standards report. diags Soc Auto Eng J 8:173-4 F '21
- International ball bearing standardization. R. S. Burnett. Soc Auto Eng J 8:577-8 Je '21
- Shaft and housing fits and tolerances for ball bearings; S. A. E. Standards report. Soc Auto Eng J 8:172-3 F '21

Ball-gaging machine

- Ball gaging machine. il Mach 26:945 Je '20
- Ball-gaging machine. C. Ruiz. diags Mach 27:682-3 Mr '21

Ball mills. See Tube mills**Ballast**

- Cleaning of railroad ballast. H. J. Edsall. il Sci Am 122:271 Mr 13 '20
- Mechanical ballast cleaner. il Eng & Contr 53:82 Ja 21 '20
- New specifications for stone ballast. Eng & Contr 55:66-7 Ja 19 '21
- New studies of railway track; counterbalance effect and behavior of tie and ballast; second report of track-stress committee. Eng N 84:412-13 F 26 '20; Same cond. Elec Ry J 55:706 Ap 3 '20
- Pratt ballast cleaner. il Eng & Contr 53:82 Ja 21 '20; Ry. R 66:389-90 Mr 6 '20

Railway ballast and ballasting methods. Eng N 86:497 Mr 24 '21

Report of the American railway engineering association committee on ballast. diags Ry R 68:436-8 Mr 19 '21

Spreader car converted into ballast trimmer and shoulder former. il diags Ry R 69:104-5 Jl 23 '21

Ueber aufbereitung der stückschlacke für gleisbettungszwecke. H. v. Schwarze. il diags Stahl & Eisen 41:919-23 Jl 7 '21

See also Railroads—Track

Ballistics

- Ballistic wind; French studies of the effect of wind pressure on projectiles in flight. J. Rouch. Sci Am M 3:437-8 My '21
- Ballistics of volcanoes. E. Belot. il diags Sci Am M 1:292-7 Ap '20
- Bomb trajectories. E. B. Wilson. U S Nat Advisory Com for Aeronautics 1919:775-80 '20
- Dynamics of shell flight. R. H. Fowler. diags Sci Am M 2:145-6 O '20
- Effect of roughening of surface on the dispersion of cannon ball in falling through air. F. C. Brown. il Phys R 18:105-6 Ag '21
- Firing shell into a concrete tank. H. T. Wade. il diags Sci Am 122:224+ F 28 '20
- Laws of high-speed punching. T. J. Tresidder. Engineer 130:126-7 Ag 6 '20; Abstract. Sci Am M 2:186-7 O '20
- Modern artillery ammunition. H. M. Bravton. charts Am Mach 50:707-10; 52:95-101 Ap 10 '19, Ja 8 '20
- On the determination of instantaneous pressures in guns by means of a piezo-electric gage and a ballistic galvanometer. J. C. Karcher. Phys R 18:107-8 Ag '21
- Path of a shell; determination of meteorological corrections on the ranges of guns. W. Noll. map Sci Am M 2:349-50 D '20
- Some applications of physics to ordnance problems. G. F. Hull. il diags J Fr Inst 192:327-47 S '21

See also Projectiles

Balloon fabric

- Balloons, airships and rubberized fabric. C. P. Burgess. il India Rubber W 65:3-6 O '21
- Fireproofing fabrics; treatment of sack materials, tent cloths and balloon fabrics. W. Hacker. Sci Am M 3:171-3 F '21
- Liability to ignition of balloon fabrics. G. Barr. Aviation 8:435-6 Jl 1 '20
- Solar radiation and balloons. J. D. Edwards and M. B. Long. Aviation 9:487-90 D 27 '20
- Sunshine and balloon silk. S. R. Winters. il Sci Am 124:45+ Ja 15 '21

See also Airship fabric

Testing

- Testing of balloon fabrics. J. D. Edwards and I. L. Moore. U S Nat Advisory Com for Aeronautics 1918:415-28 '20

Balloon gas

- Experiments in apparatus for handling and manufacture of hydrogen gas. Aerial Age 12:375 D 13 '20; Same. Aviation 9:428 D 13 '20
- Inflammability of jets of hydrogen and inert gas. P. G. Ledig. J Ind & Eng Chem 12:1098-1100 N '20

See also Airships—Gas; Helium

Testing

- Testing of balloon gas. J. D. Edwards. diags U S Nat Advisory Com for Aeronautics 1918:469-72 '20

Balloon races

- Balloon racing; a game of practical meteorology. R. H. Upson. il Aviation 10:465-6 Ap 11 '21; Same cond. Sci Am M 3:454 My '21
- Belgium wins Gordon Bennett balloon race. il Aviation 9:225 N 1 '20
- Experiences in the Gordon Bennett balloon race. B. Von Hoffman. il Aviation 11:503-4 O 31 '21
- Lessons of the Gordon Bennett balloon race. R. Upson. il map Aviation 11:502-3 O 31 '21

Balloon races—Continued

- National balloon race. W. T. Van Orman. *il Soc Auto Eng J* 6:219-21 Ap '20
 Practical rules on balloon racing. *Aerial Age* 12:399 D 20 '20
 Ralph Upson wins National balloon race. *map Aviation* 10:712-13 Je 6 '21
 Switzerland wins G. B. balloon race. *Aviation* 11:378 S 26 '21

Balloons

- Army balloon service offers opportunities. R. L. Foster. *il Aerial Age* 12:273 N 15 '20
 Avorio-Prassone kite balloon. J. J. Ide. *il diags Aviation* 8:314-16 My 15 '20
 Balloon propaganda distributor. *Aviation* 11:458 O 17 '21
 Balloons instead of C.A.C. observation posts. *il Aviation* 10:113-14 Ja 24 '21
 Blimp tows home stray observation balloon. J. E. Hogg. *il Pop Mech* 35:810-11 Je '21
 Caquot type M kite balloon. *diags plan Aviation* 7:433-6 D 15 '19
 Clear Canada trip of naval balloon. *Aerial Age* 13:471 J1 25 '21
 Design and stability of streamline kite balloons, with useful tables, aeronautical and mechanical formulæ. P. H. Sumner. 146p C. Lockwood & son, London '20
 Dilatable balloons. J. F. Boyle. *diags Aviation* 9:184-6 O 15 '20
 Improved A. P. kite balloon. J. F. Boyle. *il Aviation* 9:89-91 S 1 '20
 Italian balloons of the G. B. race. *diag Aviation* 10:277 F 28 '21
 Lidgerwood steam balloon winch. *Aviation* 8:205-6 Ap 1 '20
 Navy balloon in noteworthy flight. *Aviation* 10:84 Ja 17 '21
 Permeability of balloon envelopes. W. Franzer. *Sci Am M* 4:55 J1 '21
 Riding the air in a balloon without a basket. *Sci Am* 123:447 O 30 '20
 Solar radiation and balloons. J. D. Edwards and M. B. Long. *Aviation* 9:487-90 D 27 '20
 Some kite-balloon experiments. G. Brewer. *il diags Aviation* 8:441-4 J1 1 '20
 Something new in balloon piloting. *Aerial Age* 14:78 O 3 '21
 Why balloons bounce off clouds. C. P. McDarment. *il Sci Am* 124:125 F 12 '21

See also Aeronautics; Airships; Aviation

Balloons, Dirigible. *See* Airships

Balls, Golf. *See* Golf balls

Balls, Ivory. *See* Billiard balls

Balls, Steel

- Automatic machine for grading steel balls. *il diags Engineering* 112:60 J1 8 '21
 Manufacture of grinding balls at Denver. *Iron Age* 107:14 Ja 6 '21
 Measuring balls and plugs by light-wave method. H. L. Van Keuren. *il diags Mach* 27:14-16 S '20
 Use of a steel ball in the inspection of tapered-ring gages. J. Olson. *diags Mach* 26:871-2 My '20

See also Ball bearings

Balmer series of spectral lines. *See* Spectrum

Balsa wood

- Balsa. M. E. Pennington. *il diags A S R E J* 6:256-71; Discussion. 271-6 Ja '20
 Balsa insulation for refrigerator ships. *il diags Marine Eng* 26:557-60 J1 '21
 Balsa—the lightest commercial wood. H. A. Mount. *il Pop Mech* 34:815-17 D '20
 Balsa wood. *Am Inst Arch J* 9:311-12 S '21
 Ecuador contributes a wood that is lighter than cork. J. Anderson. *il Sci Am* 122:281+ Mr 13 '20
 Romance of balsa wood. *il Am Lumberman* 2347:74-5 My 8 '20

Baltic states**Commerce**

- Promising commercial future of the new Baltic states. J. Moritzen. *Annalist* 17:277-8 F 28 '21

Baltimore, Maryland

- Baltimore's public works. *Pub Works* 51:63-4 J1 23 '21

Harbor

- Baltimore's port development policy. *Eng N* 85:1293 D 30 '20

Sanitary affairs

- Enlargement of the sewage-works of Baltimore; primary sedimentation followed by separate sludge digestion. C. E. Keefer. *plans Eng N* 87:654-6 O 20 '21
 Temporary and permanent garbage disposal methods at Baltimore. *Eng N* 87:694 O 27 '21

Sewerage

- Nine years' operation of the Baltimore sewage-works. T. C. Schaetzle. *il plan Eng N* 87:50-4, 97-101 J1 14-21 '21

Water supply

- Baltimore's tilting dam. J. F. Springer. *il diags Sci Am* 123:12+ J1 3 '20
 Methods of relieving the water shortage in Baltimore. *map Am Water Works Assn J* 7:343-51 My '20
Baltimore and Ohio railroad
 B. & O. passing report. *Ry Age* 68:1973-4 Je 25 '20
 Baltimore and Ohio railroad. *map Ry Age* 70:224-6 Ja 21 '21
 First published timetable of the oldest railroad in America. J. T. Doyle. *Ry R* 67:269-70 Ag 21 '20
 How the B. and O. is organized for fuel economy. *il plan Ry R* 69:80-3 J1 16 '21

Baltimore consolidated gas and electric company
 Annual meeting. *N E L A Bul* 7:586-7 S '20

Bamboo

- Artistic bamboo furniture. H. Marcelle. *diags Pop Mech* 33:789-92 My '20
 Bamboo for paper making. C. J. West. *il Paper Trade Journal* 72:115+ Ap 14 '21
 Bamboo is not regarded favorably by paper-makers. *Paper* 29:17-18 S 21 '21
 Bamboo reinforced concrete piles for bridge foundations. C. J. Carroll. *Eng N* 87:32 J1 7 '21
 Looking to India for pulp supply. *Paper* 28:10+ Ag 17 '21
 Possibilities of new fibres for pulp and paper making. M. Barbillion. *Paper* 26:11-12+ J1 28 '20
 Preparing bamboos for the market. H. L. Wright. *il Sci Am* 125:102 Ag 6 '21
 Pulping methods for bamboos and grasses. *Paper* 28:15-16 Ag 31 '21

Bananas

- Mechanical stevedore that handles bananas. *il Sci Am* 123:549+ N 27 '20

Bangor & Aroostook railroad

- Annual report for 1920. *Ry Age* 70:1095 My 6 '21
 Labor board grants higher wages on Bangor & Aroostook R.R. *Ry R* 67:395-7 S 11 '20

Bank accounting

- Auditing federal reserve banks. F. Oakey. *J Account* 32:334-41 N '21
 20th century bank accounting. O. Garber. 79p South-western publishing co., Cincinnati '21

Bank advertising

- Advertising gives bank world-wide distribution. *Ptr Ink* 114:141-2+ Mr 17 '21
 Advertising the trust services of a bank. *Ptr Ink* 111:93-4 Ap 1 '20
 Bank advertisements used as text in public schools. J. M. Conklin. *Ptr Ink* 114:109 F 3 '21
 Bank goes after mail accounts when home field fails. J. K. Novins. *Ptr Ink* 112:57-8+ Ag 26 '20
 Bank strengthens friendship by advertising. R. P. Anderson. *Ptr Ink* 111:154-5 Ap 29 '20
 Bank that advertises itself by advertising New England. D. G. Miller. *il Ptr Ink M* 2:30-1+ D '20
 Bank that makes friends through its window displays. W. R. Morehouse. *Ptr Ink* 110:120-1+ Ja 29 '20
 Banker's relation to the public. F. W. Ellsworth. *Comm & Fin Chr* 111:120-2 sec 2 N 20 '20

Bank advertising—Continued

- Bank's campaign to make investors of farmers. *Ptr Ink* 110:37-40 Ja 8 '20
- Dignity in bank advertising. *il Ptg Art* 36:501-8 F '21
- Doing as the Romans do, but in a new way; how Guaranty trust company in England has vitalized its advertising. C. P. Russell. *Ptr Ink* 112:81-2 Ag 26 '20
- Federal reserve system tries an experiment with dealer electros. *Ptr Ink* 111:134+ Ap 8 '20
- Fourteen don'ts used in bank advertising. *Ptr Ink* 113:52 D 2 '20
- Friendly bank ends formality with human interest copy. E. T. Tandy. *Ptr Ink* 115:41-3 My 5 '21
- Getting 4,000 new bank depositors in one day. *Ptr Ink* 117:121-2 O 27 '21
- Incentive in advertising copy that inspires action. *Ptr Ink* 113:10+ N 4 '20
- Kansas City bankers advertise co-operatively. *Ptr Ink* 116:25-6 S 22 '21
- Links bank history with that of city. H. A. Ballard. *Ptr Ink* 110:113-14+ Ja 22 '20
- Merchandising ideas of department store of finance. F. W. Ellsworth. *Ptr Ink* 113:77-8+ D 23 '20
- Milwaukee bank goes out of its way to advertise life insurance. G. D. Ward. *Ptr Ink* 113:125-6 D 23 '20
- Nation-wide thrift campaign planned by bankers. *Ptr Ink* 113:81-2+ O 21 '20
- National conference of savings bankers—advertising results. A. P. Howard. *Comm & Fin Chr* 113:192-3 sec 2 O 29 '21
- Neglected opportunity of advertising. J. K. Mills. *Ptr Ink* 113:145-6+ N 25 '20
- Savings banks plan to take mystery out of banking. G. D. Ward. *Ptr Ink* 113:94+ D 30 '20
- Selling a bank through human advertising. *Ptr Ink* 113:146+ O 7 '20
- Typography of bank advertisements. T. D. MacGregor. *il Ptg Art* 36:25-32 S '20
- See also Bonds—Advertising; Investments—Advertising*

Bibliography

- Banker's position in the advertising fraternity. *Ptr Ink* 113:102+ D 30 '20
- Bank architecture.** *See Bank buildings*
- Bank buildings**
- Bank buildings of dignified aspect. *il plans Bldg Age* 43:21-3 Jl '21
- Bankers trust company building, New York. *Arch & Bldg* 53:73, pl 145-7 S '21
- Banking house of S. W. Straus & co. *Arch & Bldg* 53:65, pl 125-31 Ag '21
- Branch offices of state banks in Detroit. J. M. Donaldson. *il plans Arch Forum* 32:135-40, pl 63-4 Ap '20
- Building for Peoples trust co., Tamaqua, Pa.; views. *Am Arch* 120:pl 14i-k Jl '21
- Building for Warren institution for savings, Boston, Mass.; views. *Am Arch* 117:732a-c Je 9 '20
- Cages for bank customers to foil holdup men. *il Pop Mech* 35:759 My '21
- Combined bank and market building. F. A. Schilling. *il diags plan Bldg Age* 43:26-8 My '21
- Commercial national bank building, Washington, D.C. L. V. Solon. *il plans Arch Rec* 46:419-28 N '19
- County national bank and trust company, Santa Barbara, Cal.; views and plan. *Arch Rec* 50:64-9 Jl '21
- Creating a new investment center in New York, with special reference to the building of S. W. Straus & company. *il plans Am Arch* 119:637-43, pl 650a-h, 663 Je 22 '21
- Fashionable architecture. *il Am Arch* 119:443-6, pl 458a-d Ap 13 '21
- Federal reserve bank building in New York; competition. *il plans Am Arch* 116:569-74, pl 162-70 N 5-12 '19
- Federal reserve bank of New York; accepted design in recent competition. *il plan Arch Forum* 31:201-2, pl 95-6 D '19

- Fifth avenue Guaranty building, New York. J. T. Boyd, jr. *il plans Arch Rec* 49:378-91 My '21
- First national bank, Menasha, Wis.; views. *Am Arch* 119:44e-f Ja 12 '21
- Gotham national bank building, New York. *il diags plans Am Arch* 119:350-7 Mr 23 '21
- Guaranty trust company building, Butler, Pennsylvania. *Arch & Bldg* 53:23, pl 35-7 Mr '21
- Guardian savings and trust company's building, Cleveland, Ohio. P. L. Small. *il plans Arch Rec* 47:511-26 Je '20
- Liberty national bank, Washington, D.C. *Arch Forum* 34:pl 56-7 Ap '21
- Lycoming national bank, Williamsport, Pa. *Arch & Bldg* 52:90, pl 122-3 O '20
- National city building, New York. *Arch & Bldg* 53:54-5, pl 100-3 Jl '21
- New Guaranty trust building, New York. *Arch & Bldg* 52:57-8, pl 60-4 Je '20
- Planning the modern bank building. *il Bldg Age* 42:19-22, 46-7 D '20
- Portfolio of current architecture. *Arch Rec* 47:544-54 Je '20
- Requirements of the building for Federal reserve bank as set forth in the program. *diags Am Arch* 116:574-80, pl 156-61 N 5 '19
- Rhode Island hospital trust co. *Arch & Bldg* 52:52-3, pl 51-3 My '20
- Seaboard national bank, New York. *Arch & Bldg* 53:53, pl 93-6 Jl '21
- Structural features of Chicago federal reserve bank. *diags plans Eng N* 87:180-2 Ag 4 '21
- Swedesboro, N.J., National bank; view and plan. *Bldg Age* 42:50 S '20
- Virginia trust company building, Richmond, Va.; views and plan. *Arch Forum* 35:pl 18-20 Ag '21
- See also Burglar traps; also Bank of England*

Lighting

- Effective methods of lighting banking institutions. J. L. Stair. *il Elec R* 76:755-7 My 8 '20
- Lighting equipment and fixtures for banking houses. H. K. Firth. *il Elec R* 77:909-11 D 11 '20

Bank employees

See also Bank officials

Salaries

- Changes in cost of living as basis for adjustment of salaries of bank employees. *Monthly Labor R* 11:326-8 F '21

Bank libraries. *See Financial libraries***Bank of England**

- Bank of England starts house-organ. T. Russell. *Ptr Ink* 115:95-6 Je 2 '21
- Change in Bank of England. *Am Ind* 21:41 N '20
- Rebuilding the Bank of England. *il Am Arch* 117:730-1 Je 9 '20

Bank of Montreal

- Annual general meeting, Dec. 6, 1920. *Comm & Fin Chr* 111:2499-2500 D 25 '20

Bank officials**Salaries**

- Answer to criticisms of high salaries paid by New York Federal reserve bank. W. P. G. Harding. *Comm & Fin Chr* 113:1632-4 O 15 '21
- Answer to George Foster Peabody relative to salaries paid by Federal reserve bank of New York. J. S. Williams. *Comm & Fin Chr* 113:1825-6 sec 1 O 29 '21
- Criticism of high salaries paid officers of N.Y. Federal reserve bank and U.S. Shipping board. *Comm & Fin Chr* 113:1523-4 O 8 '21
- Defense of salaries paid by Federal reserve bank of New York. G. F. Peabody. *Comm & Fin Chr* 113:1725 O 22 '21
- Defense of salaries paid by Federal reserve bank of New York. B. Strong. *Comm & Fin Chr* 113:1826-30 sec 1 O 29 '21

Bank officials—Salaries—Continued

- Ex-comptroller William's rejoinder to Gov. Harding on salaries paid by New York Federal reserve bank. Comm & Fin Chr 113:1722-4 O 22 '21
Request of comptroller of currency Williams for salary schedules. Comm & Fin Chr 112:890-2 Mr 5 '21

Bank protection. See Ripping; Rivers—Bank protection**Bankers and advertising.** See Advertising and bankers; Bank advertising**Banking law**

- Bill in North Carolina legislature to repeal law making collection charges optional. Comm & Fin Chr 112:892-3 Mr 5 '21
Foreign financing under the Edge act. 34p Guaranty trust company of New York, New York '21
Michigan laws relating to banking. 175p Fort Wayne ptg. co., Fort Wayne, Ind. '20
Pratt's digest of federal banking laws. 1920 ed. 590p A. S. Pratt & sons, inc., Washington, D.C. '20
Provisions of state laws relating to capital stock and surplus of state banks and trust companies. 61p U.S. Federal reserve board, Washington '20
Report of committee on state legislation of the American bankers' association. C. B. Hazlewood. Comm & Fin Chr 113:134-6 sec 2 O 29 '21
Treatise on the law of national and state banks. H. W. Magee. 3d ed. rev. and enl. 1138p M. Bender & co., Albany '21
See also Checks; Federal reserve act; Trust companies

Bankruptcy

- Le règlement transactionnel. A. Lainé. Génie Civil 78:354-6 Ap 23 '21
See also Receivers—Accounting

Banks, State

- Resources of state banking institutions in the United States. Comm & Fin Chr 110:421; 113:1307-10 Ja 31 '20, S 24 '21
See also Banks and banking—North Dakota

Banks and banking

- The accountant, the industrial engineer, and the banker. A. Andersen. Administration 2:156-60 Ag '21
Advertising and the bankers' attitude toward it. W. T. Mullally. Ptr Ink 117:69-70+ N 3 '21
Analysis of the work of juniors in banks. E. Jessup and C. Blanchard. (Part-time educ. ser. no. 5) 72p Univ. of California, Berkeley '21
Bank credit. C. A. Phillips. 374p Macmillan '20
Bankers' guide book. W. R. Morehouse. 287p Bankers' service co., Los Angeles '20
Banking and business ethics. W. E. Borden and C. L. Hooper. 223p Rand '21
Banking and its relationship to domestic business and export trade. J. S. Alexander. 14p National bank of commerce in New York '20
Banking evolution. P. Jav. Comm & Fin Chr 111:147-50 sec 2 N 20 '20
Banking practice. L. H. Langston and N. R. Whitney. 395p Ronald press '21
Bank's attitude toward advertising. R. Dickinson. Ptr Ink 116:3-4+ Jl 21 '21
Blight of finance on technical enterprises. Chem & Met Eng 25:857-8 N 9 '21
Builders of business; James S. Alexander. G: Mortimer. System 40:416-18 O '21
Builders of business; Percy H. Johnston and Cleyson L. Brown. C. Phillips: C. M. Harger. System 39:668-70+ My '21
The business man and his bank. W: H: Kniffin. 278p McGraw-Hill '20
Cobbler and last. J Account 30:361-4 N '20
Cooperation as a bankable asset. C. W. Banta. J Elec 43:211, 304-5, 507-8 S 1, O 1, D 1 '19
The country banker, his clients, cares, and work. G: Rae. 324p Scribner '20

- Country banks and farm finance. G. Huston. Comm & Fin Chr 113:161-4 sec 2 O 29 '21
Currency, banking and exchange. A. H. Putney. 418p Lincoln institute of business, Chicago '21

- High-spots in business building. W. R. Morehouse. Comm & Fin Chr 113:190-2 sec 2 O 29 '21

- How people pick their banks. F. C. Kelly. Nation's Business 9:11-12 Ag '21

- How the banker and his customer can work together. J. S. Alexander. System 39:772+ Je '21

- How the banker sizes up your management methods. C. B. Hazlewood. Factory 26:960-1 Ap 15 '21

- How to establish confidential relations with your banker. C. W. Banta. J Elec 47:186-7 S 1 '21

- Human side of banking. J. W. Bishop. Nation's Business 8:13-14 D '20

- Importance of efficient bank supervision and how to secure it. L. E. Thomas. Comm & Fin Chr 113:158-61 sec 2 O 29 '21

- Linking warehousing and banking. G. P. Billion. Il Am Ind 21:27-8 N '20

- New banking methods must respond to new banking needs. A. W. Russel. Annalist 17:539-40+ My 16 '21

- New relation of banking to business. G. C. Devol. Comm & Fin Chr 112:422-3 Ja 29 '21

- Practical bank operation. L. H. Langston. 2 v. Ronald press '21

- Present banking outlook and the needs of the future. F. C. Schwedtmann. Am Ind 20:31-2 N; 39-40 D '19

- Quantitative analysis of all factors that affect average prices and a formula for predicting price changes. H. P. Gillette. Eng & Contr 53:381-402 Ap 7 '20

- Relation of the banking business to public utilities. A. L. Freehafer. N E L A Bul 7:875-8 D '20

- Report of committee on public education of the American bankers' association. J. H. Puelicher. Comm & Fin Chr 113:133-4 sec 2 O 29 '21

- Some aspects of banking theory. W: H. Steiner. 158p W. D. Gray, 106 7th av, N.Y. '20

- Some things an engineer should know about banking. E. D. Fisher. Eng & Contr 55:588-9 Je 15 '21

- Special banks for home owners. Comm & Fin Chr 111:2174 D 4 '20

- Understanding the bank. Comm & Fin Chr 113:123 Jl 9 '21

- What the bank wants to know about your factory. H. C. Robinson. Factory 27:607-9 N '21

- When a bank account pays the bank. Plumber 94:588 D 31 '20

- When the banker becomes merchant or manufacturer. J: P. Wilder. Ptr Ink M 3:34+ S '21

- Why banks don't know value of commercial advertising. R. D. Brigham. Ptr Ink 116:42+ S 1 '21

- See also Acceptances; Agricultural credit; Bank advertising; Bank buildings; Checks; Clearing houses; Credit; Discount; Federal reserve banks; Foreign exchange; Interest; Loans, Foreign; Morris plan banks; Savings banks; Trust companies; also American bankers' association, American institute of banking, Federal foreign banking association, International acceptance corporation, inc.

Branch banking

- Action of national bank division of the American bankers' association on branch banking. Comm & Fin Chr 113:154-7 sec 2 O 29 '21

- New Jersey bankers in opposition to branch banking. Comm & Fin Chr 112:424-5 Ja 29 '21

- See also Banks and banking—Foreign branches

Banks and banking—Continued**Dictionaries**

- Counting-house dictionary. J: W. Kuhrt. New ed. 340p G. Routledge & sons, London '20
 Dictionary of banking. W: Thomson. 3d ed., rev. and enl. 633p Pitman '19

Foreign branches

- Branch banks abroad—their ability to co-operate with an American merchant marine. G: E. Roberts. Marine Eng 26:39-40 Ja '21
 More liberal treatment for foreign banks in United States urged. E. H. Youngman. Annalist 17:252 F 21 '21

Guaranty of deposits

- Guaranty of bank deposits. T: B. Robb. 255p [bibliog. p. 207-9] Houghton '21

Records

- Records for banks. 64p Library bureau, Boston

Statistics

- Banking in Chicago in 1920. Comm & Fin Chr 112:419 Ja 29 '21
 Banks and trust companies. Published in monthly Bank and quotation section of Commercial and financial chronicle
 Changes in capital and circulation of national banks to June 30. Comm & Fin Chr 113:685 Ag 13 '21
 Condition of national banks April 28. Comm & Fin Chr 113:371-86 Jl 23 '21
 Clearings and speculation in 1919. Comm & Fin Chr 110:300-3 Ja 24 '20
 Growth of national banks in last six years greater than in preceding 51 years. Comm & Fin Chr 110:1803-4 My 1 '20
 Resources of state banking institutions in United States. Comm & Fin Chr 110:421 Ja 31 '20
 Resources of state banking institutions in United States. J. S. Williams. Comm & Fin Chr 113:1307-10 S 24 '21

Canada

- Canadian banking and foreign exchange. J: Aird. Comm & Fin Chr 110:244-5 Ja 17 sec 1 '20

See also Canadian bank of commerce

Cuba

- Suspension of Banco nacional de Cuba—liquidation of Bank of Cuba in New York. Comm & Fin Chr 112:1568-9 Ap 16 '21

Germany

- Suspension of Germany's note reserve law. Comm & Fin Chr 112:1808 Ap 30 '21

Great Britain

- Bankers and engineers. Engineer 131:240-1 Mr 4 '21
 London joint city and Midland bank limited; annual general meeting. Comm & Fin Chr 110:850-2 F 28 '20

See also Bank of England

Greece

- Report for 1920. Comm & Fin Chr 112:2617-21 Je 18 '21

Mexico

- Decree returning Mexican banks to owners. Comm & Fin Chr 112:1463 Ap 9 '21

North Dakota

- Measures to obtain financial relief for North Dakota delayed. Comm & Fin Chr 112:703-5 F 19 '21

- What North Dakota discovered. J. E. Boyle. Il Nation's Business 9:12-14 Ap '21

Peru

- Text of recent Peruvian banking decree restricting use of capital of banks. Comm & Fin Chr 113:239-40 Jl 16 '21

Philippine Islands

- Debt of the Philippine Islands—the banking situation. Comm & Fin Chr 113:131 Jl 9 '21

United States

- American banking. H: P. Willis. rev. ed. 336p La Salle extension university, Chicago '21
 Banking business. G: E. Roberts. Soc Auto Eng J 8:251-4 Mr '21
 Banking fancies—and the facts. G: E. Roberts. Nation's Business 8:34+ O '20
 Banks and trust companies. Published in monthly Bank and quotation section of Commercial & financial chronicle
 Banks are prepared. R: H. Tingley. Am Ind 20:29 Mr '20
 Comptroller of currency sees national banks strong and well fortified. Comm & Fin Chr 112:322-3 Ja 22 '21
 Great defect of our present banking system. Eng & Contr 54:503-4 N 24 '20
 National bank resources decrease a billion and half in year. Comm & Fin Chr 112:1689 Ap 23 '21
 National banking under the Federal reserve system. 152p National city bank of New York '21
 No financial Moses need apply. J: Oakwood. Annalist 18:273 S 19 '21
 Places farmers' banking needs foremost. E. Meyer, jr. Comm & Fin Chr 112:1815-16 Ap 30 '21
 Popularizing the bank. Comm & Fin Chr 111:431-2 Jl 31 '20
 Practical developments in Edge law banking. P. B. Kennedy. Am Mach 54:927-8 My 26 '21
 Prosperity seen in enlightened banking policies. J: Oakwood. Annalist 18:147-8 Ag 15 '21
 Tremendous credit demand taxes banking tact. Annalist 17:351 Mr 21 '21
 See also Banks and banking—Statistics
- Banks and banking, International**
 International trade banking plan advocated. D. R. Crissinger. Comm & Fin Chr 113:20-3, 242-3 Jl 2, 16 '21
 Senator Hitchcock's proposed bank of nations. Comm & Fin Chr 113:23 Jl 2 '21
- Bar folding machine**
 Too high priced!—the other side; a bar folder. L. Broemel. Il diags Sheet Metal Worker 12:497-9+ Ag 19 '21
- Barbados**
 See also Petroleum—Barbados
- Barbers**
 The public is getting important; employees of one barber shop advertise for good will. R. Bostick. Ptr Ink 111:109-10+ My 27 '20
- Barbituric acid**
 Über alkylierte und acylierte barbitursäuren. H. Biltz and H. Wittek. Deutsche Chem Gesell Ber 54:1035-58 My '21; Abstract. Chem Soc J 120 pt 1:454-6 Je '21
- Barcelona, Spain**
- Architecture**
 Spain to have a skyscraper. Il plans Am Arch 118:856-8 D 29 '20
- Barges**
 Are barge lines profitable? Ry Age 71:438 S 3 '21
 Comparison of cargo transportation by land and water routes. W: T. Donnelly. Il Marine Eng 25:899-903 N '20
 French devise adjustable prow to increase speed of barges. diag plan Eng N 85:851-2 O 28 '20
 New York state barge canal; the type of barge best adapted to our new waterway. G. P. Gleason. Il Sci Am 122:90-1+ Ja 24 '20
 On river and canal. R. G. Skerrett. Il Sci Am 122:158-9+ F 14 '20
 Proposed method for handling car-float transfer movement. J. J. Vail. plan Eng N 85:1186 D 16 '20
 River transportation in the Mississippi valley. E. W. Schadek. Il Mech Eng 42:270-2 My '20
 See also Motor barges; Refrigerator barges

Barges—Continued**Painting**

Repainting a seagoing salvage barge. *il Pop Mech* 36:230 Ag '21

Barges, Concrete

Le cargo-boat en béton armé Cochinchine, de 2 500 tonnes. C. Dantin. *il diags Génie Civil* 77:265-8 O 2 '20

Les chalands de mer en béton armé, système Henry Lossier. R. Sauser. *il diags plan Génie Civil* 78:225-30 Mr 12 '21

Concrete floats meet hard test. W. T. Duggan. *il Marine R* 50:88-90 F '20

Concrete ships and barges. *Concrete* 18:108-9 Mr '21

Repair

Concrete water barge is easily repaired. *il Pop Mech* 35:110 Ja '21

Barges, Steel

Chalands métalliques de 700 tonnes, type H. Lossier, pour la navigation sur la Seine. C. Dantin. *il diags plans Génie Civil* 79:351-3 O 22 '21

Craft for canal and river service in the United States. *diags plans Engineer* 129:593-6 Je 11 '20

Design of ore fleet for upper Mississippi. W. S. Mitchell. *diags plans Mech Eng* 42:379-82 Jl '20

Equipment used afloat, ashore. *il Marine R* 51:51 Ja '21

Floating freight trains of the Mississippi. P. H. Woodruff. *il Pop Mech* 33:363-5 Mr '20

Self-propelled steel barges for the New York state barge canal. *il plans Sci Am* 125:129 Ag 20 '21

7,500-ton coal barges for the Panama canal. *il Int Marine Eng* 25:172-4 Mr '20

Shipping iron ore on the Mississippi. F. L. Clark. *il Iron Tr R* 66:354-5 Ja 29 '20

Steel barges for the New York barge canal. *il diags plan Int Marine Eng* 25:400-1 My '20

Barite

Barytes and barium products in 1918. G. W. Stose. *U S Geol S Min Res of U S* 1918, pt 2:951-67 '20

Barytes and barium products in 1919. G. W. Stose. *U S Geol S Min Res of U S* 1919, pt 2:335-47 '21

Barytes, barium chemical, and lithopone industries, including costs of production, 1919. 90p U.S. Tariff commission '20

Future of barytes. *Eng & Min J* 110:478 S 4 '20

Barium

Crystallization of a radium-barium solution. C. E. Scholl. *Am Chem Soc J* 42:889-96 My '20

Barium chlorate

Small-scale manufacture of barium chlorate. T. B. Munroe. *Chem & Met Eng* 23:188 Ag 4 '20

Barium chloride

Study of the heats of dilution of solutions of barium chloride and barium-sodium chloride mixture. G. M. Smith. A. E. Stearn and R. F. Schneider. *Am Chem Soc J* 42:32-6 Ja '20

Barium compounds

Contribution to the stoichiometry of adsorption; adsorption of potassium and barium salts of various anions. S. Odén and E. W. Langelius. *J Phys Chem* 25:385-98 My '21

Barium glass. See Glass, Optical**Barium hydrate**

Satisfactory method of using barium hydrate in terra cotta bodies. M. E. Gates. *diag Am Cer Soc J* 3:313-15 Ap '20

Barium oxides

Über die sauerstoffreichsten oxyde des calciums and bariums. W. Traube and W. Schulze. *Deutsche Chem Gesell Ber* 54:1626-44 Jl '21; *Abstract. Chem Soc J* 120 pt 2:548-9 S '21

Barium sulfate

Adsorption of radium by barium sulfate. F. E. E. Germann. *Am Chem Soc J* 43:1615-21 Jl '21

Bark

Barks with a bite; trees and shrubs whose cortices contribute to the medicinal bottle. *il Sci Am M* 4:217-20 S '21

Barkentines

Only new vessel of her type; four-mast barkentine. *il Marine R* 50:75 F '20

Use for wooden war-built ships. R. C. Hill. *Marine R* 50:271-2 My '20

Barley

Pearl barley: its manufacture and composition. J. A. LeClerc and C. D. Garby. *il diag J Ind & Eng Chem* 12:451-5 My '20

Barns and stables

Economy applied to dairy barns; advantages and methods of construction of the circular type. *il diag plans Bldg Age* 43:34-8 F '21

Group of farm buildings at Lantryville, Ill. *il diags plans Bldg Age* 42:31-5 Ag '20

Sanitation in English farm buildings. J. Y. Dunlop. *diags Metal Work* 94:171-3 Ag 6 '20

Consult the Agricultural Index for additional material

See also Garages

Cleaning

Automatic barn cleaning. *Sci Am* 125:169 S 3 '21

Equipment

Water supply for modern dairy barn. C. H. Pierce. *il diags Metal Work* 93:755-7 Je 11 '20

Heating and ventilation

Farm building ventilation. C. L. Atwood. *diag Bldg Age* 43:59-60 Mr '21

Ventilating a barn. *diags plan Bldg Age* 42:68-9 N '20

Ventilating system for modern dairy barn. C. H. Pierce. *diags Metal Work* 94:73-4 Jl 16 '20

Barns and stables, Concrete

Concrete barn and silo for the up-to-date farmer. *diags plan Bldg Age* 43:53-4 Jl '21

Design for a reinforced concrete dairy barn loft floor. W. G. Kaiser. *il diags plan Concrete* 17:161-2 N '20

Barnsdall corporation

Abstract of official statement. *Comm & Fin Chr* 112:69 Ja 1 '21

1st annual statement 1919. *Comm & Fin Chr* 110:1204-6 Mr 20 '20

Second annual statement, 1920. *Comm & Fin Chr* 112:1040-1 Mr 12 '21

Barograph

Calibration of barographs used in airplane altitude measurements. *Sci Am M* 2:80 Jl '20

Barometers

Barometers and vacuum measuring instruments. *il diags Power Pl Eng* 24:86-7 Ja 1 '20

Barometers, Marine

Correction of a marine barometer for errors due to swinging. W. F. Duffield and T. H. Littlewood. *diags Philos Mag* 6th ser 42:166-73 Jl '21

Baroque architecture. See Architecture, Baroque**Barrages**

Vaal river scheme with special reference to the Vaal river barrage. W. Ingham and J. C. Hawkins. *il Engineering* 112:325-7 Ag 26 '21

See also Dams; Rivers—Regulation; Severn river

Barranquilla, Colombia

Barranquilla, the key city of Colombia, South America. G. C. Bunker. *Eng N* 86:732-3 Ap 28 '21

Water supply

Water supply of Barranquilla, Colombia, South America. G. C. Bunker. *il Eng N* 86:10-11 Ja 6 '21

- Barrels**
 Barrel protector prevents collapse in transit. il Pop Mech 35:853 Je '21
 Oil containers; manufacture of millions of oil barrels and cans. R. G. Skerrett. il Sci Am M 2:337-40 D '20
 Wooden barrels for vegetable oils. il Am Lumberman 2328:60 D 27 '19
- Barrels, Paper.** See Paper barrels
- Barrett company**
 Consolidation. Comm & Fin Chr 111:1379-82 O 2 '20
 What 45 years in business have taught me about selling. W: H. Childs. il System 39:785-9+ Je '21
- Barstow, William Slocum, 1866-**
 Portrait. Elec W 77:300 F 5 '21
- Barter**
 If you can't sell, barter. C. F. Lang. Factory 27:174-5 Ag '21
 Is a return to barter coming? R. Dickinson. Ptr Ink 110:3-4+ F 19 '20
 New practice in international trade. J. Kucera. Am Mach 55:540 O 6 '21
- Bartley, Rudolph A.**
 Builders of business. J: M. Schlachter. System 40:166-7 Ag '21
- Barytes.** See Barite
- Bas-relief**
 Sculptor's experiment in the decoration of concrete surfaces. A. Perrett. il Arch Rec 48:31-8 Jl '20
- Basalt**
 Basalt; new insulating material. Sci Am 124:507 Je 25 '21
 Fused basalt as electric insulator. Sci Am M 4:89 Jl '21
- Bascule bridges.** See Bridges, Bascule
- Baseball**
 Baseball-pitching machine uses compressed air. F. B. Howe. il Pop Mech 36:703 N '21
 Third degree for the baseball; Bureau of standards tests. E. Lockhart. il Sci Am 123:219+ S 4 '20
- Basements**
 Cave dwellers of New York. J. W. Evans. il Nation's Business 8:42+ Ag '20
 See also Cellars
- Baskerville, John**
 History of John Baskerville, famous printer and typefounder. H: L: Bullen. il Inland Ptr 67:628-30 Ag '21
- Basket willow.** See Willow, Basket
- Basketwork**
 Wicker weaving by machine. A. H. Lord. Sci Am 123:377 O 9 '20
 Wicker-weaving by machine. G: W. Rowell, jr. il Sci Am 122:242 Mr 6 '20
- Bast fibers**
 Proximate compositions of Korean hemp and ramie. Y. Uyeda. J Ind & Eng Chem 12:573-6 Je '20
 Studies on Korean bast fibers; cellulose in bast fibers. Y. Uyeda. J Ind & Eng Chem 13:141-3 F '21
 Utilization of the common milkweed; possibilities of the bast fibre as textile material. A. C. Neish and J. W. Burns. Can Chem & Met 5:316-19 N '21
- Bath tubs**
 History and evolution of bath tubs. W: C. Groeniger. il Metal Work 94:332+ S 10 '20
- Bathhouses**
 Build Brighton Beach bath houses of precast slabs. diags plans Concrete 15:224-6 D '19
 Thin bath-house concrete slabs cast and handled on edge. il Eng N 84:912-13 My 6 '20
- Bathing beaches**
 Build Brighton Beach bath houses of precast slabs. diags plans Concrete 15:224-6 D '19
 Chlorine used to purify bathing-beach water. il Pop Mech 36:651 N '21
- Bathing suits**
 Advertising
 Swimming suit makes its bow in national advertising. G. D. Ward. Ptr Ink 115:85-6 Je 2 '21
- Batholiths**
 Relations of subjacent igneous invasion to regional metamorphism. J. Barrell. Am J Sci 5th ser 1:1-19, 174-86, 255-67 Ja-Mr '21
- Bathrooms**
 Economical designs of plumbing. W: Hutton. plans Bldg Age 42:59-60 My '20
 Planning the bath-room and kitchen. C: A. Byers. il Bldg Age 42:63-4 D '20
 Remodeling plans land alteration contracts. H. B. Charles. diags Sanitary & Heat Eng 96:249-50 O 21 '21
 Typical English bathroom equipment. J: Y. Dunlop. diags plans Metal Work 94:307-8+ S 3 '20
- Baths**
 Advantages of proper bathing for workers. J. L. Mason. Safety Eng 41:60-2 F '21
 Take a bath every day. Dom Eng 93:398-400, 498-502, 602-4; 94:88-9, 196-9, 291-2, 391 N 27, D 11, 25 '20, Ja 8, 22, F 5, 19 '21
 Take a bath every day campaign; need of frequent bathing. S. D. Hubbard. Dom Eng 95:67-9+ Ap 9 '21
 World interest in bathing. Dom Eng 96:521-2 S 17 '21
 See also Bathhouses; Shower baths; Swimming pools
- Baths, Public**
 Concrete and stucco in Stockton baths. G. Allen. il Concrete 17:91-3 S '20
- Batik**
 Batik industry in Java. Color Tr J 6:170-1 Je '20
 Dyeing in the batik style. B. De Puyster. il diags Color Tr J 8:128-31, 162-6, 207-11; 9:25-31, 49-53 Ap-Ag '21
- Batteries**
 German defenses on the coast of Belgium. H. W. Miller. il chart diags plans Mech Eng 42:319-33 Je '20
- Batteries, Electric.** See Electric batteries; Storage batteries
- Battery jars.** See Storage battery jars
- Battleships.** See Warships
- Baum, Dwight James**
 Illustrations of the work of Dwight James Baum, architect. Am Arch 119:557 My 11 '21
- Baumé scale**
 Notes on the Baumé hydrometer. G: H. Taber. J Ind & Eng Chem 12:593-5 Je '20; Same. Nat Pet N 12:98+ Ag 4 '20
- Bauxite**
 Aluminum. Min & Sci P 122:784 Je 4 '21
 Bauxite and aluminum. J. M. Hill. U S Geol S Min Res of U S 1918, pt 1:513-26 '20
 Bauxite and aluminum in 1919. J. M. Hill. U S Geol S Min Res of U S 1919, pt 1:33-40 '20
 Bauxite and aluminum in 1920. J. M. Hill. Eng & Min J 111:155-6 Ja 22 '21
 Bauxite and aluminum in 1920. J. M. Hill. U S Geol S Min Res of U S 1920, pt 1:29-36 '21
 Bauxite in the South. Eng & Min J 110:265 Ag 7 '20
 Cadmium, alunite, and aluminite. Eng & Min J 112:179 Jl 30 '21
 New refractory and abrasive matter called corindite; abstract. A. Bigot. Am Cer Soc J 3:160-1 F '20
 Our mineral supplies; bauxite and aluminum. J. M. Hill. U S Geol S Bul 666:85-8 '19
 Production of bauxite declined in 1920. Eng & Min J 112:294 Ag 20 '21
 Refractory materials of bauxite bricks. E. C. Buck. Iron Age 105:872 Mr 25 '20
 Trade notes on bauxite. J. C. Brown. Eng & Min J 111:945-7 Je 4 '21
- Bavaria.** See Waterways—Bavaria
- Bay State cotton corporation**
 Bay State cotton corporation development. il Textile World 57:1235-6 F 7 '20

Bay windows. See Windows

Bayonets

Elastic development of steel. S. Cornell. Chem & Met Eng 22:677-80 Ap 14 '20

Bayuk brothers, incorporated

Official statement to New York stock exchange. Comm & Fin Chr 113:85-9 Jl 2 '21

Beacons, Wireless. See Wireless beacons

Beads

Making sealing-wax beads. il Pop Mech 35: 958 Je '21

Beams. See Girders

Beans

Carbohydrate content of the navy bean. W. H. Peterson and H. Churchill. Am Chem Soc J 43:1180-5 My '21

See also Castor beans; Soy beans

Bearings

Alignment of oil-engine main bearings. diag Power 52:739 N 9 '20

Anti-friction bearing metals. P. W. Priestley. Metal Ind 19:66-7 F '21

Anti-friction bearings in the steel mill. A. M. MacCutcheon. diags Blast F & Steel Pl 9: 600-7 O '21

Application of babbitt metals. L. D. Staplin. il diags Power 52:1019-20 D 28 '20; Same. Am Mach 54:15-16 Ja 6 '21

Babbitt bearing for lathe spindles. J. Ellis. Am Mach 54:844 My 12 '21

Babbitt bearings on rolling mills. A. Searles. Am Mach 54:1113 Je 30 '21

Bearing for high-speed gears. diag Power 50:849-50 D 16 '19

Bearing metals and their industrial value. J. Czoehalski. il Brass W 17:245-8, 281-3 S-O '21; Discussion. 17:283-6 O '21

Bearings and bearing metals. 120p Industrial press, New York '21

Bronze backed connecting rod bearings. P. W. Blair. il Metal Ind 19:277 Jl '21

Bronze for bearing metal. E. T. Keenan. Power 54:322-3 Ag 30 '21; Discussion. H. D. Fisher. 54:653-4 O 25 '21

Calculation of loads on bearings. J. S. Watts. diags Am Mach 53:689 O 7 '20

Chill-cast bearings. diags Foundry 48:920 N 15 '20

Common errors in the designing and machining of bearings. C. H. Bierbaum. il diags Am Mach 52:885-8 Ap 22 '20

Dies for flanges and bearing races. J. Bingham. diags Mach 27:225 N '20

Efficiency of small bearings in instruments of the type used in aircraft. F. H. Norton. il diags U S Nat Advisory Com for Aeronautics 1920:339-46 '21

Electric elevator machinery—thrust bearings. M. A. Myers. il diags Power 52:378-81 S 7 '20

Electrolytically-produced calcium-barium-lead alloys comprising Frary metal. W. A. Cowan, L. D. Simpkins and G. O. Hiers. il diag Am Electrochem Soc Trans v 40 (preprint 17):237-58 S '21

Expanding bronze bearings. C. M. Cross. diag Elec J 17:452-3 O '20

Genelite: a new bearing material. Min & Met 175:39-40 Jl '21; Same. Sci Am M 4:317 O '21

Genelite; an improved bearing alloy. E. G. Gilson. il Gen Elec R 24:949-51 N '21

Hardened lead for bearing metal; cost comparisons. R. T. Rolfe. il Chem & Met Eng 25:799-800 O 26 '21

Have you cut excessive friction costs? il Factory 26:196-7 Ja 15 '21

Improved design for water-cooled journal boxes. M. E. Duggan. diags Mach 26:1173-4 Ag '20

Lining bearings. S. Bow. diags Power Pl Eng 25:731-2 Jl 15 '21; Discussion. C. J. Mason. 25:874 S 1 '21

Lubrication and hot bearings. C. H. Norton. Mech Eng 43:349 My '21; Discussion. 43: 488 Jl '21

Lubrication and lubricants. G. B. Upton. diags Sibley J 34:58-69 My '20; Excerpt. Power Pl Eng 24:838-40, 875-7 S 1-15 '20

Lubrication of soft metal bearings. W. K. Frank. Ry Mech Eng 94:362-3 Je '20

Lubrication of steam heated bearings. S. J. Sharp. il diag Textile World 59:3539 My 28 '21

Maintaining electric railway motors. J. S. Dean. il Elec Ry J 55:991 My 15 '20

New bearing metal; Kelly metal. Metal Ind 18:569 D '20

New self-lubricating bearing material. il Automotive Ind 45:15 Jl 7 '21; Sci Am 124: 467 Je 11 '21; Pop Mech 36:198 Ag '21; Chem & Met Eng 25:207 Ag 3 '21; Same. Elec R (Lond) 89:315 S 2 '21

Notes on bronze and babbitt bearings. W. K. Frank. il Eng Soc W Pa 35:349-79 N '19; Same cond. Iron Age 105:943-6 Ap 1 '20; Same cond. Ry Mech Eng 94:276-80 My '20; Discussion. Eng Soc W Pa 35:380-94 N '19

Nouveau palier de butée, à éléments élastiques, pour machines verticales. il diags Génie Civil 76:512-14 Je 5 '20

Oiless bearings. Automotive Ind 44:1385 Je 23 '21

Les paliers et blocs de butée Michell, et l'adaptation de ces blocs aux paliers existants. diags Génie Civil 76:378-9 Ap 17 '20

Putting quality first in bearing production. J. E. Schipper. il Automotive Ind 41:909-13 N 6 '19

Rebabbitting engine parts. H. Hamkens. diags Power 52:383-6, 497-500 S 7, 28 '20

Relation of bearing construction to chattering. M. H. Ball. Am Mach 52:962 Ap 29 '20

Report on investigation of bearing metals. Paper 27:26-7+ Mr 2 '21

Roller tools for finishing axle journals. J. V. Hunter. il diags Am Mach 55:54-5 Jl 14 '21

Self-adjusting spring thrust bearing. il diags Power 50:827-9 D 16 '19

Shaft lubrication. I. S. Chamberlain. Power 51:1057 Je 29 '20

Spindles and bearings. E. A. Dixie. diag Am Mach 54:1090-1 Je 23 '21

Spring thrust bearings and cooling coils on the large vertical generators at Cedars Rapids power station. T. W. Gordon. il Gen Elec R 22:840-2 N '19

Spring thrust bearings for propeller shafts. T. W. Gordon. il diag Gen Elec R 24:161-3 F '21

Theory of the Michell thrust bearing. diags Engineering 109:233-6 F 20 '20

Thrift in using power; savings at the bearings. Factory 25:1452+ N 1 '20

Vertical hydroelectric thrust bearings. L. W. Wyss. il diags Power Pl Eng 24:329-31 Mr 15 '20

Vertical-shaft waterwheel-driven alternators—mechanical features. S. H. Mortensen. il Power 51:698-700 My 4 '20

See also Automobile engines—Bearings; Automobiles—Bearings; Babbitt metal; Babbitting; Ball bearings; Cars—Bearings; Diesel engines—Bearings; Diesel engines, Marine—Bearings; Disk bearings; Electric generators, Alternating current—Bearings; Electric motors—Bearings; Electric motors, Railway—Bearings; Lubrication and lubricants; Roller bearings

Specifications

Specifications for soft metal bearings. H. E. Smith. Ry Mech Eng 94:328 Je '20

Tentative specifications for bronze bearing metal in ingot form. Am Soc T M Pro v 20 pt 1:565-8 '20

Tentative specifications for bronze bearing metals for turntables and movable railroad bridges. diags Am Soc T M Pro v 20 pt 1:533-7 '20

Testing

Friction tests on bearings lined with Frary metal. diag Engineer 132:173 Ag 12 '21

Microphone stethoscope for bearings. il diags Engineering 111:546 My 6 '21

Slow-speed tests of Kingsbury thrust bearings. H. A. S. Howarth. il diags Mech Eng 41:915-17+ D '19

Beating engine. See Paper making machinery

- Beating process.** See Paper making—Beating process
- Beaufort, South Carolina**
Two colonial interiors from Beaufort. V. C. Salomonsky. diags Arch Rec 49:267-71 Mr '21
- Beaumont, Texas**
Railroads
Grade separation report takes a broad stand; plans for Beaumont. Ry Age 71:831-2 O 29 '21
- Beauty.** See Art
- Beaux-Arts institute of design**
Official notification of awards. il plans Am Arch 117:184-8; 119:276-83, 313-18, 516-23, 609-11, 651-3; 120:41-3+, 119-22 F 11 '20, Mr 9-16, Ap 27, Je 8, 22, Jl 20, Ag 17 '21
- Beaver board companies, Buffalo, New York**
How Beaver board stages a sales convention. C. B. McCuaig. Ptr Ink 112:65-6+ Jl 15 '20
- Revue invades the sales convention. il Ptr Ink M 2:53-4 Ap '21
- Beaver cloth**
Manufacture of high grade beaver. Textile World 57:31+ Ja 3 '20
- Beavers**
Beaver dam of huge proportions. il Sci Am 122:167 F 14 '20
- Beckerleg, James G., 1833-**
Sketch. por Power 54:384 S 6 '21
- Bedded formations**
Determination of attitude of concealed bedded formations by diamond drilling. W. J. Mead. il diags Econ Geol 16:37-47 Ja '21
- Bedrooms**
Bed room. B. B. Trosper. diag plans Am Lumberman 2353:72-3 Je 19 '20
- Decorating and furnishing the low-cost house; planning and decoration of bedrooms. il Bldg Age 42:36-8 O '20
- Beds**
Advertising
Apartments must be larger to accommodate twin beds. C. M. Harrison. Ptr Ink 113:26-7+ O 7 '20
- Putting sleep on an advertising basis; the Simons company advertising. W. L. Larned. Ptr Ink 115:41-2+ Ap 21 '21
- Beds, Folding**
Combination chair and folding bed. F. E. Leitch. il Pop Mech 33:123 Ja '20
- Beech-nut packing company**
Beech-nut company wins first round in tussle with Federal trade commission. Ptr Ink 110:17-18 Mr 4 '20
- Flavor as an advertising asset. L. E. Firth. Ptr Ink 114:157+ F 24 '21
- Beer**
Preservatives for fermentable beverage samples. J. S. McCune and A. N. Thurston. J Ind & Eng Chem 12:689-90 Jl '20
- Bees**
Story of bees and advertising. R. Cole. Ptr Ink 111:3-4+ Ap 1 '20
- Beet sugar products—Analysis.** See Sugar—Analysis
- Beetles.** See Powder-post beetles
- Beets and beet sugar**
American beet sugar industry. M. J. Kermer. Chem & Met Eng 22:560 Mr 24 '20
- Automatic cleaner and loader for sugar beets. F. B. Howe. il Pop Mech 36:576-7 O '21
- Beet-sugar industry in northern France. Chem & Met Eng 25:188 Ag 3 '21
- Chemical control in the beet sugar industry. S. J. Osborn. chart J Ind & Eng Chem 12:803-5 Ag '20
- Chemical problems of the beet sugar industry. H. W. Dahlberg. il Chem & Met Eng 23:421-4 S 8 '20
- Comparison of results in desugarization with the Steffen lime, barium, and strontium processes. M. Potvliet. J Ind & Eng Chem 13:1041-2 N '21

- Condensed description of the manufacture of beet sugar. F. Murke. 175p Wiley '21
- Electricity in the sugar beet industry. il J Elec 46:122-4 F 1 '21
- Extraction of juice from the sugar beet. W. Montgomery. diags Chem & Met Eng 24:435-7 Mr 9 '21
- Machinery for the sugar-beet field. W. F. Wilcox. Sci Am 122:643+ Je 12 '20
- Process for producing palatable sirup from sugar beets. S. F. Sherwood. J Ind & Eng Chem 13:799-801 S '21
- Recovery of sugar from beet molasses. W. Montgomery. flow sheets il Chem & Met Eng 24:605-8 Ap 6 '21
- Refinery practice in beet sugar manufacture. W. Montgomery. chart diags plans Chem & Met Eng 24:469-72 Mr 16 '21
- Sugar. A. R. Kahn. 4th ed. 78p U.S. sugar publications co., Los Angeles '21
- Sugar sirup from home-grown sugar beets. J. M. Ort and J. R. Withrow. J Ind & Eng Chem 12:154-6 F '20; Abstract. Sci Am M 1:285-6 Mr '20
- Technology of beet sugar manufacture. 324p The Great Western sugar company, Denver '20
- Behrend, Bernard Arthur, 1875-**
Sketch. por Elec W 77:864 Ap 16 '21
- Belgian Kongo.** See Mines and mineral resources—Kongo, Belgian; Railroads—Kongo, Belgian
- Belgium**
See also Electric plants (central stations)—Belgium; Railroads—Belgium
- Commerce**
See also Petroleum industry and trade—Belgium
- Economic conditions**
Belgium's recovery—Ypres. il Eng N 85:422-3 Ag 26 '20
- Industrial Belgium and the port of Antwerp are approaching pre-war levels. il Americas 7:6-12 Je '21
- See also Housing problem—Belgium; Labor and laboring classes—Belgium; Railroads—Belgium; Wages—Belgium
- Industries and resources**
Belgian industries are forging ahead. il Iron Tr R 66:13-15 Ja 1 '20
- Industrial machinery in France and Belgium. C. P. Wood. bibliog il map U S Bur For & Dom Com 204:1-61 '20
- Metallurgical industry in Belgium. il Chem & Met Eng 23:747-8 O 13 '20
- Zinc industry in Belgium. M. F. Chase. Chem & Met Eng 21:571-3 O 29 '19
- See also Automobile industry and trade—Belgium; Coal mines and mining—Belgium; Iron industry and trade—Belgium; Iron mines and mining—Belgium; Machine tool industry—Belgium; Machinery industry—Belgium; Petroleum industry and trade—Belgium; Steel industry and trade—Belgium; Steel works—Belgium; Zinc industry and trade—Belgium
- Belin system.** See Phototelegraphy
- Bell, Alexander Graham**
Invention that brought the world together; ancestry, early life and experiments of Alexander Graham Bell. F. H. Sweet. Power Pl Eng 24:1136-8, 1180-2 D 1-15 '20
- Bell, Louls, 1864-**
Portrait. Elec W 77:76 Ja 8 '21
- Bell cranks**
Bell cranks for transmission of uniform motion. J. J. Sullivan. diags Am Mach 52:460 F 26 '20
- Determination of forces on eccentric levers and bell cranks. H. M. P. Murphy. diags Elec Ry J 57:729-33 Ap 16 '21
- Belle Isle bridge.** See Detroit, Michigan—Bridges
- Bells**
Manufacture
Bell models made of loam on arbors. il diags Foundry 49:211-15 Mr 15 '21

Bells—Manufacture—Continued

- Founding of bronze—bells. C: Vickers. il
diags Brass W 17:137-40 My '21
Founding of bronze bells—bells. C: Vickers. il
Brass W 17:254-7 S '21

Belt guards

- Belts and belt guards. Power Pl Eng 24:389-90
Ap 1 '20

Belt railway of Chicago

- Annual report for 1920. Ry Age 70:1009 Ap
22 '21

Belt shifters

- Haskins belt shifter. il Mach 27:497 Ja '21
Kleckler automatic cone belt shifter. diags
Safety Eng 41:143-4 Mr '21
Kremer-Cummins mechanical shifter. il Am
Mach 52:161 Ja 15 '20
Mechanical belt shifter applied to milling
machine. il Mach 27:455 Ja '21

Belting

- Applying and repairing rubber belting. il
India Rubber W 64:802-5 Ag '21
Belt creep. W. F. Schaphorst. diag Textile
World 58:119 Jl 3 '20; Same abr. Am Gas
Eng J 112:326-7 Ap 24 '20; Same abr. Pow-
er Pl Eng 24:1088 N 15 '20
Belt repair of large size. R. C. Leibe. diag
Am Lumberman 2325:68 D 6 '19
Belt service man increases efficiency. J. F.
Engler. Concrete 15:sup89-90 D '19
Belt transmission for electrical machinery.
R. G. Williams. il Eng & Ind Management
6:258-61 S 8 '21
Belt transmission for paper machines. V.
Hazard. Paper 27:30 Mr 9 '21
Belting for the paper mill. N. P. Ward. diags
plans Paper 27:135-9+ N 10 '20
Belting specifications. W. W. Mann. Ind
Management 60:244 S '20
Belting used in the lumber industry. il Am
Lumberman 2352:61 Je 12 '20
Belts and belt guards. Power Pl Eng 24:389-
90 Ap 1 '20
Belts and their care. G. H. Radebaugh. il
Brick & Clay Rec 58:33-7 Ja 11 '21
Belts for power transmission. W. G. Dunk-
ley. 104p Pitman '20
Brief review of some of the experiments on
transmission of power by belting. W. N.
Sawdon. Sibley J 34:3-6 Ja '20
Care of mill belts. Textile World 58:3505+;
59:3939+ N 20 '20, Je 11 '21
Castor oil vs. belt treatment. N. G. Near.
Power Pl Eng 24:480 My 1 '20
Effect of humidity upon leather belting. F.
W. Roys. Eng & Min J 111:311 F 12 '21
L'enrouleur automatique de courroies. diags
Génie Civil 76:531-3 Je 12 '20
Facts that help choose belts. diags Factory
25:1401-3 N 1 '20
Governor belt accident. G: C. Stierhoff. diags
Power Pl Eng 25:797-8 Ag 15 '21
How to cut belts square; abstracts. F. D.
Rich. diags Textile World 58:3865+ D 4 '20;
Paper 27:258+ N 10 '20; Blast F & Steel Pl
8:696 D '20; Eng & Min J 110:1178-9 D 18
'20; Power 52:945 D 14 '20; Foundry 49:8-9
Ja 1 '21; Power Pl Eng 25:148-9 Ja 15 '21;
Ry Mech Eng 95:37-8 Ja '21; Min & Sci P
122:110-11 Ja 15 '21; Mach 27:523 F '21
Inspection of leather belting—a discussion.
W. H. Mosher. Ind Management 59:455 Je
'20
Is castor oil a good dressing for belts? W.
F. Schaphorst. Coal Age 20:678 O 27 '21
Keeping belts on pulleys. W. F. Schaphorst.
Textile World 60:855 Ag 6 '21
Making of belt joints and laps. N. P. Winchell,
jr. il diags Paper 25:15-18 F 18; 11-13 F 25
'20
Manufacture of balata belting. diags India
Rubber W 63:236-8 Ja '21
New form of belt. J. H. Blakey. Power Pl
Eng 25:602 Je 15 '21
New type of leather belt. il diag Engineer 130:
590 D 10 '20
Organisation of factory belting. W. Abbot-
son. diags Eng & Ind Management 5:131-
3, 342-4 F 3, Mr 24 '21
Paper belting made in Germany. il Power 51:
223 F 10 '20
Pieuvre belting. il Am Mach 55:282-3 Ag 18
'21

- Pointers about belting in clay products plants.
Brick & Clay Rec 59:196-8 Ag 9 '21
Proper application and use of leather belting.
diags Heat & Ven 17:49-50 Mr '20
Rubber belts in cotton mills. J. H. Pullman.
Textile World 57:1393+ F 14 '20
Rubber in mine and mill; structure of pow-
er transmission belting. A. M. Oliver. il
Eng & Min J 111:258-61 F 5 '21
Selecting leather belting. E. E. Elder. diag
Power 50:622 O 21 '19
Shop production is influenced by tightness of
belts. J Elec 47:235 S 15 '21
Should the main belt break, what would
the engineer do? C. W. Peters. diags
Power 52:307-8 Ag 24 '20
Slippage factor in belt design. Mach 26:1178
Ag '20
Static electricity in belts. il Power 52:871 N
30 '20
Substitute belting in Germany. C. A. Heise.
Chem & Met Eng 23:936 N 10 '20
Suggestions to belt users. Mach 27:61 S '20
Taking stretch out of vertical belts. W. F.
Schaphorst. Concrete 17:sup68 N '20
Use of belting in fertilizer plants. Chem &
Met Eng 24:706-7 Ap 20 '21
Vertical belts. W. F. Schaphorst. Textile
World 57:2679 Ap 10 '20
Wear of projecting fibers on belts. W. F.
Schaphorst. diags Power Pl Eng 24:614 Je
15 '20
What is the matter with belt theory? W. F.
Schaphorst. diags Power Pl Eng 25:327-8
Mr 15 '21
Why belts run up. diags Power 54:73-4, 114
Jl 12-19 '21
See also Power transmission; Pulleys;
Shafting

Bibliography

- List of references on power transmission as
related to belting. H. H. B. Meyer, comp.
Special Lib 12:7-9 Ja '21

Tables, calculations, etc.

- Balata and fabric belt formulas and chart.
W. F. Schaphorst. chart Power Pl Eng
25:769-70 Ag 1 '21
Belt power transmission formulas. W. F.
Schaphorst. Paper 27:25+ D 22 '20
Belt tension chart. W. F. Schaphorst. Power
Pl Eng 25:1014-15 O 15 '21
Belting. Heat & Ven 17:64-5 Ja '20
Careful belt computations. W. F. Schaphorst.
Am Gas Eng J 113:429 N 20 '20
Chart for determining belt lengths. D: Tur-
cott. chart Am Mach 55:480-1 S 22 '21
Data on belts and pulleys. W. L. Tryon. diag
Foundry 47:584a, 648a, 704a, 788a, 820a, 852a,
900a S 1-O 1, N 1-D 15 '19
Losses in belt transmission. C: H. Herter.
Power 51:251-2 F 17 '20
Power transmitted by belting. H. M. Brayton.
chart Power Pl Eng 24:291-3 Mr 1 '20
Useful chart for balata belts. Paper 27:22 Ja
5 '21
What belt should be selected and what
treatment it should receive. E. K. Black.
il Coal Age 17:980-2 My 13 '20; Same.
Power Pl Eng 24:525-6 My 15 '20; Same.
Min & Sci P 121:34-5 Jl 3 '20

Testing

- Effect of humidity on leather belting. F. W.
Roys. il Textile World 59:201+ Ja 8 '21;
Abstract. Ry Mech Eng 95:190-1 Mr '21
Experimental investigation of steel belting.
F. G. Hampton, C. F. Leh and W. E. Hel-
mick. diags Mech Eng 42:369-78 Jl '20;
Same. Am Mach 53:298-304, 393-7 Ag 12,
26 '20; Abstract. Power 52:193 Ag 3 '20

Ben Day process

- Techniques of advertising illustration. W. L.
Larned. il Ptg Art 37:305-12 Je '21

Benches, Concrete

- Greenhouse benches. il diags Concrete 19:105-
6 S '21

Bending

- Bending rings in a milling machine. G: G.
Little. diags Am Mach 54:384 Mr 3 '21

Bending—Continued

Flat spring bender. L. W. Richardson. diag Mach 26:659 Mr '20

Force required for bending bars and plates. diag Mach 27:73 S '20

See also Pipe bending

Bending machines

Bar-bending machine from a discarded steam shovel. il Sci Am 124:189 Mr 5 '21

Bending ship plates. il Sci Am 124:291 Ap 9 '21

Dries & Krump plate-bending brake. il Am Mach 53:1066-7 D 2 '20; Iron Age 106:1188 N 4 '20

Hydraulic rail bender of 35 tons capacity. il Ry Mech Eng 94:426 Je '20

Southwark plate bending roll. il Iron Age 105:808 Mr 18 '20; Iron Tr R 66:1074 Ap 8 '20; Metal Work 93:723 Je 4 '20

Wallace bending machines. il Am Mach 54:836-7 My 12 '21; Eng & Contr 55:527 My 25 '21

Benedicks thermo-galvanic effect

Benedicks thermo-galvanic effect; abstract. diag Elec W 76:697 O 2 '20

Benefit societies

Mutual benefit associations in industry. F: A. Anderson. Power Pl Eng 25:798-802 Ag 15 '21

Mutual relief associations among government employees in Washington, D.C. V. B. Turner. U S Bur Labor Statistics Bul 282:1-38 '21

See also American steamship owners mutual protection and indemnity association, inc.

Benson, William Shepherd, 1855-

New head of shipping board. por Marine R 50:230-1 Ap '20

Who should run our ships? J. B. Morrow. il Nation's Business 8:15-17 O '20

Benzaldehyde

Addition reactions of phosphorus halides; the mechanism of the reaction of the trichloride with benzaldehyde. J. B. Conant and A. D. Macdonald. Am Chem Soc J 42:2337-48 N '20

Condensation of *m*-dimethylaminophenol with benzaldehyde. Sri Krishna and F. G. Pope. Chem Soc J 119:286-9 Mr '21

Über die kondensation einiger dipeptid-anhydride mit benzaldehyd. T. Sasaki and T. Hashimoto. Deutsche Chem Gesell Ber 54:168-71 Ja '21

See also Dinitro-benzaldehyde; Trinitro-benzaldehyde

Benzamidine

Researches of pyrimidines: the condensation of benzamidine with ethyl γ -diethoxy-acetate. T. B. Johnson and L. A. Mikeska. Am Chem Soc J 42:2349-55 N '20

Benzene

Ammonia and benzene column stills. A. Thau. diags Chem & Met Eng 23:1203-7 D 22 '20

Bearing of a synthetic dye industry upon our national welfare; benzene (benzole). M. T. Bogert. J Fr Inst 191:451-8 Ap '21; Same. Gas Age 48:16-17, 50 Jl 11-25 '21

Carbon monoxide, illuminating gas, and benzol: their effect on blood coagulation time. H. S. Forbes and L. Hompe. bibliog J Ind Hygiene 3:213-16 N '21

Catalytic oxidation; benzene. J: M. Weiss and C: R. Downs. J Ind & Eng Chem 12:228-32 Mr '20

Compressibility of benzene, liquid and solid. T. W. Richards, E: P. Bartlett and J. H. Hodges. Am Chem Soc J 43:1538-42 Jl '21

Condensation of acetylene with benzene and its derivatives in the presence of aluminum chloride. O: W. Cook and V: J. Chambers. Am Chem Soc J 43:334-40 F '21

Determination of benzol in coke-oven gas. A. Thau. diag Blast F & Steel Pl 9:474-6 Ag '21

Determination of the sorption of both solvent and solute—preliminary; the system: benzene—iodine—charcoal. A. M. Bakr and J. E. King. diag Chem Soc J 119:454-60 Ap '21

Effect of finely divided material on the freezing points of water, benzene and nitro-benzene. F. W. Parker. Am Chem Soc J 43:1011-18 My '21

Effect of pressure, and of dissolved air and water on the melting point of benzene. T. W. Richards, E. K. Carver and W. C. Schumb. diag Am Chem Soc J 41:2019-28 D '19

Electronic conception of valence and the constitution of benzene. H. S. Fry. 300p Longmans '21

Fluidities and specific volumes of mixtures of benzyl benzoate and benzene. E. C. Bingham and L. A. Sarver. Am Chem Soc J 42:2011-22 O '20

Formation of anthracene from benzene and ethylene. J. E. Zanetti and M. Kandell. J Ind & Eng Chem 13:208-11 Mr '21

Friedel-Crafts' reaction; migration of halogen atoms in the benzene nucleus. M. Copisarow. Chem Soc J 119:442-7 Ap '21

Influence of nitro-groups on the reactivity of substituents in the benzene nucleus; the condensation of ethyl 3- and 5-nitro-2-chlorobenzoates with hydrazines. J. Kenner and E. Witham. Chem Soc J 119:1053-8 Jl '21

Influence of nitro-groups on the reactivity of substituents in the benzene nucleus; the partial reduction of the dinitrotoluenes by stannous chloride and hydrochloric acid. H. Burton and J. Kenner. Chem Soc J 119:1047-53 Jl '21

Influence of position on the solubilities of the substituted benzoic acids. N. V. Sidgwick and E. K. Ewbank. Chem Soc J 119:979-1001 Jl '21

New type of benzene still in European operation. A. Thau. diags Chem & Met Eng 24:1013-17 Je 8 '21

Process and equipment for refining benzene hydrocarbons. A. Thau. diags Chem & Met Eng 23:1065-71 D 1 '20

Reactivity and conductance of benzene solutions. H. P. Cady and E. J. Baldwin. Am Chem Soc J 43:646-51 Mr '21

Synthesis of chlorine-free benzoic acid from benzene. R. H. McKee and F. A. Strauss. diag Chem & Met Eng 24:638-44, 697-702 Ap 13-20 '21

Use of catalysts in the sulfonation of aromatic compounds. J. A. Ambler and W: J. Cotton. J Ind & Eng Chem 12:968-9 O '20

Viscosity of liquids; the ideality of the system: benzene—benzyl benzoate and the validity of the Bingham fluidity formula. J. Kendall and K. P. Monroe. Am Chem Soc J 43:115-25 Ja '21

Benzene, Commercial. See Benzol

Benzene poisoning

Benzol poisoning in rubber factories. India Rubber W 64:573-4 My '21

Industrial blood poisons in anilin manufacture; abstract. C. R. Newton. Monthly Labor R 10:1475-6 Je '20

Benzene sulfonitramide

Benzene sulfonitramide, toluene-4-sulfonitramide, 2-nitrotoluene-4-sulfonitramide, and some of their salts. B. R. Mathews. J Phys Chem 24:108-19 F '20

Benzidine sulfate

Note on the solubility of benzidine sulfate in water. C. S. Bisson and A. W. Christie. J Ind & Eng Chem 12:485-6 My '20

Benzil

Einwirkung von wässrigem ammoniak auf benzile unter luftabschluss. A. Schönberg. Deutsche Chem Gesell Ber 54:242-4 F '21

Benzildioxime

Structural isomerism of the oximes; a fourth benzildioxime. F: W: Atack and L. Whin-yates. Chem Soc J 119:1184-8 Jl '21

Benzilic acid

Benzilic acid rearrangement; the non-addition of hydrogen peroxide to diphenyl ketene. B. H. Nicolet and J. J. Pelc. Am Chem Soc J 43:935-7 Ap '21

Benzine

La question du pétrole en Allemagne, et la fabrication de benzine par le procédé Bergin. *Génie Civil* 78:378-9 Ap 30 '21

Benzofurandione

Syntheses of chromanes and coumaranes. R. E. Rindfus, P. M. Ginnings and V. L. Harnack. *Am Chem Soc J* 42:157-65 Ja '20

Über eine neue darstellungsweise von cumarandionen. R. Stollé and E. Knebel. *Deutsche Chem Gesell Ber* 54:1213-20 Je '21; Abstract. *Chem Soc J* 120 pt 1:578 Ag '21

Benzofuranones

Formation and autoxidation of coumaranones; abstract. K. von Auwers. *Chem Soc J* 120 pt 1:118-19 F '21

Über benzo-cumaranone. K. Fries and R. Frellstedt. *Deutsche Chem Gesell Ber* 54:715-25 Ap '21

Benzohomomorpholine

Synthese des homo-morpholins und des benzo-homomorpholins. J. v. Braun and O. Braunsdorf. *Deutsche Chem Gesell Ber* 54:685-703 Ap '21

Benzoic acid

Influence of position on the solubilities of the substituted benzoic acids. N. V. Sidgwick and E. K. Ewbank. *Chem Soc J* 119:979-1001 Jl '21

Purification of benzoic acid by fractional condensation. M. Phillips and H. D. Gibbs. *diag J Ind & Eng Chem* 12:277-9 Mr '20

Synthesis of chlorine-free benzoic acid from benzene. R. H. McKee and F. A. Strauss. *diag Chem & Met Eng* 24:638-44, 697-702 Ap 13-20 '21

Benzoic anhydride

Notiz über verbindungen der schwefelsäure mit dem chlorid und anhydrid der benzoessäure. M. Bergmann and F. Radt. *Deutsche Chem Gesell Ber* 54:1652-5 Jl '21

Benzol (commercial benzene)

Benzol recovery in England. *Soc Auto Eng J* 6:75-6 Ja '20

British plans for marketing benzol. *il Gas Age* 45:28-32 Ja 10 '20

British standard specification for benzol for motor fuel. (Report no. 135) 9p British engineering standards association, London '21

L'état actuel et l'avenir de l'industrie gazière; la récupération du benzol. *diags Génie Civil* 78:409-14 My 14 '21

L'évolution dans la récupération et le traitement des sous-produits de la carbonisation de la houille. C. Berthelot. *il diags Chimie & Ind* 5:384-97, 508-17 Ap-My '21

L'extraction du benzol dans les petites usines à gaz allemandes. *Génie Civil* 78:182 F 19 '21

Gas works and benzole. T. Sington. *Am Gas Eng J* 113:205-7 S 11 '20

German government will create standard motor fuel. B. R. Dierfeld. *Automotive Ind* 43:501-6 S 9 '20

Lamp method for estimating sulphur in benzine. J. S. Jackson and A. W. Richardson. *diags Inst Pet Tech J* 7:26-7; Discussion. 27-34 Ja '21

Motor spirit from coal. *Engineering* 109:518 Ap 16 '20

10,000-mile automobile run on benzole establishes its reliability and suitability as motor fuel. *Am Gas Eng J* 112:80-1 Ja 31 '20

Benzol-alcohol mixture

Benzole-alcohol experiments on omnibuses. G. J. Shave. *Engineering* 110:623-4 N 5 '20; Abstract. *Soc Auto Eng J* 7:556-7 D '20

Benzopolymethylene compounds

Über benzopolymethylenverbindungen. J. v. Braun and G. Kirschbaum. *Deutsche Chem Gesell Ber* 54:597-618 Ap '21

Benzoyl chloride

Die beeinflussung der wirksamkeit von katalysatoren; die reduktion von säure-

chloriden zu alkohol und ester. K. W. Rosenmund and F. Heise. *Deutsche Chem Gesell Ber* 54:638-47 Ap '21

Condensation of benzoyl chloride with ethylene in the presence of aluminum chloride. J. F. Norris and H. B. Couch. *Am Chem Soc J* 42:2329-32 N '20

Notiz über verbindungen der schwefelsäure mit dem chlorid und anhydrid her benzoessäure. M. Bergmann and F. Radt. *Deutsche Chem Gesell Ber* 54:1652-5 Jl '21

Benzoyl fluorine

Triphenyl-vinylalkohol und 9-benzoyl-fluoren. K. H. Meyer and H. Gottlieb-Billroth. *Deutsche Chem Gesell Ber* 54:575-8 Ap '21

Benzoylbenzoic acid

Friedel and Crafts' reaction—nitro-phthalic anhydrides and acetylamino-phthalic anhydrides with benzene and aluminum chloride. W. A. Lawrance. *Am Chem Soc J* 42:1871-9 S '20

Benzoylene ureas

Researches on quinazolines; the synthesis of certain nitro and amino benzoylene ureas and some compounds related thereto. M. T. Bogert and G. Scatchard. *Am Chem Soc J* 41:2052-68 D '19

Benzyl alcohol

Condensation of formaldehyde with ortho-nitrophenol. J. B. Fishman. *Am Chem Soc J* 42:2288-97 N '20

Some derivatives of 3-nitro-4-hydroxybenzyl alcohol. J. B. Fishman. *Am Chem Soc J* 42:2297-2302 N '20

Benzyl benzoate

Fluidities and specific volumes of mixtures of benzyl benzoate and benzene. E. C. Bingham and L. A. Sarver. *Am Chem Soc J* 42:2011-22 O '20

Benzyl chloride

Preparation of benzyl esters and other benzyl-derivatives from benzyl chloride. M. Gomberg and C. C. Buchler. *Am Chem Soc J* 42:2059-72 O '20

Benzyl esters

New benzyl esters possessing an anti-spasmodic action. H. A. Shonle and P. Q. Row. *Am Chem Soc J* 43:361-5 F '21

Preparation and hydrolysis of benzyl esters. E. H. Volwiler and E. B. Vliet. *Am Chem Soc J* 43:1672-6 Jl '21

Benzyl succinate

Benzyl succinate: preliminary report on its composition, manufacture, properties, and probable therapeutic uses. M. Bye. *J Ind & Eng Chem* 13:217-18 Mr '21

Benzyl diacetyl

Über den verlauf der reduktion beim benzal-diacetylmonoxim und die darstellung des benzyl-diacetyls. O. Diels and W. Poetsch. *Deutsche Chem Gesell Ber* 54:1585-91 Jl '21

Benzylidenecarvone

Über benzal-carvon. A. Müller. *Deutsche Chem Gesell Ber* 54:1471-81 Jl '21; Abstract. *Chem Soc J* 120 pt 1:675 S '21

Benzylidenecoumarones

Über die bildung von flavonen und benzal-cumaranonen aus oxy-chalkon-dibromiden. K. v. Auwers and L. Anschütz. *Deutsche Chem Gesell Ber* 54:1543-60 Jl '21; Abstract. *Chem Soc J* 120 pt 1:682-3 S '21

Benzylidenediacetylmonoxime

Über den verlauf der reduktion beim benzal-diacetylmonoxim und die darstellung des benzyl-diacetyls. O. Diels and W. Poetsch. *Deutsche Chem Gesell Ber* 54:1585-91 Jl '21

Benzylsulfonazide

Hydrazide and azide of benzylsulphonic acid; abstract. T. Curtius and F. W. Haas. *Chem Soc J* 120 pt 1:747-9 O '21

Benzylsulfonhydrazide

Hydrazide and azide of benzylsulphonic acid; abstract. T. Curtius and F. W. Haas. *Chem Soc J* 120 pt 1:747-9 O '21

Bergsund engine

Bergsund original surface-ignition type engine. *diag Mech Eng* 42:295 My '20; *Sci Am M* 1:523 Je '20

Beringer, Johann Bartholomaeus Adam

Figured stones of Würzburg; an account of the most remarkable hoax in the history of science and of its author, Dr Johann B. A. Beringer. L. A. Hausman. *il Sci Am M* 2: 199-201 N '20

Berlin, Germany**Railroads**

Essais de trucks automoteurs, pour l'électrification des lignes de la banlieue de Berlin. *diag plan Génie Civil* 78:299-300 Ap 2 '21

Rapid transit

Berlin's eight-ride punch ticket. *il Elec Ry J* 58:143 Jl 23 '21
 Railway situation in Berlin. E. Eichel. *il Elec Ry J* 58:814-16 N 5 '21
 Rapid transit development at Berlin. E. C. Zehme. *il chart maps Elec Ry J* 56:17-20 Jl 3 '20

Theaters

Old departure in theater building; Grosses Schauspielhaus. A. Gradenwitz. *il Sci Am* 122:599+ My 29 '20

Berlin criminal museum

Trip through the Berlin criminal museum. *il Sci Am* 122:515 My 8 '20

Berne, Switzerland

Berne—city of mediæval fountain statues. *Am Arch* 117:580+ My 12 '20

Bernouilli theorem

Generalization of the Bernouilli theorem. *diags U S Nat Advisory Com for Aeronautics* 1918:143-6 '20

Berresford, Arthur W., 1872-

New president of A. I. E. E. *por Am Inst E E J* 39:603 Je '20; *Elec W* 75:1298 Je 5 '20

Beryl. See Heliodor**Bessel's functions**

Bessel functions of small fractional order and their application to problems of elastic stability. J. R. Airey. *Philos Mag* 6th ser 41:1285-93; Discussion. 1293-7 S 15 '21

Bessemer process

Acid Bessemer process. R. S. McCaffery. *Chem & Met Eng* 23:103-4 Jl 21 '20; Same. *Iron Tr R* 67:234-5 Jl 22 '20; Same. *Blast F & Steel Pl* 8:497-8 S '20; Excerpts. *Min & Met* 163:36 Jl '20

Control of temperature in the acid Bessemer blow. H. D. Hibbard. *Blast F & Steel Pl* 9:287-90 My '21

Desoxydationsvorgänge im Thomasverfahren. O. von Keil. *Stahl & Eisen* 41:605-11 My 5 '21

Einfluss der basizität der Thomasschlacke auf die betriebsergebnisse des konverters. L. Blum. *Stahl & Eisen* 41:69-74 Ja 20 '21

Die herstellung des dolomit-teer-gemisches im Thomasstahlwerk. M. Backheuer. *Stahl & Eisen* 41:954-6 Jl 14 '21

New process to improve steel making. *Sci Am* 123:325 O 2 '20

Ueber den zusammenhang zwischen physikalischer und chemischer beschaffenheit des Thomasroheisens. O. Holz. *Stahl & Eisen* 41:200-5 F '21

Das verhalten des schwefels in der Thomasbirne. E. Herzog. *Stahl & Eisen* 41:781-8; Discussion. 788-9 Je 9 '21

See also Steel metallurgy—Duplex process

Beta-rays

Beta-ray emission from thin films of the elements exposed to Röntgen rays. L. Simons. *diags Philos Mag* 6th ser 41:120-40, pl 3 Ja '21

Betelgeuse

Diameter of Betelgeuse—how it was measured and what it means. H. N. Russell. *Sci Am* 124:112+ F 5 '21

Giant of the skies. *il Sci Am* 124:401, 409+ My 21 '21

Bethlehem shlpbuilding corporation, Quincy, Massachusetts

Programs of apprenticeship and special training in representative corporations. J. V. L. Morris. *il Am Mach* 54:310-12 F 24 '21

Betta splendens

Humming bird of the water. *il Sci Am M* 1: 398 My '20

Better business bureaus

Better business bureaus to form national organization. *Ptr Ink* 114:73-4+ F 17 '21

Beverages

Beverage exposition features chemical equipment. *il diag Chem & Met Eng* 21:706-7 D 10 '19

Use of filter-cel for industrial filtration processes; cereal beverage filtration. G. M. Hickey. *flow sheet J Ind & Eng Chem* 13: 990-1 N '21

See also Cocoa; Coffee; Mineral waters; Soft drinks; Tea; Wine, Dealcoholized

Advertising

Advertising not merely a drink—but 50-50. *Ptr Ink* 111:105-6 Je 17 '20

Old memories revived in beverage copy. *Ptr Ink* 112:118+ Ag 12 '20

Biakmetal

Biakmetal. *Chem & Met Eng* 25:163 Jl 27 '21
 New metal alloy. *Sci Am* 123:142 Ag 7 '20

Bibliography**Periodicals**

Periodical bibliographies and abstracts for the scientific and technological journals of the world. R. Cobb, comp. (National Research Council Bul, v 1, no 3) p 131-54 Je '20 National research council, 1201 Massachusetts av, Washington, D.C.

Bicycle industry and trade

National advertising for bicycles. *il Ptr Ink* 110:26-8 F 19 '20

Summary concerning the motorcycle and bicycle industry in 1919. *Automotive Ind* 44:1440 Je 30 '21

Bicycle racing

Bicycle-racing bowl has new features. *il Pop Mech* 35:801 Je '21

Water bicycle races. *il Sci Am* 123:251 S 11 '20

Bicycles

Bicycle with the side-car. *il Sci Am* 123:476 N 6 '20

Cyclaid motor bicycle. *il Engineering* 110: 735 D 3 '20

New bicycle chain; abstract. *il Mech Eng* 42:467-8 Ag '20

See also Motor cycles

Exhibitions

Cycle and motor-cycle show. *diags Engineering* 110:743-5 D 3 '20

Bilbao, Spain

Retail prices of food in Bilbao. *Monthly Labor R* 12:778-9 Ap '21

Billboards

Advertising signs on public highways. *Munic Eng* 59:117 O '20

Case against the billboard. *Am Arch* 117:218 F 18 '20

Menace of the billboard. *Am Arch* 117:761 Je 16 '20

Other side of billboards. *Am Arch* 117:824 Je 30 '20

Poster or Persian garden? S. C. Lambert. *Ptr Ink* 110:57-8 F 12 '20

Reasonable billboard ordinances. A. L. H. Street. *Am Arch* 118:573-4 N 3 '20

See also Outdoor advertising association

Lighting

Problems involved in lighting of signs and billboards. J. M. Shute. *il Elec R* 79:535-9, 581-5 O 8-15 '21

Billet piercing machines. See Rolling mills

Billiard balls

Making billiard balls from ivory. T. A. Marchmay. *il Sci Am M* 3:316-18 Ap '21

Billiards

Billiard accessories of rubber. *il India Rubber W* 62:529 My '20

Billing

Advantages of machine billing in railroad offices. *Ry R* 66:11-12 Ja 3 '20

Billing the goods. *Ptg Art* 37:62-4 Mr '21

Billing—Continued

- Direct billing by meter readers cuts cost. J. R. Kaiserman. Elec W 77:1251-2 My 28 '21
 How to get out water bills promptly. H. A. Gallagher. Eng & Contr 55:571 Je 8 '21
 Report of committee on customers' records and billing methods; billing machine. il N E L A Bul 7:726-43; Discussion. 743-6 O '20
See also Collecting of accounts

Bills of lading

- Deliveries in South America often delayed by incomplete bills of lading. Americas 7: 32-3 Mr '21
 Delivery without surrender of bill of lading does not necessarily render carrier liable. Ry Age 70:345-6 F 4 '21
 New rules for bills of lading. Engineering 112: 414 S 16 '21
 To make world trade simpler. C. S. Haight. Nation's Business 9:22-3+ N '21
See also Shipment of goods

Binder twine. *See* Twine**Binders, Grain.** *See* Grain binders**Bindheimite**

- Occurrence of bindheimite as an ore mineral. E. V. Shannon. Econ Geol 15:88-93 Ja '20

Binding materials

- Valuable binder material from waste. G. H. Dacy. il Sci Am 124:471+ Je 11 '21
See also Adhesives; Briquets; Cement

Bingham fluidity formula

- Viscosity of liquids; the ideality of the system: benzene—benzyl benzoate and the validity of the Bingham fluidity formula. J. Kendall and K. P. Monroe. Am Chem Soc J 43:115-25 Ja '21

Binoculars. *See* Field-glasses**Bins**

See also Coal bins; Ore bins

Bins, Concrete

- Concreting large stock bins. diags Pub Works 51:204-5 S 10 '21
 Design of circular reinforced concrete bins. W. W. Hay. il diag Concrete 17:73-6 S '20
See also Coal bins, Concrete; Grain bins, Concrete

Biological chemistry

- Chemical construction and individuality. H. Bierry. Sci Am M 3:212-14 Mr '21
 Practical biological chemistry. G. E. Bertrand and P. Thomas; tr. by H. A. Colwell. 3d ed. 348p G. Bell & sons, London '20
 Principles of biochemistry for students of medicine, agriculture and related sciences. T. B. Robertson. 633p Lea & Febiger, Philadelphia; New York '20
See also Blood; Physiological chemistry

Biology

See Cells; Electrophysiology; Embryology; Evolution; Heredity; Life; Parthenogenesis; Plants; Sex; Symbiosis

Bioscope. *See* Moving picture machines**Biotron**

- Biotron: a new device having negative-resistance characteristics. J. Scott-Taggart. diag Elec R (Lond) 89:450 S 30 '21; Same. Engineering 112:585 O 21 '21

Bird baths

- Concrete garden furniture; pedestals and bird baths. D. MacKay. diags Pop Mech 35:946-8 Je '21

Bird houses

- How big bird conservation plant was built by mail. G. A. Nichols. il Ptr Ink M 3:23-4+ Ag '21
 Some artistic bird houses. il Pop Mech 33:475-6 Mr '20

Bird study

- Keeping tabs on bird peculiarities. G. H. Dacy. il Sci Am 123:525+ N 20 '20

Birds

- How fast do birds fly? Sci Am 125:18, 165 JI 9, S 3 '21
 Soaring flight of birds. L. Bollee. diags Aerial Age 12:421 D 27 '20
See also Bird houses; Bird study

Food and feeding

- Protected feeding boxes for birds. E. W. Ranston. il Pop Mech 33:143-4 Ja '20

Habits and behavior

- Dancing birds; the art of courtship and the play impulse. K. Floericke. il Sci Am M 2:15-17 JI '20

Birmingham, Alabama**Rapid transit**

- Birmingham situation critical. Elec Ry J 57: 1148 Je 18 '21

Birmingham small arms company

- B.S.A. tool works at Sparkbrook. Engineering 109:319-20 Mr 5 '20; Engineer 129:266-7, 274 Mr 12 '20

Birth registration

- Birth and death registration areas. map Eng N 84:732 Ap 8 '20

Biscuits

- Chemical engineer in biscuit manufacture. J. Rohn. il Chem Age 29:129-31 Ap '21
 Function of the chemical engineer in the biscuit and cracker baking industry. O. C. F. Lippert. Chem & Met Eng 22:893-7 My 12 '20
 Gas in biscuit baking. il Am Gas Eng J 112: 201-2 Mr 13 '20

Advertising

- When your customers are competitors. G. A. Nichols. Ptr Ink 111:49-50+ My 13 '20

Bishopric board

- Bishopric sheathing and the Omaha tests. Am Inst Arch J 9:66-8 F '21

Bismuth

- Arsenic, bismuth, selenium, and tellurium in 1920. V. C. Heikes. U S Geol S Min Res of U S 1920, pt 1:67-9 '21
 Bismuth in 1919. J. M. Hill. U S Geol S Min Res of U S 1919, pt 1:23-4 '20
 Bismuth in 1920. J. A. Samuel. Eng & Min J 111:150 Ja 22 '21
 Bismuth wire manufactured in the United States. Pop Mech 36:236 Ag '21
 Crystalline structure of antimony and bismuth. A. Ogg. Philos Mag 6th ser 42: 163-6 JI '21
 Crystalline structure of bismuth. R. W. James. Philos Mag 6th ser 42:193-6 JI '21
 Crystalline structures of sputtered and evaporated metallic films. H. Kahler. Phys R 18:210-17 S '21
 Determination of bismuth. O. A. Critchett. Eng & Min J 112:58 JI 9 '21
 Effect of temperature on the change of resistance of bismuth in a magnetic field. L. F. Curtiss. diags Phys R 18:255-74 O '21
 Magneto-resistance effects in films of bismuth. L. F. Curtiss. Phys R 17:235-7 F '21
 Marketing bismuth ores. Eng & Min J 109: 1028 My 1 '20

Bismuth iodide

- Wismut und quecksilberjodid-verbindungen von ammoniakaten. F. Ephraim and P. Mosimann. Deutsche Chem Gesell Ber 54: 396-401 Mr '21

Bismuthines

- Organo-derivatives of bismuth; the interaction of the halogen derivatives of tertiary aromatic bismuthines with organo-derivatives of magnesium and mercury. F. Challenger and C. F. Allpress. Chem Soc J 119: 913-26 Je '21

Bismutoplacionite

- Bismutoplacionite, a new mineral. E. V. Shannon. Am J Sci 49:166-8 Mr '20

Bison

- Study in offspring herds; what the New York Zoological garden has done in the way of supplying bison and deer to others. W. T. Hornaday. il Sci Am 125A:46-7 N '21

Bits. *See* Auger bits**Bitulithic pavements.** *See* Pavements, Bitulithic**Bitumen.** *See* Asphalt; Manjak

Bituminous coal commission

Bituminous coal commission report made public. Ry Age 68:1043-6 Mr 26 '20

Brief of majority report of Bituminous coal commission on wages. Coal Age 17:650-2 Ap 1 '20

Reports of the United States bituminous coal commission. Monthly Labor R 10:870-80 Ap '20

Reports of the United States bituminous coal commission to the president. Power 51:595-6 Ap 13 '20

Results of Coal commission report. Gas Age 45:320 Ap 10 '20

Bituminous concrete pavements. See Pavements, Bituminous concrete**Bituminous materials**

Acid proof coatings for concrete surfaces. E: H. Berger. Concrete 16:267-9 Je '20

Bituminous macadam and bituminous concrete roads. E. J. Wulff. Pub Roads 4:22-8+ Je '21; Same. Good Roads 61:29-31+, 43-4+, 57-8+ Jl 20-Ag 3 '21

Consistency of bituminous materials for highway work. P. Hubbard. Eng & Contr 54:16-19 Jl 7 '20

Extraction of bitumens from mineral aggregate. M. R. Walczak and H. I. Rice. diag J Ind & Eng Chem 12:738-40 Ag '20

Road materials storage plant for Bergen county, N.J. Pub Works 50:302 Ap 9 '21; Same cond. Eng & Contr 55:347 Ap 6 '21

See also Asphalt; Coal tar; Pavements, Bituminous; Road oils; Roads, Bituminous; Softening points; Tar

Testing

Relations between the characteristics of steam-distilled petroleum residuals; with discussion. B. A. Anderton. Am Soc T M Pro v 20 pt 2:298-313 '20

Bituminous pavements. See Pavements, Bituminous**Bituminous roads.** See Roads, Bituminous**Bivalves.** See Mollusks**Black, Morris A.**

Builders of business. H. E. Martin. System 40:418+ O '21

Black

Technology of garment dyeing and cleaning. J. Loeb. Color Tr J 8:223-5; 9:54-7 Je, Ag '21

See also Aniline black; Bone black; Carbon black; Palladium black; Platinum black

Black ash

Black ash leaching. G: M. Trostel. chart Paper 26:132+ Ap 21 '20

Black nickel

Black nickel plating solutions. G: B. Hoga-boom, T. F. Slattery and L. B. Ham. U S Bur Stand Tech Pa 190:1-9 '21; Same. Brass W 17:202-4 Jl '21

Blackdamp

Carbon dioxide vs. blackdamp. Coal Age 18:26 Jl 1 '20

Two deaths from blackdamp. D. J. Baker. il Coal Age 16:885-6 D 11 '19

Blacklisting

Decision upholding blacklisting of bad debtors and combining to refuse to give them credit. E. J. Buckley. Metal Work 93:730 Je 4 '20

Blacksmith shops

Forge and equipment of a mine repair shop. diags plans Coal Age 19:717-18 Ap 21 '21

Mine blacksmith shops. R. J. Day. il diags plans Eng & Min J 112:609-13 O 15 '21

Railroad blacksmith machine equipment. J. V. Hunter. il Am Mach 54:17-18 Ja 6 '21

Tools and operations in a railroad blacksmith shop. F. A. Stanley. il diag Am Mach 54:648-9 Ap 14 '21

Tools from a railroad blacksmith shop. F. H. Colvin. diags Am Mach 53:795-7 O 28 '20

Up-to-date railroad blacksmith shop. G: Fraser. Ry Age 67:426-8 Ag 29 '19; Same.

Ry Mech Eng 93:544-5 S '19; Same. Ry R 65:490-1 O 4 '19; Same. Eng & Contr 52:595-6 N 19 '19

See also Forges

Blacksmithing

Getting the most out of blacksmithing tools. G. H. Radebaugh. il diag Brick & Clay Rec 58:907-10 My 31 '21

Smithing and forging. J. G. Horner. 222p Emmott & co., Manchester, England '20

See also Forging; Welding

Blackwells Island, New York city

Unique institutional building; the elevator storehouse, Blackwells Island. B: W. Levitan. il diags plans Am Arch 117:415-23 Mr 31 '20

Bladder tumors

Discussion of the etiology of so-called aniline tumors of the bladder. A. Hamilton. bibliog J Ind Hygiene 3:16-28 My '21

Blade screws. See Airplane propellers**Blake, Henry William, 1865-**

Henry W. Blake honored. por Elec Ry J 57:160 Ja 15 '21

Blanc, Charles J. E.

Builders of business. W. E. Crane. System 40:554-5 N '21

Blankets

White wool bed blanket constructions. Textile World 60:1407 S 3 '21

Blast furnace gas

Adapting electrical cleaning to blast furnace gases; abstracts. N. H. Gellert. Am Gas J 114:465-7, 473-6 My 28 '21; Gas Age 47:367-9 My 10 '21; Iron Age 108:329-34 Ag 11 '21; Iron Tr R 69:102-5 Jl 14 '21; Chem & Met Eng 25:287-8 Ag 17 '21

Die beheizung von Martinöfen mit einem gemisch von braunkohlenbrikett- und hoch-ofengas. F. Boettcher. Stahl & Eisen 41:1027-30 Jl 28 '21

Die bilanzmässige verteilung der gichtgase als grundlage der wärmewirtschaft gemischter werke. G. Schulz. diags Stahl & Eisen 41:145-9; Discussion. 149-50 F 3 '21

Blast furnace flue dust recovery. G: B. Cramp. diag Sci Am M 3:543-6 Je '21

Blast furnace gas cleaning equipment. L. B. Breedlove. il diags Iron Age 107:11-14 Ja 6 '21

Blast furnace gas used under boilers. F. J. Denk. Blast F & Steel Pl 8:524-6 S '20

Burning powdered coal and blast-furnace gas at River Rouge. T: Wilson. il diags plan Power 54:664-70 N 1 '21

Cleaning blast-furnace gas. il Chem & Met Eng 22:423-4 Mr 3 '20

Cleaning blast-furnace gas. A. Hutchinson and E. Bury. diags Engineering 110:453-6 O 1 '20; Same abr. Blast F & Steel Pl 9:25-8 Ja '21; Same cond. Iron Tr R 67:1479-83 N 25 '20; Abstracts. Iron Age 106:928-30 O 7 '20; Engineer 130:335 O 1 '20; Electrician 87:296-7 S 2 '21

Cleaning blast furnace gas by electrical precipitation. N. H. Gellert and K. V. Laird. il Am Gas Eng J 112:44-8, 52-3 Ja 17 '20; Abstract. Blast F & Steel Pl 8:32-5 Ja '20; Abstract. Iron Tr R 66:213-17 Ja 15 '20

Cleaning of blast-furnace gas. S. H. Fowles. diag Iron & Steel Inst J 103:75-95 no 1 '21; Same. Engineering 111:600-2 My 13 '21; Abstracts. Engineer 131:520 My 13 '21; Eng & Ind Management 5:650-3 Je 9 '21; Discussion. Engineering 111:578-9 My 13 '21; Engineer 131:520-1 My 13 '21; Iron Age 107:1399-1400 My 26 '21; Iron & Steel Inst J 103:96-103 no 1 '21

Cockerill blast-furnace gas engines. H. Hubert. il diags Engineer 130:495-8 N 19 '20

Developments in power station design. il diags Engineer 132:390-2 O 14 '21

Electrostatic gas cleaning. E. Bury and others. Engineer 132:75 Jl 15 '21

Electrostatic-separation; how suspended particles are removed from gases. H. J. Bush. diags plans Electrician 85:533-5 N 5 '20

Internal combustion engine: heat value of gases. M. Meredith. Am Gas J 114:425-6 My 14 '21

Blast furnace gas—Continued

- Measuring furnace gas. D. L. Ward and R. S. Reed. diag Iron Age 107:902 Ap 7 '21; Abstract. Min & Met 170:33 F '21
- Les moteurs à gaz et machines soufflantes de grande puissance, système Galloway. il diags Génie Civil 79:141-5 Ag 13 '21
- New burner for blast furnace gas. D. N. Watkins. il diags Blast F & Steel Pl 8:499-505 S '20
- New multi-centrifugal gas cleaner. A. R. Schulze. diag Blast F & Steel Pl 8:553+ O '20
- Potash recovery from blast-furnace gases in England. H. Hibbert. Chem & Met Eng 21:723-6 D 10 '19
- Production of power from blast furnace gas. S. H. Fowles. diag Engineering 109:443-5 Ap 2 '20; Same. Inst E E J 58:431-6 Je '20; Abstract. Electrician 84:349-50 Mr 26 '20; Discussion. Inst E E J 58:437-63 Je '20
- Utilizing blast furnace gas for power. F. H. Willcox. Blast F & Steel Pl 8:337-40 Je '20
- Blast furnace stoves**
- Design and proportions of hot blast stoves. W. E. Groume-Grjmailo. il diags Iron Age 107:1527-30, 1613-16, 1677-80 Je 9-23 '21
- Heat balance of a blast-furnace stove. D. W. Wilson. Chem & Met Eng 25:200-2 Ag 3 '21
- Blast furnaces**
- Alabama company nineteen-twenty improvements at Gadsden, Alabama. H. R. Stuyvesant. il Blast F & Steel Pl 9:311-12 My '21; Same. Iron Tr R 68:1312-13+ My 12 '21; Same cond. Iron Age 107:1240-1 My '21
- American engineers design new blast furnace plant for Far East. plans Blast F & Steel Pl 8:28-30 Ja '20
- Blast furnace built in South Wales. il Blast F & Steel Pl 8:655-61 D '20
- Blast furnace development during 1919. H. W. Linhardt. Blast F & Steel Pl 8:26-7 Ja '20
- Blast furnace developments during 1920. H. W. Linhardt. Blast F & Steel Pl 9:20-2 Ja '21
- Blast-furnace flue dust. R. W. H. Atcherson. diags Min & Met 158:(sec 30) 1-12 F '20; Same cond. Iron Tr R 66:559-63 F 19 '20; Same abr. Blast F & Steel Pl 8:193-7 Mr '20; Abstract. Iron Age 105:609-10 F 26 '20
- Blast furnace flue dust—100% recovery. G. B. Cramp. diags plan Blast F & Steel Pl 9:648-53 N '21
- Blast furnace for zinc? E. W. Buskett. Eng & Min J 112:409-10 S 10 '21
- Blast-furnace hearth. W. Mathesius. diags Chem & Met Eng 23:867-72 N 3 '20; Same cond. Iron Tr R 67:1211-13 O 28 '20; Iron Age 106:1107-9 O 28 '20; Blast F & Steel Pl 8:588-92 N '20
- Blast furnace plant embodies new features. G. Lacher. il diags Iron Age 107:35-41+ Ja 6 '21
- Blast furnace plant in India. diag plan Iron Tr R 65:1717-19 D 25 '19; Iron Age 105:18-19 Ja 1 '20
- Blast furnace plant of Weirton steel co. built in one year. il plan Iron Age 105:461-7 F 12 '20
- Blast furnace problems of to-day. C. E. Roberts. Eng & Ind Management 5:7-10 Ja 6 '21
- Blast-furnaces at Copper Cliff. Min & Sci P 121:458 S 25 '20
- Botting cinder notches automatically. diags Iron Tr R 67:657-8 S 2 '20
- British and continental blast furnaces. A. G. McKee. Iron Age 107:79-80 Ja 6 '21
- British blast-furnace practice. F. Clements. diags Engineering 109:646-50 My 14 '20; Excerpts. Iron Tr R 66:1764-6 Je 17 '20; Abstract. Stahl. & Eisen 41:378-81 Mr 17 '21
- Century of ironmaking in southern Ohio. J. D. Knox. il Iron Tr R 67:919-26 S 30 '20
- Chemical and thermal conditions in blast-furnace practice. H. E. Wright. Engineering 109:631-3 My 7 '20; Abstract, with discussion. Engineer 129:497-8 My 14 '20
- Creusot and its associated works. il diags plans Engineer 130:sup1-16 S 17 '20

- Designs stack for foundry iron. il diags Iron Tr R 67:1068-70 O 14 '20
- Direct recovery process for flue dust. G. B. Cramp. diag Blast F & Steel Pl 9:198-202 Mr '21; Same. Iron Age 107:775-8 Mr 24 '21; Same abr. Iron Tr R 68:836-9 Mr 24 '21
- Effect of heat supplied to the blast furnace. W. W. Hollings. Engineering 110:459-60 O 1 '20; Same. Blast F & Steel Pl 8:651-5 D '20; Abstract, with discussion. Engineer 130:335-6 O 1 '20
- Electric practice in making ferroalloys. W. A. Darrah. Iron Age 105:1019-21 Ap 8 '20
- Les essais de réception du coke métallurgique. A. Baille-Barrelle. Génie Civil 76:435-7 My 8 '20
- Fortschritte auf dem gebiete der kokserzeugung, der einfluss der koksbeschaffenheit auf den hochofenbetrieb und vorschläge für die verbesserung des letzteren. H. Koppers. diags Stahl & Eisen 41:1173-81, 1254-7 Ag 25, S 8 '21; Discussion. 41:1258-62 S 8 '21
- Das gestell des hochofens. H. Lent. diags Stahl & Eisen 41:539-41 Ap 21 '21
- Glasgow furnaces last operated in 1876 in eastern Ohio. Iron Tr R 68:977 Ap 7 '21
- Industry is mechanically fit for post-war competition. E. L. Shaner. il diags Iron Tr R 66:33-8 Ja 1 '20
- Iron and coal in the new states of Europe. B. Schapira. map Iron Tr R 67:716-20 S 9 '20
- Ironmakers face operating problems. L. A. Touzalin. Iron Tr R 68:13-14 Ja 6 '21
- McKee type of downcomers. il diag Blast F & Steel Pl 9:344 Je '21; Iron Age 107:1539 Je 9 '21; Iron Tr R 68:1588 Je 9 '21
- Making ore pile part of automobile plant. F. L. Prentiss. il map Iron Age 105:1295-1302 My 6 '20
- Merchant blast furnace in 1920. K. F. Juengling. Blast F & Steel Pl 9:127-8 F '21
- Mississippi valley iron co. rebuilds Missouri blast furnace. il Iron Tr R 66:1751-5 Je 17 '20
- Modern methods of manufacturing pig iron. L. L. Arnold. Blast F & Steel Pl 8:408-9 JI '20
- New blast furnace built at Midland, Pa. il diags Blast F & Steel Pl 9:132-8 F '21; Same. Iron Age 107:570-5 Mr 3 '21
- New blast furnace of the Crane iron works. at Catasauqua, Pa. R. Peters, jr. il diag plan Iron Age 108:814-17 S 29 '21; Same. Blast F & Steel Pl 9:577-80 O '21
- New blast furnaces of Replogle steel co. flow sheets il diags plan Iron Age 106:895-901 O 7 '20
- New Chinese blast furnace. Iron Age 106:257-8, 587 JI 29, S 2 '20; Engineer 130:186-7 Ag 20 '20; Blast F & Steel Pl 8:495-7 S '20
- New Trumbull-Cliffs 600-ton blast furnace. il diags Iron Age 108:673-9 S 15 '21; Iron Tr R 69:688-93 S 15 '21; Blast F & Steel Pl 9:588-97 O '21
- Power drives for rolling mills. W. O. Rogers. il diags Power 51:95-8 Ja 20 '20
- Prevents the formation of salamander. il diag Iron Tr R 68:896-7 Mr 31 '21
- Problems of furnace operation discussed. Iron Tr R 68:545-6 F 24 '21
- Production of manganese alloys in the blast furnace. P. H. Royster. U S Bur Mines Bul 173:108-47 '20
- Relines Virginia blast furnace. L. M. Hartwick. il diags Iron Tr R 69:223-4 JI 28 '21
- Removing salamanders: holes melted with oxygen in place of drilling. C. C. Phelps. diag Iron Age 105:270 Ja 22 '20
- Secure place of the iron blast furnace. J. F. Shadgen. diags Iron Age 108:465-7 Ag 25 '21
- Special features of blast furnace plant. il Iron Age 108:730-2 S 22 '21
- Steps toward the elimination of forced delays in copper-nickel blast-furnace operation. E. T. Austin. Eng & Min J 111:629 Ap 9 '21
- Use of dynamite in blast furnaces. diags Min & Met 167:49-50 N '20

Blast furnaces—Continued

L'usine sidérurgique de la Ford motor co., à Detroit (Michigan, E.-U.). il plan Génie Civil 76:505-8 Je 5 '20

Utilizing blast furnace gas for power. F. H. Willcox. Blast F & Steel Pl 8:337-40 Je '20

Valley stack nears completion; work on new 600-ton blast furnace plant of Trumbull-Cliffs furnace co. il Iron Tr R 68:894 Mr 31 '21

See also Blast furnace gas; Cupola furnaces; Iron metallurgy; Iron works; Slag

Accidents

Explosions in air pipes to blast furnaces. J. O. Benefiel. Power Pl Eng 25:753 Ag 1 '21

Air conditions

Causes of high top heat in the blast furnace. W. G. Imhoff. Chem & Met Eng 25:737-40 O 19 '21

Is moist air desirable for copper blast furnaces? J. H. Gillis. Eng & Min J 112:250 Ag 13 '21; Discussion. F. K. Brunton. 112:404-5 S 10 '21

Luftverhältnisse in hüttenanlagen und billige beschaffungsmöglichkeit trockener luft. J. Bronn. il diags Stahl & Eisen 41:813-20 Je 16 '21; Abstract (Air conditions in blast-furnace plants). Mech Eng 43:608 S '21; Discussion. Stahl & Eisen 41:820-2, 1343-5 Je 16, S 22 '21

Ueber die einwirkung von temperatur, druck und feuchtigkeit der atmosphärischen luft auf den hochofengang. Stahl & Eisen 41:692-5 My 19 '21

Charging

Effect of sizing a copper blast-furnace charge. J. H. Gillis. Eng & Min J 112:175 Jl 30 '21

Fatigue and efficiency in an iron and steel works. H. M. Vernon. il Eng & Ind Management 5:201-8 F 17 '21

Large electrically-operated blast furnace chargers. il diag Electrician 85:620-2 N 26 '20

Mechanical filling aids output; ferromanganese production of the Sheridan stack. il Iron Tr R 67:1614-16 D 9 '20; Same. Iron Age 106:1541-2 D 9 '20

Mechanical handling of steel mill material. C. F. Poppleton. il diag Blast F & Steel Pl 9:291-8 My '21

Ueber hochofenbegichtungsanlagen. H. Lent; P. Jaeger; E. Opderbeck. il diags Stahl & Eisen 41:945-54, 994-9, 1064-71 Jl 14-21, Ag 4 '21; Discussion. 41:1097-1103 Ag 11 '21

Equipment

Crane operating costs at blast furnaces. G. L. Collord. il Iron Age 108:935-6 O 13 '21

Mechanical appliances aid efficiency of historic furnace. E. C. Kreutzberg. il Iron Tr R 69:492-5 Ag 25 '21

New use of recording instruments at the blast furnace of Weirton steel company, Weirton, West Virginia. il Blast F & Steel Pl 9:472-4 Ag '21

Failures

Failure of blast furnace stock line brick. L. P. Ross. Iron Age 105:117-18 Ja 8 '20

Fuel

Comparative study of electrically and coke heated blast furnaces; abstract. M. Guédras. Chem & Met Eng 22:990-1 My 26 '20

Les économies de combustible dans l'industrie sidérurgique. diag Génie Civil 76:533-4 Je 12 '20

Green wood in the blast furnace. F. Prudhomme. Iron Age 107:121-2 Ja 13 '21

Industry prepares to save fuel. E. L. Shaner. Iron Tr R 68:18-20 Ja 6 '21

Progress in powdered coal for blast furnaces. W. L. Wotherspoon. diags Eng & Min J 109:803-4 Ap 3 '20

Pulverized coal in metallurgical furnaces at high altitudes. O. L. McIntyre. il diags plan Mech Eng 42:225-7 Ap '20; Same. Min & Met 162:23-6 Je '20; Same. Min & Sci P 121:55-7 Jl 10 '20

Smelting with bituminous coal in blast-furnaces. H. C. Robson. il diags Min & Sci P 121:409-12 S 18 '20

Use of nut coke in the blast furnace. J. B. Rogers. Iron Age 105:1783-4 Je 24 '20

Rating

Furnace rating adopted by Southern Ohio producers receives discussion by experts. Iron Tr R 67:1485 N 25 '20

Rating blast furnace capacities. C. R. Peebles and R. H. Sweetser. Iron Tr R 69:430-2 Ag 18 '21

Refractories

Blast-furnace refractories. R. M. Howe. Min & Met 153:1791-1802 S '19; Same. Blast F & Steel Pl 8:187-92 Mr '20; Discussion. Min & Met 155:3049-50; 157:(sec 12) 82-3 N '19, Ja '20

Remodeling

American rolling mill furnaces remodeled. il Iron Age 106:1318-19 N 18 '20; Same. Iron Tr R 67:1401-3 N 18 '20

Covington furnace at Low Moor remodeled. L. W. Hartwick. il diags plan Blast F & Steel Pl 9:23-5 Ja '21

Remodeled blast furnace at Ironton, Ohio. F. H. Willcox. il Blast F & Steel Pl 8:599-602 N '20; Same. Iron Tr R 67:1123-6 O 21 '20; Same cond. Iron Age 106:1064-5 O 21 '20

Remodeling furnace plants for economy. F. H. Willcox. Blast F & Steel Pl 8:35-6 Ja '20

Safety devices and measures

Making blast furnace work safe. A. E. Macoun. Iron Tr R 68:621-4 Mr 3 '21

Reducing blast furnace hazards. L. A. Touzalin. Iron Tr R 67:987-9 O 7 '20; Same abr. Iron Age 106:971-2 O 14 '20

Statistics

Have we too many rolling mills? blast furnaces completed during 1920; tabulation. Iron Tr R 68:68 Ja 6 '21

Tables, calculations, etc.

Charts for computing blast-furnace performances. H. L. Fickett. charts Eng & Min J 110:108-9 Jl 17 '20

Pyrometry in blast-furnace work. P. H. Royster and T. L. Joseph. Min & Met 153:1953-67 S '19; Same cond. Iron Tr R 65:1452-6 N 27 '19; Discussion. Min & Met 156:3199-3202; 157:(sec 12) 18-20 D '19-Ja '20

Blast stoves. See Blast furnace stoves

Blasting

Arkansas river dammed by a single large blast. I. E. Houk. il Eng N 87:601 O 13 '21

Blasting accidents from missed holes. Min & Sci P 120:277 F 21 '20

Blasting at Ajo, Ariz. il diag Eng & Min J 109:1164-5 My 22 '20

Blasting granite with compressed air. O. Bowles. Eng & Contr 54:261 S 15 '20

Blasting with gasoline vapor. Pop Mech 34:607 O '20

Blasting with liquid air. diags Min & Sci P 122:843-4 Je 18 '21

Blasting with liquid oxygen. S. P. Cortland. il Sci Am M 3:333-6 Ap '21

Colorado company fires successful quarry blast. il diag Concrete 19:sup66 O '21

Competency in shotfiring. Coal Age 19:187-8 Ja 27 '21

Danger from explosives fume in metal mining. D. Harrington and B. W. Dyer. Min & Sci P 121:308-9 Ag 28 '20

Detonating dynamite. J. B. Stoneking. Min & Sci P 120:278 F 21 '20

Digging a ditch with dynamite. G. G. Means. Pub Works 49:440 N 6 '20

Dynamiting old foundations. il Power Pl Eng 24:795 Ag 15 '20

Economical blasting with T.N.T. J. L. Clarke. Pub Works 51:335 O 29 '21

Examination for shotfirers. Coal Age 19:276, 911-12 F 10, My 19 '21

40-ton dynamite blast at Wisconsin quarry. Eng & Contr 53:586 My 19 '20

Method of blasting. Min & Sci P 121:276, 374 Ag 21, S 11 '20

Blasting—Continued

- Method of blasting a wide ditch. H. Gough. Eng & Contr 54:501 N 17 '20
- Method of blasting bed rock for pier base. diags Eng & Contr 56:395 O 26 '21
- Method of blasting brule clay in road grading. Eng & Contr 54:439 N 3 '20
- Mining the coal before blasting. Coal Age 19:676, 999, 1125-6 Ap 14, Je 2, 23 '21
- New method of firing T.N.T. in propagated ditch blasting. Eng & Contr 56:368 O 19 '21
- Picric acid as a blasting agent. C. E. Munroe and S. P. Howell. il Sci Am M 4:70-4 J1 '21
- Powder allowances in mining. G. L. Schmutz. Eng & Min J 109:1069 My 8 '20; Same. Eng & Contr 54:257 S 15 '20
- Stripping a sandpit by blasting. Munic Eng 59:187 N '20
- Tamping a charge of dynamite is the safest method. R. W. Lightburn. Coal Age 17:1010 My 13 '20
- Tamping dynamite. Coal Age 17:244, 603-4, 823-4 Ja 29, Mr 25, Ap 22 '20
- Le tir électrique dans les houillères amorces, explosifs et détonateurs. diags Génie Civil 76:97-101 Ja 24 '20
- TNT practicable for ordinary blasting. Eng N 84:1078 My 27 '20
- TNT success in road work. L. E. Smith. Can Eng 40:311 Mr 17 '21
- Use of explosives in clearing and preparing right of way for a highway. il Eng & Contr 55:539-40 Je 1 '21
- Using explosives in sloping banks to new grade on old road cut. J. N. Bohannon. il diags plan Munic Eng 60:97-9 Mr '21
- Well drill blasting in rock quarries. H. H. Hamilton. Concrete 16:sup11-12 Ja '20

See also Coal mines and mining—Explosives; Detonators; Explosives; Mines, Military; Mines, Submarine; Mining engineering; Quarries and quarrying; Water blast

Safety devices and measures

- Are shotfirers harmful? Coal Age 17:767-8, 825 Ap 15-22 '20
- Authority of shotfirers. Coal Age 17:283-4, 323-4, 415, 660 F 5-12, 26, Ap 1 '20
- Degenerate ideas regarding mine safety. W: Wesnedge. Coal Age 17:1316-17 Je 24 '20
- Electric firing, past and present. R: Bowen. Coal Age 18:1048 N 18 '20
- Electric shot firing in mines. Coal Age 17:14 Ja 1 '20
- Loose end in blasting coal. diags Coal Age 20:142, 302, 645-6 J1 28, Ag 25, O 20 '21
- Numerous unsafe practices of miners in blasting coal and rock in mines. B: Deeble. Coal Age 17:1063 My 20 '20
- Precautions in shotfiring. Coal Age 19:912, 1165 My 19, Je 30 '21
- Precautions to be taken against lightning where shot-firing systems are used. G: S. Rice and L. C. Ilsley. Coal Age 17:594-5 Mr 25 '20
- Reasons why shotfirers should be employed in mines. Coal Age 17:1157-8 Je 3 '20
- Removable auger bit as a safety device. il Coal Age 18:739-42 O 7 '20
- Safe blasting. Pub Works 48:351 Ap 24 '20
- Safeguard for surface blasting. diag Eng & Min J 111:828 My 14 '21; Same. Eng & Contr 55:589 Je 15 '21
- Safety factors in the use of explosives in quarrying. W. O. Snelling. Eng & Contr 52:586-9 N 19 '19; Excerpt. Concrete 15:sup91-2 D '19
- Safety in electric firing. Coal Age 18:546, 953 S 9, N 4 '20
- What the employment of shotfirers has accomplished. R. W. Lightburn. Coal Age 17:1158 Je 3 '20

Blasting powder. *See* Explosives

Blaw-Knox company

Hammer-welding plant of the Blaw-Knox co. E. E. Thum. il diags Chem & Met Eng 25:747-51 O 19 '21

Bleaching

Accelerating bleaching action. E. T. J. Watremez. Color Tr J 8:50-1 F '21

- Analysis of electrolytic bleach. A. Klughaupt and J. E. Minor. diag Paper 26:21-3, 26 My 12 '20
- Bleach and bleaching. F. D. Libby. Paper 27:18-19+ Mr 2 '21
- Bleaching and boiling-out of cotton. J. M. Matthews. il diags Color Tr J 8:10-13, 38-42, 76-80, 118-23, 202-6; 9:4-8, 58-61 Ja-Ap, Je-Ag '21
- Bleaching and dyeing of jute. E. Duhem. Color Tr J 9:134-5 O '21
- Bleaching linen toweling. Textile World 57:2818 Ap 17 '20
- Bleaching of colored cotton goods. J. M. Matthews. Color Tr J 8:157-61 My '21
- Bleaching of cotton. J. M. Matthews. Color Tr J 9:109-12 S '21
- Bleaching of silk. E. Cogliostro. il diags Color Tr J 9:13-16, 68-72 J1-Ag '21
- Bleaching of sulphite pulp. B. M. Petrie. Paper 28:20+ J1 6 '21
- Bleaching operations that offer field for gas. G. C. Shadwell. Am Gas Eng J 113:1-4 J1 3 '20
- Bleaching ribbon. Textile World 58:2075 S 25 '20
- Bleaching silk; abstract. J. L. Girard. Sci Am M 2:179 O '20
- Bleaching with liquified chlorine. il Color Tr J 9:137-8 O '21
- Control of chlorine in the bleaching of cotton goods. C. M. E. Schroeder. il Chem & Met Eng 24:925-6 My 25 '21
- Cotton bleaching. B. De Puyster. Color Tr J 9:132-4 O '21
- Effect of variables on bleaching efficiency. G: K. Spence. Paper 28:148+ Ap 20 '21
- Elimination of nitrogen from vegetable fibres in bleaching. S. H. Higgins. Color Tr J 6:155 My '20
- L'emploi de l'hydrate de strontium en blanchiment. R. Weiss. diags Chimie & Ind 4:518-19 O '20
- Experiences in a cotton bleachery. Textile World 56:3517+ D 27 '19
- Lime and caustic boils for cotton piece goods. Textile World 58:1689 S 11 '20
- Liquid chlorine for bleaching. L. N. Goebel. il Paper 27:17-19 Mr 16 '21
- Methods of bleaching paper-making fibres. Paper 26:11-12 Ag 18 '20
- Ozone in the chemical industries. C. H. Jones. il chart diags Chem & Met Eng 22:805-7 Ap 28 '20
- Some chemical problems in the bleaching of cotton. J. M. Matthews. Color Tr J 6:135-9 My '20
- Steam waste in bleaching and dyeing. J. A. Butler. diag Textile World 59:2107+ Mr 26 '21
- Technical discussions of paper subjects; Hol-yoke section of T.A.P.P.I. Paper 26:11-16 Mr 17 '20
- Testing hypochlorite bleaching solutions. Textile World 57:1641 F 28 '20
- Testing of bleaching strength. P. Klemm. Color Tr J 8:50 F '21

See also Dyes and dyeing

Patents

- Apparatus for bleaching cellulose. with chlorin. diags Paper 26:19-20 Ag 25 '20
- Apparatus for bleaching pulp. diag Color Tr J 9:74 Ag '21

Bleaching machinery

- Improved kier piler. Textile World 58:2077 S 25 '20
- Kier piling machine. il Textile World 57:4541 Je 19 '20

Blind

- Cleveland shops open to blind workers. E. B. Palmer. il Iron Age 106:569-72 S 2 '20
- How a blind man makes drawings. W: D. Forbes. diag Am Mach 55:284-5 Ag 18 '21
- Optophone; an instrument to enable the blind to read. il diags Elec R (Lond) 88:166-8 F 11 '21
- Type-reading optophone; an instrument which enables the blind to read ordinary print. E. E. F. d'Albe. il diag Sci Am M 2:109-10 O '20; Same. Sci Am 123:463 N 6 '20
- See also* Typewriters for the blind

Blind—Continued**Printing and writing systems**

Books for the blind in convenient form; typophonia system of Dr Max Herz. H. A. Mount. *il Pop Mech* 35:29-30 Ja '21

Machine à écrire en caractères Braille pour aveugles. Berger. *Génie Civil* 79:91-2 JI 23 '21

Satisfactory typewriting for war heroes. *il Pringle. Electrician* 86:497 Ap 22 '21; Same. *Elec R (Lond)* 88:721 Je 3 '21

Blind, Books for

Blind girls make books for blind soldiers. *il Pop Mech* 33:571 Ap '20

Blinds

Early architecture of Pennsylvania; windows and shutters. A. L. Kocher. *il diags plan Arch Rec* 49:518-35 Je '21

Shutters and blinds. *il diags Bldg Age* 42:19-22 N '20

Blizard, John

Blizard heads survey at Pittsburgh—Kreisinger will co-operate. *Coal Age* 17:1315 Je 24 '20

Block signals. See Railroads—Signals

Blocks, Concrete. See Concrete blocks

Blood

Making new blood. *Sci Am* 123:609 D 18 '20

New facts about red corpuscles. Bechold. *il Sci Am M* 4:118-20 Ag '21

Circulation

Capillary circulation. W. M. Bayliss. *Sci Am M* 1:260-2 Mr '20

Testing

Blood vibrations determine parentage; the oscillograph. A. Abrams. *diag Pop Mech* 36:9-10 JI '21

Blooming mills. See Rolling mills

Bloomington, Illinois

Proposed Victory square and Civic center, Bloomington. A. T. North. *il plan Am Arch* 117:400-2 Mr 31 '20

Bloomington, Indiana**Water supply**

Impounded water at Bloomington. D. H. Maxwell. *Munic Eng* 60:159-61 Ap '21; Same. *Am Water Works Assn J* 8:407-11 JI '21

Blotting paper**Bibliography**

Blotting paper: a reading list. C. J. West. *Paper Trade Journal* 71:48+ N 25 '20

Blowers

Blowers for water gas machines. W. M. Russell. *il Am Gas Assn Technical sec v* 2: 231-5 '20

High-speed direct-current generator and turbo-blower plant of the International nickel company of Canada, Ltd. H. W. Spooner and F. A. Annett. *il diags Power* 52:768-75 N 16 '20

High-speed turbine-driven blowers. C. H. Smoot. *il diags Power* 51:450-1 Mr 23 '20

High-speed turbo blower by the Rateau Battu Smoot co. *Iron Age* 106:196 JI 22 '20

High-speed turbo-blowers. C. H. Smoot. *Power* 53:15-16 Ja 4 '21

Industrial uses of the electric fan. C. B. Merrick. *il J Elec* 46:184-5 F 15 '21

Motor drive for fans and blowers. G. Fox. *il Power* 53:664-6 Ap 26 '21

Notes on the calculation of blower systems. J. L. Alden. *charts Power* 53:130-3 F 1 '21

Power drives for rolling mills. W. O. Rogers. *il Power* 51:465-8 Mr 23 '20

Rigging for speed in blower work. H. R. Simonds. *il Foundry* 49:359-63 My 1 '21

Small blowers in combination with furnaces. F. R. Still. *diags Sheet Metal Worker* 12:400-2 JI 8 '21

1300 h.p. gas driven blowing engine. *il diags (supp) Engineer* 131:451-4 Ap 29 '21; Abstract. *Mech Eng* 43:479-80 JI '21

See also Blast furnaces; Fans, Mechanical; Mechanical draft; Mine ventilation; Pneumatic injectors; Ventilation

Blowpipes

Choosing gas welding apparatus. F. W. Smith. *Iron Tr R* 68:1314-16 My 12 '21

Investigation of oxy-acetylene welding and cutting blowpipes. R. S. Johnston. *il diags Mech Eng* 43:305-10+ My '21; Same cond. *Iron Tr R* 68:1377-83 My 19 '21; Excerpt. *Iron Age* 107:1484 Je 2 '21; Summary. *Ry Mech Eng* 95:449-50 JI '21

Oxyacetylene blowpipe lit under water. *il Pop Mech* 36:254 Ag '21

Blue

Identification and properties of direct cotton blue dyes. L. G. Hayes. *Color Tr J* 8:185-8 My '21

National alphasurine A. *Color Tr J* 9:105 S '21

Technology of garment dyeing and cleaning. J. Loeb. *Color Tr J* 9:152-3 O '21

See also Indophen blue

Blue sky law. See Securities—Law

Blue stain

Chemical dips prevent blue stain in lumber. *Chem & Met Eng* 25:286 Ag 17 '21; Same. *Paper* 28:22+ Ag 17 '21

Bluefield, West Virginia**Water supply**

Water supply of Bluefield. *Pub Works* 49:569 D 18 '20

Blueprinting machinery

Recent progress in blue printing. *il Sci Am* 124:389 My 14 '21

Blueprints

Blue print reading. E. M. Wyatt. 86p The Bruce Publishing Company, Milwaukee

Blueprint-paper sensitizing device. H. B. Graves, Jr. *il Pop Mech* 33:140 Ja '20

Controlling blueprints. H. M. Fitz. *il Iron Age* 108:402 Ag 18 '21

Indicating and recording changes on drawings. F. R. Daniels. *diags Mach* 26:605-8 Mr '20

Mounting blueprints on steel plates. C. C. Cloud. *diag Coal Age* 17:210-11 Ja 29 '20

Standardized drawings. *Factory* 24:152+ Ja '20

Why the blueprint? L. N. Gillis. *Am Mach* 53:344 Ag 19 '20

Why the blueprint? F. Richards. *diags Am Mach* 52:371-2 Ap 22 '20

Why the blueprint? H. Senior. *Am Mach* 53:22-3 JI 1 '20

Reproductions

Small loose-leaf photos replace big blueprints. C. W. Geiger. *il Eng N* 84:959 My 13 '20

Bluing of steel. See Steel, Bluing of

Board, Bishopric. See Bishopric board

Board, Box. See Paper board

Board, Cork. See Cork board

Board, Paper. See Paper board

Board, Straw. See Paper board

Boards of trade. See Chambers of commerce

Boat lines, Government

Government operation of boats on inland waterways. C. W. Baker. *Eng N* 84:234-6 Ja 29 '20

Hurt by government competition. F. B. Jacobs. *il Marine R* 57:172-3 Mr '20

Boats

Belgium builds strange railway for river boat portage in the Congo. H. S. White. *il Pop Mech* 36:495-8 O '21

See also Barges; Canal boats; Canoes and canoeing; Catamarans; Dredges; Ferryboats; Fire boats; Flying boats; Freight ships; House boats; Lifeboats; Motor boats; Patrol boats; Rafts; Scows; Shipbuilding; Ships; Steamboats; Submarine boats; Torpedo boats; Towboats

Boats—Continued**Painting**

Frame for painting rowboats. diags Pop Mech 33:938 Je '20

Boats, Concrete

Péniche en béton armé, système Zublin-Koller. A. Antoine. il Génie Civil 78:420-1 My 14 '21

Reinforced concrete tug. il diags Engineer 128:544-6 N 28 '19

See also Barges, Concrete; Ships, Concrete

Bobbins

Silk bobbin. diags Textile World 60:343 JI 9 '21

Bodine, H. O.

Sketch. L. Anson. por System 39:44-6 Ja '21

Bodoni, Giambattista, 1740-1813

Printer and typefounder. H: L: Bullen. por Inland Ptr 67:760, 772-5 S '21

Body temperature. See Temperature, Animal and human

Bogart, John, 1836-1920

Sketch. por Eng N 84:887 Ap 29 '20

Boiler and pressure vessel inspectors, National board of. See National board of boiler and pressure vessel inspectors

Boiler arch

Shaw monolith suspended boiler arch. diags Power 51:458 Mr 23 '20

Stevens suspended sprung arch. il Power 52:619-20 O 19 '20

Boiler cleaning

Increasing conductivity and reducing fuel consumption; methods of cleaning scale. W: R. Van Nortwick. Power Pl Eng 24:1077-9 N 15 '20

Removing boiler and stack soot with a steam jet. G. S. Hamilton. diags plan Elec R 76:1027-8 Je 19 '20

Soot and its abatement by the use of salt. B. S. Murphy. Power 52:322-6 Ag 31 '20

Using sand, compressed air and water to clean boilers. il Sci Am 125:67 JI 23 '21

See also Locomotive boilers—Cleaning; Soot blowers; Soot cleaners

Boiler code. See Boilers—Laws and regulations

Boiler control. See Boiler plants—Equipment; Boilers

Boiler explosions

Blow-down explosion. Engineer 130:566 D 3 '20

Boiler explosion at a London hospital. Engineering 112:148-9 JI 22 '21

Boiler explosion at creamery kills five. J. P. Morrison. il Power 53:107-8 Ja 18 '21

Boiler explosion at Monterey, Tenn. il diag Power 53:760 My 10 '21

Boiler explosion at Owosso, Michigan. Locomotive 33:98-100 O '20

Boiler explosion at Rockport, Texas. il Power 51:27-8 Ja 6 '20

Boiler explosion at Savannah, Georgia. il Locomotive 33:162-3 Ap '21

Boiler explosions during 1920. Locomotive 33:215-21 JI '21

Boiler explosions, July, August, September 1920. Locomotive 33:186-9 Ap '21

Boiler ruptures with man in firebox. diag Power 53:999 Je 21 '21

Case with a moral. il Power 53:72 Ja 11 '21

Cause of boiler explosion. A. L. H. Street. Power 53:614 Ap 19 '21

Creamery boiler explodes at Owosso, Mich. il Power 52:77-8 JI 13 '20

Economiser explosion. Engineer 130:398 O 22 '20

Fatal boiler explosion at Seattle. il Power 51:444 Mr 16 '20

Fatal explosion of a water-tube boiler. Engineering 112:324 Ag 26 '21

Forty years of boiler explosions, 1880 to 1919 inclusive. charts Locomotive 33:101-8 O '20; Abstract. Power 52:786 N 16 '20

Frozen safety valve causes boiler explosion. il diag Power 51:175-7 F 3 '20

Is hydrogen gas sometimes the primary cause of boiler explosions? C. A. Green. Power 52:949 D 14 '20

Lap seam boiler explodes. il Power 50:604-5 O 21 '19

Low pressure boiler hazard. il Locomotive 33:49-50 Ap '20

Oil-country boiler explosion. il Power 53:123 Ja 18 '21

Possible causes of boiler explosions. T: Gray. Power 51:644 Ap 20 '20

Preventing boiler explosions. I. B. Leavitt. Power Pl Eng 24:583 Je 1 '20

Preventing boiler explosions. C. S. Tompkins. il Power Pl Eng 24:486-7 My 1 '20

Single-sheet lap-seam boiler must go. J. P. Morrison. il diags Power 53:652-5 Ap 26 '21

Summary of boiler explosions, 1918-1919. Locomotive 33:81-3 JI '20

Typical low-water boiler explosion. il Power 52:680 O 26 '20

Vacuum plays havoc with steam boiler. il Pop Mech 36:197 Ag '21

Welded boiler explodes. il Power 52:236-7 Ag 10 '20

What caused the boiler heads to corrode? il diags plan Power 52:901-2 D 7 '20; Discussion. H. Kriegsheim. 53:401-2 Mr 8 '21

Why blame caustic soda for boiler-plate cracks? H. Kriegsheim. Power 51:677-8 Ap 27 '20

Boiler furnaces. See Furnaces, Boiler

Boiler inspection

Advantages of co-operation between the boiler manufacturer and insurance company. S. F. Jeter. Locomotive 33:73-6 JI '20

Boiler inspection in Ohio. C. O. Meyers. Power 53:405 Mr 8 '21

Boilermakers as inspectors. A. D. Palmer. diag Power 53:714 My 3 '21; Discussion. 54:192, 337 Ag 2, 30 '21

Inspecting the boiler. W. M. McNeill. Power Pl Eng 25:752-3 Ag 1 '21

More about the value of inspections. diags Locomotive 33:228-33 O '21

National system for the inspection and registration of steam boilers. Power 53:58-61 Ja 11 '21

Preparing boilers for inspection. E: Rutledge. Power Pl Eng 24:833-4 S 1 '20

Rules for boiler inspection. C. A. Allison. Power 50:832 D 16 '19

Summary of inspectors' work for 1919. Locomotive 33:51 Ap '20; Same abr. Power 51:1037 Je 29 '20

Under the city sidewalks. O. W. Warren. diags Power 53:115 Ja 18 '21

Uniform boiler inspection laws. C. O. Meyers. Power Pl Eng 25:288-9 Mr 1 '21

See also Locomotive boilers

Boiler joints. See Boilers—Joints

Boiler manufacturers' association, American. See American boiler manufacturers' association

Boiler meters

Steam-plant metering practice. R. E. Dillon. il charts Elec W 76:630-2 S 25 '20

See also Boiler plants—Equipment

Boiler plants

Automatic oil-burning plant at sugar refinery. C. C. Brown. plan Power Pl Eng 25:599-602 Je 15 '21

Baltimore's improved central plant. il diags plans Power Pl Eng 24:363-7 Ap 1 '20

Boiler house for the American oak leather company. P. P. Suiter. il diag Power Pl Eng 25:955-6 O 1 '21

Boilers of the power plant. diag Mech Eng 42:641 N '20

Cambria steel company new boiler plant at Johnstown, Pa. E. W. Trexler. il diags Blast F & Steel Pl 9:389-92 Je '21

Changing a hand-fired to a stoker-fired plant; Utica steam and Mohawk Valley cotton mills. C: T. Main. il plans Power 53:954-7 Je 14 '21

Colliery boiler plant satisfactorily burns no. 2 tank barley. D. C. Ashmead. il diags plans Coal Age 17:430-3 Mr 4 '20

Boiler plants—Continued

- Design of a unit boiler plant. L: R. Lee. diags plan Elec W 75:316-19 F 7 '20
- Design of large boiler plants. J. G. Rollow. il diags Am Soc Heat & V E J 26:715-34 N '20
- Dodge brothers modern power plant. T: Wilson. il diags plan Power 53:841-9 My 24 '21
- Dodge brothers' new power plant at Detroit. il diag Iron Age 107:1391-4 My 26 '21
- Exact data on the performance of steam boiler plants. D: Brownlie. Engineering 110:759-61, 797-9 D 10-17 '20; Discussion. (Chimney draught). 110:833 D 24 '20
- Exact data on the running of steam boiler plants. D. Brownlie. pl 3 (supp) Engineering 109:71-4 Ja 16 '20
- Extension to L street station, Boston. C: H. Bromley. il diags Power 51:124-9 Ja 27 '20
- Factors contributing to boiler-room efficiency. R. G. Felger. il chart diags Elec R 77:605-9 O 16 '20
- Factors in the design of large boiler plants. J. G. Rollow. diag Elec R 77:276-80, 448-51 Ag 21, S 18 '20
- Fuel oil as a means to increased capacity in boiler plant. C. C. Lance. diags Ry Mech Eng 94:723-4 N '20
- Fuel utilization and smoke abatement in Salt Lake City. O. Monnett. il Power 52:204-7 Ag 10 '20
- Heating and ventilating a cottage hospital; boiler plants. C: L. Hubbard. diags Dom Eng 92:589-91 S 18 '20
- High-pressure oil-burning installation; boiler plant of the Fall river electric light co. il chart diags plan Power 54:622-4 O 25 '21
- Industrial power plant improved. D. Henderson. Power 54:298 Ag 23 '21
- Influence of wages on power-plant design. il diag plan Elec Ry J 55:1043-6 My 22 '20; Same. Power 51:917-19 Je 8 '20
- Investigation of gas-fired steam boiler plant. R. L. Ellis. Power 53:472-3 Mr 22 '21
- Larger boiler units and combustion chambers increase economy. R. E. Butler. Elec W 76:979 N 13 '20
- New boiler plant. W. S. Johnston. Paper 28:19 Je 22 '21
- Modern steam generating station of Republic iron and steel company, Youngstown, Ohio. G. C. Emmons. il diags plan Blast F & Steel Pl 9:65-78 Ja '21
- Modern steel works power plant. W. N. Flanagan. Blast F & Steel Pl 9:350-6, 445-6, 510-14 Je-Ag '21; Same cond. Iron Tr R 68:1526-31 Je 2 '21; Same cond. Iron Age 107:1555-7; Discussion. 1557-9 Je 9 '21
- Modernization of stationary boiler plants. diags Ry Age 68:1638-44 Je 10 '20; Same cond. Ry R 66:983-8 Je 12 '20
- Modernizing a cotton mill boiler plant. C: T. Main. il plans Textile World 60:851, 853 Ag 6 '21
- Moline station adds to steam and generating capacity. T: Wilson. il diags plans Power 51:208-14 F 10 '20
- New boiler-house plant at Wimbledon electricity works. il Elec R (Lond) 89:485-7 O 7 '21; Same cond. Eng. & Ind Management 6:402-3 O 13 '21
- New Calumet station of the Commonwealth Edison co., Chicago. A. D. Bailey. Power Pl Eng 25:522-3 My 15 '21
- New Ford plant power house at River Rouge. diags plan Power 53:332-5 Mr 1 '21
- New steam plant for Hartford City. P. R. Buchanan. il Gas Age 48:169-70 Ag 20 '21
- New Studebaker boiler plant at South Bend. il diags plans Power 52:568-72 O 12 '20
- New turbine installation of Pacific gas & electric co. C: W. Geiger. il plan Power Pl Eng 24:217-25 F 15 '20
- New turbine plant of the Hudson motor car co. il diags Power 53:572-5 Ap 12 '21
- Performance of mechanical stokers. D: Brownlie. Engineering 109:426-8, 495-8 Mr 26, Ap 9 '20
- Plant built for service; power plant of the Solar refining company. il diags plan Power Pl Eng 25:449-54 My 1 '21
- Plant of the James Leffel & co. generates steam for power, light and heat. il plans Power Pl Eng 25:253-7 Mr 1 '21
- Power drives for rolling mills. W. O. Rogers. il Power 51:171-4, 291-6 F 3, 24 '20
- Power for toasting cornflakes. il diags plan Power Pl Eng 25:545-50 Je 1 '21
- Power from exhaust steam drives turbo-generators at Western drop forge co. plant. il diags Power Pl Eng 25:303-7 Mr 15 '21
- Power plant troubles. H. A. Jahnke. diags Power Pl Eng 25:865-7 S 1 '21
- La production et l'utilisation de la vapeur; rapports de la Commission d'utilisation des combustibles. Génie Civil 78:252-4 Mr 19 '21
- Pulverized coal in a Milwaukee power plant. il diags Elec R 76:469-72 Mr 20 '20
- Reconstruction of a power plant under operation. T. Fliflet. il diag Power 52:82-4 Jl 20 '20
- Remodeling old power stations—boiler-plant improvements. L. R. Lee. il Power 52:1004-7 D 28 '20
- Sinclair boiler plant at East Chicago. il diags plan Power 51:576-80 Ap 13 '20
- Springfield power station, West Penn power company. G. G. Bell. il diags plan Power 52:488-96 S 28 '20
- Standard oil mine plant at Schoper. il diags plans Power 54:312-17 Ag 30 '21
- Standardization of boiler plants. L: R. Lee. diags Power 51:374-8 Mr 9 '20; Abstract. Mech Eng 42:299 My '20
- Stopping the chimney thief. C: C. Phelps. il Sci Am 124:101+ F 5 '21
- Super-power plant for Paris. H. Goodwin, jr. Power 51:708 My 4 '20
- Use of superheated steam in power-plant operation. il Elec R 78:139-42 Ja 22 '21
- Where four boilers do the work of six. T. A. Marsh. diags Factory 25:366-8 Ag 1 '20
- Where steam makes butter; separately fired superheaters and record system are special features of American coconut butter co. plant. il diags Power Pl Eng 24:729-32 Ag 1 '20
- See also Boilers; Draft; Mechanical draft; Steam plants

Employees

- Breaking in the green man. C. M. Bourcy. Power 54:233-4 Ag 9 '21

Equipment

- Boiler-house extension at Wimbledon. il Electrician 87:327-8 S 9 '21
- Boiler operation at the power plant of the Mesta machine company. C. Fischer. il charts Blast F & Steel Pl 9:239-47 Ap '21
- Boiler room essentials. H. F. Gauss. Eng & Contr 53:52-3 Ja 14 '20; Same. Power 50:589-90 N 22 '19; Discussion. C. J. Schmid. 51:273 F 17 '20
- Boiler-room essentials. C: G. Richardson. diag Power 51:477 Mr 23 '20
- Boiler-room gages. S. R. Finley. il Power 54:336 Ag 30 '21
- Boiler-room instrument boards. il Power 51:228 F 10 '20
- Boiler room instruments. W: Schack. il diag Paper 27:117-18 N 10 '20
- Boiler-room instruments as an aid to firemen. H: Kelsey. Power 53:923 Je 7 '21
- Boston Edison stoker and control equipment. il Elec W 75:77-8 Ja 10 '20
- British automatic electric telpher. G: F: Zimmer. il diags Eng & Ind Management 6:161-5 Ag 11 '21
- Coal and ashes handling installation. H: J. Edsall. il diags plan Textile World 57:2501+ Ap 3 '20
- Coal handling in the power house; equipment of the British cellulose and chemical manufacturing company. G: F: Zimmer. diags plans Electrician 86:6-9 D 31 '20
- La comburimétrie industrielle. A. Grebel. il diags Génie Civil 78:78-82, 103-4 Ja 22-29 '21
- Combustion guide for the fireman. diag Power Pl Eng 25:198 F 1 '21; Textile World 59:2311 Ap 2 '21

Boiler plants—Equipment—Continued

- Control board for operation of large boiler. il Elec R 77:623 O 16 '20
- Control of boiler operation. W. N. Flanagan. Power 54:606-8 O 18 '21
- Dispatching method of operating boiler plant. il Elec W 75:270-1 Ja 31 '20; Same. Power 51:262 F 17 '20
- Economizers. W. F. Wurster. il diags plans Am Soc Heat & V E J 26:811-18 D '20; Abstract. Power 53:160 Ja 25 '21
- Exhibition of boiler-house apparatus. il diag Engineering 112:56-7 Jl 8 '21
- Fuel saving in relation to capital necessary. J. Harrington. Mech Eng 43:725-6 N '21
- How meters make coal saving a game. W: E. Dixon. charts Factory 25:1711-15, 1888-90 D 1-15 '20
- Improving boiler room practice. R. June. il Textile World 59:3821+ Je 4 '21; Same, with table. Blast F & Steel Pl 9:386-8 Je '21
- Improving operation in an old plant. il diags Power Pl Eng 25:208-11 F 15 '21
- Instruments and records for boiler and engine rooms. C. A. Greenidge. Elec W 77:938 Ap 23 '21
- Instruments as fuel savers. C: J. Miller. Power Pl Eng 25:871 S 1 '21
- Instruments essential in saving fuel in the gas industrial plant. F. W. Sweet. Am Gas Eng J 114:54+ Ja 15 '21
- Instruments for the boiler plants. P. R. Duffy. Power 52:1030 D 28 '20
- Instruments indispensable for boiler room economy. R. Page. il Elec W 77:1234-5 My 28 '21
- Measuring the salinity of boiler water. il Marine Eng 26:635-6 Ag '21
- Power plant instruments and meters. E. G. Bailey. il diags Eng Soc W Pa 36:381-99 Jl '20; Same cond. Power Pl Eng 24:1067-9 N 15 '20; Discussion. Eng Soc W Pa 36:400-8 Jl '20
- Recent developments in steel works power plants. W. N. Flanagan. Blast F & Steel Pl 9:56-9 Ja '21
- Recording and regulating appliances for the steel works boiler room. F. J. Denk. charts diags Blast F & Steel Pl 8:343-8 Je '20
- Saving coal by reducing power costs; instrument board of measuring and recording instruments for regulating engine-room activities. il Sci Am 124:245+ Mr 26 '21
- Selection and mounting of recording instruments. diags plan Heat & Ven 17:46 N '20
- Selection and operation of power plant equipment. Eng & Contr 52:679-82 D 10 '19
- Sheet iron protection in boiler rooms. R. K. Long. diag Power Pl Eng 25:820 Ag 15 '21
- Stopping wastes in boiler plant. L. L. Heberd. Gas Age 45:336-9 Ap 26 '20; Same abr. Am Gas Eng J 112:259-60+ Ap 3 '20
- Symposium of articles on fuel economy in the power plant. Power Pl Eng 25:2-93 Ja 1 '21
- Useful electric salt-meter. C. C. Brown. il diag Power Pl Eng 24:521-2 My 15 '20

See also Carbon dioxide recorders; Feed water heaters; Feed water regulators; Fuel economizers; Oil heaters; Stokers, Mechanical

Layout

- Boiler-floor space. J. B. Crane. Power 54:530 O 4 '21

Management

- Boiler house economies. C. McManiman. Coal Age 17:61-2 Ja 8 '20
- Boiler-house management. D: Wilson. Engineer 132:33 Jl 8 '21
- Boiler house technique. Elec R (Lond) 89:527 O 21 '21
- Boiler-plant efficiency. V: J. Azbe. diags Mech Eng 43:722-4+ N '21
- Coal-saving in the chemical industry; abstract. D: Brownlie. Chem & Met Eng 23:939-40 N 10 '20
- Cutting coal consumption a third. il diags plan Elec Ry J 58:232-7 Ag 13 '21
- Dispatching method for operating boiler plant. il Elec W 75:270-1 Ja 31 '20; Same. Power 51:262 F 17 '20

- Economies in power-plant operating practice. C. A. Greenidge. Elec R 77:959-61 D 18 '20
- Economies of the boiler room. J: M. Drabell. Munic Eng 61:26-30 Jl '21
- Economy at stationary boiler plants. C. M. Rogers. Ry Mech Eng 94:381-3 Je '20
- Economy in the boiler room. N. P. Winchell, jr. il Paper 26:13-14+ Jl 28 '20
- Efficient operation of the boiler plant. J: D. Morgan. Power 51:868-73, 957-61 Je 1, 15 '20
- Experiences in power-plant operation. F: L. Ray. Power 52:234 Ag 10 '20
- Factors that make for boiler efficiency. Eng & Ind Management 5:454-5 Ap 21 '21
- Finding and stopping waste in modern boiler rooms. v. 2, 2d ed., rev & enl. 414p H. S. B. W.-Cochrane corporation, Philadelphia '21
- Fuel economy in idle mills. G: H. Perkins. chart Textile World 59:206 Ja 8 '21
- How two plants have trimmed their coal bills. Factory 26:42-5 Ja 1 '21
- Ideal methods of boiler-room operation. W. Weaver. Power 51:75 Ja 13 '20
- Improved operating conditions save \$13,585 in fuel per year. O. Craig. Power 52:585-8 O 12 '20
- Increasing boiler room efficiency. D. S. Jacobus. Textile World 56:3359+ D 13 '19
- Modern boiler house practice; abstracts with discussions. W. Miles. Electrician 87:153-5 Jl 29 '21; Elec R (Lond) 89:197-8 Ag 5 '21
- Modern factory processes applied to boiler-room operation. T. A. Marsh. Power 54:211-12 Ag 9 '21
- More power through fuel economy. M. W. Link. Textile World 60:1381+ S 3 '21
- Pointers for the small power plant operator. W: W. Edson. Power 54:367-8 S 6 '21
- Reducing coal and ashes handling costs. H: J. Edsall. il diag Textile World 60:1931+, 2869+ O 1, N 12 '21
- Reducing coal consumption from 51 to 27 tons a day. H. A. Ward. diags Power 54:172-4 Ag 2 '21
- Reducing the fuel consumption of power plants. W: N. Allman. Ry Mech Eng 95:88-91, 154-5 F-Mr '21
- Refinements of practice in modern power plants. I. L. Kentish-Rankin. Power Pl Eng 25:988-90 O 15 '21
- Rules and suggestions for firemen and boiler-room helpers. D. W. Gwinn. Power 52:561 O 5 '20; Same. Elec R 77:818-19 N 20 '20
- Saving fuel in railroad power plants. R. S. Twogood. il Ry R 69:532-5 O 22 '21
- Seventeen rules for efficient boiler-plant maintenance and operation. E. H. Tenney. Elec W 76:639 S 25 '20; Same. Eng & Contr 54:364 O 13 '20
- Stopping fuel waste in a modern boiler room. W. M. McNeill. Power Pl Eng 24:1025 N 1 '20
- You, Mr Watertender. Power 53:738 My 10 '21; Same. Locomotive 33:208-11 Jl '21
- See also* Boilers—Control

Records

- Daily records. C. C. Brown. Power Pl Eng 25:806-9 Ag 15 '21
- How a boiler log cuts costs. M. C. W. Tomlinson. Factory 26:185-8 Ja 15 '21
- Instruments and records for boiler and engine rooms. C. A. Greenidge. Elec W 77:938 Ap 23 '21
- Recording of ash-pit loss from chain-grate stokers; abstracts. E. G. Bailey. chart diags Elec R 78:967-72 Je 18 '21; Mech Eng 43:381-5 Je '21; Power Pl Eng 25:650-2 Jl 1 '21

Safety devices and measures

- Boiler plants; arrangement and operating methods to secure maximum of safety. diags Power Pl Eng 25:603-6 Je 15 '21
- Boiler rooms; suggestions for proper maintenance and operation. diag Am Gas J 115:137-9+ Ag 13 '21
- Rules to be followed while working around boilers and stokers. H. J. Burton. Elec W 77:940 Ap 23 '21
- Safety first methods of a big power plant. il Power 53:608-13 Ap 19 '21

See also Boilers—Safety devices

Boiler plants—Continued**Ventilation**

Method of ventilating boiler rooms. diags Heat & Ven 18:45 Je '21

Boiler plates

Rissbildung in kesselblechen. B. Strauss and A. Fry. diag Stahl & Eisen 41:1133-7, pl 7-8 Ag 18 '21

Tentative specifications for boiler and fire-box steel for stationary service. diag Am Soc T M Pro v 20, pt 1:497-501 '20

Testing

Motion pictures in physical testing laboratory. H. J. French. il Chem & Met Eng 24:131 Ja 19 '21

Tensile properties of boiler plate at elevated temperatures. H. J. French. il diags Min & Met 158:(sec 15) 1-11 F '20; Same cond. Iron Tr R 66:1407-10 My 13 '20; Abstract. Sci Am M 1:184-5 F '20; Abstract. Power 52:273 Ag 17 '20

Boiler room instruments. See Boiler plants—Equipment

Boiler scale

Boiler-feed pipe-scaling trouble. C. A. Green. diags Power 53:862 My 24 '21; Discussion. R. A. Cultra. 54:71-2 Jl 12 '21

Boiler scale paradox. W. F. Schaphorst. Paper 28:34 My 18 '21

Cost of boiler scale. W. F. Schaphorst. chart Ry Mech Eng 95:292 My '21

Effective heat transmission surfaces; deposits of soot and scale on boiler tubes. il diags Power Pl Eng 25:67-70 Ja 1 '21

Heat loss due to scale on boiler heating surfaces. F. F. Vater. Eng & Contr 53:273 Mr 10 '20

Increasing conductivity and reducing fuel consumption; methods of cleaning scale. W. R. Van Nortwick. Power Pl Eng 24:1077-9 N 15 '20

Oldham valveless scaling tool. il Am Mach 53:870 N 4 '20

Pure water for locomotives. P. M. LaBach. Ry R 68:456-60 Mr 19 '21

Removing scale before it forms. W. M. Taylor. il Factory 26:843-7 Ap 1 '21

See also Feed water purification

Boiler tubes

Are small boiler tubes desirable? Power 53:755-6, 902; 54:111 My 10, 31, Jl 19 '21

Coleman tube safe end with square shoulder. diags Ry Mech Eng 95:127-8 F '21

Constitution and properties of boiler tubes; causes underlying defective tubes. A. E. White. il Mech Eng 42:603-6+ N '20; Abstract. Power 52:959-61 D 14 '20

Unusual boiler tube corrosion by carbon dioxide. B. G. Worth. il Am Electrochem Soc Trans v 39 (preprint 28):329-35 Ap '21; Same. Power 53:1068-9 Je 28 '21

See also Boilers—Failures

Manufacture

Manufacture of charcoal-iron boiler tubes. Mech Eng 43:614 S '21; Same. Sci Am M 4:279 S '21

Modern equipment facilitates flue shop work. il diag Ry Mech Eng 95:554-8 S '21

Segregation in bars for steel tubing. H. D. Newell. il Chem & Met Eng 23:745-6 O 13 '20

Welding boiler tubes by the electric resistance process. P. T. Van Bibber. il diags Am Mach 52:653-7 Mr 25 '20

Specifications

Proposed tentative specifications for lap-welded and seamless steel and lap-welded iron boiler tubes. Blast F & Steel Pl 9:503-5 Ag '21

Standard specifications for lap-welded and seamless steel and wrought-iron boiler tubes for stationary service; English and French. diags U S Bur For & Dom Com Industrial Standards 123:1-16 '21

Boiler water. See Feed water

Boilers

American boiler manufacturers' association 33d annual convention, Bedford Springs, Pa. Power 54:40-1 Jl 5 '21

Boiler and furnace design. D. S. Jacobus. Power 53:758-9 My 10 '21

Boiler code and cheap boilers. Power 52:829-30 N 23 '20

Boiler equipment at River Rouge plant of the Ford motor company. G. T. Ladd. il diags Eng Soc W Pa 37:115-36 Ap '21; Same cond. Blast F & Steel Pl 9:219-23 Mr '21; Discussion. Eng Soc W Pa 37:149-57 Ap '21

Boilers and auxiliary equipment, Colfax power station. il diags Power 53:686-93 My 3 '21

Boilers and economizers. D. S. Jacobus. Power 53:10-11 Ja 4 '21

Cast iron sectional boilers for heavy duty. A. G. King. diags Dom Eng 92:638-40 S 25 '20

Changing of old lap seam boilers to a butt seam construction. diags Locomotive 33:141-6 Ja '21

Concentration of water in steam boilers. V. J. Azbe. il Power 54:46-8 Jl 12 '21; Discussion. A. L. Penniman. 54:387 S 6 '21

Dean boiler. F. Webster. diag Power Pl Eng 25:735-6 Jl 15 '21

Design of railway stationary plants; excerpts from report of Committee on railroad stationary power plants. Power 51:192-3, 313-14 F 3, 24 '20

Early American steam boilers. H. G. Boutell. il Power 50:822-3 D 16 '19

L'emploi de l'acier moulé dans les chaudières à vapeur. Génie Civil 76:217-18 F 21 '20

Exact data on the performance of steam boiler plants. D. Brownlie. Engineering 110:759-61, 797-9 D 10-17 '20; Abstract. Am Soc Heat & V E J 27:321-3 Ap '21

500 horse-power combined engine and boiler. il diags (supp) Engineer 132:88, 94 Jl 22 '21

Generation of steam. J. Dewrance. diags Engineer 131:182-3 F 18 '21; Excerpt. Power 53:525 Mr 29 '21

Grooving in steam boilers. E. J. Reed. Eng & Ind Management 5:600 My 26 '21

Impractical boiler connections. G. C. Stierhoff. diags Power Pl Eng 25:895-6 S 15 '21

Latest developments in large boilers for central stations. diag Power 52:891-2 D 7 '20

Oil and steam boilers. Metal Work 92:486-7 O 24 '19

Operating small power-plant boilers. W. W. Edson. diags Power 53:1048-50 Je 28 '21

Overheating of steam boilers. Eng & Ind Management 5:678-9 Je 16 '21

Pitting in steam boilers. Eng & Ind Management 5:482 Ap 28 '21

Radiant energy in boiler practice. A. G. Christie. Power 53:590 Ap 12 '21

Scale-proof boiler for locomotive cranes. il diag Ry Age 70:1182 My 20 '21

Simple rules for operating hand-fired boilers when using low B. t. u. coal W. A. Darter. Power 52:341-2 Ag 31 '20

Single-sheet lap-seam boiler must go. J. P. Morrison. il diags Power 53:652-5 Ap 26 '21

Smokeless combustion of coal in boilers. F. J. Denk. diags Blast F & Steel Pl 8:469-73 Ag '20

Some large American boilers. diags plan Engineer 132:151 Ag 5 '21

Steam boiler engineering. 27th ed. 639p Heine safety boiler co., St Louis '20

Steam boiler maintenance. R. Clayton. 118p Pitman '21

Steam boilers. T. Croft and others. 412p McGraw-Hill '21

Steam raising: yesterday, to-day and tomorrow; abstracts. D. Wilson. Electrician 87:152-3 Jl 29 '21; Elec R (Lond) 89:195-6 Ag 5 '21

Ultimate boiler capacity limited by design and operation. J. Harrington. diags Elec R 77:596-9 O 16 '20

Ultimate boiler capacity limited by fuel conditions. J. Harrington. Elec R 78:129-31 Ja 22 '21

Boilers—Continued

Ultimate boiler capacity limited by stoker conditions. J. Harrington. *il Elec R* 78:451-3 Mr 19 '21

Why does the water in a boiler lift when the safety-valve blows? *diags Power* 50:714-15; 51:269, 307, 343-4 N 11 '19, F 17-Mr 2 '20

See also Boiler cleaning; Boiler explosions; Boiler inspection; Boiler plants; Boiler plates; Boiler scale; Boiler tubes; Dampers; Feed water; Feed water purification; Feed water regulation; Firing; Fuel economy; Furnaces, Boiler; Grates; Injectors; Locomotive boilers; Mechanical draft; Pumps; Feed water; Safety valves; Staybolts; Steam engines; Stokers, Mechanical; Water gages

Baffles

See Baffles

Blow-off

Blowing off a gas boiler. *Gas Age* 45:122 F 10 '20

Boiler blowoff. C: L. Hubbard. *diags Power* 50:755-8 N 25 '19

Boiler blowoff lines and valves. P. R. Duffey *diag Power* 51:110 Ja 20 '20

Water column blowoff valves. D. R. Yarnell. *diag Power* 51:601 Ap 13 '20

Control

Automatic control of combustion. C. G. Gray. *diag Power Pl Eng* 24:649-51 Jl 1 '20

Automatic graduated power plant control. F. A. Moreland. *il chart Blast F & Steel Pl* 8:256-8 Ap '20

Carrick graduated combustion control. *il diag Power* 51:772-4 My 11 '20

Coal is saved by automatic regulation of fire to accord with steam used. T. A. Peebles. *diags Coal Age* 17:1049-51 My 20 '20

Control of boiler operation. W. N. Flanagan. *Power* 54:606-8 O 18 '21

Control of boiler operation. W. L. Lundy. *Power* 54:446-7 S 20 '21

Kelly boiler-control specialties. *diags Power* 52:59-60 Jl 13 '20

Efficiency

Boiler efficiency and output as affected by draught. A. R. Horne. *Engineer* 132:322-3 S 23 '21

Boiler efficiency and stack temperature. W. F. Schaphorst. *Power Pl Eng* 25:93 Ja 1 '21

CO₂ exploration to detect air leakage. A. E. Grunert. *diags plan Power* 52:54-6 Jl 13 '20

Chart for determining boiler efficiency. *chart Eng & Contr* 53:275 Mr 10 '20

Distance of boiler from stack influenced amount of CO₂ in flue gas. *Elec W* 75:1094 My 8 '20

Evaporation—its calculation and relation to boiler efficiency. A. F. Brewer. *Power* 54:296 Ag 23 '21

Graphic records of flue gas analyses. F. D. Harger. *chart Power Pl Eng* 24:379-80 Ap 1 '20

How to improve boiler efficiency. H. F. Gauss. *chart Power* 51:180-3 F 3 '20

Loss due to carbon in furnace refuse. C. H. Berry. *chart diag Power* 50:500-2 S 23 '19; *Excerpts. Chem & Met Eng* 22:179 Ja 28 '20

Losses due to combustible in refuse. *chart Elec Ry J* 54:1006-7 D 20 '19

Minimizing steam boiler losses. R. June. *Gas Age* 48:7-9 Jl 11 '21

Operating oil-fired boilers efficiently. R. Sibley and C: H. Delany. *il Elec W* 74:1100-5 D 20 '19

Reading chimney losses direct from CO₂ charts. C. C. Phelps. *Power Pl Eng* 24:133-6 Ja 15 '20

Reducing losses in a boiler room. C. A. Greenidge. *Elec W* 77:599-600 Mr 12 '21

Relation between boiler efficiency and CO₂. E. A. Uehling. *Power* 53:274 F 15 '21

Steam boiler efficiency. W. H. Casmey; J. Dunlop. *Engineer* 129:483 My 7 '20

Turning boiler room wastes into profits. E. G. Bailey. *Paper* 28:21+ My 18 '21

See also Boiler plants—Management; Boiler scale; Flue gas

Electric heating

Chaudière à vapeur électrique, système Bergeon-Frédet. *diags Génie Civil* 79:295-6 O 1 '21; *Abstract (Electric steam boiler). Engineer* 132:398 O 14 '21

Electric heating of steam boilers in France. G. A. Maillet. *diags Power* 53:404 Mr 8 '21

Electric steam boiler. J. Buchli. *diag Elec W* 78:380-1 Ag 20 '21

Electric steam generation. *il Power* 53:746-7 My 10 '21

Electric steam-generator for low voltage. F. A. Lidbury and F. A. Stamps. *diags Am Electrochem Soc Trans v* 40 (preprint 4):77-86 S '21

Electrically-heated boilers and heat storage. *diags Engineering* 109:170, 172 F 6 '20

Electrically heated steam boilers. E. A. Lof. *il diag Gen Elec R* 24:515-18 Je '21; *Same cond. Power Pl Eng* 25:919-20 S 15 '21; *Excerpts. Sci Am M* 4:254 S '21

Performance of electrically operated steam boilers. E. G. Constam-Gull. *Elec W* 77:370 F 12 '21

Production of steam by electricity; the Revel fireless boiler. J. H. Blakey. *diags Power Pl Eng* 25:232-4 F 15 '21

Recent developments of electrically-heated Revel boilers in Switzerland; abstracts. E. G. Constam-Gull. *il diags Engineering* 110:563-5 O 29 '20; *Can Eng* 39:231-4 Ag 12 '20; *Génie Civil* 77:193-5 S 4 '20; *Power* 52:596-8 O 12 '20; *Electrician* 85:624-5 N 26 '20

Steam-heating electric trains in Switzerland. W: A. Rosenberger. *il diag Elec Ry J* 58:206-7, 829 Ag 6, N 5 '21

Equipment

Combustion guide for the fireman. *diag Power Pl Eng* 25:198 F 1 '21; *Textile World* 59:2311 Ap 2 '21

Safety features of steam boiler accessories. W. Hilleary. *diags Power Pl Eng* 25:356-61 Ap 1 '21; *Same. Safety Eng* 41:150-7 Ap '21; *Excerpts. Paper* 28:15-16 Ap 13 '21; *Discussion. Power Pl Eng* 25:533-4 My 15 '21

See also Boiler plants—Equipment; Carbon dioxide recorders; Feed water heaters; Feed water regulators; Furnaces, Boiler; Pressure gages; Water gages

Failures

Collapsed boiler tubes. C. C. Bradford. *il Power Pl Eng* 25:562 Je 1 '21

Fractures in locomotive boiler tubes. H: Fowler. *il diags Engineering* 111:466-7 Ap 15 '21

Leaking girth seams; lax inspection. R. A. Cultra. *diags Power Pl Eng* 25:437-8 Ap 15 '21

Rissbildung in kesselblechen. B. Strauss and A. Fry. *diag Stahl & Eisen* 41:1133-7, pl 7-8 Ag 18 '21

Unusual boiler failure. *il Power* 53:27 Ja 4 '21

Firing

Economical firing of steel plant boilers. C: Longenecker. *Blast F & Steel Pl* 9:308-10 My '21

Firing steam boilers without flame. W: A. Bone and P. St G. Kirke. *il diags Sci Am M* 1:248-51 Mr '20

Principles underlying the economical firing of boilers. C: Longenecker. *Blast F & Steel Pl* 9:227-8+ Mr '21

Furnaces

See Furnaces, Boiler

Gas firing

Blast furnace gas used under boilers. F. J. Denk. *Blast F & Steel Pl* 8:524-6 S '20

Burning powdered coal and blast-furnace gas at River Rouge. T: Wilson. *il diags plan Power* 54:664-70 N 1 '21

Developments in power station design. *il diags Engineer* 132:445-7 O 28 '21

Gas-fired boilers for heating. M. L. Page. *Am Gas J* 115:390+ O 29 '21

Boilers—Gas firing—Continued

Gas fired steam boilers. E. W. Berchtold. Gas Age 47:164-5 F 25 '21; Same. Am Gas J 114:227-8 Mr 12 '21

Investigation of gas-fired steam boiler plant. R. L. Ellis. Power 53:472-3 Mr 22 '21

New burner for blast furnace gas. D. N. Watkins. il diags Blast F & Steel Pl 8: 499-505 S '20

Producer gas-fired boiler installation in France. J. H. Bartlett, jr. il diag Chem & Met Eng 23:1033-5 N 24 '20; Same. Am Gas Eng J 113:321-4 O 23 '20; Same cond. Iron Age 106:1261-2 N 11 '20

Waste gases from beehive ovens supply power needed in Star Junction plant. C. R. Weihe. il diags plan Coal Age 18:479-81 S 2 '20

See also Boilers, Marine—Gas firing; Boilers, Waste heat

History

Evolution of the steam boiler. T. Croft. diags Power 53:509-13 Mr 29 '21

Insulation

Insulation of field boilers would cut drilling costs. A. W. Ambrose. Nat Pet N 12:49+ D 1 '20

Joints

Length of boiler seams. P. E. Terroy. diag Power 50:668 O 28 '19

Maximum length of longitudinal joints for boilers. J. Francis. Power 51:643 Ap 20 '20

Maximum length of longitudinal joints in boiler shells. F. Krauss. il Power 52:188-9 Ag 3 '20

Reading joints. A. C. Waldron. diags Power Pl Eng 25:482 My 1 '21

What should be the maximum length of a longitudinal joint? C. E. Stromeyer. Power 50:626-7 O 21 '19; Discussion. S. F. Jeter. 51:272 F 17 '20

Laws and regulations

A.S.M.E. boiler code. R. F. Wiselogle. Am Soc Heat & V E J 27:707-13 O '21

Adoption and promulgation of A. S. M. E. boiler code. C. E. Gorton. Power 53:13-14 Ja 4 '21

Changes in Massachusetts boiler rules. Power Pl Eng 25:121-3 Ja 15 '21

Code of boiler rules. 52p Industrial commission of Wisconsin. Madison '20

Interpretations of the A.S.M.E. boiler code. diags Power 51:1018-20; 52:152-4, 272-3, 558-9, 954-5; 53:364-5, 600-2, 798-9; 54:306-7, 698 Je 22, Jl 27, Ag 17, O 5, D 14 '20, Mr 1, Ap 12, My 17, Ag 23, N 1 '21; Excerpts. Mech Eng 42:47-9, 126-7, 187-8, 248-9, 302, 417-18, 472-3, 531-2; 43:343-5, 415, 749 Ja-My, Jl-S '20, My-Je, N '21

Labor commissioner of Oklahoma proposes to apply new rules to boilers despite producers' protests. Nat Pet N 13:23 S 14 '21

Locomotive boiler code adopted by A.S.M.E. Ry Age 70:947 Ap 15 '21

Massachusetts board of boiler rules convened in Boston, May 6. Power 51:863-4 My 25 '20

Producers fight changes in construction of oil country boilers. J. B. Gambrell, jr. Nat Pet N 13:21-2 S 7 '21

Semiannual hearing of Massachusetts board of boiler rules. diags Power 50:784-5 N 25 '19

The Boiler code committee meets monthly for the purpose of considering communications relative to the Boiler code. Information as to the application of the A.S.M.E. code may be obtained from the secretary of the committee, Mr C. W. Obert, 29 W. 39th St., New York, N.Y.

Losses

See Boilers—Efficiency; Flue gas

Manufacture

Electric arc welding in the manufacture of new boilers. il diags Elec R (Lond) 89:208-9 Ag 12 '21

Hammer-welding plant of the Blaw-Knox co. E. E. Thum. il diags Chem & Met Eng 25:747-51 O 19 '21

See also Boiler tubes—Manufacture; Boilers, Marine—Manufacture

Oil firing

Automatic oil-burning plant at sugar refinery. C. C. Brown. plan Power Pl Eng 25:599-602 Je 15 '21

Coal versus oil performance chart. L. C. Lichty. charts Ind Management 60:351-2 N '20; Same. Power Pl Eng 24:651-2 Jl 1 '20

Comparative evaporation test with coal and oil. Power 53:613-14 Ap 19 '21

Comparison of coal and oil fuel costs per B.H.P. H. E. Collins. Sibley J 34:174-5 D '20

Developments in power station design. il diags Engineer 132:214-16, 234-6, 258-60. Ag 26-S 9 '21

Economies obtained in burning oil. R. Sibley and C. H. Delany. Elec W 75:1483-4 Je 26 '20

Efficient handling of fuel oil. A. F. Brewer. diags Power 53:69-70, 105-6, 146-7, 178-80, 223-5, 262-4, 303-5, 349-50 Ja 11-Mr 1 '21

Efficient operation of oil-burning steam plants. C. H. Delany. Power Pl Eng 25: 551-4 Je 1 '21; Same. Mech Eng 43:603-5 S '21; Abstract. Power 54:80 Jl 12 '21; Discussion. Power Pl Eng 25:554-6 Je 1 '21

Factors in burning oil; characteristics of fuel and advice on installation of system. A. Walton. il Textile World 57:4689+ Je 26 '20

Firing steam boilers with fuel oil. F. E. Cupper. Power 53:322 F 22 '21

Fuel oil as a means to increased capacity in boiler plant. C. C. Lance. diags Ry Mech Eng 94:723-4 N '20

Fuel oil heaters and other accessories. R. Sibley and C. H. Delany. il diags J Elec 45: 17-19 Jl 1 '20

Fuel-oil installation. H. A. Wilcox. Power Pl Eng 24:501-6, 527-31 My 15 '20

High-pressure oil-burning installation; boiler plant of the Fall river electric light co. il chart diags plan Power 54:622-4 O 25 '21

Installation of oil as fuel. A. F. Brewer. diag Power 54:361-4 S 6 '21

Merit automatic oil-stoking system. diags plan Power 54:531-2 O 4 '21

New system for burning fuel oil. C. W. Geiger. diag Power Pl Eng 24:1167 D 15 '20

Oil burning boiler plant of Lynn, Mass., pumping station. R. J. Newsom. Eng & Contr 54:380 O 13 '20

Operating oil-fired boilers efficiently. R. Sibley and C. H. Delany. il Elec W 74:1100-5 D 20 '19

Refractories for oil-fired furnaces and boilers. W. H. Grant. Am Cer Soc J 4:390-2 My '21

Safety device for oil furnaces. diags Engineer 132:248 S 2 '21

Some considerations of oil fuel for boilers. Power 50:740-1 N 25 '19

Steam making with fuel oil. Power 52:935 D 14 '20; Discussion. 53:155, 520-1, 981 Ja 25, Mr 29, Je 14 '21

Stoker furnace for coal or oil. diag Power Pl Eng 24:737 Ag 1 '20

Unusual efficiency in oil-fired boiler. Power 52:787 N 16 '20

Valve for fire protection in oil-burning systems. il Pop Mech 36:402 S '21

Why use fuel oil in power plants? il diags Elec Ry J 56:369-70 Ag 21 '20

See also Boilers, Marine—Oil firing

Pulverized coal firing

Actual performance of powdered coal. C. Longenecker. Blast F & Steel Pl 9:59-61 Ja '21

Boiler tests with pulverized Illinois coal. H. Kreisinger and J. Blizard. diags Mech Eng 43:321-2+ My '21; Same. Power 53:904-6 My 31 '21; Same. Power Pl Eng 25:653-6 Jl 1 '21; Abstract. Iron Age 107:1401 My 26 '21

Boilers—Pulverized coal firing—Continued

- Engineers afforded latest information on powdered coal and briquets. R. D. Hall. Coal Age 19:16-17 Ja 6 '21
- Four-day test on five Oneida Street boilers burning pulverized coal. diag plan Power 51:354-7 Mr 2 '20
- Powdered coal as a fuel for boilers. E: R. Welles and W. H. Jacobi. diags Stevens Ind 37:97-125 Ap '20
- Powdered coal as fuel for boilers. F. Schulte. diags Blast F & Steel Pl 9:447-52 Jl '21
- Powdered coal for power-plant boilers. H: Kreisinger and J: Anderson. Power 53:7-8 Ja 4 '21
- Powdered coal plant at Seattle. Elec Ry J 55:482-3 Mr 6 '20
- Pulverized coal for fuel makes good saving in Milwaukee. J: Anderson. il Elec Ry J 55:473-6 Mr 6 '20; Same. Power 51:336-9 Mr 2 '20
- Pulverized coal for steam boilers. R. June. diags Textile World 58:2529+ O 9 '20
- Pulverized coal in a Milwaukee power plant. il diags Elec R 76:469-72 Mr 20 '20
- Pulverized coal in central stations. J: Anderson. diags Elec W 75:589-91 Mr 13 '20
- Pulverized coal in the power station; a new boiler house fuel. L. C. Harvey and E. E. Noble. il diags Electrician 85:320-3, 393-6 S 17, O 1 '20
- Pulverized firing in steam generation. F. J. Crolus. Blast F & Steel Pl 9:453-60 Jl '21
- Pulverized fuel. E. R. Knowles. il diags plan Am Soc Heat & V E J 26:17-72 Ja '20
- Pulverized fuel at Oneida Street plant. P. W. Thompson. Power 51:339-40 Mr 2 '20; Same. Elec Ry J 55:476-7 Mr 6 '20
- Successful pulverized coal installation of the Milwaukee electric railway & light co. I. L. Kentish-Rankin. il diag plan Power Pl Eng 24:313-21 Mr 15 '20
- Use of powdered fuel under steam boilers. H. D. Savage. il diags Paper 28:18-21+ Ag 10; 23-5+ Ag 17; 22-5 Ag 24; 13-14+ Ag 31 '21; Excerpts. Iron Age 107:1464-7 Je 2 '21; Abstract. Elec Ry J 58:172-3 Jl 30 '21; Abstract. Ry Mech Eng 95:589-90 S '21
- Waterford lake power plant of the Dominion coal co.; burning powdered coal under Bettington boilers. F. H. Kneeland. il Coal Age 17:354-5 F 19 '20

Rating

- Boiler capacity. Power 53:711-12 My 3 '21
- Effect of boiler ratings on furnace maintenance. T. Maynz. Elec W 76:1210 D 18 '20
- Performance curves as a basis for rating boilers. Heat & Ven 18:50-1 Mr '21

Repair

- Examples of welding repairs to boilers. diags Power 53:82-3 Ja 11 '21
- Making one-piece baffles—patching boiler settings. il diags Power 54:638-40 O 25 '21
- Reinforced handhole patch. R. A. Cultra. diags Power 52:66 Jl 13 '20
- Repairing cracked tube sheets. J. F. Tutein. diags Power 51:190 F 3 '20
- Repairs made by electric welding. il Power 51:462-4 Mr 23 '20
- Riveting patches on cylindrical pressure shells. R. L. Hemingway and F. A. Page. plan Power 51:164-5 F 3 '20
- Sewing up cracks in water leg of a boiler. A. J. Dixon. diags Power 53:320-1 F 22 '21
- Steam boiler and flywheel service bureau accepts autogenous welding. Power 51:40 Ja 6 '20; Same. Mech Eng 42:70 Ja '20

Safety devices

- Safety features of steam boiler accessories. W. Hilleary. diags Power Pl Eng 25:356-61 Ap 1 '21; Same. Safety Eng 41:150-7 Ap '21; Excerpts. Paper 28:15-16 Ap 13 '21; Discussion. Power Pl Eng 25:533-4 My 15 '21

Setting

- Boiler setting permanent and of low cost. G. W. Johnson. Concrete 19:79 Ag '21
- Care of boiler settings. W. M. McNeill. Power Pl Eng 25:270 Mr 1 '21

- Coat the boiler setting. H. M. Brayton. Power Pl Eng 24:179-81 F 1 '20
- Correct height of return-tubular boiler. M. K. Bryan. diag Power 52:673 O 26 '20
- Correct height of return-tubular boiler above the grate. H: Misostow. diags Power 51:1034-6 Je 29 '20; Same. Coal Age 18:233-5 Jl 29 '20
- Corrosion of boiler supporting columns. G: C. Stierhoff. diags Power Pl Eng 25:556-7 Je 1 '21
- Distance of boiler above grate. Power 51:777 My 11 '20
- Distance of bridge wall from boiler shell. Power 51:599-600, 680 Ap 13, 27 '20
- Height of return-tubular boilers above grates. Power 51:819 My 18 '20
- Horizontal tubular boiler settings and details of installation. H. E. Dart. diags Locomotive 33:36-48+ Ap '20; Same cond. Power Pl Eng 24:979-82 O 15 '20
- Preheated air to burn volatile. diag plan Power 52:220 Ag 10 '20
- Proposed setting for return-tubular boilers. R. Riewerts. diags Power 52:28 Jl 6 '20; Discussion. T: E. Martin. 52:266 Ag 17 '20
- Resetting return tubular boilers. C. R. Weihe. diags Coal Age 17:308-9 F 12 '20
- Setting return-tubular boilers. E. H. Hart. Coal Age 17:502 Mr 11 '20
- Settings for horizontal tubular boilers. C: L. Hubbard. diags Dom Eng 96:333-5, 377-8 Ag 20-27 '21
- Shaw monolith suspended boiler arch. diags Power 51:458 Mr 23 '20
- Some economic features of pumping station operation. L. A. Day. il diags Am Water Works Assn J 7:795-810 N '20; Same cond. Eng N 85:459-62 S 2 '20; Same. Can Eng 39:243-5 Ag 12 '20; Same. Munic Eng 59:102-4+ S '20
- Standard specifications for boiler settings established by Commercial committee of American boiler manufacturers' association. Power 53:865 My 24 '21

Smoke boxes

- Providing for expansion in smoke breechings. H. Blomgren. diags Power 54:536 O 4 '21

Tables, calculations, etc.

- Calculating boiler blow-down volume. A. F. Brewer. Power Pl Eng 25:480 My 1 '21
- Charts that show combinations of boilers and stokers to use for any load. S. N. Clark. Elec W 75:1486-7 Je 26 '20
- Easy check on plant economy. E. H. Tenney. chart Power 52:535 O 5 '20
- Handy boiler-room formulas. C. T. Mitchell. Power 54:262-3 Ag 16 '21
- Figuring boiler capacity for steam curing. S. H. Wightman. Concrete 16:231 My '20
- How to compute proper size of boiler installation for a power plant. R. Sibley and C: H. Delany. J Elec 44:310 Ap 1 '20

Terminology

- Definitions adopted by the American boiler manufacturers and the stoker manufacturers associations. Power 51:984 Je 15 '20

Testing

- Actual performance of powdered coal. C: Longenecker. Blast F & Steel Pl 9:59-61 Ja '21
- Baffling and air supply modify boiler efficiency. F. W. Dean and H: Kreisinger. diag Elec R 76:245 F 7 '20
- Boiler and furnace testing. R. T. Strohm. diags (Engineering Bul. no. 1) 18p '18 U.S. Fuel administration, Washington, D.C.; Same. U S Bur Mines Tech Pa 240:1-20 '20
- Boiler efficiency and output as affected by draught. A. R. Horne. Engineer 132:322-3 S 23 '21
- Boiler-plant practice tendency toward larger units. Elec R 77:92-4 Jl 17 '20
- Boiler tests with pulverized Illinois coal. H: Kreisinger and J: Blizard. diags Mech Eng 43:321-2+ My '21; Same. Power 53:904-6 My 31 '21; Same. Power Pl Eng 25:653-6 Jl 1 '21; Abstract. Iron Age 107:1401 My 26 '21

Boilers—Testing—Continued

- Burning coke breeze on underfeed stokers. F. A. De Boos. diags Blast F & Steel Pl 8:362-4 Je '20
- Calculations from a flue-gas analysis of loss due to incomplete combustion. H. M. Brayton. chart Power 51:129-30 Ja 27 '20; Discussion. F. D. Harger. 51:681 Ap 27 '20
- Code for testing low pressure heating boilers. Am Soc Heat & V E 25:143-7; Discussion. 148-51 '19
- Comparative evaporation test with coal and oil. Power 53:613-14 Ap 19 '21
- Determining the safe working boiler pressure. J. P. Morrison. Power 53:545 Ap 5 '21
- Efficient operation of the boiler plant. J. D. Morgan. Power 51:868-73, 957-61 Je 1-15 '20
- Engineers afforded latest information on powdered coal and briquets. R. D. Hall. Coal Age 19:16-17 Ja 6 '21
- Equivalent evaporation. J. S. A. Johnson. diags Power 51:28-30 Ja 6 '20
- Four-day test on five Oneida Street boilers burning pulverized coal. diag plan Power 51:354-7 Mr 2 '20
- Hand-fired-boiler performance in France. C. F. Merriam. Power 54:473-4 S 27 '21
- Hog fuel in the Pacific Northwest. il Power 51:709-12 My 4 '20
- Present status of powdered coal. C. Longenecker. diag Blast F & Steel Pl 9:394-7 Je '21
- Pulverized coal in central stations. J. Anderson. diags Elec W 75:589-91 Mr 13 '20
- Pulverized fuel at Oneida Street plant. P. W. Thompson. Power 51:339-40 Mr 2 '20; Same. Elec Ry J 55:476-7 Mr 6 '20
- Sawmill refuse, powdered coal, and oil fuels. D. Corbet. diag Am Inst E E J 39:715-32 Ag '20; Abstract. Elec W 76:183-5 Jl 24 '20
- Steam power plant tests. H. L. Doolittle. J Elec 45:81-3 Jl 15 '20
- Successful pulverized coal installation of the Milwaukee electric railway & light co. I. L. Kentish-Rankin. il diag plan Power Pl Eng 24:313-21 Mr 15 '20
- Tests on large horizontally baffled boiler. diag Textile World 58:875+ Ag 7 '20
- Value of hydraulic tests as a safe-guard against explosions. C. E. Stromeier. Eng & Ind Management 6:170-3 Ag 18 '21
- See also Boilers, Heating—Testing; Boilers, Water-tube—Testing
- Wood firing**
- L'emploi du bois pour le chauffage des générateurs à vapeur. Kammerer. Génie Civil 77:465-6 D 4 '20
- Boilers, Heating**
- Advance of gas fuel in the heating industry. D. H. Cuyler. Heat & Ven 17:34-5 O '20
- Boiler sales and service. A. McDougall. Dom Eng 95:263-4, 307-9, 411-13, 624-6 My 7-14, 28, Je 25 '21
- Clean out openings in heating boilers; discussion. Am Soc Heat & V E 25:139-42 '19
- Controlling factors in smokeless boiler design. D. Darrin. Heat & Ven 18:53-5 Ap '21
- Cracking of cast-iron sectional hot water boilers. C. R. Honiball. Am Soc Heat & V E 25:397-404; Discussion. 405-6 '19
- Development of the magazine feed down draft boiler. E. C. Molby. Am Soc Heat & V E J 26:161-6; Discussion. 259-70 Mr '20
- Flues and smokepipes in connection with heating boilers. E. J. Febrey. Am Soc Heat & V E J 26:809-10 D '20
- Fuel economy in heating service. A. Bement. Heat & Ven 18:36-8 S '21
- Importance of the heating boiler. C. L. Hubbard. il diag Sanitary & Heat Eng 96:69-71 Jl 29 '21
- Kelly thermo return controller. diag Power 52:53 Jl 13 '20
- Key for computing boiler sizes for direct radiation. Dom Eng 94:76-7 Ja 8 '21; Same. Heat & Ven 18:48-9 F '21
- Landmarks in the development of house-heating boilers. E. C. Molby. diags Heat & Ven 18:27-9 S '21

- Largest boiler to supply steam for heating at Detroit Edison company. J. H. Walker. il diags Power 54:477-8 S 27 '21
- Magazine feed boiler and fuel conservation. C. F. Newport. Am Soc Heat & V E J 26:11-16 Ja '20; Discussion. 26:259-70 Mr '20
- Method of connecting returns to one or more boilers with check valves. diag Am Soc Heat & V E J 26:supX-XIII My '20
- Nervous water-lines in steam boilers. A. G. King. diags Dom Eng 93:550-2 D 18 '20
- New method of connecting return pipes to cast iron heating boilers. diags Locomotive 33:68-73 Jl '20
- Preparing plans and specifications for horizontal tubular boilers. C. L. Hubbard. il diags Dom Eng 96:191-5 Jl 30 '21
- Present state of the art in smokeless boiler construction. il Heat & Ven 17:60-1 S; 48-9 O; 54-5 N; 51-2 D '20; 18:53-4 Ja; 56-7 F; 55-7 Mr; 53 Ap; 54 My '21
- Ratio of heating surface to grate area. J. S. Watts. Plumber 95:266+ My 6 '21
- Relation of boiler heating surface area to boiler capacity. P. J. Dougherty. Am Soc Heat & V E J 25:355+ O '19; Discussion. 26:271-5, 608-13 Mr, S '20
- Standards for computing radiation and boiler sizes. Dom Eng 93:605 D 25 '20
- What the smokeless boiler means. il Plumber 95:133-5 Mr 11 '21
- Where boilers can best be used—and should. Metal Work 94:309-10 S 3 '20

Testing

- Code for testing low pressure heating boilers. Am Soc Heat & V E 25:143-7; Discussion. 148-51 '19
- Discussion of code for testing low-pressure heating boilers. Am Soc Heat & V E J 27:29-34, 177-82 Ja, Mr '21
- Influence upon boiler economy of continuous firing of highly-volatile fuel without intervening cleaning. A. B. Reck. diags Am Soc Heat & V E J 27:1-5 Ja '21; Discussion. 27:196-9 Mr '21
- Boilers, Locomotive.** See Locomotive boilers
- Boilers, Marine**
- Boilers for the twin-screw turbine S.S. Mendoza. il diags Engineering 111:256-8, 260, pl 11 Mr 4 '21
- Boilers of the new Emergency fleet. J. J. Nelis. diags plan Int Marine Eng 25:17-29 Ja '20
- Cylindrical return-tube boilers. W. F. Carnes. il diags Gen Elec R 24:110-14 F '21
- E. F. C. water-tube boiler for wood ships; abstracts. F. W. Dean and H. Kreisinger. diags Mech Eng 41:943-8 D '19; Engineering 109:294-7 F 27 '20; Power Pl Eng 24:233-6, 276-81 F 15-Mr 1 '20; Power 51:348-52 Mr 2 '20
- Increasing stoke-hold efficiency. A. Pohlman. diag Int Marine Eng 24:792; 25:191-2, 439-40, 521-2 D '19, Mr, My-Je '20
- Marine boilers in a woollen mill. il diags plan Engineer 132:380-1 O 7 '21
- Observing temperatures in marine propelling installations. Engineer 129:226-8 F 27 '20
- Preventing corrosion in marine boilers. E. N. Speller and others. il diag Int Marine Eng 25:421-6 My '20
- Steam superheaters in merchant ships. H. B. Oatley. il Gen Elec R 24:121-3 F '21
- Sugden uptake-type of superheater for Scotch marine boilers. diags plan Engineering 111:37-40 Ja 14 '21
- Systematic study of boiler performance. diag il Power 50:662-3 O 28 '19
- Water-tube boilers in the mercantile marine. J. Kemnal. diags Engineering 111:86-9 Ja 21 '21
- Water-tube marine boiler. il Power Pl Eng 24:1104 N 15 '20
- Water tube marine boilers. W. M. McFarland. il diags Gen Elec R 24:115-19 F '21
- See also Marine engines

Gas firing

- Producer gas as a fuel. il Marine R 50:617 N '20

Boilers, Marine—Continued**Manufacture**

Quantity production of Scotch marine boilers. *il plan* Marine Eng 26:442-5 Je '21
 Willamette's war work. F. H. Colvin. *il Am Mach* 54:105-7 Ja 20 '21

Oil firing

Aquitania as an oil burner. *il Sci Am* 123:151+ Ag 14 '20
 Aquitania now an oil burner. Power 52:275-6 Ag 17 '20; Same cond. Engineer 129:620-1 Je 18 '20
 L'emploi du mazout comme combustible industriel. C. Dantin. *diags Génie Civil* 79:265-8, 288-91 S 24-O 1 '21
 French transatlantic liner Paris. *il diags Engineering* 112:246-8, 250, 254, pl 10 Ag 12 '21
 Fuel oil for steamers. C. H. Peabody. Marine Eng 25:997-8 D '20
 Fuel problem for steamships. L. B. Chapman. Marine Eng 26:465-7 Je '21
 Liner Olympic makes first Atlantic trip as fuel oil burner. *il Nat Pet N* 12:29 Jl 14 '20
 Memorandum governing requirements for fuel oil installation. Marine Eng 26:146 F '21
 Oil burning at sea. A. Keens. Engineer 132:356 S 30 '21
 Oil fuel installation on the Aquitania. Engineering 109:832-3 Je 18 '20
 Recent advance in oil burning; abstracts. E. H. Peabody. Marine Eng 25:1011-13 D '20; Mech Eng 43:41-2 Ja '21; Power 53:242 F 8 '21; Eng & Ind Management 5:166-7, 634 F 10, Je 2 '21
 White oil-fuel system. *il Engineering* 110:23-4, pl 3 Jl 2 '20

Repair

Electric welding in marine repairs. *il Int Marine Eng* 25:716-17 S '20

Standards

Standardization of Scotch boilers. H. C. E. Meyer. *diags Int Marine Eng* 25:117-22 F '20

Testing

E. F. C. water-tube boiler for wood ships; abstracts. F. W. Dean and H. Kreisinger. *diags Mech Eng* 41:943-8 D '19; Engineering 109:294-7 F 27 '20; Power Pl Eng 24:233-6, 276-81 F 15-Mr 1 '20; Power 51:348-52 Mr 2 '20

Boilers, Mercury

Chaudière à vapeur de mercure, système Emmet. *diag Génie Civil* 78:64-5 Ja 15 '21
 Emmet mercury boiler; a binary-vapor power plant using mercury vapor and steam. *diag (supp) Power* 52:167-8 Ag 3 '20; Engineer 130:516 N 19 '20; Paper 27:119 N 10 '20
 Power from mercury vapor. Elec W 78:517 S 10 '21
 Romance of invention. C. H. Claudy. Sci Am 123:424+ O 23 '20

Boilers, Portable. See Dynamobile**Boilers, Range**

Combination system of plumbing, using soft and hard water. *diags plan Dom Eng* 90:286-7 F 7 '20
 How to safely prevent water from boiling in range boiler. *diag Dom Eng* 91:389 My 29 '20
 New standard needed for range boilers. J. J. Cosgrove. *diags Dom Eng* 94:536-7 Mr 12 '21
 Welding galvanized range boilers. Metal Work 92:397 O 3 '19

Boilers, Smokeless. See Boilers, Heating**Boilers, Waste heat**

Application of waste heat boilers to open hearth furnaces. T. R. Tate. Blast F & Steel Pl 9:173-4 F '21; Same. Power Pl Eng 25:160-1 F 1 '21; Same. Iron Tr R 68:351-2 F 3 '21; Excerpt. Min & Met 169:35 Ja '21; Same abr., with discussion. Iron Age 107:194-5 Ja 20 '21
 Design of open hearth furnaces; waste heat boiler installations. A. D. Williams. *diags Iron Age* 106:319-21 Ag 5 '20

Developments in power station design. *il diags Engineer* 132:390-2 O 14 '21
 Utilization of waste heat. *il diag Power Pl Eng* 25:47-9 Ja 1 '21

Waste heat boilers. D. S. Jacobus and A. D. Pratt. Eng Soc W Pa 36:221-34 My '20; Excerpts. Blast F & Steel Pl 8:205-8 Mr '20; Discussion. Eng Soc W Pa 36:235-42 My '20

Waste heat boilers in cement plants. H. A. Reichenback. charts Concrete 19:sup41-6 S '21

Waste heat utilization. G. R. McDermott and F. H. Willcox. *diags W Soc E J* 26:60-76 F '21; Excerpt. Power 52:992-4 D 21 '20; Excerpt. Eng & Ind Management 5:146-8 F 3 '21; Excerpt. Iron Age 107:899-900 Ap 7 '21

Waste heat utilization for steam generation. G. R. McDermott. Blast F & Steel Pl 9:607-13 O '21

Boilers, Water-tube

Brueggerman water-tube boiler. *diag Power* 54:492 S 27 '21

Burton duplex water-tube boiler. *diags Power* 51:757-8 My 11 '20; Coal Age 17:1141-2 Je 3 '20

Comments on boiler capacity. L. R. Lee. Power 53:433-5 Mr 15 '21

Continuous densimeter for boilers. *diags Engineer* 131:157-8 F 11 '21

Corrugated boiler flange and feed-water purifier. *diag Power* 52:503 S 28 '20

Development of the Stirling boiler. *diags Power* 53:632-4 Ap 19 '21; Excerpts. Elec W 77:934-5 Ap 23 '21; Excerpts. Coal Age 19:822-3 My 5 '21; Excerpts. Elec Ry J 57:900 My 14 '21

Effect of tube location on strength of drum. *il diags Power* 54:407 S 13 '21

Exact data on the performance of steam boiler plants. D. Brownlie. Engineering 110:797-9 D 17 '20

Ludlum-type water tube boiler for naval plant. *il Marine R* 50:672 D '20

Mechanical stokers aboard ship. C. H. Bromley. *diags plans Power* 51:86-9 Ja 20 '20; Abstract. Mech Eng 42:175-6 Mr '20; Abstract. Sci Am M 1:276-7 Mr '20

Refacing caps, nuts and headers of water-tube boilers. B. Gaddis. *il Power* 51:393 Mr 9 '20

Shutdown caused by a clogged feed-water line. R. L. Tullis. *diag Power* 53:440 Mr 15 '21

Tube troubles in water-tube boilers. J. Cauthery. Elec R (Lond) 88:403-4 Ap 1 '21; Discussion. 88:497 Ap 15 '21

Water drums of Yarrow boilers. *il diags Engineer* 131:442, 566-7 Ap 22, My 27 '21

Water-tube boilers in the mercantile marine. J. Kemnal. *diags Engineering* 111:86-9 Ja 21 '21

Water-tube marine boiler. *il Power Pl Eng* 24:1104 N 15 '20

Water tube marine boilers. W. M. McFarland. *il diags Gen Elec R* 24:115-19 F '21

World's largest boilers. *il Power* 52:828 N 23 '20

Testing

Developing high overload capacities with horizontally baffled boilers. *diag Munic Eng* 59:72+ Ag '20; Same cond. Power Pl Eng 24:834-6 S 1 '20

E. F. C. water-tube boiler for wood ships; abstracts. F. W. Dean and H. Kreisinger. *diags Mech Eng* 41:943-8 D '19; Engineering 109:294-7 F 27 '20; Power Pl Eng 24:233-6, 276-81 F 15-Mr 1 '20; Power 51:348-52 Mr 2 '20

Results of 41 steaming tests conducted at the fuel-testing station, Ottawa. Mech Eng 42:241-2 Ap '20

Systematic study of boiler performance. *il diag Power* 50:662-3 O 28 '19

Boiling points

Boiling-points of water under reduced pressures. Min & Sci P 121:646 O 30 '20

Pressure and temperature relations for vapor of liquids. P. B. Williamson. Chem & Met Eng 22:1151-5 Je 23 '20

Boiling points—Continued

Studies in evaporator design. W. L. Badger and E. M. Baker. Chem & Met Eng 23:569-74 S 22 '20

Bolivia

See also Railroads—Bolivia

Commerce

Construction materials and machinery in Argentina and Bolivia. W. W. Ewing. il U S Bur For & Dom Com 188:152-92 '20

Jewelry and silverware in Chile, Bolivia, and Peru. S. W. Rosenthal. il U S Bur For & Dom Com 187:1-115 '19

Industries and resources

Bolivia; a commercial and industrial handbook. W. L. Schurz. il map U S Bur For & Dom Com 208:1-260 '21

Mining in Bolivia. Min & Sci P 123:29 JI 2 '21

See also Machine tool industry—Bolivia; Mines and mineral resources—Bolivia; Petroleum—Bolivia; Rubber industry—Bolivia; Tin mines and mining—Bolivia

Boll weevils

Crop protection institute discusses war on boll-weevil. J Ind & Eng Chem 13:89 Ja '21

Subduing the boll weevil. G. H. Dacy. il Sci Am 122:486+ My 1 '20

Bolling, Charles E.

Completes forty-eight years' service as city engineer. por Eng N 86:955 Je 2 '21

Bolshevism**Bibliography**

Social movements. S. Zimand. p. 231-51 H. W. Wilson co. '21

Bolts and nuts

Bolts for securing machines to concrete foundations. M. H. Ball. diags Mach 27:376-7 D '20

Charts for design of tension bolts and screws. H. M. Brayton. charts diags Am Mach 51:890-2 N 13 '19

Connecting-rod bolts. Power 52:197 Ag 3 '20

Detecting elongation of connecting-rod bolts. E. Long. diag Power 52:832 N 23 '20

Development of the bolt and nut industry. F. H. Chapin. Iron Age 107:1609-10 Je 16 '21

Drysdale stud extractor. il diag Engineering 112:312 Ag 26 '21

Elements of design for foundation bolts of machines. T. Croft. diags Coal Age 20:45-51, 95-9, 176-9 JI 14-21, Ag 4 '21

Elongation of cylinder-head bolts. G. Grow. diags Power 53:901 My 31 '21

Foundation bolt dimensions. E. W. Theilig. diag Mach 27:46 S '20

Frame bolt puller. il Ry Mech Eng 95:340 Je '21

Nouveau frein d'écrou, système A. Rateau. A. Rateau. diags Génie Civil 79:354-5 O 22 '21

Precision stud-driver. il diag Mach 27:245 N '20

Setting bolts in concrete. diags Pop Mech 36:453-4 S '21

Strength of bolts and nuts. Sci Am 122:11 Ja 3 '20

Strength of bolts in timber. H. J. Finebaum. diags Eng & Contr 56:77-8 JI 27 '21

Stresses in bolted and riveted joints. V. M. Summa. diags Mach 26:730-1 Ap '20

Studding cast-iron welds relieves contraction strains. C. J. Holslag. il Elec W 77:658-9 Mr 19 '21

Tap-end sizes of studs. diags Am Mach 52:773-5 Ap 8 '20

Tap-end sizes of studs. W. D. Forbes. Am Mach 53:672-3 O 7 '20

Test bearing strength of bolts through concrete beam. S. C. Majumdar. il Eng N 87:413 S 8 '21

Urgent need for standardization of nuts and bolt heads. Mach 27:791 Ap '21

Why do mechanical rail joints become loose? H. H. George. Elec Ry J 55:987-9 My 15 '20; Excerpt. Eng & Contr 53:693 Je 16 '20

See also Staybolts; Taper pins

Manufacture

Automatic stud and bolt machine. il diags Engineering 111:252 Mr 4 '21

Bolt and nut machinery. il Iron Age 104:1320-1 D 25 '19

Device for re-chasing threads on bolts. J. V. Hunter. il Am Mach 52:957 Ap 29 '20

Fixture for castellating nuts on a vertical milling machine. diags Mach 27:571 F '21

Making an accurate Acme thread nut. B. M. W. Hanson. il Mach 28:197-9 N '21

Making eccentric-headed studs. F. S. Ward. diags Am Mach 53:1083-4 D 9 '20

Method of casting long babbitt lined nuts without shortening the lead or reducing their diameter. M. H. Ball. diags Am Mach 55:650 O 20 '21

Nut facing fixture for drilling machine. il Mach 27:816 Ap '21

Tight fitting threads for bolts and nuts. C. B. Lord. diags Am Mach 53:153-7 JI 22 '20; Same cond. Mech Eng 42:222-4+ Ap '20

Specifications

Specifications for bolts used in construction. H. H. George. Elec Ry J 55:387-9 F 21 '20

Standard specifications for engine-bolt iron; English and French. U S Bur For & Dom Com Industrial Standards 129:1-12 '21

Standard specifications for quenched alloy-steel track bolts; English and French. U S Bur For & Dom Com Industrial Standards 143:1-12 '21

Standard specifications for quenched carbon-steel track bolts; English and French. U S Bur For & Dom Com Industrial Standards 142:1-12 '21

Tentative specifications for low-carbon-steel track bolts. Am Soc T M Pro v 20 pt 1:504-7 '20

Bomb trajectories. See Ballistics

Bombs

American ordnance production in the Great War. Engineer 132:268-9 S 9 '21

Bombs, Aerial

Air bombing and future warfare. Aviation 10:272 F 28 '21

Army planes sink German destroyer in twenty minutes. Aerial Age 13:460 JI 25 '21

Aviators to bomb ex-German warships in tests. Aerial Age 13:8 Mr 14 '21

Battleships to be bombed. il Aviation 10:328-30 Mr 14 '21

Bombing a U-boat. il Sci Am 125:27 JI 9 '21

Bombing at Aberdeen. il Aviation 11:227-8 Ag 22 '21

Bombing of warships proves air power. il Aviation 11:96-8 JI 25 '21

Bombing raid on Eastern cities; sham attacks for practice. Aviation 11:160-1 Ag 8 '21

Bombing tests and our naval policy. Sci Am 125:90 Ag 6 '21

Bombing tests of the U.S.S. Alabama. il Aviation 11:396-7 O 3 '21

Bombing tests of the U. S. S. Iowa. Aviation 11:80 JI 18 '21

Bombing the Alabama. Aerial Age 14:85 O 3 '21

Bombing the old battleship Indiana. il Sci Am 123:575 D 4 '20

Bombs or torpedoes in airplane attacks on seacraft. Aviation 11:256 Ag 29 '21

Depth-bombing from the air; results and lessons of the sinking of the Frankfurt and Ostfriesland off the Virginia coast. il Sci Am 125:92-3+ Ag 6 '21

France will test air bomb's value against warships. Aerial Age 12:400 D 20 '20

Gen. Mitchell attacks bomb test findings. Aviation 11:367 S 26 '21

Incendiaries in modern warfare; aircraft bombs. A. B. Ray. il diags J Ind & Eng Chem 13:718-20 Ag '21

Is it to be bomb or battleship? elaborate series of tests to determine the effectiveness of aircraft against warships. il plans Sci Am 125:4-5 JI 2 '21

Largest airplane bomb weighs 3,000 pounds. il Pop Mech 34:730 N '20

Limitations of aerial bombing. Sci Am 125:2 JI 2 '21

Naval aircraft sink submarine U-117. il Aviation 10:813 Je 27 '21

Bombs, Aerial—Continued

- Naval bombing tests. *il* Flying 10:199-201 J1 '21
- New system of bombing tests. A. Guidoni. *il* Aviation 11:307 S 12 '21
- New York city wiped out in big war game. Aerial Age 13:512 Ag 8 '21
- Ostfriesland sunk by 2000-lb. aircraft bombs. *il* diag Aviation 11:128-32 Ag 1 '21
- Recent bombing operations. J. H. Murrelle. Sci Am 125:133 Ag 20 '21
- Report of joint army and navy board on bombing and ordnance tests. Aerial Age 13:614-15 S 5 '21
- Report on bombing tests. *il* Aviation 11:276-8 S 5 '21
- Schedule of the bombing tests. H: B. Wilson. *il* Aviation 11:8-12 J1 4 '21
- What General Mitchell claimed. Aviation 11:133-4 Ag 1 '21
- What the Virginia Capes aircraft bombing tests show. E. A. Sperry. Mech Eng 43:624 S '21
- Wimperis course-setting bomb sight. *il* diags Engineer 132:186-7 Ag 19 '21

Bombs, Depth

- Depth bombs as guides for navigation in fogs. J. C. McLennan. Sci Am M 1:140-1 F '20
- Tests determine explosive pressures of depth bombs. *il* Pop Mech 36:408 S '21

See also Aeronautics, Military

Bon ami company

- What 45 years in business have taught me about selling. W: H. Childs. *il* System 39:785-9+ Je '21

Bonds

- Bond proposals and negotiations. *See* weekly numbers of Commercial & financial chronicle
- Consolidated tables of bond values. 751p Financial publishing co., Boston '21
- Corporation bond market in Chicago during 1919. A. C. Allyn. Comm & Fin Chr 110:410-11 Ja 31 '20
- Effective rate on serial bonds. H. A. Finney. J Account 30:385-400 N '20
- Elements of bond investment. A. M. Sakolski. 158p Ronald Press '21
- Future bond prices. S. G. Duncan. Annalist 18:249+ S 12 '21
- How to make money in foreign exchange and foreign bonds. W: J. Greenwood. 129p Financial books co., New York '21
- Industrial stocks and bonds. Comm & Fin Chr Railway and industrial section 110:140-244 My 29 '20 [Issued semi-annually, May and November]
- Mortgage bond problem. G: W. Greenwood. Ind Management 60:199 S '20
- New York stock exchange monthly and yearly records. Published in monthly Bank and quotation section of Commercial & financial chronicle
- Ship mortgage bonds to solve the marine muddle. S. G. Riggs. Annalist 18:248+ S 12 '21
- See also* Municipal bonds; New York stock exchange; Railroads—Securities; Securities; Stock exchange; Stocks

Advertising

- Conservative bond house adopts human-interest copy. Ptr Ink 112:83-4 Ag 19 '20
- Federal farm loan system to be advertised. A. E. Haase. Ptr Ink 115:43-4 Je 2 '21
- How bonds are sold by mail. C. M. Harrison. Ptr Ink 115:73-4+ My 5 '21
- Selling San Paulo loan here by advertising. Ptr Ink 115:42+ Ap 28 '21

See also Investments—Advertising

Bonds, Government

- Foreign government securities, a text-book for banker and statistician. A. W. Kimber & company, incorporated, New York city '19
- John Wanamaker's proposals for refunding of liberty bonds to stimulate business. Comm & Fin Chr 113:1526-7 O 8 '21

- Plan to keep Liberty bonds at par by adjustable interest rate. M. W. Thompson. Comm & Fin Chr 112:1693-4 Ap 23 '21
- Schemes to put United States bonds to par. Comm & Fin Chr 113:773-4 Ag 20 '21
- United States and municipal bonds. Published in monthly Bank and quotation section of Commercial and financial chronicle
- U.S. treasury circular providing for exchange of temporary Liberty coupon bonds for permanent bonds. C. Glass. Comm & Fin Chr 110:125-6 Ja 10 sec 1 '20
- What will your liberty bonds buy. R: H. Tingley. Am Ind 21:21+ J1 '21

Bonds, Municipal. *See* Municipal bonds

Bonds, Rail. *See* Rail bonds

Bone-black

- Bone-black and decolorizing carbons. W. D. Horne. J Ind & Eng Chem 12:1015-17 O '20
- Sorption of alcohol and water by animal charcoal. J: Driver and J. B. Firth. Chem Soc J 119:1126-31 J1 '21
- Substitutes for bone char discovered after sixty years. Sci Am 124:383 My 14 '21

Bone char. *See* Bone-black

Bone grafting

- Surgical use of beef-bone screws. M. C. Henderson. *il* diags Sci Am M 2:12-14 J1 '20

Bonus system

- Application of wage bonus plan to construction operations. W. C. Nisbet. Eng & Contr 53:103-4 Ja 28 '20
- Apply premium system to foundries. H. C. Barker. Foundry 49:611-12 Ag 1 '21
- Bases of Emerson incentive. H. Emerson. Ind Management 60:413-16 D 1 '20
- Better work through bonus plans. Factory 24:220+, 698+, 1258+; 25:88+, 450+, 642+ Ja, Mr 1, Ap 15, J1 1-Ag 15 '20
- Bonus and wage-payment plans other men use. Factory 25:1596+; 26:122+, 250+, 1016+; 27:250+, 646+ N 15 '20, Ja 1-15, Ap 15, Ag, N '21
- Bonus for office boys improves service. J: P. McOwen. Ind Management 62:231-2 O '21
- Bonus plan that works. F. H. Colvin. Am Mach 52:1137-9 My 27 '20
- Bonus system for mechanics. Motor Age 37:13+ Mr 18 '20
- Bonus system increased number of meters read by 50 per cent. Elec W 75:1488 Je 26 '20; Same. Eng & Contr 54:46 J1 14 '20
- Bonus system of wage setting. B. Daniels. Inland Ptr 65:226 My '20
- Bonus system succeeds in forge shop. G: C. Brainard. Iron Tr R 67:247-8 J1 22 '20
- Bonus system that teaches thrift. Am Mach 55:67 J1 14 '21
- Bonus systems; advantages and disadvantages. W. A. Darter. Power Pl Eng 25:283-4 Mr 1 '21
- Bonus systems for employees in power plants. R. June. Elec R 77:600-2 O 16 '20
- Bonuses for quality as well as quantity; employees in the heat-treating department, Duff mfg. co., Pittsburgh, must keep temperature within limits to get extra pay. A. A. Blue. Iron Age 107:687-9 Mr 17 '21
- Bonuses on construction work. Eng & Contr 55:586 Je 15 '21
- Chinese bonus system for commercial employees. Eng & Contr 53:492 Ap 28 '20
- Combination bonus and production control. C. E. Woods. chart Administration 1:239-45 F '21
- Common labor responds to incentives. J. D. Town. Ind Management 60:422-4 D 1 '20
- Encouraging industrial cooperation; new idea in bonus systems. A. H. Dittmer. Mach 27:549-51 F '21
- Failure of profit sharing plans. Textile World 58:1307 Ag 28 '20
- Group economy bonus that increased production 26 per cent. W. R. Basset and W. T. Fitzpatrick. Factory 24:817-19 Mr 15 '20
- How rewards help workers at their jobs. Iron Age 107:317-20 F 3 '21
- Incentive or production basis of wage payment. H: H. Farquhar. Am Mach 55:169-72, 275-7, 344-8 Ag 4, 18, S 1 '21

Bonus system—Continued

- Incentives for indirect producers; premiums for foremen and machine adjusters in the knitting industry. W: Baum and E. E. Brinkman. Textile World 60:1785+ S 24 '21
- Making the production job a game. A. R. King. il Factory 24:952-5 Ap 1 '20
- Making the shop pay; a combination salary and bonus system. J. M. Bohler. Motor Age 38:10-12 O 21 '20
- More about the bonus system. W: O. Lichtner. Inland Ptr 66:51 O '20
- Paying the men who deliver the goods. H. A. Dudgeon. il Factory 25:535-6 Ag 15 '20
- Payment of bonus to pipe press crews. W. F. Godejohn. charts Brick & Clay Rec 58:1076-9 Je 28 '21
- Piece-work, bonus systems and higher efficiency. C. C. Cook. Ry Age 70:1263-4 Je 3 '21
- Premium system in the pattern shop. J: H. Klee. Foundry 48:92 F 1 '20
- Premium wage plan in Milwaukee car shops. J. H. Lucas. Elec Ry J 57:528-32 Mr 19 '21
- Produce more or shut down. Factory 25:1890-1 D 15 '20
- Production methods in shipbuilding; Halsey premium system and 100 per cent. W: B. Ferguson. Ind Management 60:409-12 D 1 '20
- Providing incentive by time-rate payment on the railroads; comparison with piece work system. G. W. Armstrong. Ry Age 70:1157-9 My 20 '21
- Putting the kiln fireman on bonus. L. C. Hewitt. Brick & Clay Rec 58:128-30 Ja 25 '21
- Report of committee on bonus systems. NE L A Bul 7:632-51 S '20
- Results of the gang bonus. V. E. Burnett. Ind Management 61:197-6 Mr 1 '21
- Save \$2—we'll give you one. P: F. O'Shea. Factory 27:326-8 S '21
- Teaching our workers to work. M. W. Osgood. il System 40:423-6+ O '21
- Time study underlies bonus system. H. E. Diller. Foundry 48:682-6 S 1 '20
- Wage incentive systems—discussion. L. E. King. Ind Management 61:39-40 Ja 1 '21
- When our workmen backed us on: despite all—production. O. Simpson. Factory 24:458-60 F 15 '20
- Which wage-payment plan in my shop? Factory 25:1563-6 N 15 '20

See also Piece work; Priestman plan

Book industry and trade

See also Bookbinding; Paper industry and trade; Printing; Publishing

Advertising

- American people to be made book readers. Ptr Ink 112:41-2 Ag 12 '20
- Mid-winter selling and advertising campaign for books. Ptr Ink 110:28 Ja 1 '20
- Sandwich men tie up book advertisements with bookshops. J. Henle. il Ptr Ink M 3:53 Jl '21

Book jackets

- Front cover of a book jacket; photograph. Ptg Art 36:420a Ja '21

Bookbinding

- Gluing leather, canvas, etc., to loose leaf metals. E. R. Mason. Inland Ptr 66:181-2 N '20
- Power requirements of machines in bindery. R. E. Peters. Elec W 75:440-1 F 21 '20
- Solid ivory in bookbinding. J: J. Pleger. Inland Ptr 67:206 My '21
- See also* Marbling; Wire stitchers

Bookkeeping

- Bookkeeping and accounting practice. S. R. Hoover. 301p A. W. Shaw co., Chicago; New York '20
- Bookkeeping and elementary accounting. E. H. Cunningham. 409p Earle H. Cunningham, Portland, Me. '20
- Bookkeeping for modern business. J: G. Kirk and J. L. Street. 236p John C. Winston co., Philadelphia; Chicago '20
- Bookkeeping for the heating and plumbing contractor. L. M. Emmett. Dom Eng 97:149-52 O 22 '21

- Bookkeeping without books. H. B. Lohmeyer. il Am Gas Assn Accounting sec v 1:70-87; Discussion. 88-111 '19

- Mechanical bookkeeping of consumers' accounts. F. C. Ingram. Am Gas J 115:349-51 O 15 '21

- Mysteries of double entry are laid bare by credit men. Ptr Ink 113:154+ D 2 '20

- Practical bookkeeping system used by Stinson-Kennedy co., Pittsburgh. Dom Eng 95:159-61 Ap 23 '21

- Simplicity in bookkeeping. F. M. Loomis. Motor Age 38:20-1 Jl 1 '20

- Simplicity is keynote of this system of bookkeeping. il Dom Eng 97:202-4 O 29 '21

See also Accounting; Auditing; Calculating machines; Cost accounting; Depreciation; Inventories; *also* subdivision Accounting under names of industries

Bookkeeping machines

- Report of committee on office labor saving devices. J: L. Conover. Am Gas Assn Accounting sec v 1:15-34; Discussion. 35-42 '19

- Use of accounting machines in freight accounts. il Ry R 66:131-3 Ja 24 '20

- Booklets. Advertising. *See* Advertisements—Books and booklets

Books

- Beginning of books. J. Devlin. Inland Ptr 65:329-31 Je '20

See also Bibliography; Cataloging; Classification; Libraries; Printing; Publishing

- Bookstock, Regeneration of. *See* Waste paper

Bookworms

- Insect foes of books. il Sci Am M 1:496-500 Je '20

Boosters

- Back emf. booster; abstract. G. Bowron. diag Elec W 75:223 Ja 24 '20

- Booster saves energy in charging storage batteries. L. R. West. diag Elec W 77:264 Ja 29 '21

- Boosters, Locomotive. *See* Locomotives—Boosters

Booth, William

- Sketch. H. Begbie. Comm & Fin Chr 111:932-3 S 4 '20

Borax

- Borax in 1920. G: J. Young. Eng & Min J 111:156 Ja 22 '21

- Borax mountain in Nevada is world's largest. Pop Mech 35:802 Je '21

- Death Valley transportation; how the borax is transported from this hottest of regions to the nearest rail connection. J: L. Von Blon. Sci Am 125:232 O 1 '21

- Preserving polish of metals during annealing. Automotive Ind 43:1315 D 30 '20

- Record production of borax in 1920. Eng & Min J 111:748 Ap 30 '21; Same abr. Chem & Met Eng 24:702 Ap 20 '21

- Salts-refining plants at Owens and Searles lakes. L. W. Chapman. il map Chem & Met Eng 24:683-8 Ap 20 '21

See also Colemanite

Borders (printing)

- Advertisement framer or gilder vs. the mere copy writer. F. T. Singleton. Ptg Art 37:41-8 Mr '21

- More lampblack! F. T. Singleton. Ptg Art 37:243-4 My '21

Borers (animals)

- Enemies of timber construction. J. F. Springer. il Sci Am 125:118+ Ag 13 '21

- Marine borer that thrives on sandstone. il diag Eng N 87:194 Ag 4 '21

- Marine borers invade piling in San Francisco Bay. il map Ry Age 70:420-4 F 18 '21; Same. Sci Am M 3:446-50 My '21; Excerpt. Eng & Contr 55:261-2 Mr 16 '21

- Marine boring animals and submerged structures. Eng & Contr 53:753-4 Je 30 '20

- Timber piling in waters infested by marine borers. Engineer 132:57-8 Jl 15 '21

- Wood borer takes the count; protecting piling by cement gun. il Sci Am 124:111 F 5 '21

See also Teredos

Borers (animals)—Continued**Bibliography**

Some references to publications on marine borers. Eng & Contr 53:91 Ja 28 '20

Bores (tidal phenomena)

Tidal bore studies on River Dee and its estuary. W: Gore. il map Eng N 87:491-4 S 22 '21

Boric acid

Boric acid modification of the Kjeldahl method for crop and soil analysis. F. M. Scales and A. P. Harrison. J Ind & Eng Chem 12:350-2 Ap '20

Boring. See Drilling and boring; Drilling and boring (earth and rocks)**Boring-bars**

Boring-bars for double-end cutters. A. H. Gaess. diags Mach 28:144 O '21
Connecting-rod boring-bars. C. H. Dengler. diags Mach 28:234 N '21

Boring machinery. See Drilling and boring machinery**Borneo.** See Petroleum—Borneo**Boro-Budur, Java**

Making Boro-Budur known. F. Dickie. il Sci Am 122:398+ Ap 10 '20

Boron

Bor- und silicium-chemie; die experimentelle erforschung leichtflüchtiger stoffe. A. Stock. il Deutsche Chem Gesell Ber 54:sup 142-58 Je '21

Boron in relation to the fertilizer industry. J. E. Breckenridge. J Ind & Eng Chem 13:324-5 Ap '21

Chemistry of the volatile. A. Gradenwitz. Sci Am 125A:10 N '21

Darstellung von bor durch dissoziation von borbromid. F: Meyer and R. Zappner. diag Deutsche Chem Gesell Ber 54:550-60 Mr '21

See also Plants, Effect of boron on

Boron nitride

Über die darstellung grösserer mengen reinen bornitrids. F: Meyer and R. Zappner. diag Deutsche Chem Gesell Ber 54:560-6 Mr '21

Boron triethyl

Zur kenntnis des bormethyls und boräthyls. A. Stock and F: Zeidler. diags Deutsche Chem Gesell Ber 54:531-41 Mr '21

Boron trimethyl

Zur kenntnis des bormethyls und boräthyls. A. Stock and F: Zeidler. diags Deutsche Chem Gesell Ber 54:531-41 Mr '21

Boston, Massachusetts

Why business is good in Boston. R. O. Jasperson. il Gas Age 48:243-7 S 3 '21

Harbor

Big Boston terminal will promote port development. diag plan Marine R 50:133-6 Mr '20

Railroads

Passing of an historic passenger train shed; structure over tracks of North station, Boston, removed after nearly fifty years' service. il diags plan Ry Age 70:1211-13 My 27 '21

Rapid transit

Boston—and her trolley cars. E: Hungerford. il map Elec Ry J 55:1032-7 My 22 '20

Boston Elevated showing good. map Elec Ry J 56:1260 D 18 '20

Five and ten-cent Boston fares. E: Dana. il map Elec Ry J 58:47-8 J1 9 '21

Service at cost in Boston. J. F. Jackson. Elec Ry J 56:1141 D 4 '20

Three-car trains satisfactory in Boston. E: Dana. il diag Elec Ry J 55:195-6 Ja 24 '20

Transportation area planned. Elec Ry J 57:191 Ja 22 '21

See also Boston Elevated railway

Tremont Temple

Classics in clay; Tremont Temple, Boston. O. Speir. il Arch Forum 32:sup47-50 Je '20

Boston & Maine railroad

Annual report for 1920. Ry Age 70:1016-18 Ap 29 '21

Reorganization. map Ry Age 68:1655-6 Je 11 '20

Boston Elevated railway

Boston—and her trolley cars. E: Hungerford. il map Elec Ry J 55:1032-7 My 22 '20

Boston deficit being reduced gradually. Elec Ry J 57:1056 Je 4 '21

Boston Elevated showing good. map Elec Ry J 56:1260 D 18 '20

Boston Elevated trustees report on fares. Elec Ry J 57:782 Ap 23 '21

Conditions in Boston are better. Elec Ry J 55:964 My 8 '20

Electric railway budget; Boston Elevated finds monthly revision of estimates necessary. E. M. Flint. Elec Ry J 56:1286-7 D 25 '20

Electric railway must not become anti-social. Elec Ry J 55:1269 Je 19 '20

Elevated men accept cut. Elec Ry J 57:869 My 7 '21

\$550,253 earned by Boston Elevated in year ended June 30, 1921. Elec Ry J 58:148 J1 23 '21

\$5,934,255 loss in Boston. Elec Ry J 55:216 Ja 24 '20

New shops for Boston. il plan Elec Ry J 57:555-6 Mr 19 '21

Public trusteeship of the Boston Elevated railway. E: Dana. Gen Elec R 23:319-25 Ap '20

Replacing horses with motors and trucks on the Boston Elevated railway. E: Dana. il map plans Elec Ry J 57:484-6 Mr 12 '21

Scientific arrangement of schedules. E: Dana. il charts Elec Ry J 56:647-51 O 2 '20

Service-at-cost in Boston proves to be earning more nearly the fixed return. Elec Ry J 57:829 Ap 30 '21

Trustees report better results. Elec Ry J 57:197-8 Ja 22 '21

Boston society of civil engineers

Interesting the young men in the Boston society. Eng N 86:848-9 My 19 '21

Boston stock exchange

Weekly stock record. Published in weekly numbers of Commercial and financial chronicle

Boston trade school

Boys trim and outfit school office. F: Hall. il Pop Mech 34:732-3 N '20

Botanical chemistry

Chemistry of plant life. R. W. Thatcher. 268p McGraw-Hill '21

See also Cellulose; Pectins; Pentosans

Botanical gardens

See also New York botanical garden

Botany

See also Buds; Desert flora; Forests and forestry; Paleobotany; Plants; Roots; Rubber plants; Trees

Ecology

Anatomical reduction in some alpine plants. C. C. Forsaith. Sci Am M 3:271-2 Mr '21

Geological aspects

Botany applied to mining. Eng & Min J 110:1116; 111:94-5 D 11 '20, Ja 15 '21

Interesting relations between vegetation and mineral deposits. R. M. Harper. map Eng & Min J 112:693-4 O 29 '21

Physiology

See also Plants—Nutrition; Plants—Respiration; Plants—Transpiration

Botany, Medical

Barks with a bite. il Sci Am M 4:217-20 S '21

See also Atropine sulfate

Bothriodonts

American bothriodonts. E: L. Troxell. il diags Am J Sci 5th ser 1:325-39 Ap '21

Bottle-making machinery

Machinery for glass manufacture. il Engineer 131:204-6, 208 F 25 '21

O'Neill glass bottle machine. il diags Engineer 131:548-9 My 20 '21

Bottles

American bottles old and new, a story of the industry in the United States. W: S. Walbridge. 112p Caslon press, Toledo '20

Advertising

Bottle makers undertake unusual co-operation. H. E. Agnew. *Ptr Ink* 113:25-7 D 23 '20

Boulangerite

Additional notes on the crystallography and composition of boulangerite. E. V. Shannon. *Am J Sci* 5th ser 1:423-6 My '21

Boulnois, H. Percy

Reminiscences of a municipal engineer. H. P. Boulnois. *Eng N* 86:128-9 Ja 20 '21

Boulton, Lyndon, 1860-

Einstein prize winner. *por Sci Am* 124:207 Mr 12 '21

Bourcoud process

Smelting ore by direct process. L. Wickenden. *diag plan Iron Tr R* 69:363-8 Ag 11 '21

Bourgeois, Louis J.

Model for the Bahai temple, Chicago. J. R. Reid. *por il plan Arch Rec* 47:501-5 Je '20

Bowling

Bowling on the green. W: Henry. *il Sci Am* 124:327 Ap 23 '21

Box board. See Paper board**Box cars. See Freight cars****Box factories****Accounting**

Accounts of a paper box factory. T: J. Shannon. *J Account* 29:198-205 Mr '20

Power

Electrically driven machines in modern box factory. W. A. Scott. *il Elec R* 79:588-9 O 15 '21

Manufacture of jute board. J. Pfister. *Paper* 26:16-17 Jl 21 '20

Box huckleberry

Botanical romance. *Sci Am* 122:378+ Ap 3 '20

Box manufacturers, National association of. See National association of box manufacturers**Boxer indemnities**

Senate passes bill for remission of further Chinese indemnity payments. *Comm & Fin Chr* 113:810-11 Ag 20 '21

Boxes

How box manufacturers aid claim prevention. *il Ry Age* 70:906 Ap 8 '21

How moisture content and storage affect the strength of boxes. *Sci Am* 125:235 O 1 '21

Nailing of boxes. *Automotive Ind* 41:924 N 6 '19

Manufacture

Box manufacture in New England. *il Am Lumberman* 2323:51 N 22 '19

Smith-Woods automatic matcher for box industry. *il Am Lumberman* 2330:62 Ja 10 '20

Specifications

Specifications for shipping boxes. *il Ry Age* 68:1969-71 Je 25 '20

Tentative specifications for wooden boxes. *diags Am Soc T M Pro v* 20 pt 1:727-35 '20

Boxes, Paper. See Paper boxes**Boy scouts**

Boy scout the American citizen of tomorrow. *Comm & Fin Chr* 110:1130-1 Mr 20 '20

Instruction in practical electricity for boy scouts of America. *il N E L A Bul* 8:14-16 Ja '21

Boycott

Boycott of Hungary by international organized labor. *Monthly Labor R* 11:588-92 S '20

Secondary boycott against factory products illegal. *Am Mach* 54:120g Ja 20 '21

Secondary boycott enjoined, West Virginia. *Monthly Labor R* 12:1245-6 Je '21

Secondary boycotts and the Clayton act. *Monthly Labor R* 11:413-16 F '21

Supreme court decision regarding labor unions and the secondary boycott. *Comm & Fin Chr* 112:96-8, 114-16, 1461-2 Ja 8, Ap 9 '21

Bracing. See Wind bracing; Wind pressure

Brackets

Stresses in brackets and their bolts. V: M. Summa. *diags Mach* 27:239-41 N '20

Bradford, William

Pennsylvania's first printer, and champion of the liberty of the press. J: T. Bramhall. *Inland Ptr* 68:190-2 N '21

Bradford, England**Rapid transit**

Trackless trolley in two British cities. *il diags Elec Ry J* 57:77-9 Ja 8 '21

Bradford process. See Flotation process

Bradley, Fred W., 1863-

Sketch. *por J Elec* 46:306 Mr 15 '21

Braiding machines

High speed braiding machine. *il Textile World* 59:3113 My 7 '21

Brain

Chemistry of the brain. C. J. West. *Chem & Met Eng* 23:145-7 Jl 28 '20; Same. *Sci Am* M 2:311-13 D '20

How we think; microscopic structure of the intellectual portion of the human brain. L. A. Hausman. *il diags Sci Am* 124:128+ F 12 '21

See also Intellect

Brake beams

Brake shoe and brake beam equipment; committee report; abstracts. *il diags Ry Age* 71:369-76 Ag 20 '21; *Ry Mech Eng* 95:579-86 S '21; *Ry R* 69:234-7 Ag 20 '21

Report on brake shoe and brake beam equipment. *diags Ry Age* 68:1851-7 Je 16 '20; *Ry R* 66:1045 Je 19 '20

Splicing locomotive brake beams. V: M. Summa. *diag Mach* 26:653 Mr '20

Unevenly worn brake shoes, cause and effect. E. A. LeBeau. *Ry R* 66:909-11 Je 5 '20

Brake linings

See also Brakes, Automobile

Advertising

Advertising cashes in on a gesture common among motorists. R. Cole. *Ptr Ink* 116:122+ S 22 '21

Brake rigging

Better foundation brake gear and automatic adjustment needed. W. H. Sauvage. *Ry Mech Eng* 94:583-4 S '20

Brake lever design. V: M. Summa. *diags Mach* 26:342-3 D '19

Determination of forces on eccentric levers and bell cranks. H. M. P. Murphy. *diags Elec Ry J* 57:729-33 Ap 16 '21

Determining forces in brake rigging. H. M. P. Murphy. *diags Elec Ry J* 57:547-50 Mr 19 '21

Equalized brakes and braking power. H. M. P. Murphy. *diags Elec Ry J* 57:935-9 My 21 '21

Force action of brake riggings. H. M. P. Murphy. *diags Elec Ry J* 57:116-19 Ja 15 '21

Foundation brake rigging. W: Schriver. *Ry R* 66:251-2 F 14 '20

Improved slack adjuster construction. *diag Elec Ry J* 58:447 S 17 '21

Piston travel and shoe clearance. H. M. P. Murphy. *diags Elec Ry J* 57:1119-22 Je 18 '21

Principles and design of foundation brake rigging. 121p Westinghouse air brake co., Pittsburgh '20

Regulating brake cylinder piston travel. *diags Ry Age* 71:409-11 Ag 27 '21

Standard hand brake riggings. H. M. P. Murphy. *il diags Elec Ry J* 57:351-3 F 19 '21

Brake shoes

Brake shoe and brake beam equipment; committee report; abstracts. *il diags Ry Age* 71:369-76 Ag 20 '21; *Ry Mech Eng* 95:579-86 S '21; *Ry R* 69:234-7 Ag 20 '21

Brake shoes—Continued

Damage to tyres and rails caused by brakes or slipping wheels; abstracts. C. P. Sandberg. *il Engineering* 112:82-4 J1 8 '21; *Engineer* 132:59-60 J1 15 '21; *Elec Ry J* 58:362 S 3 '21; *Discussion. Engineering* 112:54-5 J1 8 '21

Designing brake heads for uniform shoe wear. H. M. P. Murphy. *diags Ry Mech Eng* 95:107-8 F '21

Report on brake shoe and brake beam equipment. *diags Ry Age* 68:1851-7 Je 16 '20; *Ry R* 66:1045 Je 19 '20

Unevenly worn brake shoes, cause and effect. E. A. LeBeau. *Ry R* 66:909-11 Je 5 '20

Brakes

Adjustment of brake power on tank cars. *Ry Mech Eng* 95:227-8 Ap '21

Automatic brake for traveling cranes. *diags Foundry* 48:118 F 1 '20; *Same. Marine R* 50:188 Mr '20

Brake adjustments on gearless-type high-speed traction elevators. W. Zepernick. *il diags Power* 53:968-71 Je 14 '21

Brake equipment for Paulista railway. *Elec Ry J* 58:828 N 5 '21

Brakes on trailers desirable. *Sci Am* 122:194+ F 21 '20

Efficiency of the hand brakes. G. L. Fowler. *diags Ry Mech Eng* 94:210 Ap '20

Electric elevator machinery—brake adjustments. M. A. Myers. *il diags Power* 51:1038-40 Je 29 '20

New high-power staff brake. *il Elec Ry J* 58:555-6 O 1 '21

New Minich hand brake eliminates ratchet and pawl. *il diags Ry R* 69:26 J1 2 '21

Practical brake-horsepower formula for internal-combustion engines. H. Lemp. *diags Gen Elec R* 22:808-9 O '19; *Same. Mech Eng* 41:959-60 D '19; *Abstract. Automotive Ind* 42:807 Ap 1 '20

Principle of the prony brake briefly explained. C. C. Phelps. *diags Power* 52:543 O 5 '20

Safety hand brake. *il Ry Age* 70:1464 Je 24 '21; *Same. Ry Mech Eng* 95:472 J1 '21

Thomas locking ratchet device for trolley-car brake handle. *diags Mech Eng* 43:266 Ap '21

Vertical-shaft waterwheel-driven alternators—brakes, ventilation and exciters. S. H. Mortensen. *il diag Power* 51:953-4 Je 15 '20

See also Air brakes; Brake rigging; Brake shoes

Testing

Testing brake for 100-hp. motors. F. W. Gay. *il diag Elec W* 75:792-3 Ap 3 '20

Wheel and ratchet lever brake tests. *Ry Age* 68:1836 Je 15 '20; *Same cond. Ry R* 66:992-3 Je 12 '20

Brakes, Airplane

Air brakes for aeroplanes. R. R. West. *diags Engineer* 128:570-2 D 5 '19

Automatic brake for aeroplanes. *diag Aerial Age* 14:38 S 19 '21

Electro-magnetic brakes for aeroplanes. *Aerial Age* 15:57+ S 26 '21

Brakes, Automobile

Another French car using brakes on four wheels. W. F. Bradley. *il diags Automotive Ind* 43:1266-8 D 23 '20

Brake for every wheel. *il Sci Am* 124:89 Ja 29 '21

Brake lining sizes for 1920 cars. *Motor Age* 38:43 J1 22 '20

Brake lining tests at the Bureau of standards. *Automotive Ind* 45:108-9 J1 21 '21

Braking on all four wheels. W. F. Bradley. *il diags Automotive Ind* 42:460-2 F 12 '20

Development of simplified brake perfected by Hugo Dotzer. *il diags Motor Age* 38:28 J1 15 '20

Dies for automobile service brake covers. J. Bingham. *diags Mach* 27:140-1 O '20

Engineering analysis of European four wheel brakes. W. F. Bradley and S. Gerster. *il diags Automotive Ind* 44:1267-73 Je 16 '21

Four-wheel brake that operates hydraulically. *il Sci Am* 124:209+ Mr 12 '21

Frein pour roues avant d'automobiles, système Serex. *diag Génie Civil* 77:138 Ag 14 '20

Friction metal for brake linings. *il Automotive Ind* 44:153 Ja 27 '21

Front brakes gaining. *Sci Am* 122:393 Ap 10 '20

Front-wheel brakes for trucks. *il Sci Am* 125:206 S 17 '21

How to reline and adjust brakes. *il Motor Age* 38:12-14 O 7 '20

Raybestos trailer brake equalizer. *il Automotive Ind* 43:767 O 14 '20

Shuler front wheel brake. *diags Automotive Ind* 45:79 J1 14 '21

Standard tests for automobile brake linings. *Sci Am M* 4:80 J1 '21

See also Air brakes, Automobile

Brakes, Electropneumatic

Test of electropneumatic brake successful. *Elec R* 77:564 O 9 '20

Braking, Dynamic

Electric braking of direct-current vehicles. W. M. Hutchison. *diags Elec J* 17:471-3 O '20

Electric elevator machinery—brake adjustments. M. A. Myers. *il diags Power* 51:1038-40 Je 29 '20

Stopping a car by braking with the motors. *diags Elec J* 18:334 J1 '21

Braking, Electric. See Braking, Dynamic

Braking, Regenerative

Maintaining a balanced load on d.-c. hoist motors. *diags Elec W* 74:1069 D 13 '19

Regenerative braking with single-phase commutator motors. *diag Elec Ry J* 54:910 N 15 '19

Branch banking. See Banks and banking—Branch banking

Branch managers

How to keep branch managers from growing stale. H. K. Sheridan. *Ptr Ink* 116:36+ Ag 25 '21

Branding

Branding California walnuts. H. H. Warner. *il Sci Am* 122:96 Ja 24 '20

Can any form of branding protect the buyer of raw materials? *Ptr Ink* 112:157+ J1 22 '20

Brannerite

Brannerite, a new uranium mineral. F. L. Hess and R. C. Wells. *il J Fr Inst* 189:225-37 F '20

Note on brannerite. R. C. Wells. *J Fr Inst* 189:779-80 Je '20

Brantham, England

Brantham village hall. *il Am Arch* 117:116a-116c Ja 28 '20

Brashear, John Alfred, 1840-

Humanitarian and man of science. H. S. Pritchett. *Mech Eng* 43:39-40 Ja '21

Sketch. *por Am Mach* 52:903 Ap 22 '20; *Iron Age* 105:1141 Ap 15 '20; *Iron Tr R* 66:1145 Ap 15 '20; *Power* 51:646 Ap 20 '20; *Mech Eng* 42:311-13 My '20

Tools of science; great instrument-maker and astronomer. H. T. Wade. *Sci Am* 122:513 My 8 '20

Brasil. See Brazil, Island of

Brass

Alloys of interest to the brass founder; alloys used in famous statuary. *Foundry* 48:284a Ap 1 '20

Brasses containing nickel. L. Guillet. *Iron Age* 107:1380 My 26 '21

Cobalt brasses. L. Guillet. *il Chem & Met Eng* 24:439-43 Mr 9 '21

Coefficients of equivalence in ternary alloys. L. Guillet and A. Portevin. *diags Chem & Met Eng* 24:609-12 Ap 6 '21

Constitution of certain tin-bearing brasses. W. Campbell. *Am Soc T M Pro v* 20 pt 2:104-14 '20

Copper and brass. J. F. Springer. *il Brass W* 17:47-51, 157-9 F, Je '21

Corrosion of brass in dilute electrolytes. J. H. Reedy and B. Feuer. *diag J Ind & Eng Chem* 12:541-7 Je '20

Extrusion of brass. C. P. Karr. *Metal Ind* 19:113 Mr '21

Brass—Continued

- Gauges and standards for manufacturing brass goods. P: W. Blair. *il Metal Ind* 17:460-2; 18:77-8 O '19, F '20
- Heat treatment of beta brasses. H. M. Brayton. *il Chem & Met Eng* 22:211-17 F 4 '20
- High resistance brass. P. Powell. *Brass W* 17:151-3 Je '21
- Influence of cadmium on the properties of brass. L. Guillet. *Iron Age* 105:1034-5 Ap 8 '20; *Abstract. Chem & Met Eng* 22:947 My 19 '20
- Influence of small quantities of aluminum upon the properties of brass. J. Czochralski. *Brass W* 17:64 Mr '21
- Making brass since Tubal Cain. L. A. Cornelius. *Dom Eng* 94:389-90+ F 19 '21
- Manufacture of brass sheet and coils. A. L. Scott. *Metal Ind* 18:113-15 Mr '20
- Marine brass goods and fittings. P: W. Blair. *il Metal Ind* 18:351-2 Ag '20
- Modern developments in the British brass industry. E. A. Smith. *Am Electrochem Soc Trans v* 40 (preprint 24):301-26 S '21
- Nickel brasses. *il Chem & Met Eng* 24:261-5 F 9 '21
- Removal of internal stress in 70:30 brass by low temperature annealing. H. Moore and S. Beckinsale. *il diags Engineering* 109:393-5 Mr 19 '20; *Abstract. Iron Age* 105:992 Ap 1 '20
- Seven centuries of brass making. O. A. Kenyon. *il Am Mach* 53:1133-6, 1225-30 D 16, 30 '20
- Some features in the behaviour of beta brass when cold-rolled. F. Johnson. *il diags Engineering* 110:882-4 D 31 '20
- Ternary brasses. *Chem & Met Eng* 24:177-8 Ja 26 '21
- La trempe des laitons à l'étain. L. Guillet. *il Génie Civil* 78:422-3 My 14 '21
- See also* Alloys; Brass founding; Brass foundries; Tubes, Brass

Analysis

- Determination of small amounts of lead in brass. F. W. Glaze. *J Ind & Eng Chem* 13:553-4 Je '21
- Rapid method for the determination of tin in brass and bronze. L. R. Raymond. *Chem & Met Eng* 22:1056 Je 9 '20

Season-cracking

- Development of cracks in brass castings of rectangular outline. W. J. Dallison. *il Metal Ind* 18:76 F '20
- Experiences of season-cracking during the great war. O. W. Ellis. *Engineering* 111:474 Ap 15 '21
- Prevention of season cracking in brass by the removal of internal stress. H. Moore and S. Beckinsale. *diag Engineering* 111:665-6 My 27 '21
- Season-cracking of brass and other copper alloys. H. Moore, S. Beckinsale and C. E. Mallinson. *il Engineering* 112:262-4, 297-9, 327-30 Ag 12-26 '21; *Abstracts. Chem & Met Eng* 24:976-80 Je 1 '21; *Engineer* 131:264 Mr 11 '21; *Iron Age* 107:913 Ap 7 '21; *Metal Ind* 19:155 Ap '21; *Discussion. Engineer* 31:264 Mr 11 '21; *Engineering* 111:300-1 Mr 11 '21; *Iron Age* 107:113-14 Ap 7 '21

Specifications

- A.S.T.M. changes specifications. *Foundry* 48:559-60 Jl 15 '20; *Iron Age* 106:18-20 Jl 1 '20; *Metal Ind* 18:349-50 Ag '20
- Old metals classification of National association of waste material dealers, inc. *Iron Age* 106:451 Ag 19 '20
- Tentative specifications for brass ingot metal for sand castings. *Am Soc T M Pro v* 20, pt 1:561-4 '20
- Tentative specifications for sheet high brass. *Am Soc T M Pro v* 20 pt 1:580-5 '20

Brass founding

- American foundrymen consider problems of brass foundries. *Foundry* 48:804-6 O 15 '20
- Application of gas to brass melting. A. L. Palmer. *Am Gas Assn Commercial sec v* 2:192-200 '20; *Excerpts. Foundry* 49:270-1 Ap 1 '21; *Excerpts. Brass W* 17:223-4 Ag '21

- Art of casting in high tensile brass. N. J. Maclean. *il Engineering* 109:388-91 Mr 19 '20; *Summary. Iron Age* 105:991 Ap 1 '20
- Booth rotating electric furnace. C. H. Booth. *il diag Metal Ind* 18:456-9 O '20; *Same cond. Iron Age* 106:1463-4 D 2 '20
- Brass and bronze castings. C. H. Bierbaum. *Metal Ind* 18:274-7 Je '20; *Same cond. Iron Tr R* 66:1621-2 Je 3 '20; *Excerpts. Mech Eng* 42:435-7 Ag '20
- Brass-casting practice; abstract. T. G. Bamford and W. E. Ballard. *Chem & Met Eng* 24:132-3 Ja 19 '21
- Brass foundry practice at Messrs. Vickers, Ltd., Barrow-in-Furness. H. B. Weeks. *Engineering* 110:389-90 S 17 '20; *Same. Metal Ind* 18:504-6, 550-1 N-D '20; *Excerpts. Foundry* 49:5-7 Ja 1 '21
- Brass foundry specializes in plumbers' fittings. P. Dwyer. *il plan Foundry* 48:151-5 F 15 '20
- Brass melting in gas furnaces. E: F. Davis. *il Gas Age* 45:90-3, 196-8, 284+ Ja 26, F 25, Mr 25 '20
- Bronze foundry increases output. *il diag Foundry* 48:948-51 D 1 '20
- Casting of brass ingots. R. Genders. *il diag Engineering* 112:452 S 23 '21; *Same. Iron Age* 108:962 O 13 '21; *Discussion. Engineering* 112:449 S 23 '21
- Casting sprinkler frames and casting brass handles. W: J. Reardon. *diags Metal Ind* 19:151-2 Ap '21
- Conservation of fuel in the copper and brass industry. T: H. A. Eastick. *Brass W* 17:102 Ap '21
- Crucible furnaces for melting. E: F. Davis. *il diag Gas Age* 46:72-3 Jl 26 '20
- Developments in brass melting. O. A. Kenyon. *il diag Iron Age* 105:527-30, 818-19, 880-3 F 19, Mr 18-25 '20
- Direct routing in a modern brass plant. F. L. Prentiss. *il diag Iron Age* 108:63-8 Jl 14 '21
- Economic considerations in selection of brass melting equipment. H. A. Eastick. *Brass W* 17:265-6 S '21
- Economies of melting brass electrically. *il diag Elec W* 76:1253-5 D 25 '20
- Electric brass furnace reduces foundry costs. *il Elec W* 74:1107-9 D 20 '19
- Electric furnace has proved value. C. H. Booth. *il diag Foundry* 48:994-7+ D 15 '20
- Electric melting in an oil furnace. W: J. Reardon. *diags Metal Ind* 18:207-10 My '20
- Electric melting shows economy. *il Foundry* 47:845-50 D 1 '19
- Electrical melting of alloys. H. W. Gillett. *Foundry* 48:177-80, 229-31+, 275-81, 319-23, 362-6, 400-6, 445-53+, 486-91, 531-9, 571-4, 612-14, 656-8, 693-5 Mr 1-S 1 '20
- Electricity for brass making in the Northwest. W. C. Heston. *il J Elec* 45:522 D 1 '20
- Evolution of the electric brass furnace. H. M. St John. *Am Electrochem Soc Trans v* 37 (preprint 12):161-75 Ap '20; *Same cond. Iron Age* 105:1223-4 Ap 29 '20
- Extrusion defect. R. Genders. *il diags Engineering* 112:487-9; *Discussion. 483 S* 30 '21
- Few alloying problems. J. L. Jones. *diags Metal Ind* 18:7-8 Ja '20
- Forgeable bronzes and brasses. R. E. Search. *Metal Ind* 19:318-20 Ag '21
- Formulas for the brass foundryman. *Foundry* 48:192a, 236a Mr 1-15 '20
- Foundry test of rotating furnace. *Chem & Met Eng* 22:136-7 Ja 21 '20
- Fuel in the copper and brass industry; its application to melting furnaces. T: H. A. Eastick. *Brass W* 17:57-8 F '21
- Fuels for brass melting. *Metal Ind* 18:409 S '20
- Fuels for melting brass. *Mach* 27:679 Mr '21
- Gas for brass foundries. H. H. Smith. *Gas Age* 45:240 Mr 10 '20
- Heavy brass castings for railroad shops; operating brass foundries in conjunction with railroad shops. *diags plan Ry Mech Eng* 94:725-6 N '20
- High pressure brass melting. E: F. Davis. *il Gas Age* 45:563-5 Je 25 '20
- How and why in brass founding. C: Vickers. *Foundry* 47:349-50, 400-1, 521, 565-6, 745-6, 868-9 Je 1-Ag 15, O 15, D 1 '19

Brass founding—Continued

- Influence of gases on high-grade brass. T. G. Bamford and W. E. Ballard. il diags Engineering 110:390-4 S 17 '20; Abstract, with discussion. Engineer 130:298 S 24 '20
- Influence of the electric furnace on the metallurgy of non-ferrous metals. H. M. St John. Am Electrochem Soc Trans v 40 (preprint 3):55-75 S '21
- Institute of metals sessions. Oct. 4-8. flow sheet il Chem & Met Eng 23:767-8 O 20 '20
- Investigation of brass foundry flux. C. W. Hill, T. B. Thomas and W. B. Vietz. Metal Ind 18:498-502 N '20; Abstract. Min & Met 165:18 S '20; Abstract (Die wichtigsten fluss- und reduziermittel in der metallgiesserei). Stahl & Eisen 41:890-2 Je 30 '21
- Making brass rods and wire illustrated. O. A. Kenyon. il Iron Age 105:1437-40 My 20 '20
- Making seamless brass tubes. O. A. Kenyon. il Iron Age 105:1087-92 Ap 15 '20
- Making seamless copper and brass tubing. E. K. Hammond. il diags Mach 26:487-93 F '20
- Manufacture of a brass faucet or compression Bibb cock. P. W. Blair. il Metal Ind 18:159-60 Ap '20
- Materials and chemicals used in brass foundry practice. C. Vickers. Brass W 17:33-5 F '21
- Measurement of casting temperatures in the brass foundry. J. Arnott. il Engineering 110:277 Ag 27 '20; Same. Foundry 48:766-7 O 1 '20; Abstract. Chem & Met Eng 23:701 O 6 '20
- Melting brass electrically. R. F. Yates. il Sci Am 122:221+ F 28 '20
- Melting brass in a gray iron shop. R. R. Clarke. Foundry 48:67-9 Ja 15 '20
- Melting brass with fuel oil. S. D. Rickard. diags plan Metal Ind 18:460-3, 507-10 O-N '20; Discussion. 18:563-4 D '20
- Melting furnaces. T. H. A. Eastick. Metal Ind 18:319-20 Jl '20
- Melting in a Detroit electric furnace. il Metal Ind 18:211-12 My '20
- Melting non-ferrous metals and their alloys in the electric furnace. H. M. St John. Chem & Met Eng 22:148-9 Ja 28 '20
- Melting of some non-ferrous metals and their alloys in electric furnace. E. F. Collins. il charts diags Chem & Met Eng 21:673-9 N 26 '19
- Metallurgical requirements of brass melting equipment. T. H. A. Eastick. Brass W 17:208-9 Jl '21
- Method of operating oil-fired brass furnaces. Foundry 49:22 Ja 1 '21
- Ninety per cent of non-ferrous alloys melting business rightfully belongs to gas company. A. L. Palmer. Am Gas Eng J 113:425-6+ N 20 '20; Same abr. Gas Age 46:445-6 N 25 '20
- Non-ferrous castings in spinning molds. L. J. Josten. il Iron Age 107:1289-92 My 19 '21; Abstract. Mech Eng 43:475 Jl '21
- Operating records of brass furnace pouring directly into molds. J. F. Brusster. Elec W 77:49-50 Ja 1 '20
- Pouring position affects bronze liner. P. Dwyer. Foundry 49:572 Jl 15 '21
- Preventing cooling and shrinkage cracks. Foundry 48:615 Ag 1 '20
- Producing small nonferrous castings. R. H. Sullivan. Metal Ind 19:108-11 Mr '21; Same. Foundry 49:490-3 Je 15 '21
- Reclamation of metal from brass-foundry refuse. F. L. Wolf and G. E. Alderson. flow sheets Metal Ind 18:452-5 O '20; Abstract. Min & Met 165:19 S '20
- Resistance type electric furnace in the melting of brass and other non-ferrous metals. T. F. Baily. Am Electrochem Soc Trans v 40 (preprint 20):273-9 S '21
- Rolling sheet brass. O. A. Kenyon. il Iron Age 105:1159-61 Ap 22 '20
- Seeking trouble sources in brass castings. Foundry 48:575 Jl 15 '20
- Seven centuries of brass making. O. A. Kenyon. il diag Am Mach 53:755-61, 835-8, 939-44, 1033-9, 1133-6, 1225-30 O 21, N 4, 18, D 2, 16, 30 '20

Some practical data on operating electric brass furnaces. il charts Elec R 76:215-18 F 7 '20

Temperature problems in foundry and melting. J. P. Goheen. Min & Met 179:36 N '21

Tumbling brass castings. W. H. Parry. Metal Ind 19:195 My '21

Using gas for brass melting. E. F. Davis. il diag Gas Age 45:481-4 My 25 '20

Weeks' electric rotating furnace as applied to the brass foundry industry. F. J. Ryan. il diags Metal Ind 17:519-21 D '19

Yellow scrap is useful in foundry. R. R. Clarke. Foundry 49:356-7 My 1 '21

See also Furnaces, Brass melting

Cost

Costs of brass melting. E. F. Davis. il diag Gas Age 45:367-9 Ap 26 '20

Electrical melting of alloys. H. W. Gillett. Foundry 48:571-4, 656-8 Jl 15, Ag 15 '20

High pressure brass melting. E. F. Davis. Gas Age 45:565 Je 25 '20

Melting brass in crucibles. Metal Ind 19:208 My '21

Melting brass with fuel oil. S. D. Rickard. diags plan Metal Ind 18:460-3 O '20; Discussion. 18:563-4 D '20

History

Making brass since Tubal Cain. L. A. Cornelius. Dom Eng 94:389-90+ F 19 '21

Seven centuries of brass making. O. A. Kenyon. il diags Am Mach 53:755-61 O 21 '20

Brass foundries

Asset made of a building obstacle; shop of the H. Mueller mfg. co., St Louis. il plan Foundry 49:197-201+ Mr 1 '21

Brass foundry specializes in plumbers' fittings. P. Dwyer. il plan Foundry 48:151-5 F 15 '20

Brass industry in Great Britain. P. M. Tyler. Iron Age 107:15-18 Ja 6 '21

British brassworkers' visit to Germany. Metal Ind 17:512-13 D '19

Columbus the convention city. E. B. Deutsch. il Metal Ind 18:393-9 S '20

Features of a non-ferrous metal foundry; aluminum foundry of the National bronze & aluminum foundry co., Cleveland. F. L. Prentiss. il Iron Age 108:511-13 S 1 '21

New casting shop of the Bridgeport brass company. H. M. Lane. il diag plan Metal Ind 19:1-3 Ja '21

New foundry for making mill brasses; plant erected at Youngstown, Ohio. il Iron Age 107:29-31 Ja 6 '21

Novel foundry for making railway brasses. il Foundry 47:866-8 D 1 '19

Equipment and supplies

Casting shop and melting room equipment. Metal Ind 19:72 F '21

Direct routing in a modern brass plant. F. L. Prentiss. il diag Iron Age 108:63-8 Jl 14 '21

Right molding machine for the brass foundry. W. H. Parry. il Metal Ind 19:61-3 F '21

Brass industry and trade**Great Britain**

Brass industry in Great Britain. P. M. Tyler. Iron Age 107:15-18 Ja 6 '21

United States

Bracing up copper and brass. W. A. Willis. Am Ind 22:11-13 O '21

Export trade in brass and brass manufactures. Dom Eng 96:359+ Ag 20 '21; Same, with tables. Metal Ind 19:367-8, 411-12 S-O '21

Brass plating

Electrodeposition of brass from cyanide solutions. A. L. Ferguson and E. G. Sturdevant. Am Electrochem Soc Trans v 38 (preprint 12):87-122 O '20; Abstract. Chem & Met Eng 23:723 O 13 '20; Summary. Metal Ind 18:463 O '20

Brass tubes. See Tubes, Brass

Brass work

- Continuous pickling of strip brass. W. Doster. *il Metal Ind* 19:129-31 Mr '21
 Inspection of brass goods. P. W. Blair. *Metal Ind* 19:11-12 Ja '21
 Making brass forgings; methods developed by the Mueller metals co., Port Huron, Mich. E. K. Hammond. *il diags Mach* 27:309-14 D '20

Brasses, Locomotive. See Locomotives—Brasses

Braverman, Louis A., 1889-

- Master typographers of today. J. L. Frazier. *por Inland Ptr* 67:65-8 Ap '21

Brazil

See also Geology—Brazil; Hydroelectric plants—Brazil; Railroads—Brazil

Commerce

Advertising methods in Argentina, Uruguay, and Brazil. J. W. Sanger. *il U S Bur For & Dom Com* 190:71-110 '20

Business opportunities in Brazil. J. D. W. Snowden. *Eng & Ind Management* 5:72 Ja 20 '21

Construction materials and machinery in Brazil. W. W. Ewing. *il U S Bur For & Dom Com* 192:1-96 '20

Electrical goods in Argentina, Uruguay, and Brazil. P. S. Smith. *il U S Bur For & Dom Com* 184:93-131 '19

Market of the future; Brazil a world power. J. D. W. Snowden. *Iron Age* 105:1029 Ap 8 '20

Textile markets of Brazil. L. S. Garry. *U S Bur For & Dom Com* 203:1-47 '20

Economic conditions

Brazil; a study of economic conditions since 1913. A. H. Redfield and H. Watkins. *U S Bur For & Dom Com misc ser* 86:1-99 '20

Brazilian business men face serious situation with confidence. *Am Mach* 54:252-3 F 10 '21

Industries and resources

"And I did not see a snake—": industrial possibilities of the Amazon valley. J. F. Barry. *Nation's Business* 8:18-19 D '20

Brazil as a mining country. G. A. Packard. *il maps Eng & Min J* 112:45-52 Jl 9 '21

Brazil: South America's most populous market. *Elec R (Lond)* 88:57-8 Ja 14 '21

Business opportunities in Brazil. A. Walker. *Annalist* 17:305 Mr 7 '21

Industrial Brazil. E. L. Little. *Am Mach* 52:243-4 Ja 29 '20

Industrial revival of Brazil. *Engineering* 110:284 Ag 27 '20

Letter from Rio Janeiro. M. R. Lamb. *Eng & Min J* 111:438-9 Mr 5 '21

See also Automobile industry and trade—Brazil; Gold mines and mining—Brazil; Mines and mineral resources—Brazil; Petroleum—Brazil; Steel works—Brazil; Sugar industry and trade—Brazil; Water power—Brazil

Railroads

See Railroads—Brazil

Brazil, Island of

Legendary islands of the North Atlantic; the mystery of the islands of Atlantis and Brasil and their influence upon Columbus. A. A. Hopkins. *maps Sci Am M* 4:14-18 Jl '21

Brazing

Brazing metal. R. R. Clark. *Brass W* 17:227 Ag '21

Brazing steel tubes and sheets. F. Grotts. *Am Mach* 52:543-4 Mr 11 '20

Hard soldering and brazing joints for copper and brass tubing. J. F. Springer. *diags Textile World* 58:3859+ D 4 '20

Heat-treating of brazed fittings for aircraft. A. Black. *Soc Auto Eng J* 6:174-6 Mr '20; Same. *Am Mach* 52:1184-6 Je 3 '20

Oxy-acetylene process of brazing and welding metals. P. W. Blair. *il diag Metal Ind* 18:11-12 Ja '20

Welding and brazing steel and cast iron parts. G. H. Radebaugh. *il Brick & Clay Rec* 59:117-20 Jl 26 '21

See also Solder and soldering

Bread

Bread facts. 111p Research products dept., Ward baking co., New York '20

See also Yeast

Analysis

L'analyse du pain. A. Fornet. *Chimie & Ind* 5:461-2 Ap '21

Standards

Weight standardization of bread. C. C. Neale. *U S Bur Stand misc pub* 43:115-18 '21

Breakfast food**Advertising**

Advertising to precede merchandising of new breakfast cereal. C. M. Harrison. *Ptr Ink* 111:105-6+ Je 24 '20

Breaking into the market through the side door; a new breakfast food gets distribution through judicious sampling. D. Kirkland. *Ptr Ink* 113:85-6+ D 2 '20

Something new in advertising a highly competitive product. *Ptr Ink* 112:10+ Ag 19 '20

Breakwaters

Progress on Toronto harbor works. *diag map Eng N* 84:724-6 Ap 8 '20

Rubble breakwater deposited from railway on ice. *il diag plan Eng N* 84:1261-3 Je 24 '20

See also Jetties

Breakwaters, Air

L'emploi de l'air comprimé pour calmer l'agitation de la mer. A. Poidlouë. *Génie Civil* 77:465 D 4 '20

Fighting waves with compressed air. G. F. Paul. *Sci Am* 123:61+ Jl 17 '20

Breakwaters, Concrete

Precast concrete breakwaters used in Lake Erie. *il diags Eng N* 87:352 S 1 '21

Breathing. See Respiration

Breathing apparatus. See Respiratory apparatus

Bregeat process

Recovery of volatile solvents by the Bregeat process. M. Roulleux and R. G. Dort. *flow sheet Chem & Met Eng* 24:916-21 My 25 '21; Discussion. 25:93, 181 Jl 20, Ag 3 '21

Breweries**Accidents**

Explosion of a brewing copper. *Engineering* 112:343 S 2 '21

Bribery, Commercial

Commercial bribery is unfair competition and must be eliminated. *Automotive Ind* 42:468-9 F 12 '20

Effort to stamp out commercial bribery. W. Fawcett. *Marine Eng* 26:384-6 My '21

Efforts for better business ethics. *Comm & Fin Chr* 111:1791-2 N 6 '20

Itching palm in business. W. R. Benét. *Nation's Business* 8:17-19+ F '20

Tipping and other objectionable trade practices. *Comm & Fin Chr* 111:931-2 S 4 '20

Brick, Concrete. See Concrete brick

Brick, Fire. See Fire brick

Brick chimneys. See Chimneys, Brick

Brick construction

Brick for the home builder. *il diags Bldg Age* 43:49-50 Ap '21

Built ideal wall house in Sweden 50 years ago. *il Brick & Clay Rec* 58:1074-5 Je 28 '21

Complete brick home delivered on the job. *il Brick & Clay Rec* 58:812-13 My 17 '21

Early brick houses of Salem county, New Jersey. H. D. Eberlein. *il diags Am Arch* 120:139-48 Ag 31 '21

How to veneer a frame building with face brick. *il diags Bldg Age* 43:43-4 Je '21

In praise of brick. C. L. Ward. *Brick & Clay Rec* 58:733-5 My 3 '21

Manual of face brick construction. 115p American face brick assn., 110 S. Dearborn st., Chicago '20

Possibilities of brick as a home building material. V. D. Abel. *il Bldg Age* 42:22-7 My; 45-52 Jl; 28-31 O; 29-33 D '20

Study in brick. *il plans Bldg Age* 43:37 O '21

Brick construction—Continued

Winning plans and face brick for a home. il plans Brick & Clay Rec 59:199-200 Ag 9 '21

See also Bricklaying; Chimneys, Brick; Concrete brick; Pavements, Brick; Roads, Brick; Sewers, Brick; Walls, Brick

Estimates

Brick house of moderate cost; quantity survey. il plans Bldg Age 43:30-1 N '21

Specifications

Specifications for slow burning office buildings. Eng & Contr 56:178-9 Ag 24 '21

Brick houses. *See* Brick construction

Brick industry and trade

Brick is king. A. E. Beals. Brick & Clay Rec 58:218-21 F 8 '21

Freight rates as a deterrent to common brick industry. Eng N 87:205, 460 Ag 4, S 15 '21

Sand-lime brick in 1920. J. Middleton. U S Geol S Min Res of U S 1920, pt 2:37-8 '21

Sells face brick new way; novel samples. Brick & Clay Rec 58:478-9 Mr 22 '21

See also Clay industries; *also* Common brick manufacturers' association

Advertising

Competing brick manufacturers unite in newspaper campaign. Ptr Ink 116:41-2 Ag 18 '21

Making dealer vital cog in selling machine. Brick & Clay Rec 59:418-23 S 20 '21

Show the builder how to use brick. Brick & Clay Rec 58:117-18 Ja 25 '21

Unions help in advertising move to stimulate building. Ptr Ink 116:133-4+ Ag 25 '21

Brick making. *See* Brickmaking

Brick painting

Painting old brick walls. A. A. Kelly. Bldg Age 42:33-4 S '20

Brick pavements. *See* Pavements, Brick

Brick roads. *See* Roads, Brick

Brick sewers. *See* Sewers, Brick

Brick walls. *See* Walls, Brick

Bricklayers

Discredit unjustified says bricklayer. J. McKenna. Brick & Clay Rec 58:300-1 F 22 '21

Monthly and yearly distribution of bricklayer's time. Am Inst Arch J 9:304 S '21

Bricklaying

Arch brick work; formulas and tables for fantail or taper arches. A. D. Williams. diag Iron Age 106:1264-5 N 11 '20

How to do an economical brick job. L. S. Keir. diags plan Bldg Age 43:28 J1 '21

How to lay a brick bay window. diags plan Bldg Age 43:30 Je '21

See also Masonry

Cost

Comparative cost of laying block and brick. A. J. R. Curtis. Concrete 17:130 O '20

Brickmaking

Applications of the drum and cable in a brick plant. R. Twells, jr. Am Cer Soc J 4:213-18 Mr '21; Same. Brick & Clay Rec 58:1084-6 Je 28 '21

Bricks of uniform texture now made from slag. Pop Mech 34:653 N '20

Burning brick in portable kilns. W. W. Dickinson, jr. il Brick & Clay Rec 59:29-32 J1 12 '21

Burning brick in the lime light. G. W. Greenwood. Ind Management 59:207-8 Mr '20

How a west coast plant is proceeding to reduce its cost. il Brick & Clay Rec 59:656-8 N 1 '21

Important factors in red-brick manufacture. R. W. Jones. il Eng & Min J 109:490-1 F 21 '20

Late model plant for soft mud brick production. il Brick & Clay Rec 58:820-4 My 17 '21

Modern brickmaking. A. B. Searle. 2d ed., rev. and enl. 500p Scott, Greenwood & son, London '20

Need of technical assistance in the brick industry. R. T. Stull. Am Cer Soc J 3:180-4 Mr '20

Putting the kiln fireman on bonus. L. C. Hewitt. Brick & Clay Rec 58:128-30 Ja 25 '21

Slag brick. A. Guttman. Chem & Met Eng 23:76 J1 14 '20

U.S. methods replace hand labor in India. C. A. Wilson. il Brick & Clay Rec 59:269-70 Ag 23 '21

L'utilisation des mâchefers de combustibles très cendreaux pour la fabrication de briques. diag plan Génie Civil 76:539 Je 12 '20

Water smoking of clays. R. F. Geller. Am Cer Soc J 4:375-89 My '21

Wet shale no more retards production. il diag Brick & Clay Rec 59:573-4 O 18 '21

Why bricks vary in quality, shape and size. il Bldg Age 43:28-9 S '21

See also Kilns

Brickmaking machinery

Clay screening machine proves worth while. C. U. Hendershot. il Brick & Clay Rec 58:566-7 Ap 5 '21

Bricks

Building brick. Am Inst Arch J 8:202-5 My '20

Cleaning old brick with pneumatic tools. il Eng & Contr 55:412 Ap 27 '21

Devises new brick designed to supplant hollow tile and brick. diags Brick & Clay Rec 59:271 Ag 23 '21

How to clean brick. Bldg Age 43:33 Ag '21

Lug or lugless brick? symposium. Eng N 84:618-20 Mr 25 '20

New thought on the handling of bricks; electric trucks. il Sci Am 123:569 D 4 '20

Paving brick and brick pavements. J. C. Travilla. Good Roads n s 20:201-2+ O 27 '20

Possibilities of brick as a home building material. V. D. Abel. il Bldg Age 42:22-7 My; 45-52 J1; 28-31 O; 29-33 D '20

Sand-lime brick—description and specification. diags U S Bur Stand Circ 109:1-9 '21

Sand-lime brick production increased in 1919. Eng & Min J 110:853 O 30 '20

Story of brick; the permanence, beauty, and economy of the face brick house. 55p American face brick assn., Chicago '20

30 years, service in underground tunnel leave common brick good as ever. il Brick & Clay Rec 59:653 N 1 '21

See also Brick construction; Brick industry and trade; Bricklaying; Brickmaking; Clay; Clay industries; Concrete brick; Fire brick; Hollow tile; Masonry; Pavements, Brick; Roads, Brick; Tile

Prices

Building situation. Brick & Clay Rec 59:664-6 N 1 '21

Current prices of common building brick drain tile and hollow building tile. Brick & Clay Rec 59:585 O 18 '21

Diagram and table showing common brick prices. D. H. Maury. Eng & Contr 56:352 O 12 '21

Standards

Manufacturers of common brick adopt standard size for their product. Bldg Age 42:57-8 J1 '20

Transportation

Effective use of trailers for hauling brick; with cost data. D. M. Lay. il Bldg Age 42:39, 51-2 O '20

Bricks, Concrete. *See* Concrete brick

Bridge accidents

Swingbridge accident of a new kind; repair of damage. il diags Eng N 84:829-30 Ap 22 '20

See also Bridge failures

Bridge and building association. *See* American railroad bridge and building association

Bridge approaches

Approach spans compared with high bridge abutments. M. F. Torkelson. il Eng N 85:466-7 S 2 '20

Bridge approaches—Continued

- Bridge approaches. diags Eng & Contr 52:524 N 5 '19
 Pile foundation for bridge approaches. il Pub Works 49:576-7 D 18 '20

Bridge design

- Adjusting a highway bridge to its site. diags plan Can Eng 39:169-71 J1 22 '20
 Arch bridges. J. A. L. Waddell. Engineering 110:823 D 24 '20
 Arch reaction influence lines by deflection diagrams. C. B. McCullough. diags Eng N 84:675-6 Ap 1 '20
 Architect a necessary factor in bridge building. F. A. Bourne. il Am Arch 118:217-21 Ag 18 '20
 Calcul des hourdis rectangulaires supportant des charges excentrées. P. Caufourier. diags Génie Civil 79:345-8 O 22 '21
 Calcul des ponts circulaires, à travées continues, comportant deux contreventements et des entretoisements transversaux sur leurs appuis seulement. B. de Fontviolant. Génie Civil 78:62 Ja 15 '21
 Calcul des ponts circulaires, à une seule travée, comportant deux contreventements et des entretoisements transversaux sur leurs appuis seulement. B. de Fontviolant. Génie Civil 77:539-40 D 25 '20
 Calcul des ponts circulaires, comportant un seul contreventement et des entretoisements transversaux dans toute leur longueur. B. de Fontviolant. Génie Civil 76:258-9, 337-8 Mr 6, Ap 3 '20
 Case of initial tension. R. Fleming. diags Eng & Contr 53:320-4 Mr 24 '20
 Characteristics of long-span suspension bridges. C. R. Young. diags Can Eng 39:483-6 N 4 '20
 Comparative economics of cantilever and suspension bridges. J. A. L. Waddell. plans W Soc E J 24:187-214 Ap '19; Discussion. 25:70-2 Ja 20 '20
 Considerations affecting design of highway bridges. L. M. Gram. Can Eng 39:436-7 O 14 '20
 Design features and cost of highway bridge construction in Manitoba. diags Eng & Contr 56:189-90 Ag 24 '21
 Design features of bridges for New Jersey highways. C. Deems. Eng & Contr 55:429 Ap 27 '21
 Design of highway bridges of steel, timber and concrete. M. S. Ketchum. 2d ed. 548p McGraw-Hill '20
 Economic proportions of plate girder viaducts. H. J. Kesner. diags Eng & Contr 55:607-8 Je 22 '21
 Economic span lengths for simple-truss bridges on various types of foundation. J. A. L. Waddell. diags W Soc E J 24:215-60 Ap '19; Same cond. Ry Age 67:635-6 S 26 '19; Discussion. W Soc E J 25:70-2 Ja 20 '20
 Evolution of bridge design. C. E. Fowler. W Soc E J 25:574-91 N '20
 Georges Creek accident and ruggedness in bridges. A. W. Buel. Eng N 86:463-4 Mr 17 '21
 Henderson liftable bridge plan for Pittsburgh to give variable clearance height. A. A. Henderson. diags Eng N 84:1171 Je 10 '20
 Higher stresses for bridge pins. D. B. Steinman. Eng N 86:502-3 Mr 24 '21; Discussion. 86:651-2, 735 Ap 14, 28 '21
 Highway bridge design. C. A. Mead. il Good Roads n s 21:155-6, 160-1 Mr 16 '21
 Increasing the efficiency of bridges. Eng N 85:1115 D 9 '20
 Latticing of compression members. R. Fleming. diags Eng & Contr 56:173-7 Ag 24 '21
 Longest concrete girder bridge is built in California across the Salt river in Humboldt county. il diags plan Eng N 84:427-9 F 26 '20
 New Southwark bridge. il diags plans Engineering 111:280-3, 294, pl 12 Mr 11 '21
 Les ponts à grandes portées en béton armé; passerelle de 56 mètres, système Vieren-deel, à la Louvière (Belgique). A. Vieren-deel. il diags Génie Civil 78:336-8 Ap 16 '21

Practical design of plate girder bridges. H. H. Bird. 180p C. Griffin & co., London; Lip-pincott '20

Practical features of the design and construction of highway bridges. A. F. Gordon. Can Eng 40:456-9 My 12 '21

Primary stress-determination in space frames. R. V. Southwell. diags Engineering 109:165-8 F 6 '20; Same. Eng & Contr 53:371-5 Mr 31 '20

Proposed Henderson type of movable bridge to span Allegheny river at Sixth street, Pittsburgh. diags Eng & Contr 54:186-7 Ag 25 '20

Railway bridge construction and service by American and European standards. P. H. Chen. diags Eng N 87:58-9 J1 14 '21; Same. Eng & Contr 56:400 O 26 '21; Abstract. Ry Age 71:727-8 O 15 '21; Discussion. Eng N 87:290-1, 375-6, 866-7 Ag 18, S 1, N 24 '21; Eng & Contr 56:400-1 O 26 '21; Ry Age 71:728 O 15 '21

Recent advances in length of bridge spans. H. S. Jacoby. Eng & Contr 53:100-2 Ja 28 '20

Reconstruction d'une arche du pont en béton fretté de Vic-sur-Aisne (Aisne). il diags Génie Civil 77:508-9, pl 7 D 18 '20

Redesign of Belle Isle bridge to reduce cost. H. H. Esselstyn and others. il diags plan Eng N 86:452-5 Mr 17 '21; Discussion. 86:734-5 Ap 28 '21

Reinforced concrete highway bridges. Pub Works 48:442-4 My 22 '20

Le renversement des efforts dans les barres de treillis des tabliers métalliques à travées solidaires. A. Talon. Génie Civil 78:257-8 Mr 19 '21

Reports of the Indian bridge committee. Engineering 112:349-50 S 2 '21

Review of column formulas for bridge design. Eng N 86:431-3 Mr 10 '21

Secondary stresses in Kenova bridge measured. J. I. Parcel and G. A. Maney. il diags Eng N 85:1116-19 D 9 '20; Discussion. J. W. Pearl. 86:234 F 3 '21

Short method for swing bridge calculations. C. A. Ellis. diags Eng N 86:981-3 Je 9 '21

Short span highway bridges. il Pub Works 50:313-16 Ap 16 '21

Three double-leaf bascule bridges at Seattle, Wash. F. A. Rapp. il diags plan Eng N 84:718-22 Ap 8 '20

Unusual design for a Missouri river bridge. il diags plans Ry Age 67:1177-9 D 19 '19

Work of the Swiss bridge-builders' structural research board. Eng N 86:1113 Je 30 '21

See also Bridge approaches; Bridges—Abutments; Bridges—Load; Bridges, Arched; Bridges, Cantilever; Bridges, Suspension; Elevated railroads; Trestles; Trusses

Bridge engineers

Functions and work of the resident engineer on bridge construction. J. A. L. Waddell. diags W Soc E J 25:124-44 F 20 '20; Excerpt. Eng & Contr 53:486-8 Ap 28 '20

Bridge failures

Brattleboro highway bridge wrecked by pressure of cake ice. G. F. Eckhard. il Eng N 84:902-4 My 6 '20

Bridge accident at Chester causes 24 deaths. Eng N 87:462 S 15 '21

Concrete pile bridge fails from slipping foundations. E. E. East. il diag Eng N 86:334-5 F 24 '21

Failure and proposed repair of Third st. arch bridge. J. L. Harrington. Eng N 86:511-12 Mr 24 '21

Observations on some failures of modern highway bridges. A. H. Hunter. il Munic Eng 60:13-16 Ja '21

Pier of Dayton arch bridge split and listed. il Eng N 86:264 F 10 '21

Steel bridge wrecked by auto collision. Eng N 87:582 O 6 '21

Bridge inspection

Duties of bridge and building inspectors. H. H. George. Elec Ry J 57:135-6 Ja 15 '21; Same. Eng & Contr 55:191-2 F 23 '21

Bridge inspection—Continued

- Methods of bridge inspection. Ry R 65:743-6 N 15 '19; Abstracts. Ry Age 67:977-8 N 14 '19; Eng & Contr 52:627 N 26 '19; Can Eng 38:408-9 Ap 22 '20
- Standard forms for bridge inspection. diags Eng & Contr 54:521-3 N 24 '20; Excerpt. Ry Age 69:803 N 5 '20
- Suggestions for inspection of timber bridges. A. F. Robinson. Eng & Contr 53:223-4 F 25 '20

Bridge models

- Tower bridge reproduced in valves and pipe fittings. il Textile World 60:861 Ag 6 '21

Bridge moving

- Bridge takes voyage in Atlantic basin. il Pop Mech 33:696 My '20
- Complex bridge transfer successfully completed by Baltimore & Ohio. il diags map Ry Age 69:1103-6 D 24 '20
- Moving a 500-foot viaduct. G: F. Paul. il Sci Am 122:339 Mr 27 '20
- Ponderous bridge moved eighteen feet. il Pop Mech 33:532-3 Ap '20
- Rahway river drawbridge moved. Pub Works 48:310-11 Ap 10 '20

Bridge painting

- P. & L. E. conducts an extended paint test. il plan Ry Age 70:561-2 Mr 11 '21
- Protection of metal structures by painting. J. R. Shean. Eng & Contr 52:621 N 26 '19; Same. Can Eng 38:180 Ja 29 '20
- Railway experiences in spray painting. Eng & Contr 54:524 N 24 '20
- Repainting an old steel bridge. C: E. Fowler. Pub Works 48:558-9 Je 26 '20
- Spray painting facilitated by motor trailer cars. il Pop Mech 35:641 My '21

Bridge traffic

- Bridges in the city of Chicago. il diag Good Roads n s 21:57-8+ F 2 '21

Bridgeport, Connecticut**Rapid transit**

- Bridgeport traffic analysis. Elec Ry J 56:323-4 Ag 14 '20
- Bridgeport transportation committee reports. Elec Ry J 56:438 Ag 28 '20
- Keeping a motor bus line running. Motor Age 38:17+ Ag 26 '20

Sewerage

- Bridgeport sewerage disposal. J. A. McElroy. il maps Pub Works 48:303-7 Ap 10 '20

Bridges

- Approval of highway bridge plans in Indiana. W: J. Titus. Munic Eng 58:173-4 Ap '20
- Bensalem ave. bridge—an essay in ornamentation. il diags plan Eng N 85:559-61 S 16 '20
- Bridge as a test of civilization; varying degrees of ability shown by savage tribes. K. Waule. il Sci Am M 3:201-4 Mr '21
- Bridge at a dizzy height. H: H. Graham. il Sci Am 121:585 D 13 '19
- Bridge built on tripods. il Eng & Contr 56:393 O 26 '21
- Bridge construction in Nebraska. il Good Roads n s 20:65-6 Ag 11 '20
- Bridge development in Kansas. F. W. Epps. il Good Roads n s 21:83-4 F 9 '21
- Bridge work in Wyoming. J. F. Seiler. il Good Roads n s 21:141-2+ Mr 9 '21
- Bridges and civilization. Sci Am 124:211+ Mr 12 '21
- Bridges over Otonabee river at Peterborough. F. H. Dobbin. il Can Eng 39:237-8 Ag 12 '20
- Chicago boulevard link bridge to be opened to motor traffic by May 15. L. G. Sullivan. il Motor Age 37:23 Ap 8 '20
- Combined tube, bridge, and mole planned to cross San Francisco Bay. H: H. Dunn. il Pop Mech 36:521-4 O '21
- Construction of high level bridge at Tansley, Ont. A. W. Connor. il Can Eng 38:115-17 Ja 8 '20; Excerpts. Eng & Contr 53:207-8 F 25 '20
- Design and construction of the memorial bridge at Des Moines, Iowa. K. C. Kastberg. Munic Eng 59:91-4 S '20

- Economics of bridge and culvert construction. A. Sedgwick. Can Eng 40:267-9 Mr 3 '21
- Economics of bridgework, a sequel to Bridge engineering. J. A. L. Waddell. 512p Wiley '21

- Flood-proof bridges for Andes streams. D. G. Coombs. il Eng N 85:1167 D 16 '20

- Functions and work of the resident engineer on bridge construction. J. A. L. Waddell. diags W Soc E J 25:124-44 F 20 '20; Excerpts. Eng & Contr 53:486-8, 713 Ap 28, Je 23 '20

- Highway bridge conditions and requirements; symposium. Eng N 86:214-17 F 3 '21

- Highway bridges and culverts; with cost tables. M. A. Lyons. Can Eng 38:578-80 Je 17 '20; Same abr. Eng & Contr 54:88-9 JI 28 '20; Same cond. Good Roads n s 20:135-6+ S 15 '20

- Highway bridges and motor trucks. Eng N 85:386-7 Ag 26 '20

- Justifiable highway bridge costs. P. B. Gaffney. Good Roads n s 21:289-90+ Je 1 '21

- Kansas highway bridge conditions. F. W. Epps and others. Eng N 86:208 F 3 '21

- Longest spans of American bridges. Eng N 84:315 F 12 '20

- Making highway bridges safe for modern traffic. L: E. Moore. Eng N 86:580-1 Ap 7 '21

- Motor trucks and country bridges. Sci Am 123:420 O 23 '20

- New high level bridge at Rouge river. A. Sedgwick. il diag Can Eng 39:293-4 S 2 '20

- Practical features of the design and construction of highway bridges. A. F. Gordon. Can Eng 40:456-9 My 12 '21

- Short span highway bridges. il Pub Works 50:313-16, 350-3 Ap 16-23 '21

- Solving the highway bridge problem in New Jersey. C: A. Mead. Munic Eng 60:190-2+ My '21

- Some aspects of bridge architecture. G. Lindenthal. il Sci Am 125A:22-4 N '21

- Why engineers should be put in charge of big bridges. Eng N 84:435-6 F 26 '20

See also Bridge accidents; Bridge approaches; Bridge design; Bridge painting and other headings beginning Bridge; Culverts; Drawbridges; Elevated railroads; Girders; Highway law; Hudson river bridge; Pontoon bridges; Trestles; Trusses; *also* names of cities, subdivision Bridges, e.g. New York (city)—Bridges; for particular types of bridges see entries following the general subject and its subdivisions under Bridges, Arched; Bridges, Concrete; Bridges, Railroad, etc.

Abutments

- Concrete abutment of thin walls tied by diaphragm; special design used in Illinois highway viaduct saves material. il diags Eng N 85:661-2 S 30 '20

Approaches

See Bridge approaches

Arches

See Bridges, Arched

Contracts

- Strengthening and reconstructing highway bridges for heavy motor truck traffic. Munic Eng 59:162-6 N '20; Same cond. Eng & Contr 54:412-14 O 27 '20

Cost

- Comparative economics of cantilever and suspension bridges. J. A. L. Waddell. W Soc E J 24:210-14 Ap '19; Discussion. 25:70-2 Ja 20 '20

- Design features and cost of highway bridge construction in Manitoba. diags Eng & Contr 56:189-90 Ag 24 '21

- Economic proportions of plate girder viaducts. H. J. Kesner. diags Eng & Contr 55:607-8 Je 22 '21

- Economic span lengths for simple-truss bridges on various types of foundation. J. A. L. Waddell. diags W Soc E J 24:215-60 Ap '19; Same cond. Ry Age 67:635-6 S 26 '19; Discussion W Soc E J 25:70-2 Ja 20 '20

Bridges—Cost—Continued

Floors for railway under-bridges. diags Engi-
neer 129:391-4, 416-18 Ap 16-23 '20

See also Bridges—Estimates

Design

See Bridge design

Erection

Allegheny River bridge reconstructed at new
grade. il diags plans Eng N 86:284-7 F 17
'21

Bridge erection in Honduras. W. T. Penney.
il Eng N 85:39 J1 1 '20

Erecting 30-foot bridge girders without a
derrick. diag Pub Works 49:211-12 S 4
'20

Framing timber bridge trusses before treat-
ment. il Ry Age 68:1479-80 My 21 '20

High gantry used for handling heavy mem-
bers of large bascule. il Eng N 84:79-80 Ja 8
'20

Highway bridge construction. Pub Works 50:
393-4 My 7 '21

How to handle and erect bridge girders with-
out special equipment. il diags Pub Works
51:78-9, 97-8, 116-18, 151-3, 171-2, 206-8, 224-
6 J1 23-Ag 6, 20-27, S 10-17 '21

Kenova bridge channel span erection. il
diag Pub Works 48:437-9 My 22 '20

Kenova bridge end span erection. il diags
Pub Works 48:345-7 Ap 24 '20

Kenova bridge intermediate spans. il diags
Pub Works 48:237-9 Mr 27 '20

Novel falsework method used on New Haven
bridge over Thames river. il diags Ry Age
69:433-8 S 10 '20; Abstract. Eng & Contr
54:279-80 S 22 '20

Reinforced concrete truss bridges erected
without falsework. il Eng & Contr 54:514
N 24 '20

Self-supporting arch rib erection. il Pub
Works 48:111-12 F 21 '20

Three double-leaf bascule bridges at Seattle,
Wash. F. A. Rapp. il diags plan Eng N 84:
718-22 Ap 8 '20

Three longest consecutive arch spans char-
acterize Fairmont bridge. C. F. Bornefeld.
il diag plan Concrete 19:46-51, 76-9 Ag
'21

Use tide to install huge steel bridge span.
il Pop Mech 34:643 N '20

Estimates

Formula and curves for approximating bridge
costs. C. D. Snead. Eng & Contr 53:108-9
Ja 28 '20

Failures

See Bridge failures

Fires

Fires in treated bridge floors. Eng N 84:779
Ap 15 '20

Floors

Asphaltic oil and sand as a protective mat
on bridges. A. A. Russell. il Good Roads
n s 21:78 F 2 '21

Bituminous surfacing for plank highway
bridge floors. M. W. Torkelson. diags Eng
N 85:1279-80 D 30 '20; Discussion. W. H.
Tiedeman. 86:960 Je 2 '21

Bridge floor with steel ties bedded in con-
crete. diags Eng N 85:468-9 S 2 '20

Bridge sway reduced by new flooring. Eng
N 86:523 Mr 24 '21

Combination wood and asphalt bridge floors.
J. G. McMillan. Eng N 84:437-8 F 26 '20

Combine wood and asphalt in bridge floors.
Pop Mech 33:202 F '20

Floors for railway under-bridges. diags Engi-
neer 129:391-4, 416-18 Ap 16-23 '20

New type of wood and asphalt flooring for
Chicago bridges. F. H. Avery. il diag Eng
N 83:866-7 N 13 '19

Repair of municipal bridges. A. W. Consoer.
Munic Eng 59:122-3 O '20

Foundations and piers

Allegheny river bridge piers. il Pub Works
49:67-9 J1 24 '20

Bridge pier foundation carried to rock by
air bell. W. M. Ray. il diag Eng N 85:379
Ag 19 '20

Building bridge piers on rock in shallow
water. Pub Works 51:323-5 O 22 '21

Construction features of Black st. bridge
piers, Hamilton, O. il diags plans Eng &
Contr 55:280-2 Mr 23 '21

Construction of substructure for Platte river
bridge. J. H. Merriam. il diags plans Eng N
86:1078-81 Je 23 '21

Design and construction of bridge founda-
tions. L. N. Edwards. il Can Eng 40:227-32
F 17 '21; Same. Eng & Contr 55:523-6 My
25 '21

Excavating below arch bridge foundations.
il diags plans Pub Works 49:205-8 S 4 '20

Gas pocket causes trouble in pneumatic
foundation. J. E. Bebb and L. B. Alexander.
il diag plan Ry Age 69:475-7 S 17 '20

Heavy foundation work for bascule bridge
at Seattle. F. A. Rapp. il diags plans Eng
N 84:774-6 Ap 15 '20

Method of building concrete tail-race below
stone arch bridge foundation level. il
diags plan Eng & Contr 54:155-7 Ag 18
'20

Method of constructing cofferdams for Key
Bridge, Washington. J. T. Tolman. il diags
plan Eng & Contr 53:332-4 Mr 24 '20

Novel falsework method used on New Haven
bridge. il diags Ry Age 69:433-8 S 10 '20

Pile and concrete piers for Missouri river
bridge. diags plans Eng N 84:824-5 Ap 22
'20

Pile foundation for bridge approaches. il Pub
Works 49:576-7 D 18 '20

Pile piers support 300 ft. steel truss spans:
C., M. & St P. R. R. bridge over Missouri
river. diags plans Eng & Contr 53:106-7 Ja
28 '20

Sinking substructure of bascule bridge recon-
struction. il diag Eng N 87:188-90 Ag 4 '21

Small bridge foundations in deep water. Pub
Works 51:342-3 O 29 '21

Thames river bridge. J. W. Rollins. il diags
plans Boston Soc C E J 7:177-99 Je '20;
Same. Eng & Contr 54:85-8 J1 28 '20

See also Cofferdams; Piles and pile driv-
ing

Inspection

See Bridge inspection

Load

Analysis of roughness impact on highway
bridges. W. Whited. diag Eng N 86:582-3
Ap 7 '21

Classification and maintenance of old rail-
road bridges. C. F. Loweth. chart diag
W Soc E J 26:248-58 J1 '21; Abstract. Ry
Age 70:789-92 Mr 25 '21; Same. Eng &
Contr 55:420-2 Ap 27 '21

Coming activity in railroad bridge impact
study. Eng N 85:533 S 16 '20

Field for experiment; highway bridges and
motor trucks. Eng N 85:485 S 9 '20

Highway bridge conditions and requirements;
symposium. Eng N 86:214-17 F 3 '21

Impact formula applicable to ballasted and
concrete bridges. H. M. Gibb. Eng N 84:
874-5 Ap 29 '20

Impact tests and allowances; abstracts. H.
J. Fereday. Engineering 112:80 J1 8 '21;
Engineer 132:59 J1 15 '21; Discussion. Engi-
neering 112:50 J1 8 '21

Impact under high-speed traffic on highway
bridges. W. D. Uhler. Eng N 86:583-4 Ap 7
'21

Load distribution over stringers of highway
bridges. Eng N 84:1209-10 Je 17 '20

Methods and results of Iowa impact tests
on highway bridges. J. E. Kirkham. Eng
N 85:957-8 N 11 '20

Reducing impact factors for dead-load ratio:
a new formula. W. T. Everall. Eng N 85:
474 S 2 '20

La réglementation officielle des ponts-routes
en Pologne. M. Thullie. diags Génie Civil
77:293-5 O 9 '20

Relation between static and dynamic stres-
ses in girder spans for smooth rolling
loads. F. W. Gardiner. diags Eng &
Contr 54:605-8 D 22 '20

Results of impact tests on bridges in Eng-
land. Eng N 87:642-5 O 20 '21

Bridges—Load—Continued

Rules and unit stresses for rating existing railway bridges. Eng & Contr 54:422-3 O 27 '20; Same cond. Ry Age 69:847-8 N 12 '20
 Strain gauges and methods of using them in Niagara arch revision. C: E. Fowler. il diag Eng & Contr 54:275-7 S 22 '20
 Widths and loadings for highway bridges. L: M. Gram. Munic Eng 58:204-6 My '20; Same. Can Eng 39:262-3 Ag 19 '20; Same. Eng & Contr 54:277-8 S 22 '20

See also Bridge design

Maintenance and repair

Anchor pins of Cornwall cantilever bridge bored out and renewed. H. T. Welty. il diags Eng N 84:453-6 Mr 4 '20; Abstract. Engineering 109:790-1 Je 11 '20
 Bascule bridge repaired by electric welding. il Eng N 86:727-8 Ap 28 '21
 Concrete and stone bridges show low maintenance cost. Eng N 84:953 My 13 '20
 Concrete girders jacked up to replace settled bridge pier. W: J. Titus. il Eng N 87:638 O 20 '21
 Imperial bridge repair outfit and its accompanying air-operated tools. F. A. McLean. il Can Eng 39:431-3 O 14 '20
 Methods of repairing timber bridges in British Columbia. T. Kilpatrick. diags Good Roads n s 20:27-9+ Jl 21 '20; Abstract. Eng & Contr 54:290-1 S 22 '20
 Possibilities in bridge reinforcement. Eng N 84:306-7 F 12 '20
 Reinforcing a bridge corroded by locomotive gases. Eng N 86:959 Je 2 '21
 Renewing lower chords of a highway draw span under traffic. il diags plan Pub Works 49:275-6 S 25 '20
 Repair of municipal bridges. A. W. Consoer. Munic Eng 59:122-3 O '20
 Repair of Tempe, Ariz., concrete arch bridge damaged by settlement and floor expansion. M. Butler. il diags plans Eng N 86:675-9 Ap 21 '21
 Repairing a railway bridge damaged by train wreck: Georges Creek Junction, Cumberland, Md. C. B. Pyle. il Eng N 86:100-2 Ja 20 '21
 Repairing Northern ave. bridge, Boston. diags Pub Works 51:106-7 Ag 6 '21
 Strengthening and reconstructing highway bridges for heavy motor truck traffic. Eng & Contr 54:412-14 O 27 '20
 Tempe, Ariz., bridge sub-structure repairs. Pub Works 50:523-4 Je 18 '21
 Wing walls of concrete arch kept from slipping by tie rods. A. A. Blaeser. il diags plan Eng N 86:721-2 Ap 28 '21

See also Bridges—Reconstruction

Moving

See Bridge moving

Numbering

Application of Dewey system for numbering county bridges. H. F. Harris. Eng & Contr 53:216-17 F 25 '20; Same. Good Roads n s 19:81-2 F 11 '20; Same abr. Pub Works 48:103 F 14 '20

Painting

See Bridge painting

Pictures

Five bridges; etchings of American bridges. J. Pennell. il Nation's Business 9:16a F '21

Protection

Concrete brine troughs for bridge decks. diag Eng & Contr 53:721 Je 23 '20
 Protection of wooden bridges from fire. Eng & Contr 53:102 Ja 28 '20; Same. Can Eng 38:247 F 26 '20

See also Bridge painting

Reconstruction

Allegheny River bridge reconstructed at new grade. il diags plans Eng N 86:284-7 F 17 '21
 Assuring safety in old highway bridges. M. W. Torkelson. Eng N 86:61-3 Ja 13 '21; Discussion. M. Goodkind. 86:311-12 F 17 '21

Bridge building record; how cities, officials and an industrial works pooled interests, and rebuilt bridge in 10 days. E. W. Davidson. il Sci Am 125:220 S 24 '21

Bridge renewal marked by interesting methods. il diags plan Ry Age 70:711-14 Mr 18 '21

Bridge sway reduced by new flooring. Eng N 86:523 Mr 24 '21

Build 400-foot pile bridge in fourteen days. E. W. Davidson. il Eng N 87:339-40 Ag 25 '21

Extending the life of the Niagara Gorge arch. il diags Ry Age 68:1393-7 My 14 '20; Same. Eng & Contr 53:704-6 Je 23 '20

Heavy spans to be rolled and jacked in difficult bridge reconstruction. diags Eng N 85:904-7 N 4 '20

Highway bridge conditions and requirements; symposium. Eng N 86:214-17 F 3 '21

Method of strengthening and reconstructing highway bridges for heavy motor truck traffic. Munic Eng 59:162-6 N '20; Same cond. Eng & Contr 54:412-14 O 27 '20

Methods of renewing timber bridges. diags Eng & Contr 52:617-18 N 26 '19

New Southwark bridge. il diags plans Engineering 111:280-3, 294, pl 12 Mr 11 '21

New York Central railroad accomodates itself to construction of Barge canal. B. S. Voorhees. il diags map Eng N 84:500-6 Mr 11 '20

Niagara railway arch reinforced for heaviest traffic. il diags Eng N 83:877-81 N 13 '19

Old Niagara railroad suspension bridge. Pub Works 49:370-2 O 16 '20

Old railroad bridge over Thames river converted into highway toll bridge by Connecticut state highway department. il Good Roads n s 20:91-2 Ag 25 '20

Platte river bridge reconstruction, Rock Island lines. il diags plans Eng N 84:287-9 F 5 '20

Rapid reconstruction of the burned Saugus river bridge between Lynn and Revere, Mass. il Munic Eng 61:85-6 S '21

Reconstructing East Main street bridge, Rochester. il Pub Works 49:23-6 Jl 10 '20

Reconstructing Poughkeepsie cantilever bridge for heavy traffic. C. E. Chase. il diags plans Eng N 84:528-34 Mr 11 '20

Reconstruction d'une arche du pont en béton fretté de Vic-sur-Aisne (Aisne). il diags Génie Civil 77:508-9, pl 7 D 18 '20

Reconstruction of Ebury-street bridge, London. il diags Engineering 112:162-3 Jl 22 '21

Reconstruction of upper deck on Eads bridge approach. E. C. Albrecht. il diags plans Eng N 86:412-15 Mr 10 '21

Reconstruction of Warrington bridge. il diags Engineering 111:158-60, 172 F 11 '21; Same abr. Eng & Contr 55:325-6 Mr 30 '21

Restoration of the Cernavoda-Danube bridge. il diags Engineering 109:837-40 Je 18 '20

Revising High Bridge; five alternative plans. W. B. West. il Sci Am 123:448 O 30 '20

Sinking substructure of bascule bridge reconstruction. il diag Eng N 87:188-90 Ag 4 '21

Southern railway rebuilds Chattanooga bridge. il diag map plans Ry Age 68:1141-3 Ap 9 '20; Same. Eng & Contr 54:182-4 Ag 25 '20

Strengthening a county bridge to carry motor-truck traffic. M. Goodkind. il diags Eng N 84:617-18 Mr 25 '20

Strengthening and reconstruction of railway bridges. Eng & Contr 55:307-8 Mr 30 '21

Strengthening Cannon street bridge. G: Ellison. Engineer 131:150 F 11 '21; Same. Engineering 111:169-70 F 11 '21

Victoria concrete arch and viaduct, Guelph, Ont. A. W. Connor. il diags Can Eng 40:449-50 My 12 '21

See also Bridges—Maintenance and repair; Bridges—Widening

Specifications

Design of drainage structures and bridges. G. G. Wickline. Good Roads n s 19:231-2+ My 5 '20

See also Bridges, Iron and steel—Specifications; Bridges, Railroad—Specifications

Bridges—Continued**Statistics**

Rural road and bridge expenditures. Eng N 85:1128 D 9 '20

Widening

Widening of road bridges by ferro-concrete cantilever sidewalks. diag plans Eng & Contr 53:363-4 Mr 31 '20

Bridges, Arched

Arch bridge with ribs anchored by concrete keys. C. B. McCullough. diags Eng N 83:924 N 27 '20

Arch bridges. J. A. L. Waddell. Engineering 110:823 D 24 '20

Arch reaction influence lines by deflection diagrams. C. B. McCullough. diags Eng N 84:675-6 Ap 1 '20

Army engineers build new highway bridge across Potomac. il diags map Eng N 85:970-6 N 18 '20

Bensalem ave. bridge—an essay in ornamentation. il diags plan Eng N 85:559-61 S 16 '20

Concrete arch bridge of three 250-foot spans. E. H. Harder. il diags Eng N 87:472-6 S 22 '21

Concrete arch bridges. B. H. Davis. il Pub Works 51:49-51 Jl 16 '21

Concrete bridge construction. F. W. Skinner. Pub Works 50:541-3; 51:8-10 Je 25-Jl 2 '21

Construction de ponts en maçonnerie, au Maroc ponts à deux et à trois anneaux. il diags Génie Civil 76:385-90 Ap 24 '20

Construction of Ashburnham bridge, Peterboro, Ont. il diags Can Eng 40:355-8 Ap 7 '21; Abstract. Eng & Contr 55:511 My 25 '21

Economics of steel arch bridges. F. H. Frankland. diags Eng & Contr 52:613-15 N 26 '19

Georgetown bridge across the Potomac river. il diags Pub Works 50:203-5, 221-2, 238-40 Mr 5-19 '21

How can arch centers be supported? il Pub Works 50:531-3 Je 18 '21

Long arch bridge built of slag concrete at Bingaman st. bridge, Reading, Pa. W. C. Fry, jr. il diags plans Eng N 86:840-4 My 19 '21

Longest concrete arch span being built at Minneapolis. diag Eng N 84:335 F 12 '20

New concrete arch survives washout of centers. C. L. Wood. il diag Eng N 86:809 My 12 '21

New Southwark bridge. diag Eng & Ind Management 5:662 Je 9 '21

Old masonry arch bridges of Paris. C. L. Rimmel. Eng & Contr 55:624-5 Je 22 '21

Overhead truss supports falsework for concrete arch. R. W. Stewart. il diag Eng N 85:495 S 9 '20

Philadelphia & Reading to build 46-arch double-track concrete bridge at Harrisburg. E. Chamberlain. il diags Ry Age 69:869-71 N 19 '20; Same. Eng & Contr 54:608-10 D 22 '20

Le pont de Villeneuve-sur-Lot (Lot-et-Garonne); perfectionnements dans la construction des grandes voûtes. E. Freysinet. il plans Génie Civil 79:97-102, 124-8, 146-50, pl 2 Jl 30-Ag 13 '21

Pont en béton armé, système Considère, à Warrington, sur la Mersey (Angleterre). il diags Génie Civil 78:375-6 Ap 30 '21

Les ponts en arc à grande portée en béton. A. Mesnager. il diag Génie Civil 78:49-51 Ja 15 '21

Les ponts en arc à grande portée en béton armé. il diags Génie Civil 77:530-3 D 25 '20

Self-supporting arch rib erection. il Pub Works 48:111-12 F 21 '20

Short-span highway bridges. il Pub Works 50:350-3 Ap 23 '21

Slab and beam bridge with stone arch face. J. Owen. il Pub Works 51:137-9 Ag 20 '21

Three longest consecutive arch spans characterize Fairmont bridge. C. F. Bornefeld. il diag plan Concrete 19:46-51, 76-9 Ag '21

Through concrete arch bridge to give large waterway. F. W. Epps. il diags Eng N 83:994-5 D 11 '19

Timber arch bridge of unusual type in service seventy-three years. il diags Eng N 84:1117 Je 3 '20

Truss centering used for 113-ft. concrete arch. C. B. McCullough. il diags Eng N 84:851-2 Ap 29 '20

Unusual design of concrete arch bridge across the Republican river, Fort Riley, Kan. il Pop Mech 35:888 Je '21

Bridges, Bascule

Adjusting a highway bridge to its site. diags plan Can Eng 39:169-71 Jl 22 '20

Bascule bridge repaired by electric welding. il Eng N 86:727-8 Ap 28 '21

Canadian bascule bridge built as two bridges. il Pop Mech 36:701-2 N '21

Chicago bascule bridge—design and operating features. H. E. Young. il diags plans Eng N 85:508-14 S 9 '20

Chicago's giant bascule bridge. il Sci Am 122:131 F 7 '20

Gas pocket causes trouble in pneumatic foundation. J. E. Bebb and L. B. Alexander. il diag plan Ry Age 69:475-7 S 17 '20

Heavy foundation work for bascule bridge at Seattle. F. A. Rapp. il diags plans Eng N 84:774-6 Ap 15 '20

Longest single-leaf bascule bridge: Chicago river. il diags plans Eng N 83:1056-60 D 25 '19; Eng & Contr 52:717-19 D 24 '19; Ry Age 67:1133-7 D 12 '19

Michigan boulevard improvement in Chicago. H. E. Young. W Soc E J 26:360-8 O '21

New Chicago double-deck bascule highway bridge. il Eng N 84:951 My 13 '20; Eng & Contr 53:605 My 26 '20

Novel falsework method used on New Haven bridge over Thames river. il diags Ry Age 69:433-8 S 10 '20; Abstract. Eng & Contr 54:279-80 S 22 '20

Pont basculant de 79^m 25 de portée sur la rivière de Chicago. il diags plans Génie Civil 76:485-7 My 29 '20

Putting large bascule in service. il Eng N 87:606-7 O 13 '21

Steel bridge replaces Batiscan ferry. F. B. Painchaud. il Can Eng 38:348 Ap 1 '20

Three double-leaf bascule bridges at Seattle, Wash. F. A. Rapp. il diags plan Eng N 84:718-22 Ap 8 '20

Wooden bascule bridge has curious lift system. il Pop Mech 35:672 My '21

Bridges, Cantilever

Comparative economics of cantilever and suspension bridges. J. A. L. Waddell. plans W Soc E J 24:187-214 Ap '19; Discussion. 25:70-2 Ja 20 '20

Flume carried on bridge of 125 ft. cantilever spans. D. C. McConaughty. Eng & Contr 53:658 Je 9 '20

Forth and Quebec bridges. C. E. Inglis. Engineer 132:350-1 S 30 '21

New cantilever bridge begun on the Ohio river. diag Eng N 87:613 O 13 '21; Discussion. C: S. Davis. 87:702 O 27 '21

Bridges, Chain. See Bridges, Suspension**Bridges, Concrete**

Arch bridge with ribs anchored by concrete keys. C. B. McCullough. diags Eng N 83:924 N 27 '19

Army engineers build new highway bridge across Potomac. il diags map Eng N 85:970-6 N 18 '20

Bensalem ave. bridge—an essay in ornamentation. il diags plan Eng N 85:559-61 S 16 '20

Canadian Pacific uses heavy slabs for bridge spans. il diags Ry Age 71:216-17 Jl 30 '21

Concrete arch bridge erected by drop cableway. Pub Works 49:394 O 23 '20

Concrete arch bridge of three 250-foot spans. E. H. Harder. il diags Eng N 87:472-6 S 22 '21

Concrete arch bridges. B. H. Davis. il Pub Works 51:49-51 Jl 16 '21

Concrete bridge construction. F. W. Skinner. Pub Works 50:541-3; 51:8-10 Je 25-Jl 2 '21

Concrete truss spans erected without falsework. il Eng N 86:608 Ap 7 '21

Bridges, Concrete—Continued

- Concrete viaduct adds valuable business block to Knoxville, Tenn. C. C. Campbell. il Munic Eng 60:108-10 Mr '21
- Construction of Ashburnham bridge, Peterboro, Ont. il diags Can Eng 40:355-8 Ap 7 '21; Abstract. Eng & Contr 55:511 My 25 '21
- Derby-Shelton bridge. Pub Works 51:257-8 O 1 '21
- Design and construction of the memorial bridge at Des Moines, Iowa. K. C. Kastberg. Munic Eng 59:91-4 S '20
- Design of dams and auxiliary structures of Miami conservancy district; special design of concrete bridges. diags plans Eng N 84:1147-8 Je 10 '20
- Flint river bridge, Macon county, Georgia. W. R. Neel. il Munic Eng 59:61-2 Ag '20
- Georgetown bridge across the Potomac river. il diags Pub Works 50:203-5, 221-2, 238-40 Mr 5-19 '21
- Georgetown bridge over the Potomac. il Good Roads n s 21:21-2 Ja 19 '21
- Great Western gateway, a highway bridge over the Mohawk river at Schenectady, N.Y. J. J. Birch. il Good Roads 61:81-3+ Ag 17 '21
- Great Western gateway; longest reinforced concrete highway bridge at Schenectady, N.Y. il Good Roads n s 20:269-70 D 8 '20
- Highway bridges of steel and concrete. C. D. Snead. Munic Eng 57:250-2 D '19
- How much of bridge superstructure is classified as hand rail concrete? diags Pub Works 50:227-8 Mr 12 '21
- Huerfano river concrete highway bridge in Colorado. il Munic Eng 61:93-4 S '21
- Interesting type of flat slab construction. diags plans Ry Age 68:1233-5 Ap 23 '20; Same. Eng & Contr 53:600-2 My 26 '20
- Long arch bridge built of slag concrete at Bingaman st. bridge, Reading, Pa. W. C. Fry, jr. il diags plans Eng N 86:840-4 My 19 '21
- Longest concrete arch span being built at Minneapolis. diag Eng N 84:335 F 12 '20
- Longest concrete girder bridge is built in California across the Salt river in Humboldt county. il diags plan Eng N 84:427-9 F 26 '20
- Methods of constructing sub-structure of Thames river railroad bridge, New London, Conn. J. W. Rollins. diags plans Eng & Contr 54:85-8 Jl 28 '20
- New Columbia bridge of the Philadelphia and Reading over Schuylkill river marks progress in transportation. H. B. Glisson. il diags Ry Age 70:369-72 F 11 '21
- New concrete arch survives washout of centers. C. L. Wood. il diag Eng N 86:809 My 12 '21
- New reinforced concrete bridge over the Ore river in Sweden. il Concrete 19:32 Jl '21
- 142-ft. span concrete girder bridge over the Salt river in Humboldt county, Calif. il Eng & Contr 54:420-1 O 27 '20
- 1,100 ft. long concrete bridge has novel features. Eng & Contr 56:198 Ag 31 '21
- Overhead truss supports falsework for concrete arch. R. W. Stewart. il diag Eng N 85:495 S 9 '20
- Philadelphia & Reading to build 46-arch double-track concrete bridge at Harrisburg. E. Chamberlain. il diags Ry Age 69:869-71 N 19 '20; Same. Eng & Contr 54:608-10 D 22 '20
- Le pont de Villeneuve-sur-Lot (Lot-et-Garonne); perfectionnements dans la construction des grandes voûtes. E. Freysinet. il plans Génie Civil 79:97-102, 124-8, 146-50, pl 2 Jl 30-Ag 13 '21
- Pont en béton armé, système Considère, à Warrington, sur la Mersey (Angleterre). il diags Génie Civil 78:375-6 Ap 30 '21
- Le pont en béton de scories de Reading (Pennsylvanie, E.-U.). il diags plan Génie Civil 79:201-3 S 3 '21
- Les ponts à grandes portées en béton armé; passerelle de 56 mètres, système Vierendeel, à la Louvière (Belgique). A. Vierendeel. il diags Génie Civil 78:336-8 Ap 16 '21
- Les ponts en arc à grande portée en béton. A. Mesnager. il diag Génie Civil 78:49-51 Ja 15 '21

- Les ponts en arc à grande portée en béton armé. il diags Génie Civil 77:530-3 D 25 '20
- Practical features of the design and construction of highway bridges. A. F. Gordon. Can Eng 40:458-9 My 12 '21
- Reconstruction d'une arche du pont en béton fretté de Vic-sur-Aisne (Aisne). il diags Génie Civil 77:508-9, pl 7 D 18 '20
- Reconstruction of lattice girder bridge in reinforced concrete; Sharpeston bridge, Northumberland. il Eng & Contr 55:299 Mr 30 '21
- Reconstruction of upper deck on Eads bridge approach. E. C. Albrecht. il diags plans Eng N 86:412-15 Mr 10 '21
- Reinforced concrete bridge; Regent's canal. il Engineering 110:683 N 19 '20
- Reinforced concrete highway bridges. Pub Works 48:442-4 My 22 '20
- Reinforced concrete truss bridges erected without falsework. il Eng & Contr 54:514 N 24 '20
- Reinforced concrete wharf and bridge in Honduras. W. J. Riggs. il Concrete 19:157-60 O '21
- Repair of Tempe, Ariz., concrete arch bridge damaged by settlement and floor expansion. M. Butler. il diags plans Eng N 86:675-9 Ap 21 '21
- Replacing steel truss bridge with concrete. H. Lindquist. il Pop Mech 34:30 Jl '20
- Self-supporting arch rib erection. il Pub Works 48:111-12 F 21 '20
- Short-span highway bridges. il Pub Works 50:350-3 Ap 23 '21
- Slab and beam bridge with stone arch face. J. Owen. il Pub Works 51:137-9 Ag 20 '21
- Southern railway rebuilds Chattanooga bridge. il diag map plans Ry Age 68:1141-3 Ap 9 '20; Same. Eng & Contr 54:182-4 Ag 25 '20
- Three longest consecutive arch spans characterize Fairmont bridge. C. F. Bornefeld. il diag plan Concrete 19:46-51, 76-9 Ag '21
- Through concrete arch bridge to give large waterway. F. W. Epps. il diags Eng N 83:994-5 D 11 '19
- To build large bridge across the Connecticut at Springfield. C. M. Spofford. il map Eng N 84:817-18 Ap 22 '20
- Train movements facilitated by new bridge; Illinois Central completed four-track reinforced concrete structure at Kankakee, Ill. il diags Ry Age 68:1928-31 Je 18 '20
- Two interesting concrete bridges in Oregon; Hood river bridge and Rogue river bridge. il Eng & Contr 56:389-91 O 26 '21
- Unique plant concretes seven-span arch bridge, at Columbus. A. Richards and W. Carmichael. il diags plans Eng N 84:76-9 Ja 8 '20
- Unusual design of concrete arch bridge across the Republican river, Fort Riley, Kan. il Pop Mech 35:888 Je '21
- Victoria concrete arch and viaduct, Guelph, Ont. A. W. Connor. il diags Can Eng 40:449-50 My 12 '21
- Wide bridge built as two bridges without interval. il diags Eng N 83:928-9 N 27 '19
- Wing walls of concrete arch kept from slipping by tie rods. A. A. Blaeser. il diags plan Eng N 86:721-2 Ap 28 '21
- See also Trestles, Concrete

Patents

- Appeals court sustains decision against Luten patents. Eng N 84:417-18 F 26 '20
- Bridges, Ferry. See Ferry bridges
- Bridges, Iron and steel
- Economics of steel arch bridges. F. H. Frankland. diags Eng & Contr 52:613-15 N 26 '19
- L'emploi économique des alliages d'acier pour la construction des ponts. J. A. L. Waddell. Génie Civil 77:74-7 Jl 24 '20
- Highway bridges of steel and concrete. C. D. Snead. Munic Eng 57:250-2 D '19
- Long Howe-truss railway spans being replaced. il diags Eng N 87:452 S 15 '21

Bridges, Iron and steel—Continued

Méthode de calcul des ponts métalliques, traversées posées et continues, pont-grues-arcs (appliquant les prescriptions du règlement ministériel du 8 janvier 1915). E. Métour. 443p E. Métour, Dunod, Paris '21

Short-span highway bridges. il Pub Works 50:350-3 Ap 23 '21

Sixty-year-old iron bridge in a New Jersey village. R. Fleming. il diags plan Eng N 85:925-7 N 11 '20

La stabilité des membrures comprimées des ponts métalliques. J. Keelhoff. Génie Civil 77:423-4 N 20 '20

Susitna river bridge: Alaska government railway. il diags Eng N 87:92-4 JI 21 '21

Susitna river bridge, Alaska railroad, U.S.A. il diag Engineer 132:255-6 S 9 '21

Specifications

New steel railway bridge specification. diag Can Eng 39:443-5 O 21 '20; Same. Eng & Contr 54:516-18 N 24 '20

Bridges, Lift

Applying elevator principles to the railroad bridge. H. Lindquist. il Sci Am 123:595 D 11 '20

Economics of movable spans. J. A. L. Waddell. diags Ry Age 70:1391-3 Je 17 '21

Henderson liftable bridge plan for Pittsburgh to give variable clearance height. A. A. Henderson. diags Eng N 84:1171 Je 10 '20

Proposed Henderson type of movable bridge to span Allegheny river at Sixth street, Pittsburgh. diags Eng & Contr 54:186-7 Ag 25 '20

Vertical lift bridges. E. E. Howard. il diags Engineering 112:199-202, 234-6, 264-8 JI 29- Ag 12 '21; Excerpt (Elements of design). Ry Age 70:1393-4 Je 17 '21; Same. Eng & Contr 56:303-4 S 28 '21; Abstract. Am Soc C E Pro 47:54-5 My '21

See also Bridges, Bascule

Bridges, Military

British portable military bridges. C. E. Inglis. il diags Eng & Contr 52:759-61 D 31 '19

Three bridges in Palestine built by Canadians. A. P. Linton. il diag Can Eng 38:235-7 F 26 '20

Bridges, Movable. See Bridges, Bascule; Bridges, Lift; Drawbridges; Ferry bridges

Bridges, Pontoon. See Pontoon bridges

Bridges, Railroad

Allegheny River bridge reconstructed at new grade. il diags plans Eng N 86:284-7 F 17 '21

Baltimore & Ohio builds new main line bridge. H. A. Lane. il diags map Ry Age 68:1504-6 My 28 '20

Baltimore & Ohio to build large bridge at Lawrenceburg, Ind. diags Ry Age 70:509 Mr 4 '21

Bridge renewal marked by interesting methods. il diags plan Ry Age 70:711-14 Mr 18 '21

Chicago electrification and elevation on C., M. & St P. Ry. il diags Eng N 85:1226-30 D 23 '20

Classification and maintenance of old railroad bridges. C. F. Loweth. chart diag W Soc E J 26:248-58 JI '21; Abstract. Ry Age 70:789-92 Mr 25 '21; Same. Eng & Contr 55:420-2 Ap 27 '21

Coming activity in railroad bridge impact study. Eng N 85:533 S 16 '20

Complex bridge transfer successfully completed by Baltimore & Ohio. il diags map Ry Age 69:1103-6 D 24 '20

Construction of substructure for Platte river bridge. J. H. Merriam. il diags plans Eng N 86:1078-81 Je 23 '21

Extending the life of the Niagara Gorge arch. il diags Ry Age 68:1393-7 My 14 '20; Same. Eng & Contr 53:704-6 Je 23 '20

Floors for railway under-bridges. diags Engineer 129:391-4, 416-18 Ap 16-23 '20

Four-track concrete railroad bridge at Kankakee. S. W. Todd. il Pop Mech 34:342-3 S '20

Georges Creek accident and ruggedness in bridges. A. W. Buel. Eng N 86:463-4 Mr 17 '21

Great Alaskan bridge built during coldest weather. il diags Ry Age 71:103-5 JI 16 '21

Heavy spans to be rolled and jacked in difficult bridge reconstruction. diags Eng N 85:904-7 N 4 '20

Kenova bridge channel span erection. il diag Pub Works 48:437-9 My 22 '20

Kenova bridge end span erection. il diags Pub Works 48:345-7 Ap 24 '20

Kenova bridge intermediate spans. il diags Pub Works 48:237-9 Mr 27 '20

Kenova viaduct erection. il diags Pub Works 48:191-2 Mr 13 '20

Long Howe-truss railway spans being replaced. il diags Eng N 87:452 S 15 '21

Longest single-leaf bascule bridge: Chicago river. il diags plans Eng N 83:1056-60 D 25 '19; Eng & Contr 52:717-19 D 24 '19; Ry Age 67:1133-7 D 12 '19

Maintenance of structures in filling bridges. Ry R 67:731-6 N 13 '20; Same. Eng & Contr 54:482-6 N 17 '20; Abstract. Ry Age 69:762 O 29 '20

N. C. and St L. creosoted bridge survives fire. il diags Ry Age 70:369-72 F 11 '21

New Columbia bridge of the Philadelphia and Reading over Schuylkill river marks progress in transportation. H. B. Glisson. il diags Ry Age 70:369-72 F 11 '21

New York Central railroad accommodates itself to construction of Barge canal. B. S. Voorhees. il diags map Eng N 84:500-6 Mr 11 '20

Niagara railway arch reinforced for heaviest traffic. il diags Eng N 83:877-81 N 13 '19

Novel falsework method used on New Haven bridge over Thames river. il diags Ry Age 69:433-8 S 10 '20; Abstract. Eng & Contr 54:279-80 S 22 '20

Old Niagara railroad suspension bridge. Pub Works 49:370-2 O 16 '20

Philadelphia & Reading to build 46-arch double-track concrete bridge at Harrisburg. E. Chamberlain. il diags Ry Age 69:869-71 N 19 '20; Same. Eng & Contr 54:608-10 D 22 '20

Pile and concrete piers for Missouri river bridge. diags plans Eng N 84:824-5 Ap 22 '20

Platte river bridge reconstruction, Rock Island lines. il diags plans Eng N 84:287-9 F 5 '20

Railway bridge construction and service by American and European standards. P. H. Chen. diags Eng N 87:58-9 JI 14 '21; Same. Eng & Contr 56:400 O 26 '21; Discussion. Eng N 87:290-1, 375-6, 866-7 Ag 18, S 1, N 24 '21; Eng & Contr 56:400-1 O 26 '21

Reconstructing Poughkeepsie cantilever bridge for heavy traffic. C. E. Chase. il diags plans Eng N 84:528-34 Mr 11 '20

Reconstruction of bridges and tunnels in France. O. F. Allen. il Ry Age 70:973-6 Ap 22 '21

Repairing a railway bridge damaged by train wreck; Georges Creek Junction, Cumberland, Md. C. B. Pyle. il Eng N 86:100-2 Ja 20 '21

Restoration of the Cernavoda-Danube bridge. il diags Engineering 109:837-40 Je 18 '20

Results of impact tests on bridges in England. Eng N 87:642-5 O 20 '21

Rules and unit stresses for rating existing railway bridges. Eng & Contr 54:422-3 O 27 '20; Same cond. Ry Age 69:847-8 N 12 '20

Southern railway rebuilds Chattanooga bridge. il diag map plans Ry Age 68:1141-3 Ap 9 '20; Same. Eng & Contr 54:182-4 Ag 25 '20

Standard forms for bridge inspection. diags Eng & Contr 54:521-3 N 24 '20; Excerpt. Ry Age 69:803 N 5 '20

Susitna river bridge: Alaska government railway. il diags Eng N 87:92-4 JI 21 '21

Susitna river bridge, Alaska railroad, U.S.A. il diag Engineer 132:255-6 S 9 '21

Thames River bridge. J. W. Rollins. il diags plans Boston Soc C E J 17:177-99 Je '20; Same. Eng & Contr 54:85-8 JI 28 '20

Train movements facilitated by new bridge; Illinois Central completed four-track reinforced concrete structure at Kankakee, Ill. il diags Ry Age 68:1928-31 Je 18 '20

Bridges, Railroad—Continued

Unusual design for a Missouri river bridge. il diags plans Ry Age 67:1177-9 D 19 '19
 Viaduc métallique de 2 561 mètres, à Simbirsk, sur la Volga, pour le chemin de fer de Volga-Bougoulma (Russie). S. Kozierski. il diags maps plans Génie Civil 77:425-30 N 27 '20

Wide bridge built as two bridges without interval. il diags Eng N 83:928-9 N 27 '19

See also Railroads—Track elevation

Specifications

C.E.S.A. railway bridge specification. P. L. Pratley. Can Eng 39:626-7 D 23 '20
 C.E.S.A. railway bridge specification. D. C. Tennant. Can Eng 40:232-3 F 17 '21
 Discussion of bridge specifications. Ry Age 68:165-6 Ja 9 '20
 New steel railway bridge specification. diag Can Eng 39:443-5 O 21 '20; Same. Eng & Contr 54:516-18 N 24 '20

Bridges, Stone

Stone beam bridge in China sixty years old. D. F. McLeod. il diags Eng N 84:321-2 F 12 '20

Bridges, Suspension

Bridge across Colorado in Grand Canyon completed. il Eng N 87:312-13 Ag 25 '21
 Bridge across the Colorado in Grand Canyon. il diags plans Eng N 86:254-6 F 10 '21
 Bridging the Delaware at Philadelphia. il Sci Am 125:8-9+ JI 2 '21
 Characteristics of long-span suspension bridges. C. R. Young. diags Can Eng 39:483-6 N 4 '20
 Comparative economics of cantilever and suspension bridges. J. A. L. Waddell. plans W Soc E J 24:187-214 Ap '19; Discussion. 25:70-2 Ja 20 '20
 Comparative economics of wire cables and high-alloy-steel eye-bar cables for long-span suspension bridges. J. A. L. Waddell. plans Eng Soc W Pa 36:418-36; Discussion. 437:53 JI '20
 Construction d'un pont suspendu de 533m 40 de portée sur la Delaware, à Philadelphie (E.-U.). diags Génie Civil 79:193-4 Ag 27 '21
 Eight-cable suspension bridge of 1803 ft. span for Detroit. il diags Eng N 87:524-6 S 29 '21
 Engineering studies for Philadelphia-Camden bridge. diags map Eng N 86:1086-90 Je 23 '21
 Granite Gorge bridge across the Colorado. il Sci Am 125:203+ S 17 '21
 Le nouveau pont-route suspendu sur le Rhin, à Cologne. diags Génie Civil 77:460-2 D 4 '20
 Old Niagara railroad suspension bridge. Pub Works 49:370-2 O 16 '20
 Philadelphia-Camden bridge over the Delaware. Pub Works 51:24 JI 9 '21
 Re-covering the cables of the Williamsburg bridge. il Sci Am 124:391+ My 14 '21
 Study of stresses in eyebar heads in chain bridges. J. Beke. diags Eng N 87:234-8 Ag 11 '21; Discussion. J. M. Paris. 87:621 O 13 '21
 Suspension bridge across Grand Cañon makes all parts of park accessible. il Pop Mech 36:20-1 JI '21
 Weatherproofing huge suspension bridge tests skill of engineers and craftsmen. il Pop Mech 35:860-1 Je '21
 Work on Detroit river bridge to begin in 1922. il diag Ry Age 71:343-4 Ag 20 '21

Briesen, Arthur Von

Sketch. Sci Am 122:592 My 29 '20

Brightness

Brightness. B. Jones. diags Illum Eng Soc 15:723-62; Discussion. 762-8 no 9 '20

On the theory of tone reproduction, with a graphic method for the solution of problems. L. A. Jones. diags J Fr Inst 190:39-90 JI '20

See also Glare

Brinell hardness test

Brinell machine for high-temperature testing. J. F. Kayser. il diag Engineering 109:157 Ja 30 '20

Ideal Brinell testing machine. il Am Mach 52:969 Ap 29 '20

New method for calibrating Brinell hardness testing machines. J. L. Jones and C. H. Marshall. il Am Soc T M Pro v 20 pt 2:392-5 '20; Same. Foundry 48:699 S 1 '20; Discussion. Am Soc T M Pro v 20 pt 2:396-7 '20
 Note on the ball test. T. Baker and T. F. Russell. Engineering 109:698-700; Discussion. 675-6 My 21 '20

Removal of internal stress in 70:30 brass by low temperature annealing. H. Moore and S. Beckinsale. il diags Engineering 109:393-5 Mr 19 '20; Abstract. Iron Age 105:992 Ap 1 '20

Brines

Alkalinity of Searles Lake brine. R. C. Wells. J Ind & Eng Chem 13:691-2 Ag '21
 Concrete brine tanks. H. C. Boyden. A S R E J 7:390-5; Discussion. 395-400 Mr '21
 Physical properties of brines. E. F. Mueller. A S R E J 6:25-31; Discussion. 31-3 JI '19

Briquet stoves

Saving the heat that goes up the chimney. il Sci Am 123:256 S 11 '20

Briquetting

Boreas briquetting press for cast-iron turnings. Engineering 110:638 N 12 '20
 Briquetting of metal scrap. A. Bregman. il diag Metal Ind 18:400-2 S '20
 Development of flue dust briquetting. A. L. Stillman. il diag Blast F & Steel Pl 8:395-8 JI '20
 Experimental briquetting plant. A. L. Stillman. il Chem & Met Eng 22:1035-8 Je 2 '20; Abstract. Sci Am M 2:146 O '20

Briquetting (fuel)

American lignite coals; Canada blazes the way to put them on a par with anthracite. R. G. Skerrett. il Sci Am 124:344+ Ap 30 '21
 Briquetted coal for household fuel. J. H. Kennedy. Am Soc Heat & V E J 27:101-5; Discussion. 105-6 Mr '21
 Briquetting mineral phosphates. W. H. Waggaman, H. W. Easterwood and T. B. Turley. il Chem & Met Eng 25:517-22 S 14 '21
 Briquetting of lignites. L. R. Thomson. Chem & Met Eng 25:500 S 14 '21; Same. Can Chem & Met 5:287-8 O '21
 Factors to be borne in mind in making briquets of fine materials. J. E. Stevens. il Coal Age 19:663-6 Ap 14 '21
 Fuel briquetting in 1919. F. G. Tryon. U S Geol S Min Res of U S 1919, pt 2:33-6 '20
 Fuel briquets in 1920. W. F. McKenney. U S Geol S Min Res of U S 1920, pt 2:87-91 '21
 Lampblack, by-product from oil gas manufacture, a readily marketed domestic fuel. E. L. Hall. il Am Gas Eng J 112:77-80 Ja 31 '20
 Some investigations in briquetting Oklahoma coal. J. C. Davis. Chem & Met Eng 23:101-2 JI 21 '20; Same. Coal Age 18:443-4 Ag 26 '20
 Toronto is briquetting river anthracite. A. L. Stillman. il Coal Age 17:929-33 My 6 '20
See also Carbocoal

British association for the advancement of science

Annual meeting, Edinburgh. Engineer 132:256-7, 273-4, 286-8, 296, 311-13, 350-1 S 9-30 '21; Engineering 112:381-2, 405-9, 430-5, 467-70, 498-501, 528-31 S 9-O 14 '21; Elec R (Lond) 89:353-7, 385-8, 417-19, 449-52 S 9-30 '21; Electrician 87:353-5, 381 S 16-23 '21
 Edinburgh meeting. A. E. Kennelly. Elec W 78:775-6 O 15 '21
 88th annual meeting. Engineering 110:285-7, 319-23, 352-6, 382-4, 414-16, 437-8 Ag 27 '20; Engineer 130:207-9, 231, 256-8 Ag 10 '20
 1919 meeting, Bournemouth, Sept. 9-13. C. Kershaw. Chem & Met Eng 21: O 22 '19

British cast iron research association

Incorporated on June 1st. Engineer 13 Je 17 '21
 Meeting, Birmingham, May 24. J. Ho Foundry 49:531-2 JI 1 '21
 Research in the foundry. Engineering 749-50 Je 17 '21

British Columbia**Industries and resources**

Industrial development in British Columbia. H. Dalton. *il J Elec* 46:124-5 F 1 '21

See also Coal mines and mining—British Columbia; Copper mines and mining—British Columbia; Gold mines and mining—British Columbia; Mines and mineral resources—British Columbia; Silver mines and mining—British Columbia; Water power—British Columbia

British Columbia electric railway

British Columbia interconnections. J. Lightbody. *il J Elec* 44:491-2 My 15 '20

British cotton industry research association

Research institute for cotton industry. A. W. Crossley. *Textile World* 60:324d-e JI 9 '21

British electrical and allied manufacturers' association

Annual general meeting, March 17th. *Electrician* 86:461-2 Ap 15 '21; *Elec R (Lond)* 88:494-6 Ap 15 '21

British Empire steel corporation

Definite details as to the terms of incorporation. *Can Eng* 38:438 My 6 '20

British engineering standards association

3d annual meeting. *Engineering* 112:236 Ag 5 '21

British foundrymen, Institution of. See Institution of British foundrymen**British gray and malleable cast iron research association**

British research association is formed. *Foundry* 48:858 N 1 '20

British Guiana

See also Gold mines and mining—British Guiana

British Honduras

As a Central American sees truck export problem. O. C. Gould. *Automotive Ind* 43:876-8 O 28 '20

British industries fair

British industries fair at Birmingham and London. *Engineering* 111:235-8 F 25 '21; *Elec R (Lond)* 88:230-2, 287-9 F 25-Mr 4 '21; *Electrician* 86:280-2, 305-6 Mr 4-11 '21

Report on the future of British industries fairs. *Elec R (Lond)* 88:708 Je 3 '21; *Engineer* 131:564 My 27 '21

British Portland cement research association

Needed institution. *Concrete* 18:sup44 Mr '21

British science guild

15th annual meeting, London, June 8. *Eleo R (Lond)* 88:833 Je 24 '21

British thermal unit. See Heat unit**Britton, John Alexander, 1855-**

Sketch. *por J Elec* 46:526 My 15 '21

Broaches

Broach for airplane-propeller hub. I. B. Rich. *diags Am Mach* 53:70 JI 8 '20

Broaches for a keyed bushing. F. A. Stanley. *il diags Am Mach* 52:150 Ja 15 '20

Burnishing broaches. E. A. Dixie. *diags Am Mach* 54:599-601 Ap 7 '21

Graphical method of designing broaches. G. C. Hanneman. *diags Mach* 26:823-4 My '20

Improvised machine for grinding broaches. E. E. Henry. *il Am Mach* 54:695 Ap 21 '21

Keyway broaches with inserted teeth. *diags Mach* 26:561 F '20

Broaching

Broaching gas-engine tappet-guide holes. J. V. Hunter. *il Am Mach* 53:321-2 Ag 12 '20

Broaching lock cylinders. C. H. Briggs. *diags Am Mach* 54:960 Je 2 '21

Broaching practice. E. K. Hammond. 122p Industrial press, New York '21

Broaching square holes. J. T. Clark. *diags Am Mach* 53:178 JI 22 '20

Broaching the recoil cylinder of the 4.7-in. gun. M. E. Infiorati. *il diags Am Mach* 52:977-8 My 6 '20

Difficult job of broaching. H. M. Darling. *diags Am Mach* 53:490 S 9 '20

Guide bushings for keyway broaching; formulas for designing bushings. C. H. Briggs. *diags Mach* 27:767-8 Ap '21

Modern broaching practice. E. K. Hammond. *il diags Mach* 26:903-9, 1049-52 Je-JI '20

Tool engineering. A. A. Dowd and F. W. Curtis. *diags Am Mach* 55:391-4, 432-5 S 8-15 '21

Broaching machines

American no. 1½ rack type broaching machine. *il Mach* 27:195 O '20; *Iron Age* 106:1271 N 11 '20

American no. 3 broaching machine. *il Mach* 26:876 My '20

Hercules improved power arbor press and broaching machine. *il Iron Age* 106:524 Ag 26 '20

Lapointe no. 3 duplex broaching machine. *il Am Mach* 52:746 Ap 1 '20; *Mach* 26:780 Ap '20

Machines displayed at Machine tool and engineering exhibition. *il diags Engineering* 110:339-41 S 10 '20

Metalwood tappet guide-hole broaching press. *il diags Am Mach* 52:851-2 Ap 15 '20

New broaching machine. *il diag Engineer* 129:554, 558 My 28 '20

Velco no. 4 high-speed broaching machine. *il Am Mach* 55:362-3 S 1 '21; *Iron Age* 108:526 S 1 '21; *Mach* 28:75-6 S '21

Vickers broaching machine. *diags plan Engineer* 130:294-5 S 24 '20

Work-holding fixture for broaching machine. F. W. Stein. *diag Mach* 27:46 S '20

Manufacture

Controlling production and keeping costs in a broaching tool plant. H. R. Simonds. *il Iron Tr R* 66:697-702 Mr 4 '20

Brokers

Some pitfalls of selling; a broker's right to his commissions. *Chem & Met Eng* 23:888 N 3 '20

Brokers' offices**Accounting**

Aids to management of stock-brokers' offices. J. P. Goodwin. *J Account* 32:120-7 Ag '21

Bromides

Determination of iodide and bromide in mineral waters and brines. W. F. Baughman and W. W. Skinner. *J Ind & Eng Chem* 12:358 Ap '20

Organic chemical reagents; the preparation of alkyl and alkylene bromides. O. Kamm and C. S. Marvel. *Am Chem Soc J* 42:299-309 F '20

See also Aluminum bromide; Cyanogen bromide

Bromination

Über benzopolymethylen-verbindungen; über bromhaltige alicyclische substitutionsprodukte des tetrahydro-naphthalins (tetralins) und über Δ¹-dihydro-naphthalin (Δ¹-dialin). J. v. Braun and G. Kirschbaum. *Deutsche Chem Gesell Ber* 54:597-618 Ap '21

Weitere versuche über bromierung ungesättigter verbindungen mit N-brom-acetamid. A. Wohl and K. Jaschinowski. *Deutsche Chem Gesell Ber* 54:476-84 Mr '21

Bromine

Salt, bromine, and calcium chloride in 1919. H. Insley. *diag U S Geol S Min Res of U S* 1919,pt 2:239-56 '21

Über die einwirkung von brom auf dihydrochinin und dihydro-cuprein. R. Weller. *Deutsche Chem Gesell Ber* 54:230-8 F '21; Abstract (Action of bromine on dihydroquinine and dihydrocupreine). *Chem Soc J* 120 pt 1:265-7 Ap '21

See also Bromination

Bromine compounds

Bromine compounds of phenanthrene. H. Henstock. *Chem Soc J* 119:55-61 Ja '21

See also Bromides

Bromoacetamide

Weitere versuche über bromierung ungesättigter verbindungen mit N-brom-acetamid. A. Wohl and K. Jaschinowski. *Deutsche Chem Gesell Ber* 54:476-84 Mr '21

Bromobenzene

Friedel-Crafts' reaction; migration of halogen atoms in the benzene nucleus. M. Copisarow. *Chem Soc J* 119:442-7 Ap '21

Bromocyanogen. See Cyanogen bromide

Bromonitrostyrene

Addition of aromatic amines to bromonitrostyrene. D. E. Worrall. *Am Chem Soc J* 43:919-25 Ap '21

Bromophenacyl bromide

Identification of acids; para halogen phenacyl esters. W. L. Judefind and E. E. Reid. *Am Chem Soc J* 42:1043-55 My '20

Bromopicrotoxinins

Picrotoxin; behaviour of the bromopicrotoxinins toward concentrated halogen acids. P. Horrmann and W. Behschnitt. *Chem Soc J* 120 pt 1:575-6 Ag '21

Bromotrinitromethane

Darstellung von chlor- und brom-trinitromethan. E. Schmidt, R. Schumacher and H. Kuhlmann. *Deutsche Chem Gesell Ber* 54:1483-4 Jl '21

Halogen derivatives of nitroform. A. K. Macbeth and D. D. Pratt. *Chem Soc J* 119:354-8 Mr '21

Bromovaleric acid

Über die einwirkung von γ -brom-valeriansäure auf amine. B. Emmert and E. Meyer. *Deutsche Chem Gesell Ber* 54:210-13 F '21

Bronx parkway

Construction asphalt block pavement on Bronx parkway. *il Pub Works* 49:543-6 D 11 '20

Earth moving machinery in Bronx parkway. *il Pub Works* 49:293-8 O 2 '20

Bronze

Ancient bronze baffles founders; Chinese war drum cast at the beginning of the Christian era is a molding enigma. *il Foundry* 48:667-70 S 1 '20

Bronze backed connecting rod bearings. P. W. Blair. *il Metal Ind* 19:277 Jl '21

Bronze casting. *Metal Ind* 19:396 O '21

Bronze die castings. H. R. Corse and C. Pack. *il Metal Ind* 19:13-14 Ja '21

Bronze for bearing metal. E. T. Keenan. *Power* 54:322-3 Ag 30 '21; Discussion. H. D. Fisher. 54:653-4 O 25 '21

Casting phosphor bronze. R. E. Search. *Metal Ind* 19:154 Ap '21

Conservation of tin in bearing metals, bronzes and solders. G. K. Burgess and R. W. Woodward. *Am Mach* 51:883-5 N 13 '19

Copper and brass. J. F. Springer. *il Brass W* 17:47-51, 157-9 F, Je '21

Correcting defects in the bronze bushings. *Foundry* 48:492 Je 15 '20

Expanding bronze bearings. C. M. Cross. *diag Elec J* 17:452-3 O '20

Forgeable bronzes and brasses. R. E. Search. *Metal Ind* 19:318-20 Ag '21

Founding of bronze. C. Vickers. *il Brass W* 17:87-90, 137-40 Ap-My '21

Founding of bronze bells—bells. C. Vickers. *il Brass W* 17:254-7 S '21

High lead bronze. *Metal Ind* 19:357 S '21

How treatments affect gear bronze. A. B. Wilson. *il Foundry* 48:915-19 N 15 '20

Notes on bronze and babbitt bearings. W. K. Frank. *il Eng Soc W Pa* 35:349-79 N '19; Same cond. *Iron Age* 105:943-6 Ap 1 '20; Same cond. *Ry Mech Eng* 94:276-80 My '20; Discussion. *Eng Soc W Pa* 35:380-94 N '19

Phosphor bronze bars. J. Arnott. *Engineering* 111:474 Ap 15 '21

Practical foundry mixtures. F. W. Loll. *Metal Ind* 19:63 F '21

Report on investigation of acid resisting bronze. *il Paper* 27:21-4 Mr 2 '21

See also Aluminum bronze; Bronzes; Gun metal; Manganese bronze

Specifications

Tentative specifications for bronze bearing metal in ingot form. *Am Soc T M Pro v* 20 pt 1:565-8 '20

Tentative specifications for bronze bearing metals for turntables and movable railroad bridges. *diags Am Soc T M Pro v* 20 pt 1:533-7 '20

Testing

Elastic properties of bronze castings. G. F. Comstock. *il Chem & Met Eng* 22:1113-18 Je 16 '20

Bronze, Substitutes for

Substitutes for bronzes. *diags Mach* 27:159 O '20

Bronze plating

Bronze plating. F. C. Mathers and S. Sowder. *Metal Ind* 18:170-1 Ap '20; Same. *Am Electrochem Soc Trans v* 37 (preprint 7):83-6 Ap '20

Bronze tools

Ancient principles of modern machines. P. B. McDonald. *il Eng & Min J* 110:296-7 Ag 14 '20

Bronzes

Alloys of interest to the brass founder; alloys used in famous statuary. *Foundry* 48:284a Ap 1 '20

Composition of ancient bronzes from the Far East. M. Chikashige. *J Fr Inst* 190:656 N '20

Douglas memorial fountain at Nacozari. L. Cauldwell. *il Eng & Min J* 111:942-4 Je 4 '21

Where art and industry are united. *il Foundry* 47:915-18 D 15 '19

Bronzing

Use of gas in connection with bronzing processes. G. C. Shadwell. *Am Gas Eng J* 112:63-6+ Ja 24 '20

Brooklyn, New York**Rapid transit**

Brooklyn adopts surface car trains. *il Elec Ry J* 55:464-7 Mr 6 '20

Making transportation serve—and sell. C. E. Morgan. *il map Elec Ry J* 58:499-504 S 24 '21

Strike on the Brooklyn rapid transit—Judge Mayer refuses to grant closed shop. *Comm & Fin Chr* 111:953-4 S 4 '20

Brooklyn rapid transit company

Collective bargaining on B.R.T. *Elec Ry J* 56:1117 N 27 '20

Organization chart, B. R. T. way and structure department. *Elec Ry J* 55:128-9 Ja 10 '20

Brooms**Advertising**

Factories, still using hand methods, advertise products. *Ptr Ink* 113:60+ D 30 '20

Brown, Cleyson L.

Builders of business. C. M. Harger. *por System* 39:670+ My '21

Brown & Sharp manufacturing company, Providence, Rhode Island

Programs of apprenticeship and special training in representative corporations. J. V. L. Morris. *il Am Mach* 54:230-2 F 10 '21

Brown coal. See Lignite**Brownian movements**

Report of the chairman at the annual meeting of the National research council; Brownian movements. W. D. Bancroft. *J Ind & Eng Chem* 12:915-16 S '20

Browning process. See Metal protection**Bruce, James L., 1880-**

James L. Bruce, of Butte; an interview. T. A. Rickard. *il Min & Sci P* 123:353-64 S 10 '21

Brunton, David W., 1849-

David W. Brunton: consulting engineer; an interview by T. A. Rickard. *il diags Min & Sci P* 122:745-56 My 28 '21

Brunton, Robert

Sketch. D. D. Dunlea. *por System* 39:47-8+ Ja '21

Brushes

Brushes in tire making and rubber manufacture. *il India Rubber W* 64:836 Ag '21

See also Fuller brush company, Hartford, Conn.

Advertising

Merchandising the advertising campaign to the consumer: the Fuller brush company. A. McClure. *Ptr Ink* 112:33-6 S 23 '20

Brushes (electric machinery)

Brush and commutator troubles prevented by proper care. A. L. Heath. Elec W 77:1376-7 Je 11 '21

Carbon and commutator wear. R. E. Hellmund. diags Am Inst E E J 39:579-82 Je '20

Carrying capacity and contact drop of brushes. Power 54:633 O 25 '21

Commutator brushes for synchronous converters. R. H. Newton. diags Elec J 18:51-2 F '21; Same. Power Pl Eng 25:661-2 Jl 1 '21

Connections between brushes and brush-holders. W. C. Kalb. il Power 52:365-7 S 7 '20

Operation of shop motor brushes and contact devices. C. E. Clewell. il diags Am Mach 51:939-41 N 27 '19

Proper fit and correct pressure of brushes help commutation. A. L. Heath. Elec W 77:1111-12 My 14 '21

Selection of brushes for power-plant equipment. W. C. Kalb. Power 54:487-8 S 27 '21

Side wear of carbon brushes on ventilated railway motors. J. S. Dean. il diags Elec J 18:470-3 O '21

Testing

Carbon brush testing. J. S. Dean. il diags Elec Ry J 56:363-7 Ag 21 '20; Same cond. Elec W 76:369-72 Ag 21 '20

Brushes, Paint

\$15,000,000 invested in making paint and varnish brushes. Oil Paint & Drug Rep 99:37 sec 1 F 21 '21

Brussels

Brussels—the city beautiful. E. J. Mehren. il Eng N 85:421-2 Ag 26 '20

Bubble books

New fields opened by appealing to children. R. M. Rhodes. il Ptr Ink M 3:23-4+ Je '21

Bubbles

Bubbles, drops and grains. W. D. Bancroft. Sci Am M 1:366-9 Ap '20

Bubonic plague. See Plague**Buck, Harold Winthrop, 1873-**

Sketch. por Elec W 76:1248 D 25 '20

Buckets

Grab and its manipulation by electricity. diags Eng & Ind Management 5:473-7 Ap 21 '21

Wellman geared bucket. il Coal Age 16:743 N 6 '19

See also Hoisting machinery

Budapest, Hungary

Prices of foodstuffs and other commodities in Budapest, Hungary. Monthly Labor R 12:776 Ap '21

Budget

See also Finance; Purchasing

Great Britain

National budget as a business proposition. E. J. P. Benn. Electrician 85:744-5 D 24 '20

United States

At last—a national budget! S. Bent. Nation's Business 9:9-11 Ag '21

Budget, just common sense. W. W. Warwick. Nation's Business 9:20-1 My '21

The budget—shall we get it? Comm & Fin Chr 112:1914-15 My 7 '21

Charles G. Dawes reports savings of over 112 million dollars through new budget system. Comm & Fin Chr 113:361-2 Jl 23 '21

Congress passes bill providing for national budget system. Comm & Fin Chr 112:1928 My 7 '21

First budget regulations—President Harding says world is watching experiment. Comm & Fin Chr 113:139-40 Jl 9 '21

President Harding signs budget bill—text of act. Comm & Fin Chr 112:2700-2 Je 25 '21

Rigid economy to keep national budget within \$4,000,000,000. Annalist 17:520-1 My 9 '21

Budget, Business

Budget as basis for calculating predetermined rates. E. O. Sommer. Ind Management 59:24-8 Ja '20

Budget control system which is producing results. N. G. Shidle. chart Automotive Ind 44:269-75 F 10 '21

Budget system. D. E. Burchell. Paper 28:76+ Ap 20 '21

Budget system as applied to track work. C. A. Morse. Ry R 69:396-400 S 24 '21; Same. Eng & Contr 56:370-2 O 19 '21; Same cond. Ry Age 71:571-3 S 24 '21

Budget system used to determine material stocks needed. F. R. Coates. Elec W 78:314-15 Ag 13 '21

Budget system which produces results on the Rochester & Syracuse railroad. D. E. Crouse. Elec Ry J 57:802-4 Ap 30 '21

Budgetary control and administration. J. O. McKinsey. chart Administration 1:73-82 Ja '21

Budgetary control of plant and equipment. J. O. McKinsey. Administration 1:647-58 My '21

Budgeting business. P. Mathewson. Ind Management 61:404-7 Je '21

Budgeting factory overhead; a step toward profit insurance. E. E. Carlson. Factory 27:31-4 Jl '21

Business budgets a help in readjustment. P. Mathewson. Annalist 18:440 N 7 '21

Business budget as prophet and guide. J. Danziger. Administration 2:381-6 S '21

Capital needs and sources of availability should be predetermined. R. S. Seese. Elec W 78:557-9 S 17 '21

Expense and finance budgets. P. Mathewson. Ind Management 62:109-13 Ag '21

Expense budgets. J. O. McKinsey. Administration 1:812-23 Je '21

Financial budget. J. O. McKinsey. Administration 2:74-87 Jl '21

How I guess what we'll do next year. A. L. Lewis. System 39:527-9+ Ap '21

Production budget. J. O. McKinsey. Administration 1:358-67 Mr '21

Sales budget for business. J. O. McKinsey. Administration 1:195-209 F '21

Taking illusions out of the budget. C. H. Ingersoll. Administration 1:783-5 Je '21

Budget, Household

Family budgeting—the next step in promoting employee thrift. W. L. Stoddard. Factory 27:334-6 S '21

See also Standards of living

Buds

Experiment on regulation in plants. E. N. Harvey. Sci Am M 3:126-7 F '21

Buenos Aires, Argentina

Ports of the world. 28p U.S. Bureau of navigation, Washington '20

See also Drainage—Buenos Aires

Rapid transit

Maintenance practice of the Anglo-Argentine tramway. R. F. Apeseche. il chart map Elec Ry J 55:554-8, 978-82 Mr 20, My 15 '20

Railway operation in Buenos Aires. Elec Ry J 56:275-6 Ag 7 '20

Buffalo, New York**Streets**

Street cleaning, refuse disposal and snow removal in Buffalo. G. H. Norton. Munic Eng 58:21-2 Ja '20

Water supply

What electrical operated valves are doing for the city of Buffalo. il diag Pub Works 51:189-91 S 3 '21

Buffalo, Rochester & Pittsburgh railroad

35th annual report. map Ry Age 68:1502-3, 1544-5 My 28 '20; Same abr. Comm & Fin Chr 110:2303-4 My 29 '20

36th annual report for year ending December 31, 1920. Ry Age 70:1250-1 My 27 '21; Same abr. Comm & Fin Chr 112:1632-3 Ap 16 '21

Buffer mixtures

Phthalate buffers—some incompatibilities. H. F. Zoller. Am Chem Soc J 43:914-16 Ap '21

Buffers (railroad)

- Bumper that slides along the track. G: F. Paul. *il Sci Am* 125A:62 N '21
 End-of-track bumpers stop cars without bumping. *il Pop Mech* 36:328 S '21
 New type of car stop. *il Ry Age* 71:502 S 10 '21
 Sliding car stop for yard tracks. *il Eng N* 86:952 Je 2 '21

Buffing. See Grinding and polishing**Builders' associations**

- How can a builders' and contractors' get-together club be organized and financed? *Pub Works* 50:151-2, 175-6 F 12-19 '21

Building

- Aberthaw construction co.'s instructions for its field men. *Eng & Contr* 55:67-8 Ja 19 '21
 Administration and organization on construction work. A. G. Gehrig. *Eng & Contr* 53:157-9 F 11 '20
 Advantages of small sketch sheets in supplying information to field parties on construction work. W. A. Bowen. *Eng & Contr* 52:705-6 D 17 '19
 Ant proofing building construction in Formosa. *diags Eng & Contr* 54:278 S 22 '20
 Art in structures. G: S. Binckley. *Eng N* 85:1024-6 N 25 '20; Discussion. F. H. Frankland. 85:1104-5 D 2 '20
 Better building methods. L. S. Keir. *diags Bldg Age* 43:24-9 Mr; 37-8 My '21
 Building a new house around the old. *il Pop Mech* 33:126 Ja '20
 Building frame houses. E: Marple. *il diags Bldg Age* 43:44-8 Ap '21
 Building prospect. W. I. King. *Arch Rec* 49:340-5, 433-9, 512-17 Ap-Je '21
 Building superintendence for frame, brick, and stone structures. E: Nichols. 229p American technical society, Chicago '20
 Concrete and the building crisis; advantages which have led to adoption of this structural type. R. G. Skerrett. *Sci Am* 123:398-9+ O 16 '20
 Construction revival—when? O. M. Fox. *Eng N* 85:1196-7 D 16 '20
 Easy surveying for the builder. R. P. Smith. *diags Bldg Age* 43:29-30 Ji '21
 Economical speed in building. A. B. MacMillan. *Ind Management* 59:392-4 My '20; Same cond. *Eng & Contr* 53:603-4 My 26 '20
 Handbook of building construction. G. A. Hool. 1474p McGraw-Hill '20
 Houses built on sand. J. F. Springer. *il Sci Am* 121:638+ D 27 '19
 How progress charts reduce building costs. N. F. Hoggson. *Bldg Age* 43:23+ O '21
 Modern building superintendence and the writing of specifications. D: B. Emerson. 247p Scribner '21
 Placing building materials on the job. M. Farrell. *plan Bldg Age* 43:24 S '21
 Planning and progress on a big construction job. C: Penrose. *il charts diag Eng N* 84:554-61, 627-33 Mr 18-25 '20
 Protecting buildings against the white ant. T: E. Snyder. *il diags Eng N* 84:1110-12 Je 3 '20
 What building industry needs most today. E. T. Weeks. *il Brick & Clay Rec* 58:293-6 F 22 '21

See also Acoustics; Architectural; Arches; Architecture; Armories; Bathhouses; Bathrooms; Brick construction; Bricklaying; Bridges; Building accidents; Building contracts; Building fittings; Building guilds; Building inspection; Building laws and regulations; Building loans; Building materials; Building trades; Carpentry; Cellars; Chimneys; Columns; Concrete construction; Concrete houses; Construction equipment; Cornices; Cribs; Doors; Doorways; Earthquakes and building; Engineering; Exits; Factories; Fireproof construction; Flagpoles; Floors; Foundation soils; Foundations; Framing (building); Girders; Graphic statics; Grouting; Hangars; Heating; High buildings; Hot water supply; Hotels; Houses, Portable; Ironwork, Architectural; Joints; Laths; Loft buildings; Masonry; Moldings; Motor trucks in con-

struction work; Obelisks; Office buildings; Painting, Structural; Partitions; Piers; Piles and pile driving; Pisé; Plaster and plastering; Plumbing; Public works; Pyramids; Quantity system of estimating; Railroads—Buildings; Retaining walls; Roofs; Sanitary engineering; Sheet metal work, Architectural; Shingles; Shingling; Shipbuilding; Shoring and underpinning; Skylights; Stairways; Steel construction; Strains and stresses; Strength of materials; Tenement houses; Theaters; Towers; Trusses; United States—Army—Construction division; Ventilation; Walls; Warehouses; Wind pressure; Windows

Accidents

See Building accidents

Accounting

- Keeping building costs. F. A. Wells. *Bldg Age* 43:28-32 F '21

Classification

- Efficient catalog file. R. G: Roesch. *Eng N* 84:1165-6 Je 10 '20
 New standard construction classification, adopted by the American institute of architects. *Am Inst Arch J* 8:241-6 Je '20

Cost

- Building better homes at Garden City. *il plans Bldg Age* 43:21-5, 42-4 Ja '21
 Building costs in 1921. W. R. Burgess. *Heat & Ven* 18:49 Ag '21
 Building shortage in the United States. *charts Concrete* 17:167 N '20
 Comparative cost of building, 1913 and 1919. L. K. Sherman. *Monthly Labor R* 10:551-7 F '20; Same. *Eng N* 84:267-71 F 5 '20
 Comparative costs of small houses for 1914, 1920 and 1921. D. Crawford, jr. *Eng & Contr* 55:529-30 My 25 '21
 Comparison of small house costs for 1914, 1920 and 1921. *Eng N* 86:389-90 Mr 3 '21
 Component costs of building construction. B. White. *Eng & Contr* 55:625-6 Je 22 '21
 Construction costs of 1920 and 1921. S. E. Davidson. *Eng N* 86:646-7 Ap 14 '21
 Economies in design and construction. C. C. Nathan. *Arch Rec* 49:454-6 My '21
 Keeping down construction costs. G: M. Peterson. *Factory* 26:189-90 Ja 15 '21
 Labor's share in building costs. *Eng & Contr* 55:285 Mr 23 '21
 Present tendencies in construction costs. *Arch Forum* 34:sup83 Ja '21
 Short cuts in estimating costs. I. P. Hicks. *plans Bldg Age* 43:48-9 Ag '21
 Solid facts on construction costs. F. E. Davidson. *Am Arch* 119:268+ Mr '9 '21
 Straight talks with architects; how can I get more business in my office now? *chart diag Arch Forum* 35:105-8 S '21
 Tabulation of building costs. *Am Arch* 119:58, 218, 410, 539, 662; 120:sup12 Ja 12, F 23, Mr 30, Ap 27, Je 22, Ag 31 '21
 When will building costs be lower? *Heat & Ven* 17:51-3 N '20
 Will building costs come down? C: F. Dingman. *Concrete* 17:144-6 N '20
See also Bridges—Cost; Building materials—Prices; Concrete construction—Cost; Warehouses—Cost

Estimates

- Building estimator's reference book. F. R. Walker. 4th ed. 2931p F. R. Walker co., Chicago '21
 Expense of estimating. H: K. Holsman. *Am Arch* 117:475-7 Ap 14 '20
 How to estimate interior mill work. I. P. Hicks. *Eng & Contr* 54:427 O 27 '20
 Practical short method of estimating. I. P. Hicks. *il plans Bldg Age* 43:55-6 N '21
 Quantity surveys; seven room stucco house and five room frame house. *Bldg Age* 43:26-8 O '21
 Short cuts in estimating costs. I. P. Hicks. *plans Bldg Age* 43:48-9 Ag '21
See also Brick construction—Estimates; Concrete construction—Estimates; Quantity system of estimating

Building—Continued**Exhibitions**

See Building trades—Exhibitions

Finance

Financing buildings on leasehold property. Arch Forum 32:130 Mr '20

Housing the workers who earn \$5.00 and \$6.00 per day. P. W. Blake. il plans Ind Management 60:432-5 D 1 '20

How Great Britain is financing half a million homes. R. J. Caldwell. Ind Management 61:106-7 F 1 '21

Small capital required to build moderate-cost homes. il Bldg Age 43:38-40 O '21

Suggestions for financing homes. D. Crawford, jr. Bldg Age 43:56 Je '21

See also Building, Cooperative; Building loans; Housing projects

Rapid construction

Engineering and construction organization for rapid work. I. W. McConnell. Eng & Contr 54:287-9 S 22 '20

Housing problem met and overcome in Prague; volunteer work of students. il Am Arch 119:66-7 Ja 19 '21

Rapid construction of concrete apartment houses. J. B. Woods. il Concrete 17:156-7 N '20

Records

Suggested method of checking up details and superintending building construction. Am Arch 117:356-7 Mr 17 '20

Repair and reconstruction

Costs of upkeep and repairs on a large building. W. R. Metz. Eng N 85:263-4 Ag 5 '20

Good design increases rental values. il plan Am Arch 119:151-4 F 9 '21

New York offices of the International mercantile marine company. il plan Am Arch 120:279-82, 287-93 O 12 '21

Opportunities for progressive builders. R. F. Salade. Bldg Age 42:54-5 O; 57-8 N '20

Record time in garage alterations. C. C. Alley. il Concrete 19:161-2 O '21

Repairs to the structure of the Crystal palace. il diags Engineering 111:510-14, pl 24 Ap 29 '21

Saving St Paul's in London. M. Macartney. il Sci Am 125:113+ Ag 13 '21

Safety devices and measures

Accident prevention in construction operations. D. S. Beyer. Eng & Contr 55:181-2 F 23 '21

Hazards of power plant construction. il Power 52:839-40 N 23 '20

Instructions to construction foremen for prevention of accidents. Eng & Contr 52:692-4 D 17 '19

Instructions to foremen for prevention of accidents in steel erection. Eng & Contr 55:518-21 My 25 '21

Measures for preventing accidents in building construction. F. J. C. Dresser. Eng & Contr 52:475-6 O 22 '19; Same (Co-operating on safety). Concrete 15:240-2 D '19

Safety in building construction. 2d ed. rev. 175p Travelers insurance co., Hartford, Conn. '21

Safety measures for hoisting in building operations. Eng & Contr 52:724-5 D 24 '19

Safety methods of a large construction co. J. H. Schults. Eng & Contr 54:524-5 N 24 '20

See also Fire escapes; Shipbuilding—Safety devices and measures; Sidewalk sheds; Wrecking—Safety devices and measures

Specifications

American architect specification manual; annual. The Architectural and bldg. press, New York

Building specifications. W. W. Clifford. Arch Forum 32:91-3 F '20

Composition of a specification. Am Arch 120:158-60 Ag 31 '21

Construction of a specification. Am Arch 120:89-91, 123-6 Ag 3-17 '21

Department of specifications. See semi-monthly numbers of American architect

Specification clauses. F. W. Grant. Am Arch 118:279-80 S 1 '20

Specification writer and manufacturers' literature. Eng & Contr 54:429 O 27 '20

Standard specifications helpful to the municipal engineer. G. S. Webster. Eng N 87:25-6 Jl 7 '21

See also Building contracts

Standards

Factory production applied to housing. Am Arch 119:62-4 Ja 19 '21

Necessity for National building code. W. P. Tienken. Bldg Age 43:29 Ag '21

Sectional unit factory. il Sci Am 123:550+ N 27 '20

Standardization and the American institute of architects. Am Arch 117:578-80 My 12 '20

Standardization in construction; abstracts. E. T. Trigg. Eng & Contr 52:730-1 D 24 '19; Am Arch 116:827-30 D 31 '19; Concrete 16:99-101 F '20

Standardization of parts in house construction. D. K. Boyd. Am Arch 119:200-1 F 23 '21

Urge standardization in building industries. Iron Age 105:955-7 Ap 1 '20

See also Elevators—Standards

Statistics

See Building trades—Statistics

Tables, calculations, etc.

Calculating the size of timber beams and steel girders. E. I. Freese. diag Bldg Age 42:48-52 Ag '20

Calculation of entasis. J. T. Tubby. diags Am Arch 119:550-1 My 11 '21

Diagram for flat slab design. O. Wolpert. chart Eng & Contr 54:411 O 27 '20; Same. Concrete 17:142-3 N '20

Estimating hollow tile. diag plan Bldg Age 43:63-4 Mr '21

Labor hours per output unit in building construction. F. E. Barnes. Eng N 86:888-91 My 26 '21

Quick method of calculating strength of timber posts, struts or columns. E. I. Freese. Bldg Age 41:355-6 N '19

Short cuts to accurate calculations. E. I. Freese. diag Am Arch 118:416-18 S 29 '20

Standard test for schoolhouse design and construction. F. I. Cooper. Am Arch 118:9-10, 13-14 Jl 7 '20

See also Concrete, Reinforced; Concrete construction—Design

Unit system

See Building—Standards

Building, Brick. See Brick construction

Building, Cooperative

Co-operative method of financing buildings. Arch Forum 32:128-9 Mr '20

Organized labor's experiment in cooperative building. B. Peterson. Eng & Contr 55:85-6 Ja 26 '21

See also Housing projects, Cooperative

Building, Mill construction

New Tillotson mill; built in 66 working days. il Textile World 57:2539 Ap 3 '20

Building accidents

Accidents to structural iron workers. Eng & Contr 55:516 My 25 '21

Cost of injured men in construction operations. F. A. Davidson. Eng & Contr 54:62-3 Jl 21 '20; Same cond. Pub Works 49:175 Ag 21 '20

Erection derrick falls with steel framework of school. diags Eng N 85:1294 D 30 '20

Hospital service and expenses in construction. J. P. Cleary. Eng N 85:692 O 7 '20

Progress made in standardizing construction accident records. Eng N 85:721 O 7 '20

Standard method of recording construction accidents. Eng N 85:845-7 O 28 '20

Building accidents—Continued

Statistics of accidents in construction and demolition of buildings. P: C. Spence. Safety Eng 41:218-22 My '21

See also Building—Safety devices and measures; Building failures; Elevators—Accidents; Wrecking—Safety devices and measures

Building and loan associations

Cyclopedia of building, loan and savings association, how to organize and successfully conduct them. H: S. Rosenthal. 4th ed., rev. and enl. 500p American building assn. news co., Cincinnati, Chicago '20

Building contracts

Advantages of fixed-fee contract. Am Arch 117:237-40 F 25 '20

Advantages of the fixed-fee contract for building construction. F. A. Wells. Eng & Contr 53:329-31 Mr 24 '20

Architects view of building contracts. L. Mauran. Eng & Contr 55:195 F 23 '21

Architectural quicksands: technicality of lien procedure; supplemental agreements with contractor. C. H. Blake, jr. Am Arch 118:743-4 D 8 '20

Assignment of future payment by contractor. J: Simpson. Am Arch 117:790+ Je 23 '20

Contract clauses which disregard the square deal. F. J. Herlihy. Eng N 84:457-9 Mr 4 '20

Direct sub-contract method of building. C. S. Taylor. Arch Forum 35:31-4 Jl '21

Fixed fee basis for contract for erecting city buildings. Eng & Contr 55:94-5 Ja 26 '21

Formulating improved contract forms. Am Arch 117:749-50 Je 9 '20

Further discussion of improved contract forms. L: Cowles. Am Arch 118:419-20 S 29 '20

How do you figure contracts? D. S. Colburn. Concrete 16:196-7 Ap '20

How one consulting engineer got a job; side-lights on the business side of engineering in designing schoolhouses for the city of New York. E. E. Seelye. il diags plan Eng N 86:940-2 Je 2 '21; Discussion. E. A. Fraser. 87:161 Jl 28 '21

Important contracting questions decided in Cleveland clearwater basin suit. Eng N 86:549-52 Mr 31 '21

Keeping building costs under the cost-plus-fixed-fee contract. F. A. Wells. Bldg Age 43:28-32 F '21

Law as to architectural practice. J: Simpson. Am Arch 117:74-8 Ja 21 '20

Lump sum contract. Am Arch 116:623-6 N 19 '19

Minimizing the risk in contracting and the engineer's part therein. W: B. King. Eng N 86:227-9 F 3 '21; Same. Eng & Contr 55:160-2 F 16 '21

New emergency contract devised. Eng N 86:507 Mr 24 '21

New York contractors disapprove proposed contract provisions. Eng N 85:1028-9 N 25 '20

Owner-contractor co-operation cuts cost. R: Deming. Concrete 16:85-6 F '20

Placing of a cost-plus building contract. Arch Forum 33:190-1, 227-8 N-D '20

Practical results under fixed-fee building contracts. Arch Forum 34:224-5 Je '21

Specification clauses. F. W. Grant. Am Arch 117:303-5, 732; 118:279-80 Mr 10, Je 9, S 1 '20

Typical form of cost-plus-fixed-fee contract. Heat & Ven 17:58-60 Ag '20

What is the objective in a construction contract? F. A. Wells. Munic Eng 60:sup30-2 F '21

When is work done to owner's satisfaction? Bldg Age 43:61-2 Je '21

Working on cost plus professional charges. R. D. Kohn. Am Inst Arch J 9:275-8 Ag 21

See also Contractors; Contracts, Letting of; Heating contracts; Plumbing contracts

Building failures

Failure of steel truss support wrecks concrete dome. E: R. Bowen. il diags Eng N 86:294-6 F 17 '21; Discussion. 86:479 Mr 17 '21

Part of old nine-story brick building collapses during reconstruction; Strathmore apartment house, N.Y. il diag Eng N 85:1155-6 D 9 '20

See also Concrete construction—Failures; Foundations—Failures

Building finance. See Building—Finance; Building, Cooperative; Building loans; Housing projects

Building fittings

Finishing hardware for the home. W. R. Hill. il Bldg Age 42:47-9 Je '20

See also Ironwork, Architectural; Sheet metal work, Architectural; Woodwork

Building guilds

British building guild—an important development of policy. G. D. H. Cole. Am Inst Arch J 9:289-91 S '21

British guildsmen and their plans; two reviews. R. A. Cram; F: L. Ackerman. Am Inst Arch J 8:373-6 O '20

Builders' guild—an experiment in altruism; prospectus of guild. Eng & Contr 55:182-3 F 23 '21

Building guilds and housing in England. Am Arch 119:304+ Mr 16 '21

Defence of the English building trades guilds. Am Inst Arch J 9:69-70 Mr '21

English building trades guilds. O. Tead. Am Inst Arch J 9:33-8 F '21 [reprinted by Bureau of Industrial research]

Great building adventure; the English building guilds at work. G. D. H. Cole. Am Inst Arch J 9:17-19 Ja '21

London guild of builders is factor in housing. C. H. S. Tupholme. Eng N 86:614 Ap 7 '21

Progress of the building guilds in Great Britain. G. D. H. Cole. Am Inst Arch J 9:177-9 My '21

Socialization schemes in the German building industry. A. Ellinger. Int Labour R 1:287-301 Mr '21

See also Building guild committee, Manchester, England

Building guild committee, Manchester, England

Bricklayers' guild scheme for Manchester. Am Inst Arch J 8:128-9 Mr '20

Building inspection

Duties of bridge and building inspectors. H. George. Elec Ry J 57:135-6 Ja 15 '21; Same. Eng & Contr 55:191-2 F 23 '21

Inspection of construction in concrete and steel. E. E. Seelye. Am Arch 120:163-7 Ag 31 '21

Municipal and private building inspection. F. P. Cartwright. Eng N 87:195-7 Ag 4 '21

See also Elevators—Inspection

Building laws and regulations

Are apartments necessary? Am Arch 118:78 Jl 21 '20

Bill to register builders in New York city. Eng N 86:444 Mr 10 '21

Building code. 133p Issued by Industrial commission of Wisconsin, Madison '20

Building zones for Newark. maps Munic J 47:290-2, 310-12 N 15-22 '19

Codes extravagant with house-building materials. F. W. Lumis. Concrete 16:140-2 Mr '20

Codes show great divergence in concrete unit stresses. Concrete 17:213-14 D '20

Concrete house and its status as regards building codes. F. W. Lumis. Arch & Bldg 52:76-7 Ag '20; Excerpt. Eng & Contr 53:497 Ap 28 '20

High buildings on narrow streets. H. W. Corbett. il diags Am Arch 119:603-8+ Je 8 '21

How tax exemption helps home builders in New York. E: A. MacDougall. Bldg Age 43:25 Ap '21

Majority of cities have no building code. R: G. Kimbell. Am Arch 120:293-4 O 12 '21

May condemn for residential district in St Paul, Minneapolis and Duluth. Eng N 84:571 Mr 18 '20

Need for standardization of building codes. D. K. Boyd. Eng & Contr 55:622 Je 22 '21; Same. Arch & Bldg 53:77-8 O '21

Building laws and regulations—Continued

- New city zoning ordinance of Alameda, California. C: E. Hewes. Eng N 83:46-7 Ja 1 '20
- New type of building ordinance. J: I. Bright. Am Inst Arch J 8:132-3 Mr '20
- New York city adopts rules governing reinforced concrete flat slab design and construction. diags Am Arch 118:89-93 Jl 21 '20; Same abr. Eng & Contr 54:89-91 Jl 28 '20; Same. Eng N 85:300-2 Ag 12 '20
- New York zoning resolution and its influence upon design. J: T. Boyd, jr. il plans Arch Rec 48:192-217 S '20
- Official Worcester building and plumbing ordinances relating to building inspection, fire protection, plumbing inspection, supervision of wires, etc., 1921. A. W. Harris, comp. 247p A. W. Harris, Providence, R.I. '21
- Ordinance for construction of chimneys proposed by the National board of fire underwriters. Am Soc Heat & V E J 27:25-8 Ja '21; Discussion. 27:200-5 Mr '21
- Reduction of girder and column live loads. C. R. Young. diags Can Eng 39:565-9 D 2 '20; Same. Eng & Contr 54:610-13 D 22 '20
- Regulations of building heights in Chicago. Am Arch 117:768 Je 16 '20
- Results from tax-exemption. Arch Forum 34:150 Ap '21
- Safety requirements for loading roof trusses during construction. J. J. Rosedale. Eng & Contr 53:706 Je 23 '20
- Should the builder be licensed? C. A. Crane. Eng & Contr 55:80-1 Ja 26 '21
- Should the builder be licensed? O. W. Rosenthal. Eng & Contr 54:621 D 22 '20
- Unwise building laws—written and unwritten. G. Atterbury. Am Arch 119:90-1 Ja 26 '21
- Why not a nation-wide building code? research work of the Bureau of standards. G: H. Dacy. il Sci Am 125A:42-3 N '21
- Zoning regulations in New York. T: Hastings. Am Arch 118:461-3 O 13 '20
- See also* Building contracts; Building inspection; Building loans; City planning—Zone system; Elevators—Law; Federal building loan bill; Heating—Laws and regulations; High buildings; Housing laws; Liens; Mechanics' liens; Plumbing laws and regulations

Building loans

- Building loan system developed by the Metropolitan life ins. co. W. Stabler. il Bldg Age 43:26-7 Ap '21
- Calder bill to aid housing. Dom Eng 94:227+ Ja 22 '21
- Construction industries association's views on labor report and housing loan. Can Eng 40:208-9 F 10 '21
- Federal building loan bank bill an aid to America's industrial housing problem. L. S. Smith. Eng & Contr 54:601-3 D 22 '20
- Financing building operations. G. P. Woodruff. Bldg Age 42:31-2 Ja; 35-7 F '20
- Financing of apartment house projects. Arch Forum 31:195-200 D '19
- Getting building funds from the Savings loan association. il Bldg Age 43:47 Jl '21
- Plans for financing home building projects. il Dom Eng 90:381-2 F 21 '20
- Proposed federal legislation to stimulate construction. Eng & Contr 55:426-7 Ap 27 '21
- Situation regarding building loan money. Arch Forum 32:163 Ap '20
- Special banks for home owners. Comm & Fin Chr 111:2174 D 4 '20
- Title guarantee and trust company aids housing in New York. Bldg Age 43:38 S '21

See also Trustees system service corporation

Building materials

- Asbestos in architecture. R. G. Skerrett. il Sci Am 123:572+ D 4 '20
- Blast furnace slag. R: Gruen. Sci Am 125:273+ O 15 '21
- Construction materials and machinery in Argentina and Bolivia. W. W. Ewing. il U S Bur For & Dom Com 188:1-192 '20
- Construction materials and machinery in Brazil. W. W. Ewing. il U S Bur For & Dom Com 192:1-96 '20

Deterioration of materials used in harbour construction. Engineering 109:584-7 Ap 30 '20; Same cond. Eng & Contr 53:733-6 Je 30 '20

Newly patented cheap building material. Sci Am 124:47 Ja 15 '21

Relative heat conductivities of some building materials. Am Arch 119:78 Ja 19 '21

Valuable information on building materials made available through work of trade associations. W. Clay. Am Arch 117:563-8 My 5 '20

See also Adobe; Asbestos; Balsa wood; Bamboo; Bishopric board; Bricks; Building stone; Cement; Cinders; Coke breeze; Concrete; Concrete, Reinforced; Concrete blocks; Concrete brick; Concrete slabs; Concrete stone; Concrete tile; Fire-resisting materials; Glass; Gravel; Gunite; Gunite slabs; Gypsum; Gypsum, Reinforced; Hollow tile; Iron; Laths; Lime; Limestone; Metal lath; Mortar; Pisé; Plaster and plastering; Plywood; Roofing; Shingles; Steel, Structural; Stone, Artificial; Strength of materials; Stucco; Terra cotta; Tile; Timber; Wall board; Wood

Advertising

What advertising is doing for home architecture of America. R. R. Updegraff. il plan Ptr Ink M 3:19-21+ O '21

Bibliography

Selected list of manufacturers' literature. Published monthly in the Service section of the Architectural forum

Selective bibliography: cost and supply of building materials. In U.S. Div. of Public Works and Construction Development. Economics of the construction industry. 1919. p. 249-58

Prices

- Building material prices. Bldg Age 43:52-3 Je '21
- Building material prices in 1921. W. I. King. Arch Rec 49:66-70 Ja '21
- Construction news. See weekly numbers of Engineering news-record
- Future prices of construction materials. Eng & Contr 56:121-2 Ag 10 '21
- Monthly prices of construction materials. See first issue of each month of the Engineering news-record
- Outlook as to building material costs in 1921. A. R. Kriechbaum. Am Arch 119:19-20 Ja 5 '21
- Prices of construction materials. Eng & Contr 54:504-5 N 24 '20
- Prices of materials of construction. Pub Works 49:417-19 O 30 '20
- Rail breakdown blow to building. Iron Tr R 68:892 Mr 31 '21
- Retail price quotations. Arch Forum 34:sup 85-92 Ja '21
- Six-year comparison of wholesale commodity prices and building materials costs. H. E. Keyes. Eng N 86:446 Mr 10 '21
- Spring prices of construction materials since 1913. Eng N 86:402 Mr 3 '21
- Steadying the material market. A. E. Wells. Concrete 16:192-3 Ap '20
- Variations in material prices and wages during 1920. charts Heat & Ven 18:59-60 F '21
- When will building costs be lower? Heat & Ven 17:51-3 N '20
- Wholesale prices of building materials. Monthly Labor R 12:544-5 Mr '21

Specifications

See Building—Specifications; Steel—Specifications

Testing

- Heat transmission through building materials and heat loss from buildings. L. A. Scipio. plan Am Soc Heat & V E J 27:297-301 Ap '21; Same. Dom Eng 95:405-6 My 28 '21; Excerpt. Heat & Ven 18:50-1 My '21
- Laboratory manual of testing materials. 2d ed. W: K. Hatt. 178p McGraw-Hill '20
- Thermal conductivity of building materials. C. Schroeder. diags Sci Am M 3:243-4 Mr '21

Building materials—Testing—Continued

Why not a nation-wide building code? research work of the Bureau of standards. G: H. Dacy. *il Sci Am* 125A:42-3 N '21

Building officials' conference

Occupancy and standardization of buildings discussed at Cleveland conference. *Eng N* 86:775-6 My 5 '21

Building stone

How and when to use stone for foundation work. J: Upton. *diags Bldg Age* 43:43 Ag '21

How to lay stone. V: D. Abel. *il Bldg Age* 41:358-60, 395-8; 42:25-30 N '19-Ja '20

Ledge stone house. E. S. Wills. *il Am Arch* 117:67-73, pl 16-24 Ja 21 '20

Preliminary report of exposure tests on colorless waterproofing materials. *Am Arch* 120:248-51 S 28 '21

Stones and quarries. I. A. Howe. (Common commodities and industries series) 137p Pitman '20

See also Concrete stone; Granite; Limestone; Marble; Quarries and quarrying; Stone, Artificial

Cleaning

Building injured by cleaning acids. *Am Arch* 117:823-4 Je 30 '20

Building trades

American engineering council's committee reports on elimination of waste in building industry. *Eng & Contr* 56:92-4 Jl 27 '21

Architecture and craftsman. W. R. B. Willcox. *Am Inst Arch J* 9:244-6 Jl '21

Building industry; from a report of committee of American engineering council. *Paper* 28:23-5 Ag 10; 11+ Ag 17 '21

Building wages. *Am Arch* 120:252 S 28 '21

Debate on the relations of the architect to client, draftsman and builder. *Am Arch* 117:681-7 Je 2 '20

Descriptions of occupations; building and general construction. p 48-91 '18 U.S. Bureau of labor statistics, Washington, D.C.

Elimination of construction wastes. G: W. Burpee. *Chem & Met Eng* 25:394-6 Ag 31 '21

Elimination of waste in building industry. S. E. Thompson. *Eng & Contr* 55:422-4 Ap 27 '21

Elimination of waste in the building industry. D. K. Boyd. *Heat & Ven* 18:50-1 Ag '21

\$500,000,000 a year lost in wages in building industry through unemployment. *Comm & Fin Chr* 113:490-2 Jl 30 '21

Good salesmanship and service will bring business to the builders. R. F. Salade. *Bldg Age* 42:27-8 Jl; 55-6 Ag '20

Industrial expansion heralds future prosperity. W. M. Rooney. *il chart Iron Tr R* 66:48-52 Ja 1 '20

Industrial peace in the building trades. *Heat & Ven* 17:56 N '20

Irregular employment in the building industry. *Monthly Labor R* 13:165-8 Jl '21

Plan for reducing unemployment in the building industry. D. K. Boyd. *Eng & Contr* 55:608 Je 22 '21

Plant expansion in 1921 will be ruled by normal needs of industry. W: M. Rooney. *il Iron Tr R* 68:29-31 Ja 6 '21

Production via curtailment. F: L. Ackerman. *Am Inst Arch J* 9:264-5 Ag '21

Relationship between architecture and building. L: J. Horowitz. *Am Arch* 119:2-3 Ja 5 '21

Selling construction to labor. M. Bloomfield. *Eng & Contr* 55:91 Ja 26 '21

Sources of waste in building industry. *Iron Age* 108:347-8 Ag 11 '21

Start the building ball rolling. *Bldg Age* 43:30-1 Mr '21

Strikeless building industry. S. W. Jones. *Am Inst Arch J* 9:157-60 My '21

Suggestions for increasing the builders' business. R. F. Salade. *Bldg Age* 42:62-4 S '20

Truth shall make you free; need of cooperation. L. K. Comstock. *Am Inst Arch J* 8:429-31 D '20

Unemployment costs building trades half billion annually. *Bldg Age* 43:41-2 Ag '21

Wage differential for building trades mechanics. *Eng N* 86:1098 Je 23 '21; Same. *Am Arch* 120:131 Ag 17 '21

Wages in building trades in U.S. and foreign countries. *Eng & Contr* 56:301 S 28 '21

Waste in the building industry. F: L. Ackerman. *Am Inst Arch J* 9:303+ S '21

What is the situation in the building industry? *Bldg Age* 43:32-4+ Mr '21

When will construction costs be lower? *Paper* 26:9-10+ S 1 '20

See also Bricklayers; Builders' associations; Building guilds; Building loans; Contractors; Plumbing trade; *also* National board for jurisdictional awards

Advertising

Advertising to market a professional service. S. C. Lambert. *Ptr Ink* 111:41-2+ Je 10 '20

Here's a builder who gets big jobs—and tells how he does it. W. P. Anderson. *il Bldg Age* 43:22-3 Ag '21

How to prepare ads that build business. R. Watson. *Bldg Age* 43:48-9 Jl '21

How we make folks realize that prices have dropped. A. W. Overholt. *Ptr Ink* 115:69-70+ Je 23 '21

See also Lumber trade—Advertising

Exhibitions

Building exhibition at Olympia. *Engineering* 109:518-19, 556-7 Ap 16-23 '20

Building trades exhibition at Olympia. *Engineering* 111:462-3, 496-7, 516-17 Ap 15-29 '21; *Elec R (Lond)* 88:510 Ap 22 '21; *Engineer* 131:440 Ap 22 '21

Statistics

Building operations in the United States. *Monthly Labor R* 11:424-8 F '21

Canada

Construction industries conference at Ottawa. *Can Eng* 38:212-16 F 12 '20

Construction industries third conference at Winnipeg. *Can Eng* 40:159-65 Ja 27 '21

Housing conditions in foreign countries. *Monthly Labor R* 13:181-90 Jl '21

Need for organization of the construction industry in Canada. J. P. Anglin. *Can Eng* 38:227-8 F 19 '20

Organization and activities of the National joint conference board of the construction industries. R. J. Fuller. *Can Eng* 40:187-90 F 3 '21

Cedar Rapids, Iowa

Building trades adjustments in Cedar Rapids, Iowa. *Monthly Labor R* 13:388-92 Ag '21

Chicago

Building situation in Chicago. *Am Arch* 118:666-7 N 24 '20

Chicago building trades wages reduced. *Eng N* 87:467 S 15 '21

Judge Landis' decision in Chicago building trades controversy; text. *Eng & Contr* 56:316-17 S 28 '21

Judge Landis gives Chicago building trades twelve and one-half per cent cut. *il Bldg Age* 43:52-4+ O '21

Landis cleans house in building industry; text of decision. *Brick & Clay Rec* 59:413-16 S 20 '21

Wages in Chicago building trades reduced by award of Judge Landis—strikes in protest. *Comm & Fin Chr* 113:1425-7 O 1 '21

Working of article three resulted in a virtual monopoly in mill work in favor of Chicago union mill concerns. B. G. Anderson. *Am Ind* 22:21+ S '21

Germany

Socialization schemes in the German building industry. A. Ellinger. *Int Labour R* 1:287-301 Mr '21

Building trades—Continued

Great Britain

- Bricklayers' guild scheme for Manchester (England). Am Inst Arch J 8:128-9 Mr '20
- Britain suggests team spirit plan for building trades. Eng N 83:1000-1 D 11 '19
- Building guilds and housing in England. Am Arch 119:304+ Mr 16 '21
- Causes of increased cost of building in Great Britain. C: T. Ruthen. Eng & Contr 53:747-8 Je 30 '20
- Employment in the British building trade. Int Labour R 2:48-55 Ap '21
- An industry cleared for action. Am Inst Arch J 8:266-8 Jl '20
- Progress of the building guilds in Great Britain. G. D. H. Cole. Am Inst Arch J 9:177-9 My '21
- Rates of wages in building trades of selected British cities, 1914 and 1920. Monthly Labor R 12:588-9 Mr '21
- Self-government in the building industry in Great Britain. Monthly Labor R 11:792-7 O '20
- Wages in British building trades in specified years, 1252 to 1920. Monthly Labor R 11:968-9 N '20

See also Building guilds

New York (city)

- Blot on the escutcheon. F: L. Ackerman. Am Inst Arch J 8:428-9; 9:4-7, 38-40, 48-50, 72-3 D '20-Mr '21
- Disclosures in the buildings trades by the Lockwood committee. C. A. Crane. Comm & Fin Chr 111:2105-6 sec 1 N 27 '20
- General increase of \$1 a day granted in New York building trades. Comm & Fin Chr 110:1814-16 My 1 '20
- New York building trades employees granted increase. Bldg Age 42:52 Je '20
- Samuel Untermeyer's termination of inquiry into building trades. Comm & Fin Chr 112:2493-4 Je 11 '21
- Union wages in the principal building trades in New York city—1914 and 1920; tabulation. Concrete 17:146 N '20
- Untermeyer decision; findings of the arbitrator of the differences between the building operators and organized labor of Westchester county, N.Y. Sanitary & Heat Eng 96:171-3+ S 9 '21

Philadelphia

- Building survey made by Philadelphia housing association. Eng N 87:212 Ag 4 '21
- Building trades employer and employee in joint conference at Philadelphia see need for co-operation. Eng N 86:361 F 24 '21; Iron Age 107:540 F 24 '21
- Report of Sub-committee on wages and building costs to General committee of employers in the building trades of Philadelphia, approved Feb. 7, 1921. 32p General committee of employers in the building trades of Philadelphia '21

San Francisco

- Arbitration agreement of San Francisco building contractors and workers. Eng & Contr 55:190 F 23 '21
- San Francisco turns open shop. W: C. Wren. Am Ind 22:27-8 O '21

United States

- Bill of rights. K. M. Landis. Eng & Contr 56:74-5 Jl 27 '21
- Building construction in 1920. Eng & Contr 56:314 S 28 '21
- Building forecast for 1920. P. F. Ayer. Textile World 57:3507+ My 8 '20
- Building in the first half of 1921. Monthly Labor R 13:646-50 S '21
- Building industry in the United States. J: I. Bright. Am Inst Arch J 8:307-10 Ag '20
- Building operations, first quarter of 1920. Comm & Fin Chr 110:1689-90 Ap 24 '20
- Building operations, first quarter of 1921. Comm & Fin Chr 112:1805-6 Ap 30 '21
- Building operations in June and the half-year. Comm & Fin Chr 113:575-6 Ag 6 '21
- Building operations in 1919. Comm & Fin Chr 110:603-5 F 14 '20

- Building operations in 1920. Comm & Fin Chr 112:1075-8 Mr 19 '21
- Building operations in 1920 and forecast for 1921. Bldg Age 43:60 F '21; Same, without table. Eng & Contr 55:95 Ja 26 '21
- Building operations in representative cities, 1914 to 1920. Monthly Labor R 13:175-80 Jl '21
- Building plans in July and since January 1. Comm & Fin Chr 111:834-5 Ag 28 '20
- Building prospects for 1920. M. C. Tuttle. Eng & Contr 53:597-8 My 26 '20; Same. Concrete 16:259-60 Je '20; Same. Factory 25:227-8 Jl 15 '20
- Building situation. Brick & Clay Rec 59:664-6 N 1 '21
- Building trade wages in Middle West. Concrete 16:269 Je '20
- Building values, material prices and rates of wages. W. N. Patten. Eng & Contr 55:517-18 My 25 '21
- Business conditions in relation to construction. Eng N 86:14-16 Ja 6 '21
- Calder report on the building situation. Monthly Labor R 12:1212-16 Je '21
- Clay-working industries, silica brick, and building operations in the lower cities in 1918. J. Middleton. U S Geol S Min Res of U S 1918,pt 2:926-44 '20
- Closed or open shop policy for construction labor? C: F. Dingman. Eng & Contr 54:618-19 D 22 '20
- Confidence and production the need of the construction industry. B. F. Affleck. Eng & Contr 54:614-15 D 22 '20
- Construction one of the basic industries of the country. Eng & Contr 56:7-9 Jl 6 '21
- Construction outlook forecast smallest volume since 1910 and 1911; comparative volume of building construction, 1910-1920. P. F. Ayer. Annalist 17:348 Mr 21 '21
- Construction situation as viewed by an architect. C: A. Dieman. Eng & Contr 56:313 S 28 '21
- Construction volume index number compiled. Eng N 87:670-1 O 20 '21
- Contracts let for first six months of 1921 have total value of \$579,249,777. Eng N 87:40 Jl 7 '21
- Co-operation in the building industry. L. K. Comstock. Eng & Contr 54:610 D 22 '20
- Employment relations in the construction industry; report of committee on labor of Associated general contractors at annual meeting. Eng N 86:225-7 F 3 '21; Excerpt. (Statute of employment relations). Eng & Contr 55:165-6 F 16 '21
- Encouraging conditions in building construction field. Arch Forum 33:147-9 O '20
- Federal reserve board's report on building activities during 1920. Eng N 86:253 F 10 '21
- Federal views toward building trades. H. Hoover. Am Arch 119:598-600 My 25 '21
- Forecast of building conditions during the coming season. Arch Forum 32:127 Mr '20
- Hourly wage scales in the building trades, April 30, 1921. Monthly Labor R 12:1173-5 Je '21
- Housing situation and the way out. L. Veiller. Arch Rec 48:531-4 D '20
- Human difficulties predominant in building trades wastes. H. Tipper. Automotive Ind 45:232-3 Ag 4 '21
- Immigration and the construction industry; labor shortage not yet relieved. Eng N 85:642-3 S 30 '20
- Irregular employment, inefficient management, labor rules cause waste in building according to report of American engineering council. Eng N 87:169-71 Jl 28 '21
- Jurisdictional disputes in the building industry. S. W. Jones and L. E. Kern. Am Inst Arch J 8:169-70 Ap '20
- Labor cost and the rental harvest. G: T. Bain. Am Ind 21:9-11 Ag '20
- More apprentices needed in building trades. W: M. Calder. Eng & Contr 55:92 Ja 26 '21
- National board for jurisdictional awards in the building industry. Am Arch 118:360-2 S 15 '20
- National board of jurisdictional awards. E. J. Russell. Am Arch 117:429-30 Ap 7 '20

Building trades—United States—Continued

- Normal magnitude of the construction industry and how to restore it. Eng & Contr 56:297-8 S 28 '21
- Obstacles to construction operations. D. E. Conners. Pub Works 50:58-9 Ja 15 '21
- Opportunities for progressive builders. R. F. Salade. Bldg Age 42:54-5 O; 57-8 N '20
- Plan for settlement of jurisdictional claims in the building industry. Monthly Labor R 11:248-50 Ag '20
- Present and future of the building industry. Eng N 86:917-18 My 26 '21
- Present situation in building industry. H. H. Fox. Textile World 58:1031+ Ag 14 '20
- Prevailing wage scales in the building trades on Dec. 31, 1920. Monthly Labor R 11:323-5 F '21
- Prices and their trend in the construction industry. J. Whyte. Concrete 17:158 N '20
- Probable quantity of construction in 1920. P. F. Ayer. Concrete 16:191 Ap '20
- Rate of wages per hour in the building trades, May, 1920. Monthly Labor R 11:737-49 O '20
- Recent agreements in building trades. Monthly Labor R 10:451-5 F '20
- Relation of union schedules to building operations. W. J. Barney. Eng N 86:886-7 My 26 '21
- Responsibility of organized labor for the stagnation in the building industry. C. R. Gow. Boston Soc C E J 8:129-55 Ap '21; Same. Eng & Contr 55:611-17 Je 22 '21; Excerpts. Eng N 86:991-3 Je 9 '21
- Review of building activity in 1919. il map Arch Forum 32:3-8 Ja '20
- Review of building operations shows progress. Elec R 78:623-4 Ap 16 '21
- Senate committee submits preliminary report on construction industry. Dom Eng 94:130-2+ Ja 15 '21
- Ten years' building and housing activity in New York. Eng N 85:598-9 S 23 '20
- Trends in management; how much construction in 1921? W. Compton; G. M. Reynolds. Factory 26:604-6 Mr 1 '21
- Unemployment as it affects the building trades. E. S. Bradford. Eng N 87:710-11 O 27 '21
- Wage advances in building trades 1914 to 1920. Eng & Contr 55:428 Ap 27 '21
- Wage scales in the building trades. Monthly Labor R 13:599-607 S '21
- Wage scales in the building trades prevailing September 30, 1921. Bldg Age 43:58 N '21
- Wages in building trades in western cities. Eng & Contr 53:324 Mr 24 '20
- Wages scale of building mechanics in effect February 25, 1921; tabulation. Sheet Metal Worker 12:237 Ap 29 '21
- What is the industry going to do about it? Am Arch 119:137-45 F 9 '21
- What is the matter with the building industry? Am Inst Arch J 8:427-8; 9:53-4 D '20, F '21
- What is the matter with the building industry? Am Arch 118:659-65 N 24 '20
- Will construction soon decline? L. C. Wason. Concrete 17:97-8 S '20

Building zones. See City planning—Zone system

Buildings

See also Architecture; Bank buildings; Building; Building failures; Buildings, Standard; Capitol buildings; Chain stores; Churches; College architecture; College buildings; Community centers; Concrete buildings; Courthouses; Department stores; Exits; Factories; Farm buildings; Foundries; High buildings; Historic houses; Hotels; Industrial buildings; Machine shops; Market buildings; Mercantile buildings; Mine buildings; Municipal buildings; Office buildings; Public buildings; Railroads—Buildings and structures; Schoolhouses; Store buildings; Theaters; Warehouses; Young women's Christian association buildings

Cleaning

See also Building stone—Cleaning

Buildings, Industrial. See Industrial buildings

Buildings, Portable

See also Garages, Portable

Buildings, Standard

Standardized small houses. M. D. Morrill. il diags plans Bldg Age 42:19-25, 41-3 Je '20

Standardized steel buildings compose Syracuse jobbing plant. il Nat Pet N 13:65-6 S 7 '21

See also Building—Standards

Bulgaria

See also Labor and laboring classes—Bulgaria

Industries and resources

Deposits of oil shale in Bulgaria. Eng & Min J 109:1274 Je 5 '20

Water power and irrigation projects in Bulgaria. Engineer 131:320 Mr 25 '21

See also Automobile industry and trade—Bulgaria; Tractor industry and trade—Bulgaria

Bulkheads

Bulkhead for retaining coal piles. il Coal Age 17:611 Mr 25 '20

Concrete mine-bulkhead. T. Blandford. Min & Sci P 120:536 Ap 10 '20

Creosoted timber bulkhead for embankment protection on L. & N. R. R. diags Eng & Contr 54:493 N 17 '20

Effective design for wood bulkhead to hold fill on soft bottom. diag Eng N 86:1048 Je 16 '21

Low cost concrete bulkhead. H. Abbott. il diag Eng & Contr 52:726 D 24 '19

Timber and concrete bulkhead. F. Hutchinson. diag plan Eng & Min J 109:603 Mr 6 '20

Waterfront bulkhead construction at two lake cities; Chicago and Milwaukee. diags Eng N 87:614-16 O 13 '21

Wood Island bulkhead. il diags Pub Works 51:118-19 Ag 6 '21

Bulkheads (naval architecture)

Bulkheads. C. H. Peabody. Int Marine Eng 25:566-8 Jl '20

Deflections of bulkheads and of ships. A. M. Robb. diags Engineering 111:407-10 Ap 1 '21; Excerpts. Engineer 131:344 Ap 1 '21; Discussion. Engineering 111:385 Ap 1 '21; Engineer 131:344 Ap 1 '21

Spacing of transverse bulkheads. K. G. Finlay. diags Engineering 111:403-5 Ap 1 '21; Excerpts. Engineer 131:343 Ap 1 '21; Discussion. Engineering 111:384 Ap 1 '21; Engineer 131:343-4 Ap 1 '21

Bull Run Lake. See Portland, Oregon—Water supply

Bullard, William Hannum Grubb, 1866-

Admiral Bullard offered the initial suggestion that led to the formation of a great combination of radio interests. por Wireless Age 8:13-14 F '21

Bullard machine tool company

Benefits of details in plant management. H. Tipper. Automotive Ind 42:34-5 Ja 1 '20

Bonus plan that works. F. H. Colvin. Am Mach 52:1137-9 My 27 '20

Decreasing labor cost despite the prevalent unrest. H. Tipper. Automotive Ind 41:1082-3 N 27 '19

Organization plan that typifies modern management. S. H. Bullard. Ind Management 60:441-4 D 1 '20

Bulldozers. See Forging machinery**Bulletin boards**

Bulletin board education in forge shop. J. H. Lloyd. Iron Age 107:209-10 Ja 20 '21; Same. Eng & Ind Management 5:608-9 My 26 '21

Photographs on the shop bulletin board. F. H. Williams. Am Mach 53:77 Jl 8 '20

Safety campaigns and others, put over like advertising. E. A. Hunger. Ptr Ink 113:150+ N 25 '20

Bulletins

Bulletin boards that are always on the job; cards on every machine. il Factory 25:33 Jl 1 '20

Bullion. See Gold

Bump, Milan Raynard, 1881-
President of N.E.L.A. por Elec Ry J 57:1150
Je 18 '21; Elec R 78:891 Je 4 '21; Elec W
77:1280 Je 4 '21

Bumpers. See Buffers (railroad)

Bumstead, Henry Andrews, 1870-
Sketch. L. Page. por Am J Sci 5th ser 1:
469-76 Je '21

Bungalows

Attractive layout for five room bungalow. il
Bldg Age 43:51 O '21
Attractive stucco bungalow. C: A. Byers.
il plan Bldg Age 43:57 J1 '21
Block and stucco bungalows at Riverside,
Ill. il diags Concrete 16:24, 47-8 Ja '20
Book of bungalows. R. R. Phillips. 160p Of-
fices of Country life, ltd., London; Scrib-
ner '20
Bungalow not an economical home. diags
Can Eng 39:308 S 2 '20
Bungalow with four front doors. C: A. By-
ers. il plan Bldg Age 43:56-7 F '21
Bungalows for \$5000 popular with home
builders. il plans Bldg Age 43:19-20 S '21
Colonial bungalow in California. il diags
plan Bldg Age 43:26-9 Ja '21
Cozy colonial bungalow. il plan Bldg Age
41:385-6 D '19
Development of the bungalow. il plans Bldg
Age 42:27-31 N '20
Economically planned bungalow. C: Balma.
il plan Bldg Age 43:25+ My '21
Four room bungalows with the convenience
of six rooms. il plans Bldg Age 43:21-2 O '21
Inexpensive bungalow-court. C: A. Byers.
il plans Bldg Age 42:32-3 O '20
Little book of bungalows and cottages. C: V.
Boyd, comp. 32p Woman's home companion,
New York '21
Modern bungalow court. A. Marple. il Bldg
Age 42:19-22+ Mr '20
Perspective of half timbered bungalow at
Nutley, N.J. Arch & Bldg 52:Dwelling house
series 1 Mr '20
Reinforced concrete bungalow supported by
round columns. B. R. Canfield. il diags plan
Concrete 18:146-7 Mr '21
Select California bungalows. 64p G. P. Tell-
ing, Pasadena, Calif. '21
Servantless house on one floor. il plan Con-
crete 18:121 Mr '21
Southern bungalow, Norfolk, Va., the resi-
dence of Clarence A. Neff, esq.; views and
plan. Arch Forum 32:47 Ja '20
Stone bungalow at Narberth, Pa.; view and
plans. Bldg Age 42:40 F '20
Stucco bungalow in Texas. il plan Bldg Age
42:44 N '20
Thatched-roof bungalow. C: A. Byers. il
plan Bldg Age 43:58-9 Ja '21
Two bungalows. il plans Bldg Age 43:51 S '21
Typical bungalow erected at Los Angeles,
Cal.; view and plan. Bldg Age 42:43 Mr '20
Unusual bungalow of colonial design; resi-
dence of John R. Pushee. Southern Pines,
N.C. il plans Bldg Age 43:19-21 N '21
See also Log cabins

Bunk-houses. See Houses, Portable

**Bunker Hill & Sullivan mining and concentrat-
ing company**

Bunker Hill enterprise. T. A. Rickard. diags
plans Min & Sci P 120:703-9, 791-8 My 15,
29 '20

Bunker Hill mine. See Mines and mineral
resources—Idaho

Bunsen burner

Bunsen burner in rubber repair. A. C. Squires.
diag India Rubber W 62:513 My '20

Buoys

Buoy-laying in the St Lawrence. J. G. Mac-
Phail. il Pop Mech 35:74-6 Ja '21
Buoy with new gas mantle gives light for a
year. il Pop Mech 35:543-4 Ap '21
Torpedolike buoy is efficient life-saver. il Pop
Mech 35:321 Mr '21

Burch, Albert, 1867-

Mining engineers of note. por Eng & Min J
112:258 Ag 13 '21

**Bureau for the safe transportation of ex-
plosives and other dangerous articles**

Annual report. Ry Age 70:1174 My 20 '21

Bureau of explosives. Ry R 66:350-2 F 28 '20

Bureau of advertising. See American newspaper
publishers association—Bureau of advertis-
ing

Bureau of explosives. See Bureau for the safe
transportation of explosives and other dan-
gerous articles

Bureau of locomotive inspection. See Inter-
state commerce commission—Bureau of
locomotive inspection

Bureau of safety. See Interstate commerce
commission—Bureau of safety

Burets

Weight buret for gas analysis. E. R. Weaver
and P. G. Ledig. diags Am Chem Soc J
42:1177-85 Je '20

Burglar alarms

Alarm in security satchell to foil the hold-up
man. il Sci Am 125:226 S 24 '21

Alarm systems offer opportunity for new
wiring business. E. R. Murray. diags J
Elec 47:269-70 O 1 '21

Bank burglar alarm works on open circuit.
il Pop Mech 36:392 S '21

Burglar alarm designed to confuse an ex-
pert. C. M. Crouch. diag Pop Mech 34:454
S '20

Carrying case for money bearer has alarm
lid. il Pop Mech 36:704 N '21

New burglar alarm phones to police depart-
ment. il Pop Mech 36:34 J1 '21

Burglar traps

Automatic door closer traps bank robbers. il
Pop Mech 34:493 O '20

Burial

Funeral management and costs; a world sur-
vey of burial and cremation. Q. L. Dowd.
295p University of Chicago press, Chicago
'21

Burke, James, 1873-

Portrait. Elec W 78:552 S 17 '21

Burlap

Burlap supplants boxes for shipping. Iron Tr
R 66:1410 My 13 '20

Burma

See also Mines and mineral resources—
Burma

Burners, Gas. See Gas burners

Burners, Oil. See Oil burners

Burners, Tar. See Tar burners

Burning of clay products. See Clay products

Burns and scalds

Acid and alkali burns. Brass W 17:178 Je
'21

Treatment of acid and alkali burns. D. M.
Goetschius. Chem & Met Eng 24:868 My 18
'21

Treatment of acid and alkali burns. M.
Sherrill. Chem & Met Eng 25:4-5 J1 6 '21

Treatment of acid and alkali burns. A. K.
Smith. Chem & Met Eng 24:748-9 Ap 27
'21

Bus lighting. See Motor buses—Lighting

Busbars

Busbar bender which does quick and effective
work. R. H. N. Lockyer. diags Elec W 77:
1112 My 14 '21

Design of contacts for switches and bus-
bars; abstract. W. Höpp. Elec W 76:697 O 2
'20

Economical construction for bus compart-
ments. il diags Elec W 75:373-5 F 14 '20

Interlacing furnace transformer busbars. C. B.
Gibson. il diags plan Elec W 75:991-3 My 1
'20

Mathematical analysis of the mechanical
forces acting on switches and busbars. L.
B. W. Jolley. diags Electrician 85:646-7,
676-7 D 3-10 '20

Method of supporting vertical run of very
heavy bus. E. L. Bragdon. il Elec W 77:
1435 Je 18 '21

Buses, Motor. See Motor buses

Bush buildings, London

Architecture of the Bush buildings. H. W.
Corbett. il diags plan Am Arch 120:33-40,
48g-o J1 20 '21

Bush terminal building in London. il Am Arch
117:407-8 Mr 31 '20

Bush buildings, London—Continued

Construction features in the Bush buildings.
il diags plans Am Arch 120:53-60 Jl 20 '21

Bush terminal company, Brooklyn

When taking a chance is good business. I.
T. Bush. il System 39:21-5+ Ja '21

Bush terminal sales building, New York

Bush building as a commercial museum.
Am Arch 117:735 Je 9 '20

Features of interest in the Bush addition. il
diags plans Am Arch 118:509-13 O 20 '20

Bushings

Development of floating bushings. diags Ry R
69:535-8 O 22 '21

Drill bushings with lubricant retaining fea-
ture. F. W. Shumard. diag Mach 27:1097
Ag '21

Electric heater for bronze and steel bush-
ings. R. H. Pickens. diags Elec R 75:1066
D 27 '19

Elevator worm-shaft bushing worn caused
sparking at brushes. D. A. Manson. diags
Power 52:309 Ag 24 '20

Floating bushings are making good on many
railways. diags Ry R 68:903-5 Je 11 '21

Guide bushings for keyway broaching; for-
mulas for designing bushings. C. H.
Briggs. diags Mach 27:767-8 Ap '21

Reducing maintenance cost of valve cham-
ber bushings and packing. F. Roberts.
diags Ry Mech Eng 95:513-14 Ag '21

Rotary fixture for milling bushings. il diag
Mach 27:249 N '20

Tool engineering. A. A. Dowd and F. W.
Curtis. diags Am Mach 54:997-9 Je 9 '21

Bushings (insulating)

Bushings for insulation of high voltage
lines. A. Still. il diags Elec R 78:217-20 F
5 '21

Entering bushings designed for high fre-
quency. G. Lewis. il Elec R 79:197-9 Ag 6
'21

Interchangeable bushings for high voltage
apparatus. E. D. Eby. il diag Gen Elec R
22:865-75 N '19

New type of transformer bushing and hous-
ing. il Power 52:360 S 7 '20

Testing

Shock-resisting test of air-gap type bushing.
il Elec W 78:818 O 22 '21

Bushnell, Fred. N., 1867-

New England engineer who has designed and
built many power plants. por Power 54:648
O 25 '21

Business

American and European business methods.
D. T. Farnham. Administration 1:30-8 Ja '21

America's present opportunity. J. M. Cox.
Nation's Business 8:11-13 N '20

Basic problems of business; taxation, trans-
portation and industrial relations. S. C.
Mason. Ry R 68:820-3 My 28 '21

Business and government. W. G. Harding.
Comm & Fin Chr 112:2259-60 My 28 '21

Business machine. H. Hoyt. Nation's Busi-
ness 8:52 Mr '20

Business man's book of proverbs: funda-
mentals in human relationship, civics,
government and the citizen. E. W. De
Bower. 200p Blackstone institute, Chicago
'20

Business principles, organization and effi-
ciency. F. R. Mason. 457p Lincoln insti-
tute of business, Chicago '21

Business research and statistics. J. G. Fred-
erick. 342p Appleton '20

Business sense in government. W. G. Hard-
ing. Nation's Business 8:13-14 N '20

Business tanks and valves. E. F. DuBrul.
Am Mach 55:714-15 N 3 '21

Business viewed as a public utility. R. S.
Hawes. Am Ind 21:19-21 O '20

Can we smooth out the business curve? E.
W. Hulet. Factory 27:27-30 Jl '21

Forging ahead in business. 120p Alexander
Hamilton institute, New York '21

Friendly talks to managers. P. V. Bunn. rev.
ed. 66p Standard ptg. co., Louisville, Ky. '21

Great game of business. J. G. Frederick.
175p Appleton '20

International industrial digest. See monthly
numbers of Factory

Laws of life and the laws of business. Dom
Eng 94:8-10 Ja 1 '21

Literature of business, selected and ed. A. G.
Saunders and H. L. Creek. 513p Harper '20

My 64 years in business. A. B. Farquhar. il
System 38:232-5, 411-13, 626-8, 836-8, 1050-

2; 39:29-32+, 200-2+, 385-7+, 521-4+, 663-

6+, 815-17+; 40:35-7+ Ag '20-Jl '21

Nature's limit; law of diminishing returns. H.
Hoyt. il Nation's Business 8:64+ My '20

New relation of banking to business. G. C.
Devol. Comm & Fin Chr 112:422-3 Ja 29
'21

Organization of modern business. W. R. Bas-
set. 271p Dodd, Mead & co., New York '21

Routine of commerce. A. Schofield. 168p Pit-
man '20

Rumors and big business. R. Dickinson.
Ptr Ink 116:3-4+ Jl 7 '21

Test of business vision. J. K. Fraser. Na-
tion's Business 8:24 Jl '20

Trade commission procedure and problems.
W. B. Colver. Textile World 58:2301+ O
2 '20

What government can do. H. Hoover. Nation's
Business 9:11-13 Je '21

See also Accounting; Advertising; Appli-
cations for positions; Auditing; Billing;
Bookkeeping; Budget, Business; Business
conditions; Business education; Business
failures; Business management; Cancellat-
ion of orders; Catalogs; Chamber of com-
merce of the United States; Chambers of
commerce; Collecting of accounts; Com-
merce; Commercial correspondence; Com-
mercial law; Commercial travelers; Com-
mission merchants; Competition; Corpora-
tions; Cost accounting; Credit; Delivery of
goods; Department stores; Efficiency, In-
dustrial; Employment management; Euro-
pean war—Economic conditions; Exclusive
agencies; Executives; Export trade; Files
and filing (documents); Finance; Good will
(in business); Government regulation of
industry; House organs; Industrial man-
agement; Instalment plan; Inventories;
Jobbers; Mail order business; Mailing lists;
Manufactures; Market reports; Market
surveys; Marketing; Mercantile agencies;
Merchandizing; Money; Occupations; Office
appliances; Office management; Organiza-
tion in industry; Panics; Profession;
Choice of; Profit; Promoters; Purchasing;
Railroads—Office management; Real estate
business; Records; Retail trade; Sales let-
ters; Salesmanship; Salesmen; Secretaries,
Private; Service (in industry); Shipment of
goods; Show windows; Slogans; Success;
Time saving; Trade marks; Trust com-
panies; Turnover; Valuation; Warehouses;
Wealth

Bibliography

Business information services. Special Lib
11:150-1; 12:68-70 Je '20, Ap '21

Business library abstract. Bi-weekly. Gradu-
ate School of Business Administration,
Harvard Univ.

Eight hundred useful books. S. H. Powell,
comp. 68p 2d ed. n.d. American library as-
sociation, 24 W. 39th st. N.Y.

Five hundred business books. E. Cleland.
3d ed. 62p '20 American Library Associa-
tion, 78 East Washington St., Chicago, Ill.

List of books on business. 14p Adriance Me-
morial Library, Poughkeepsie, N.Y. '20

Pamphlets and clippings in a business li-
brary. V. Fairfax. J Elec 45:484-5 N 15 '20

2400 business books and guide to business
literature. L. H. Morley and A. C. Kight.
456p H. W. Wilson company, New York '20

What business men are reading. System 39:
217, 384+, 517+, 724-5+, 807-8+; 40:45+,
169+, 284+, 429+, 565+ F-N '21

See also Export trade—Bibliography

Societies

Annual convention. American trade associa-
tion executives, New York '21

See also Chambers of commerce; Com-
mercial associations; Manufacturers asso-
ciations; Trade associations

Business conditions

- After the Civil war and now. H. H. Manchester. Am Mach 53:389-92 Ag 26 '20
- Ample reason for sane optimism here. F. H. Sisson. Annalist 17:303-4 Mr 7 '21
- Barometer of business conditions. See weekly numbers of the Annalist
- Better way to plan ahead. E. H. Gary. il System 39:649-53+ My '21; Same. Ry R 68: 638-41 Ap 23 '21
- Business and credit conditions in 1920, reviewed in annual report of New York federal reserve bank. Comm & Fin Chr 112: 1819-20 Ap 30 '21
- Business barometer. T. H. Price. See weekly numbers of American machinist, beginning July 14, 1921
- Business conditions. E. H. Gary. Iron Age 106:1104+ O 28 '20
- Business conditions. G. E. Roberts. Soc Auto Eng J 8:251-4 Mr '21
- Business conditions as the big banks see them. Am Mach 54:40e-h, 80d-e, 120d, 160b, 205-6, 252, 300-2, 349-51, 392d, 438-9, 486-7, 535, 584, 624g-i, 664e, 710, 759, 800h, 888b, 928b, 1064b, 1104d, 1146; 55:40b-c, 80-a, 328d, 412a, 451 Ja 6-My 5, 19-26, Je 16-Jl 14, Ag 25, S 8-15 '21
- Business conditions in relation to construction. Eng N 86:14-16 Ja 6 '21
- Business conditions of the country. A. W. Douglas. map See monthly numbers of Nation's business
- Business cycle. D. M. Jordan. Am Mach 55: 728-30 N 3 '21
- Business outlook. J. Brown. Comm & Fin Chr 111:2280 D 11 '20
- Business outlook. E. H. Gary. Comm & Fin Chr 112:2368-9 Je 4 '21
- Business outlook. C. T. Hutchinson. Min & Sci P 121:755-7 N 27 '20
- Business outlook; comments on prospects for 1921 by manufacturers and jobbers in the plumbing and heating field. Dom Eng 94: 57-60 Ja 8 '21
- Business outlook for 1921; forecasts brought out by an inquiry from the editor of Review of reviews. Gas Age 47:14-17 Ja 10 '21
- Business outlook for the coming year. A. W. Henn. Mach 27:419-20 Ja '21
- Business situation. A. C. Bedford. Administration 1:305-8 Mr '21
- Business situation as viewed from three special angles. A. I. Findley and others. Eng N 86:400-1 Mr 3 '21
- Conditions in basic industries; resumé given at annual meeting of the National conference of business paper editors. Iron Age 108:1194-5, 1165-6 O 27-N 3 '21
- Conditions in foreign countries. Am Ind 21: 38-48 Ap; 38-40+ My '21
- Country's ability to stand credit strain demonstrated. Ptr Ink 114:157+ Ja 13 '21
- Courage to go ahead in business. R. Dickinson. Ptr Ink 113:57-8+ D 9 '20
- Decline in business activity shown in loadings. Ry Age 69:885-6 N 19 '20
- Decries pessimism. H. Hoover. Am Mach 55:120e-f Jl 21 '21
- Economic cycles. E. F. DuBrul. Am Mach 55: 666-7 O 27 '21
- Embarrassment of riches. A. W. Douglas. map Nation's Business 9:17-18 Ja '21
- Executive—and today's problem. L. E. Pier-son. Ind Management 61:7-8+ Ja 1 '21
- Factors of safety and danger in the business situation. R. H. Tingley. Annalist 17: 325+ Mr 14 '21
- Federal reserve board in year's review on recovery from war conditions. Comm & Fin Chr 113:248 Jl 16 '21
- Federal reserve board on advance in readjustment process in 1920. Comm & Fin Chr 111:2383-4 D 18 '20
- Federal reserve board reports shrinkage in retail trade striking factor in August developments. Comm & Fin Chr 113:1106-7 S 10 '21
- General business conditions. Am Mach 53: 1112-15 D 9 '20
- Gospel your salesman should spread. B. Barton. Ptr Ink 115:33-5 Je 9 '21
- Governors of the country confident over industry. Am Ind 21:9-13 Ap '21
- Hard times—their cause and cure. T. H. Price. Am Mach 55:1-3 Jl 7 '21
- How I know business has turned the corner. W. P. G. Harding. System 40:537-41 N '21
- How shall we get back to better business? O. H. Kahn. System 40:4-5+ Jl '21
- How's business? See monthly numbers of Concrete beginning April, 1921
- Huge railroad purchases will help to stabilize business. J. G. Condon. Ptr Ink 113:25-8 D 9 '20
- If I were a manufacturer today. E. Baxter. Factory 25:361-3 S 15 '20
- Is deflation nearing its end? J. Oakwood. Annalist 18:79 Jl 25 '21
- Liggett predicts return of prosperity by May 1st. L. K. Liggett. Ptr Ink 114:144+ Ja 20 '21
- Lower prices will bring better business. S. Morris. Elec W 78:717-18 O 8 '21
- Monthly review of credit and business conditions in the second Federal reserve district. Federal reserve bank of New York, N.Y.
- Must help to stabilize business. E. H. Gary. Iron Tr R 67:1192-3 O 28 '20
- 1920 trade factors conflicting. J. W. Hill. Iron Tr R 66:221-5 Ja 15 '20
- Obstacles to business revival. N. R. Whitney. Am Mach 54:1025-9 Je 16 '21
- Our government and business. C. Jennings. Automotive Ind 44:891-3 Ap 28 '21
- Our national industries and international business. D. T. Farnham. Ind Management 61:331-4 My 1 '21
- Outlook for business. R. H. Treman. Metal Work 93:640-1 My 21 '20
- Outlook for business; a banker's analysis. F. H. Sisson. Eng N 86:204-5 F 3 '21
- Present credit tendencies and their causes. Automotive Ind 42:1093-4+ My 13 '20
- Present outlook for business. J. W. Jenks. Administration 2:1-2 Jl '21
- Present situation and the outlook. Mach 27: 1023-8, 1111-13 Jl-Ag '21
- Price levels and market prospects. R. H. Tingley. Am Ind 20:23-6 Ja '20
- Price trends, the coming readjustment and advertising. Ptr Ink 111:121-2+ My 13 '20
- Prospect of stable values most hopeful omen of New Year. A. D. Noyes. Annalist 17:7-8 Ja 3 '21
- Riddle of the world. P. H. W. Ross. J Account 29:19-29 Ja '20
- Satisfactory modicum of prosperity for 1921 forecast. C. E. Mitchell. Comm & Fin Chr 112:423-4 Ja 29 '21
- Sees turn of corner in depression. H. Hoover. Comm & Fin Chr 113:251-2 Jl 16 '21
- Six reasons why 1921 business is going to be good. B. C. Forbes. Ptr Ink 113:3-4+ N 11 '20
- Some of our lessons for 1921. C. H. Sabin. Am Ind 21:31-3 Mr '21
- Steps in deflation behind—and those ahead. C. H. Hulburd. System 39:496+ Ap '21
- Suppose the turn will come in 1921! what of it? C. W. Hoyt. Ptr Ink 113:33-4+ D 2 '20
- Survey of business conditions by National association of credit men. Comm & Fin Chr 112:2033-4 My 14 '21
- Survey of national conditions shows increasing confidence. D. F. Houston. Dom Eng 95:157-8 Ap 23 '21
- Thrift or paternalism—which? C. H. Fast. Annalist 18:99-100 Ag 1 '21
- Trend of business. charts System 40:247+ S '21
- Wage reduction that hurts the nation's buying power. C. M. Wright. Ptr Ink 117:101-2+ O 6 '21
- What business papers can do to speed the revival of business; abstracts. J. H. McGraw. Eng N 87:740-1 N 3 '21; Elec Ry J 58:835-6 N 5 '21; Power 54:742 N 8 '21
- What hit the consumer? H. Eskridge. Ptr Ink 113:73-4+ D 16 '20
- What is the country's condition; a nation wide digest of facts and opinions made by Fidelity & deposit co. Sheet Metal Worker 12:184-6 Ap 15 '21; Same. Plumber 95:274-6 My 6 '21

Business conditions—Continued

- What shall we do about high costs? H. Gibson. System 39:359-61+ Mr '21
- What's ahead in business? E. L. Seabrook. Dom Eng 97:107-8 O 15 '21
- When is the reaction coming? C. S. Andrews. Textile World 57:3772 My 22 '20
- When will manufacturing pick up? nine bankers answer from the manufacturer's viewpoint. Factory 26:311-15 F 1 '21
- Where is the capital for new enterprise?; lower price levels will better credits. G: E. Roberts. Ptr Ink 112:137+; 113:153-4+ S 30-O 7 '20
- Which way are the trade winds really blowing? E. B. Terhune. Metal Work 93:709-10 Je 4 '20
- Why do publications preach pessimism? Ptr Ink 114:121-2 Ja 20 '21
- Will the world hold together? J. H. Collins. Ptr Ink 112:3-4+ S 30 '20
- Workers cease to be buyers when production fails. G: E. Smith. Ptr Ink 114:89-90+ Mr 10 '21
- Year of financial regeneration. J: Oakwood. Annalist 18:291-2 S 26 '21
- See also Business depression; Business failures; Panics; Production; Unemployment—Relief measures; United States—Economic conditions

Forecasting

- Daily business forecasts by Department of commerce possible. Ptr Ink 117:125-6 O 27 '21
- Methods of business reporting. H. P. Willis. Administration 2:145-55 Ag '21
- Recognition of business prophecy. C: W. Gerestenberg. Eng & Contr 56:166-7 Ag 17 '21

Business depression

- Accounting measures to meet business depression in the industry. E. A. Saliers. Elec Ry J 54:sup 37-9 O 11 '19; Same. J Account 29:1-9 Ja '20
- Can we smooth out the business curve? W. Hulet and others. Factory 27:27-30, 311-16 Jl, S '21
- Cause of industrial depressions. G: H. Hull. Il Ind Management 61:386-91 Je '21
- How to get back to normal quickly. C. E. Knoepfel. Foundry 49:176-8, 223-4 Mr 1-15 '21; Same. Iron Tr R 68:692-4, 760-1 Mr 10-17 '21
- It is easier to make advertising progress during periods of business depression. J: A. Murphy. Ptr Ink M 3:13+ Ag '21
- Mars as a sales outlet; a one-sided discussion on wages, buying power and production in relation to advertising. R. Dickinson. Ptr Ink 117:128+ O 20 '21
- Mr Moore sees it through; vision carries him across slack times. Ptr Ink 114:112-13+ Ja 6 '21
- Pertaining to the business depression. H. A. Russell. Iron Age 106:1620-2 D 16 '20
- Taxes and business depression. A. W. Markley. charts Am Mach 54:225-6 F 10 '21
- Three steps to readjusting a business. J. S. Carr. jr. System 39:218-20+ F '21
- Use slack time for new business developments. H. E. Agnew. Ptr Ink 115:154+ My 26 '21
- What about the business curve? Factory 27: 609-11 N '21

See also Business failures; Panics

Business education

- Commercial engineering; report of a conference on business training for engineers and engineering training for students of business. G. L. Swiggett. (Bul 1919, no. 58) 178p '20 U.S. Bureau of education, Washington, D.C.
- Crowbars and economics. E. F. DuBrul. Am Mach 55:586-7 O 13 '21
- L'enseignement commercial complément de l'enseignement technique. P. Fauvet. Chimie & Ind 3:828-30 Je '20
- Instruction in business administration in technical school. Eng & Contr 53:585 My 19 '20

- Putting education in our business. A. T. Simonds. Am Ind 22:11-12 Ag '21
- Retail selling course in Pittsburgh high schools. J. B. Miner. (General ser. no. 2) 54p Research bureau for retail training, Carnegie institute of technology, Pittsburgh '21

Training for foreign trade. R. S. MacElwee and F. G. Nichols. map U S Bur For & Dom Com misc ser 97:1-195 '19

See also Accounting—Study and teaching; Bookkeeping; Commercial law; Salesmen, Training of; Secretaries, Private; Typewriting; also Dartmouth college—Amos Tuck school

Business English. See English language—Business English

Business ethics

- Character in business. J. W. Jenks. Administration 2:433-5 O '21
- Code of ethics for buyers and sellers of artwork. Ptr Ink 114:165+ Ja 6 '21
- Electrical co-operative league adopts code of ethics. Elec R 79:477-8 S 24 '21
- New business conscience is good business. R. Dickinson. Ptr Ink 112:109-10+ Jl 15 '20
- Religion and business from the standpoint of a layman. Comm & Fin Chr 112:883-4 Mr 5 '21

See also Advertising ethics; Bribery, Commercial; Competition, Unfair; Profiteering; Success

Business failures

- Easy credit causes retail failures. J. E. Bulard. Ptr Ink 114:25-7 F 17 '21
- Failures in 1919. Comm & Fin Chr 110:303-5 Ja 24 '20
- Half-year's failures record. Comm & Fin Chr 111:237-8 Jl 17 '20
- Half-year's failures record. Comm & Fin Chr 113:224-5 Jl 16 '21
- Untrue that eighty-four per cent of business failures in 1920 did not advertise. Ptr Ink 116:87-8 Jl 7 '21

Business forecasts. See Business conditions—Forecasting

Business information series

- Business information series. E. Wray. Special Lib 11:150-1; 12:68-70 Je '20, Ap '21

Business journals. See Business periodicals

Business letters. See Commercial correspondence; Sales letters

Business libraries

- Books as tools. E. A. Goeway. Eng & Contr 53:329 Mr 24 '20
- Boston filing association. R. E. Clement. Special Lib 12:199-200 S '21
- Business branch of the public library; Indianapolis public library. Il J Elec 46:71-2 Ja 15 '21
- Business library; what it is and what it does. L. B. Krause. 2d ed. rev. 122p Journal of electricity, San Francisco '21
- Chicago's business library service. N. R. Levin. Special Lib 12:21-2 F '21
- Commercial and technical library. Leeds, Eng. (Yorkshire) Public libraries. 24p Public libraries committee, Leeds '19
- Dependence of the business executive upon the special librarian. H. V. Coes. Special Lib 12:168-70 S '21
- Exporter's reference library. A. J. Wolfe. Ptr Ink 114:141-2+ Mr 3 '21
- Facts we want when we want them. O. E. Perrigo. System 39:59-60+ Ja '21
- Handbook to the commercial library. Birmingham, Eng. Free libraries. 24p Public libraries committee, Birmingham '19
- Letting the library help. R. A. Newman. Factory 27:100 Jl '21
- Marketing information the basis for successful sales policy. C: C. Parlin. Special Lib 12:164-5 S '21
- Pamphlets and clippings in a business library. V. Fairfax. J Elec 45:330-1, 426-8, 484-5, 531-4, 584-5; 46:31-3, 78-80 O 1, N 1 '20-Ja 15 '21

Business libraries—Continued

Systematize your business reading. R. Cole. *Ptr Ink M* 2:34+ Ap '21

Western ideas; spreading information. *J Elec* 45:335 O 1 '20

What a factory library does for your plant. J. E. Morgan. *il Factory* 25:1577-9 N 15 '20

What is a special library? C. C. Houghton. *Library Journal* 46:393-7 My 1 '21

Why the business library pays. M. B. Day. *Special Lib* 12:10-11 Ja '21

See also Business periodicals; Engineering libraries; Financial libraries; Insurance libraries; Libraries, Special; Library service; Periodicals; Technical libraries

Bibliography

Business libraries: a list of references. Wilson Bul v 1:540-3 D '20 H. W. Wilson co., 958 University av, N.Y.

Business literature

Old colony book shelf. *Special Lib* 12:31 F '21

See also Business periodicals

Business management

Adventure in business. N. M. Clark. *Administration* 2:500-6 O '21

American business methods for increasing production and reducing costs in factory, store, and office. F. W. Parsons. 373p Putnam '21

Builders of business; George A. Galliver. P: F. O'Shea. *System* 40:555-6+ N '21

Building an international business organization. G: M. Gales. *Ind Management* 61:319-23 My 1 '21

Business organization and administration. J. A. de Haas. 353p Gregg Publishing Co., 77 Madison Av., New York '20

Business organization, financing and management. C. Jackson. 62p La Fayette institute '21

Business policies. I. T. Bush. *System* 39:211-12; 40:34-5+ F, JI '21

Business success lies in doing, not simply in accumulating. B. C. Forbes. *Ptr Ink* 111:117-18+ My 27 '20

Business that grew from a pastor's call; Jones dairy farm sausage. C. M. Harrison. *Ptr Ink M* 2:108+ My '21

Can we smooth out the business curve? E. W. Hulet and others. *Factory* 27:27-30, 311-16 JI, S '21

Financing a business in a declining commodity market. W. R. Basset. *Ptr Ink* 112:3-4+ Ag 5 '20

Ford turns the corner. J: H. Van Deventer. *Ind Management* 62:129-30 S '21

Forecasting one's business. F. L. Hayford. *Textile World* 58:2803+ O 23 '20

Le gouvernement des entreprises commerciales & industrielles. J. Carlioz. 319p Dunod, Paris '21

Haven't you forgotten something. A. E. Stevens. *Paper* 28:57-8 Ap 20 '21

How Cudahy keeps harmony among department heads. E. A. Cudahy, jr. *il Ptr Ink M* 3:42+ S '21

How holding to a principle has kept our profits up. C. L. Marks. *System* 39:653-6+ My '21

How I train my men to make right decisions. E: Morris. *il System* 39:678-91 My '21

How we cut our costs, by 1600 business men. *Nation's Business* 9:60+ My '21

In what department should the president be trained? G: E. Smith. *Ptr Ink M* 2:21-2+ My '21

Keying up the inside staff to its sales responsibility. E. T. Tandy. *Ptr Ink* 114:3-4+ Mr 10 '21

Little things that hurt advertising. R. W. Johnson. *Ptr Ink* 116:3-4+ S 15 '21

Lower prices raised our profits. L: Topkis. *il System* 40:21-4+ JI '21

My 3 measures of good management. S: M. Hastings. *System* 39:390-2+ Mr '21

M. C. Robbins. *Ptr Ink* 114:64+ F 3 '21

National business that grew from a capital of \$4.50. J. C. Crane. *Ptr Ink M* 3:39+ S '21

One right way to plan ahead. F. E. White. *System* 39:541-3+ Ap '21

Problems of business organization. H: S. Denison. *Administration* 2:345-54 S '21

A propos du gouvernement des entreprises. E. Grandmougin. *Chimie & Ind* 5:596-8 My '21

Relation of business statistics to management control. S. Gilman. *Paper* 28:14-15+ My 11 '21

Routine of commerce; a practical exposition of the internal organization of a business house, with a comprehensive treatment of business documents. A. Schofield. 168p Pitman '20

Safeguarding your business. G. S. Watkins. *System* 39:8-9+ Ja '21

Simple method of charting sales procedure. A. R. Burnet. *Administration* 2:373-5 S '21

Speeding up work by better management. *il System* 39:56-7+ Ja '21

Use of money in business. W. R. Basset. *Am Mach* 53:1069-73 D 9 '20

V. W. tries the four T's. R. R. Updegraff. *il System* 40:24-7+ JI '21

We go right out after business. F. W. Dupke. *il System* 39:220-1 F '21

We plan to do business this way. *System* 39:189-91+ F '21

We watch time more closely than money. R. H. Beaumont. *il System* 39:792-5+ Je '21

What about the business curve? *Factory* 27:609-11 N '21

What business can learn from the theatre. R. R. Updegraff. *Ptr Ink M* 3:31-2+ S '21

What 45 years in business have taught me about selling. W: H. Childs. *il System* 39:785-9+ Je '21

When business gets in a rut. C. P. Russell. *Ptr Ink* 114:3-4+ F 10 '21

When taking a chance is good business. I. T. Bush. *il System* 39:21-5+ Ja '21

Why I don't look too far ahead. D: Pender. *System* 39:382-3+ Mr '21

See also Collecting of accounts; Employment management; Executive ability; Files and filing (documents); Industrial management; Office management; Organization in industry; Specialization; Turnover

Business men

Are you a good business man? F. Farrington. *Am Gas J* 115:13-14 JI 2 '21

Builders of business. *System* 39:206-11+, 374-9, 529-32, 668-9+, 812-14+; 40:164-7, 281-4+ F-Je, Ag-S '21

Business man in Congress. A. H. Ulm. *Nation's Business* 9:21-2 F '21

Coming, the commercial statesman. W. J. Matherly. *Am Ind* 21:21. Je '21

Cultural education of the business man. *Comm & Fin Chr* 111:1789-91 N 6 '20

Personality in business. H. K. Porter. *Ind Management* 62:119-20 Ag '21

Proposal to license business men. *Iron Age* 108:86, 355-6, 419 JI 14, Ag 11-18 '21

Psychology of business hours. G: V. N. Dearborn. *Sci Am M* 1:500-3 Je '20

Submissive business man. E. W. Howe. *Nation's Business* 9:11-12 F '21

Training in economics as preparation for a business career. *Iron Age* 108:482-3 Ag 25 '21

See also Executives

Business papers, Associated. *See* Associated business papers

Business periodicals

Business and the business press. R. W. Johnson. *Ptr Ink* 117:17-20, 61-2+, 85-6+ O 13-20, N 3 '21 (to be cont)

Developing the individual for institutional responsibility; the Business publishers association's school of industrial journalism. *Automotive Ind* 45:630-1 S 29 '21

Making contact through the business press.

What business papers can do to speed the revival of business: abstracts. J: H. McGraw. *Eng N* 87:740-1 N 3 '21; *Elec Ry J* 58:835-6 N 5 '21; *Ptr Ink* 117:57-8 N 3 '21; *Power* 54:742 N 8 '21

See also Associated business papers, incorporated; House organs; Trade journals

Business press. See Business periodicals

Business reporting. See Business conditions—Forecasting

Business research

Business research—a necessity born of competition. W: A. Scott. Special Lib 12:47-9 Mr '21

Commercial research. R. C. Hay. Administration 2:23-6 Jl '21

Cooperating to educate a community's executives. H. C. Stevenson. il Factory 27:182-7 Ag '21

How business and technical executives obtain information and what it means to the special librarian. D. N. Handy. Special Lib 12:162-4 S '21

How business men get facts and figures. L. D. Peavey. Special Lib 12:159-62 S '21

Research in business. J. G. Frederick. Special Lib 12:170-3 S '21

Business service in libraries. See Library service

Business streets

Advertising

Advertising a shopping district co-operatively. Ptr Ink 117:81-2 N 3 '21

Advertising to develop a new business street; Connecticut avenue, Washington, D.C. Ptr Ink 114:69-70 Mr 10 '21

Bu-tane

New cutting gas is powerful and economical. Ry R 68:791 My 21 '21

Butler brothers

Builds future business by finding and training retailers. C. M. Harrison. Ptr Ink 115:93-4+ Je 23 '21

Butt welding, Electric. See Electric welding

Butte, Montana

Butte—and a welded-steel water line. Eng N 85:1032 N 25 '20

Features of new aqueduct for Butte. il Munic Eng 60:40-2 Ja '21

Butte, Anaconda & Pacific railway

Electric operation; with cost tables. F. W. Bellinger. Elec Ry J 55:1101-2 My 29 '20

Electric operations. F. W. Bellinger. il Ry Age 68:1657-8 Je 11 '20

Butte & Superior mining company

23d quarterly report. Eng & Min J 109:85-6 Ja 10 '20

Butter

Analysis

Volumetric method for the detection and estimation of neutralizers in butter and in certain allied products. L. W. Ferris. diag J Ind & Eng Chem 12:757-60 Ag '20

Prices

Production, cold-storage holdings, and wholesale and retail prices of butter and cheese. E. B. Carr. Monthly Labor R 10:100-14 Ja '20

Butter trade

Advertising

Butter makers find neglected market right at home. Ptr Ink 110:53-4+ Ja 22 '20

Buttermilk

Dry buttermilk—a new commodity. H. Lindquist. Pop Mech 35:42 Ja '21

Buttons

America's fresh-water pearl-button industry. S. G. Roberts. il Sci Am M 4:200-3 S '21

See also Campaign buttons

Butyl alcohol

Butyl alcohol and acetone from starch. Chem & Met Eng 24:534 Mr 23 '21

Butyl alcohol as a medium for the determination of saponification numbers. A. M. Pardee, R. L. Hasche and E. E. Reid. J Ind & Eng Chem 12:481-2 My '20

Organic chemical reagents; reagents from *n*-butyl alcohol. R. Adams and C. S. Marvel. Am Chem Soc J 42:310-20 F '20

Seed-culture methods in the production of acetone and butyl alcohol by a fermentation process. H. B. Speakman. il diags plan J Ind & Eng Chem 12:581-7 Je '20

Study of the sulfur derivatives of butyl alcohol. H. L. Gray and G. O. Gutekunst. Am Chem Soc J 42:856-60 Ap '20

Butyl mercaptan

Some derivatives of butyl mercaptan and their mercuric iodide compounds. T. C. Whitner, jr. and E. E. Reid. Am Chem Soc J 43:638-42 Mr '21

Butyl mercapto-ethyl alcohol

Sulfide alcohol, or butyl mercapto-ethyl alcohol. T. C. Whitner, jr. and E. E. Reid. Am Chem Soc J 43:636-8 Mr '21

Butyl sulfide

Study of the sulfur derivatives of butyl alcohol. H. L. Gray and G. O. Gutekunst. Am Chem Soc J 42:856-60 Ap '20

Buying. See Purchasing

Buying habits

How college girls buy. M. V. Cobb. Ptr Ink 116:111-12 Ag 25 '21

Odd buying habits of the American customer. R. Giles. Ptr Ink 111:148+ Ap 22 '20

What the customer looks for in merchandise. R. H. Isbell. Ptr Ink 113:93-4+ N 11 '20

Byne, Arthur

Arthur Bynne's renderings and water-colors. M. Stapley. il plan Arch Rec 47:425-35 My '20

Bypasses. See Piping (power plants)—Bypasses

C

Cabbage

Diseases and pests

Mosaic disease of cabbage as revealed by its nitrogen constituents. S. L. Jodidi, S. C. Moulton and K. S. Markley. Am Chem Soc J 42:1883-92 S '20

Cable joints

Importance of filling compound in cable joints. il diag Elec R 77:739-40 N 6 '20

McCabe sleeve. I. E. McCabe. il Aviation 9:60-2 Ag 15 '20

Cable laying

Cable steamer All American. plans Marine Eng 26:207-8 Mr '21

Cables

L'application des cables à la construction d'ateliers et de hangars pour avions ou dirigeables, à toiture suspendue. G. L. Le Cocq. il diags plans Génie Civil 78:205-11, pl 1 Mr 5 '21

Les cables de suspension et leur emploi dans la construction. il diags Génie Civil 79:59-63 Jl 16 '21

Comparative economics of wire cables and high-alloy-steel eye-bar cables for long-span suspension bridges. J. A. L. Waddell. plans Eng Soc W Pa 36:418-36; Discussion. 437-53 Jl '20

Re-covering the cables of the Williamsburg bridge. il Sci Am 124:391+ My 14 '21

Salvages steel cable by a novel device. diag Iron Tr R 67:113 Jl 8 '20

Use and inspection of flexible steel cables. Power 52:956 D 14 '20

See also Bridges, Suspension; Cableways; Electric cables; Rope; Telephone cables; Wire; Wire rope; Wire rope fastenings

Cables, Chain. See Chains—Manufacture

Cables, Electric. See Electric cables

Cables, Submarine

Baltic cable Leba-Königsberg. Engineering 110:515 O 15 '20

Cables, Submarine—Continued

- Bill to prevent unauthorized landing of cables signed by president; text. Comm & Fin Chr 112:2373 Je 4 '21
- Cable laying by aeroplane. Flying 10:154 My '21
- For freedom of the underseas. C. H. Mackay. Nation's Business 9:24+ My '21
- Impedance of submarine cables. D. C. Gall. Electrician 85:736-8 D 24 '20
- International cable communication. C. H. Mackay. Electrician 86:307-9 Mr 11 '21
- Laying telephone cable tubes by thrust-boring. diags Engineer 131:432 Ap 22 '21; Same. Eng & Contr 55:645-6 Je 29 '21
- Leader cable at Portsmouth. J. J. Bennett. il diags Engineering 111:187-90 F 18 '21; Same cond. Génie Civil 78:454-8 My 28 '21
- Leader cables in navigation. J. J. Bennett. il diags Electrician 87:202-4 Ag 12 '21
- Localisation of high-resistance breaks in submarine cables. A. Poulsen. diags Electrician 84:312-15 Mr 19 '20
- New German submarine telephone cable; abstract. Elec W 76:1273 D 25 '20
- New York's radio pilot cable. G. Gaulois. il diags Sci Am 123:195+ Ag 28 '20
- Piloting vessels by electrically energised cables. A. Crossley. diags Engineer 131:567-8 My 27 '21; Abstract. Eng N 86:590-1 Ap 7 '21
- Senate passes bill to prevent unauthorized landing of cables in United States. Comm & Fin Chr 112:2265-6 My 28 '21
- Submarine cable is dried out and replaced. il Elec W 76:1012-13 N 20 '20
- Submarine cable telegraphy. E. Raymond-Barker. Elec R (Lond) 88:575-6, 629-30, 661-2 My 6-20 '21
- Submarine cable to East Prussia; abstract. E. Muller. Elec W 77:1440 Je 18 '21
- Submarine cables. F. A. Westbrook. il N E L A Bul 8:75-9 F '21
- Submarine plow for the submarine telephone cable. il Sci Am 124:441 Je 4 '21
- Submarine power cables. F. A. Westbrook. il N E L A Bul 8:193-6 Ap '21
- Submerged induction cable steers ships to harbor. diag Pop Mech 33:515 Ap '20
- Ties that bind nations—cables. J. L. Merrill. Am Ind 21:15-16 Jl '21
- Use of alternating currents for submarine cable transmission. F. E. Pernot. il diags J Fr Inst 190:323-71 S '20

Testing

- High-resistance break test of submarine cable. J. Rymer-Jones. Elec R (Lond) 89:276 Ag 26 '21
- Submarine cable tests. J. Rymer-Jones. Elec R (Lond) 89:172 Ag 5 '21

Cableways

- Aerial cableway for island campers. F. H. Ellis. il Pop Mech 36:143 Jl '21
- Aerial tramways. D. Lay. diags plan Eng & Min J 109:559-62 F 28 '20
- Automatic single rope cableway for material handling. il plan Eng N 87:67 Jl 14 '21
- Design of two-bucket aerial tramway. D. Lay. diags Eng & Min J 109:1359-61 Je 19 '20
- Dorada ropeway in Colombia. il Engineer 129:504, 511-12 My 14 '20
- Étude didactique des transporteurs aériens sur câbles. G. Ceretti. diags Génie Civil 77:408-11, 430-5 N 20-27 '20
- Improved cableway for storage yards. diags Iron Age 105:1726-7 Je 17 '20
- Improvised cableway for light bridge erection. I. Simson. diag Eng N 84:105 Ja 8 '20
- Lawson automatic aerial tramway. G. F. Zimmer. il Eng & Ind Management 5:697-700 Je 16 '21
- Long aerial cable tramway in the northern Andes. Eng N 85:177 Jl 22 '20
- Modern ropeway transport. R. Kendall. il diag Electrician 86:34-8 D 31 '20
- Nouveau transporteur à câble, à pylônes basculants, desservant de grandes surfaces. diags Génie Civil 77:260 S 25 '20

- Rocking towers with a clamshell bucket permit storage of coal over large areas. diag Coal Age 19:951-2 My 26 '21
- Semi-portable aerial ropeway. diags Engineering 109:80-2 Ja 16 '20
- Sending merchandise by wire. T. B. Faucett. il Pop Mech 34:49-50 Jl '20
- Les transporteurs aériens à câbles; résistance à la marche et tracé des câbles porteurs. F. Cretin. il diags plans Génie Civil 78:385-90 My 7 '21

See also Conveying machinery

Cacodyl compounds

- Zur kenntnis organischer arsenverbindungen; über die einwirkung von halogenalkyl auf kakodyle und eine neue bildung von tetraalkyl-(bezw. -aryl-)arsoniumtrijodiden. W. Steinkopf and G. Schwen. diag Deutsche Chem Gesell Ber 54:1437-65 Jl '21; Abstract. Chem Soc J 120 pt 1:694-6 S '21

Cactus

- Cacti and their uses. W. A. Murrill. il Sci Am 124:492+ Je 18 '21
- Cactus made into fodder by use of blow-torches. Pop Mech 36:186 Ag '21
- Experiments with a new cactus rubber. E. S. Long. il India Rubber W 62:709-10 Ag '20
- Oil of the prickly pear seed. S. Lomanitz. J Ind & Eng Chem 12:1175 D '20
- Prickly pear. Dr. Juritz. Sci Am M 3:86 Ja '21
- Prickly-pear eradicator is wanted in Australia. il Pop Mech 35:704-5 My '21
- Prickly pear not a pear at all. E. O. Wooton. Sci Am 123:497 N 13 '20
- Taking the pricks out of the prickly pear. S. R. Winters. il Sci Am 123:305 S 25 '20

Cadillac motor car company

- More power for automobile building; new plant of Cadillac motor car co. il diags map plans Power Pl Eng 25:101-10 Ja 15 '21

Cadmium

- Cadmium. Min & Sci P 123:93, 124 Jl 16-23 '21
- Cadmium, alunite, and aluminite. Eng & Min J 112:179 Jl 30 '21
- Cadmium as a substitute for zinc in galvanizing. Pop Mech 34:904 D '20
- Cadmium electrode for storage-battery testing. H. D. Holler and J. M. Braham. U S Bur Stand Tech Pa 146:1-15 '19
- La cadmium en 1918. G. E. Siebenthal. Chimie & Ind 5:421 Ap '21
- Cadmium in 1919. C. E. Siebenthal. U S Geol S Min Res of U S 1919, pt 1:1-8 '20; Abstract. Chem & Met Eng 23:252 Ag 11 '20
- Cadmium in 1920. C. E. Siebenthal and A. Stoll. bibliog U S Geol S Min Res of U S 1920, pt 1:1-6 '21
- Cadmium in 1920. C. E. Siebenthal and A. Stoll. Chem & Met Eng 25:29 Jl 6 '21
- Deposition of silver and cadmium. C. H. Proctor. Metal Ind 18:13-14 Ja '20
- Influence of cadmium on the properties of brass. Iron Age 105:1034-5 Ap 8 '20
- Metal plating. W. G. Knox. chart Metal Ind 18:556-7 D '20
- Production of electrolytic cadmium. H. R. Hanley. flow sheet il Chem & Met Eng 23:1257-64 D 29 '20
- Revision of the atomic weight of cadmium; electrolytic determination of cadmium in cadmium sulfate. G. P. Baxter and C. H. Wilson. Am Chem Soc J 43:1230-41 Je '21

Cadmium chloride

- Thermochemical data of cadmium chloride and iodide. H. S. Taylor and G. St J: Perrott. Am Chem Soc J 43:484-93 Mr '21

Cadmium iodide

- Thermochemical data of cadmium chloride and iodide. H. S. Taylor and G. St J: Perrott. Am Chem Soc J 43:484-93 Mr '21

Cadmium lithopone

- Advantages of cadmium lithopone. P. W. Webster. Chem & Met Eng 24:372-3 Mr 2 '21

Cadmium poisoning

- Cadmium poisoning. Monthly Labor R 11:552-3 S '20

Cadmium sulfate

Revision of the atomic weight of cadmium; electrolytic determination of cadmium in cadmium sulfate. G. P. Baxter and C. H. Wilson. *Am Chem Soc J* 43:1230-41 Je '21

Cadmium tungstate

Something new in fluorescent screens for radiosopic work. M. Tevis. *Sci Am* 122:395 Ap 10 '20

Cadmium-vapor arc lamps. See Electric lamps, Cadmium-vapor

Cænopus. See Rhinoceroses

Cæsium. See Cesium

Cafeterias. See Lunch rooms and cafeterias

Caisson gates. See Gates, Hydraulic

Caissons

Big Eddy storage dam. il diags Pub Works 48:529-34 Je 19 '20

Bridgeport sewage disposal. J. A. McElroy. il maps Pub Works 48:303-7 Ap 10 '20

Charting progress in caisson sinking. H. L. Small. *chart Can Eng* 39:647 D 30 '20; Same. *Eng & Contr* 55:61 Ja 19 '21

Deep substructure of assay office built in quicksand by caisson-inclosure method. T. K. Thomson. il diags plan *Eng N* 84:165-9 Ja 22 '20

Difficulties in building the Louisville pumping station. J. B. Wilson. il *Am Water Works Assn J* 7:663-71 S '20

Foundations of the Hotel Pontchartrain, Detroit; study of the utilization of old foundations for new buildings. il *Am Arch* 120:127-31 Ag 17 '21

Foundations—their selection, design and construction. il diags plan *Am Arch* 118:795-800 D 15 '20

Gas pocket causes trouble in pneumatic foundation. J. E. Bebb and L. B. Alexander. il *diag plan Ry Age* 69:475-7 S 17 '20

Heavy foundation work for bascule bridge at Seattle. F. A. Rapp. il diags plans *Eng N* 84:774-6 Ap 15 '20

Hudson river caissons. R. G. Skerrett. il *Sci Am* 125:252 O 8 '21

Lowering a 400-ton dock caisson gate with sand jacks. G. W. Plaisted. il diags *Eng N* 83:886-90 N 13 '19

Lowering concrete well pits by caisson method. F. Mansfield. il *Eng & Contr* 55:132 F 9 '21

Methods employed in sinking large open caisson. il diags *Eng N* 84:916-18 My 6 '20

N.Y. stock exchange foundations. il diags plan Pub Works 51:83-7 Jl 30 '21

Pneumatic caisson tunnel shafts. il Pub Works 48:539-42 Je 19 '20

Stresses in caissons. C. E. Fowler. *Eng & Contr* 56:172 Ag 24 '21

Submerged tear in ship's side repaired by use of caisson. *Eng N* 85:1131 D 9 '20

Types of foundations. C. E. Fowler. diags *Eng & Contr* 55:274-7 Mr 23 '21

See also Bridges—Foundations and piers; Compressed air; Foundations

Cake

Cakes for bakers. P. Richards. 280p Bakers' helper co., Chicago '21

See also Shortening (cookery)

Cal in cement. See Cement—Setting

Calcimining

Expert calciminer. A. A. Kelly. 2d ed. 98p A. A. Kelly, Paoli, Pa. '20

Calcite

Crystal structures of some carbonates of the calcite group. R. W. G. Wyckoff. diags *Am J Sci* 50:317-60 N '20

Experimental study of the reflection of X-rays from calcite. B. Davis and W. M. Stempel. diags *Phys R* 17:608-23 My '21

Sterlingbush calcite cave; difficult problems solved in reconstructing the cave in the New York state museum. N. T. Clarke. il *Sci Am M* 3:393-4 My '21

See also Iceland spar

Calcium

Calcium analysis in fresh sulphite liquors by Feld-Sander's method. R. Sieber. *Paper* 28:19-22 Mr 23 '21

Crystal structure of calcium. A. W. Hull. il *Phys R* 17:42-4 Ja '21

Electrolytic production of calcium. P. H. Brace. diags *Am Electrochem Soc Trans v* 37 (preprint 6):69-82 Ap '20

Fabrication de l'acide acétique synthétique au départ du carbure de calcium. M. Deschiens. *Chimie & Ind* 5:518-26; *Bibliography*. 526-8 My '21

Ionization and resonance potentials for electrons in vapors of lead and calcium. F. L. Mohler, P. D. Foote and H. F. Stimson. *U S Bur Stand Sci Pa* 368:723-36 '20

McCrudden gravimetric calcium method modified. J. O. Halverson and J. A. Schulz. *J Ind & Eng Chem* 12:77-8 Ja '20

Le magnésium, le calcium, et le sodium; leur métallurgie, leurs applications. *Génie Civil* 79:57-9 Jl 16 '21

Some notes on calcium. P. H. Brace. diags *Engineering* 111:308-10 Mr 11 '21; Same. *Chem & Met Eng* 25:105-9 Jl 20 '21

Calcium aluminate

Production of calcium aluminate; patent. *Chem & Met Eng* 23:1132 D 8 '20

See also Satin white

Calcium antimony tartrate

Antimony mordants; use of calcium tartrate compounds in cotton dyehouses. E. R. Darling. *Textile World* 59:2111+ Mr 26 '21

Calcium arsenate

Arsenates of calcium; equilibrium in the system arsenic pentoxide, calcium oxide, water at 35° (acid section). C. M. Smith. *Am Chem Soc J* 42:259-65 F '20

Preparation and instability of tricalcium arsenate. J. H. Reedy and I. L. Haag. *J Ind & Eng Chem* 13:1038-40 N '21

Calcium-barium-lead. See Frary metal

Calcium borate. See Colemanite

Calcium carbide

Calcium carbide and cyanamide. *Chem & Met Eng* 24:1027 Je 8 '21

Crystalline characters of calcium carbide. C. H. Warren. *diag Am J Sci* 3:120-8 Ag '21

Fabrication de l'acide acétique synthétique au départ du carbure de calcium. M. Deschiens. il diags *Chimie & Ind* 5:239-56, 398-408 Mr-Apr '21

Use of calcium carbide in mines. C. H. Fry. il *Eng & Min J* 109:701 Mr 20 '20

Cost

Cost of carbide at mines. *diag Eng & Min J* 111:97 Ja 15 '21

Calcium carbonate. See Calcite

Calcium chloride

Calcium chloride and vitri-flux. *Am Inst Arch J* 8:239-41 Je '20

Calcium chloride method for the determination of water in gasoline and in certain other substances. C. W. Clifford. *diag J Ind & Eng Chem* 13:628-31 Jl '21

Salt, bromine, and calcium chloride in 1919. H. Insley. *diag U S Geol S Min Res of U S* 1919,pt 2:239-56 '21

Solubility of water in gasoline and in certain other organic liquids, determined by the calcium chloride method. C. W. Clifford. *J Ind & Eng Chem* 13:631-2 Jl '21

Specifications for calcium chloride for dust prevention. *Eng & Contr* 56:13 Jl 6 '21

Use of calcium chloride to prevent freezing in fire apparatus. *Am Gas Eng J* 112:12 Ja 3 '20

Calcium cyanamide

Dosage de l'azote ammoniacal dans les engrais complexes à base de cyanamide calcique et de sels ammoniacaux. J. Froidevaux and H. Vandenberghe. *diag Chimie & Ind* 4:612-16 N '20

New cyanide; description of the process for converting calcium cyanamide to a new cyanide in a modern sodium chloride solution. W. S. Landis. *Chem & Met Eng* 22:265-8 F 11 '20; Same. *Am Electrochem Soc Trans v* 37 (preprint 8):87-97 Ap '20

Calcium fluoride. See Fluorspar

Calcium molybdate

Calcium molybdate as an addition agent in steel making. A. Kissock. Chem & Met Eng 22:1018-20 Je 2 '20

Calcium nitrate

Dosage de l'azote dans le nitrate de chaux. E. Platou. diag Chimie & Ind 3:310-12 Mr '20

Calcium oxide

Extraction of calcium oxide from calcined magnesite. L. H. Duschak. Chem & Met Eng 23:628 S 29 '20

See also Lime

Calcium sulfate

Formation of the double salts of calcium and potassium sulfates at 100°. C. E. Anderson and R. J. Nestell. J Ind & Eng Chem 12:243-6 Mr '20

See also Gypsum

Calcium tetroxide

Über die sauerstoffreichsten oxyde des calciums und bariums. W. Traube and W. Schulze. Deutsche Chem Gesell Ber 54:1626-44 JI '21; Abstract. Chem Soc J 120 pt 2:548-9 S '21

Calculating

See also Calculating machines; Estimates; Graphic methods; Ready-reckoners; also subdivision Tables, calculations, etc., under various subjects, e.g. Electric engineering—Tables, calculations, etc.; Heating—Tables, calculations, etc.

Calculating machines

Calculating machines save time and insure accuracy. D. J. Baker. il Coal Age 18:435-8 Ag 26 '20

Calculatrice Fournier-Mang. L: Fournier. Génie Civil 78:201 F 26 '21

Complete adding machine is typewriter attachment. il Pop Mech 35:164 F '21

L'exposition de machines à calculer de la Société d'encouragement (Paris, 5-13 juin 1920). E. Lemaire. Génie Civil 77:156-8 Ag 21 '20

Histoire des machines à calculer. M. d'Ocagne. Génie Civil 76:580-1 Je 26 '20

Labor-saving office devices in a railway mechanical department. D. M. Sellards. il diag Ry R 66:948-50 Je 5 '20

Mass curve ordinates computed by aid of adding machine. R. T. Brown. Eng N 85:1172 D 16 '20

Mechanical devices speed up the work in division offices. C. O. Price. Ry R 68:693-6 My 7 '21

Modern lessons on calculating machines. R. L. Melchior. 3d ed., rev. 138p Tri-state business university, Toledo, O. '20

New multiplication machine. il Sci Am 125A:62 N '21

Origin of modern calculating machines. J. A. V. Turck. 196p Western society of engineers, Chicago '21

Rapid calculator counts days to any future date. il Pop Mech 35:736 My '21

Trigonometric computer. F. E. Wright. il Sci Am M 1:228 Mr '20

See also Bookkeeping machines; Payroll machines; Slide rule; Tabulating machines; Trackman's rule

Manufacture

Drawing and swaging dies for a hub. H. F. Pusep. diag Am Mach 54:152-3 Ja 27 '21

Calculus

Examples in differential and integral calculus, with answers. C: S. Jackson. 142p Longmans '21

Introduction to mathematical analysis. F. L. Griffin. 512p Houghton '21

See also Harmonic analysis

Calculus, Differential

Elementary calculus. W: F. Osgood. 224p Macmillan '21

Calendars

Calendar revision is given world-wide consideration. Pop Mech 35:884 Je '21

Charming one-sheet calendar. Ptg Art 37:225 My '21

Wall calendars are scarce. R. F. Saladé. Inland Ptr 66:183-4 N '20

Calgary, Alberta**Rapid transit**

Recent developments at Calgary. il plans Elec Ry J 57:886-91 My 14 '21

Calibration

Calibrating pressure gauges. diag Pop Mech 36:137 JI '21

Calibration and dimensional changes of precision gage blocks. C. G. Peters and H. S. Boyd. il diag Am Mach 53:627-32, 674-9 S 30-O 7 '20

Calibration bar for extensometers. E. Rawson. il diag Engineering 111:68, 69 Ja 21 '21

Calibration of barographs used in airplane altitude measurements. Sci Am M 2:80 JI '20

Calico printing

Printing colors fixed by chrome sales. E. Justin-Mueller. Color Tr J 8:88 Mr '21

California

California. A. W. Douglas. il Nation's Business 8:26-8 O '20

See also Mohave desert region, California; Railroads—California; Roads—California; Salton sea region, California

Architecture

Domestic architecture of California. W: W. Kent. il Arch Forum 32:95-100, 151-6 Mr-Apr '20

Some recent California architecture; the work of Louis Christian Mullgardt, architect. il plans Arch Forum 33:51-4 Ag '20

Some work of George Washington Smith. W: W. Kent. il plans Arch Forum 35:45-50 Ag '21

Climate

Some notes on California rainfall. C. E. Grunsky. J Elec 44:204-6 Mr 1 '20

Industries and resources

California's new industry. il J Elec 44:305-6 Ap 1 '20

Future of California power. H. G. Butler. J Elec 46:641-3 Je 15 '21

Industrial load in California. map Elec W 76:428-30 Ag 28 '20; Excerpts. J Elec 45:231-2 S 1 '20; Abstract. Power 52:481 S 21 '20

Relation of water power to industrial development in California. W. E. Creed. Elec W 77:1059-60 My 7 '21

See also Electric industries—California; Electric plants (central stations)—California; Electricity supply—California; Gold mines and mining—California; Hydroelectric plants—California; Irrigation—California; Machine tool industry—California; Mines and mineral resources—California; Petroleum—California; Petroleum industry and trade—California; Silver mines and mining—California; Water power—California; Water supply—California

Missions

Spanish missions to be restored. Am Arch 119:216-17 F 23 '21

Politics and government

Research activities of departments of the state government of California in relation to the movement for reorganization. J. R. Douglas. Nat Research Council Bul 2 pt 5:289-334 Je '21

Public service commission

Report of the Inman investigating committee on the Railroad commission of California. J Elec 46:337-8 Ap 1 '21

Railroad commission

Public utilities and the Railroad commission. E. O. Edgerton. J Elec 45:514 D 1 '20

Water and power board

Proposed five hundred million power bill for California; complete text with annotations by Robert Sibley. J Elec 47:341-2 N 1 '21; Excerpt. Elec W 78:941-2 N 5 '21

California, Lower

See also Gold mines and mining—Lower California

Economic conditions

Lower California and its natural resources. E. W. Nelson. (Memoirs v. 16 no. 1) 194p National academy of sciences, Washington '21

California associated raisin company

Suggested limitations of Federal trade commission for marketing associations. H. E. Agnew. *Ptr Ink* 115:153+ My 12 '21

California fruit growers' exchange

California's citrus fruit industry. R. G. Skerrett. *il Sci Am M* 2:212-16 N '20
Principles and practice in cooperation. G. H. Powell. *il J Elec* 46:381-2 Ap 15 '21
State's \$81,000,000 citrus industry. G. H. Powell. *il Am Ind* 21:15-17 D '20

California land settlement scheme. *See* Agricultural colonies**California metal trades association**

Open shop wins at Golden Gate. D. Partridge. *il Iron Tr R* 68:418-22 F 10 '21

California raisin growers' association

Federal trade commission may say "do" instead of "don't". C. H. Claudy. *Ptr Ink* 110:85-6+ Ja 15 '20

How much cooperation? *Nation's Business* 8: 23 O '20

California state association of electrical contractors and dealers

Annual meeting. *J Elec* 45:74-7 Jl 15 '20

California. University**Extension division**

Technical education through university extension. R. J. Heffner. *J Elec* 44:56-7 Ja 15 '20

Calipers

Inside caliper of special design. V. G. Terry. *diags Mach* 26:458 Ja '20

See also Micrometers

Callbreath, James Finch, 1858-

Sketch. *por Eng & Min J* 110:909 N 6 '20

Calomel electrodes. *See* Electrodes**Calorene**

Competitor for acetylene. *Sci Am* 122:61 Ja 17 '20

New cutting gas, calorene, with fine properties. *Brass W* 17:111-12 Ap '21

Calories. *See* Nutrition**Calorimeters and calorimetry**

Calorimeter for determining the heat of ignition sparks. H. A. Thornburg and E. B. Weaver. *il diag Automotive Ind* 45:523-4 S 15 '21

Calorimeters; how constructed and used. *il chart diags Power Pl Eng* 24:95-105 Ja 1 '20

Calorimetric procedure for determining the heats of slow reactions. F. Barry. *Am Chem Soc J* 42:1295-1308, 1911-45 Jl, O '20

Calorimetry of liquid fuel. *diag Eng & Ind Management* 6:95-6 Jl 28 '21

Calorimetry of solid fuel. *diags Eng & Ind Management* 5:737-9; 6:62-4 Je 30, Jl 21 '21

Determination of the radiation correction of a throttling calorimeter. R. I. Alexander. *Power* 52:577-8 O 12 '20

Method of measuring heat energy of ignition sparks; Measurement of heat energy per spark of various ignition systems. *diags F. B. Silsbee and others. U S Nat Advisory Com for Aeronautics* 1919:163-76 '20

New heating value indicator. E. J. Brady. *diags Am Gas Assn Technical sec v* 1:367-87; Discussion. 387-93 '19

Precision calorgraph. *il diag Gas Age* 46:70-1 Jl 26 '20; *Am Gas Eng J* 112:sup20 My 22 '20

Recording gas calorimeter. H. N. Packard. *il diags Am Gas Assn Technical sec v* 2:465-75 '20; Same cond. *Gas Age* 46:374 N 10 '20; Discussion. *Am Gas Assn Technical sec v* 2:475-80 '20

Recording gas calorimeters. *Engineering* 112: 546-7 O 14 '21

Restatement and correction of the thermochemical data on organic compounds; the data of P. W. Zubow. W. Swietoslawski. *Am Chem Soc J* 42:1092-1100 Je '20

Standard calorimeter setting. C. D. Jenkins. *diags plan Gas Age* 45:245-6 Mr 25 '20

Steam calorimetry. G. B. Upton. Sibley *J* 35:40-1+ Mr '21

See also Cooling; Respiration calorimeter; Specific heat

Calorizing

Calorizing as a protection for metals; abstracts. A. V. Farr. *il Iron Age* 107:251-3 Ja 27 '21; *Brass W* 17:71-2 Mr '21; *Iron Tr R* 68:1724-7 Je 23 '21; *Blast F & Steel Pl* 9:431-3 Jl '21

Calorizing process to prevent oxidation. G. F. Burger. *il Blast F & Steel Pl* 8:109-10, 212-13 Ja, Mr '20

Preventing rust at high temperatures; aluminum-coated metals that will go to the melting point without formation of scale. R. June. *il Sci Am* 123:404+ O 16 '20

Preventing the oxidation of metals from heat. *Sci Am* 123:76 Jl 17 '20

La protection des métaux par la calorisation. *il Génie Civil* 79:131-2 Ag 6 '21

Camden, New Jersey**Rapid transit**

Better transportation for Camden. *il Elec Ry J* 57:434-7 Mr 5 '21

Camden-Philadelphia bridge. *See* Philadelphia—Bridges**Camels, Fossil**

New camels in the Marsh collection. R. S. Lull. *il Am J Sci* 5th ser 1:392-404 My '21

Cameras

Das arbeiten mit kleinen kameras. P. Hanneke. 76p W. Knapp, Halle (Saale) '20

How to make an enlarging camera. *diag Pop Mech* 33:305 F '20

Stabilized camera. W. A. Hyde. *il Aviation* 10:13-14 Ja 3 '21

Uncle Sam's big camera installed in the United States Geological survey. *il Sci Am* 125:253+ O 8 '21

See also Photography; Photostat

Advertising

Kodak's fighting front this year. L. B. Jones. *il Ptr Ink M* 3:14-15+ Ag '21

Cammellaird-Fullagar engine

Cammellaird-Fullagar Diesel engine. *diags Engineer* 129:107-10, 132-3 Ja 30-F 6 '20; *Engineering* 109:144-6, 148 Ja 30 '20

Cammellaird-Fullagar Diesel engine. *diags Power* 52:98 Jl 20 '20

Cammellaird-Fullagar engined M.S. Malia. *Engineering* 112:503-4 O 7 '21

Le moteur à pétrole à double piston. *il diags Génie Civil* 76:285-8 Mr 20 '20

New Cammellaird-Fullagar opposed piston type of marine oil engine. *il diags Int Marine Eng* 25:327-9 Ap '20

Welded motorship Fullagar. *il Int Marine Eng* 25:724-5+ S '20

Cammen process

Centrifugal castings. *il Automotive Ind* 45: 109 Jl 21 '21

Centrifugal machine casts solid concrete shapes. L. Cammen. *diags Eng N* 87:366 S 1 '21

Mold serves as electric furnace. E. C. Kreutzberg. *il diags Iron Tr R* 69:33-5 Jl 7 '21; Same. *Foundry* 49:772-4 O 1 '21

Camouflage

Aeronautical camouflage. W. R. Weigler. *il Aerial Age* 11:288-9+ My 10 '20

Art of camouflage. W. A. Howells. *il Illum Engr* 13:6-12; Discussion. 13 Ja '20

Plant pigments and camouflage. L. S. Palmer. *Sci Am* 124:509 Je 25 '21

Theatre for studying camouflaged ship models. *Sci Am S* 88:348 D 13 '19

Camp sanitation

Sanitation of road construction camps. J: N. Edy. Munic Eng 59:sup28+ Ag '20; Same. Eng & Contr 54:205-6 S 1 '20

Sewage treatment at the Miami conservancy camps. Eng N 85:361 Ag 19 '20

Special adaption of Imhoff tanks for sewage treatment at Miami camps. diags plan Eng & Contr 53:657-8 Je 9 '20

Campaign buttons

Campaign buttons. Ptg Art 36:51-2 S '20

Campaign funds

High cost of campaigning. Nation's Business 8:42+ JI '20

Campbell, James A., 1856-

President Campbell, Youngstown sheet & tube co. C. A. Dickhaut. por Iron Age 106:1485-6 D 2 '20

Camphane

Studies in the camphane series; *p*-aminophenylaminocamphor (camphoryl-*p*-phenylenediamine. M. O. Forster and W. B. Saville. Chem Soc J 119:789-98 Je '21

Camphor

Artificial camphor. Sci Am M 1:420-1 My '20
Camphor; abstract. L. Ruzicka. Chem Soc J 120 pt 1:36 Ja '21

Camphor industry in Foochow. Chem & Met Eng 23:844 O 27 '20

Camphor production, export slump in Japan. Oil Paint & Drug Rep 99:87 sec 1 Ap 25 '21

Camphor production in British empire. P. Carmody. Chem & Met Eng 22:1030 Je 2 '20

L'état actuel de l'industrie du camphre; le camphre de plantations. M. Y. Lemaire. Génie Civil 79:88-90 JI 23 '21

Synthetic camphors. Sci Am M 2:116 O '20

See also Epicamphor

Camphor substitutes

Camphor substitutes in the manufacture of celluloid; with list of patents. A. P. Sachs and O. Byron. J Ind & Eng Chem 13:893-901 O '21

Camphorylphenylenediamine

Studies in the camphane series; *p*-aminophenylaminocamphor (camphoryl-*p*-phenylenediamine. M. O. Forster and W. B. Saville. Chem Soc J 119:789-98 Je '21

Camping. See Camps; Motor caravans; Tents

Camps

Appalachian trail; a project in regional planning. B. Mackaye. map Am Inst Arch J 9:325-30 O '21

Motor tourists' camp at Denver has all conveniences. E. C. MacMechen. il Pop Mech 34:513-17 O '20

Novel setting in which to hold sales conferences; Nela camp. N. G. Shidle. il Automotive Ind 43:774-5+ O 14 '20

Oil jobbers provide tourist camp ground along Dixie highway. W. K. Halbert. Nat Pet N 13:51+ O 5 '21

Simple camp lodge for all-season use. il plan Pop Mech 34:960 D '20

See also Camp sanitation; Construction camps; Labor camps; Lumber camps; Mining camps

Electric equipment

Modern electrical conveniences at Camp Curry, Calif. C: Matthews. il Elec R 77:472-4 S 25 '20

Camps, Construction. See Construction camps

Camps, Labor. See Labor camps

Camps, Lumber. See Lumber camps

Camps, Military

Congress and the cantonments. Eng N 84:842-3 Ap 29 '20

Dismantling a city; how a great army camp is converted into second-hand building material. H. A. Mount. il Sci Am 122:566+ My 22 '20

House committee condemns army camp construction. Eng N 84:849-50 Ap 29 '20

Water consumption in army camps. G: A. Johnson. Am Water Works Assn J 7:102-7 Ja '20

Water supply system of Camp McClellan, Alabama. M. R. Scharff. diag map Am Water Works Assn J 7:108-16 Ja '20

Cams

Adjustable trimming and shaving dies. F. A. Stanley. il diags plans Am Mach 52:177-80 Ja 22 '20

Cam cutting in a jobbing shop. E. A. Dixie. il Am Mach 53:1131-2 D 16 '20

Cam design and construction. F. De R. Furman. diags Am Mach 50:581-6, 685-9, 779-84, 927-31, 1123-6; 51:569-74, 695-8; 52:21-7, 493-503, 777-83, 987-94, 1129-35 Mr 27, Ap 10, 24, My 15, Je 12, S 18, O 9 '19, Ja 1, Mr 4, Ap 8, My 6, 27 '20

Cam design and manufacture. F. B. Jacobs. 121p Van Nostrand '21

Cam milling attachment. W. C. Steuart. il diags Mach 27:574 F '21

Cams, elementary and advanced. F. D. Furman. 234p Wiley '21

Cutting a cam without a milling machine. C: D. Folsom, jr. diag Am Mach 53:33 JI 1 '20

Cutting cams on a boring machine. F. C. Hudson. il Am Mach 52:1203 Je 3 '20

Designing cut-off cams for automatic screw machines. J: A. Crabtree. diags Mach 26:806-7 My '20

Exhaust cam moved forward. diags Power Pl Eng 25:293 Mr 1 '21

Finish turning some heart-shaped cams. E. A. Dixie. il Am Mach 53:779-80 O 21 '20

Garvin 12-in. cam milling machine: a suggested improvement. J. Blakey and J. A. H. Shankley. diags Eng & Ind Management 5:566-8 My 19 '21

Generating a cam on a milling machine. A: de Angelis. il diag Am Mach 52:1047 My 13 '20

Grinding shaper cross-feed cams. il Mach 27:653-4 Mr '21

Harmonic cams with flat followers. R. J. Cousins. diags Automobile Eng 11:42 F '21

Keeping records of automatic screw machines. S. Helweg. diags Mach 26:659-61 Mr '20

Landis attachment for grinding of cams. il diag Automotive Ind 43:921-2 N 4 '20; Iron Age 106:1204 N 4 '20; Mach 27:292-4 N '20

Machining side cams on a gear cutter. E. Viall. il Am Mach 55:28 JI 7 '21

Making master grinding cams. J. McIntosh. diags Am Mach 54:125-6 Ja 27 '21

Milling peripheral cams on a lathe. E. Viall. il Am Mach 55:148 JI 28 '21

Press tools for a toothed cam. F. A. Stanley. il diags plans Am Mach 51:1075-7 D 25 '19

Production of accurate cams. E. A. Dixie. il diags Am Mach 54:553-6 Mr 31 '21

Redesigned Garvin 12-inch cam cutting machine. il Automotive Ind 42:609 Mr 4 '20

Tangential cams. Automotive Ind 42:422-3 F 5 '20

Turning irregular forms. J. Davies. diags Am Mach 55:357-8 S 1 '21

Unique lathe turns cams at single operation. il Iron Tr R 68:564 F 24 '21

Testing

Gaging fixture for the relation of the cams to keyway. diags Automotive Ind 43:457 S 2 '20

Camshafts

Chuck-type driver for camshaft. L. Jagow. diags Mach 26:661-2 Mr '20

Machining tractor camshafts. R. E. Flanders. il diags plan Mach 26:825-7 My '20

Manufacture of accurate camshafts. E: K. Hammond. diags Mach 28:175-80 N '21

Rapid machining of multi-cylinder camshafts. diags Automotive Ind 42:462-3 F 12 '20

Repairing broken cam shafts. G: J. Young. il Eng & Min J 110:1092-3 D 4 '20

Canada

Natural and regulatory barriers impede way to Mackenzie. L. E. Smith. *il Nat Pet N* 13:35-8+ Ap 13 '21

See also Engineering—Canada; Hudson Bay railway; Railroads—Canada; Street railroads—Canada

Advisory council for scientific and industrial research

Plan for the development of industrial research in Canada. R. F. Ruttan. *J Ind & Eng Chem* 13:876-8 O '21

Air board

Canadian air force. Aviation 10:683-4 My 30 '21

Canadian air progress—1920. map Aviation 10:372-4 Mr 21 '21

Progress report No. 2 of Canadian air board covering activities for Aug. 1 to 31. Aviation 9:264 N 8 '20

Report of the Canadian air board for the year 1920. Flying 10:139-43 My '21

Army

Engineering battalions: their work in the war. A. W. Currie. *Can Eng* 38:203-10 F 12 '20

Census

Canada takes her sixth decennial census. F. Dickie. *il Pop Mech* 36:379-81 S '21

Commerce

Canada readjusting foreign trade problems. W. G. Cates. *Annalist* 17:638+ Je 13 '21

Canada's foreign trade for 1919. *Chem & Met Eng* 22:850 My 5 '20

Canada's trade with the United States. W. L. Edmonds. *Iron Age* 108:13-14 Jl 7 '21

Canadian trade reaches highest point in its history. *Annalist* 17:208 F 7 '21

Effect of new Fordney bill on Canadian trade. W. G. Cates. *Annalist* 18:77 Jl 25 '21

Trade agreement between France and Canada. *Engineer* 131:260 Mr 11 '21

Trade of the United States and Canada. W. L. Edmonds. *Iron Age* 106:137-8 Jl 15 '20

Trade statistics of Canada. *Elec R (Lond)* 88:191 F 11 '21

See also Tariff—Canada

Description and travel

See also Rocky mountains—Canadian Rockies

Economic conditions

Confidence for 1921 comes from Canada's tested strength. R. W. Wigmore. *Annalist* 17:11+ Ja 3 '21

See also Banks and banking—Canada; Wages—Canada

Geological survey

Annotated catalogue of and guide to the publications of the Geological survey, Canada, 1845-1917. W. F. Ferrier. (*Geol. S.* 1723) 544p maps '20 Canada. Dept. of mines, Ottawa

Industries and resources

Canada and the chemists. C. Price-Green. *Chem & Met Eng* 23:672-4 O 6 '20

Canada fast making itself a self-contained industrial unit. *il Americas* 7:6-12 Jl '21

Canadian starch and glucose industry. *Chem & Met Eng* 23:1171 D 15 '20

Engineering and allied industries of Canada. *Engineering* 110:249-50 Ag 20 '20

Engineering and industrial projects in Canada. C. H. Mitchell. *Can Eng* 39:428-9 O 14 '20

Industrial opportunities offered by Canada cover a wide range. G. W. Curtis. *Americas* 7:30-1 My '21

Mackenzie River basin. P. Thompson. map *Eng & Min J* 108:866-8 D 6 '19

Phases of the Canadian fuel and power problem. L. Simpson. *Can Chem & Met* 5:163-4 Je '21

Record number of new incorporations in Canada during 1920. *Can Eng* 40:52+ Ja 6 '21

See also Aeronautics, Commercial—Canada; Automobile industry and trade—Canada; Building trades—Canada; Coal mines and mining—Canada; Coal supply—Canada; Coal trade—Canada; Electric industries—Canada; Electric plants (central stations)—Canada; Hudson Bay railroad; Hydroelectric plants—Canada; Iron industry and trade—Canada; Iron ores—Canada; Irrigation—Canada; Mines and mineral resources—Canada; Paper industry and trade—Canada; Petroleum—Canada; Petroleum industry and trade—Canada; Railroads—Canada; Roads—Canada; Water power—Canada

Manufactures

35,000 manufacturing establishments in Canada. *Comm & Fin Chr* 112:431-2 Ja 29 '21

Politics and government

Farmers in control in Canada. *Comm & Fin Chr* 113:224 Jl 16 '21

Public works

Dominion bureau compiles municipal statistics. *Can Eng* 39:610-12 D 16 '20

Railroads

See Electric railroads—Canada; Railroads—Canada

Canadian association of stationary engineers 32d annual convention, Ottawa, Ont., June 28-30. *Power* 54:79 Jl 12 '21

Canadian bank of commerce 54th annual meeting, Toronto, Jan. 11. *Comm & Fin Chr* 112:237-8 Ja 15 '21

Canadian building and construction Industries, Association of. *See* Association of Canadian building and construction industries

Canadian electric railroad association 17th annual convention, Ottawa, Jan. 31-Feb. 1. *Elec Ry J* 57:263-70 F 5 '21

Canadian electrical association Activities of the Canadian electrical association. E. Vinet. *N E L A Bul* 7:895-6 D '20

30th annual convention, Montreal, Quebec, June 16-18. *Elec W* 75:1503-4 Je 26 '20

31st annual convention, Quebec. *Elec R* 79:24 Jl 2 '21

Canadian engineering standards association Meeting, Ottawa, April 12. *Can Eng* 38:419 Ap 29 '20

Canadian gas association 13th annual meeting, Ottawa, Aug. 27-28. *Gas Age* 46:189 S 10 '20

Canadian good roads association Convention, Winnipeg. *Can Eng* 38:539-43 Je 10 '20

8th annual convention, Halifax, May 10-12. *Can Eng* 40:471-86 My 19 '21

Canadian institute of chemistry Canadian institute of chemistry. *Chem & Met Eng* 22:815 Ap 28 '20

Canadian institute of mining and metallurgy British Columbia section of Canadian institute meets at Vancouver, B. C., Feb. 9-12. R. Dunn. *Eng & Min J* 111:401-2 F 26 '21

Meeting at Winnipeg. R. C. Wallace. *Min & Sci P* 121:773-4 N 27 '20

2d annual western convention, Winnipeg, Oct. 25-27. *Eng & Min J* 110:963-4 N 13 '20

22d annual meeting, Toronto, March 8-10. *Eng & Min J* 109:654-8 Mr 13 '20; *Min & Met* 160:5-7 Ap '20

23d annual meeting, Montreal. E. H. Robie. *Eng & Min J* 111:465-9 Mr 12 '21; *Coal Age* 19:590 Mr 31 '21

Canadian National railways Location betterments on Canadian National railways. H. K. Wicksteed. maps *Eng N* 85:759-60 O 14 '20; Same. *Can Eng* 39:499-500 N 4 '20

Canadian Northwest. *See* Northwest, Canadian

Canadian Pacific railway

39th annual report. Comm & Fin Chr 110:1534-8 Ap 10 '20; Ry Age 68:1181-2, 1219-21 Ap 16 '20

40th annual report for the fiscal year ended December 31, 1920. Comm & Fin Chr 112:1408-12 Ap 2 '21; Excerpts. Ry Age 70:867-9; Discussion. 826-8 Ap 1 '21

Canadian railways' rate increase. Ry Age 69:479-81 S 17 '20

Extensions to world's largest railway shops; Angus shops at Montreal. L. A. Wright. il plan Can Eng 39:643-7 D 30 '20

Report of the proceedings at the fortieth annual meeting of the shareholders, Montreal, May 4. Comm & Fin Chr 112:2322-3 My 28 '21

Reviews operating problems of Canadian Pacific in 1920. E. W. Beatty. Ry R 68:744-5 My 14 '21

Canadian paper trade association

Trade conditions analyzed at 3d annual convention, Toronto, Oct. 6-7. Paper 27:9-10+ O 13 '20

Canadian pulp and paper association

Annual meeting, Montreal, Jan. 21. Paper 27:9-11+ F 2 '21

Canadian sanitary association

9th annual convention, Ottawa, Sept. 6-8. Dom Eng 96:565+ S 24 '21

Canadian society of domestic sanitary and heating engineers

24th annual convention, Quebec, June 6-8. Dom Eng 95:633-4+ Je 25 '21

Canal boats

Development of Warrior river barge canal. R. S. Thomas. il Int Marine Eng 25:194-8 Mr '20

Electric traction

Electric mule for France's canals. F. P. Mann. il Sci Am 124:229 Mr 19 '21

Nouveaux systèmes de halage électrique sur les canaux. E. Imbeaux. il diags Génie Civil 77:521-4 D 25 '20

Canal du Rhône. See Rhone-Rhine canal

Canal rays

Positive rays. J. J. Thomson. Engineering 109:286-7, 318-19, 335-7, 384-6, 402-3, 453-4 F 27- Ap 2 '20; Abstract. Electrician 84:319-20 Mr 19 '20

Über zersetzung von kohlenwasserstoffen durch kanalstrahlen. V. Kohlschütter and A. Frumkin. Deutsche Chem Gesell Ber 54:587-94 Ap '21

Canals

Cooling of water in a canal; abstract. L. C. Kemp. Mech Eng 43:337 My '21

Hydraulic jump and critical depth in the design of hydraulic structures. J. Hinds. diags Eng N 85:1034-40 N 25 '20; Discussion. 86:135, 272 Ja 20, F 10 '21

Practical river and canal engineering. R. C. R. Minikin. 123p C. Griffin & co., ltd., London '20

See also Dredging machinery; Irrigation canals; Waterways; also names of canals, e.g. Cape Cod canal, Chesapeake and Delaware canal, Chicago drainage canal, Morris & Essex canal, New York state barge canal, Panama canal, Queenston-Chippawa canal, Rhone-Rhine canal, Warrior river barge canal, Welland ship canal

Cleaning

See also Irrigation canals—Cleaning; Screens

Locks

See Locks (hydraulic engineering)

Canada

See also Queenston-Chippawa canal

China

Engineering in North China. D. F. McLeod. Eng N 84:862-3 Ap 29 '20

England

Problem of the canals. Engineer 128:607-8 D 19 '19

France

Canals of France. Engineer 129:576 Je 4 '20
Résultats du concours interdépartemental de projets pour un canal latéral à l'Allier; puits-écluses, système Maire. diags map plans Génie Civil 78:307-11 Ap 9 '21

See also Waterways—France; also Rhone-Rhine canal

Germany

Die wasserstrassenverbindung Rheinlands und Westfalens mit den küstenstädten. M. Hahn. map Stahl & Eisen 41:1330-7 S 22 '21

Scotland

Note on the proposed mid-Scotland ship canal. D. A. Stevenson. Engineering 112:462 S 23 '21; Abstract. Engineer 132:312 S 23 '21; Discussion. Engineering 112:407-8 S 16 '21

United States

Illinois state waterway for barge navigation. diags plans Eng N 85:1095-8 D 2 '20

Jersey canal to form last link in chain. map Pop Mech 33:399 Mr '20

New Orleans' industrial canal. T. E. Dabney. il diags Sci Am 122:304+ Mr 20 '20

Progress on New Orleans inner harbor—Navigation canal. M. G. Findley. il map Eng N 84:808-10 Ap 22 '20

U.S. asked to take over industrial canal. diag Marine R 50:545 O '20

See also New York state barge canal

Canals, Interoceanic

See Nicaraguan canal (proposed); Panama canal

Cancellation of orders

Cancellations. J. P. Brophy. Am Mach 54:120 Ja 20 '21

Cancellations cause manufacturer to sell goods direct. G. A. Nichols. Ptr Ink 114:3-4+ Ja 27 '21

Cancellations—legal liabilities of buyer and seller. W. R. Montgomery. Am Mach 53:1018-19 N 25 '20

Checking cancellation evils. Nation's Business 8:17-18 O '20

Credit men's recommendation on how to reduce cancellations. A. A. Mowbray. Ptr Ink 114:133+ F 3 '21

Law of cancellation as between dealer and jobber. J. A. Timony. Elec R 79:56-7 Jl 9 '21

Legal aspects of contracts and cancellations. W. R. Montgomery. Iron Age 106:1324, 1369+ N 18 '20

New cancellation evil as the retailer sees it. J. Daniels. Ptr Ink 114:25-6 Mr 24 '21

Nursery practices in dealing with cancellation evil. Ptr Ink 113:142+ O 7 '20

Pleas for better ethics in cases of cancellation. Nation's Business 9:46+ Ja '21

Stagnation largely due to order cancellation. P. Mathewson. Annalist 17:172+ Ja 31 '21

Undermining business. Am Mach 54:244-5 F 10 '21

United States chamber of commerce on cancellation evil. Comm & Fin Chr 111:2293-4 D 11 '20; Same cond. Am Mach 53:1162+ D 16 '20

What can be done to prevent cancellation? M. Hastings. Ptr Ink 112:65-6+ Jl 1 '20

When contracts may be canceled. C. C. Sherlock. Iron Tr R 68:558+ F 24 '21

See also Returned goods

Candlepower. See Photometry**Candles**

Candle industry grows as well as electric. Nat Pet N 12:44+ S 15 '20

Advertising

Building a new luxury out of an old necessity. Ptr Ink 115:19-20 Ap 28 '21

Candy

- Charles Apell, up-to-date candy teacher. C: Apell. 475p C. Apell, Bloomington, Ill. '21
 Gas furnaces for cooking candy. J. Beveridge. Am Gas J 115:389 O 29 '21
 Temperature and humidity in storage of eggs and candy. O. T. Lay. Sci Am M 3:424 My '21
 Uncle Samuel's sweet tooth. H. A. Mount. il Sci Am 123:88+ JI 24 '20

Candy stores

- Innovations in small store design. il plans Arch Forum 34:135-8, pl 58-9 Ap '21

Candy trade

- Billion dollar candy industry. J: F. McElhone. il Am Ind 21:27-30 JI '21

Advertising

- Commercialized psychism sells hard candy. Ptr Ink 112:84 JI 29 '20
 Making the rest of the line follow the leader. R. Cole. Ptr Ink 112:3-4+ JI 22 '20
 Single sales appeal, constantly advertised, built this business. J: A. Murphy. Ptr Ink 115:3-4+ Je 16 '21
 Southern candy manufacturers widening their markets. Ptr Ink 112:97-8 Ag 5 '20
 There's happiness in every box. O. D. Foster. Ptr Ink 111:25-7+ My 13 '29
 Whimsical advertising increases candy sales 200 per cent. W. K. Burlen. Ptr Ink 110:17-20 F 26 '20

Canned food

- Causes of alterations in canned goods. Sci Am M 2:228 N '20
 Discoloration in canned sweet potatoes. E: F. Kohman. J Ind & Eng Chem 13:634-5 JI '21
 Importance of demonstrating new food products. J. S. Johnson. Ptr Ink 114:35-6 F 24 '21

Advertising

- Increasing sales by increasing knowledge. F. J. Ross. Ptr Ink 110:65 Ja 29 '20
 Plotting out results in advance of campaign. R. B. Kingman. Ptr Ink 111:73-4+ Je 24 '20

Cannel coal

- Cannel coal in southern Utah. C. A. Allen. Gas Age 47:281 Ap 11 '21

Canneries

- Power plants for canneries. C: W. Geiger. il Power Pl Eng 25:508-10 My 15 '21

Lighting

- Solving special lighting problems in the modern cannery. W. Alden. il J Elec 47:145 Ag 15 '21

Canning and preserving

- Accounting for food preserving companies. R. E. Barth. J Account 29:91-7 F '20
 Flat sours. M. R. Daughters. Can Chem & Met 5:132 My '21
 Heat penetration in processing canned foods. Sci Am M 2:369 D '20
 Les machines modernes servant à la fabrication des conserves alimentaires. Lalande. Génie Civil 78:221 Mr 5 '21
 Research chemist in the fruit-products industry. H. A. Noyes. Chem Age 29:385-6 S '21
 We keep our eyes on every detail. W. H. Paulhamus. il System 39:796-8+ Je '21
 World's largest salmon cannery. il J Elec 46:553-4 Je 1 '21

See also Canned food; Food preservatives

Canoes and canoeing

- Pontoons for stability in the canoe. L. B. Robbins. diags Pop Mech 34:146-7 JI '20
 Roller track for canoes. C. Ralston. il Pop Mech 35:623 Ap '21

Cans, Oil. See Oil cans**Cans, Tin. See Tin cans****Cant frames. See Shipbuilding****Cantaloup seed oil**

- Cantaloup seed oil. W. F. Baughman, D. Brauns and G: S. Jamieson. Am Chem Soc J 42:2398-2401 N '20

Cantonments. See Camps, Military**Canvas**

- Water resistance of treated canvas during continuous exposure to weather. F. P. Veitch and T. D. Jarrell. il J Ind & Eng Chem 13:672-6 Ag '21
 Waterproofing and mildewproofing of cotton duck. H. P. Holman, B. S. Levine and T. D. Jarrell. U S Agric Farmers' Bul 1157:1-13 '20; Abstracts. Am Inst Arch J 9:221-3 Je '21; Sci Am M 4:181-2 Ag '21

Canvassing

- Intensive selling that backs up the advertising campaign. E: T. Tandy. il map Ptr Ink M 2:11-12 Ap '21
 Personal solicitation makes the cash register ring. A. L. Goodall. Dom Eng 93:9+ O 2 '20
 Sampling pipe fittings and tools to create demand for the dealer. D. Kirkland. Ptr Ink 112:120-1+ JI 15 '20

See also Peddlers and peddling

Caoutchouc. See Rubber—Chemistry**Cape Cod canal**

- Favor Cape Cod canal purchase by the government. Eng N 86:1094 Je 23 '21

Capillarity

- Capillarity and surface tension. A. Ferguson and P. E. Dowson. Elec R (Lond) 88:431 Ap 1 '21
 Capillary movement of soil moisture. W. W. McLaughlin. bibliog diags U S Agric Bul 835:1-70 '20; Abstract. Eng N 85:933 N 11 '20
 Dynamics of capillary flow. W. Gardner. Phys R 18:206-9 S '21
 Dynamics of capillary flow. E: W. Washburn. diags Phys R 17:273-83 Mr '21
See also Brownian movements; Surface tension

Capillary circulation. See Blood—Circulation**Capital**

- Current new capital flotations of corporate, municipal and foreign government financing; summary. Comm & Fin Chr 112:1216-21 Mr 26 '21 [continued monthly]
 English capital market. F: Lavington. 297p Methuen & co., London '21
 How much capital does a business really need? J: A. Crabtree. charts System 40:566-7+ N '21
 Relation of capital stock to invested capital. M. Rindler. Administration 1:39-45 Ja '21
 What's your invested capital? F. G. Kirby. Factory 25:1741 D 1 '20
See also Banks and banking; Corporations—Finance; Economics; Interest; Investments; Labor and laboring classes; Profit; Trusts, Industrial; Wealth

Capital and labor. See Labor and capital**Capitalism**

- Capitalistic system. E. J. P. Benn. Electrician 87:493, 518, 546 O 14-28 '21
 Remarkable progress of America under the capitalistic system. F. H. Sisson. Eng & Contr 55:221-2 Mr 9 '21

Capitalization

- Differences in the use of capitals. F. H. Teall. Inland Ptr 67:632 Ag '21
 Our bewildering seesaw of detail in practice. F. H. Teall. Inland Ptr 65:63-4 Ap '20
 Problems of capitalization. F. H. Teall. Inland Ptr 65:366 Je '20

Capitalization (finance). See Corporations—Finance**Capitol buildings**

- Final stage, Nebraska state capitol competition; views and plans. Am Arch 118:114a-h JI 28 '20
 Manitoba dedicates its new capitol. il Pop Mech 35:41-2 Ja '21
 Nebraska capitol competition. il plans Am Inst Arch J 8:299-306 Ag '20
 Nebraska state capitol competition. plan Am Arch 118:79-80, pl 78a-k JI 21 '20
 Nebraska's new state capitol. il Sci Am 124:367 My 7 '21
 Porto Rico's new capitol. S. Baxter. il plans Arch Rec 49:172-9 F '21

Capitol buildings—Continued

Proposed Nebraska state capitol. R. Imlay. il plan Arch Rec 48:75-8 JI '20

See also League of nations building; United States—Capitol

Caprifig

Romance of the caprifig. R. P. Crawford. il Pop Mech 34:65-8 JI '20

Caps, Metal

Punch and die for blanking and forming metal caps. diag Mach 27:560 F '21

Capsaicin

Constitution of capsaicin, the pungent principle of capsicum. E. K. Nelson. Am Chem Soc J 41:1115-21; 42:597-9 JI '19, Mr '20

Car. See Cars

Car axles

Pollack methods of axle manufacture. il Ry R 66:266-7 F 14 '20

Railway car axle design. A. L. Nichols. diags Mach 26:498-500 F '20

Car cleaning

Report of committee on maintenance and care of paint and varnish terminals. Ry Mech Eng 94:643-4 O '20

Spraying car cleaner fluid. Elec Ry J 57:1093 Je 11 '21

See also Car trucks—Cleaning

Car couplings

Air hoist for applying coupler with yoke and friction gear. il Ry R 68:28-30 Ja 1 '21

Automatic car air and electric couplers. il Elec Ry J 56:881-2 O 23 '20

Automatic connectors on the Copper Range R.R. Ry R 66:754-5 My 8 '20

Auxiliary car coupler. N. McCleod. diags Ry Mech Eng 95:564 S '21

Beahm automatic connector for train pipes. il diags plan Ry Age 69:451-3 S 10 '20; Same. Ry Mech Eng 94:585-6 S '20

Les causes des ruptures d'attelages de chemins de fer. il diag Génie Civil 78:212-15 Mr 5 '21

Cutting out a railroad hazard. S. G. Roberts. il Sci Am 122:275+ Mr 13 '20

Futrell automatic train line connector. il diags Ry Mech Eng 95:102-4 F '21; Same. Ry Age 70:516-18 Mr 4 '21

Marvel of train control; new system of automatically connecting the air and steam hose of railway cars. R. G. Skerrett. il Sci Am M 3:63-5 Ja '21

Mine-car coupler which reduces accidents. il diag Coal Age 18:1094 N 25 '20

Simplifying the coupling of trains. il Sci Am 125:131+ Ag 20 '21

Type D coupler in passenger service. il diags Ry Age 69:285-7 Ag 13 '20; Same abr. Ry Mech Eng 94:521-2 Ag '20

Car curtains

Repairs to car seats and curtains. il Elec Ry J 55:571-3 Mr 20 '20

Side window curtains for safety cars. Elec Ry J 56:1062-3 N 20 '20

Car doors

Car doors and fixtures; committee report. Ry Age 68:1886-7 Je 17 '20; Excerpt. Ry R 66:1046-7 Je 19 '20

Freight car doors. Ry R 68:376-7 Mr 5 '21

Hartend general service car, and Hart door gear. il diags Ry Mech Eng 94:51-2 Ja '20

Radical departure in freight car door fixtures. il Ry Age 67:1073-4 N 28 '19; Same. Ry Mech Eng 93:743 D '19

Serrure de sûreté, avec loqueteau intérieur, pour les portières latérales des voitures de chemins de fer. L. Salomon. Génie Civil 78:220 Mr 5 '21

See also Grain doors

Car dumping. See Dumping appliances

Car floats. See Barges

Car floats, Concrete. See Barges, Concrete

Car floors

Leather mats solve cold floor problem on the Chicago elevated railways. il Elec Ry J 57:521-2 Mr 19 '21; Excerpts. Eng & Contr 55:390 Ap 20 '21

Car heating

Atmospheric heating system for railroad cars. T. H. Ireland. diags Heat & Ven 17:41 Ap '20

Automatic heat regulation of electric cars. Sci Am 124:443 Je 4 '21

Freight car heaters. Ry R 67:912-13 D 11 '20

Heating passenger coaches on the Chicago, Milwaukee & St Paul railroad. H. G. Jungk. il diag Elec J 17:324-5 Ag '20

Inspection of freight equipment. L. K. Sillcox. Ry Mech Eng 94:588 S '20

Steam-heating electric trains in Switzerland. W. A. Rosenberger. il diag Elec Ry J 58:206-7, 829 Ag 6, N 5 '21

Tests of steam heating apparatus. charts diag Ry Mech Eng 95:362-4 Je '21

Thermostatic control saves energy. Elec Ry J 55:1245-6 Je 19 '20

Car houses

New car house in Massillon occupied. il Elec Ry J 57:685 Ap 9 '21

New carhouse wiring rules. Elec Ry J 55:748 Ap 10 '20

Car inspection

A.c.-d.c. multiple-unit maintenance on the New Haven. il diags map plan Elec Ry J 55:1147-55 Je 5 '20

Basing car inspection on energy consumption. L. E. Gould. Elec Ry J 56:267-9 Ag 7 '20

Car inspector. Ry R 68:616-18 Ap 16 '21

Duties of car inspectors in handling tank cars. J. E. Grant. Ry Mech Eng 94:769-72 D '20

Inspecting cars in interchange. Ry Mech Eng 93:722-3 D '19

Inspection of freight equipment. L. K. Sillcox. il diags Ry Mech Eng 94:19-24, 93-6, 149-52, 216-20, 285-8, 369-73, 463-8, 526-30, 587-8 Ja-S '20

Maintenance of air brake and safety car control equipment. J. C. McCune. il diags plan Elec Ry J 56:537-43 S 18 '20

Maintenance of single-phase a.c. multiple-unit equipment on the Westchester. il diag map plan Elec Ry J 55:1193-9 Je 12 '20

Questions for the car inspector. Ry Mech Eng 94:221-2 Ap '20

Report of committee on uniform inspection blanks. Ry Mech Eng 94:782-3; Discussion. 783-4 D '20

Simple inspection method and record for small shop. Elec Ry J 57:1044 Je 4 '21

Substantial energy saving on Philadelphia rapid transit co. il chart Elec Ry J 57:355-60 F 19 '21

Systematic maintenance good investment. J. S. Dean. il Elec Ry J 58:278-82 Ag 20 '21

See also Chief interchange car inspectors' and car foremen's association

Car insurance. See Insurance, Car

Car interchange. See Cars—Interchange; Freight cars—Interchange

Car lighting

Electric car lighting. A. G. Oehler. Ry Age 67:928-9 N 7 '19

Electrical developments in railroad service. J. E. Gardner. Ry R 68:529-30 Ap 2 '21

Railway car lighting. G. E. Hulse. Illum Eng Soc 16:99-110; Discussion. 110-16 no 5 '21

Report on train lighting and equipment, with specification for axle generators. diags Ry Age 68:1900-9 Je 17 '20; Abstract. Ry R 66:1048 Je 19 '20

Safety lights for safety cars. C. H. Copley. diag Elec Ry J 56:536 S 18 '20

Signal tail-lights for safety cars. il Elec Ry J 57:899 My 14 '21

Street car lighting. J. A. Summers. Illum Eng Soc 16:95-8; Discussion. 110-16 no 5 '21

Car load. See Freight car service—Car load

Car painting

Economical painting for safety cars. H. E. Krouse. Elec Ry J 57:737 Ap 16 '21

Economical painting of passenger train steel cars: with discussion. G. H. Hammond. Ry Mech Eng 94:643 O '20

Car painting—Continued

- Economies in car painting. Elec Ry J 56:879-80 O 23 '20
- Economy in car painting. D. O'Brien. il Elec Ry J 55:561-2 Mr 20 '20
- Economy to be effected by proper painting; with discussion. B. E. Miller. Ry Mech Eng 94:646-7 O '20
- Freight car painting. W. A. Buchanan. Ry R 66:170-1 Ja 31 '20; Same. Ry Mech Eng 94:213-14 Ap '20
- Introducing economies in the paint shop. W. G. Murrin. il Elec Ry J 58:11-12 Jl 2 '21
- Paint mixer driven by remodeled air drill. il diags Elec Ry J 54:1007-8 D 20 '19
- Paint pipe lines in a Cuban car shop. J. P. Risque. il diags Ry Mech Eng 94:155-7 Mr '20
- Paints used by electric railways. N. Litchfield. Elec Ry J 56:1229-32 D 18 '20
- Pneumatic freight car painting machine. N. McLeod. diags Ry Mech Eng 94:275-6 My '20
- Re-painting old street cars. L. W. Wolf. Eng & Contr 55:599 Je 15 '21
- Report of committee on classification of painting repairs and shopping and equipment. Ry Mech Eng 94:650-1 O '20
- Report of committee on paint tests; with discussion. Ry Mech Eng 94:647-50 O '20
- Report of committee on standards. Ry Mech Eng 94:644-6 O '20

Car resistance. See Train resistance

Car roofs

- Freight car roofs. H. R. Naylor. Ry R 66:911-12 Je 5 '20; Same cond. Ry Mech Eng 94:468-9; Discussion. 470 Jl '20
- Leaky car roofs. Ry R 68:545-6 Ap 2 '21

Car seats

- Ease of operation features new coach seat. il Ry Age 71:501-2 S 10 '21
- Repairs to car seats and curtains. il Elec Ry J 55:571-3 Mr 20 '20
- Smolar single pedestal swivel type car seat. il Ry Mech Eng 95:125 F '21; Same. Ry Age 70:566 Mr 11 '21

Car shops. See Railroads—Shops

Car springs

- Nouveau type de suspension pour voiture à bogies. diag Génie Civil 78:178-9 F 19 '21
- Springs for easy riding cars. L. F. Seelar. Elec Ry J 58:275-7 Ag 20 '21

Car trucks

- Features that must be borne in mind in designing trucks for mine cars. I. E. Stevens. diags plans Coal Age 19:9-11 Ja 6 '21
- Lamont six-wheel truck for freight cars. il diags plans Ry Age 70:729-31 Mr 18 '21; Same. Ry Mech Eng 95:254-6 Ap '21
- Make bolster trucks from side-bearing types. il diags plans Elec Ry J 57:944 My 21 '21
- New designs of Buckeye six-wheel trucks. il diags Ry Age 70:1269-70 Je 3 '21; Same. Ry Mech Eng 95:522-4 Ag '21
- Two new pedestal type truck side frames. il diags Ry Age 68:1783 Je 14 '20
- Welding broken pedestals without removing the truck. il Elec Ry J 55:400 F 21 '20

Cleaning

- Cleaning trucks for overhaul. H. S. Day. il diag Elec Ry J 57:551-2 Mr 19 '21

Car trusts. See Electric railroads—Equipment trust; Railroads—Equipment trust

Car weighing. See Track scales

Car wheels

- Car wheel grinding. Ry Mech Eng 94:324-5 Je '20
- Car wheel patterns must be rugged. A. Landerer. diags Foundry 48:961-2 D 1 '20
- Car wheels and their defects. W. F. Tidswell. il Ry Mech Eng 93:719-21 D '19; Same abr. Ry R 65:830-1 D 6 '19; Same abr. Sci Am S 88:335 D 6 '19
- Economies possible by car wheel grinding. il Ry Mech Eng 94:355-8 Je '20
- Hardness of chilled wheels. il Iron Age 108:672 S 15 '21
- Heavy car wheel boring machine. il Ry Mech Eng 95:653 O '21

Improvements in cast iron wheels. Sci Am 123:303 S 25 '20

- Instructions for grinding chilled cast iron car wheels. Ry Mech Eng 95:181-3 Mr '21
- Manufacturing chilled iron car wheels. H. E. Diller. il diags Foundry 48:259-65, 304-10, 353-9, 389-96, 429-34, 481-3 Ap 1-Je 15 '20
- Molds car wheels on jolt machines. il diag Foundry 49:709-13 S 15 '21
- Novel mechanical molding of car wheels. il plan Iron Age 108:662-4 S 15 '21
- Railway wheels and axles. T. H. Sanders. Engineering 109:99-100 Ja 16 '20
- Report of committee on car wheels. diags Ry Age 68:1881-5 Je 17 '20; Abstract. Ry R 66:1045-6 Je 19 '20; Excerpt (Standard table of mounting pressure). Elec Ry J 55:1310-11 Je 26 '20
- Roller-bearing wheels ease the way from face to tipple. D. B. Turner. diags Coal Age 17:925-6 My 6 '20
- Some failures of chilled cast-iron wheels. H. J. Force. Iron Age 107:1760-1 Je 30 '21; Same. Foundry 49:602-3 Ag 1 '21; Same. Ry Mech Eng 95:505-6 Ag '21; Same cond. Ry Age 70:1439-40 Je 24 '21
- Thickening wheel flanges by welding. il Elec Ry J 56:558 S 18 '20
- Welding of flanges on steel wheels. E. B. Gunn. Elec Ry J 56:129 Jl 17 '20
- Wheel burning injures rail. Ry Age 70:832 Ap 1 '21
- Wheel welding in Terre Haute. Elec Ry J 57:860 My 7 '21

See also Car axles

Specifications

- Adopt specifications for chilled car wheels. Iron Tr R 68:1804-5 Je 30 '21; Foundry 49:551 Jl 15 '21; Ry Mech Eng 95:493-4 Ag '21
- Manufacturing chilled iron car wheels. H. E. Diller. il diags Foundry 48:429-34 Je 1 '20
- New D.L. & W. specifications for cast iron wheels. Ry R 69:626-7 N 5 '21
- Standard specifications for wrought solid carbon-steel wheels for electric railway service; English and French. diags U S Bur For & Dom Com Industrial Standards 150:1-20 '21
- Standard specifications for wrought solid carbon-steel wheels for steam-railway service; English and French. diags U S Bur For & Dom Com Industrial Standards 119:1-19 '21

Testing

- Riehle combination Brinell and scleroscope hardness testing machine. il Am Mach 55:363 S 1 '21; Ry R 69:314-15 S 3 '21
- Testing wheels for flange contour. diags Elec Ry J 57:714 Ap 16 '21

Caramel knives. See Knives, Machine

Carat (unit of weight)

- Jewelers' and silversmiths' weights and measures. U S Bur Stand Circ 43:1-46 '21

Caravans, Motor. See Motor caravans

Carbamido acids

- On some carbamido-acids and their hydantoinins. J. R. Scott and J. B. Cohen. Chem Soc J 119:664-72 My '21

Carbazol

- Bivalent nitrogen derivative of carbazole. G. E. K. Branch and J. F. Smith. Am Chem Soc J 42:2405-13 N '20
- Metallic salts of pyrrol, indol and carbazol. E. C. Franklin. J Phys Chem 24:81-99 F '20

Oxidation of carbazole. W. H. Perkin, jr., and S. H. Tucker. Chem Soc J 119:216-25 F '21

Carbide lamps. See Acetylene lamps

Carbinols

- Research on pseudo-bases; dialkylamino-methyl alkyl ethers and sulphides. C. M. McLeod and G. M. Robinson. Chem Soc J 119:1470-6 S '21

Tautomerism in the triaryl-carbinols: mono-para-hydroxy-diphenyl-*a*-naphthyl carbinol. M. Gomberg and N. A. Lange. Am Chem Soc J 42:1879-83 S '20

Carbocoal

- Artificial anthracite. il diags Heat & Ven 18: 44-5 Ja '21
- Low temperature carbonization of coal. S. J. Lloyd. Am Gas J 114:353-4+ Ap 23 '21
- Low-temperature carbonization of coal and manufacture of smokeless fuel briquets. H. A. Curtis. il diag Chem & Met Eng 23:499-501 S 8 '20
- Making the smokiest coal smokeless while saving byproducts. G: Esherick, jr. il Coal Age 18:275-7 Ag 5 '20; Excerpt. Eng & Contr 54:224-5 S 8 '20
- Prospect that soon no coal will be used without preliminary devolatilization. G: Esherick, jr. il Coal Age 18:327-30 Ag 12 '20
- Use of carbocoal on locomotives; abstracts. G: Esherick, jr. Ry Age 68:1513 My 28 '20; Ry R 66:876-7 My 29 '20; Ry Mech Eng 94: 452-3 Jl '20

Carbohydrates

- Carbohydrate content of the navy bean. W. H. Peterson and H. Churchill. Am Chem Soc J 43:1180-5 My '21
- Carbohydrates and alcohol. S: Rideal. 219p Van Nostrand '21
- Carbohydrates of the pecan. W. G. Friedemann. Am Chem Soc J 42:2286-8 N '20
- Law of probability applied to the formation of fats from carbohydrates. E. J. Witze-mann. J Phys Chem 25:55-60 Ja '21
- Photocatalysis; the synthesis of formaldehyde and carbohydrates from carbon dioxide and water. E: C: C. Baly, I. M. Heilbron and W: F. Barker. Chem Soc J 119:1025-35 Jl '21
- See also Cellulose; Dextrose; Glucosides; Polysaccharides; Sugars

Carbolic acid

- Chemical potential of phenol in solutions containing salts; and the toxicity of these solutions towards anthrax and staphylococcus. J. S. Laird. J Phys Chem 24: 664-72 N '20
- Concrete tanks for storage of crude carbolic acid and a larvacide. G: C. Bunker and A. H. Khachadorian. plans Concrete 9:145-7 O '21
- Effect of alcohol on the toxicity of phenol towards yeast. E. I. Fulmer. J Phys Chem 25:10-18 Ja '21
- Manufacture of phenol in a continuous high pressure autoclave. K. Brown. J Ind & Eng Chem 12:279-80 Mr '20
- Methylene-blue as indicator in determining the toxicity of phenol and phenol-salt solutions towards yeast. C: G. Fraser. J Phys Chem 25:1-9 Ja '21
- New method for the determination of phenol in the presence of certain other phenols. R. M. Chapin. J Ind & Eng Chem 12: 771-5 Ag '20
- Toxicity and chemical potential. W. L. Miller. J Phys Chem 24:562-9 O '20
- Toxicity towards anthrax and staphylococcus. of solutions containing phenol and sodium chloride. J. S. Lemon. J Phys Chem 24:570-84 O '20
- Toxicity towards staphylococcus of dilute phenol solutions containing sodium benzoate. K. E. Burgess. J Phys Chem 24:738-40 D '20

Carbon

- Carbon determination in ferro-alloys. C. J. Rottmann. diags Am Electrochem Soc Trans v 37 (preprint 5):59-68 Ap '20
- Carbon in iron. D. T. Yensen. diags Am Electrochem Soc Trans v 37 (preprint 4): 43-58 Ap '20
- Chemistry of the volatile. A. Gradenwitz. Sci Am 125A:10 N '21
- Determination of carbon by the colorimetric method. Foundry 49:568a Jl 15 '21
- Electrolytic resistance method for determining carbon in steel. J. R. Cain and L. C. Maxwell. il diags U S Bur Stand Tech Pa 141:1-21 '19
- Liquefaction of carbon. E. Ryschkewitsch. Engineering 111:588 My 13 '21

- Loss due to carbon in furnace refuse. C. H. Berry. chart diag Power 50:500-2 S 23 '19; Excerpts. Chem & Met Eng 22:179 Ja 28 '20

- Study of a decolorizing carbon. J. C. Bock. Am Chem Soc J 42:1564-9 Ag '20

See also Bone-black; Charcoal; Coal; Coke; Diamonds; Electric light carbons; Graphite; Lampblack

Carbon black

- Air pollution and wastefulness; decision of the U.S. Supreme court relating to the gas carbon black industry of Wyoming. F: Dann-nerth. Chem & Met Eng 25:104 Jl 20 '21
- Carbon black for ink. R. L. Carr. Gas Age 45: 391 My 10 '20
- Carbon black—its properties and uses. G. St J. Perrott and R. Thiessen. il J Ind & Eng Chem 12:324-31 Ap '20; Excerpts. India Rubber W 62:581-2 Je '20
- Carbon black produced from natural gas in 1920. E. G. Sievers. U S Geol S Min Res of U S 1920, pt 2:145-9 '21; Excerpts. Gas Age 47:466-7 Je 10 '21; Chem Age 29:261-2 Jl '21; Chem & Met Eng 25:333-4 Ag 24 '21
- Carbons and hydrocarbons used in the rubber industry. F: Dannerth. India Rubber W 64:742-4 Jl '21
- Channel process of making carbon black. R. O. Neal. il diags plan Chem & Met Eng 23:729-34 O 13 '20
- Demand for carbon black. Gas Age 45:319 Ap 10 '20
- Disk, plate and cylinder processes for the production of carbon black. R. O. Neal. il diags Chem & Met Eng 23:785-9 O 20 '20
- Great natural gas industry. O. F. Schuette. Gas Age 45:393-4 My 10 '20
- Louisiana natural gas and carbon black manufacture. Chem Age 29:371-2 S '21
- Manufacture of carbon black from natural gas. R. O. Neal. Sci Am M 1:438-9 My '20; Same. Gas Age 45:445-6 My 25 '20; Same. Nat Pet N 12:97+ My 12 '20
- Production of carbon black. G. L. Cabot. India Rubber W 62:810-11 S '20
- \$10,000,000 industry built on natural gas otherwise unsalable. il Nat Pet N 12:75+ N 17 '20
- State legislation and carbon black manufacture. A. F. Kitchel. Chem Age 29:62-4 F '21; Same. Inland Ptr 67:57-8 Ap '21
- Testing natural gas for carbon black. R. O. Neal. il diags Chem & Met Eng 22:358-9 F 25 '20
- Use of gas in manufacture of carbon black discussed at meeting of Natural gas conservation committee. Am Gas Eng J 112:276 Ap 3 '20
- Where the printer gets his ink; America's carbon-black industry. H: P. Westcott. il Sci Am 124:86+ Ja 29 '21
- Wyoming enacts new carbon law. Oil Paint & Drug Rep 99:9 sec 2 Mr 7 '21
- Carbon brushes. See Brushes (electric machinery)
- Carbon compounds**
- Electronic constitution of normal carbon chain compounds, saturated and unsaturated. E. J. Cuy. Am Chem Soc J 42: 503-14 Mr '20
- Heats of combustion of benzene, toluene, aliphatic alcohols, cyclohexanol, and other carbon compounds. T. W. Richards and H. S. Davis. Am Chem Soc J 42:1599-1617 Ag '20
- See also Carbohydrates; Carbonates; Chemistry, Organic; Graphitic acid; Hydro-carbons; Thiocarbonates
- Carbon dioxide**
- CO₂ in flue gas when burning oil. diags Power 51:103-4 Ja 20 '20
- Carbon dioxide vs. blackdamp. Coal Age 18: 26 Jl 1 '20
- Carbonic acid gas to fertilize the air. A. Gradenwitz. il Sci Am 123:549+ N 27 '20
- Draft and CO₂ influence on evaporation. J. T. Beard, jr. diag Power 53:775-7 My 17 '21
- Flue-gas temperature and CO₂ as a guide to furnace operation; with special reference to oil burning. C: C. Phelps. Power 51:725-7 My 4 '20

Carbon dioxide—Continued

- Graphic calculation of neutralization of caustic liquors with CO₂. J. C. Dittmer. *Chem & Met Eng* 23:1179 D 15 '20
- Manufacture of carbon dioxide. G. H. Tomlinson. *Chem & Met Eng* 23:346-7 Ag 25 '20
- Motion of a sphere of oil through carbon dioxide and a determination of the coefficient of viscosity of that gas by the oil drop method. L. J. Lassalle. *Phys R* 17:354-66 Mr '21
- Relation between boiler efficiency and CO₂. E. A. Uehling. *Power* 53:274 F 15 '21
- Relation of carbon dioxide and moisture to the setting time of cement. S. L. Meyers. *Concrete* 19:sup10-12 Jl '21
- Relationship of hydrogen-ion concentration of natural waters to carbon dioxide content. R. E. Greenfield and G. C. Baker. *J Ind & Eng Chem* 12:989-91 O '20
- Tables for computing combustion data from CO₂ readings. *Power* 51:966-8 Je 15 '20
- Unusual boiler tube corrosion by carbon dioxide. B. G. Worth. *il Am Electrochem Soc Trans v* 39 (preprint 28):329-35 Ap '21
- Carbon dioxide recorders**
- Apparatus for recording CO₂ and combustible gases. R. Moeller. *il Paper* 27:24-9 F 16 '21
- Cambridge electrical CO₂ recorder. *il Engineering* 109:88 Ja 16 '20
- CO₂ exploration to detect air leakage. A. E. Grunert. *diags plan Power* 52:54-6 Jl 13 '20
- CO₂ indicator of simple design and rugged construction. *il diag Elec R* 79:218 Ag 6 '21
- Carbon dioxide recorder, single and multiple units. *il diag Paper* 28:12-13 Je 1 '21
- CO₂ recorders in textile mills. A. Walton. *il chart Textile World* 56:2733+ N 1 '19
- Care of CO₂ recording machines. G. A. Chatel. *Power* 51:784 My 11 '20
- Care of CO₂ recording machines. C. J. Schmid. *Power* 51:1058 Je 29 '20
- Combustion control apparatus. D. E. Thompson. *diag Paper* 27:214 N 10 '20
- Controlling combustion; study of furnace efficiency apart from boiler efficiency. G. H. Gibson. *il Power Pl Eng* 25:510-13 My 15 '21
- Duplex mono flue gas analyzer. *il chart Ry Mech Eng* 95:195-6 Mr '21
- Electrical CO₂ recorder of the Cambridge & Paul instrument co. *il diag Electrician* 84:64-5 Ja 16 '20; *Engineer* 130:333-5 O 1 '20
- Flue gas analyzers and recorders. *il diags Power Pl Eng* 24:91-5 Ja 1 '20
- Fuel economy by the adoption of scientific management in power generation and utilization. D. Brownlie. *il diags Eng & Ind Management* 6:421-4, 433-4 O 13-20 '21
- Indicators for carbon dioxide and oxygen in air and flue gas. L. H. Milligan, D. O. Crites and W. S. Wilson. *il diags U S Bur Mines Tech Pa* 238:1-22 '20
- Instrument determines CO₂ and detects CO. *il charts diags Elec R* 78:634-6 Ap 16 '21
- Measurement of CO₂. *il diags Power Pl Eng* 25:36-8 Ja 1 '21
- Mono combustion recorder for CO₂ and CO. *il Iron Age* 105:1518 My 27 '20
- New CO₂ recorder. *Am Gas Eng J* 113:286 O 9 '20
- New combustion recorder gives simultaneous graphic chart of CO₂ and CO. *il Metal Work* 94:100 Jl 23 '20; *Concrete* 17:sup 29 Ag '20; *Ry Mech Eng* 94:546 Ag '20
- Operating the Orsat apparatus. *diags Eng & Ind Management* 5:254-5 Mr 3 '21
- Reading chimney losses direct from CO₂ charts. C. C. Phelps. *Power Pl Eng* 24:133-6 Ja 15 '20
- Recorder of both combustible gases and CO₂. R. Moeller. *charts Power* 54:64-7 Jl 12 '21; *Discussion. W. C. Lange.* 54:535-6 O 4 '21
- Republic CO₂ recorder. *il diag Power* 53:624-5 Ap 19 '21
- Sampling tanks versus continuous recorders for determining CO₂. C. C. Phelps. *charts Power* 51:297-8 F 24 '20
- Scientific control of combustion. H. T. Ringrose. *il diags Iron & Steel Inst J* 103:63-71 no 1 '21; *Same. Engineer* 131:511-12 My 13 '21; *Same abr. Engineering* 111:565-6 My 6 '21; *Same. Eng & Ind Management* 5:538-40 My 12 '21; *Discussion. Iron & Steel Inst J* 103:72-3 no 1 '21
- Simplified apparatus for indicating percentage of CO₂ in flue gases. *il diags Int Marine Eng* 25:686-7 Ag '20
- To control combustion on basis of carbon dioxide alone is unsatisfactory. F. D. Harger. *il charts Coal Age* 19:495-6 Mr 17 '21
- Uehling continuous CO₂ recorder. *il diag Gas Age* 47:79 Ja 25 '21; *Iron Age* 107:376 F 10 '21; *Ry Mech Eng* 95:133-4 F '21; *Textile World* 59:1719+ Mr 5 '21; *Elec Ry J* 57:687 Ap 9 '21; *Coal Age* 19:824 My 5 '21; *Power Pl Eng* 25:492 My 1 '21; *Engineering* 111:626-7 My 20 '21
- W-R, CO₂ indicator. *il diag Power* 53:973 Je 14 '21
- W. R. combustion indicator. *il diag Power* 52:981 D 21 '20
- Carbon disulfide**
- Interaction of carbon disulfide with ammonium carbonate. F. A. Gilfillan. *Am Chem Soc J* 42:2072-80 O '20
- Récupération de l'acide cyanhydrique et du sulfure de carbone du gaz de fours à coke et du gaz de ville. Minot. *il diag Chimie & Ind* 6:135-40 Ag '21; *Same cond. Am Gas J* 115:386-8+ O 29 '21
- Carbon monoxide**
- Absorption of carbon monoxide by cuprous ammonium carbonate solutions. W. R. Hainsworth and E. Y. Titus. *diag Am Chem Soc J* 43:1-11 Ja '21
- Carbon monoxide a respiration product. S. C. Langdon and W. R. Gailey. *diags Am Chem Soc J* 42:641-6 Mr '20; *Same. Sci Am M* 1:508-10 Je '20
- Carbon monoxide, illuminating gas, and benzol: their effect on blood coagulation time. H. S. Forbes and L. Hompe. *bibliog J Ind Hygiene* 3:213-16 N '21
- Convenient apparatus for the preparation of small quantities of pure nitrogen or carbon monoxide. H. P. Waran. *diag Philos Mag 6th ser* 42:246-9 Ag '21
- Convenient method for the preparation of a hydrochloric acid solution of cuprous chloride for use in gas analysis. F. C. Krauskopf and L. H. Purdy. *J Ind & Eng Chem* 12:158-61 F '20
- Danger of automobile exhaust gas. V. H. Manning. *Sci Am M* 1:64-6 Ja '20
- Detecting carbon monoxide gas. *il Coal Age* 18:1193 D 9 '20
- Detection of carbon monoxide. C. R. Hoover. *il diags J Ind & Eng Chem* 13:770-2 S '21; *Abstract. Chem & Met Eng* 24:830 My 11 '21
- Determination of carbon monoxide in air contaminated with motor exhaust gas. M. C. Teague. *diag J Ind & Eng Chem* 12:964-8 O '20
- La fixation de l'oxyde de carbone dilué et entraîné par un courant d'air. A. Desgrez and others. *diag Chimie & Ind* 6:118-23 Jl '21
- Gas mask, developed by Bureau of mines, absorbs carbon monoxide from inspired air. G. H. Burrell. *il Coal Age* 20:635-6 O 20 '21
- Gas mask for carbon monoxide perfected. G. H. Burrell. *Gas Age* 48:238 Ag 27 '21
- Gasoline losses due to incomplete combustion in motor vehicles; abstracts. A. C. Fieldner, A. A. Straub and G. W. Jones. *il diags J Ind & Eng Chem* 13:51-7 Ja '21; *Soc Auto Eng J* 8:295-305 Ap '21; *Discussion. J Ind & Eng Chem* 13:57-8 Ja '21; *Soc Auto Eng J* 8:451-66 My '21
- Oxidation of carbon monoxide by passage with oxygen or air through the silent discharge and over ozone decomposing catalysts. A. B. Ray and F. O. Anderegg. *diags Am Chem Soc J* 43:967-78 My '21
- Physiological effects of automobile exhaust gas and standards of ventilation for brief exposures. Y. Henderson and others. *bibliog diags J Ind Hygiene* 3:79-92, 137-46 Jl-Ag '21

Carbon monoxide—Continued

- La production de l'oxyde de carbone par les becs à incandescence. A. Kling and D. Florentin. *Chimie & Ind* 6:305-8 S '21
- Rapid determination of carbon monoxide in air. A. B. Lamb and A. T. Larson. *diags Am Chem Soc J* 41:1908-21 D '19
- Recherche de l'oxyde de carbone dans une atmosphère suspecte. A. Desgrez, A. Labat and A. Savès. *diag Chimie & Ind* 5:473-5 Ap '21
- Removal of carbon monoxide from air. A. B. Lamb, W. C. Bray and J. C. W. Frazer. *J Ind & Eng Chem* 12:213-21 Mr '20
- Survey of carbon monoxide poisoning in American steel works, metal mines, and coal mines. H. S. Forbes. *bibliog J Ind Hygiene* 3:11-15 My '21
- Temporary blindness, with paralysis of the eye muscles following carbon monoxide poisoning; abstract. G. Abelsdorff. *J Ind Hygiene* 2:supl64-5 Ja '21

See also Automobile engines—Exhaust

Carbon monoxide recorders

- Instrument determines CO₂ and detects CO. il charts *diags Elec R* 77:634-6 Ap 16 '21
- New combustion recorder gives simultaneous graphic chart of CO₂ and CO. il *Metal Work* 94:100 Jl 23 '20; *Concrete* 17:sup29 Ag '20; *Ry Mech Eng* 94:546 Ag '20
- Tests of carbon monoxide detector in mines. D. Harrington and B. W. Dyer. *Coal Age* 19:269-70 F 10 '21

Carbon paper

- Manufacture of carbon paper. B. Walther. *Sci Am M* 4:307-8 O '21

Carbon rings. See Cyclic compounds**Carbon tetrachloride**

- Experiment in the use of carbon tetrachloride and foamite firefoam for extinguishing mine fires. A. C. Fieldner and S. H. Katz. *Coal Age* 20:7-9 Jl 7 '21
- Gas masks for gases met in fighting fires. A. C. Fieldner, S. H. Katz and S. P. Kinney. *Coal Age* 19:1036 Je 9 '21
- Poisonous gases from carbon tetrachloride fire extinguishers. A. C. Fieldner and others. il *diags plan J Fr Inst* 190:543-65 O '20; *Abstract. N E L A Bul* 7:909 D '20
- Velocity of adsorption of chloropicrin and carbon tetrachloride by charcoal. H. S. Harned. *diags Am Chem Soc J* 42:372-91 Mr '20

Carbonates

- Analysis of silicate and carbonate rocks. W. F. Hillebrand. *U S Geol S Bul* 700:246-74 '19
- Rates of hydrolysis of the rare earth carbonates and the serial order of the rare earth elements. P. H. M.-P. Brinton and C. James. *Am Chem Soc J* 43:1446-51 Jl '21

See also Calcite; Thiocarbonates

Carbonization of coal. See Coal distillation**Carbonizing boxes**

- Carbonizing and case hardening boxes. il *Iron Age* 107:1674 Je 23 '21
- Pots and boxes used in carbonizing. H. H. Harris. *Iron Age* 105:729-31 Mr 11 '20; *Abstracts. Mech Eng* 42:236-7 Ap '20; *Sci Am M* 1:382-3 Ap '20

Carbonizing of wool. See Wool carbonizing**Carbons, Electric light. See Electric light carbons****Carbonyl chloride. See Phosgene****Carbonyl compounds**

- Periodides of carbonyl compounds. A. M. Clover. *Am Chem Soc J* 42:1248-60 Je '20

Carbonyl group

- Addition reactions of the carbonyl group involving the increase of valence of a single atom. J. B. Conant. *Am Chem Soc J* 43:1705-14 Jl '21

Carborundum

- Carborundum refractories to be made at Perth Amboy. *Chem & Met Eng* 22:907 My 12 '20

- Protective resistances for high-tension installations. H. Gewecke. *Sci Am M* 1:216 Mr '20

- Silicon carbide faced lining brick for generators and producers. R. Buckminster. il *Am Gas Assn Technical sec v* 1:263-72; *Discussion.* 272-3 '19

- Turning hard metal with carborundum. G. Remacle. *diag Am Mach* 53:178-9 Jl 22 '20

Carborundum company

- Helping the dealer with the right kind of displays. C. B. McCuaig. *Ptr Ink* 111:125+ My 27 '20

Carbureters

- Adjusting the carbureter. R. E. Berg. *diags Motor Age* 37:21-3 My 6; 14-16 My 13; 17-18+ My 20; 35-7+ My 27 '20
- Airplane engine carburetors. 29p U.S. Air service, War dept., Washington '20
- All-year carburetor. A. Parker. il *Sci Am* 122:189+ F 21 '20
- American floatless carbureters, the La Fehr. il *diag Automotive Ind* 44:843 Ap 21 '21
- Les carburateurs a pétrole. A. Mariage. *diags Soc Ing Civils Bul* 74:279-90 Ap '21
- La carburation au pétrole lampant; discussion. *diags Génie Civil* 78:529-33 Je 18 '21
- Carburation of the Tylor-Ricardo engine. E. Dodson. *Automobile Eng* 11:69 F '21
- La carburation par le pétrole lampant et l'action de paroi. G. Lumet. *Soc Ing Civils Bul* 74:291-301 Ap '21
- Carbureter design which employs a swirling motion. il *Automotive Ind* 43:273 Ag 5 '20
- Carbureter tuning for economy. *Soc Auto Eng J* 7:341 O '20
- Carburetion of gasoline. O: C. Berry and C. S. Kegerreis. 223p *Purdue univ., Lafayette, Ind.* '20
- Claudet carburetor. il *diags Aviation* 8:324-6 My 15 '20; *Same. Aerial Age* 11:323-4+ My 17 '20; *Abstract. Automotive Ind* 42:1248-9 Je 3 '20; *Abstract. Motor Age* 38:31 Ag 26 '20
- Controlling and atomizing fuel by variable engine pressures. J: G. Willet. *diags Soc Auto Eng J* 7:51-5 Jl '20; *Same. Nat Pet N* 12:83+ D 15 '20
- Cox atmos carburetter. il *diag Automobile Eng* 11:178-9 My '21
- Effect of gear ratio on car economy. J. N. Golten and A. Neumann. *Automotive Ind* 43:1167-9 D 9 '20
- L'emploi des pétroles lampants dans les moteurs d'automobiles. A. Grebel. *Génie Civil* 78:289-95 Ap 2 '21; *Same. Soc Ing Civils Bul* 74:250-69 Ap '21
- État actuel de la carburation au pétrole lampant. Drosne. *diags Soc Ing Civils Bul* 74:35-52. 173-84 Ja-Ap '21; *Abstract. Génie Civil* 78:261-2 Mr 19 '21; *Discussion. Guiselin. Soc Ing Civils Bul* 74:270-8 Ap '21; *Génie Civil* 78:529-33 Je 18 '21
- Étude des carburateurs automatiques modernes pour carburants volatils. A. Grebel. *diags Génie Civil* 77:370-5, 391-4 N 6-13 '20
- Étude du réchauffage et de la pulvérisation dans les carburateurs. M. Carbonaro. *Génie Civil* 76:93-7, 119-21 Ja 24-31 '20
- First aid to the carburetor. il *diags Sci Am* 125:122+ Ag 13 '21
- Floatless carbureters coming into use in Germany. B. R. Dierfeld. il *diags Automotive Ind* 43:1262-5 D 23 '20
- Fundamental points of carbureter action. F. C. Mock. *diags Soc Auto Eng J* 9:85-94 Ag '21
- Gasoline losses due to incomplete combustion in motor vehicles; abstracts. A. C. Fieldner, A. A. Straub and G. W. Jones. il *diags J Ind & Eng Chem* 13:51-7 Ja '21; *Soc Auto Eng J* 8:295-305 Ap '21; *Discussion. J Ind & Eng Chem* 13:57-8 Ja '21; *Soc Auto Eng J* 8:451-66 My '21
- Holley all fuel carbureter. *Automotive Ind* 42:923 Ap 15 '20
- Improved carbureter on Packard cars. il *Automotive Ind* 45:358 Ag 25 '21
- Induction systems. T. L. Sherman. il *diags Aviation* 11:40-3 Jl 11 '21

Carbureters —Continued

Introduction à l'étude de la carburation pyrodynamique du moteur à explosions. Carbonaro. diags Soc Ing Civils Bul 74:185-249 Ap '21

Kjellberg's kerosene carbureter. diag Automotive Ind 43:561 S 16 '20

Magnetic reverse gear and petrol-paraffin carburettor. Engineering 109:786, pl 47 Je 11 '20

Metering characteristics of six stock carbureters. W. S. James. Soc Auto Eng J 8:555-6 Je '21

Miller H type carbureter. il diag Motor Age 38:31 S 2 '20

Money-saving Ford accessory; Simpson Flexico. il Aerial Age 14:56 S 26 '21

More miles per gallon. O. C. Berry. Chem & Met Eng 25:64-8 Jl 13 '21

Multiple jet carbureter has gravity flow through jets. il Automotive Ind 43:519 S 9 '20

New carbureters for different fuels. Automotive Ind 43:854 O 28 '20

New carburetor for light oils. Sci Am 125A:59 N '21

New design of plain tube carbureter, the Holley. diag Automotive Ind 45:259 Ag 11 '21

Rayfield model O carbureter for trucks. il Automotive Ind 42:368 Ja 29 '20

Rayfield shows new carbureter. il Motor Age 36:27 D 25 '19

Saving fuel with the carbureter. W. E. Lay. Soc Auto Eng J 7:188-9 Ag '20

Some factors affecting carbureter design and operation. W. H. Weber. Automotive Ind 45:357-8 Ag 25 '21

Standard mechanical operations in tractor service; carbureter troubles. J. C. Thorpe and G. H. Radebaugh. il diag Motor Age 37:37-9 Ap 8; 38-9 Ap 15; 38-9 Ap 22; 40-1 Ap 29 '20

Standard mechanical operations in tractor service; principles of carburetion. J. C. Thorpe and G. H. Radebaugh. il Motor Age 37:54-5 Ap 1 '20

Study in charge proportioning with heavy fuels. P. S. Tice. il diag Automotive Ind 43:266-9 Ag 5 '20

Thermostat control in carburetor saves fuel for Fifth avenue buses. R. E. Fielder. diag Nat Pet N 13:69 Ja 26 '21

Valuable mixture carbureters. J. G. Hodson. diag Automobile Eng 11:145 Ap '21

Manufacture

Drawing dies for manufacturing a carburetor bowl. N. T. Thurston. il diags Mach 28:218-21 N '21

Economy of horizontal space by the machine layout; in the Holley carbureter factory. J. E. Schipper. il Automotive Ind 43:964-7 N 11 '20

Patents

Bibliography of petroleum and allied substances, 1917; carburetors, vaporizers, and sprayers. E. H. Burroughs. U S Bur Mines Bul 180:123-32 '20

Grace patented carburetter. diags Engineer 129:620 Je 18 '20

Specifications

Carbureter specifications of cars from 1916 to 1920. Motor Age 37:74-6 Ap 1 '20

Testing

Bureau of standards carburetor test plant. P. S. Tice. il diags Aviation 7:439-42 D 15 '19

Calibrating carbureter jets in quantity by actual flow measurement. J. E. Schipper. il Automotive Ind 44:958-9 My 5 '21

Calibration of carburetor jet flow. Aviation 11:282-4 S 5 '21

Carbureting conditions characteristic of aircraft engines. P. S. Tice. U S Nat Advisory Com for Aeronautics 1918:590-5 '20; Same. Aerial Age 10:536-7 Ja 19 '20

Have you the right mixture? il Sci Am 124:475 Je 11 '21

Metering characteristics of carburetors. P. S. Tice. il diags U S Nat Advisory Com for Aeronautics 1918:596-643 '20

Trials of German carbureters for using non-volatile fuels. B. R. Dierfeld. diags Automotive Ind 45:4-5 Jl 7 '21

Carburetion

Carburetion and distribution of low-grade fuels. O. H. Ensign. il diags Soc Auto Eng J 7:19-24+ Jl '20

Carburetion as applied to the design of automobile engines. E. S. MacPherson. diags Automotive Ind 42:1348-50 Je 10 '20

Carburetion of alcohol. A. W. Scarratt. Soc Auto Eng J 8:328-30 Ap '21

Carburetion of heavy fuels. L. T. Mantell. Soc Auto Eng J 7:392+ O '20

Carburetion requirements of a typical gas engine. P. S. Tice. il Automotive Ind 42:1452-7 Je 24 '20

Carburization. See Case hardening

Carburizers

Carburizing and casehardening. S. P. Rockwell. il charts Mach 26:387-95, 534-8 Ja-F '20

Carburizing compound mixer

Kent carburizing compound mixer. il diag Mach 26:992-3 Je '20; Am Mach 52:1215-16 Je 3 '20; Iron Age 105:1734 Je 17 '20

Card catalog cases

How to make a card catalog case. C. A. King. diags Bldg Age 43:54-5 F '21

Card catalogs

Library and research work. H. W. Wilson. Chem & Met Eng 24:593 Ap 6 '21

Card system in business

See also Punched card system

Cardboard. See Paper board**Cardiac recorder. See Heart****Carding machines**

Action of wire during carding. diags Textile World 58:389+ Jl 17 '20

Card attachment to give increased parallelization of fibres. il Textile World 59:1987 Mr 19 '21

Flexible Garnett machine construction. il Textile World 58:269 Jl 10 '20

Licker-in commonly neglected. Textile World 58:3369+ N 13 '20

Cargo. See Ships—Cargo**Cargo ships. See Freight ships****Carle, Nathaniel Allen, 1875-**

Portrait. Elec W 76:608 S 25 '20

Carman, Edwin S., 1878-

New president of American society of mechanical engineers. por Power 52:984 D 21 '20; Coal Age 18:1092 N 25 '20

Carmen. See Railroads—Car departments**Carnegie, Andrew, 1835-1919**

Andrew Carnegie honored by noted men at memorial meeting. Min & Met 162:8-9 Je '20

Autobiography of Andrew Carnegie. Review by A. Nevins. Administration 1:112-16 Ja '21

Carnegie's way. C: M. Schwab. Nation's Business 8:12 Ja '20

Carnegie institution of Washington

Magnetic-proof house for the workers in Department of research in terrestrial magnetism, Carnegie institution. H. A. Mount. il Sci Am 123:423+ O 23 '20

Carnegie steel company, Pittsburgh, Pennsylvania

Programs of apprenticeship and special training in representative corporations. J. V. L. Morris. il Am Mach 53:1172-4 D 23 '20

Carnotite

Carnotite mining in southwestern Colorado. B. Burwell. il diag Eng & Min J 110:755-8 O 16 '20

Radium resources. Eng & Min J 110:168 Jl 24 '20

See also Radium

Carpenter, Charles E.

Sketch. por Ind Management 61:246 Ap 1 '21

Carpenters

Union scale of wage rates per hour and hours per week of carpenters, Dec. 31, 1920. Monthly Labor R 12:784 Ap '21

Carpenters' square

How to use the steel square. 79p McKay '21

Carpentry

Carpentry for beginners. W: Fairham. 217p Lippincott '20

Combined casing and stop gauge. H: Simon. diags Bldg Age 42:65 D '20

Some random remarks on the scraper, plane and hand clamp. R. W. Wood. diag Bldg Age 42:66-7 O '20

See also Building; Cars; Doors; Floors; Framing; Roofs; Shingling; Slide rule; Stairways; Wall board; Woodwork; Wood-working machinery

Carpet factories

Philadelphia carpet co. modernizes plant. il Textile World 59:1125+ F 5 '21

Carpet washers

Marketing an article of prohibitive price. R. Cole. Ptr Ink 111:17-20 Je 3 '20

Carpets

Unsettled year in carpet wools. Textile World 57:1145+ F 7 '20

See also Linoleum; Rugs

Carranza, Venustiano

Flight from Mexico City with Carranza. J. C. Pickering. il Eng & Min J 109:1356-8 Je 19 '20

Carriage and wagon making

Wagon works at Horbury Junction, Yorks. il plan Engineer 131:476-7, 486 My 6 '21

Carriers

Regulations for competitive bidding under Clayton law. Ry Age 70:231-2 Ja 21 '21

See also Canals; Communication and traffic; Demurrage; Express service; Freight car service; Jitney buses; Postal service; Public utilities; Railroad law; Railroads; Shipping; Steamboat lines; Street railroads; Transportation

Cars

Boarding cars for lumber camps. il plans Ry R 67:39-42 Jl 10 '20

Insulation of freight and passenger cars. W: N. Allman. Ry Mech Eng 94:444-8; 95:608 Jl, O '21

New district railway cars. il Engineer 130: 660, 662 D 31 '20

Railway car materials. N. Litchfield. Elec Ry J 55:366-9, 803-6, 1247-50; 56:115-18 F 21, Ap 17, Je 19, Jl 17 '20

Report of committee on car construction. diags Ry Age 68:1885-91 Je 17 '20; Abstract. Elec Ry J 55:1309-10 Je 26 '20

Scientific basis of traction design. E. Seefehlner. Electrician 87:413 S 30 '21

See also Air brakes; Automobiles; Car axles; Car couplings; Car fenders; Car heating; Car houses; Car inspection; Car lighting; Car painting; Car roofs; Car seats; Car trucks; Car wheels; Coal cars; Dining cars; Draft gears; Dump cars; Dynamometer cars; Electric railroads—Rolling stock; Electric vehicles; Freight car service; Freight cars; Grain cars; Mine cars; Motor cars (railroad); Postal cars; Private car lines; Railroads—Rolling stock; Refrigerator cars; Sleeping cars; Spreader cars; Street cars; Tank cars

Bearings

Automatic journal lubrication. diags Ry Age 70:1242 My 27 '21

Journal cooling compound. il Ry Mech Eng 94: 241 Ap '20; Same. Ry Age 68:1160 Ap 9 '20

Journal displacements in lubricated bearings. Engineering 110:715 N 26 '20

Journal packing reclamation. il Ry Mech Eng 95:104 F '21

Lining engine and car journal brasses. W. J. McGee. diags Ry R 66:917-19 Je 5 '20

Lubrication of car journals without the use of waste. diags Ry R 69:267-71 Ag 27 '21

Lubrication of freight and passenger equipment. M. J. O'Connor. Ry Mech Eng 95: 33; Discussion. 34-6 Ja '21

Lubrication requires attention. J. C. Stewart. Ry Mech Eng 94:781-2 D '20

Means of preventing hot boxes. Ry Mech Eng 95:440-1 Jl '21

Simple device aids in changing car journal brasses. R. I. Lillie. il Ry Mech Eng 94: 787 D '20

Some causes of hot boxes. S. W. Crawford. Ry Mech Eng 93:716-17 D '19

Tentative specifications for non-ferrous alloys for railway equipment in ingots, castings, and finished car and tender bearings. Am Soc T M Pro v 20 pt 1:528-32 '20

Unusual hot box. il diag Ry Mech Eng 94:222 Ap '20

See also Bearings

Equipment

Electric roll announcer names stations. il Pop Mech 36:337-8 S '21

Interchange

Revision of passenger car rules of interchange. Ry Age 68:1841, 1847 Je 16 '20

See also Freight cars—Interchange

Lubrication

Lubrication of rolling stock. L. W. W. Morrow. diags Elec Ry J 58:674-80 O 15 '21

Painting

See Car painting

Prices

Car and locomotive prices reach peak in 1920. Ry Age 70:87-91 Ja 7 '21; Same. Ry Mech Eng 95:80-3 F '21

Repair

A. R. A. billing; with discussion. C. C. Stone. Ry Mech Eng 94:778-80 D '20

Air press for straightening steel sheets. N. McLeod. diags Ry Mech Eng 94:158 Mr '20

Air presses designed for car shop and reclamation work. F. S. Tinder. diags Ry Mech Eng 94:458 Jl '20

Car repairs at Elizabethport shops. il diags Ry Mech Eng 94:459-62 Jl '20

Electric arc welding in railroad shops. A. M. Candy. il Ry Mech Eng 95:456-8 Jl '21

Emergency truck for car repairs. E. A. Austin. il Ry Mech Eng 95:228 Ap '21

Light repairs in train yards. diags Ry R 67:988-9 D 25 '20

Passenger car maintenance. J. R. Schrader. Ry Mech Eng 94:780-1 D '20

Railway machine shop practice. il Mach 27: 1098-9 Ag '21

Relative effect of time and service on car deterioration. Ry Mech Eng 95:238 Ap '21

Repair shop layouts; committee report. Ry R 66:1037-9 Je 19 '20

Scheduling car repairs increases shop output. E. T. Spidy. Ry Mech Eng 95:349-52 Je '21

Use of electricity in the rebuilding of Pullman cars: Richmond plant of Pullman company. F. E. Beck. il J Elec 46:329-30 Ap 1 '21

See also Freight cars—Repair; Railroads—Maintenance and repair; Railroads—Shops

Standards

Changes in M.C.B. standards. Elec Ry J 57: 347-50 F 19 '21

Statistics

Car building in first seven months of 1920. Ry Age 69:511-12 S 24 '20

Increase in passenger car orders continues in 1920. Ry Age 70:141-3 Ja 7 '21; Excerpt. Ry Mech Eng 95:78 F '21

Rolling stock ordered and built in 1919. Ry Mech Eng 94:15-16 Ja '20; Excerpt (Passenger car orders). Ry Age 68:133 Ja 2 '20

24,500 passenger cars needed in next three years. il Ry Age 68:37-40 Ja 2 '20

Trucks

See Car trucks

Cars, Caboose

Approved U.S.R.A. standard design for caboose cars. diags plans Ry Age 67:1187-9 D 19 '19; Same. Ry Mech Eng 93:654-6 N '19
Car repairs at Elizabethport shops. il diags Ry Mech Eng 94:459-62 J1 '20

Cars, Coal. See Coal cars**Cars, Dynamometer.** See Dynamometer cars**Cars, Electric railroad**

All-metal electric multiple unit cars. R. E. Thayer. il diags plans Ry Mech Eng 94:81-93 F '20; Same. Ry Age 68:549-54 F '20

Car purchases may be financed through car trusts. S: M. Curwen. Elec Ry J 58:590-1 O 8 '21

Developing an electric railroad; Indianapolis-Louisville interurban. il plans Elec Ry J 57:1026-31 Je 4 '21

Equipment and design features of Metropolitan district cars. il Elec Ry J 57:855-6 My 7 '21

Inspection-ambulance motor trolley on the Mesopotamian railways. il diags plans. Engineering 109:126-8 Ja 23 '20

New cars for Texas electric railway. il Elec Ry J 58:247-8 Ag 13 '21

New cars for the Bakerloo line. il diags plan Elec Ry J 56:4-7 J1 3 '20

New coaches for Metropolitan railway of London. F. C. Coleman. il plans Ry Age 68:1037-40 Mr 26 '20; Abstract. Ry Mech Eng 94:211-13 Ap '20

New electric motor cars for the Long Island. S. B. Schenck. il Ry Age 68:1964-6 Je 25 '20

New electric rolling stock for the North-Eastern railway. il diags (supp) plans Engineer 131:394-6, 406 Ap 15 '21

Report of the committee on unification of car design of the American electric railway engineering association. Elec Ry J 58:639-40 O 8 '21

Some recent interurban car designs. il plans Elec Ry J 58:6-10 J1 2 '21

See also Cars, Subway; Electric railroads—Rolling stock; Street cars

Bearings

Destructive effect of current on ball bearings of electric cars. H. Angstrom. il diags Elec Ry J 57:941-4 My 21 '21; Abstract. Mech Eng 43:545-6 Ag '21

Expanding railway motor bearings. H. J. Krombach. il diags Elec Ry J 57:958-9 My 21 '21

Saving through use of anti-friction bearings. Elec Ry J 56:1250 D 18 '20

Repair

Arc welding and motor maintenance discussed at meeting of Association of electric railway men. il chart diags Elec Ry J 57:537-40 Mr 19 '21

Arc welding on railway properties. A. M. Candy. il Elec Ry J 57:121-4 Ja 15 '21

Equipment repairs on Long Island railroad. il Elec Ry J 55:1136-46 Je 5 '20

Maintenance of single-phase a.c. multiple-unit equipment on the Westchester. il diag map plan Elec Ry J 55:1193-9 Je 12 '20

Repairs to car seats and curtains. il Elec Ry J 55:571-3 Mr 20 '20

Cars, Freight. See Freight cars**Cars (inspection)**

Substitute for hand cars. il Automotive Ind 42:950 Ap 22 '20

Cars, Interchange of. See Cars—Interchange; Freight cars—Interchange**Cars, Mine.** See Mine cars**Cars, Postal.** See Postal cars**Cars (spreader).** See Spreader cars**Cars, Steel**

Bethlehem building new all-steel passenger cars. Ry R 69:590 O 29 '21

Developing an electric railroad; Indianapolis-Louisville interurban. il plans Elec Ry J 57:1026-31 Je 4 '21

New Bournemouth trains. il Engineer 132:117-18 J1 29 '21

New cars for Texas electric railway. il Elec Ry J 58:247-8 Ag 13 '21

New York municipal car improvements. il Elec Ry J 57:1087-90 Je 11 '21

Progress in the development of the all-steel car. J. J. Tatum. Ry R 68:699-700 My 7 '21

Safety of passengers in steel railway cars. F. M. Brinckerhoff. il diag Ry Age 70:781-5 Mr 25 '21; Same. Ry Mech Eng 95:223-7 Ap '21; Same cond. Elec Ry J 57:605-8 Mr 26 '21

Some recent interurban car designs. il plans Elec Ry J 58:6-10 J1 2 '21

South African railways: steel carriages. il Engineer 132:76 J1 15 '21

Steel rolling stock for the Metropolitan district railway. il diags Engineering 111:12-14, 37, 102. pl 2-3, 5 Ja 7-14, 28 '21

Steel suburban coaches for the Illinois Central R.R. diag plan Ry R 66:736 My 1 '20

See also Container cars; Freight cars, Steel

Cars, Subway

Hudson and Manhattan railroad lengthens doors on new tube cars. il Elec Ry J 57:1086 Je 11 '21

New type of cars for London subways. il plans Elec Ry J 57:441-4 Mr 5 '21

New York municipal car improvements. il Elec Ry J 57:1087-90 Je 11 '21

Carson college for orphan girls

Carson college for orphan girls at Flourtown near Philadelphia. A. W. Colton. il plans Arch Rec 50:2-25 J1 '21

Carter, George H.

New public printer. W. Fawcett. por Inland Ptr 67:212 My '21

Cartons. See Containers**Cartridge cases**

Spontaneous cracking of the necks of small arm cartridge cases. W. C. Hothersall. Engineering 111:453 Ap 15 '21

Carty, John Joseph, 1861-

Portrait. Elec W 76:1008 N 20 '20

Caruso's records. See Phonograph records**Carvacrol**

Alkali fusions; the fusion of sodium *p*-cymene sulfonate with sodium hydroxide for the production of carvacrol. H. D. Gibbs and M. Phillips. diag J Ind & Eng Chem 12:145-9 F '20

Casablanca, Morocco

Le plan d'aménagement de Casablanca (Maroc). E. Joyant. il plans Génie Civil 79:161-7 Ag 20 '21

Casañas, B. C.

Builders of business. T: E. Dabney. por System 40:42-4 J1 '21

Cascades

Villa Corsini cascade, Rome. R. H. Wilcox. il diags plan Arch Rec 49:392-7 My '21

Case, J. I., plow works company

Application to have stock listed on the New York stock exchange. Comm & Fin Chr 110:2675-7 Je 26 '20

Case, J. I., threshing machine company

1919 annual report. Comm & Fin Chr 110:1313-15 Mr 27 '20

1920 annual report. Comm & Fin Chr 112:1304-5 Mr 26 '21

Case hardening

Carbonizing so as to insure a tough core. E. W. Pierce and J: W. Anderson. Iron Age 106:1315-16 N 18 '20

Carburizing and casehardening. S. P. Rockwell. il diag Mach 26:387-95, 534-8, 627-32 Ja-Mr '20

Carburizing cold-rolled ball races. S. P. Rockwell. Mach 26:667-8 Mr '20

Care of carburizing compounds. W. H. Addis. il Am Mach 52:28 Ja 1 '20

Case carbonizing. il diags 111p '20 Driver-Harris co., Harrison, N.J.

Case-hardening. L. Aitchison. Chem & Met Eng 25:164 J1 27 '21

Case hardening and oxidation of steel. F. Giolitti. Chem & Met Eng 25:312-13 Ag 24 '21

Case hardening commercial steels. Iron Tr R 66:856-7 Mr 18 '20

Case hardening—Continued

- Case hardening of steel. W. Rosenhain. *il Automotive Ind* 42:74-6 Ja 8 '20
- Casehardening of steel. J. F. Springer. *Ry Mech Eng* 93:675-6, 731-5 N-D '19
- Case-hardening process for crankshafts successfully developed. N. G. Shidle. *il Automotive Ind* 43:1016-19 N 18 '20
- Casehardening steel. S. P. Rockwell. *Mach* 26:770 Ap '20
- Case hardening with gas. H. M. Crawford. *diag Gas Age* 46:204-5 S 10 '20
- Depth of casing alone in cementation is not at all indicative of the burden it will carry. J. E. Burns. *Am Gas Eng J* 112:25-7 Ja 10 '20
- Effect of depth of copper plating on carburization. F. P. Zimmerli. *il Mech Eng* 42:565-6+ O '20
- Effect of temperature in case-hardening. T. G. Selleck. *Ry Mech Eng* 95:648-50 O '21
- Hardening shop costs. S. P. Rockwell. *Mach* 26:1047-8 Jl '20
- Heat treating metals with gas. J. E. Springer. *il Gas Age* 46:198-202 S 10 '20
- Heat-treatment of low-carbon steel automobile crankshafts. F. D. Jones. *il Mach* 27:521-3 F '21
- Heat treatment of screw stock. A. A. Blue. *il Blast F & Steel Pl* 9:553-5 S '21
- High-temperature-resisting alloys for carbonizing; abstract. A. Bensei. *Mech Eng* 43:612 S '21
- How to carbonize with gas. *Gas Age* 46:127-8 Ag 10 '20
- Influence of the velocity of cooling on the hardening of carbon steel; abstract. Portevin and Garvin. *Mech Eng* 42:580-1 O '20
- Meeting of the American society for steel treating; session on case-hardening. *Chem & Met Eng* 25:642-4 O 5 '21
- Modern case hardening building at Providence. *il Iron Age* 106:1539-40 D 9 '20
- New cyanide process for hardening steel; abstracts. W. J. Merten. *diag Iron Age* 106:1267-8 N 11 '20; *Iron Tr R* 67:998-9 O 7 '20; *Mach* 27:236-1 N '20; *Ry Mech Eng* 94:716-17 N '20; *Am Mach* 53:1169-70 D 23 '20
- Nitrogen and case-hardening. H. Fay. *Chem & Met Eng* 24:289-90 F 16 '21
- Nitrogen in carburized steels. W. E. Ruder and G. R. Brophy. *il Chem & Met Eng* 25:867-71 N 9 '21
- Preparing parts for local case-hardening. M. Harris. *il diags Am Mach* 52:37-8 Ja 1 '20

See also Steel, Hardening of

Patents

- Rodman patent for method of making case-hardening material held valid. W. Gustin. *Chem & Met Eng* 22:1124-5 Je 16 '20

Casein

- Alkaline hydrolysis of casein. M. A. Griggs. *J Ind & Eng Chem* 13:1027-8 N '21
- Casein glues—their manufacture, preparation, and application. S. W. Allen and T. R. Truax. *il U S Nat Advisory Com for Aeronautics* 1919:391-6 '20
- Failure of casein glue joints in ash. L. J. Bradford. *diags Aerial Age* 12:346-7+ D 6 '20
- Influence of the method of manufacture on the use of casein in glue making. S. Buttermann. *J Ind & Eng Chem* 12:141-4 F '20
- Notes on casein glue. *Chem & Met Eng* 22:304 F 18 '20
- Precipitation of grain-curd casein from pasteurized milk, including sweet cream buttermilk. H. F. Zoller. *J Ind & Eng Chem* 13:510-14 Je '21
- Report of T.A.P.P.I. committee on coated and processed papers. C. Marion. *Paper* 28:30-3 Ap 20 '21
- Studies of technical casein. W. M. Clark and others. *J Ind & Eng Chem* 12:1162-73 D '20

Analysis

- Studies on technical casein—methods of analysis. R. H. Shaw. *J Ind & Eng Chem* 12:1168-70 D '20

Testing

- Studies on technical casein—standardization of the borax solubility test for commercial caseins. H. F. Zoller. *J Ind & Eng Chem* 12:1171-3 D '20
- Cash registers**
- Cash register in a ticket office. *il Ry Age* 71:260-2 Ag 6 '21
- Casing-head gas.** See Gas, Natural; Gasoline
- Caslon, William, 1692-**
- William Caslon and his types. H. L. Bullen. *por Inland Ptr* 67:40, 51-4 Ap '21
- Cast iron**
- American foundrymen hold sessions on gray iron. *Iron Age* 106:988-9 O 14 '20
- American malleable cast iron. H. A. Schwartz. *il Iron Tr R* 67:1536-40; 68:213-18, 353-7+, 485-8+, 628-31+, 770-5, 901-4, 1039-42, 1175-80, 1317-21, 1453-60, 1662-8, 1792-7; 69:98-101, 233-8, 354-9+, 496-9, 611-16+, 813-16 D 2 '20, Ja 20, F 3, 17, Mr 3, 17, 31, Ap 14, 28, My 12, 26, Je 16, 30, Jl 14, 28, Ag 11, 25, S 8, 29 '21
- Anneal malleable in tunnel kiln. H. E. Diller. *il diags plan Foundry* 48:638-44 Ag 15 '20
- British iron research association meets. J. Horton. *Foundry* 49:531-2 Jl 1 '21
- Buying iron for foundry use. F. Collins. *Iron Tr R* 68:283-5 Ja 27 '21; Same. *Foundry* 49:64-5+ Ja 15 '21
- Cast iron for locomotive cylinder parts. C. H. Strand. *il diags U S Bur Stand Tech Pa* 172:1-25 '20; Abstracts. *Ry Age* 69:619-20 O 8 '20; *Ry Mech Eng* 94:694 N '20; *Am Mach* 53:1221-2 D 30 '20
- Cast iron from steel scrap. R. Gregg. *il Iron Age* 105:402 F 5 '20
- Cast iron made from steel turnings. C. A. Keller. *Foundry* 48:484-5 Je 15 '20; Same. *Iron Tr R* 67:381-2 Ag 5 '20
- Cast iron research in Great Britain. *Foundry* 49:222 Mr 15 '21
- Charcoal iron. R. Moldenke. 64p Salisbury iron corporation, Lime Rock, Conn. '20
- Design electric annealing furnace. C. E. Chaney. *diags Foundry* 49:720-3 S 15 '21
- Diesel engine castings. *il diags Engineering* 109:177-9, 355-6 F 6, Mr 12 '20
- Effect of oxygen in cast iron. J. E. Hurst. *Foundry* 48:236 Mr 15 '20
- Einfluss des mangans auf die festigkeits-eigenschaften des schmiedbaren gusses. E. Leuenberger. *Stahl & Eisen* 41:285-7 Mr 3 '21; Abstract. *Chem & Met Eng* 24:751-2 Ap 27 '21
- Explain the structures of malleable. W. R. Bean, H. W. Highriter and E. S. Davenport. *il Foundry* 49:557-64 Jl 15 '21
- Foundry irons for particular uses. Y. A. Dyer. *Iron Age* 108:585-8 S 8 '21
- Future of cast iron in the automobile industry. *Eng & Ind Management* 5:20-1 Ja 6 '21
- Graphitic corrosion of cast iron. J. V. Davies. *Iron Age* 108:942-3 O 13 '21
- Graphitization of white cast iron. R. S. Archer. *il Min & Met* 158:(sec 10) 1-8 F '20; Same. *Foundry* 48:192-4 Mr 1 '20; Abstract. *Chem & Met Eng* 22:392-3 Mr 3 '20
- Gray iron suitable for many purposes. R. Moldenke. *Iron Tr R* 66:1618-20 Je 3 '20
- High-sulphur malleable made in America. J. H. Anderson. *Foundry* 49:509 Jl 1 '21
- How to weld cast iron electrically. *il Foundry* 49:68 Ja 15 '21
- Influence of nickel on cast iron. *Automotive Ind* 44:705 Mr 31 '21
- Malleable iron; abstract. E. Touceda. *Foundry* 48:806 O 15 '20
- Malleable strong in thick sections. W. R. Bean. *il Foundry* 47:906-8 D 15 '19
- Manufacture of cast-iron equipment used in chemical engineering. H. A. Hoffer. *Chem & Met Eng* 22:567-8 Mr 24 '20
- Manufacture of synthetic cast iron in the electric furnace. W. L. Morrison. *il Elec W* 75:1490 Je 26 '20

Cast iron—Continued

- Materials and methods used in the manufacture of enameled cast-iron wares. H. F. Staley. diags plans U S Bur Stand Tech Pa 142:1-158 '19; Abstract. J Fr Inst 188:811-12 D '19
- Method for reclaiming malleable castings. il Foundry 49:187 Mr 1 '21
- Nickel and cobalt in iron. O. Bauer and E. Piwowarsky. Iron Age 108:513 S 1 '21
- Oxides in cast iron. J. Shaw. Foundry 48:425 Je 1 '20
- Points on grinding iron castings. L. M. Krull. plan Foundry 48:785-7 O 1 '20
- Problems of the foundry; differing view of metallurgists regarding the effect of oxygen in gray iron. J. Shaw. Foundry 49:759-61 O 1 '21
- Recent developments in oxygen cutting. S. Plumley and F. J. Napolitan. il Iron Age 105:1505-6 My 27 '20; Same. Am Mach 53:173-5 Jl 22 '20; Same. Foundry 48:567-8 Jl 15 '20
- Research improves malleable castings. Iron Tr R 69:687 S 15 '21; Foundry 49:761 O 1 '21; Ry Mech Eng 95:643-4 O '21; Iron Age 108:881-2 O 6 '21
- Research work on malleable iron; abstracts. E. Touceda. il Mech Eng 41:593-600 Jl '19; Am Mach 51:861-6 N 13 '19; Foundry 47:436-7 Jl 1 '19
- Securing low-carbon cast iron. H. E. Diller. Foundry 48:634 Ag 15 '20
- Some possibilities of cast iron. Eng N 85:580 S 23 '20
- Specialty shop shows versatility; minute stove parts to largest malleable castings are made. il Foundry 49:265-70 Ap 1 '21
- Steel foundry makes sugar mill machinery. J. J. Zimmerman. il diags Blast F & Steel Pl 9:536-40 S '21
- Sulphur in malleable cast iron. L. C. Crome. Chem & Met Eng 25:247-8 Ag 10 '21
- Sulphur problem in cast iron. G. K. Elliott. Foundry 48:978-9 D 15 '20; Same abr. Iron Age 106:919-20 O 7 '20
- Synthetic cast iron. C. A. Keller. il Chem & Met Eng 22:83-8 Ja 14 '20
- Tests cupola malleable annealing. F. H. Cole. il Foundry 49:644-5 Ag 15 '21
- Use of microscope in malleable-iron industry. E. Touceda. Min & Met 158:(sec 5) 1-5 F '20; Same. Iron Tr R 66:704-5 Mr 4 '20; Same. Foundry 48:237-8 Mr 15 '20
- Value of scientific and industrial research to the foundry. T. Vickers. Eng & Ind Management 5:356-7 Mr 24 '21
- Welding cast iron with the electric arc. O. A. Kenyon. il diags Iron Age 105:12-16 Ja 1 '20
- Welding malleable iron. F. B. Corey. il Am Mach 52:1182-3 Je 3 '20
- Zirconium is deoxidizer in cast iron. R. Moldenke. Foundry 48:878-9 N 1 '20; Same. Iron Age 106:968-9 O 14 '20

See also Car wheels; Chilled iron; Corros iron; Foundry practice; Iron; Iron founding; Iron metallurgy; Pig iron; Semi-steel; Spiegeleisen; *also* British cast iron research association

Specifications

- A.F.A. committee reports on specifications. Foundry 48:879 N 1 '20
- Specifying malleable iron castings. E. Touceda. Iron Tr R 66:1620-1 Je 3 '20
- Standard specifications for gray-iron castings. diag Foundry 48:910a, 948a N 15-D 1 '20
- Standard specifications for malleable castings. Foundry 49:60a Ja 15 '21

Testing

- Effect of machining and of cross-section on the tensile properties of malleable cast iron. H. A. Schwartz. Am Soc T M Pro v 20 pt 2:70-9 '20; Same. Foundry 48:517-19 Jl 1 '20; Same. Iron Tr R 67:371-3 Ag 5 '20
- Investigation of silicon reviewed. T. Turner. Foundry 48:184-6 Mr 1 '20
- Malleable strong in thick sections. W. R. Bean. il Foundry 47:906-8 D 15 '19

Cast iron molds. *See* Molds, Cast iron

Casters**Manufacture**

- Manufacturing ball casters. F. R. Daniels. il diag Mach 26:1062-6 Jl '20

Castigliano theory. *See* Deformations (mechanics)

Casting, Centrifugal

- British adopt centrifugal casting. G. Williams. il diags Foundry 48:213-18 Mr 15 '20
- Cast iron pipe made by the De Lavaud process. P. Gillespie. il Can Eng 40:454-5 My 12 '21
- Centrifugal casting; various methods of forming pipes and tubes by centrifugal deposition. Sci Am M 4:164-5 Ag '21
- Centrifugally cast iron pipe. A. F. Macallum. Can Eng 39:488 N 4 '20; Same. Iron Age 106:1470 D 2 '20; Same. Plumber 94:577 D 17 '20; Same. Pub Works 50:75 Ja 22 '21; Same cond. Eng & Contr 54:562 D 8 '20
- Control of centrifugal casting by calculation. R. F. Wood. diags Mech Eng 43:727-8+ N '21
- Hume centrifugal pipe in South Africa. il diags plan Concrete 19:119-20 S '21
- Hume centrifugally made concrete pipe. Mech Eng 43:474-5 Jl '21
- Piston rings cast centrifugally. H. E. Diller. il Foundry 48:127-32 F 15 '20
- Reinforced-concrete pipe made by the centrifugal process. E. M. Weston. Eng N 83:707-8 O 9 '19; Same. Sci Am M 1:166 F '20
- Tests of centrifugally cast steel. G. K. Burgess. il diags U S Bur Stand Tech Pa 192:1-22 '21; Same, without pls. Iron Age 107:764-6 Mr 24 '21; Same. Iron Tr R 68:1443-7 My 26 '21; Abstract. Mech Eng 43:334, 476 My, Jl '21

See also Foundry practice

Casting (metals). *See* Aluminum founding; Brass founding; Casting machines; Foundry practice; Iron founding; Steel castings

Casting machines

- Non-ferrous castings in spinning molds. L. J. Josten. il Iron Age 107:1289-92 My 19 '21; Abstract. Mech Eng 43:475 Jl '21
- Pig casting machine and iron storage. diags Iron Age 107:1384-5 My 26 '21

Castles

- Castles in Spain. G. G. King. il Am Inst Arch J 9:294-301 S '21

Castor beans

- Lipolytic activity of the castor and soy bean. A. W. Barton. Am Chem Soc J 42:620-32 Mr '20

Castor oil

- Comparison of qualities of castor and mineral oils. F. C. Ziesenheim. Automotive Ind 43:612-13 S 23 '20

Is castor oil a good dressing for belts? W. F. Schaphorst. Coal Age 20:678 O 27 '21

Operation of the Gainesville castor oil plant. J. H. Shrader and A. C. Goetz. il Chem & Met Eng 22:833-8 My 5 '20

Castor oil plant

- Why the castor-oil plant is called Palma Christi. Sci Am S 88:376 D 20 '19

Cat-tail

- Food and fibre from the common cat-tail. Sci Am M 2:236 N '20

Cataloging

- Pamphlets and clippings in a business library. V. Fairfax. J Elec 45:584-5; 46:31-3, 78-80 D 15 '20-Ja 15 '21

Recataloging of the Engineering societies library, New York. H. W. Craver. Mech Eng 43:64-5 Ja '21

Recataloging the world's largest technical library. H. W. Craver. Min & Met 161:11-12 My '20

See also Indexing; Subject headings

Catalogs

- Catalogue prices: a suggestion. J. W. Fildes. Eng & Ind Management 6:146 Ag 11 '21

Catalogs—Continued

- Cataloguing the line when styles and prices are changing. *Ptr Ink* 115:73-4 Ap 7 '21
- Combination selling gives service with sales. W. Perry. *Ptr Ink M* 3:62+ Je '21
- Evolution of the catalogue. *Ptr Ink* 113:41-2+N 11 '20
- Eye opener that you will say is good; Walworth export catalogue no. 35. *Plumber* 94:458+ O 22 '20
- Fill-in catalogue—the salesman's new partner. G. A. Nichols. *Ptr Ink M* 2:40+ D '20
- He puts his personality into his catalogue; Henry Field's direct-mail advertising. G. A. Nichols. *il Ptr Ink M* 2:19-20+ F '21
- How the shop owner may learn to buy and manage better; trade journals and trade catalogs. *Plumber* 94:434-6 O 8 '20
- Is your catalogue problem discussed here? *Ptr Ink* 114:65-6 Ja 27 '21
- Loose-leaf catalogue that saves swatches. *il Ptr Ink M* 2:60 Ja '21
- Making type talk in a catalogue. G. A. Nichols. *Ptr Ink M* 3:45-6 Je '21
- Page allotment can make or break catalogue. R. K. Sewell. *Ptr Ink M* 2:53-4 My '21
- Postal authorities inquire into methods of distributing mail-order catalogues. *Ptr Ink* 110:111-12 F 12 '20
- Problem of the overgrown catalogue. *Ptr Ink* 116:69-70+ Ag 25 '21
- Sampling idea applied to catalogues. B. D. Peyton. *Ptr Ink M* 2:69-70 D '20
- Some notes on catalog making. S: Graydon. 29p Wynkoop Hallenbeck Crawford co., New York '21
- Standard catalogs from the engineer's point of view. C. V. Lovell. *Am Mach* 53:651 S 30 '20
- Where the standardized catalogue movement stands. *Ptr Ink* 110:50+ Mr 18 '20
- Why not put more information in the catalogue? G: G. Little. *Am Mach* 55:353 S 1 '21
- Will the catalogue lead selling out of the wilderness? G. A. Nichols. *Ptr Ink* 115:3-4+ My 5 '21
- Works and general offices of the Jeffrey mfg. co., Columbus, Ohio; pages from an export catalog. *Ptg Art* 36:41-8 S '20

Cost

- Cost of getting out a catalogue. *Ptr Ink* 113:25-7 D 30 '20

Catalogs, Library

- Linotype slugs and catalogues; printing a university library catalogue from linotype title-a-line slugs. H. S. Leach. *Sci Am* 125A:47 N '21

Catalysis

- Accelerated formation of magnesium alkyl and aryl haloids. H. Hepworth. *Chem Soc J* 119:1249-56 Ag '21
- Adsorption of gases by metallic catalysts. H. S. Taylor and R. M. Burns. *diag Am Chem Soc J* 43:1273-87 Je '21
- Bemerkung zur arbeit von Karl W. Rosenmund und F. Zetzsche: über katalysatorbeeinflussung und spezifisch wirkende katalysatoren. E. Abel. *Deutsche Chem Gesell Ber* 54:1407-9 J1 '21
- Catalysis and its industrial applications. E. Jobling. 2d ed. 144p J. & A. Churchill, London '20
- Catalysis by means of precious metals. M. Mailhe. *Sci Am M* 2:45-6 J1 '20
- Catalysis in industrial chemistry. *Engineering* 111:363-4 Mr 25 '21
- Catalysis in industrial chemistry, by G. G. Henderson. Review. W. D. Bancroft. *J Phys Chem* 24:238-40 Mr '20
- Catalysis in the manufacture of ether. H. Schlatter. *J Ind & Eng Chem* 12:1101-2 N '20
- Catalysis increases production. W. D. Bancroft. *Gas Age* 48:351-2 S 24 '21
- Catalysis of permanganate titrations. P. H. Segnitz. *J Ind & Eng Chem* 12:1196-7 D '20
- Catalyst for the oxidation of ammonia. G. A. Perley. *Chem & Met Eng* 22:125-9 Ja 21 '20
- Catalytic decomposition of certain phenol silver salts. W. H. Hunter and G. H. Woollett. *Am Chem Soc J* 43:131-59 Ja '21

- Catalytic decomposition of hydrogen peroxide by ferric salts. V. Bohnson. *J Phys Chem* 25:19-54 Ja '21
- Catalytic decomposition of hydrogen peroxide by sodium iodide in mixed solvents. V. L. Bohnson. *J Phys Chem* 24:677-700 D '20
- Catalytic hydrogenation of cottonseed oil. L. Kahlenberg and G. J. Ritter. *diags J Phys Chem* 25:89-114 F '21
- Catalytic hydrogenation with protected hydro-sols. E. K. Rideal. *Am Chem Soc J* 42:749-56 Ap '20
- Catalytic oxidation; benzene. J: M. Weiss and C: R. Downs. *J Ind & Eng Chem* 12:228-32 Mr '20
- Catalytic oxidation of ferrous salts in acid solutions. R: Thomas and E: T: Williams. *Chem Soc J* 119:749-58 My '21
- Catalytic oxidation of petroleum oils. C. E. Waters. *J Ind & Eng Chem* 13:901-3 O '21
- Catalytic preparation of mercaptans. R. L. Kramer and E. E. Reid. *Am Chem Soc J* 43:880-90 Ap '21
- Catalytic saponification of oils and fats. Cheh-Yao Chang [Thesis]. 58p Ohio state university, Columbus '21
- Les colloïdes; la catalyse. H. Vigneron. *Génie Civil* 78:474-6 Je 4 '21
- Commercial oxidation of ammonia. G: A. Perley. *il J Ind & Eng Chem* 12:5-16, 119-29 Ja-F '20
- Contact catalysis. W. D. Bancroft. *Am Electrochem Soc Trans v* 37 (preprint 16):233-64 Ap '20
- Dehydrogenation of primary and secondary alcohols by catalytic oxidation. C: Moureu and G. Mignonac. *Chem & Met Eng* 22:1083 Je 9 '20
- Effect of surface oxidation on some metallic catalysts. F. F. Rupert. *Am Chem Soc J* 42:402-11 Mr '20
- L'état actuel de la catalyse. A. Mailhe. *Génie Civil* 77:517 D 18 '20
- Influence of mercury, sulphur, arsenic and zinc on the catalytic activity of platinum. E: B. Maxted. *Chem Soc J* 119:225-33 Mr '21
- Kation catalysis; abstract. B. Holmberg. *Chem Soc J* 120 pt 2:319-20 My '21
- Manufacture of synthetic ammonia at Oppau, Germany. *diags Chem & Met Eng* 24:347-9 F 23 '21
- Le mécanisme de l'action catalytique. C. Matignon. *Chimie & Ind* 6:7-10 J1 '21
- Mechanism of catalytic processes. H. S. Taylor. *J Ind & Eng Chem* 13:75-8 Ja '21; Abstract. *Chem & Met Eng* 23:1184 D 15 '20
- New type of catalyzer for hydrogenation. W. D. Richardson. *Chem & Met Eng* 22:793-6 Ap 28 '20
- Observations on catalyzers in paint and varnish manufacture. F. P. Ingalls. *Chem & Met Eng* 22:590-2 Mr 31 '20
- Overpotential and catalytic activity. E. K. Rideal. *Am Chem Soc J* 42:94-105 Ja '20
- Oxidation of carbon monoxide by passage with oxygen or air through the silent discharge and over ozone decomposing catalysts. A. B. Ray and F. O. Anderegg. *diags Am Chem Soc J* 43:967-78 My '21
- Oxydative katalytische dehydrierung von al-kohlen. F. Zetzsche. *Deutsche Chem Gesell Ber* 54:1092-8 My '21
- Periodic reaction in homogeneous solution and its relation to catalysis. W: C. Bray. *Am Chem Soc J* 43:1262-7 Je '21
- Photocatalysis; the synthesis of formaldehyde and carbohydrates from carbon dioxide and water. E: C: C. Baly, I. M. Heilbron and W: F. Baker. *Chem Soc J* 119:1025-35 J1 '21
- Preparation of ethylene by hydrogenation of acetylene. W: H. Ross, J. B. Culbertson and J. P. Parsons. *diags J Ind & Eng Chem* 13:775-8 S '21
- Promoter action in catalysis. R. N. Pease and H. S. Taylor. *J Phys Chem* 24:241-65 Ap '20
- Radiation theory of chemical action and catalysis. *Engineering* 112:512-13 O 7 '21
- Relation between the occlusive power of palladium for hydrogen and its activity for catalytic hydrogenation. E: B. Maxted. *Chem Soc J* 119:1280-4 Ag '21

Catalysis—Continued

- Removal of carbon monoxide from air. A. B. Lamb, W. C. Bray and J. C. W. Frazer. *J Ind & Eng Chem* 12:213-21 Mr '20
- Rôle of protective colloids in catalysis. T. Iredale. *Chem Soc J* 119:109-15 Ja '21
- Some catalysts which promote reaction between aniline and ethyl alcohol. T. B. Johnson, A. J. Hill and J. J. Donleavy. *J Ind & Eng Chem* 12:636-44 Jl '20
- Studies in catalysis. *J Fr Inst* 189:130-1 Ja '20
- Symposium on catalysis. *Chem & Met Eng* 21:522-5 O 22 '19
- Theory and practice of catalysis. *Chem & Met Eng* 22:102 Ja 21 '20
- Über die abhängigkeit der katalytischen hydrierung von der gegenwart des sauerstoffs. R. Willstätter and E. Waldschmidt-Leitz. *Deutsche Chem Gesell Ber* 54:113-38 Ja '21; Abstract (Hydrogenation of aromatic compounds by the help of platinum). *Chem Soc J* 120 pt 2:185-8 Mr '21
- Über katalysator-beeinflussung und spezifisch wirkende katalysatoren. K. W. Rosenmund and F. Zetzsche. *Deutsche Chem Gesell Ber* 54:425-37, 638-47 Mr-Apr '21
- Use of catalysis in the sulfonation of aromatic compounds. J. A. Ambler and W. J. Cotton. *J Ind & Eng Chem* 12:968-9 O '20
- See also Colloids; Heaters, Catalytic

Catamarans

- Motorcycle-power catamaran. P. P. Avery. *diags plans Pop Mech* 34:303-5 Ag '20

Catapults

- Brief history of launching catapults. *il Aviation* 10:278 F 28 '21

Catechin. See Catechol**Catechol**

- Constitution of catechin; synthesis of aca-catechin. M. Nierenstein. *Chem Soc J* 119:164-70 F '21
- Raumisomere catechine. K. Freudenberg, O. Böhme and A. Beckendorf. *Deutsche Chem Gesell Ber* 54:1204-13 Je '21; Abstract. *Chem Soc J* 120 pt 1:576-7 Ag '21

Catechu. See Cutch**Caterpillar tractors. See Tractors****Cathedrals**

- Cathedral catastrophes in the Middle Ages. *Sci Am* 125:194 S 17 '21
- Enlargement of Holy Name cathedral, Chicago. *il Am Arch* 120:92-4 Ag 3 '21
- Heating system for a modern cathedral. C. L. Hubbard. *il diags plans Heat & Ven* 17:27-33 Ap; 35-8 My '20
- How France built her cathedrals. E. B. O'Reilly. 611p Harper '21

See also Church architecture; also names of cathedrals, e.g. Noyon cathedral, Reims cathedral, St Paul's cathedral, London

Bibliography

- War books of the cathedrals. B. Ferree. *Arch Rec* 43:90-2, 186-8, 385-7, 575-9; 44:474-6; 45:180-2; 46:90-3, 186-9; 47:354-6; 49:371-4 Ja-F, Ap, Je, N '18, F, Jl-Ag '19, Ap '20, Ap '21

Floors

- Decorative function of the stone pavement. H. D. Eberlein. *il Arch Forum* 33:195-200 D '20

Catskill aqueduct

- Gilboa dam. J. F. Springer. *il Sci Am* 121:608-9+ D 20 '19
- Grouting operations, Catskill water supply. J. F. Sanborn and M. E. Zipser. *il diag Engineering* 109:525-7, 558-62, 627-30 Ap 16-23, My 7 '20; Excerpts. *Eng & Contr* 53:149-52 F 11 '20
- Piercing the Catskills for water; some constructional details of the 18-mile tunnel under the Shandaken mountains. R. G. Skerrett. *il Sci Am* 122:538+ My 15 '20

Cattle industry**Venezuela**

- Tropic beeves developed from Zebu cattle. H. C. Plummer. *il Pop Mech* 34:226-9 Ag '20

Causeways

- Design of the Miami, Florida, causeway across Biscayne bay. B. H. Klyce. *diags Munic Eng* 59:43-4 Ag '20
- Johore causeway. *diag plan Engineer* 129:442 Ap 20 '20; Abstract. *Eng N* 84:1058 My 27 '20
- La Salle causeway, Kingston, serviceable. *diag plan Can Eng* 39:306 S 2 '20

Caustic soda. See Sodium hydroxide**Cave, Edward, 1691-1754**

- First magazine, and its originator. H: L: Bullen. *por Inland Ptr* 66:341 D '20

Cave paintings

- Artists of the glacial period; prehistoric rock paintings recently discovered in eastern Spain. H. Obermair. *il Sci Am M* 3:199-200 Mr '21
- Prehistoric rock paintings of Spain. *Sci Am* 124:211 Mr 12 '21

Caves

- Three miles of cavern wizardry; caves at New Market, Virginia. H: S. White. *il Pop Mech* 35:815-18 Je '21
- Twentieth-century troglodytes. *il Sci Am M* 2:130-2 O '20

Caxton, William

- Sketch biography of William Caxton, England's first printer. H: L: Bullen. *Inland Ptr* 66:766-9 Mr '21

Cedar Rapids, Iowa

- See also Building trades—Cedar Rapids, Iowa

Water supply

- Comprehensive water-works plan for Cedar Rapids. *Eng N* 87:187 Ag 4 '21

Ceilings

- See also Dust figures

Celestial mechanics. See Mechanics, Celestial**Celite. See Diatomaceous earth****Cellars**

- Securing a dry cellar. G: M. Warren. *il diags Bldg Age* 42:40-2 D '20; 43:55-7 Ja; 50-3 F '21

Cellobiose

- Constitution of the disaccharides; cellobiose (cellose). W. N. Haworth and E. L. Hirst. *Chem Soc J* 119:193-201 F '21
- Über die ungesättigten reduktionsprodukte der zuckerarten und ihre umwandlungen: neue anhydrozucker; synthese einer glucosido-mannose; struktur der cellobiose. M. Bergmann and H. Schotte. *Deutsche Chem Gesell Ber* 54:1564-74 Jl '21; Abstract. *Chem Soc J* 120 pt 1:648-9 S '21

Cells

- Artificial cells; remarkable imitation of natural cells. A. L. Herrera. *il Sci Am M* 3:221-2 Mr '21
- Artificial parthenogenesis and cell stimulants. M. Popoff. *il Sci Am M* 1:312-16 Ap '20
- Conditions of cell structure outside the body. *Sci Am M* 2:206 N '20
- Nature of life and death; abstract. W. J. V. Osterhout. *Sci Am M* 4:83 Jl '21
- See also Osmosis; Plant cells and tissue; Protoplasm; Protozoa

Cells, Electric. See Electric batteries**Cells, Migratory**

- Migratory cells. J. Dufrenoy. *il Sci Am M* 4:346-9 O '21

Celluloid

- Camphor substitutes in the manufacture of celluloid; with list of patents. A. P. Sachs and O. Byron. *J Ind & Eng Chem* 13:893-901 O '21
- Celluloid in electric safety lamps. *Electrician* 86:327 Mr 18 '21
- Dyeing of celluloid. *Color Tr J* 8:180 My '21
- Present status of celluloid as a trademark. J. Larocque. *Ptr Ink* 115:25-6 Ap 28 '21
- Steam generator and air heater gas man's entering wedges in seeking industrial business in celluloid industries. G. C. Shadwell. *Am Gas Eng J* 113:213-16 S 18 '20

Cellulose

- Acetolytic decomposition products of cellulose. R. Prosiel. Paper 28:86-98+ Ap 20 '21
- Advances in cellulose chemistry. E. Heuser. Paper 27:17-21 Ja 5; 15-17 Ja 12; 22-3 Ja 19 '21
- Alkyl celluloses: methods of preparation and uses. C. J. West. Paper 26:15+ Ag 4 '20
- American chemical society; cellulose section meeting. Chem & Met Eng 24:833-4 My 11 '21
- Apparatus for bleaching cellulose with chlorin. diags Paper 26:19-20 Ag 25 '20
- Are German chemists really withholding cellulose secrets? C. J. West. Paper 28:9-10 Ag 10 '21
- Cellulose and sulphite pulp. A. Klein. Paper Trade Journal 73:44+ S 8 '21
- Cellulose chemists in session. Paper 29:11-13 S 14 '21
- Cellulose ethers and esters. C. E. Lehmann. Chem Age 29:343-5 S '21
- Cellulose mucilage. J. E. Minor. J Ind & Eng Chem 13:131-3 F '21
- Cellulose section abstracts. Paper 28:20-1 Je 8; 20+ Je 15 '21
- Cellulose symposium. Chem & Met Eng 23:562-4 S 22 '20
- Cellulose symposium of chemical society. Paper 27:23+ Ja 19 '21
- Chemistry of cellulose and its compounds from the colloidal standpoint. G. J. Esselen, jr. Chem & Met Eng 23:861-6 N 3 '20
- Composition of cellulose. H. A. Bromley. Paper 26:20+ JI 14 '20
- Constitution of cellulose. K. Hess. Paper 27:13-17 D 1; 22-4+ D 8; 20-2+ D 15 '20
- Decomposition of cellulose by aerobic bacteria; abstract. J. Groenwage. Paper 29:16 O 5 '21
- Determination of alpha- beta- and gamma-cellulose. C. J. West. Paper 28:19+ Je 8; 21-2 Je 15 '21
- Determination of cellulose in rubber goods. S. W. Epstein and R. L. Moore. U S Bur Stand Tech Pa 154:1-16 '20; Excerpts. India Rubber W 62:427-8 Ap '20
- Determination of cellulose in woods. W. H. Dore. diag J Ind & Eng Chem 12:264-9 Mr '20; Same. Paper 26:20, 22-5 Mr 10 '20
- Distillation of cellulose and starch under reduced pressure. A. Pictet and J. Sarasin. Paper 28:25-8 Ap 13 '21
- Experiments on wood cellulose. W. G. Harding. J Phys Chem 25:201-3 Mr '21
- La fabrication de la cellulose à l'aide du chlore. U. Pomilio. il diag plan Chimie & Ind 6:267-75 S '21
- Fermentation of cellulose; abstract. G. J. Fowler and G. V. Joshi. Paper 29:15 O 5 '21
- General exposition of cellulose. C. F. Cross. Paper 26:17-18 Ap 7 '20
- German chemists withhold cellulose secrets, is charge. Paper 28:9-10 JI 20 '21
- Hydrolysis of cotton cellulose. G. W. Monier-Williams. Chem Soc J 119:803-5 Je '21
- Life of cellulose. Paper 27:23-5+ O 27 '20
- Methylation of cellulose; homogeneity of product and limit of methylation. W. S. Denham. Chem Soc J 119:77-81 Ja '21
- New reagents for cellulose. C. J. West. Paper 27:18 Ja 12 '21
- Nitrocellulose. R. Robertson. Engineering 110:572-4 O 29 '20
- Plea for the scientific study of cellulose chemistry. H. Hibbert. Chem & Met Eng 22:838-9 My 5 '20
- Polysaccharides: cellulose; abstract. P. Karrer and F. Widmer. Chem Soc J 120 pt 1:310-11 My '21
- Preparation and properties of a highly oxidized cellulose. E. Knecht and L. Thompson. Paper 27:33 F 9 '21
- Pulp production in new states of Europe. Paper 25:52+ Ja 28 '20
- Reactions of cellulose. J. E. Minor. bibliog Paper 26:16-19 Ap 28 '20
- Recent research in cellulose industry. C: F: Cross. Paper 27:31 Mr 2 '21
- Recent work on constitution of cellulose. C. J. West. Paper 28:26-7 My 18 '21

- Report of the rubber division meeting and cellulose symposium of the A.C.S. at St Louis. Chem & Met Eng 22:932 My 19 '20
- Section of cellulose chemistry. Chem & Met Eng 25:551-2 S 21 '21
- Some observations on the determination of cellulose in woods. S. A. Mahood. J Ind & Eng Chem 12:873-5 S '20
- Studies on Korean bast fibers; cellulose in bast fibers. Y. Uyeda. J Ind & Eng Chem 13:141-3 F '21
- Studies on the chemistry of cellulose; the constitution of cellulose. H. Hibbert. J Ind & Eng Chem 13:256-60, 334-42 Mr-Apr '21
- Sulphite cellulose. A. Klein. Paper 27:20+ D 22; 20+ D 29 '20
- Technology of cellulose esters. E: C. Worden. Eschenbach ptg. co., Easton, Pa. '21
- Technology of cellulose esters, by E. C. Worden. Review by L. Lamborn. Chem Age 29:241-4 Je '21
- Tests for the quality of cellulose; abstract. E. Hägglund. Paper 25:24 Ja 7 '20
- Über den asymmetrischen aufbau der cellulose und über die beeinflussung der rotation von kohlehydraten durch kupferhydroxyd-ammoniak (Schweizers reagens). K. Hess and E. Messmer. Deutsche Chem Gesell Ber 54:834-41 Ap '21
- Unterscheidung von oxy- und hydro-cellulosen durch titration. K. G. Schwalbe and E. Becker. Deutsche Chem Gesell Ber 54:545-50 Mr '21
- Wood cellulose; abstract. E. Heuser and E. Boedeker. Chem Soc J 120 pt 1:708-9 O '21
- Wood cellulose; abstract. F. Lenze, B. Pleus and J. Müller. Chem Soc J 120 pt 1:163-4 Mr '21
- Work of cellulose research institute. E. Heuser. Paper 28:17-21+ Ag 24 '21
- Work of the cellulose experts. J. A. Hunter. Textile World 58:3892-3+ D 4 '20
- Zur kenntnis der cellulose. K. Freudenberg. Deutsche Chem Gesell Ber 54:767-72 Ap '21

Bibliography

- Paper research literature; bibliography of the works of C. F. Cross. C. J. West. Paper Trade Journal 73:46+ JI 21 '21
- Recent literature on the determination of cellulose. Tr. by C. J. West. Paper Trade Journal 72:50+ Ap 21 '21

Patents

- Cellulose esters; patent. Chem & Met Eng 23:1269-70 D 29 '20
- Cellulose ethers; patent. Chem & Met Eng 25:714-15 O 12 '21
- Preparation of cellulose; patent. Chem & Met Eng 24:938 My 25 '21
- Treating cellulose and its products; patent. F. Moeller. Chem & Met Eng 23:990 N 17 '20

Periodicals

- New cellulose periodicals. C. J. West. Paper 27:19+ N 17 '20

Cellulose acetate

- L'acétate de cellulose et ses emplois industriels. M. Deschiens. il diags Chimie & Ind 3:591-607 My '20; Translation (Manufacture of cellulose acetate). Chem & Met Eng 23:533-6, 581-3 S 15-22 '20
- Cellulose acetate and artificial silk. J Fr Inst 191:570-2 Ap '21
- Cellulose acetate in artificial leather manufacture. M. Deschiens. Chem Age 29:370-1 S '21
- Cellulose acetates. J. O. Zdanowich. J Ind & Eng Chem 12:1173-4 D '20
- Certain aspects of the chemistry of cellulose acetate from the colloidal viewpoint. G. J. Esselen, jr. J Ind & Eng Chem 12:801-3 Ag '20
- European practice in cellulose acetate and dopes during the war. P. Drinker. J Ind & Eng Chem 13:831-5; Bibliography. 835-6 S '21
- Molding cellulose acetate; patent. Chem & Met Eng 23:1228 D 22 '20

Cellulose acetate—Continued

Nature of the process of swelling; abstract. E. Knoevenagel and others. *Chem Soc J* 120 pt 1:402-3, 709-10 Je, O '21

Nouveaux procédés de préparation et de dissolution d'acétate de cellulose et préparation de masses plastiques. J. Reitstötter. *Chimie & Ind* 4:383-4 S '20

See also Wool, Artificial

Cellulose phthalate

Cellulose phthalate: its preparation and properties. H. A. Levey. *J Ind & Eng Chem* 12:743-4 Ag '20

Cement

Action of lime in magnesium oxychloride cements. M. Y. Seaton, C. R. Hill and L. C. Stewart. *Chem & Met Eng* 25:270-4 Ag 17 '21

Cement. B. Blount, W. H. Woodcock, and H. J. Gillett. Longmans '20

Cement plaster lining for wood irrigation flumes at Waterford, Cal. E. N. Bryan. *diag Eng N* 85:1090-2 D 2 '20

Cements producing quick-hardening concrete. P. H. Bates. *Am Soc T M Pro* 19:pt 2 426-38 '19; Abstract. *Sci Am M* 1:190 F '20; Discussion. *Am Soc T M Pro* 19:pt 2 439-43 '19

Le ciment fondu. *Génie Civil* 78:534 Je 18 '21

Dusting of cement clinker. E. Anderson. *Concrete* 18:sup8 Ja '21

Effect of alkali upon Portland cement. K. T. Steik. 38p K. T. Steik, Laramie, Wyoming '21

Effect of fineness of cement. D. A. Abrams. 81p Structural materials research laboratory, Chicago '19

Eiseneinlagen in hochhofenschlackenhaltigen zementen. R. Grün. *Stahl & Eisen* 41:577-9 Ap 28 '21

Étude des classifications des chaux et ciments. V. Bodin. *Chimie & Ind* 4:43-8 Jl '20

Geology of the Catskill Portland cement region. R. W. Jones. *diag Concrete* 16:sup 69-71 My '20

Investigation into the use of bulk cement. *Eng N* 87:324-6 Ag 25 '21

Iron Portland cement. E. H. Lewis. *Engineering* 109:626-7 My 7 '20

Magnesia cement to protect mine-timbers. W. C. Phalen. *Min & Sci P* 120:538 Ap 10 '20; Same cond. *Eng & Contr* 54:65 Jl 21 '20

New stone age. H. E. Howe. 289p Century co. '21

Our mineral supplies; Portland cement. E. F. Burchard. *U S Geol S Bul* 666:113-17 '19

Plastic calcined magnesite and oxychloride cements. M. Y. Seaton. *Chem & Met Eng* 25:233-6 Ag 10 '21

Plastic magnesia cements. P. H. Bates and R. N. Young. *Am Cer Soc J* 4:570-96 Jl '21

Portland-cement masonry for power stations. B. S. Murphy. *Power* 54:98-101 Jl 19 '21

Properties of Portland cement, iron Portland cement, blast furnace cement and hydraulic binders; abstract. H. Burchartz. *Am Cer Soc J* 3:937-8 N '20

Quick hardening cement developed by the French. E. C. Eckel. *Eng N* 87:566-7 O 6 '21; Discussion. P. H. Bates. 87:742 N 3 '21

Research in the cement industry. G. A. Rankin. *Concrete* 16:sup21-4 F '20

Simple means of finding quantity of water required for concrete or mortar. H. G. Lloyd. *Eng & Contr* 53:750-1 Je 30 '20; Same cond. *Eng N* 84:1211-12 Je 17 '20

Super cement. *Concrete* 16:sup86 Je '20

Super-cement now on the market. *Can Eng* 38:356 Ap 8 '20

Super-cement vs. Portland cement. F. M. Dawson. *Can Eng* 39:513 N 11 '20

What is Portland cement? *Eng & Contr* 53: 748-9 Je 30 '20

Zirconia cements. M. Sheppard. *Am Cer Soc J* 4:662-8 Ag '21

See also Cement gun, and other headings beginning Cement; Cements, Adhesive; Concrete; Grouting; Gunite; Mortar; Stucco; Trass

Analysis

Analysis of Portland cement raw mixture. J. C. Witt. *Concrete* 16:sup73-7 My '20

Chemical analyses of cement as indicators of behavior. R. J. Colony. *diag Eng N* 86: 637-9 Ap 14 '21; Excerpts. *Min & Met* 169: 30-1 Ja '21

Interpreting the chemical analysis of Portland cement. J. C. Witt. *Eng N* 87:650-2 O 20 '21

Bibliography

Cements, limes and plasters. R. K. Hursh. *J Ind & Eng Chem* 13:477-8 My '21

Manufacture

Calcium sulphate in cement. F. W. Brown. *Concrete* 16:sup71-2 My '20

Cause of unsoundness in Portland cement. B. F. Erdahl. *Concrete* 16:sup43-6, sup83-5 Mr, Je '20

Cause of unsoundness in Portland cement. J. C. Witt. *Concrete* 17:sup15-17 Ag '20

Causes of unsoundness in Portland cement. F. W. Brown. *Concrete* 16:sup96 Je '20

Comparison of power consumption. H. A. Reichenbach. *Concrete* 19:sup59-60 O '21

Comparison of wet and dry processes for manufacture of Portland cement. I. Schnitz. *Concrete* 19:sup58-9 O '21

Critical review of wet process for manufacture of Portland cement. R. K. Meade. *Concrete* 18:sup77-85 My '21

Effect of calcium sulphate on cement. J. C. Witt. *diag Concrete* 16:sup32-5 F '20

Electrified cement industry aids western construction. L. W. Chapman. *il J Elec* 47:7-10 Jl 1 '21

Fabrication du ciment. J. Fritsch. 2d ed. 547p A. Legrand, Paris '20

Free lime causes unsoundness in cement. O. R. Smith; B. F. Erdahl. *Concrete* 16: sup46+, sup82 Mr, My '20

French cement industry under war conditions. H. S. Spackman. *il plan Concrete* 16:sup28-31 F '20

Handling hot clinker in cement mills. *Concrete* 17:sup69-70 N '20

Modern Portland cement manufacture. *Engineer* 132:420-2 O 21 '21

Rationale of the burning of Portland cement clinker. R. R. Coghlan. *Concrete* 16:sup39-41 Mr '20

Slag cement manufacture in electric furnaces. *Engineering* 112:103-4 Jl 15 '21; Same cond. *Sci Am M* 4:282 S '21

Unsoundness in Portland cement. F. W. Brown. *Concrete* 17:sup25 Ag '20

See also Cement kilns; Cement plants

Prices

Cement and structural shapes compared for 21 years. *Eng N* 86:487 Mr 17 '21

Diagram and table Portland cement prices. D. H. Maury. *Eng & Contr* 56:352 O 12 '21

No change in basic price factors of cement industry. L. W. Alwyn-Schmidt. *Concrete* 17:sup40-1 S '20

Portland cement in 1919. *Concrete* 16:sup49-50 Mr '20; Same. *Eng & Contr* 53:211 F 25 '20

State of Colorado would increase cost of cement. R. J. Morse. *Concrete* 18:sup106 Je '21

Setting

Atmospheric conditions hasten initial set of cement. C. L. Jenken. *Eng N* 87:700 O 27 '21; Discussion. E. L. Conwell. 87:865 N 24 '21

Automatic machine tests setting time. C. R. Hill. *il Concrete* 18:sup102 Je '21

"Cal" to increase rate of hardening of cement mixtures. *Concrete* 16:sup79 My '20

Discussion of cal. S. W. Stratton. *Concrete* 17:sup55 O '20

Effect of cal in Portland cement. *Pub Works* 50:278-9 Ap 2 '21

Cement—Setting—Continued

- Effect of cal on corrosion. J. C. Witt. Concrete 18:sup32 F '21
 Effect of cal under rapid drying conditions. J: R. Lapham. Concrete 18:287 Je '21
 Effects of cal as an accelerator of the hardening of Portland cement mixtures. R. N. Young. U S Bur Stand Tech Pa 174:1-24 '20; Summary. Eng & Contr 54:542-3 D 1 '20
 Modified Vicat apparatus for study of setting time of cement. O. L. Moore. il Eng N 86:70 Ja 13 '21; Same. Concrete 18:sup43 Mr '21
 Relation of carbon dioxide and moisture to the setting time of cement. S. L. Meyers. Concrete 19:sup10-12 Jl '21
 Setting of calcium sulphate cements. C. L. Haddon. Concrete 17:sup49-50 O '20
 What causes cement to be quick setting? E. L. Conwell and others. Concrete 18:sup52-3 Mr '21
 What causes cement to be quick setting? B. Tremper. Concrete 18:sup86 My '21

Specifications

- British standard specification for Portland cement. Engineer 130:422 O 29 '20; Same. Can Eng 39:434 O 14 '20
 Portland cement specifications. Am Cer Soc J 4:81 Ja '21

Testing

- Cement, its inspection and testing. E. J. Mason. il Can Eng 40:225-6+ F 17 '21
 Cement testing steamer heated by electricity. H. H. George. il diag Eng N 85:33-4 Jl 1 '20
 Comparative tests of normally and finely ground cement. Concrete 16:260 Je '20; Same. Eng N 84:1155 Je 10 '20
 Control cement content by field beam tests. M. G. Findley. il diags Eng N 85:703-4 O 7 '20
 Effect of age test pieces in soundness tests of Portland cement. J. R. Dwyer. il Concrete 17:87-91 D '20
 Effect of fineness of cement; abstract. D. A. Abrams. Am Cer Soc J 3:343-5 Ap '20
 Judging the quality of Portland cement. R. J. Colony. diag Min & Met 169:30-1 Ja '21
 Long-time tests of Portland cement, hydraulic lime and volcanic ashes. Sci Am M 2: 278-9 N '20; Same. Mech Eng 42:631-2 N '20
 New type of automatic cement tester. T. Y. Olsen. il Am Soc T M Pro v 20 pt 2:408-10 '20
 Rapid tests of cements. C. N. Wiley. Concrete 17:sup52 O '20
 Solubility of Portland cement—its relation to theories of hydration. J. C. Witt and F. D. Reyes. Concrete 16:sup13-17 Ja '20
 Standard specifications and tests for Portland cement; English and French. il diags plans U S Bur For & Dom Com Industrial Standards 101:1-46 '21

See also Mortar—Testing

Transportation

- Cement freight rate cases. I. D. Foos. Concrete 19:sup64-5 O '21
 Cement freight rate hearings. I. D. Foos. Concrete 18:sup103-5 Je '21
 Freight rates on cement contested. I. D. Foos. Concrete 17:sup92 D '20
 Hearings on concrete freight rates. I. D. Foos. Concrete 18:sup69-71 Ap '21
 Rates on cement shipped from Canada protested. I. D. Foos. Concrete 18:sup32-3 F '21
 Shipping bulk cement. J. V. Mandia. Concrete 17:sup83 D '20
 Shipping cement by truck and boat. C. C. Secrist. il Concrete 17:sup 18-20 Ag '20
 Water transportation of cement developed. S: F. Larrimore. Concrete 18:sup25-6 F '21
- Cement containers.** See Containers, Cement
- Cement gun**
 Application of cement mixtures by machinery; with cost analysis. G: J. Young. il diag plan Eng & Min J 111:537-43 Mr 26 '21

- Cement-gun repairs concrete ship. G. L. Smith. Can Eng 38:450 My 6 '20; Abstract. Eng N 84:1113 Je 3 '20
 Construction work by cement gun methods. A. J. White. il Eng Soc W Pa 36:109-30 Mr '20; Excerpts. Sci Am M 2:249-53 N '20; Discussion. Eng Soc W Pa 36:131-44 Mr '20
 Difficult roof reconstruction accomplished by use of a cement-gun. L. R. Talbot and G: P. Trax. diags Eng & Contr 55:424-6 Ap 27 '21
 Effective use of the cement gun. D. J. Baker. il plan Coal Age 16:836-8 N 27 '19
 Hollow concrete piling. il Concrete 18:130-1 Mr '21
 Long concrete piles built up with cement gun. il plan Eng N 86:420-2 Mr 10 '21
 Method of repairing water tunnel with cement gun. diags Eng & Contr 53:534-6 My 12 '20
 Placing concrete membrane lining in Herron Hill reservoir by cement gun. il diag Eng N 85:1043-5 N 25 '20
 Repairing stone arch aqueduct with cement gun. D. S. MacBride. il Concrete 17:188 D '20
 Surrounding corroded steel stacks with concrete. J: V. Schaefer. il Power Pl Eng 25: 560-1 Je 1 '21; Same abr. Eng & Contr 55: 619-20 Je 22 '21; Same abr. Am Mach 55:520 S 29 '21
 Wood borer takes the count; protecting piling by cement gun. il Sci Am 124:111 F 5 '21

See also Guniting; Guniting slabs

Cement handling

- Bulk cement job plant layout. il diag plan Concrete 16:121-2 Mr '20
 Delivering bulk cement and water to a concrete mixer. diag Pub Works 50:509 Je 11 '21
 Handling bulk cement on a road job. diags Eng & Contr 56:119 Ag 3 '21
 Handling bulk cement on large building job. W. A. Dame. il plan Eng & Contr 54:414-15 O 27 '20
 How cement dealers' profits are increased by machinery. C. T. Kingsbury. il diags plan Concrete 19:142-4 O '21
 How to use bulk cement economically. M. W. Loving and D. R. Collins. il diags plans Concrete 18:57-60 F '21
 Investigation into the use of bulk cement. Eng N 87:324-6 Ag 25 '21
 Pneumatic conveying equipment. il diag Concrete 16:sup36-7 F '20
 Shipping bulk cement. J. V. Mandia. Concrete 17:sup83 D '20
 Simple method of handling bulk cement for road job. A. Loeb. diags Eng & Contr 55: 109 F 2 '21
 Storing, piling and handling sacked cement. Eng & Contr 53:613-14 My 26 '20

See also Cement storage

Cement industry and trade

- Cement in 1919—a review. R. W. Lesley. Concrete 18:sup1-3 Ja '21
 Cement industry needs more chemical engineering. J: G. Dean. Chem & Met Eng 25:439-40 Ag 31 '21
 Paying for cement service that doesn't exist. R. G. Marriott. Concrete 18:142-3 Mr '21
 Shall the state own and operate its own Portland cement plant? H. E. Hiltz. Pub Roads 3:3-16 Ja '21; Same. Concrete 18:190-9 Ap '21; Excerpts. Eng & Contr 55:352-7 Ap 6 '21
 Should the state own and operate a plant for the manufacture of Portland cement? J. C. Nagle. Good Roads n s 20:92, 94-5 Ag 25 '20; Abstract. Eng & Contr 54:407-8 O 27 '20

See also International cement corporation

Advertising

- How service lifts product from non-competitive class; advertising of Portland cement association. C. M. Harrison. Ptr Ink 115: 61-2+ Ap 14 '21

France

- French cement industry under war conditions. H: S. Spackman. il plan Concrete 16: sup28-31 F '20

Cement industry and trade—Continued**Germany**

German cement industry. H. W. Adams. Chem & Met Eng 24:688 Ap 20 '21; Same. Concrete 18:sup112 Je '21

Great Britain

English cement industry profits. Concrete 18:sup46 Mr '21

India

Cement industry in India. Concrete 16:sup66-7 Ap '20

Spain

Status of the Spanish cement market. Concrete 17:sup58 O '20

United States

American cement industry affected by merchant marine situation. L. A. Alwyn-Schmidt. Concrete 16:sup60-1 Ap '20

Anti-trust proceedings by the U. S. government against the tile and cement manufacturers. Comm & Fin Chr 113:1322-4 S 24 '21

Branding cements for foreign trade. L. W. Alwyn-Schmidt. Concrete 19:sup23-4 Ag '21

Cement and aggregate production in 1921 close to 1920. Eng N 87:171 Jl 28 '21

Cement in 1918. E. F. Burchard, R. S. Schultz, jr., and R. W. Lesley. U S Geol S Min Res of U S 1918,pt 2:565-627 '20

Cement in 1919. E. F. Burchard. U S Geol S Min Res of U S 1919,pt 2:387-404 '21

Cement manufacturers ask protective tariff. I. D. Foos. Concrete 18:sup63-5 Ap '21

Cement manufacturers before the Lockwood committee. Eng N 86:155-6 Ja 27 '21

Cement production 100,000,000 barrels in 1920. Concrete 18:sup48-9 Mr '21

Hydraulic cement trade in U.S. Concrete 16:sup65 Ap '20

Indictment of cement companies; selling cement through dealers. Eng N 86:410, 736 Mr 10, Ap 28 '21

Portland cement in 1919. Concrete 16:sup49-50 Mr '20; Same. Eng & Contr 53:211 F 25 '20

Portland cement production in 1919 and 1920. Eng & Contr 55:167 F 16 '21

Portland cement production in the first half of 1921. Eng & Contr 56:135 Ag 10 '21

See also Cement plants

Cement kilns

Fire brick lining for rotary kilns. C. H. Sountag. Concrete 17:sup47-8 O '20

Handling devices in connection with modern vertical retorts. C. Naske. diags Eng & Ind Management 5:121-2 Ja 27 '21

Improvements in Portland cement burning. R. W. Lesley. il diags Concrete 16:sup24-7; Discussion. S. B. Newberry. sup27 F '20

Increase rotary kiln efficiency. H. Anderson. Concrete 16:sup67 Ap '20

Insulation in a cement kiln. L. Stockton-Abbott. diags Concrete 15:sup84-8 D '19

Linings for rotary kilns. J. A. Fairchild. Concrete 18:sup68; 19:sup29-30 Ap, Ag '21

Linings for rotary kilns. H. J. Robertson. Concrete 19:sup57 O '21

Observations on preheating air for cement kilns. U. S. Hannum. diag plan Concrete 18:sup97-8 Je '21

Preheating air for rotary kilns. S. H. Harrison. diags Concrete 16:sup9-11 Ja '20

Preheating air in a rotary cement kiln. O. Lellep. Concrete 19:sup28-9 Ag '21

Successful recovery of potash as a byproduct from cement kilns. C. Krarup. il Chem & Met Eng 25:316-20 Ag 24 '21

Treatment of kiln gases for potash recovery at the Santa Cruz Portland cement co.'s plant. L. T. Bachman. il Concrete 19:sup 35-40 S '21

See also Cement plants

Cement pipe joints. *See* Pipe joints

Cement placing. *See* Cement gun

Cement plants

Acme cement corporation reorganizes. plan Concrete 17:sup71-2 N '20

Cement mill lubrication in raw grinding department. Concrete 19:sup63 O '21

Diversified construction on a cement plant job. il diags plans Concrete 16:94-7 F '20

Improved concrete stock houses for cement plants. R. P. Durham. il plans Concrete 18:sup39-42 Mr '21

Improvement in the Kosmos company's cement plant. A. W. Horner. il Concrete 19:sup51-2 O '21

New clinker storage at Riverside plant. E. MacDonald. il diags Concrete 19:sup1-2 Jl '21

New 4,500 barrel wet process plant of the Oklahoma cement company. il diags plans Concrete 17:sup29-39 S '20

New wet process plant of the Indiana Portland cement co.; with layout. il diags plan Concrete 16:sup1-9 Ja '20

Plant of the Olympic Portland cement co. Chem & Met Eng 22:196-7 F 4 '20

Potash saturator installation for the Ogden Portland cement co. il diags plans Concrete 15:sup81-3 D '19

Rock crushing department in the cement plant. Concrete 16:sup47-8 Mr '20

25,000 barrel reinforced concrete clinker storage and conveying system. D. C. Findlay. il diags plan Concrete 18:sup21-4 F '21

Victorville cement mill. il plan Chem & Met Eng 22:292-3 F 18 '20

See also Cement kilns; Cement workers

Employees

Common labor a perplexing question. Concrete 17:sup68 N '20

Government ownership

Portland cement manufacture by South Dakota. Chem Age 29:183-5 My '21

Shall the state own and operate its own Portland cement plant? Concrete 18:189-90 Ap '21

Shall the state own and operate its own Portland cement plant? H. E. Hilts. Pub Roads 3:3-16 Ja '21; Same. Concrete 18:190-9 Ap '21; Excerpts. Eng & Contr 55:352-7 Ap 6 '21

Should the state own and operate a plant for the manufacture of Portland cement? J. C. Nagle. Good Roads n s 20:92, 94-5 Ag 25 '20; Abstract. Eng & Contr 54:407-8 O 27 '20

South Dakota to operate huge cement plant. il Pop Mech 34:698 N '20

Power

Comparison of power consumption. H. A. Reichenbach. Concrete 19:sup59-60 O '21

Diesel engines in cement mills. il Power 52:655-6 O 26 '20

Electrified cement industry aids western construction. L. W. Chapman. il J Elec 47:7-10 Jl 1 '21

Use of synchronous motors in cement plants. W. Brown. Elec R 76:270-1 F 14 '20

Safety devices and measures

Electrical hazards in cement plants. G. Diedrich. Concrete 18:sup30-1 F '21

Cement sacks

Improved method for cleaning cement sacks. C. L. Hawkins. il Concrete 18:225 My '21

Cement slabs. *See* Gunite slabs

Cement storage

Improved concrete stock houses for cement plants. R. P. Durham. il plans Concrete 18:sup39-42 Mr '21

Silo cement storage at Hercules cement plant enlarged. F. D. Wood. il diags Concrete 18:sup6-7 Ja '21

Storing, piling and handling sacked cement. Eng & Contr 53:613-14 My 26 '20

Temporary building for storage of cement. diags plan Eng & Contr 55:254-5 Mr 16 '21

Tests show effect of storage on cement strength. D. A. Abrams. Eng N 84:1263-6 Je 24 '20; Summary. Concrete 17:sup10-11 Jl '20; Same. Eng & Contr 53:687 Je 16 '20; Abstract. Pub Works 49:102-3 Jl 31 '20

Cement storage—Continued

Winter storage of cement practicable with simple precautions. B. S. Smith. Eng N 85:1106 D 2 '20

Cement workers

History of negroes employed in packing rooms from the hygienic viewpoint. T. B. Sappington. Concrete 18:sup67-8 Ap '21

Cementation. See Cementing**Cementation (geology)**

Cementation in sandstone. R. H. Johnson. Eng & Min J 110:125-6 Jl 17 '20

Cementation (metallurgy). See Case hardening**Cementing**

Casing wells in the Salt Creek field. Eng & Min J 111:395 F 26 '21

François cementation process; abstracts. H. S. Ball. Engineering 112:77 Jl 8 '21; Eng & Contr 56:213 Ag 31 '21

Recementing thru tubing under pressure to shut off water. C. C. Thoms. Nat Pet N 12:81+ O 20 '20

Wooden plug for placing cement through tubing. H. B. Thomson. diag Eng & Min J 111:552 Mr 26 '21

Cementite

Similarity of the magnetic change in cementite and ferrite. H. G. Movius and H. Scott. Chem & Met Eng 22:1069-70 Je 9 '20

Cements, Adhesive

Cements for spark-plug electrodes. H. F. Staley. U S Bur Stand Tech Pa 155:1-10 '20

Cements for spark-plug electrodes. H. F. Staley. U S Nat Advisory Com for Aeronautics 1919:109-11 '20

Teleo cement for multi-part high-tension insulators; abstracts. Dr Weicker. Sci Am M 4:89 Jl '21; Elec W 77:1175 My 21 '21

Use of gas in making casein, celluloid adhesives, dental cements, etc. G. C. Shadwell. Am Gas Eng J 113:341-2, 351-2 O 30 '20

Cemeteries

Gate and chapel, Tod homestead cemetery, Youngstown, Ohio. Arch Forum 34:pl 42-3 Mr '21

Main entrance to the cemetery of the Gate of heaven; views. Am Arch 120:228l-m S 28 '21

See also Argonne cemetery

Census**United States**

Advertising information the forthcoming census will yield. Ptr Ink 110:65-6+ F 5 '20

Electricity and the census. J. A. Stewart. il Sci Am 122:109 Ja 31 '20

Ten-year harvest. H. F. Driver. Nation's Business 8:46+ Ja '20

See also United States—Population

Center of gravity

Determining centre of gravity of quadrilateral. J. R. Montague. diag Can Eng 39:587 D 9 '20

Graphic method of calculating irregular volumes. R. Kraus. diags Mach 27:959 Je '21

Simple solution for finding center of gravity of trapezoid. J. London. diags Eng N 85:178 Jl 22 '20

Centering

Centering device for the milling machine. R. H. Kasper. diags Am Mach 53:806 O 28 '20

Centering machines

Hanson-Whitney centering machine. il Mach 27:1114 Ag '21

Hendey duplex centering machine. il Mach 27:906 My '21; Am Mach 54:796 My 5 '21; Iron Age 107:1171 My 5 '21

Central Aguirre sugar company

Annual report to the stockholders for 1919. Comm & Fin Chr 110:374 Ja 24 '20

Annual report to the stockholders for 1920. Comm & Fin Chr 112:268 Ja 15 '21

Central America**Industries and resources**

See also Automobile industry and trade—Central America; Forests and forestry—Central America; Mines and mineral resources—Central America

Central electric accountants' association

41st meeting, Toledo, Ohio, Aug. 26-27. Elec Ry J 58:408-9 S 10 '21

Central electric railway accountants' association

Meeting, Ottawa Beach, July 10. Elec Ry J 56:168-70 Jl 24 '20

Central electric railway association

Annual meeting, Louisville, Ky., March 10-11. Elec Ry J 55:527-9, 603-6 Mr 13-20 '20

Annual meeting, Toledo, Feb. 24-25. Elec Ry J 57:445-9, 492-4 Mr 5-12 '21

Committees appointed. Elec Ry J 55:904-5 My 1 '20

Fall meeting, Grand Rapids, Mich., Dec. 4-5. Elec Ry J 54:989-91 D 20 '19

Indianapolis meeting Dec. 2-3. Elec Ry J 56:1189-92 D 11 '20

Summer meeting aboard the S. S. South American. il Elec Ry J 58:53-65 Jl 9 '21

Summer outing convention, Ottawa Beach, July 8-9. il Elec Ry J 56:123-6 Jl 17 '20

Central Limones, Cuba

Electrification of the Central Limones. O. Wortman. il diags map Elec J 17:477-80 O '20

Central railroad of New Jersey

Annual report, 1920; editorial. Ry Age 71:657-8 O 8 '21

Report for fiscal year ending Dec. 31 1920. Comm & Fin Chr 113:1463-4 O 1 '21

Central station heating. See Heating from central stations**Central stations. See Electric plants (central stations)****Central Teresa sugar company**

Condensed statement for the first ten months of operation, ended July 31, 1920. Comm & Fin Chr 111:2336 D 11 '20

Centrifugal casting. See Cammen process; Casting, Centrifugal**Centrifugal fans. See Fans, Mechanical****Centrifugal machines**

Application of super-centrifugal force to the recovery of oil from soap stock. E. E. Ayres, jr. Chem & Met Eng 23:1025-6 N 24 '20

Centrifugal extractors and separators applied to the chemical industry. J. F. Broadbent. il diag Can Chem & Met 5:135-40 My '21

Centrifugal machines recover and purify oil. il Automotive Ind 41:972-3 N 13 '19

Dehydration of transil oils by centrifugal force. C. H. Hapgood. il Elec W 78:473 S 3 '21

Discussion of centrifugal draining. T. A. Bryson. J Ind & Eng Chem 13:993-6 N '21

Drying coke-oven coal centrifugally in one continuous automatic operation. C. Wendell. il diag Coal Age 18:108-10 Jl 15 '20

Hydro-extraction of textile materials. J. F. Springer. il diags Color Tr J 7:51-5 Ag '20

Oyster hatchery uses centrifugal force. il Pop Mech 34:826 D '20

Die schleuderformmaschine von E. O. Beardsley und W. F. Piper. il Stahl & Eisen 41:723-4 My 26 '21

Some recent developments in water-driven centrifuges. F. J. Broadbent. il diags Engineering 111:744-5 Je 17 '21

See also Casting, Centrifugal; Clarifiers; Filters and filtration (technical chemistry); Oil reclamation

Centrifugal pumps. See Pumps, Centrifugal**Ceramic industries. See Clay industries****Ceramic laboratories**

Fine ceramic manufacture. il Brick & Clay Rec 59:204-5 Ag 9 '21

Ceramic society

Autumn meeting of the refractory materials section. Engineering 112:536-7, 576-9 O 14-21 '21

Refractory materials section meeting. Engineering 111:647-8, 693-6 My 27-Je 3 '21

Ceramic society, American. See American ceramic society

Ceramics. See Pottery

Ceramics (term)

Note on the etymology of the word ceramic. W: A. Oldfather. Am Cer Soc J 3:537-42 Jl '20

Report of the committee on definition of the term ceramics. Am Cer Soc J 3:526-36 Jl '20

Cereal chemists

Flour milling and the cereal chemist. R. W. Mitchell. map Chem Age 29:85-9 Mr '21

Cereals. See Grain

Cerium

Cerium in the iron foundry. Sci Am 121:569 D 6 '19

Cesium

Atomic theory and low-voltage arcs in caesium vapor. P. D. Foote and W. F. Meggers. il diags U S Bur Stand Sci Pa 386:309-26 '20

Cesium bromate

Preparation and study of the rarer alkali bromates; cesium bromate. C. R. McCrosky and H. D. Buell. Am Chem Soc J 42:1786-9 S '20

Cesium dichloro-iodide

Crystal structure of cesium dichloro-iodide. R. W. G. Wyckoff. il diags Am Chem Soc J 42:1100-16 Je '20

Cesspools

Sewage disposal from small house not connected to sewer system. J: Y. Dunlop. diags plans Dom Eng 92:170-2 Jl 24 '20

Chain bridges. See Bridges, Suspension

Chain factorles**Accounting**

Cost accounting in the chain industry. F. W. Hilditch. J Account 29:10-18 Ja '20

Chain gear

Application and manufacture of silent chain. J. E. Schipper. il diag Automotive Ind 45:773-8 O 20 '21

Chain driving theory. F. M. Lawson. diags Engineering 110:1-4 Jl 2 '20; Same. Chem & Met Eng 23:377-82 S 1 '20

Roller-chain for tractors and power transmission. il Am Mach 52:1223-6 Je 10 '20

Silent chain drives in rubber mills. il diag India Rubber W 65:99-100 N '21

Standardization of roller chains. diag Automotive Ind 42:33 Ja 1 '20

Standards

Results of the Joint committee on steel roller chains. diag Mech Eng 43:627-9 S '21

Chain grates. See Stokers, Mechanical

Chain stores

Advertising is determining what products the chains shall carry. Ptr Ink 115:136+ Ap 28 '21

Advertising's business partner, the well-conducted retail store. A. L. Townsend. Ptr Ink 113:114+ D 30 '20

American method of expansion in foreign trade. Ptr Ink 112:169-70+ Ag 5 '20

Analysis of the chain store by wholesale grocers. Ptr Ink 115:177+ Ap 28 '21

Anti-chain advertising must reach fundamentals. Ptr Ink 111:145+ My 13 '20

Chain-store methods to revive dead country stores. G. A. Nichols. Ptr Ink 112:133-4+ S 16 '20

Chain store operation. E: Wise. Administration 1:299-304 Mr '21

Chain stores for gas appliances. A. P. Post. Gas Age 47:297-9 Ap 11 '21

Drug chain concentrates prescription business in centrally located stores. Ptr Ink 111:125+ Je 3 '20

Good old-fashioned brand name advertising, the specific for substitution. J: A. Murphy. Ptr Ink 115:3-4+ Je 30 '21

How chain stores tell which locations are most profitable. E. M. Wickes. il Ptr Ink M 3:29-30+ Jl '21

How to combat own goods bonus in chain stores. G. A. Nichols. Ptr Ink 114:3-4+ F 24 '21

Is collective buying the answer to the growing chain store menace? G. A. Nichols. Ptr Ink 110:17-20+ Ja 15 '20

Middle man and the chain store. Comm & Fin Chr 112:304-5 Ja 22 '21

New Rockefeller and Whelan drug chains worry manufacturers. Ptr Ink 110:65-6 Ja 8 '20

Retail chain and catalogue join in selling effort; Harsh and Chapline shoe company. Ptr Ink 115:124+ Ap 14 '21

Retailing electrical appliances through chain stores. il Elec R 77:315-17 Ag 28 '20

Should manufacturers run their own retail stores? S. C. Lambert. Ptr Ink 114:101-2+ F 10 '21

United retail stores invade many fields of merchandising. G. A. Nichols. Ptr Ink 111:153-4+ Ap 15 '20

When the chain store gets on the avenue. E: T. Tandy. il Ptr Ink M 2:27-8+ F '21

Why a buyers' market hasn't changed our plans. J. C. Penney. il System 39:185-8+ F '21

Winchester arms co. invades chain store field. Ptr Ink 110:17-18 Ja 8 '20

Winchester plan—a new step in standardization. C. P. Russell. Ptr Ink 110:77-8+ Mr 18 '20

See also Five- and ten-cent stores; United cigar stores

Advertising

National campaign of advertising for Kresge stores. Ptr Ink 111:17-20+ Ap 1 '20

S. S. Kresge company uses paid advertising. Ptr Ink 110:49-50 F 19 '20

Chains

Chains and slings for foundry use. J. Horner. diags Foundry 49:614-16 Ag 1 '21

Precautions in the use of chains. Engineer 130:620 D 17 '20

Rugged conveyor chain, repair of which delays operation only a few minutes. il diags Coal Age 19:666-7 Ap 14 '21

Safe working loads for chains. Eng & Ind Management 5:10 Ja 6 '21

Sling chains and hooks for crane use. G: W. Childs. diags Foundry 49:314a Ap 15 '21

Three distinct parts form conveyor chain. il Coal Age 19:814-15 My 5 '21

See also Chain gear

Manufacture

Chain cable and some of its physical properties. C. G. Lutts. il Am Soc T M Pro v 20 pt 2:80-101 '20; Excerpts. Iron Tr R 66:1819-23 Je 24 '20; Discussion. Am Soc T M Pro v 20 pt 2:102-3 '20

Chain industry in Great Britain. P. M. Tyler. Iron Age 107:183-6+ Ja 20 '21

Specific shop-order plan. T. J. King. Administration 2:321-4 S '21

Specifications

Standard specifications for iron and steel chain; English and French. U S Bur For & Dom Com Industrial Standards 154:1-16 '21

Chains, Anchor

Stresses in anchor chains. Engineer 129:48-9 Ja 9 '20

Tentative specifications for electric cast steel anchor chain. Am Soc T M Pro v 20 pt 1:508-11 '20

Chairs

Classic factor in furniture design. W. A. Dyer. il Arch Rec 47:357-70 Ap '20

Work chair. A. B. Emmons and J. E. Goldthwait. il J Ind Hygiene 3:154-8 S '21

Chalcopyrite

Chalcopyrite deposits in northern Manitoba. E. L. Bruce. il diags Econ Geol 15:386-97 Jl '20

Chalon-sur-Saône, France**Harbor**

Le nouveau port fluvial de Chalon-sur-Saône.
G. Bérot. plan Génie Civil 77:511-12 D 18 '20

Chamber of commerce of the United States

8th annual convention, Atlantic City, April 26-29. Am Mach 52:1014 My 6 '20; Nat Pet N 12:31-2+ My 5 '20; Textile World 57:3227-8 My 1 '20

9th annual meeting, Atlantic City, April 26-29. Am Mach 54:800f My 5 '21

Building for the Chamber of commerce of the United States of America. Am Arch 116:811-12, pl 219-21 D 31 '19

Business declares its principles; resolutions declared by Chamber of commerce of the United States. Nation's Business 9:48+ Je '21

Chamber of commerce discusses railroad problem. Ry Age 68:1303-8 Ap 30 '20

Laying a course for business. Nation's Business 8:36+ Je '20

National business meeting develops automotive problems. C. Jennings. Automotive Ind 42:1043-7 My 6 '20

Rallying place for business; national chamber soon to have a laboratory and a permanent meeting place. H. A. Wheeler. Nation's Business 9:42+ Mr '21

Stand on labor principles. Nation's Business 8:16-17 S '20

Taxes and tariff major topics at U.S. Chamber meeting. C. Jennings. Automotive Ind 44:941-4 My 5 '21

Chambers of commerce

The little brother abroad. J. E. Fitzgerald. Nation's Business 8:54 Mr '20

Log of organized business. Nation's Business 8:64+ D '20

Outposts of American commerce. A. J. Wolfe. Am Ind 21:31-3 D '20

Service organizations—their relation to the government and the public. J. H. Defrees. Comm & Fin Chr 111:118-20 sec 2 N 20 '20

Talking Ourltown to a standstill. L. Shippey. Nation's Business 9:13-14 F '21

See also Jerusalem chamber of commerce

Secretaries

Business of organization; school for commercial secretaries at Northwestern university in Evanston, Ill. Nation's Business 9:70-1 Je '21

Principles and practice in one; National school for commercial secretaries, will teach economic theory as well as office methods at Northwestern university. Nation's Business 9:28+ My '21

School for secretaries is ready; faculty. Nation's Business 9:30+ Jl '21

Secretaries' school a success. C. B. Brown. Nation's Business 9:38 S '21

Servants of the cities. C. B. Brown. Nation's Business 9:19-20 Jl '21

Chamfering machines

Chamfering machine for cold punched nuts. il Iron Age 108:1068 O 27 '21

Grant automatic chamfering machine. il Mach 27:709 Mr '21

Grant automatic chamfering machine. il Mach 27:93 S '20

Recessing and chamfering tool for horizontal boring machine. diags Mach 27:681-2 Mr '21

Chandler, Charles DeF., 1878-

Retires from the army for physical disability. por Aviation 9:353 N 29 '20

Chandler, Charles Frederlck

Perkin medal awarded. por J Ind & Eng Chem 12:183-95 F '20; Same. Chem & Met Eng 22:150-61 Ja 28 '20

Chandler motor car company, Cleveland, Ohio

Special machines and tools in the Chandler plant. il diags plan Mach 27:565-8 F '21

Changes

Photographic method of detecting changes in a complicated group of objects. M. H. Stillman. il diags U S Bur Stand Sci Pa 392:437-48 '20

Channel sweeper

Channel sweeper for canal-maintenance work. G. P. Gleason. il Pop Mech 33:757-8 My '20

Novel sweeper locates obstructions. diags plan Marine R 50:242-4 Ap '20

Channels

Movable form used on channel-concreting job. A. P. Child. il Pop Mech 35:720-1 My '21

Roughness coefficient for dredged drainage ditches. Eng & Contr 54:42-3 Jl 14 '20

See also Canals; Rivers; Stream flow; Water flow; Waterways

Channing, John Parke, 1863-

Sketch. por Eng & Min J 111:61 Ja 8 '21

Chapels

Mendleson memorial chapel, Loudenville, N.Y. plan Am Arch 119:586i-j, 595 My 25 '21

St James' chapel, Cathedral of St John the Divine. il diags Arch Forum 33:121-2, pl 58-60 O '20

See also Mortuary chapels

Character reading. *See* Physiognomy

Charcoal

Absorption of gasoline from casinghead gas by activated charcoal. H. R. Auerswald. diags Mech Eng 43:601-2+ S '21; Excerpt. Gas Age 48:377 O 1 '21

Charcoal and cyanidation. Min & Sci P 123:493-4 O 8 '21

Charcoal before the war. W. D. Bancroft. J Phys Chem 24:127-46, 201-24, 342-66 F-Mr, My '20

Conversion of walnut shells into poultry charcoal in a rotary kiln. H. L. Glaze and R. B. Stringfield. Chem & Met Eng 23:368 S 1 '20

Gas adsorption by charcoal. Engineering 109:250-1 F 20 '20

Gasoline by the charcoal absorption process. G. A. Burrell, G. G. Oberfell and C. L. Vorse. flow sheet Chem & Met Eng 24:156-60 Ja 26 '21; Excerpts. Sci Am M 3:252-4 Mr '21

Heat of absorption of vapors on charcoal. A. B. Lamb and A. S. Coolidge. diag Am Chem Soc J 42:1146-70 Je '20

Methods for the production and measurement of high vacua; absorption of gases by charcoal. S. Dushman. Gen Elec R 24:58-66 Ja '21

Negative adsorption of alkali haloids by wood charcoal. A. Pickles. diag Chem Soc J 119:1278-80 Ag '21

Occlusion of water by gas-mask charcoal. B. E. Brown. Phys R 17:700-6 Je '21

Production of artificially dense charcoal. L. F. Hawley. diag J Ind & Eng Chem 13:301-2 Ap '21

Some aspects of the behavior of charcoal with respect to chlorine. G. S. Bohart and E. Q. Adams. diags Am Chem Soc J 42:523-44 Mr '20

Some factors governing the sorptive capacity of charcoal; sorption of ammonia by coconut charcoal. J. B. Firth. Chem Soc J 119:926-31 Je '21

Some properties of charcoals. H. E. Cude and G. A. Hulett. diags Am Chem Soc J 42:391-401 Mr '20

Studies in the adsorption by charcoal; the relation of service time to adsorption and absorption. H. H. Lowry and G. A. Hulett. diags Am Chem Soc J 42:1393-1408 Jl '20

Velocity of adsorption of chloropicrin and carbon tetrachloride by charcoal. H. S. Harned. diags Am Chem Soc J 42:372-91 Mr '20

See also Bone-black

Charge account. *See* Credit

Charging machines

Pipe charging machine. diag Iron Age 105:1370 My 13 '20

Single hoist pipe charging machine expedites annealing of tool steel. diag plan Iron Tr R 66:1339-40 My 6 '20

Charlty drives. *See* Money raising campaigns

Charleston consolidated railway, gas & electric company

Bright spot in the industry in Charleston. Elec Ry J 55:108-10 Ja 10 '20

Charpy impact test

Charpy impact test as applied to aluminum alloys. E. H. Dix, jr. Min & Met 160:31 Ap '20

Note on notched bar impact tests and toughness of monel metal; Charpy and Izod tests. R. G. Waltenberg. Chem & Met Eng 25:322-3 Ag 24 '21

Charts (calculating)

Advantages of alignment charts. A. Valadez. charts Eng & Min J 110:894 N 6 '20

Alignment chart for determining oil yields in assaying oil shale. Eng & Min J 112:621 O 15 '21

Alinement chart. C. W. Crockett. diags Automotive Ind 45:614-18 S 29 '21

Chart for blending casinghead and naphtha to a desired gravity. Nat Pet N 12:63 Jl 14 '20

Chart for calculating monthly power plant costs. A. R. Herske. Power Pl Eng 25:1049 N 1 '21

Chart for calculating the lengths of either open or crossed belts. D. Turcott. Am Mach 55:480 S 22 '21

Chart for computing planing time. J. B. Conway. Am Mach 53:351-2 Ag 19 '20

Chart for determining fit allowances. J. B. Conway. chart Mach 27:17 S '20

Chart for determining the pressure on a cutting tool. J. B. Conway. Am Mach 54:655-6 Ap 14 '21

Chart for determining the weight of brass or steel bar stock. L. de L. Berg. Mach 26:979 Je '20

Chart for finding power factor. C. H. Berry. diag Power 51:795-6 My 18 '20

Chart for industrial fuel gas engineers. E. J. Stephany. Gas Age 45:241 Mr 10 '20

Chart for locating equidistant points on a circle. S. K. Eastwood. Am Mach 52:464 F 26 '20

Chart for testing steel wire. E. H. Webb. Iron Age 105:1066-7 Ap 8 '20

Chart speeds interpolation of contours. S. G. Haverstick. Coal Age 19:662 Ap 14 '21

Charts for computing blast-furnace performances. H. L. Fickett. charts Eng & Min J 110:108-9 Jl 17 '20

Charts for graphical determination of pipe sizes and velocity of flow of steam. H. M. Brayton. charts Power 51:662-6 Ap 27 '20

Charts for testing steel and steel wire. H. M. Brayton. Iron Age 105:20-2 Ja 1 '20

Checking actual unit costs against estimates. C. P. Rumpf. chart Eng N 85:282 Ag 5 '20

Comparative cost of laying block and brick. A. J. R. Curtis. Concrete 17:130 O '20

Convenient chart in chemical works. Chem & Met Eng 21:692 N 26 '19

Diagram for computing thickness of plate for steel pipe. W. T. Batcheller. diag Power 51:656-7 Ap 27 '20

Excess air chart. R. Brown. diag Power 54:568 O 11 '21

Factor of evaporation chart. M. W. Leonard. Power 54:428 S 13 '21

Graphical determination of shaft diameters. N. B. Hunt. Mach 27:1036-7 Jl '21

Horsepower and torque chart. J. S. Watts. Am Mach 53:191 Jl 22 '20

Horsepower chart for spur gears. E. R. Mudiman. Am Mach 55:69 Jl 14 '21

How to figure coil sizes for hot water services. M. W. Ehrlich. Dom Eng 97:5 O 1 '21

Letting a chart do the figuring. Factory 25:554-5 Ag 15 '20

Loss of head in pipes. W. F. Schaphorst. Sanitary & Heat Eng 96:110 Ag 12 '21

New heat transmission chart for radiators. Heat & Ven 18:47 Je '21

Output and rate-fixing charts a ruler reads. L. de L. Berg. charts Factory 25:212-13 Jl 15 '20

Properties of high-pressure steam; nomogram up to the critical point. M. J. Eichhorn. Power 53:782-3 My 17 '21

Reference tables and charts. Power Pl Eng 24:107-17 Ja 1 '20

Temperature regulator chart. Power Pl Eng 25:920-1 S 15 '21; Same. Sanitary & Heat Eng 96:83 Jl 29 '21

Time-saving tube and rod chart. M. D. Casler. chart diag Am Mach 52:67-70 Ja 8 '20

Weight chart for bar stock articles. H. Ernst. Am Mach 52:351 F 12 '20

See also Nomography

Charts, Hydrographic. See Hydrographic charts

Chaulmugra oil

Fractionation of chaulmoogra oil. A. L. Dean and R. Wrenshall. diag Am Chem Soc J 42:2626-45 D '20

Chautauqua institution

Does the public want quality? L. J. Alber. System 39:373-4+ Mr '21

Check-writing machines

Machine prints all items on check but signature. il Pop Mech 33:197 F '20

Checks

Credit men to curb forgery. Ptr Ink 112:118+ S 30 '20

Federal reserve board's review of par collection controversy. Comm & Fin Chr 112:1227-8 Mr 26 '21

Par clearance of checks. Comm & Fin Chr 110:1683-4 Ap 24 '20

Point in the par collection of checks. Comm & Fin Chr 112:2237-8 My 28 '21

Report of committee of five of banking section of American bankers' association on par check collections. C. de B. Claiborne. Comm & Fin Chr 113:124-5 sec 2 O 29 '21

Symposium of articles on par clearance and state banks before the 4th convention of the American bankers' association. Comm & Fin Chr 111:181-90 sec 2 N 20 '20

To stop payment of a check. R. H. Butz. Dom Eng 96:196 Jl 30 '21

Travelers' cheques and circular letters of credit. 139p American express co., New York '21

U.S. Supreme court reverses lower courts regarding par collection of checks. Comm & Fin Chr 112:2138 My 21 '21

What the words "in full to date" on a check amount to. E. J. Buckley. Metal Work 94:43-4 Jl 9 '20

Checks, Travelers'. See Travelers' checks

Cheese

History of cheese becomes part of advertising record. Ptr Ink 110:113-14 Mr 4 '20

Relations of hydrogen-ion concentration to the heat coagulation of proteins in Swiss cheese whey. Y. Okuda and H. F. Zoller. J Ind & Eng Chem 13:515-19 Je '21

What science did for cheese. G. H. Dacy. il Sci Am 123:406+ O 16 '20

Prices

Production, cold-storage holdings, and wholesale and retail prices of butter and cheese. E. B. Carr. Monthly Labor R 10:100-14 Ja '20

Chemical affinity

On chemical affinity. A. Korevaar. J Phys Chem 25:304-10 Ap '21

Researches on co-ordination and residual affinity; the constitution of simple and complex cobaltic quinoneoxime lakes. G. T. Morgan and J. D. M. Smith. Chem Soc J 119:704-16 My '21

Researches on residual affinity and co-ordination; gallium acetylacetone and its analogues. G. T. Morgan and H. D. K. Drew. Chem Soc J 119:1058-66 Jl '21

Researches on residual affinity and co-ordination; reactions of selenium and tellurium acetylacetones. G. T. Morgan and H. D. K. Drew. diags Chem Soc J 119:610-25 My '21

Researches on residual affinity and coordination; selenodithionic acid and its metallic salts. G. T. Morgan and J. D. M. Smith. Chem Soc J 119:1066-70 Jl '21

See also Chemical reaction—Velocity; Valence

Chemical apparatus

- Apparat zum filtrieren in feuchtigkeitsfreien oder indifferenten gasen. A. Wolfram. diag Deutsche Chem Gesell Ber 54:857-9 Ap '21
- Die apparate für technische gasanalyse. K. Aschof. il diags Stahl & Eisen 41:1406-13 O 6 '21
- Appareil enregistreur des variations d'une masse gazeuse avec le temps. A.-A. Guntz. diag Génie Civil 78:380 Ap 30 '21
- Automatic methods of gas analysis depending upon thermal conductivity. E. R. Weaver and others. il diags J Ind & Eng Chem 12:359-66 Ap '20
- Automatic separator in esterifications and other preparations. I. N. Hultman, A. W. Davis and H. T. Clarke. diags Am Chem Soc J 43:366-70 F '21
- Beverage exposition features chemical equipment. il diag Chem & Met Eng 21:706-7 D 10 '19
- Chemical stoneware manufacture. C. H. Jones. il Chem & Met Eng 25:289-94 Ag 17 '21
- Colonne de rectification en verre pour la rectification de mélanges de liquides difficilement séparables et la récupération des dissolvants volatils; abstract. W. Elsner. diag Chimie & Ind 5:47 Ja '21
- Combined extractor, reflux condenser, still and autoclave. A. T. Shohl and M. L. Koch. diags J Ind & Eng Chem 13:819-20 S '21
- Electrically heated bomb for ammonia synthesis. R. O. E. Davis and H. Bryan. diags J Ind & Eng Chem 12:287-8 Mr '20
- Flask calibrating and marking device. G. L. Spencer. diag J Ind & Eng Chem 13:1058-9 N '21
- Glass to metal joints. E. C. McKelvy and C. S. Taylor. diags Am Chem Soc J 42:1364-74 Jl '20
- Improved apparatus for determining light oil in gas. E. H. Bird. il diag Chem & Met Eng 22:705-6 Ap 14 '20
- Improved gas combustion furnace for use in organic analysis. T. J. Hedley. diags Chem Soc J 119:1242-3 Ag '21
- Méthode d'enregistrement par photographie des réactions chimiques, accompagnées d'une variation de pression. P. Jolibois. diag Génie Civil 78:320 Ap 9 '21; Same. Sci Am M 4:38 Jl '21
- Mixing liquids by machine. J. Boyer. Sci Am 125:275 O 15 '21
- Modification of the apparatus for the determination of arginine nitrogen by Van Slyke's method. G. E. Holm. diag Am Chem Soc J 42:611-12 Mr '20
- Modified form of the Smith fermentation tube. A. V. Fuller. diag J Ind & Eng Chem 12:595 Je '20
- New forms of combustion apparatus for use in gas analysis. E. R. Weaver and P. G. Ledig. diags J Ind & Eng Chem 12:368-70 Ap '20
- New type of condenser for the determination of crude fiber. C. A. Clemens. il diag J Ind & Eng Chem 12:288-9 Mr '20; Discussion. 12:611-12 Je '20
- Photometric methods and apparatus for the study of colloids. S. E. Sheppard and F. A. Elliott. il diags Am Chem Soc J 43:531-9 Mr '21
- Purification of compressed gases in testing catalysts for ammonia synthesis. R. O. E. Davis. diags J Ind & Eng Chem 12:289-90 Mr '20
- Rapid and accurate method for determining nitrogen in nitrate of soda by the modified Devarda method and the use of the Davison scrubber bulb. C. A. Butt. J Ind & Eng Chem 12:352-4 Ap '20
- Ringstand set. C. D. Carpenter. diags J Ind & Eng Chem 13:332 Ap '21
- Simple alcohol-testing device. S. Waldbott. diag J Ind & Eng Chem 12:690 Jl '20
- Le soufflage du verre dans les laboratoires scientifiques et industriels. H. Vigreux. il diags Chimie & Ind 6:160-8 Ag '21

Titration bench. W. A. VanWinkle. diags J Ind & Eng Chem 13:146 F '21

See also Blowpipe; Burets; Chemical engineering—Apparatus and supplies; Distillation; Distillation apparatus; Evaporators; Filters and filtration (technical chemistry); Metallurgical apparatus; Turbidity meter; Vacuum pans; Viscosimeters; Volumeters; Volumetric apparatus

Standards

Report on standardization of sizes and shapes of apparatus. W. D. Collins. J Ind & Eng Chem 13:1070-4 N '21

Chemical elements

- Data of geochemistry. F. W. Clarke. U S Geol S Bul 695:12-41 '20
- Disintegrating elements. G. N. Cole. Sci Am M 2:190 O '20
- Elements regarded as compounds of the first order. S. H. C. Briggs. Philos Mag 6th ser 42:448-56 S '21
- Search for an alkali element of higher atomic weight than cesium. L. M. Dennis and R. W. G. Wyckoff. Am Chem Soc J 42:985-90 My '20
- Some future problems of chemistry; inventory of our natural resources and the coming of the aluminum age. I. W. D. Hackh. Sci Am M 2:309-11 D '20
- See also* Atomic weights; Valence; also names of elements, e.g. Arsenic, Carbon, Helium, Nitrogen, Oxygen, Sulfur

Chemical engineering

- Chemical engineering. Engineer 130:587 D 10 '20
- Chemistry and engineering. T. L. Crossley. Can Eng 38:402-3 Ap 22 '20
- Introduction to chemical engineering. A. F. Allen. 272p Pitman '20
- Text book of chemical engineering. E. Hart. 211p The Chemical pub. co., Easton, Pa. '20
- See also* Chemistry, Technical; Metallurgy; Sewage disposal; Waste products

Apparatus and supplies

Automatic control of chemical reactions. P. E. Edelman. Chem Age 29:65-6 F '21

Study and teaching

- Being a good customer of the university; fellowships in chemical engineering. O. L. Kowalke. Am Gas J 114:317-18 Ap 9 '21
- School of chemical engineering practice of the Massachusetts institute of technology. R. T. Haslam. il J Ind & Eng Chem 13:465-8 My '21
- Survey of chemical engineering education; summary of questionnaire showing curriculum of 78 institutions. Chem & Met Eng 24:1047-53 Je 15 '21
- Teaching chemical engineering in Columbia university. E. Hendrick. il Chem & Met Eng 22:162-4 Ja 28 '20

See also Massachusetts institute of technology—School of chemical engineering practice

Chemical engineers

- And now the question: what is the chemical engineer? Chem & Met Eng 25:683 O 12 '21
- Chemical engineer and the news-print industry. R. W. McKenzie. Can Chem & Met 5:75-6, 105-7, 133-4, 158-60 Mr-Je '21; Same. Paper 28:15-16 Ap 27; 20-1+ My 4; 19-21 My 11; 24-5+ My 18 '21
- Chemical engineer—his functions and training. J. H. West. Chem & Met Eng 23:333-6 Ag 25 '20
- Chemical engineer in biscuit manufacture. J. Rohn. il Chem Age 29:129-31 Ap '21
- Function of the chemical engineer in the biscuit and cracker baking industry. O. C. F. Lippert. Chem & Met Eng 22:893-7 My 12 '20
- Lessons for chemical engineers in other industries. A. E. Marshall. Chem & Met Eng 22:218-20 F 4 '20
- Chemical engineers, American institute of.** *See* American institute of chemical engineers

Chemical equations

Method of balancing chemical equations. P. F. Gáltes. *Sci Am M* 3:286 Mr '21

See also Chemical reaction

Chemical equilibrium

Arsenates of calcium; equilibrium in the system arsenic pentoxide, calcium oxide, water at 35° (acid section). C. M. Smith. *Am Chem Soc J* 42:259-65 F '20

Calculation of equilibrium in metallurgical reactions. P. D. Merica. *Chem & Met Eng* 25:608-12 S 28 '21

Chemical equilibrium between iron, carbon and oxygen; abstracts. A. Matsubara. *Chem & Met Eng* 24:331-2 F 23 '21; *Min & Met* 170:31-2 F '21

Determination of the equilibrium between chlorine, water, hydrochloric acid and chloric acid; the free energy of the chlorate ion. A. R. Olson. *diag Am Chem Soc J* 42:896-904 My '20

Dissociation pressures of iron nitrides. A. A. Noyes and L. B. Smith. *diag Am Chem Soc J* 43:475-81 Mr '21

Equilibria in solutions containing mixtures of salts; the system water and the chlorides and sulfates of sodium and magnesium at 25°. W. C. Blasdale. *diags J Ind & Eng Chem* 12:164-7 F '20

Equilibrium between chlorine and plumbous and plumbic chlorides in aqueous solution. E. W. Wescott. *diag Am Chem Soc J* 42:1335-49 Jl '20

Equilibrium between nitric oxide, nitrogen peroxide and aqueous solution of nitric acid. C. L. Burdick and E. S. Freed. *diags Am Chem Soc J* 43:518-30 Mr '21

Equilibrium conditions of the reaction between manganate, permanganate and manganese dioxide. C. E. Ruby. *Am Chem Soc J* 43:294-301 F '21

Equilibrium conditions of the reaction between silver sulfide and hydrogen. F. G. Keyes and W. A. Felsing. *diag Am Chem Soc J* 42:246-51 F '20

Equilibrium in the system ammonia:ammonium nitrate:ammonium thiocyanate. H. W. Foote and S. R. Brinkley. *diags Am Chem Soc J* 43:1018-31 My '21

Equilibrium in the system ammonia—ammonium thiocyanate. H. W. Foote and M. A. Hunter. *Am Chem Soc J* 42:69-78 Ja '20

Equilibrium in the system ammonia:water:ammonium thiocyanate. H. W. Foote. *Am Chem Soc J* 43:1031-8 My '21

Factors affecting the stability of addition compounds in solution and their influence upon ionization equilibria. J. Kendall and P. M. Gross. *Am Chem Soc J* 43:1416-26 Jl '21

Formation of the double salts of calcium and potassium sulfates at 100°C. E. Anderson and R. J. Nestell. *J Ind & Eng Chem* 12:243-6 Mr '20

Heterogeneous equilibria between aqueous and metallic solutions: the interaction of mixed salt solutions and liquid amalgams; a study of the ionization relations of sodium and potassium chlorides, bromides and iodides in mixtures. L. S. Wells and G. McP. Smith. *Am Chem Soc J* 42:185-205 F '20

Influence of salts on chemical equilibria in solutions. J. N. Brönsted. *Chem Soc J* 119:574-92 My '21

Influence of substitution in the components on the equilibria in binary solutions; the binary systems of *m*- and *p*-aminophenol and phenols or nitro-compounds. R. Krennmann, E. Lupfer and O. Zawodsky. *Chem Soc J* 120 pt 1:561 Ag '21

Theory of chemical reactivity; calculation of rates of reactions and equilibrium constants. S. Dushman. *Am Chem Soc J* 43:397-433 Mr '21

Thermodynamic investigation of reactions involving silver sulfide and silver iodide. A. A. Noyes and E. S. Freed. *Am Chem Soc J* 42:476-87 Mr '20

Über das gleichgewicht: fluorwasserstoff—schwefelsäure—fluorsulfonsäure. W. Traube and E. Reubke. *Deutsche Chem Gesell Ber* 54:1618-26 Jl '21

See also Phase rule

Chemical foundation

Chemical foundation, inc., patents. R. Hoguet. *J Ind & Eng Chem* 12:297 Mr '20

Meeting of stockholders, Dec. 2. *J Ind & Eng Chem* 12:87-9 Ja '20

Chemical industries

Alcohol and the chemical industries. J. M. Doran. *J Ind & Eng Chem* 13:564-5 Je '21

Business side of chemistry. O. Eisenschimi. *Chem & Met Eng* 22:53-4 Ja 14 '20

Production expert and the sales expert. F. Dannerth. *Ind Management* 62:279-80 N '21

Report of the committee on occupational diseases in the chemical trades. *J Ind & Eng Chem* 12:439-40 My '20

See also Alcohol; Chemical engineers; Chemical research; Chemicals; Chemicals—Prices; Chemistry, Technical; Clay industries; Coal-tar products; Drug trade; Drugs—Manufacture; Dye industry; Electrochemistry; Fertilizers, Commercial; Gas industry; Metallurgy; Oil industries; Paint industry; Paper; Paper industry; Porcelain; Potash; Pottery; Rubber; Saltpeter, Chile; Sugar industry and trade; Tanning

Accounting

Importance of knowledge of production costs to efficiency in chemical manufacture. R. Curtis. *Chem Age* 29:366-7 S '21

Advertising

How the advertising of chemical science is stimulating progress in industry. H. Burwen. *Ptr Ink* 110:117+ Ja 1 '20

Need of co-operative educational work in the chemical industry. J. G. Cohen. *Chem & Met Eng* 22:509-12 Mr 17 '20

Bibliography

Tariff commission's surveys of the chemical industries. *Chem & Met Eng* 24:86 Ja 12 '21

Exhibitions

Exhibitors at the exhibition; a brief catalogue of the products and equipment. *Chem & Met Eng* 25:360-8 Ag 31 '21

Exhibitors at the 6th National exposition of chemical industries. *Chem & Met Eng* 23:413-20 S 8 '20

Official program and list of exhibitors at 7th National exposition of chemical industries. *Oil Paint & Drug Rep* 100:v+ S 12 '21

Sidelights on the chemical exposition. *Chem & Met Eng* 23:653-5 O 6 '20

6th National exposition of chemical industries, Grand Central Palace, New York, September 20-25, 1920; program and list of exhibitors. *J Ind & Eng Chem* 12:920-3 S '20

6th National exposition of chemical industries, Grand Central Palace, Sept. 20-25. *il Textile World* 58:2051+ S 25 '20; *J Ind & Eng Chem* 12:953-63 O '20; *Mech Eng* 42:653-4 N '20

7th National exposition of chemical industries, New York, Sept. 12-17. *Textile World* 60:1357+, 1621+ S 3, 17 '21; *Chem & Met Eng* 25:586-93 S 28 '21; *Oil Paint & Drug Rep* 100:iii+ S 20 '21; *J Ind & Eng Chem* 13:886-90 O '21

What the New York chemical exposition means. *Can Chem & Met* 5:267-74 S '21

Africa

African chemicals gain. *Oil Paint & Drug Rep* 99:48c sec 1 My 2 '21

Argentina

Argentina as a chemical market. *Oil Paint & Drug Rep* 100:63 sec 1 Ag 8 '21

Canada

Directory of chemical industries in Canada, as of date Jan. 1, 1921. 109p Dominion bureau of statistics, Ottawa '21

Chemical industries—Continued

Czechoslovakia

Chemical industry in Czecho-Slovakia. Sci Am M 3:464 My '21

France

Chemical industry and trade of France. O. P. Hopkins. J Ind & Eng Chem 13:6-13 Ja '21

Le commerce extérieur de la France en produits chimiques au cours des années 1917, 1918 et 1919: tabulation. Chimie & Ind 4:565-7 O '20

French chemical industry. A. E. Hartzell. Am Ind 21:36 Ja '21

Liste des matières colorantes, produits chimiques, pharmaceutiques et autres, dont l'importation en France, en provenance d'Allemagne, est subordonnée à une autorisation spéciale. Chimie & Ind 4:285-7 Ag '20

Nos industries chimiques et l'exécution du traité de paix par l'Allemagne. P. Caze-neuve. Chimie & Ind 3:675-8 My '20

La production des industries françaises avant la guerre et leur capacité de production dans l'avenir. Génie Civil 76:14-18, 45-7 Ja 3-10 '20

Reconstructing the French chemical industry. Ind Management 61:143 F 1 '21

Tarif général des douanes à l'importation. A. Toulouse. Chimie & Ind 5:604-10 My '21

Germany

Development of the German chemical industry during 1919. Chem & Met Eng 24:259 F 9 '21

German and British chemical industries and the war. Engineering 111:495-6 Ap 22 '21

German chemical industries. Chem & Met Eng 23:889-90 N 3 '20; Same abr. Color Tr J 7:140-2 N '20

German chemical industry as seen from the inside. Oil Paint & Drug Rep 99:26+ sec 1 F 14 '21

Germany's foreign trade in heavy chemicals, fertilizers, dyestuffs, colors and pharmaceutical chemicals in 1920. Oil Paint & Drug Rep 100:xxi S 12 '21

L'industrie chimique allemande à la veille de la conférence de Londres. Saint-Gall. Chimie & Ind 5:471-2 Ap '21

L'industrie des produits chimiques en Allemagne avant les décisions de Londres. Chimie & Ind 5:592-5 My '21

Nitrogen fixation and the German disaster at Oppau. T. W. Sill. flow sheet plan Chem Age 29:418-20 O '21

L'organisation industrielle allemande; opinions d'une Commission de chimistes anglais. Génie Civil 76:216-17 F 21 '20

Report of British mission appointed to visit enemy chemical factories. Can Chem & Met 5:161-2 Je '21

Specific facts. H. Hartley. J Ind & Eng Chem 13:283-4 Ap '21

See also Dye industry—Germany

Great Britain

Alkali report, 1919. Engineering 110:217-19 Ag 13 '20

British progress in chemistry. W: Macnab. Chem & Met Eng 23:1254-6 D 29 '20

Chemical industry and trade of England. O. P. Hopkins. J Ind & Eng Chem 13:189-97 Mr '21

German and British chemical industries and the war. Engineering 111:495-6 Ap 22 '21

See also Dye industry—Great Britain

Italy

Chemical industry and trade of Italy. O. P. Hopkins. J Ind & Eng Chem 12:525-31 Je '20

Development of the Italian chemical industry. Chem & Met Eng 22:791 Ap 28 '20

Impressions of the Italian chemical industry. C: L. Parsons. J Ind & Eng Chem 12:907-8 S '20

Italian chemical industries. Chem & Met Eng 24:770; 25:315, 585 My 4, Ag 24, S 28 '21

Japan

Chemical industry and trade of Japan. O. P. Hopkins. J Ind & Eng Chem 12:110-19 F '20

Japanese chemical industry. Chem Age 29:282-3 Jl '21

Japan's foreign trade; abstract. Chem & Met Eng 22:376 F 25 '20

Netherlands

Chemical industry and trade of Holland. O. P. Hopkins. J Ind & Eng Chem 13:593-9 Jl '21

New Jersey

Chemical analysis of the Jersey meadows. E. J. Maier. il map Chem Age 29:376-8 S '21

Norway

Chemical industries and trade of Norway. O. P. Hopkins. J Ind & Eng Chem 12:632-6 Jl '20

Philadelphia

Early industrial chemical history in Philadelphia. S: P. Sadtler. Chem Age 29:144-6 Ap '21

Russia

Les conditions de l'industrie chimique et son état en Russie soviétique. Saint-Gall. Chimie & Ind 6:243-6, 387-91 Ag-S '21

Southern states

Chemistry and the South. A. D. Little. Chem & Met Eng 21:710-14 D 10 '19

Some developed mineral resources and chemical industries of the Southern states. A. M. Fairlie. il Chem & Met Eng 22:307-12 F 18 '20

Spain

Chemical industry and trade of Spain. O. P. Hopkins. J Ind & Eng Chem 12:223-7 Mr '20

Sweden

Chemical industry and trade of Sweden. O. P. Hopkins. J Ind & Eng Chem 12:1045-54 N '20

Switzerland

Chemical industry and trade of Switzerland. O. P. Hopkins. J Ind & Eng Chem 13:285-92 Ap '21

Chemical industry of Switzerland. A. Landoll. Chem & Met Eng 24:21-2 Ja 5 '21

United States

American chemical industries and foreign trade. J: J. Raskob. Chem Age 29:81-2 Mr '21

American chemical industry and its need for encouragement and protection. N: Longworth. J Ind & Eng Chem 13:384-6 My '21

Brief of the Manufacturing chemists' association of the United States to the Committee on ways and means of the house of representatives. H: Howard. Chem Age 29:17-19 Ja '21

Broader aspects of dyestuff manufacture. diag Textile World 58:2507+ O 9 '20

Census of the chemical and allied industries. Chem Age 29:208 Je '21

Chemical exposition; what it means for the chemical industry. Color Tr J 7:63-7 S '20

Chemical industry grows. Iron Tr R 69:224 Jl 28 '21

Chemical industry power and fuel data. H. Goodwin, jr. Chem & Met Eng 25:708-9 O 12 '21

Chemical tariff schedule under consideration. Chem & Met Eng 24:181-2 Ja 26 '21

Chemicals; census bureau's summary for the industry, 1919 and 1914. Oil Paint & Drug Rep 100:62-3 sec 1 Jl 25 '21

Chemistry and the state. F. P. Garvan. J Ind & Eng Chem 13:866-73 O '21

Commerce and the chemist. W. Haynes. Nation's Business 8:40+ My '20

Conditions de l'industrie chimique aux États-Unis avant la guerre. J. H. Choate. Chimie & Ind 4:121-7 Jl '20

Exports of chemicals during the past fiscal year. Chem & Met Eng 25:328 Ag 24 '21

Growth of the chemical industry. Chem Age 29:318 Ag '21

Immediate needs of chemistry in America. W: J. Hale. J Ind & Eng Chem 13:460-5 My '21

Chemical industries—United States—Continued
Imports and exports. See weekly numbers of Oil paint and drug reporter

Need for protection of chemical industry and of ways of opposition. C. H. Herty. Oil Paint & Drug Rep 100:23+ sec 1 S 26 '21
New regulations for the importation of dyestuffs, drugs and chemicals. Chem & Met Eng 23:148 J1 28 '20

Opening address at chemical exposition. C. H. Herty. J Ind & Eng Chem 12:956-9 O '20

Our foreign trade in chemicals. O. P. Hopkins. J Ind & Eng Chem 12:840-4 S '20

Our foreign trade in chemicals; statistics. O. P. Hopkins. J Ind & Eng Chem 13:753-6 S '21

Reconstruction aspects of some chemical industries in the United States. E. Gudeman. J Ind & Eng Chem 12:376-80 Ap '20

Victory and its responsibilities. C. H. Herty. J Ind & Eng Chem 12:429-34 My '20

Wages and hours of labor in brick, chemical, glass, leather, paper, pottery, and rubber industries in 1919. Monthly Labor R 10:1166-81 My '20

See also Dye industry—United States; Oil industries—United States; Tariff—United States—Chemical schedule

West Indies

Industrial and agricultural chemistry in the British West Indies, with some account of the work of Sir Francis Watts, imperial commissioner of agriculture. C. A. Browne. il J Ind & Eng Chem 13:78-83 Ja '21

Chemical laboratories

Chemical laboratory; United States bureau of mines at Salt Lake City. J. C. Morgan and E. P. Barrett. il plan Min & Sci P 120:300-2 F 28 '20

Expansion of instruction facilities in chemistry. il Chem Age 29:310 Ag '21

Laboratory hood. J. C. Witt. J Ind & Eng Chem 12:596-7 Je '20

See also Dorr laboratory; United States—Chemistry, Bureau of—Color laboratory; Waterworks—Laboratories

Accidents

Fatal laboratory accident. J Ind & Eng Chem 12:89 Ja '20

Liability for laboratory explosions. J Ind & Eng Chem 13:1079-81 N '21

Bibliography

Chemical and engineering laboratories. C. J. West. J Ind & Eng Chem 12:295-6 Mr '20; Same. Am Arch 117:295-6 Mr 3 '20

Chemical patents

Breadth and scope of chemical patent claims. C. H. Biesterfeld. Chem & Met Eng 24:881-4 My 18 '21

Chute process for the manufacture of wood alcohol valid. W. Gustin. Chem & Met Eng 22:1032-3 Je 2 '20

Investigations of the chemical literature. F. E. Barrows. Chem & Met Eng 24:517-21 Mr 23 '21

Latest Canadian chemical and metallurgical patents. See monthly numbers of Canadian chemistry and metallurgy

Patents covering camphor substitutes. J Ind & Eng Chem 13:897-901 O '21

See also Bakelite; Dye patents; Hydrogenation—Patents; Rubber—Patents

Chemical plants

Coal-saving in the chemical industry; abstract. D. Brownlie. Chem & Met Eng 23:939-40 N 10 '20

Convenient chart in chemical works. Chem & Met Eng 21:692 N 26 '19

Handling of liquids in coal-tar chemical manufacture. S. P. Miller. Chem Age 29:325-7 Ag '21

Industrial excursions of the A.C.S. St Louis meeting. Chem & Met Eng 22:858-60 My 5 '20

Storehouses for chemical plants. F. D. Hartford. diag plan Ind Management 59:196-8 Mr '20

Taking industrial chemistry into partnership. F. Dannerth. Ind Management 61:151-4, 351-5 Mr 1, My 1 '21

See also Dye factories; Metallurgical plants; Nitrate plants

Equipment

Survey of material-handling equipment for chemical manufacture. R. H. McLain. diags Chem Age 29:427-31 O '21

Lighting

Elimination of waste in industry due to poor lighting. W. Harrison. il Chem & Met Eng 25:407-9 Ag 31 '21

Power

Electricity in the chemical industries. D. B. Rushmore, J. A. Seede and E. Pragst. Power 54:504-5 S 27 '21

New power plant of Monsanto chemical works. il diags plan Power 53:768-73 My 17 '21

Safety devices and measures

Occupational diseases in chemical industries. F. Dannerth. il Ind Management 62:145-7 S '21

Reduction of waste through accident prevention. L. A. DeBlois. il Chem & Met Eng 25:403-6 Ag 31 '21

Tanks and pipe lines as causes of accidents. H. A. Hoffman. Chem & Met Eng 23:1023-5 N 24 '20

Chemical reaction

Calculation of equilibrium in metallurgical reactions. P. D. Merica. Chem & Met Eng 25:608-12 S 28 '21

Chemical action at a distance. A. F. Fellows. diags Sci Am M 2:136-7 O '20

Chemical light self-photographed. A. Swanson. il Pop Mech 34:542 O '20

Chemical reactions and their equations. I. W. D. Hackh. 138p Blakiston '21

Chemical reactions, their theory and mechanism. K. G. Falk. 211p Van Nostrand '20

Halogenation; the replacement of sulfonic groups by chlorine and the preparation of organic chloro-derivatives. R. L. Datta and H. K. Mitter. Am Chem Soc J 41:2028-38 D '19

Influence of the solvent on the temperature-coefficient of certain reactions; a test of the radiation hypothesis. H. E. Cox. Chem Soc J 119:142-58 Ja '21

Kinetics of the reaction between hydrogen peroxide and iodine; abstract. E. Abel. Chem Soc J 120 pt 2:180-2 Mr '21

Light and chemical energy; Perrin's brilliant new theory with regard to effect of wave length upon reactions. P. Weiss. Sci Am M 3:523-5 Je '21

Mechanism of chemical actions caused by X-rays. A. Dauvillier. Sci Am M 3:262-3 Mr '21

Méthode d'enregistrement par photographie des réactions chimiques, accompagnées d'une variation de pression. P. Jolibois. diag Génie Civil 78:320 Ap 9 '21; Same. Sci Am M 4:38 J1 '21

New type of addition reaction. J. B. Conant and A. A. Cook. Am Chem Soc J 42:830-40 Ap '20

Periodic reaction in homogeneous solution and its relation to catalysis. W. C. Bray. Am Chem Soc J 43:1262-7 Je '21

Radiation and chemical change. W. C. M. Lewis. Sci Am M 1:256-8 Mr '20

Radiation as a factor in chemical action. I. Langmuir. Am Chem Soc J 42:2190-9; Discussion. 2199-2205 N '20

Radiation theory of chemical action and catalysis. Engineering 112:512-13 O 7 '21

Radiation theory of thermal reactions. W. C. M. Lewis and A. McKeown. Am Chem Soc J 43:1288-1306 Je '21

Reaction between acid halides and aldehydes. H. E. French and R. Adams. Am Chem Soc J 43:651-9 Mr '21

Reaction between chlorine and ammonia. W. A. Noyes and A. B. Haw. diags Am Chem Soc J 42:2167-73 N '20

Chemical reaction—Continued

- Reaction between nitric acid and copper. L. S. Bagster. *diag Chem Soc J* 119:82-7 Ja '21
- Replacement of sulfonic acid groups by halogens. R. L. Datta and J. C. Bhounik. *Am Chem Soc J* 43:303-15 F '21
- Replacement of sulfonic groups by nitro groups by means of nitrous gases. R. L. Datta and P. S. Varma. *Am Chem Soc J* 41:2039-48 D '19
- Theory of chemical reactivity; calculation of rates of reactions and equilibrium constants. S. Dushman. *Am Chem Soc J* 43:397-433 Mr '21
- Über die beeinflussung von sogenannten austausch- oder verdrängungs reaktionen durch lichtenergie: reduktion von alkalinitrit. O. Baudisch. *Deutsche Chem Gesell Ber* 54:413-17 Mr '21
- Undamped oscillations derived from the law of mass action. A. J. Lotka. *diag Am Chem Soc J* 42:1595-9 Ag '20
- See also* Catalysis; Chemical reagents; Friedel-Crafts' reaction; Oxidation; Reactivity

Control

- Automatic control of chemical reactions. P. E. Edelman. *Chem Age* 29:65-6 F '21
- Catalytic decomposition of hydrogen peroxide by sodium iodide in mixed solvents. V. L. Bohnson. *J Phys Chem* 24:677-700 D '20
- Influence of colloids on the rate of reactions involving gases; decomposition of hydroxylamine in the presence of colloidal platinum. A. Findlay and W. Thomas. *Chem Soc J* 119:170-6 F '21
- Statistical mechanics applied to chemical kinetics. R. C. Tolman. *Am Chem Soc J* 42:2506-28 D '20
- Theory of monomolecular reactions. R. C. Tolman. *Am Chem Soc J* 43:269-74 F '21

Velocity

- Theory of unimolecular reaction velocities. S. Dushman. *J Fr Inst* 189:515-18 Ap '20
- Thermal decomposition of gaseous nitrogen pentoxide; a monomolecular reaction. F. Daniels and E. H. Johnston. *diag Am Chem Soc J* 43:53-71 Ja '21
- Velocity of reaction in mixed solvents; the velocity of saponification of two ethyl esters in ethyl alcohol—water mixtures. A. E. Cashmore, H. McCombie and H. A. Scarborough. *Chem Soc J* 119:970-8 Jl '21
- Chemical reaction, Heat of
- Calorimetric procedure for determining the heats of slow reactions. F. Barry. *diag Am Chem Soc J* 42:1295-1308, 1911-45 Jl, O '20

Chemical reagents

- Effect of chemical reagents on the microstructure of wood. A. Abrams. *il J Ind & Eng Chem* 13:786-90 S '21
- Hydrolysis of fats by reagents made from cymene. R. H. McKee and L. J. Lewis. *Chem & Met Eng* 24:969-75 Je 1 '21
- Organic chemical reagents; reagents from *n*-butyl alcohol. R. Adams and C. S. Marvel. *Am Chem Soc J* 42:310-20 F '20
- Organic chemical reagents; the preparation of alkyl and alkylene bromides. O. Kamm and C. S. Marvel. *Am Chem Soc J* 42:299-309 F '20
- Reagent chemicals; proposed specification for sulfuric, nitric, and hydrochloric acids, and for ammonium hydroxide. W. D. Collins. *J Ind & Eng Chem* 13:735-7 Ag '21
- Some American-made chemical reagents. W. D. Collins. *J Ind & Eng Chem* 12:800-1 Ag '20
- Standards and tests for reagent chemicals. B. L. Murray. 385p Van Nostrand '20
- See also* Grignard reagent

Chemical research

- Education of the research chemist. R. E. Rose. *J Ind & Eng Chem* 12:947-51 O '20
- More and better tools wanted. J. W. Richards. *Chem & Met Eng* 23:447-8 S 8 '20
- Plan for incentive to research in pure and applied chemistry. W. J. Hale. *J Ind & Eng Chem* 12:690-6 Jl '20

Possibilities for research and development in the field of refractories. H. F. Staley. *Chem & Met Eng* 23:1167-71 D 15 '20

President Smith addresses the New York chemical societies. *J Ind & Eng Chem* 13:254-5 Mr '21

Romance of invention. C. H. Claudy. *il Sci Am* 121:580+ D 13 '19

See also Metallurgical research; Textile research; United States—Chemistry, Bureau of—Color laboratory

Chemical societies

See also American chemical society; American institute of chemistry (proposed); Canadian institute of chemistry; Institute of chemistry of Great Britain and Ireland; Society of chemical industry

Chemical symbols

International physico-chemical symbols. *Chem Soc J* 119:502-12 Ap '21

See also Chemical equations

Chemical technology. *See* Chemistry, Technical

Chemical warfare

Case for chemical warfare. W. J. Pope. *Can Chem & Met* 5:191-4 Jl '21

Incendiaries in modern warfare. A. B. Ray. *J Ind & Eng Chem* 13:641-6, 714-22 Jl-Ag '21

Modern developments in war making. W. J. Pope. *J Ind & Eng Chem* 13:874-6 O '21

Relation of our chemical industry to our national defense. I. L. Lenroot. *J Ind & Eng Chem* 13:888-9 O '21

See also Gases in warfare; Smoke screens

Chemical warfare exhibit

Chemical warfare exhibit in Washington. *il chart Chem & Met Eng* 24:512-14 Mr 23 '21

Chemicals

Chemical, commercial and common names of chemicals used in dipping, plating and coloring of metals. C. H. Proctor. *Metal Ind* 19:280-2 Jl '21

P-W-R manual, Powers-Weightman-Rosen-garten co., manufacturing chemists. P. W. R. press, Philadelphia '20

Research organic chemicals. H. T. Clarke. *Chem & Met Eng* 21:777-8 D 24 '19

Safeguarding the purchase of chemicals. F. W. Russe. *Textile World* 58:4011+ D 11 '20

Suggested reclassification of chemicals, oils, and paints. 140p U.S. Tariff commission, Washington '21

See also Chemical industries; Chemistry, Medical and pharmaceutical; Chemistry, Technical; Drugs—Manufacture; Insecticides; Tariff—United States—Chemical schedule

Prices

Chemical market. *See* weekly numbers of Oil paint and drug reporter

Industrial chemicals during the year 1920. *Textile World* 59:961+ F 5 '21

Price lists. *See* weekly numbers of Chemical and metallurgical engineering

Readjustment in industrial chemical prices. *Textile World* 57:1055+ F 7 '20

Standardization

Waste due to lack of standardization of chemicals. W. P. Cohoe. *Chem & Met Eng* 25:383-4 Ag 31 '21

Testing

Definition of limits for impurities in chemicals—sulfate in nitric acid. W. D. Collins. *J Ind & Eng Chem* 13:948-9 O '21

Valuation

Import valuation of foreign chemicals. H. Howard. *Chem Age* 29:83-4 Mr '21

Chemistry

American chemistry. H. Hale. 222p Van Nostrand '21

America's case in chemistry. E. Hendrick. *Chem & Met Eng* 21:684-6 N 26 '19

Chemistry—Continued

- Biggest things in chemistry. W. R. Whitney. Chem & Met Eng 24:102-7 Ja 19 '21; Same. J Ind & Eng Chem 13:161-6 F '21
- Chemistry and civilization. A. S. Cushman. 151p R. G. Badger, Boston '20
- Chemistry of familiar things. S. S. Sadtler. 3d ed., rev. 322p Lippincott '20
- Chicago meeting of the American chemical society. Chem & Met Eng 23:556-65 S 22 '20
- Course in general chemistry. W: McPherson and W: E. Henderson. 2d ed. 737p Ginn '21
- Elementary principles of chemistry. R. B. Brownlee and others. 588p Allyn and Bacon. Boston. New York '21
- Factory chemistry; preparatory to courses in metallurgy and metallography. W: H. Hawkes. 59p Longmans '21
- General chemistry. H. N. Holmes. 558p Macmillan '21
- German chemistry. Sci Am M 1:187 F '20
- Household chemistry for the use of students in household arts. H. T. Vulté. 243p Chemical publishing company, Easton, Pa. '20
- Introduction to general chemistry. H. Copaux. 195p P. Blakiston's son & co., Philadelphia '20
- Role of chemistry. A. A. Hopkins. Sci Am 125:237+ O 1 '21
- Some future problems of chemistry; inventory of our natural resources and the coming of the aluminum age. I. W. D. Hackh. Sci Am M 2:309-11 D '20
- Treatise on chemistry. H. E. Roscoe and C. Schorlemmer. 5th ed., rev. 2v Macmillan '13-'20
- Vocational chemistry for students of agriculture and home economics. J: J. Wilaman. 294p Lippincott '21

See also Acids; Air; Alkalies; Assaying; Atomic weights; Atoms; Biological chemistry; Botanical chemistry; Catalysis; Chemical reaction; Chemicals; Chemists; Colloids; Color; Combustion; Condensation; Chemical; Crystallization; Crystallography; Dissociation; Electrochemistry; Electrolysis; Electrolytes; Evaporation; Explosives; Fermentation; Fusion; Gases; Geochemistry; Halogens; Hydrolysis; Indicators and test papers; Ions; Liquid air; Metallurgy; Metals; Mineralogy; Molecules; Oxidation; Periodic law; Pharmacy; Photochemistry; Photographic chemistry; Phototropy; Physiological chemistry; Poisons; Radioactive substances; Reduction, Chemical; Salt; Salts; Solution (chemistry); Solvents; Spectrum; Stereochemistry; Thermochemistry; Volatility; *also* headings beginning Chemical and names of chemical elements and substances

Analysis

See Chemistry, Analytic

Apparatus

See Chemical apparatus

Bibliography

- Additions to the library of the Chemical society during the year 1920. 29p. Chemical Society, London F '21
- Chemical reading courses prepared by the committee on the preparation of a recommended list of chemical texts for libraries. W. A. Hamor and others. J Ind & Eng Chem 12:701-5, 806-7 Jl-Ag '20
- Investigations of the chemical literature. F. E. Barrows. Chem & Met Eng 24:423-8, 477-9, 517-21 Mr 9-23 '21
- Observations on chemical bibliographies. P. Escher. Chemical Bul 7:43-5, 73-7 F-Mr '20

Dictionaries

- Dictionary of applied chemistry. E: Thorpe. rev. and enl. ed. 752p Longmans '21
- Dictionary of chemical terms. J. F. Couch. 204p Van Nostrand '20
- French-English dictionary for chemists. A. M. Patterson. 384p Wiley '21

History

- Chemistry in the United States. C: F. Chandler. J Ind & Eng Chem 13:391-7 My '21
- Recent advances in physical and inorganic chemistry. A. W. Stewart. 286p Longmans '20

Laboratory manuals

- Experimental basis of chemistry; suggestions for a series of experiments illustrative of the fundamental principles of chemistry. I. Freund; Ed. by A. Hutchinson and M. B. Thomas. 408p University press, Cambridge, England '20
- Laboratory outline of general chemistry. 155p H. N. McCoy and E. M. Terry. McGraw-Hill '20

Periodicals

- Chemical publications. W: A. Noyes. Am Chem Soc J 42:2099-2116 N '20

Study and teaching

- A propos de la formation des chimistes. E. Grandmougin. Chimie & Ind 4:252-4 Ag '20
- De l'influence des spéculations mathématiques sur les progrès de la chimie. H: Le Chatelier. Chimie & Ind 3:555-65 My '20; Same (Education of chemists). Sci Am M 2:229-34 N '20; Abstract. Chem & Met Eng 23:437 S 8 '20
- Education of the research chemist. R. E. Rose. J Ind & Eng Chem 12:947-51 O '20
- L'enseignement de la chimie. R. Marquis. Chimie & Ind 5:213-15 F '21
- Historical summary of the development of the teaching of chemistry at the University of Toronto. L. E. Westman. Can Chem & Met 5:141-2 My '21
- History of the teaching of chemistry in the secondary schools of the United States previous to 1850. S: R. Powers. (Current problems no. 13) p 1-50; Bibliography. 53-61 N '20 University of Minnesota, Minneapolis
- Meeting of the section of chemical education. J. C. Olsen. J Ind & Eng Chem 13: 1074-6 N '21
- Problem course in chemistry. D: B. Pugh and D. E. Miller. 135p Allyn & Bacon, Boston, New York '21
- Questions and problems in chemistry. F. L. Darrow. 177p Harcourt, Brace & co., New York '21
- Relation of university chemical departments to chemical industry. B: F. Lovelace. Chem Age 29:357-9 S '21
- Le rôle des mathématiques en chimie. E. Fleurent. Chimie & Ind 4:525-8 O '20
- Le rôle des mathématiques en chimie. H. Le Chatelier. Chimie & Ind 4:678-9 N '20

Tables, calculations, etc.

- Calculation of percentage removal of a constituent from a mixture. W. B. VanArsdel. chart Chem & Met Eng 24:846 My 11 '21
- Chemist's handbook. 2d ed. 348p International textbook co., Scranton, Pa. '21
- Graphic calculation of neutralization of caustic liquors with CO₂. J. C. Dittmer. Chem & Met Eng 23:1179 D 15 '20
- More and better tools wanted. J. W. Richards. Chem & Met Eng 23:447-8 S 8 '20
- Rapid preparation of tables. J. C. Witt. J Ind & Eng Chem 12:591-2 Je '20

Technology

See Chemistry, Technical

Chemistry, Analytic

- Analysis of aromatic nitro compounds by means of titanous chloride. F. L. English. J Ind & Eng Chem 12:994-7 O '20
- Analytical chemistry. F: P. Treadwell. 2 v. Wiley '21
- Analytical chemistry of uranium and its separation from other rare elements. C. A. Pierlé. J Ind & Eng Chem 12:60-3 Ja '20
- Chemical study of frozen fish in storage for short and long periods. E. D. Clark and L. H. Almy. J Ind & Eng Chem 12:656-63 Jl '20
- Effect of chlorides on the nitrometer determination of nitrates. M. T. Sanders. J Ind & Eng Chem 12:169-70 F '20

Chemistry, Analytic—Continued

- Estimating impurities by means of the melting point curve. W. P. White. diags J Phys Chem 24:393-416 My '20
- Revue de chimie analytique. A. Kling and A. Lassieur. il Chimie & Ind 4:151-64, 324-33, 457-66 Ag-O '20
- Short commercial analytical methods for the determination of purity of important chemicals used in pyrotechnics. H. B. Faber and W. B. Stoddard. J Ind & Eng Chem 12:576-8 Je '20
- Simple, rapid method for the determination of halogen in organic substances. W. A. Van Winkle and G. McP. Smith. diags Am Chem Soc J 42:333-47 Mr '20
- Technical methods of analysis as employed in the laboratories of Arthur D. Little, inc., Cambridge, Mass. R. C. Griffin, ed. 666p [Bibliography: p. 627-633] McGraw-Hill '21
- See also* Air—Analysis; Chemical reagents; Coal—Analysis; Colorimetric analysis; Dye analysis; Electrochemical analysis; Flue gas—Analysis; Fruit—Analysis; Gas analysis; Gasoline—Analysis; Graphite—Analysis; Iodometry; Iron—Analysis; Mercury—Analysis; Metallurgical analysis; Oil analysis; Petroleum—Analysis; Rocks—Analysis; Sampling; Soil analysis; Spectrum; Steel—Analysis; Sugar—Analysis; Turbidimeter; Volumetric analysis; Water—Analysis

Qualitative

- Arc images in chemical analysis. W. R. Mott. Am Electrochem Soc Trans v 37 (preprint 11):121-60 Ap '20
- Brief laboratory guide for qualitative analysis. A. E. Hill. 104p The Chemical pub. co., Easton, Pa. '20
- Course of qualitative chemical analysis of inorganic substances. 4th ed., rev. 89p Blakiston '21
- Elementary qualitative analysis of the metals and acid radicals. F. C. Reeve. 143p Van Nostrand '21
- Introduction to qualitative chemical analysis. H. W. Fresenius. 17th ed. 954p Wiley '21
- Naphthalene sulfonic acids; a method for the qualitative detection of some of the naphthalene sulfonic acids. J. A. Ambler and E. T. Wherry. J Ind & Eng Chem 12:1085-7 N '20
- Qualitative analysis of medicinal preparations. H. C. Fuller. 2d ed. 191p Wiley '20
- Qualitative chemical analysis. W. W. Scott. 4th ed., rev. and enl. 350p Van Nostrand '21
- Qualitative chemical analysis. M. C. Sneed. 198p Ginn '21
- Qualitative separation and detection of uranium, vanadium and chromium when present together. P. E. Browning. Am Chem Soc J 43:114-15 Ja '21
- Treatise on qualitative analysis, adapted for use in the laboratories of colleges and technical institutes. F. Clowes and J. B. Coleman. 9th ed. 400p J. & A. Churchill, London '20

Quantitative

- Analytical weighing. H. L. Wells. Am Chem Soc J 42:411-19 Mr '20
- Application of the immersion refractometer to the analysis of aqueous salt solutions. C. A. Clemens. J Ind & Eng Chem 13:813-16 S '21
- Behavior of phenolphthalein with iodine and a method for the determination of phenolphthalein. S. Palkin. J Ind & Eng Chem 12:766-9 Ag '20
- Fluoremetry, quantitative analysis by comparative fluorescence; preliminary report. L. J. Desha. Am Chem Soc J 42:1350-63 Jl '20
- Moisture content of cereals. O. A. Nelson and G. A. Hulett. diags J Ind & Eng Chem 12:40-5 Ja '20
- Quantitative estimation of phosphatides. D. H. Brauns and J. A. MacLaughlin. Am Chem Soc J 42:2238-50 N '20
- Quantitative separation of the lead salts of the saturated from the less unsaturated fatty acids. A. Seidenberg. Am Chem Soc J 43:1323-36 Je '21

Rapid method for quantitative determination of arsenic in commercial sulfuric acid. A. A. Kohr. J Ind & Eng Chem 12:580-1 Je '20

Use of cupferron in quantitative analysis. G. E. F. Lundell and H. B. Knowles. J Ind & Eng Chem 12:344-50 Ap '20

Chemistry, Biological. *See* Biological chemistry

Chemistry, Botanical. *See* Botanical chemistry

Chemistry, Industrial. *See* Chemical industries; Chemistry, Technical

Chemistry, Inorganic

Inorganic chemistry for schools and colleges. J. L. Howe. 2d ed., rev. 443p Chemical pub. co., Easton, Pa. '20

Textbook of inorganic chemistry. J. N. Friend. 367p Lippincott '20

Textbook of inorganic chemistry for colleges. J. F. Norris. 677p McGraw-Hill '21

Text-book of inorganic chemistry for university students. J. R. Partington. 1062p Macmillan '21

See also Earths, Rare; Metals; *also* groups and classes of inorganic compounds, e.g. Acids, Alkalies; Chlorides

Chemistry, Legal

Legal and official chemistry. F. Dannerth. Chem & Met Eng 24:397-9 Mr 2 '21

Chemistry, Medical and pharmaceutical

Chemistry of synthetic drugs. P. May. 3d ed., rev. 248p Longmans '21

Chemistry's contribution to the life sciences. A. S. Loevenhart. J Ind & Eng Chem 12:1122-4 N '20

Les médicaments synthétiques. J. T. Hewitt. Chimie & Ind 5:440-1 Ap '21

Organic medicinal chemicals. M. Barrowcliff and F. H. Carr. 331p Van Nostrand '20

Les phénomènes chimiques en biologie et en médecine. H. Schwarz. diags Chimie & Ind 5:18-26 Ja '21; Translation (Chemical war on disease). Sci Am M 3:503-6 Je '21

See also Chemotherapy; Disinfection and disinfectants; Drugs; Pharmacy; Poisons

Chemistry, Organic

Identification of organic compounds. G. B. Neave and I. M. Heilbron. 2d ed. 88p Van Nostrand '20

Organic chemistry for medical, intermediate science and pharmaceutical students. A. K. Macbeth. 235p Longmans '20

Recent advances in organic chemistry. A. W. Stewart. 4th ed. 359p Longmans '20

Text-book of organic chemistry. 5th English ed. A. F. Holleman. 642p Wiley '20

Textbook of organic chemistry. J. S. Chamberlain. 959p P. Blakiston's son & co., Philadelphia '21

Treatise on general and industrial organic chemistry. E. Molinari. 3d ed. 456p P. Blakiston's son & co., Philadelphia '21

See also Acids, Fatty; Acids, Organic; Alcohols; Aldehydes; Alkaloids; Amines; Arsenic compounds; Carbohydrates; Carbon; Carbon compounds; Cellulose; Condensation, Chemical; Diazo compounds; Essential oils; Esters; Ethers; Food—Analysis; Gas; Glucosides; Hydrocarbons; Ketones; Proteins; Stereochemistry; Sugars; *also* Synthetic organic chemical manufacturers' association of the United States

Classification

Classifying organic compounds by the Prager-Jacobson system. D. W. MacArdle. Chem & Met Eng 22:256-8 F 11 '20

Laboratory manuals

Laboratory experiments in organic chemistry. E. P. Cook. 2d ed. 83p P. Blakiston's son & co., Philadelphia '20

Organic chemistry for the laboratory. W. A. Noyes. 4th ed., rev. 293p Chemical pub. co., Easton, Pa. '20

Chemistry, Photographic. *See* Photographic chemistry

Chemistry, Physical and theoretical

Bor- und silicium-chemie; die experimentelle erforschung leichtflüchtiger stoffe. A. Stock. il Deutsche Chem Gesell Ber 54:sup142-53 Je '21

Course of instruction in chemical principles. A. A. Noyes and M. S. Sherrill. 218p Thomas Todd co., printers, Boston '20

De l'influence des spéculations mathématiques sur les progrès de la chimie. H: Le Chatelier. Chimie & Ind 3:555-65 My '20; Same (Education of chemists). Sci Am M 2:229-34 N '20; Abstract. Eng & Contr 54:381 O 13 '20

Foundations of chemical theory. R. M. Caven. 274p Van Nostrand '21

Future developments of theoretical chemistry. I. Langmuir. Chem & Met Eng 24:553-7 Mr 30 '21

Introduction to the principles of physical chemistry from the standpoint of modern atomistics and thermodynamics. E: W. Washburn. 2d ed., rev. enl. 516p McGraw-Hill '21

Littlest things in chemistry. W. R. Whitney. J Ind & Eng Chem 12:599-607 Je '20

Nature of chemical force and the anomaly of strong electrolytes. W: Hughes. Philos Mag 6th ser 42:134-8 Jl '21

Physical chemistry and technology. E: W. Washburn. Chem & Met Eng 23:435-7 S 8 '20

Physical chemistry for colleges. E. B. Millard. 411p McGraw-Hill '21

Statistical mechanics and chemistry. E. P. Adams. Am Chem Soc J 43:1251-4 Je '21

A system of physical chemistry. W: C. M. Lewis. 3d ed. Longmans '20

Textbook of physical chemistry. A. T: Lincoln. 609p Heath '20

See also Absorption; Addition compounds; Adsorption; Atomic theory; Atomic weights; Atoms; Boiling points; Catalysis; Chemical affinity; Chemical equilibrium; Chemical reaction; Chemical reaction—Velocity; Colloids; Compressibility; Condensation, Chemical; Critical point; Crystallization; Crystallography; Deflocculation; Dissociation; Electrochemistry; Electrolysis; Electrolytes; Electrons; Emulsions; Flocculation; Fluorescence; Free energy; Freezing points; Fusion; Gases; Ions; Isomerism; Latent heat; Liquid air; Mass; Melting points; Molecules; Optical rotation; Periodic law; Phase rule; Photochemistry; Precipitation (chemistry); Refraction, Atomic; Solubility; Solution (chemistry); Stereochemistry; Surface energy; Surface tension; Thermal analysis; Thermochemistry; Thermodynamics; Valence; Vapor density; Volatility

Terminology

Compilation of named effects and laws. L. C. Krueger and H. R. Hosmer. Gen Elec R 24:258-78 Mr '21

Chemistry, Technical

American chemistry; a record of achievement the basis for future progress. H. Hale. 215p Van Nostrand '21

Applied chemistry; a practical handbook for students of household science and public health. C. K. Tinkler and H. Masters. vol. 1. 292p Van Nostrand '20

Canadian meeting of Society of chemical industry. Chem & Met Eng 25:496-501 S 14 '21

Chemistry and reconstruction of industry. Can Chem & Met 5:290-3 O '21

Chemistry and the food industry. C. L. Alsborg. Chem & Met Eng 23:1005-7 N 24 '20

Chemistry and the South. A. D. Little. Chem & Met Eng 21:710-14 D 10 '19

Chemistry of railroading. C: Browning, jr. Ry R 67:4-8 Jl 3 '20

La chimie et la guerre future. A. Poidloué. Génie Civil 77:236-7 S 18 '20

La chimie française et les problèmes de la guerre; chimie et aéronautique. C: Moureu. Chimie & Ind 4:393-402 S '20; Abstract (Contribution of chemistry to aeronautics). Chem & Met Eng 24:34-5 Ja 5 '21

Future of British chemical industry. W: J. Pope. Chem Age 29:399-401 O '21

Future of the animal products industry. W: D. Richardson. il Chem & Met Eng 23:481-6 S 8 '20

Introduction to the chemistry of plant products. P. Haas and T. G. Hill. 3d ed. Longmans '20

Place of chemistry in business. A. D. Little. J Ind & Eng Chem 13:386-90 My '21

Taking industrial chemistry into partnership. F: Dannerth. Ind Management 61:151-4, 351-5 Mr 1, My 1 '21

What chemistry can do in the food industry. R. S. Hiltner. Chem & Met Eng 24:243-4 F 9 '21

See also Acetylene; Acid-resisting materials; Alcohol; Alkalies; Alloys; Ammonia; Animal products; Blast furnace gas; Bleaching; Boiler scale; Canning and preserving; Celluloid; Cellulose; Cement; Chemical engineering; Chemical industries; Chemicals; Clay; Clay industries; Coal distillation; Coal tar; Coal-tar products; Coke-oven gas; Corrosion and anti-corrosives; Cyanide process; Dehydration; Distillation; Dyes and dyeing; Electrochemistry; Emulsification; Explosives; Extraction processes; Extracts; Fertilizers; Flour; Food preservatives; Fuel; Gas; Gas manufacture and works; Glass manufacture; Glue; Gums and resins; Hydrometallurgy; Ink; Leather; Metallurgical analysis; Metallurgy; Mother-of-pearl, Artificial; Oils and fats; Ore treatment; Paint; Paper; Paper making; Paper making materials; Perfumery; Petroleum; Porcelain; Potash; Pottery; Refractory materials; Rubber; Sampling; Soap; Starch; Sugar; Sulfuric acid; Tanning; Tar; Textile industry; Vinegar; Vulcanization; Waste products; Wood preservation

Bibliography

Service of the chemist to industry. C. J. West. (In Reprint & Circ. ser. 9) p36-45 '20
National research council, 1701 Massachusetts av., Washington, D.C.

History

Early industrial chemical history in Philadelphia. S: P. Sadtler. Chem Age 29:144-6 Ap '21

Chemists

Chemical profession—its opportunity and responsibility. R. S. McBride. Chem & Met Eng 23:502-4 S 8 '20

Chemist in the packing and allied industries. C: H. MacDowell. Chem Age 29:217-20 Je '21

Consulting chemist, chemical publicity and some problems of the profession. E: L. Campbell. Chem Age 29:15-16 Ja '21

Descriptions of occupations; medicinal manufacturing. 13p '18 U.S. Bureau of labor statistics, Washington, D.C.

Eminent chemists of our time. B: Harrow. 248p Van Nostrand '20

Famous chemists; the men and their work. W: A. Tilden. 296p Dutton '21

How the British chemists are organizing. F: E. Hamer. Chem & Met Eng 22:597-8 Mr 31 '20

Need and value of the chemist to the small gas plant. H. Vittinghoff. Am Gas Assn Technical sec v 1:399-404 '19; Same. Gas Age 45:16-17 Ja 10 '20; Discussion. Am Gas Assn Technical sec v 1:405-14 '19

Need of professional solidarity among chemists. H. C. Parmelee. Chem & Met Eng 23:1113-14 D 8 '20

Out-of-door education for the chemist. H. W. Jordan. J Ind & Eng Chem 13:731-2 Ag '21

Qualifications of organic chemists. M. L. Crossley. J Ind & Eng Chem 12:951-3 O '20

Responsibilities of the chemist as a citizen. H. W. Jordan. J Ind & Eng Chem 12:629-32 Jl '20

Shall I educate my boy to be a chemist? Chem Age 29:181-2 My '21

Chemists—Continued

Status of the English consulting chemist. A. Smetham. *Chem Age* 29:149-50 Ap '21

Succeeding in chemistry. R. F. Yates. *Sci Am* 122:272 Mr 13 '20

Those damn chemists. A. D. Wood. *Paper* 28:14-16+ Jl 27 '21

Value of the chemist in the large gas plant. E. J. Murphy. *Am Gas Assn Technical sec v* 1:394-8 '19

Who is a chemist? *Chem & Met Eng* 24:416-17 Mr 9 '21

See also Cereal chemists; Chemistry—Study and teaching; *also* Chandler, Charles Frederick; Odling, William

Registration

Question that will not down. *Chem & Met Eng* 24:193 F 2 '21; Discussion. 24:240-2 F 9 '21

Salaries

Classification and salaries for chemists. R. S. McBride. *chart Chem & Met Eng* 22:689-92 Ap 14 '20

Compensation of chemists and salesmen. W. Ferguson. *Chem & Met Eng* 24:460-1 Mr 16 '21

Study of the economic status of chemists in the government service, ten educational institutions, and thirty-seven firms. L. F. Kebler. *charts J Ind & Eng Chem* 12:1206-13 D '20

Chemotherapy

Le développement de la chimiothérapie. P. Karrer. *Chimie & Ind* 5:196-7 F '21

Les phénomènes chimiques en biologie et en médecine. H. Schwarz. *diags Chimie & Ind* 5:18-26 Ja '21; Translation (Chemical war on disease). *Sci Am M* 3:503-6 Je '21

Cheney brothers

South Manchester—a model textile community; Cheney brothers' scientific socializing and industrial methods. *il Textile World* 57:936-7+ F 7 '20

Chenopodium oil

Composition of oil of chenopodium from various sources. E. K. Nelson. *Am Chem Soc J* 42:1204-8 Je '20

Chesapeake and Delaware canal

Begin work enlarging Chesapeake and Delaware canal. *map Eng N* 87:232-3 Ag 11 '21

Chesapeake & Ohio railroad

Annual report of the Chesapeake and Ohio for 1920; editorial. *maps Ry Age* 71:434-6 S 3 '21

Chesapeake & Ohio wants to unify properties. *Ry Age* 71:169-70 Jl 23 '21

42d annual report for the fiscal year ended December 31, 1919. *map Ry Age* 69:5-6, sup 41-4 Jl 2 '20; Same abr. *Comm & Fin Chr* 110:2671-4 Je 26 '20

43d annual report for 1920. *Comm & Fin Chr* 112:2319-22 My 28 '21

Chester, Pennsylvania**Bridges**

Bridge accident at Chester causes 24 deaths. *Eng N* 87:462 S 15 '21

Chestnut blight

Giving medicine to trees. C. Rumbold. *il Sci Am M* 2:114-16 O '20

Chewing gum. *See* Chicle gum

Chicago, Illinois

City zoning in Chicago. C. H. Hammond and others. *W Soc E J* 25:93-112 F 5 '20

Engineering developments in Chicago during the past fifty years. S. Artingstall. *W Soc E J* 24:508-15 O '19

Plan of Chicago. R. H. Moulton. *il diags map plans Arch Rec* 46:457-70 N '19

Some aspects of the problem of Chicago as the mid-interior rail-water gateway. J. R. Bibbins. *W Soc E J* 26:194-6 My '21

See also Chicago drainage canal

Air conditions control, Division of

Division of air conditions control established in Chicago. *Heat & Ven* 17:36 Mr '20

Architecture

Central manufacturing district, Chicago. S. S. Joy. *il diags plans Arch Forum* 34:123-8, 177-82 Ap-My '21

Competition for a stadium on the Lake Front, Chicago. *Am Arch* 117:205-12, 241-6, 249-51, pl 228a-f, pl 252a-e, pl 282a-g F 18-Mr 3 '20

Model for the Bahai temple, Chicago. J. R. Reid. *il plan Arch Rec* 47:501-5 Je '20

Restoration of the Fine arts buildings of the World's Columbian exposition, Chicago. G. W. Maher. *il Arch Forum* 35:35-7 Jl '21

See also Chicago—Churches; Chicago—Hotels; Wrigley building, Chicago

Bridges

Bridges in the city of Chicago. *il diag Good Roads n s* 21:57-8+ F 2 '21

Chicago bascule bridge—design and operating features. H. E. Young. *il diags plan Eng N* 85:508-14 S 9 '20

Chicago boulevard link bridge to be opened to motor traffic by May 15. L. G. Sullivan. *il Motor Age* 37:23 Ap 8 '20

Longest single-leaf bascule bridge: Chicago river. *il diags plans Eng N* 83:1056-60 D 25 '19; *Eng & Contr* 52:717-19 D 24 '19; *Ry Age* 67:1133-7 D 12 '19

Michigan boulevard improvement. H. E. Young. *W Soc E J* 26:360-8 O '21

New gateway of the greater Chicago. *il Am Arch* 119:552-3 My 11 '21

Putting large bascule in service. *il Eng N* 87:606-7 O 13 '21

Churches

Enlargement of Holy Name cathedral. *il Am Arch* 120:92-4 Ag 3 '21

Harbor

New location proposed for Chicago harbor by army engineers. *map Eng N* 86:120 Ja 20 '21

Hotels

Electrical and mechanical details of The Drake. C. H. Reeder. *il Elec R* 78:881-6 My 28 '21

Hotel Somerset, Chicago; views and plans. *Arch Forum* 34:pl 82-4 Je '21

Hotel Webster, Chicago. *il plans Am Arch* 119:383-8, 398a-d Mr 30 '21

Why more buyers choose this market. C. Phillips. *il System* 40:556-7+ N '21

Industries and resources

Chicago as a center of industry and manufacture. *Elec R* 78:867-70 My 28 '21

Chicago's relation to the future American steel industry. G. de Geer. *Chem & Met Eng* 25:325-8 Ag 24 '21

Industrial excursions of the Chicago meeting of the American chemical society. *il diag Chem & Met Eng* 23:835-40 O 27 '20

See also Chicago board of trade

Railroads

Chicago's transportation problems. *Elec Ry J* 57:1000-1 My 28 '21

Consolidation of Chicago Junction railway with the New York Central R. R. *map Ry R* 68:43-4 Ja 8 '21

Freight and passenger terminal problems at Chicago. *Eng N* 86:1077 Je 23 '21

Freight tunnel system as a terminal distribution agency. J. R. Bibbins and E. J. Noonan. *W Soc E J* 26:198-201 My '21; Same abr. *Eng & Contr* 55:584 Je 15 '21

Making continual traffic checks. M. J. Feron. *Elec Ry J* 57:592-3; Discussion. 590 Mr 26 '21

New civic and railway development plan. *plans Ry Age* 70:891-4 Ap 8 '21; Same. *Ry R* 68:565-9 Ap 9 '21

New freight terminal nearing completion in Chicago. *il diag plans Ry Age* 71:65-9 Jl 9 '21

New loop station for North Shore line. *il Elec Ry J* 55:234 Ja 31 '20

Chicago, Illinois—Railroads—Continued

Proposed improvement of Chicago railway terminals. diags Eng N 86:845-7 My 19 '21
 Relation of steam roads to rapid transit development. B. J. Arnold. W Soc E J 26:196-8 My '21; Same abr. Elec Ry J 57:1000-1 My 28 '21

Rapid transit

Chicago surface lines' net increased. Elec Ry J 55:1073-4 My 22 '20
 Chicago traction tangle gets worse. Elec Ry J 57:278 F 5 '21
 Chicago's transportation problems. Elec Ry J 57:1000-1 My 28 '21
 City building and transportation. J. R. Bibbins. diags maps plans W Soc E J 25:411-59; Discussion. 459-69 Ag 20 '20
 Functions of rapid transit lines in cities. H: M. Brinckerhoff. il charts Elec Ry J 56:630-6 O 2 '20; Same. Eng N 85:1235-9 D 23 '20
 Home rule and five-cent bills lost. Elec Ry J 57:1179 Je 25 '21
 Preparing for pageant of progress. il diags plan Elec Ry J 58:89-90 Jl 16 '21
 Selling transportation at pageant. il Elec Ry J 58:360-1 S 3 '21

See also Chicago Elevated railways

Safety council

Safety council progressing. Elec Ry J 58:331 Ag 27 '21

Sewerage

Des Plaines river activated-sludge plant. L. Pearse. diags plans Eng N 85:1134-8 D 9 '20
 Sewage treatment plant for Calumet region of Chicago sanitary district. L. Pearse. diags plan Eng N 86:986-8 Je 9 '21

See also Chicago, Illinois—Stock yards

Stock yards

Final report on waste disposal of Chicago stockyards; abstracts. Eng N 86:815-17 My 12 '21; Eng & Contr 55:572-3 Je 8 '21
 Packingtown waste problem. L. Pearse. W Soc E J 25:365-73 Jl 20 '20; Abstract. Pub Works 49:251-3 S 18 '20

Streets

Chicago double deck street for congested district. diags plans Eng N 85:173-5 Jl 22 '20
 Features of South Water street, Chicago, improvement. Elec Ry J 56:280-1 Ag 7 '20
 Paving on Chicago streets. H. J. Fixmer. il Good Roads n s 21:51-3+ F 2 '21

Suburbs

Community center developments; the North shore suburbs of Chicago. il plans Am Arch 118:271-9 S 1 '20

Water supply

Additional water supply for the city of Chicago, 1920-55. maps Eng N 84:855-6 Ap 29 '20
 Comparison of three filters near Chicago. S. A. Greeley. Eng N 86:730 Ap 28 '21
 Glimpses at the past and future of the Chicago water supply. J: Ericson. Am Water Works Assn J 8:402-6 Jl '21
 Why Chicago does not filter its water. Eng N 86:707 Ap 28 '21

Chicago & Alton railroad

Annual report of the Chicago & Alton for 1920; editorial. map Ry Age 71:477 S 10 '21

Chicago & Eastern Illinois railway

Reorganization plan. Ry Age 69:1167-8 D 31 '20

Chicago & Northwestern railway

60th annual report. Ry Age 68:1440-1, 1492-4 My 21 '20; Same abr. Comm & Fin Chr 110:1874-6 My 1 '20
 61st annual report for the year ending December 31, 1920. Comm & Fin Chr 112:1760-3 Ap 23 '21
 61st annual report for year ending December 31, 1920. Ry Age 70:1256-8, 1298-1300 Je 3 '21

Chicago & Western Indiana railroad

Annual report for 1920. Ry Age 70:959 Ap 15 '21

Chicago board of trade

Grain trade's gyroscope; Chicago's Board of trade acts as a great stabilizer for the world's supply of bread. R. H. Moulton. Nation's Business 8:43+ S '20
 How the machinery of the world's greatest grain market operates. B. J. Hollister. Americas 7:30-1 Ja '21
 Should we smash the exchanges? il Nation's Business 8:32-4 D '20

Chicago, Burlington & Quincy railroad

Burlington asks authority to capitalize surplus. Ry Age 69:845 N 12 '20
 Chicago, Burlington & Quincy. map Ry Age 69:512-13 S 24 '20
 Hearing on Burlington and Lackawanna financing. Ry Age 70:417-19 F 18 '21
 Making of the Burlington. W. W. Baldwin. Ry R 67:535-40 O 9 '20
 Making of the Burlington. G: W. Holdrege. map Ry R 68:123-6 Ja 22 '21
 Proposed Hill line financing plan disproved. Ry Age 70:499-504 Mr 4 '21
 66th annual report for the year ended December 31, 1919. Comm & Fin Chr 110:2394-7 Je 5 '20
 67th annual report. map Ry Age 71:279-80, 314-15 Ag 13 '21
 Sixty-seventh annual report—for 1920. Comm & Fin Chr 112:2428-32 Je 4 '21

Chicago crime commission

Fighting a crime organization. W. Evans. Nation's Business 8:17 D '20

Chicago drainage canal

Chicago drainage canal decision. R. Hering. Eng N 85:181 Jl 22 '20
 Chicago drainage canal; today and tomorrow. F. C. Shenehon. Munic Eng 59:154-5 N '20; Same. Can Eng 39:624-5 D 23 '20
 Decision on lake diversion by the Chicago drainage canal. Eng N 85:129-30 Jl 15 '20
 Hydraulics of the Chicago sanitary district's main channel. M. Blanchard. diags W Soc E J 25:471-524 S 5 '20

Chicago Elevated railways

Chicago Elevated railway raised. il diags plan Eng N 87:448-50 S 15 '21
 Chicago Elevated railways organize for safety. chart Elec Ry J 55:340-1 F 14 '20
 Promotions in Chicago Elevated. Elec Ry J 55:834-5 Ap 17 '20
 Ten cents permanent Chicago fare. Elec Ry J 57:241-2 Ja 29 '21

Chicago Great Western railroad

Annual report for 1920. map Ry Age 70:970-1 Ap 22 '21

Chicago, Indianapolis & Louisville railroad

Annual report for 1920. Ry Age 70:958-9 Ap 15 '21
 24th annual report—year ended Dec. 31 1920. Comm & Fin Chr 113:1671-2 O 15 '21

Chicago Junction railway

Examiner's report on the purchase of Chicago terminal railways by the New York Central railroad. R. W. Clarke. Ry R 69:366-71 S 17 '21

Chicago, Milwaukee & St Paul railway

Annual report for 1920; editorial. Ry Age 70:1306-7 Je 10 '21
 Auxiliary and lighting control equipment. J: A. Clarke, jr. il diags Elec J 17:244-8 Je '20
 Baldwin-Westinghouse Chicago, Milwaukee & St Paul electric locomotives. N. W. Storer. il diags Am Inst E E J 39:331-41 Ap '20; Excerpts. Ry R 66:596-600 Ap 10 '20; Abstract. Ry Age 68:1054-6 Mr 26 '20; Abstract. Elec Ry J 55:510-13 Mr 13 '20
 Branch of St Paul R. R. electrified. il diags plans Elec Ry J 57:637-9 Ap 2 '21
 Chicago electrification and elevation on C., M. & St P. Ry. il diags Eng N 85:1226-30 D 23 '20
 Chicago, Milwaukee & St Paul railway completes electrification of Pacific coast division. W. A. Scott. il Elec R 76:496-8 Mr 20 '20

- Chicago, Milwaukee & St Paul railway—Cont.**
 Democratizing the St Paul. Ry R 67:431-2 S 18 '20
 Electric locomotives in two wrecks. il Elec Ry J 56:371-2 Ag 21 '20
 Electric operation on Coast divisions. il Ry R 66:547-8 Ap 3 '20
 Electric passenger locomotives for the St Paul. il diag plan Ry Age 68:233-6 Ja 16 '20
 Electric power supply for the Puget Sound lines of the C., M. & St P. railroad. A. W. Copley. il diags maps Elec J 17:3-9 Ja '20
 Electric railroad over the Rockies. B. S. Beach. il map Sci Am 122:362 Ap 3 '20
 Electrical equipment and control. P. L. Mardis. il diags Elec J 17:235-44 Je '20
 Electrification. il Eng N 85:1068-71 D 2 '20
 Electrification. R. Beeuwkes. Elec Ry J 55:1103-4 My 29 '20; Same, with map. Ry Age 68:1923-5 Je 18 '20; Excerpt (table). Eng & Contr 54:173 Ag 18 '20
 Electrification of steam railroads. il diag map Ry Age 70:104-6 Ja 7 '21
 Electrification of the Coast and Cascade divisions of the C., M. & St P. Ry. E. S. Johnson. il diags Gen Elec R 23:263-71 Ap '20
 Last stand of the reciprocating steam engine. A. H. Armstrong. il diags map Am Inst E E J 39:209-18 Mr '20; Same. Gen Elec R 23:249-62 Ap '20
 Milwaukee electrification. F. H. Shepard. Elec Ry J 55:1211-12 Je 12 '20
 New electric locomotives for the C. M. & St P. il diags plan Ry Mech Eng 94:259-64 My '20
 New power supply for the St Paul. il map Elec Ry J 55:481-2 Mr 6 '20
 Passenger locomotives for Chicago, Milwaukee & St Paul railway. A. F. Batchelder and S. T. Dodd. il diags Am Inst E E J 39:342-5 Ap '20; Same. Gen Elec R 23:272-7 Ap '20; Same cond. Elec Ry J 55:508-10 Mr 13 '20; Same cond. Ry Age 68:1051-4 Mr 26 '20
 Power-limiting and indicating system. J. J. Linebaugh. il diags Gen Elec R 23:292-306 Ap '20; Excerpts. Elec Ry J 55:759-61 Ap 10 '20; Excerpt. Ry Age 68:1146 Ap 9 '20
 Results on the Chicago, Milwaukee & St Paul. H. E. Byram. Ry Age 70:1284-5 Je 3 '21
 St Paul electric service out of Seattle begins. Elec Ry J 55:601-2 Mr 20 '20
 St Paul electrification results. R. Beeuwkes. diags Elec Ry J 56:227-30 Jl 31 '20; Same. Ry Age 69:235-8 Ag 6 '20; Same. Am Inst E E J 39:813-18 S '20; Same. Gen Elec R 23:724-30 S '20; Same cond. J Elec 45:117-18+ Ag 1 '20
 Substation switching equipment of the C., M. & St P. railroad. C. M. M. Moss. il Elec J 17:15-18 Ja '20
 3000 volt motor-generator sets for the C., M. & St P. railroad. D. Hall. il Elec J 17:12-15 Ja '20
 Transformer equipment for the C., M. & St P. installation. W. M. Dann. il diag Elec J 17:9-11 Ja '20
- Chicago, North Shore & Milwaukee railroad**
 \$1,000,000 increases in gross shown in annual report. Elec Ry J 57:911 My 14 '21
 Results of automatic substation operation on the Chicago, North Shore & Milwaukee railroad. C. H. Jones. il diags map Gen Elec R 24:601-10 Jl '21
- Chicago, Peoria & St Louis railroad**
 Report for fiscal year ending Dec. 31 1919. Comm & Fin Chr 111:2515 D 25 '20
- Chicago River and Indiana railroad**
 Examiner's report on the purchase of Chicago terminal railways by the New York Central railroad. R. W. Clarke. Ry R 69:366-71 S 17 '21
- Chicago, Rock Island & Pacific railway**
 40th annual report. Comm & Fin Chr 110:1868-72 My 1 '20
 41st annual report. map Ry Age 70:919-21 Ap 15 '21
- 41st annual report for the fiscal year ended Dec. 31, 1920. Comm & Fin Chr 112:1627-32 Ap 16 '21
 Tentative valuation of the Chicago, Rock Island & Pacific. Ry Age 71:527-8 S 17 '21
- Chicago-St Louis highway**
 Long section of new Chicago-St Louis highway dedicated and opened. Munic Eng 60:22-3 Ja '21
- Chicago, St Paul, Minneapolis & Omaha railway**
 Annual report for 1920; editorial. Ry Age 70:1256 Je 3 '21
 38th annual report. Comm & Fin Chr 110:1872-3 My 1 '20
 38th annual report. Ry Age 68:1439-40, 1494-6 My 21 '20
 39th annual report for the year ended December 31, 1920. Comm & Fin Chr 112:1764-5 Ap 23 '21
- Chicago stock exchange**
 Chicago stock exchange record of prices for 1920. Comm & Fin Chr 112:415-16 Ja 29 '21
- Advertising**
 Chicago stock exchange members advertise to guide public opinion. Ptr Ink 117:121-2+ O 20 '21
- Chicle gum**
 American chewing gum industry. il plan India Rubber W 64:558-60 My 1 '21
 Manufacture of chewing gum. il India Rubber W 64:635-8 Je '21
- Chief interchange car inspectors' and car foremen's association**
 Convention, Montreal, P.Q., Sept. 14-16. Ry Mech Eng 94:705-15, 769-84 N-D '20
 19th annual meeting, St Louis, Sept. 23-25. Ry Age 67:1121-2 D 5 '19; Ry Mech Eng 93:649-53 N '19
 20th annual convention, Montreal, Sept. 14-16; with list of exhibits. Ry Age 69:536, 543 S 24 '20
 Propose changes in rules at Chicago meeting, March 3-4. Ry Mech Eng 95:233-8, 304-8, 375-8, 441-4 Ap-Jl '21
- Child health organization**
 Getting advertising messages over to children. E: T. Tandy. Ptr Ink 113:157-8 O 21 '20
- Child labor**
 Child labor law again declared unconstitutional. Comm & Fin Chr 113:891-3 Ag 27 '21
 Compulsory part time education for working children. H. E. Miles. Am Ind 20:26-7 Ja '20
 Control of the employment of children in agriculture in Canada and the United States of America. Int Labour R 4:170-94 O '21
 Effect of the war on working children in Germany. A. Kalet. Monthly Labor R 13:6-17 Jl '21
 Industrial instability of child workers. R. M. Woodbury. U. S. Children's bureau '20
 Industrial instability of child workers in Connecticut. Monthly Labor R 11:1246-7 D '20
 International labour office and the protection of children. Int Labour R 3:3-25 Jl '21
 New child-labor legislation in Massachusetts. Monthly Labor R 13:675-6 S '21
 Preliminary report of committee to formulate standards of normal development and sound health, for the use of physicians in examining children entering employment and children at work. (Conference series, no. 4.) 24p U.S. Children's bureau, Washington '21
 Problem of the boy entering industry. Eng & Ind Management 5:354 Mr 24 '21
 Regulation of child labor in Czecho-Slovakia. Monthly Labor R 10:1008-12 Ap '20
 Trend of child labor in the United States, 1913 to 1920. N. P. McGill. Monthly Labor R 12:717-30 Ap '21
 Working children of Boston. H. S. Woodbury. Monthly Labor R 12:45-59 Ja '21
- Child welfare.** See Children—Charities, protection, etc.

Children

Modern views on development of children. Sci Am M 1:483 Je '20

Care and hygiene

Helping the foreign worker. B. E. Thompson. Factory 26:222+ Ja 15 '21

Charities, protection, etc.

Child welfare work at the mills. M. A. Potwine. Textile World 58:3627+ N 27 '20

Le sursalaire familial et l'évaluation des charges permettant de le servir. P. Razous. Génie Civil 76:475-7 My 22 '20

See also Orphanages

Law

Minor has right to demand back money paid under contract, even if he cannot return the property which he bought. Dom Eng 96:379+ Ag 27 '21

See also Child labor

Chile

See also Electric plants (central stations)—Chile; Hydroelectric plants—Chile; Railroads—Chile

Commerce

Chilean export markets. Am Ind 21:42 N '20
Jewelry and silverware in Chile, Bolivia, and Peru. S. W. Rosenthal. il U S Bur For & Dom Com 187:1-115 '19

Economic conditions

Public works and trade conditions in Chile. Engineer 132:25 Jl 1 '21

Industries and resources

Chile's future rules tool needs. il Iron Tr R 67:369-70+ Ag 5 '20
Industrial Chile. E. L. Little. Am Mach 52:576 Mr 11 '20

See also Automobile industry and trade—Chile; Copper mines and mining—Chile; Mines and mineral resources—Chile; Paper industry and trade—Chile; Saltpeter, Chile; Steel works—Chile

Chile saltpeter. See Saltpeter, Chile

Chilean nitrate. See Saltpeter, Chile

Chilled iron

How steel mill rolls are made. H. E. Diller. il Foundry 49:595-601, 631-8 Ag 1-15 '21; Same. Iron Tr R 69:419-24+, 547-54 Ag 18, S 1 '21

Making a chilled iron special roll. diags Foundry 48:119 F 1 '20

Making castings for rolling mill construction. F. Holberry. Foundry 49:15 Ja 1 '21

Manufacturing chilled iron car wheels. H. E. Diller. il diags Foundry 48:259-65, 304-10, 353-9, 389-96, 429-34, 481-3 Ap 1-Je 15 '20

Some failures of chilled cast-iron wheels. H. J. Force. Iron Age 107:1760-1 Je 30 '21; Same. Foundry 49:602-3 Ag 1 '21; Same. Ry Mech Eng 95:505-6 Ag '21; Same cond. Ry Age 70:1439-40 Je 24 '21

Chimes

Drummer uses electric chimes. diag Pop Mech 34:627 O '20

Chimney pieces. See Fireplaces**Chimney pots**

Old chimney pots of Roman cement. diags Concrete 18:246 My '21

Chimneys

A B C of successful heating. F. Grant. diags Dom Eng 92:56-8 Jl 10 '20

Building frame houses. E. Marple. il diags Bldg Age 43:44-8 Ap '21

Chimney capacities for small boilers. H. P. Kahn. Power 50:840 D 16 '19

Chimney design and construction. T. G. Clark. diags Power Pl Eng 24:1121-4 D 1 '20

Chimney draught troubles. E. Ingham. Elec R (Lond) 88:265-6 Mr 4 '21

Chimneys. T. Croft. diags Power 53:257-60, 307-11, 346-8 F 15-Mr 1 '21

Chimneys and draft. R. L. Emmet. Dom Eng 92:117-18 Jl 17 '20

Chimneys and flues. F. H. Wentworth. il diag Arch & Bldg 52:6-8 Ja '20; Same abr. Am Arch 117:95-6 Ja 21 '20

Chimneys attractive. F. J. Koch. il Bldg Age 43:56 N '21

Chimneys discussed at N.Y. chapter of American society of heating and ventilating engineers meeting. Plumber 94:541 D 3 '20; Same. Sheet Metal Worker 11:379-80 N 26 '20

Chimneys for house heating boilers. L. A. Scipio. Am Soc Heat & V E J 27:463-8 My '21; Discussion. 27:618-20 Jl '21

Cinder trouble eliminated. R. K. Long. Power Pl Eng 25:1016-17 O 15 '21

Data on chimney design. J. G. Mingle. Foundry 48:80a, 90a, 134a Ja 15-F 15 '20

Flue-gas analysis as a guide to furnace control. F. F. Uehling. charts diags Elec R 77:802-6 N 20 '20; Same. Blast F & Steel Pl 8:675-7+ D '20; Same abr. Paper 27:154+ N 10 '20; Same abr. Power Pl Eng 24:1183-5 D 15 '20; Abstract. Iron Tr R 67:1409-10 N 18 '20

Hazard of the defective chimney. Metal Work 94:360-1+ S 17 '20

Model chimney ordinance specifies flue-lining for all chimneys. Eng N 85:251 Ag 5 '20

New method for proportioning chimney heights. R. Sibley and C. H. Delany. diag J Elec 46:299-300 Mr 15 '21

New treatment of hot water heating. E. E. Parker. diags Plumber 94:565-7 D 17 '20

Ordinance for construction of chimneys proposed by the National board of fire underwriters. Am Soc Heat & V E J 27:25-8 Ja '21; Discussion. 27:200-5 Mr '21

Report of the committee on model chimney ordinance. Am Soc Heat & V E J 27:592-4 Jl '21

Rocking of a tall chimney. Sci Am 123:275 S 18 '20

Saving the waste in the chimney; correction for diameter of stack at altitude above sea level. R. Sibley and C. H. Delany. il chart J Elec 44:222-3 Mr 1 '20

Self-supporting chimneys to withstand earthquake. C. R. Weymouth. diags Mech Eng 42:157-60+ Mr '20; Same. Engineering 110:224-6 Ag 13 '20

Speaking of tall chimneys. J. F. Springer. il Sci Am 122:186+ F 21 '20

Unique chimney mounting at St Joseph, Mo. Elec Ry J 55:994 My 15 '20

Wooden smelter stack. S. P. Lindau. il Eng & Min J 112:257 Ag 13 '21

See also Draft; Fireplaces; Flues; Heating; Smoke

Chimneys, Brick

Anaconda chimney largest and tallest in the world. il Pub Works 48:181-3 Mr 13 '20

Brick stack ripped by lightning repaired while in use. P. S. Toney. il diag Eng N 85:1148 D 9 '20

Details of Anaconda's chimney. diags plan Chem & Met Eng 21:609 N 12 '19

Felling two brick chimneys by dynamiting at base. H. B. Homman. il Eng N 87:370-1 S 1 '21

Loss of heat in brick chimneys. A. Cotton. chart Power Pl Eng 25:747-8 Ag 1 '21

Radial brick chimney 300 ft. high. J. G. Mingle. il Can Eng 38:122 Ja 8 '20

Radial brick chimneys. W. F. Leggo. il diags plans Am Soc Heat & V E J 26:795-808 D '20; Abstract. Power 53:201 F 1 '21

Chimneys, Concrete

Architecture of the concrete chimney. G. Orb. il Sci Am 123:449 O 30 '20

Concrete chimney mounted bit by bit. C. W. Geiger. il Sci Am 122:451 Ap 24 '20

Diagrams for designing reinforced concrete chimneys. F. E. Hertel. diags Eng N 86:803-4 My 12 '21

Efficiency in stack construction. il Concrete 16:86 F '20

Felling a concrete chimney. A. D. Butler. il Eng N 84:899-901 My 6 '20

New concrete chimney system. il Concrete 17:33-4 Jl '20

Short cut design of concrete chimneys. W. W. Christie. Eng N 87:512 S 29 '21

Chimneys, Concrete—Continued

- Stresses in reinforced-concrete chimneys. Eng N 86:393, 565-6 Mr 3, 31 '21
 Troublesome problem in stack-wrecking. il Sci Am 125A:51 N '21
 Unusual concrete chimney construction. H. M. Hope. diags plan Eng & Contr 53:334-5 Mr 24 '20

Chimneys, Iron and steel

- Advantages of steel smoke stacks. Can Eng 39:308 S 2 '20
 Chimney felling reduced to a science. il Power 53:378-9 Mr 8 '21; Discussion. F. Bergmann. 53:753 My 10 '21
 Coat of concrete applied to tall iron stack. il Pop Mech 33:229 F '20
 Engineering features of self-supporting steel stack construction. diags plans Heat & Ven 18:26-8 Ja '21
 Felling four steel chimneys lined outside with concrete. C. S. Stauffer. il Eng N 86:855-6 My 19 '21; Discussion. 86:1090 Je 23 '21
 Laying out stack work made of heavy metal. diags Sheet Metal Worker 12:149-51 Ap 1 '21
 Methods for molding smoke stacks. H. N. Tuttle. diags Foundry 48:181-3 Mr 1 '20
 130 ft. steel stack erected in one section. il Eng & Contr 55:416 Ap 27 '21
 Reconstructing steel stack with gunite. il Concrete 17:194-5 D '20
 Stack within a stack is removed by gas cutting. Pop Mech 35:654 My '21
 Steel chimneys and their linings in copper smelting plants; abstracts. A. G. McGregor. Min & Met 167:34 N '20; Sci Am M 2:283-4 N '20; Chem & Met Eng 24:329-30 F 23 '21; Eng & Min J 111:343 F 19 '21
 Steel smoke stacks. W. E. Goldsworthy. Am Soc Heat & V E J 26:787-94 D '20; Excerpts. Power 53:158 Ja 25 '21
 Steel smokestacks. C. B. Risley. diags Power Pl Eng 24:427-8 Ap 15 '20
 Surrounding corroded steel stacks with concrete. J. V. Schaefer. il Power Pl Eng 25:560-1 Je 1 '21; Same abr. Eng & Contr 55:619-20 Je 22 '21; Same abr. Am Mach 55:520 S 29 '21; Abstract. Power 53:796 My 17 '21

China

- Advertising methods in Japan, China and the Philippines. J. W. Sanger. il U S Bur For & Dom Com 209:43-83 '21
 China's oldest inventions. H. K. T. Loh. Sci Am M 3:234 Mr '21
 Chinese famine is a boost to automotive industry. D. D. Patterson. Automotive Ind 44:1018-20 My 12 '21
 Engineering in North China. D. F. McLeod. Eng N 84:862-3 Ap 29 '20
 Industrial training in China. F. A. Foster. Mach 26:909 Je '20
 Stone beam bridge in China sixty years old. D. F. McLeod. il diags Eng N 84:321-2 F 12 '20
 Transportation in Sze-Chuan, China. J. A. T. Robertson. il map Eng & Min J 110:994-6 N 20 '20
See also Aeronautics, Commercial—China; Boxer indemnities; Electric plants (central stations)—China; Labor and laboring classes—China; Railroads—China; Waterways—China

Air service

- Aviation in China. De Senn Chung. il Aviation 11:511-12 O 31 '21

Bibliography

- Useful literature on China. J. Arnold. U S Bur For & Dom Com misc ser 84:460-6 v 2 '20

Commerce

- American trade prospects in China. Iron Age 105:1060-1 Ap 8 '20
 Business opportunities in Asia. F. R. Still. Iron Age 105:595-6 F 26 '20; Same. Am Mach 52:572-4 Mr 11 '20
 China and Far East best market for U.S. products. Am Mach 53:604j-k S 23 '20

- China trade act to aid American business in the Orient. Annalist 17:493 My 2 '21
 Commercial handbook of China. J. Arnold and others. il map U S Bur For & Dom Com misc ser 84:1-630 v 1; 1-470 v 2 '19, '20
 Crusade of the young men. R. Spillane. il Nation's Business 8:15-17 My '20
 Import trade of China. Elec R (Lond) 89:463-4 O 7 '21
 Open door and business. S. Bent. il Nation's Business 9:16-17 N '21
 Our stake in the Pacific. C. F. Weed. Textile World 57:3047+ Ap 24 '20
 Trade and administration of China. H. B. Morse. 3d rev. ed. 505p Longmans '21

Consortium, 1920

- Chinese consortium approved by secretary of state Hughes—text of consortium. Comm & Fin Chr 112:1343-4 Ap 2 '21
 Chinese consortium program—reports of unacceptability of terms not credited. Comm & Fin Chr 111:1996 sec 1 N 20 '20
 Chinese consortium—universal trade. Comm & Fin Chr 111:1603-4 O 23 '20
 Chinese Premier discusses Chinese consortium and sovereign rights. Comm & Fin Chr 111:1901 sec 1 N 13 '20
 Final Chinese consortium agreement signed. Comm & Fin Chr 111:1518-19 O 16 '20
 Helping China to help herself; winning the Far East to the new consortium. T. W. Lamont. il Nation's Business 8:11-13 S '20
 Trade opportunities in the Far East—the Chinese consortium. T. W. Lamont. Comm & Fin Chr 111:1224-5 S 25 '20

Economic conditions

- Abundance here—death in China. T. W. Lamont. il Nation's Business 9:24-5 Mr '21
 China on verge of famine. Ry Age 69:900-1 N 19 '20
 Chinese currency and finance. A. W. Ferrin. U S Bur For & Dom Com 186:1-57 '19
 Commercial handbook of China. J. Arnold and others. il map U S Bur For & Dom Com misc ser 84:1-630 v 1; 1-470 v 2 '19, '20
 Cost of living in China. Elec R (Lond) 88:378 Mr 25 '21
 Effect in China of the Banque industrielle de Chine failure. Comm & Fin Chr 113:238 Jl 16 '21
 Japanese crisis natural result of inflated conditions. F. Chipman. Textile World 58:252 Jl 10 '20
See also Labor and laboring classes—China; Wages—China

Industries and resources

- Cotton manufacturing industry in China in 1920. S. Z. Yang. il Textile World 59:1971 Mr 19 '21
 Field for American knit goods in China. il Textile World 59:13+ Ja 1 '21
 Meticulous care of the Chinese; enamels, metalwork casting and forgery. Brass W 17:273-4 S '21
 Problems fundamental to mining enterprise in the Far East. H. F. Bain. il Min & Met 171:28-37 Mr '21
 Salt industry of China. H. T. Wade. il Sci Am M 2:237-40 N '20
 Salt wells of China. R. G. Skerrett. il Sci Am M 3:427-30 My '21
 La situation économique de la Chine. Y. Guyot. Génie Civil 77:444-5 N 27 '20
See also Automobile industry and trade—China; China wood oil; Electric industries—China; Iron industry and trade—China; Iron works—China; Machine tool industry—China; Mines and mineral resources—China; Paper industry and trade—China; Shipbuilding—China; Silver mines and mining—China; Textile industry—China; Tungsten

Railroads

- See* Railroads—China

China clay. See Kaolin

China wood oil

China wood oil tests. Oil Paint & Drug Rep 99:38 sec 1 Ap 18 '21

Production of wood oil now one of China's best industries. Oil Paint & Drug Rep 99:47 sec 1 F 21 '21

Chinese

Problems fundamental to mining enterprise in the Far East. H. F. Bain. *il Min & Met* 171:28-37 Mr '21

Chinese bankers' association

Activities of Chinese bankers' association. *Comm & Fin Chr* 112:2476 Je 11 '21

Chinese in the United States

See also Chinese students in the United States

Chinese language

Alphabet

New alphabet and a typewriter for Chinese. E. McCormick. *il Sci Am* 122:576 My 22 '20

Chinese students in the United States

Attitude of the Department of labor toward admission of Chinese industrial students. E. Stewart. *Monthly Labor R* 11:1311-17 D '20

Chionophila

Chionophila Benth. T. Holm. *il Am J Sci* 5th ser 1:31-8 Ja '21

Chip separators

Pneumatic chip separator. *il Mach* 27:296 N '20

Chiropractic

Oklahoma chiropractors win in advertising bout. *Ptr Ink* 113:141-2 N 25 '20

Chisels

Lack of standardization of pneumatic hammer chisel shanks. A. J. Schwartz. *diags Am Mach* 54:423-4 Mr 10 '21

Manufacture

Forging and tempering cold chisels. J. F. Springer. *Gas Age* 48:181-2 Ag 20 '21

How to make a good chisel. *diags Ry Mech Eng* 94:798 D '20; Same. *Eng & Ind Management* 5:296 Mr 10 '21

Chitin

Producing flies with horns. R. Merle. *il Sci Am M* 2:18-19 Jl '20

Chloral

Derivatives of gallic acid; gallic acid (and the cresotic acids) and chloral. R. L. Alimchandani and A. N. Meldrum. *Chem Soc J* 119:201-9 F '21

Preparation of dichloro-acetic acid from chloral. G. W. Pucher. *Am Chem Soc J* 42:2251-9 N '20

Chloral hydrate

Action of hydrazine on chloral hydrate; abstract. G. Knöpfer. *Chem Soc J* 120 pt 1:158-60 Mr '21

Chlorates

Theory of electrochemical chlorate and perchlorate formation. N. V. S. Knibbs and H. Palfreeman. *Chem Soc J* 120 pt 2:396-8 Je '21

Chloretone benzoic acid ester. See Trichloromethyl propanol

Chloride of lime. See Calcium chloride

Chlorides

Contrasting effects of chlorides and sulfates on the hydrogen ion concentration of acid solutions. A. W. Thomas and M. E. Baldwin. *Am Chem Soc J* 41:1981-90 D '19

Determination of chlorides in petroleum. R. R. Matthews. *J Ind & Eng Chem* 13:325-6 Ap '21

Determination of hydrochloric acid and neutral chlorides in leather. A. W. Thomas and A. Frieden. *J Ind & Eng Chem* 12:1186-8 D '20

Électrolyse des chlorures alcalins. R. Moritz. *Chimie & Ind* 5:636-41 Je '21

See also Chromic chloride; Copper chloride; Lead chlorides; Salt

Chloridizing processes

Chloridizing and leaching as practiced in Sweden. N. Ostman. *il diags Eng & Min J* 111:417-22 Mr 5 '21; Discussion. 111:578, 1057 Ap 2, Je 25 '21

Chloridizing processes. H. R. Layng. *charts Min & Sci P* 120:77-83 Ja 17 '20; Discussion. 120:259, 520 F 21, Ap 10 '20

Chloridizing roasting of copper ore. V. Carlsson. *Eng & Min J* 111:456 Mr 12 '21

Development of the chloride volatilization process by the U.S. Bureau of mines; abstracts. T. Varley and C. C. Stevenson. *il Eng & Min J* 111:991-3 Je 11 '21; *Min & Sci P* 123:159-62 Jl 30 '21

Recovery of silver from manganese-silver ores. J. A. Carpenter. *il Eng & Min J* 110:898-902 N 6 '20; Discussion. H. R. Layng. 111:1056-7 Je 25 '21

Roasting and chloridizing of Bolivian silver-tin ores. M. G. F. Söhnlein. *Min & Sci P* 121:384-6, 688 S 11, N 13 '20; Abstract. *Min & Met* 164:21-2 Ag '20

Treatment of zinc-silver ore. A. Del Mar. *Min & Sci P* 123:255-6 Ag 20 '21

Volatilization of metals. *Min & Sci P* 123:145-6 Jl 30 '21; Discussion. 123:284 Ag 27 '21

Volatilization process at the Pope-Shenon mine. R. H. Bradford. *flow sheet il Min & Sci P* 123:263-6 Ag 20 '21

Chlorination process. See Water purification—Chlorination

Chlorine

Active or available chlorine. J. R. MacMillan. *Chem & Met Eng* 23:1064 D 1 '20

Apparatus for the rapid determination of the available chlorine in bleach liquor. M. Schrero. *diag J Ind & Eng Chem* 13:559-60 Je '21; Same abr. *Paper* 28:13-14 Jl 27 '21

Chlorine and influenza. C. Baskerville. *J Ind & Eng Chem* 12:293-4 Mr '20

Chlorine overvoltages. E. Newbery. *Chem Soc J* 119:477-86 Ap '21

Cumulative effect of the chlorine atom and the methyl and sulphonyl chloride groups on substitution in the benzene nucleus. W. Davies. *Chem Soc J* 119:853-87 Je '21

Determination of chlorine with the nephelometer. A. B. Lamb, P. W. Carleton and W. B. Meldrum. *Am Chem Soc J* 42:251-9 F '20

Determination of the equilibrium between chlorine, water, hydrochloric acid and chloric acid; the free energy of the chlorate ion. A. R. Olson. *diag Am Chem Soc J* 42:896-904 My '20

Economy of chlorine as a disinfectant for tannery effluent. W. S. Wainright. *diags Stevens Ind* 38:1-7 Ja '21

Equilibrium between chlorine and plumbous and plumbic chlorides in aqueous solution. E. W. Wescott. *diag Am Chem Soc J* 42:1335-49 Jl '20

La fabrication de la cellulose à l'aide du chlore. U. Pomilio. *il diag plan Chimie & Ind* 6:267-75 S '21

Halogenation; the replacement of sulfonic groups by chlorine and the preparation of organic chloro-derivatives. R. L. Datta and H. K. Mitter. *Am Chem Soc J* 41:2028-38 D '19

Ionization potential of hydrochloric acid and the electron affinity of chlorine. P. D. Foote and F. L. Mohler. *Am Chem Soc J* 42:1832-9 S '20

Making chlorine gas at the point of consumption. C. W. Marsh. *Eng N* 87:648-9 O 20 '21

Marsh electrolytic cells for chlorine, caustic soda and hydrogen. C. W. Marsh. *diag Am Electrochem Soc Trans v* 39 (preprint 25):297-306 Ap '21

Need of co-operative educational work in the chemical industry. J. G. Cohen. *Chem & Met Eng* 22:509-12 Mr 17 '20

Photochemical reaction between hydrogen and chlorine and its variation with the intensity of the light. E. C. C. Baly and W. F. Barker. *Chem Soc J* 119:653-64 My '21

Reaction between chlorine and ammonia. W. A. Noyes and A. B. Haw. *diags Am Chem Soc J* 42:2167-79 N '20

Chlorine—Continued

Rise and development of the electrolytic alkali and chlorine industry in Europe. J. B. C. Kershaw. *il diags Chem & Met Eng* 24:77-82, 119-22, 167-70 Ja 12-26 '21

Some aspects of the behavior of charcoal with respect to chlorine. G. S. Bohart and E. Q. Adams. *diags Am Chem Soc J* 42:523-44 Mr '20

Studies in the corrosive action of chlorine-treated water; the effects of steel on the equilibrium: $\text{Cl}_2 + \text{H}_2\text{O} \rightleftharpoons \text{HCl} + \text{HClO}$, and of products of the equilibrium on steel. G. L. Clark and R. B. Iseley. *J Ind & Eng Chem* 12:1116-22 N '20

Technical discussions of paper subjects; Hol-yoke section of T.A.P.P.I. *Paper* 26:11-16 Mr 17 '20

See also Halogens; Water purification—Chlorination

Chlorine, Liquid

Bleaching with liquified chlorine. *il Color Tr J* 9:137-8 O '21

Chlorine liquefaction; patent. *Chem & Met Eng* 22:1128 Je 16 '20

Handling liquid chlorine. D. K. Bartlett. *Chem Age* 29:397-8 O '21; Same. *Paper* 29:18-19 O 26 '21; Same. *Pub Works* 51:321-2 O 22 '21; Same. *Eng & Contr* 56:442 N 9 '21; Same *abr. Eng N* 87:691 O 27 '21

Liquid chlorine for bleaching. L. N. Goebel. *il Paper* 27:17-19 Mr 16 '21

Chlorine heptoxide

Notiz über die darstellung von chlorheptoxyd. F. Meyer and H. G. Kessler. *Deutsche Chem Gesell Ber* 54:566-71 Mr '21

Chloroacetanilides

Solubility and volatility of the chloro- and nitro-anilines and of their acetyl derivatives. N. V. Sidgwick and H. E. Rubie. *Chem Soc J* 119:1013-24 Jl '21

Chloroanilines

Solubility and volatility of the chloro- and nitro-anilines and of their acetyl derivatives. N. V. Sidgwick and H. E. Rubie. *Chem Soc J* 119:1013-24 Jl '21

Chlorobenzaldehyde

Über die einwirkung von o-chlor-benzaldehyd auf schwach basische amine, insbesondere solche der naphthalin-reihe. F. Mayer and A. Bansa. *Deutsche Chem Gesell Ber* 54:16-24 Ja '21

Chlorobenzoates

Influence of nitro-groups on the reactivity of substituents in the benzene nucleus; the condensation of ethyl 3- and 5-nitro-2-chlorobenzoates with hydrazines. J. Kenner and E. Witham. *Chem Soc J* 119:1053-8 Jl '21

Chlorodinitrotoluenes

Ortho-chlorodinitrotoluenes. G. T. Morgan and L. A. Jones. *Chem Soc J* 119:187-92 F '21

—ortho-chlorodinitrotoluenes; bases derived from 2-chloro-4:5-dinitrotoluene. G. T. Morgan and W. A. P. Challenor. *Chem Soc J* 119:1537-46 O '21

Chloroform

Chloroform from coke-oven gas. *Am Gas Eng J* 112:324 Ap 24 '20

Chlorohydrocarbons

Elimination of hydrogen chloride from chlorohydrocarbons. W. F. Faragher and F. H. Garner. *Am Chem Soc J* 43:1715-24 Jl '21

Chloro-iodo-ethylene

Positive halogen in organic compounds; iodine in di-iodoacetylene and chloro-iodo-ethylene. L. B. Howell and W. A. Noyes. *Am Chem Soc J* 42:991-1010 My '20

Chlorophenacyl bromide

Identification of acids; para halogen phenacyl esters. W. L. Judefind and E. E. Reid. *Am Chem Soc J* 42:1043-55 My '20

Chlorophyll

Green peas and spinach as a tonic—chlorophyll as a blood maker and energy producer. E. Bürgi. *Sci Am M* 2:122 O '20

Use of organic dyestuffs in the manufacture of lakes; chlorophyll, turmeric, cutch and fustic. B. DePuyster. *Color Tr J* 5:175-8 D '19

Chloropicrin

Control experiments in chloropicrin manufacture; active chlorine in the sludge from the manufacture of chloropicrin. H. L. Trumbull, S. G. Seaton and H. Durham. *J Ind & Eng Chem* 12:1068-9 N '20

Control experiments in chloropicrin manufacture; the effect of varying quantities of lime upon the yield of chloropicrin. H. L. Trumbull and others. *J Ind & Eng Chem* 12:1068 N '20

Preparation of chloropicrin from picric acid and trinitrotoluenes. K. J. P. Orton and P. V. McKie. *Chem Soc J* 119:29-33 Ja '21

Velocity of adsorption of chloropicrin and carbon tetrachloride by charcoal. H. S. Harned. *diags Am Chem Soc J* 42:372-91 Mr '20

Chlorosulfonic acid

Sulphonation of toluene with chlorosulphonic acid. L. Harding. *Chem Soc J* 119:1261-6 Ag '21

Chlorotetracetyl fructose

Crystalline chlorotetracetyl fructose and related derivatives. D. H. Brauns. *Am Chem Soc J* 42:1846-54 S '20

Chlorotoluene. *See* Benzyl chloride

Chlorotoluenesulfonyl chloride

Cumulative effect of the chlorine atom and the methyl and sulphonyl chloride groups on substitution in the benzene nucleus. W. Davies. *Chem Soc J* 119:853-75 Je '21

Chlorotrinitromethane

Darstellung von chlor- und brom-trinitromethan. E. Schmidt, R. Schumacher and H. Kuhlmann. *Deutsche Chem Gesell Ber* 54:1483-4 Jl '21

Halogen derivatives of nitroform. A. K. Macbeth and D. D. Pratt. *Chem Soc J* 119:354-8 Mr '21

Chlorovinylchloroarsine

Chlorovinylchloroarsines. S. J. Green and T. S. Price. *Chem Soc J* 119:448-53 Ap '21

Chocolate

Cocoa and chocolate; their chemistry and manufacture. R. Whympers. 2d ed., rev. and enl. 568p J. & A. Churchill, London '21

Electrical service aids a leading western food industry. *il J Elec* 47:146-7 Ag 15 '21

Where chocolate comes from; how the cacao bean is grown and made into cocoa powder and chocolate. W. A. Murrill. *il Sci Am* 122:626 Je 5 '20

Choir stalls

Choir stalls in Church of St Pietro, Perugia, Italy; views. *Am Arch* 120:236-9 S 28 '21

Choke coils

Ground choke coils as a protection against ground current and overvoltages. R. Bauch. *Elec W* 78:281 Ag 6 '21

Space saved and troubles reduced by design of choke coil. C. C. Robinson. *il Elec W* 77:1052 My 7 '21

Strain-type 12,000-volt choke coil built on the job. A. U. Avera. *diags Elec W* 77:261 Ja 29 '21

Use of choke coils in radio. A. Machson. *diags Wireless Age* 8:30+ Mr '21

Cholesterol

Contact decomposition of cholesterol; the theory of petroleum formation; abstract. W. Steinkopf and others. *Chem Soc J* 120 pt 1:24 Ja '21

Über das verschiedenartige verhalten einiger stereoisomerer cholesterin-derivate. A. Windaus and A. v. Staden. *Deutsche Chem Gesell Ber* 54:1059-66 My '21

Choline

Aminoacylcholine esters; glycylcholine. H. W. Dudley. *Chem Soc J* 119:1256-60 Ag '21

Christmas printing

Examples of holiday greetings. *Ptg Art* 36:221-8 N '20

Examples of holiday printing. *Inland Ptr* 66:200a-f N '20

Christmas printing—Continued

Holiday greetings. *il* Inland Ptr 64:585-7 F '20

Some of the 1920 greeting cards. *Ptg Art* 36:132a O '20

Chrobaltic alloy

Chrobaltic cast milling cutters. E: K. Hammond. *il* Mach 26:354-8 D '19

Chromanes

Syntheses of chromanes and coumaranes. R. E. Rindfus, P. M. Ginnings and V. L. Harnack. *Am Chem Soc J* 42:157-65 Ja '20

Chrome. See Chromite

Chrome brick**Analysis**

Tentative method for ultimate chemical analysis of chrome ores and chrome brick. *Am Soc T M Pro v* 20 pt 1:647-51 '20

Chrome liquor. See Tanning

Chrome nickel steel. See Chromium nickel steel

Chromel**Advertising**

Protecting expiration of patent rights by advertising. C: S. Kinnison. *Ptr Ink* 114: 81-2+ F 3 '21

Chromic acid

Continuous process for electrolytic regeneration of chromic acid. R. H. McKee and S. T. Leo. *diags J Ind & Eng Chem* 12:16-26 Ja '20

Chromic chlorides

Hydrolysis of dichloro and hexa-aquo chromic chlorides. A. B. Lamb and G. R. Fonda. *Am Chem Soc J* 43:1154-78 My '21

Chromite

Chrome in 1919. S. H. Dolbear. *Eng & Min J* 109:171-2 Ja 17 '20

Chrome mining in Canada in 1919. R. Harvie. *Eng & Min J* 109:172 Ja 17 '20

Chrome mining in Quebec. K. Thomas. *Iron Age* 105:1251 Ap 29 '20

Chrome-ore deposits in North Carolina. J. V. Lewis. *il* map *Eng & Min J* 109:1112-14 My 15 '20

Chrome ores in Pennsylvania, Maryland and North Carolina. E. B. Knopf and J. V. Lewis. *maps plan U S Geol S Bul* 725—B: 85-139 '21

Chromite. *Min & Sci P* 123:512 O 8 '21

Chromite deposits of Bahia, Brazil. H. E. Williams. *il* maps *Eng & Min J* 111:376-8 F 26 '21

Chromite in 1918. J. S. Diller and others. *maps U S Geol S Min Res U S* 1918, pt 1:657-725 '20

Chromite in 1919. J. S. Diller. *U S Geol S Min Res of U S* 1919, pt 1:87-91 '21

Chromite production in 1919. *Min & Sci P* 120: 718 My 15 '20

Deposits of chromite in California, Oregon, Washington, and Montana. J. S. Diller, L. G. Westgate and J. T. Pardee. *diags maps U S Geol S Bul* 725—A:1-84, pl 1-5 '21

Domestic production of chrome ore. W. P. Lass. *Eng & Min J* 108:780-1 N 8 '19

Future of chromite in the United States. S: H. Dolbear. *Min & Sci P* 120:645-6 My 1 '20

Mining chrome ore in Turkey. R. W. Lane. *il* *Eng & Min J* 111:749-50 Ap 30 '21

Occurrence and use. *Min & Sci P* 121:740 N 20 '20

Our mineral supplies; chromite. J. S. Diller. *U S Geol S Bul* 666:13-17 '19

Output of chromite in 1920. *Iron Age* 107:1680 Je 23 '21; Same. *Eng & Min J* 112:290 Ag 20 '21

Preliminary report of the chromite of Kenai peninsula. A. C. Gill. *maps U S Geol S Bul* 712:99-120 '20

Separating metallics from Pacific Coast sands. H: E. Wood. *Eng & Min J* 109:398-9 F 7 '20

Analysis

Rapid iodometric method for determination of chromium in chromite. E. Little and J. Costa. *J Ind & Eng Chem* 13:228-30 Mr '21

Chromium

Chromium ore. W. G. Rumbold. 58p J. Murray, London '21

Determination of chromium in ferrochromium by electrometric titration. G. L. Kelley and J. A. Wiley. *J Ind & Eng Chem* 13:1053-4 N '21

Determination of sulphur and chromium in steel. L: A. Goldenberg. *Chem & Met Eng* 21:628 N 12 '19

Determination of vanadium and chromium in ferrovanadium by electrometric titration. G. L. Kelley and others. *J Ind & Eng Chem* 13:939-41 O '21

Electrolytic chromium. G: J. Sargent. *Am Electrochem Soc Trans v* 37 (preprint 18): 275-92 Ap '20

Qualitative separation and detection of uranium, vanadium and chromium when present together. P. E. Browning. *Am Chem Soc J* 43:114-15 Ja '21

Rapid iodometric method for determination of chromium in chromite. E. Little and J. Costa. *J Ind & Eng Chem* 13:228-30 Mr '21

See also Stellite

Chromium alloys

Alloy for high temperature castings. *Ry Mech Eng* 95:654 O '21

See also Chromium nickel steel; Chromium steel; Nichrome

Chromium nickel steel

Einiges aus der werkstätte des edelstahlwerkers; schmiedeversuche mit chromnickel-konstruktionsstahl. E. Kothny. *diags Stahl & Eisen* 41:213-23 F 17 '21

German stainless steels. C. A. Heise. *Iron Age* 107:1312 My 19 '21

Die hochlegierten chromnickelstähle als nichtrostende stähle. *il* *Stahl & Eisen* 41: 830-3 Je 16 '21

Krupps produce a non-corroding steel. *Am Mach* 54:760 Ap 28 '21

Solid chrome nickel steel special trackwork. *il* *diags Elec Ry J* 55:799-801 Ap 17 '20

Ueber die vergütung von nickel-und chromnickelstahl. K. Dornhecker. *diag Stahl & Eisen* 41:481-2 Ap 7 '21

Chromium steel

Abstracts of papers at Iron and steel institute. *Engineer* 129:547-9 My 28 '20; *Iron Age* 105:1665-7 Je 10 '20; *Iron Tr R* 66:1692-3 Je 10 '20

Constitution of chromium:tungsten steels. *il* *Chem & Met Eng* 24:791-3 My 4 '21

Einfluss der wärmebehandlung auf den elektrischen widerstand. C. A. Edwards and A. L. Norbury. *Stahl & Eisen* 41:89-92 Ja 20 '21

Heat-treatment of a high-chromium steel. H. J. French and Y. Yamauchi. *il* *Soc Auto Eng J* 7:103-9 Jl '20; Same, without tables. *Chem & Met Eng* 23:13-16 Jl 7 '20

High-chromium steel; Iron and steel division Standards committee report. *Soc Auto Eng J* 6:58-60 Ja '20

Manufacture and use of steel for castings. H. E. Diller. *Foundry* 48:219 Mr 15 '20

Microstructure of chromium steels. *il* *Chem & Met Eng* 24:703-6 Ap 20 '21

Ein neues aetzmittel für chrom- und wolframstähle. K. Daeves. *il* *Stahl & Eisen* 41:1262-4 S 8 '21

Properties. *Min & Sci P* 121:740 N 20 '20

Properties of iron-chromium-carbon steels. C. A. Edwards, H: Sutton and G. Oishi. *il* *diags Engineering* 109:692-4; Discussion. 676-8 My 21 '20

Recent work on chromium:tungsten steel—methods of magnetic analysis. *diags Chem & Met Eng* 24:573-5 Mr 30 '21

Stainless steel for turbines. *il* *Electrician* 87:540-1 O 28 '21; *Elec R (Lond)* 89:560-2 O 28 '21; *Engineer* 132:447-50 O 28 '21; *Engineering* 112:592-4 O 28 '21

Stainless steel, its composition and properties. E. Haynes. *Iron Age* 107:1467-8 Je 2 '21; Same. *Iron Tr R* 68:1516+ Je 2 '21; Same. *Blast F & Steel Pl* 9:348-9 Je '21; Discussion. *Iron Age* 107:1468-9 Je 2 '21; *Iron Tr R* 68:1661, 1730-1 Je 16-23 '21

Chromium steel—Continued

Stainless steel; non-corrodible properties of steel alloyed with chromium. J. H. G. Money Penny. Sci Am M 3:425-6 My '21; Excerpts. Min & Sci P 122:463-4 Ap 2 '21
 Stellite and stainless steel. E. Haynes. Eng Soc W Pa 35:467-74 Ja '20; Same abr. Am Mach 53:171-2 Jl 22 '20; Excerpts. Iron Age 105:1723-4 Je 17 '20; Mach 27:357 D '20; Discussion. Eng Soc W Pa 35:475-82 Ja '20
 Uses of stainless steel. Engineer 131:598-9 Je 3 '21; Excerpt. Am Mach 55:40c Jl 7 '21; Discussion. Engineer 131:663-4 Je 24 '21
 Welding heat-treated chrome alloy steel. J. Churchward. il diag Iron Age 106:641+ S 9 '20

See also Chrobaltic alloy

Bibliography

Bibliography and abstracts of chromium steels. F. P. Zimmerli. Chem & Met Eng 25:837-43 N 2 '21

Chromo-isomerism. See Isomerism

Chromones

Über die chromone und flavone. S. Ruhemann. Deutsche Chem Gesell Ber 54:912-24 My '21; Abstract. Chem Soc J 120 pt 1: 430-1 Je '21

Chromophores

Dreiwertiger kohlenstoff als chromophor bei der halochromie der alloxantine und verwandter stoffe. A. Hantzsch. Deutsche Chem Gesell Ber 54:1267-79 Je '21; Abstract. Chem Soc J 120 pt 1:619-20 Ag '21

Chronograph

Measurement of projectile velocities. P. E. Klopsteg and A. L. Loomis. il plan Am Inst E E J 39:98-104 F '20
 Rosenhain plotting chronograph. il Elec R (Lond) 88:72 Ja 21 '21

Chronometers

From star to chronometer via radio; the function and the manner of transmission of the modern time signal. C. H. Claudy. il Sci Am 125:186+ S 10 '21

Chucking machines

Alfred Herbert no. 5 automatic chucking lathe. il diags Ry Mech Eng 94:734-6 N '20
 Jackson vertical automatic chucking machine. il Mach 27:395-6 D '20
 Jackson vertical automatic chucking machine. il Iron Age 108:1069 O 27 '21; Am Mach 55:739 N 3 '21; Mach 28:254 N '21
 Potter & Johnston automatic chucking and turning machine. il Ry Mech Eng 94:401-2 Je '20
 Potter & Johnston vertical automatic chucking and turning machine. il Ry Mech Eng 94:426-7 Je '20

Chucks

Air chuck attachment for threading studs. J: J. Borkenhagen. diags Mach 26:1171 Ag '20
 Barker wrenchless chuck. il Mach 27:196-7 O '20
 Chuck for holding hose nuts. J. M. Cairns. il Ry Mech Eng 95:181 Mr '21
 Chuck for internal grinding. diags Mach 26: 932 Je '20
 Chucks for holding threaded work. E. A. Dixie. il diags Am Mach 51:1110-11 D 25 '19
 Cone-pulley chuck. J. V. Romig. diags Pop Mech 35:936 Je '21
 Crescent vacuum chucks and pumps. il Am Mach 52:1106-7 My 20 '20
 Driving box chuck as applied to 54-in. boring mill. E. A. Miller. diags Ry Mech Eng 95: 250-1 Ap '21
 Garrison duplex gear chuck. il Mach 26:674-5 Mr '20
 Garrison spiral gear chuck. il Mach 27:432 Ja '21
 Grinder chuck for holding clutch gear shaft. W: Owen. diag Mach 27:975 Je '21
 Holding work on the vacuum chuck. il Mach 27:1085 Jl '21
 Internal grinding chucks. F. W: Stein. diags Mach 27:10 S '20

Jacobs toothed key type chuck. diag Ry Mech Eng 95:324 My '21

Johnson duplex universal gear chuck. il Am Mach 52:475-6 F 26 '20

Logan air chucks for J. & L. double-spindle turret lathes. il Am Mach 52:807 Ap 8 '20; Iron Age 105:961 Ap 1 '20; Ry Mech Eng 94:403-4 Je '20

Machine for cutting off and counterboring tubing. J: A. H. Phillips. diags Mach 26: 1153 Ag '20

Ney draw-in collect chuck. il Mach 26:1184-5 Ag '20; Iron Age 106:332 Ag 5 '20; Automotive Ind 43:675 S 30 '20

Patent machine-tool chuck has cushioning properties. il Pop Mech 36:731 N '21

Special expanding chuck. R. Gustafson. diag Am Mach 52:1297 Je 17 '20

Tool engineering. A. A. Dowd and F. W. Curtis. diags Am Mach 55:588-91, 629-32, 716-19, 765-7, 843-6 O 13-20, N 3-10, 24 '21

Use of special fixtures in grinding operations. E. Sheldon. il Am Mach 54:545-8 Mr 31 '21

Manufacture

Application of interchangeability to drill chuck manufacture. F. R. Daniels. il diags Mach 27:509-15, 674-9 F-Mr '21

Chucks, Magnetic

Applying magnetic chucks to best advantage. I. A. Hunt. il diags Am Mach 53:267-9 Ag 5 '20; Discussion. C. A. Macready. 53:706 O 14 '20

Home-made magnetic chuck. A. V. O'Brien. diag Am Mach 55:610 O 13 '21

Magnetic chucks aid production. I. A. Hunt. il diags Iron Tr R 67:1817-20 D 30 '20

Magnetic chucks; their origin, development and construction. E. Sheldon. diags Am Mach 54:121-4, 177-80, 213-17, 265-9, 324-8, 412-15, 497-502, 602-5, 650-2, 787-9, 819-23, 871-5, 945-8; 55:383-6 Ja 27-F 24, Mr 10, 24, Ap 7-14, My 5-19, Je 2, S 8 '21

Chuquicamata mine development. See Smith, E. A. C.

Church advertising

Church advertisement that interested business men. Ptr Ink 114:41 Mr 31 '21

Church advertising idea gaining. G. L. Caswell. Inland Ptr 67:801 S '21

Famous slogans the text of minister's sermons. Ptr Ink 110:12 Ja 15 '20

Interchurch world movement to advertise nationally. Ptr Ink 110:45-6 Ja 22 '20

Bibliography

Church advertising campaigns; list of articles which have appeared in Printers' Ink. Ptr Ink 113:161+ N 25 '20

Church architecture

American academy in Rome; professor Muñoz's lectures. Review by G. H. Edgell. il Am Inst Arch J 8:151-3 Ap '20

Bulfinch church, Lancaster, Mass. C: A. Place. il diags plan Arch Forum 34:front, 192-8 Je '21

Bureau of architecture of the Methodist Episcopal church. J: T. Boyd, jr. Arch Rec 49:95-6 Ja '21

Chapel at Nahant, Mass. Am Arch 118:216a-c Ag 18 '20

Church of the Blessed Sacrament, New York city; views. Arch & Bldg 52:pl 15-16 F '20

English parish church. A. C. Phelps. il Am Arch 117:425-8 Ap 7 '20

Modernizing church design. Am Arch 117:431-2 Ap 7 '20

Roman Catholic chapel, Colorado Springs, Colo.; views. Am Arch 117:pl 646e-g My 26 '20

St Gregory's Roman Catholic church, Sterling place and Brooklyn avenue, Brooklyn, N.Y.; views. Arch & Bldg 53:pl 27-8 F '21

St Mary's Episcopal church, Good Ground, L.I. L. V. Solon. il plan Arch Rec 49:225-31 Mr '21

St Paul's chapel, New York. il Am Arch 118: 144-144a Ag 4 '20

Some romanesque churches of Sardinia. A. R. Giles. il Am Inst Arch J 8:357-65 O '20

Church architecture—Continued

Two recent New York churches; church of St Bartholomew and St Vincent Ferrer. Arch Forum 32:107-10, pl 33-42 Mr '20

See also Cathedrals; Chapels; Choir stalls; Pavements, Mosaic; Sunday school rooms; *also* Bahai temple, Chicago; Westminster Abbey

Designs and plans

Chapin Memorial Presbyterian church, Niles, Mich. il diag Arch Forum 31:203-4, pl 85-8 D '19

Christ Lutheran church, Fort Wayne, Ind., and Ascension Episcopal church, Lakewood, Ohio; views and plans. Arch Rec 47:84-6 Ja '20

Church at Flushing, L. I., N.Y. il diags plans Bldg Age 42:48-51 F '20

Church for the moderate-size congregation, Presbyterian church, Lansdowne, Pa. il diags plans Bldg Age 41:408-14 D '19

Church of Our Lady of Lourdes, St Louis, Mo. Arch Forum 33:pl 29-30 Ag '20; Same. Am Arch 118:706a-e D 1 '20

Church of the Redeemer, Milwaukee, Wis.; views and plan. Arch Forum 33:pl 72 N '20

Churches. 33p E. A. Payne, Carthage, Ill. '21

Concrete church; example of Porto Rican building. il plan Bldg Age 43:29 N '21

Lake Avenue Baptist church, Rochester, N.Y. I. T. Frary. il plans Arch Rec 46:429-39 N '19

Planning church buildings. H: E: Tralle. 160p Judson press, Philadelphia '21

Planning church buildings to meet new needs. F. G. Dillard. il plans Am Arch 116: 517-28 O 22 '19

Roman Catholic church of St Clare, Great Kills, Staten Island, New York. il plan Am Arch 119:40-1+ Ja 12 '21

St Philip's church, Brunswick county, N.C. N. C. Curtis. diags plan Arch Rec 47:181-7 F '20

Some lesser English churches. R. R. Phillips. il plans Arch Forum 33:115-20 O '20

Church decoration and ornament

Ecclesiastical metal work of Ireland. W. H. McGinty. il Am Arch 118:437-9 O 6 '20

See also Choir stalls; Ciborium

Church furniture

See also Choir stalls; Reredos

Advertising

Big sales to churches come from memorial appeal. C. M. Harrison. Ptr Ink 116:89-90+ S 1 '21

Church lighting

Artificial lighting of churches. J: Darch. il diags plan Illum Engr 13:142-57; Discussion. 157-63 My '20

Church lighting a neglected opportunity. J. E. Bullard. il Am Gas Eng J 112:21-3 Ja 10 '20

Interesting church lighting installation. il Illum Engr 13:277 O '20

Short history of church lighting. J: Darch. il diags Illum Engr 13:201-9 Jl '20

Churches

See also Church architecture; *also* names of cities, subdivision Churches, e.g. London—Churches, New York (city)—Churches

Heating and ventilation

Church heating plant altered. il Metal Work 93:184-5 F 6 '20

Criticism wanted on steam heating system in church. diags Dom Eng 93:113-14 O 16 '20

Furnaces after twenty-five years service; details of a church installation. il plan Sheet Metal Worker 12:663-4+ O 28 '21

Heating and ventilating a combined church, parish house and rectory. C: L. Hubbard. diags plan Dom Eng 91:98-100, 144-7+ Ap 17-24 '20

Heating system for a modern cathedral. C: L. Hubbard. il diags plans Heat & Ven 17:27-33 Ap; 35-8 My '20

Steam heating system for a church. C: L. Hubbard. il diags plan Dom Eng 96:418-21 S 3 '21

France

Reconstruction of northern France; the fate of the village churches. R. Fanning. il Am Arch 118:540-2 O 27 '20

Churn drilling. *See* Drilling and boring (earth and rocks)

Chutes

Advances in the preparation of anthracite. D. C. Ashmead. il diags plan Coal Age 20:599-600 O 13 '21

Breaker-chute linings that last. D. C. Ashmead. il diags Coal Age 17:754-5 Ap 15 '20

Building chutes in pitching seams. G. F. Libiez. diag plan Coal Age 19:911 My 19 '21

Cable erection and tower details for chuting plant. diags Eng N 85:42 Jl 1 '20

Chutes to the basement. P: F. O'Shea. Factory 27:396+ S '21

Galvanized vs. blue sheet iron chute linings. D. C. Ashmead. Coal Age 17:348 F 19 '20

Loading chute for heavy material. J: S. Watts. diags plan Eng & Min J 109:554 F 28 '20

Methods of supporting concrete chute. J. H. Williams. diags Eng & Contr 55:430 Ap 27 '21

Pattern for a flat box spiral chute. diags plan Sheet Metal Worker 11:453-4 Ja 7 '21

Patterns for spiral chute around cylinder. diags plan Metal Work 94:27-9+, 249 Jl 9, Ag 20; (cont. in) Sheet Metal Worker 11: 375-6 N 26 '20

Repairing ore dock chutes by oxyacetylene welding. Eng & Contr 54:481 N 17 '20

Standard chutes for metal mines. G: A. Mitke. diags Eng & Min J 108:770-3 N 8 '19

Suggestions for designing chutes. diags Brick & Clay Rec 58:997-8 Je 14 '21

Ciborium

Ciborium in baptistry, Volterra, Italy. il diags Am Arch 120:191-4, 195 S 14 '21

Cider

Learning things about cider. Sci Am 125:63 Jl 23 '21

Cigar industry

Wages and hours of labor in the cigar and the men's clothing industries. Monthly Labor R 10:671-84 Mr '20

See also United cigar stores

Cigar makers' union

When labor goes too far. R. Dickinson. Ptr Ink 111:3-4+ My 20 '20

Cigarette paper

Characteristics of cigarette papers. L: Schweitzer. Paper 27:14+ Mr 16 '21

Bibliography

Special papers; cigarette paper: a reading list. C. J. West. Paper Trade Journal 72: 44 Je 16 '21

Cigarettes**Advertising**

New way of applying the testimonial. Ptr Ink 116:129-30+ Ag 18 '21

Cigars**Advertising**

Advertising to overcome a handicap imposed by revenue laws. Ptr Ink 115:80+ My 12 '21

United goes one better in its new Ricoro campaign. M. Hussobee. Ptr Ink 112:65-6+ Ag 26 '20

Cinchona alkaloids

Syntheses in the cinchona series; aminoazo and hydroxyazo dyes derived from certain 5-amino cinchona alkaloids and their quinoline analogs. W. A. Jacobs and M. Heidelberger. Am Chem Soc J 42:2278-86 N '20

Syntheses in the cinchona series; azo dyes derived from hydrocupreine and hydrocupreidine. M. Heidelberger and W. A. Jacobs. Am Chem Soc J 41:2131-47 D '19

Syntheses in the cinchona series; dihydro-desoxy-quinine and dihydro-desoxy-quinidine and their derivatives. M. Heidelberger and W. A. Jacobs. Am Chem Soc J 42: 1489-1502 Jl '20

Syntheses in the cinchona series; nitro- and amino-derivatives of the dihydro alkaloids. W. A. Jacobs and M. Heidelberger. Am Chem Soc J 42:1481-9 Jl '20

Syntheses in the cinchona series: quaternary salts. W. A. Jacobs and M. Heidelberger. Am Chem Soc J 41:2090-2120 D '19

Cinchona alkaloids—Continued

Synthetic investigations in the quinine series: quinine-like compounds. L. Ruzicka. Chem Soc J 120 pt 1:584-5 Ag '21

Über china-alkaloide; stereoisomere verbindungen des hydro-cupreans. G. Giemsa and J. Halberkann. Deutsche Chem Gesell Ber 54:1189-1204 Je '21; Abstract. Chem Soc J 120 pt 1:533-4 Ag '21

Über china-alkaloide: umwandlungen der diazoniumverbindungen des amino-5-cupreins und des amino-5-hydrocupreins und deren methyl- und äthyläther. G. Giemsa and J. Halberkann. Deutsche Chem Gesell Ber 54:1167-89 Je '21; Abstract. Chem Soc J 120 pt 1:581-3 Ag '21

Cincinnati, Ohio**Rapid transit**

Cincinnati builds belt-line rapid-transit railway. F. L. Raschig. il diags map Eng N 87:264-7 Ag 18 '21

Cincinnati director reports. chart Elec Ry J 56:454-6 S 4 '20

Franchise modifications suggested in Cincinnati. Elec Ry J 58:67 Jl 9 '21

Subway abandonment recommended by committee of Cincinnati chamber of commerce. Elec Ry J 58:794 O 29 '21

Cincinnati oil club

Cincinnati jobbers form club; John Edwards is named head. Nat Pet N 13:20 Ap 27 '21

Cincinnati. University

Practical application of education to industry; methods in use at the University of Cincinnati. N. G. Shidle. Automotive Ind 42:1413-16+ Je 17 '20

Recent developments at the University of Cincinnati. Eng N 87:277-9 Ag 18 '21

Cinder concrete block. See Concrete blocks

Cinder pits. See Ash pits

Cinders

Building with cinders. Sci Am 122:393+ Ap 10 '20

Cinder trouble eliminated. R. K. Long. Power Pl Eng 25:1016-17 O 15 '21

Handling cinders at enginehouses. Ry R 67:739 N 13 '20

Novel cinder disposal plant. il diag Ry Age 71:687-8 O 8 '21

L'utilisation des mâchefers de combustibles très cendreaux pour la fabrication de briques. diag plan Génie Civil 76:539 Je 12 '20

Cinematograph. See Moving picture photography

Cinnamic acid

Über beziehungen zwischen konfiguration und physikalischen eigenschaften der ester halogenierter zimtsäuren. K. v. Auwers and E. Schmellenkamp. Deutsche Chem Gesell Ber 54:624-32 Ap '21

Cinnamylidene-acetophenone

Addition reactions of phosphorus halides; the reaction with dibenzal-acetone and cinnamylidene-acetophenone. J. B. Conant, A. H. Bump and H. S. Holt. Am Chem Soc J 43:1677-84 Jl '21

Cipher and telegraph codes

Foreign code. 367p National city bank of New York '21

Hartfield's Atlantic future code. 230p John W. Hartfield, 112 Pearl st., New York '21

Motor trade telegram code. W: M. Saunders. 558p Van Nostrand '21

Wire capacity increased by modern brevity methods. Ry Age 68:786-7 Mr 12 '20

Ciphers

Ciphers of Porta and Vigenère. O. Holstein. il Sci Am M 4:332-4 O '21

Circles

Computation of diameters and circumferences of circles. E. T. Meehan. Mach 26:656 Mr '20

Obtaining the radius of three equal inscribed circles. diags Am Mach 53:593 S 23 '20

Standard methods for dimensioning diameters. diags Foundry 49:818a O 15 '21

Standard methods for dimensioning radii. diags Foundry 49:818a O 15 '21

To draw a circle tangent to three given circles. C. N. Pickworth. diags Mach 26:459-60 Ja '20

See also Arcs

Circuit breakers. See Electric circuit breakers

Circuits, Aerial. See Wireless circuits

Circulation of the blood. See Blood—Circulation

Cisterns

Float cut-off to cistern. diag Metal Work 93:206-7 F 13 '20

Cities service company

Annual report to stockholders for year ended December 31, 1920. Comm & Fin Chr 112:1768-70 Ap 23 '21; Excerpts. Gas Age 47:380-1 My 10 '21

10th annual meeting, April 6, 1920. Comm & Fin Chr 110:1427-8 Ap 3 '20

Citizenship, Education for

Citizenship training. Ind Management 61:137 F 1 '21

Industrial Americanization. L. D. Burlingame il Mach 28:30-2 S '21

Citric acid

Manufacture of citric acid from lemons. C. P. Wilson. flow sheet J Ind & Eng Chem 13:554-8 Je '21

Citrus fruit

California's citrus fruit industry. R. G. Skerrett. il Sci Am M 2:212-16 N '20

California's \$81,000,000 citrus industry. G. H. Powell. il Am Ind 21:15-17 D '20

See also Oranges

By-products

Citrus fruits once wasted become rich by-products. Pop Mech 33:68 Ja '20

Putting rejected oranges to work; how California fruit growers are utilizing their citrus by-products. A. L. Dahl. il Sci Am 124:250+ Mr 26 '21

City gates. See Gateways

City halls. See Municipal buildings

City managers. See Municipal government—City manager plan

City paving conference

City paving conference held Oct. 20-21 in Philadelphia. Eng N 87:704-5 O 27 '21

City planning

Canadian city planning conference. J: I. Bright. Am Inst Arch J 7:537-8 D '19

Charm of natural planning. Am Arch 117:253-4 F 25 '20

City building and transportation. J. R. Bibbins. diags maps plans W Soc E J 25:411-59 Ag 20 '20; Abstract. Elec Ry J 55:1061-2 My 22 '20; Discussion. W Soc E J 25:459-69 Ag 20 '20

City planning and city building. T: Adams. Am Inst Arch J 9:195-7 Je '21

City planning and land tenure. Am Inst Arch J 9:313-15 O '21

City planning and subdivision plans. E. P. Goodrich. Eng N 86:510 Mr 24 '21

City planning movement. J: Nolen. Am Arch 116:627-8 N 19 '19

City planning reports and graphic representation of statistics. G: B. Ford. Eng & Contr 54:20-1 Jl 7 '20; Same. Can Eng 39:240-2 Ag 12 '20

City planning situation. W. C. McNown. Eng & Contr 56:402 O 26 '21

City practical; the Decatur plan. M. H. West. 171p Association of commerce, Decatur, Ill. '20

Community planning. M. Knowles. Can Eng 40:128-9 Ja 13 '21

Contrast in city planning. A. G. Dalzell. plans Can Eng 40:383-4 Ap 14 '21; Excerpts. Eng N 86:1025 Je 16 '21

Distribution and wiring as applied to town planning. G. C. Burnand. Electrician 86:428-9 Ap 8 '21

Early town planning in New England. O. H. Howe. il Am Arch 118:464-9 O 13 '20

Economics of town planning. N. Cauchon. il Can Eng 40:251-2 F 24 '21

Effect of size of residence lot on cost of street improvements and utilities. M. Knowles. Eng & Contr 52:529-30 N 5 '19; Excerpts. Eng N 83:955 N 27 '19

Engineer's place in town planning. T: Adams. Can Eng 40:363-4 Ap 7 '21

Garden apartments in cities. J: T. Boyd, jr. il diags plans Arch Rec 48:53-74, 121-35 Jl-Ag '20

City planning—Continued

- Gathering place in town plans. J: T. Boyd, jr. Arch Rec 47:286+ Mr '20
- Greater Paris competition. N. Hammarstrand. il Am Inst Arch J 8:331-5, 339-40, 365-70 S-O '20
- Housing and community planning; the plan for Coconut Grove, Florida. il maps plans Am Inst Arch J 9:110-27 Ap '21
- Housing and town planning. J. White. Can Eng 38:347 Ap 1 '20
- Housing and town planning: a survey. H. L. Seymour. Can Eng 38:499-501, 530-1 My 27-Je 3 '20
- How Halifax was rebuilt. J. L. Crane, jr. il Munic Eng 61:102+ S '21
- Importance of site planning in industrial housing. M. R. Scharff. Eng & Contr 55:417-18 Ap 27 '21
- Industrial decentralization as a cause for regional planning. T: Adams. Eng N 85:31-2 Jl 1 '20
- Industry, homes and architecture. T: Adams. Am Inst Arch J 8:173-7 My '20
- Land platting in Akron, Ohio. Pub Works 49:253-4 S 18 '20
- Land question as related to city planning and housing. G: H. Gray. diags plan Am Inst Arch J 9:330-7 O '21
- Law relating to the arrangement, beautification and extension of French cities. J: I. Bright. Am Inst Arch J 8:90 F '20
- Linear city in theory and practice. Eng N 87:367 S 1 '21
- Lot and block units for moderate priced houses. A. C. Comey. Eng & Contr 52:535-6 N 5 '19; Same. Munic Eng 58:30, 32 Ja '20
- New plans for Paris. J. Gréber. il plans Arch Rec 49:71-8 Ja '21
- Place of electricity in town planning. C. B. Purdom. Electrician 86:407 Ap 8 '21
- Le plan d'aménagement de Casablanca (Maroc). E. Joyant. il plans Génie Civil 79:161-7 Ag 20 '21
- Plan for Constantinople. F. W. Kelsey. il plan Am Inst Arch J 8:399-402 N '20
- Plan of Chicago. R. H. Moulton. il diag maps plans Arch Rec 46:457-70 N '19
- Plan of Paris. N. Hammarstrand. il Am Inst Arch J 8:67-86 F '20
- Platting city areas for small homes. H: Wright. plans Am Inst Arch J 8:supl-16 Ag '20
- Principles of city planning. N. Cauchon. Eng & Contr 52:653-4 D 3 '19
- Principles of city planning stated in a report for Joliet, Illinois. E: H. Bennett and W: E. Parsons. Eng & Contr 56:108-13 Ag 3 '21
- Principles of correlation of railroad terminals with the city plan. C: H. Cheney and J. P. Newell. Ry Age 68:1286-7 Ap 30 '20
- Programme for the greater Paris competition. N. Hammarstrand. il Am Inst Arch J 8:27-36 Ja '20
- Progress in city planning in the United States. J. L. Crane, jr. Eng N 87:526-8 S 29 '21
- Public opinion and city planning progress. J: Nolen. Am Arch 117:275-7 Mr 3 '20
- Regional planning in the Pittsburgh district. M. Knowles and M. R. Scharff. il chart maps Eng Soc W Pa 36:683-726; Discussion. 727-33 Ja '21
- Regional surveys in relation to municipal planning. Eng N 87:201-2 Ag 4 '21
- Relation of railroad terminal problem to city planning. W: J. Wilgus. diags Eng N 84:901-2 My 6 '20; Same. Ry Age 68:1285-6 Ap 30 '20; Same. Eng & Contr 53:563-4 My 19 '20
- Relation of surveyors to town planning. T. D. LeMay. Can Eng 40:282 Mr 10 '21
- Reserving productive areas within and around cities. T: Adams. diags Am Inst Arch J 9:316-19 O '21
- Roosevelt and the fine arts. G. Brown. il Am Arch 116:711-19 D 10 '19
- St Paul city planning projects form broad scheme. maps Eng N 87:735-9 N 3 '21
- Shall we community plan? H: Wright. diags plans Am Inst Arch J 9:320-4 O '21
- Spanish linear city. E. E. Wood. il Am Inst Arch J 9:169-74 My '21
- Suggestions on town planning. H: E. Stilgoe. Eng & Contr 55:636 Je 29 '21

- Suitable areas for regional plans. T: Adams. Eng N 84:950 My 13 '20
- Sunlight engineering; its relation to housing and town planning. H. L. Seymour. Sci Am M 2:106-8 O '20
- Town planning and civic development. N. D. Wilson. Can Eng 40:319-22+ Mr 24 '21
- Town planning and development in Saskatchewan. W. A. Begg. il Can Eng 40:219-22 F 17 '21
- Town planning in Saskatchewan. A. Buckley. Can Eng 39:490-1 N 4 '20
- Town planning possibilities in Ontario under present legislation. T. D. LeMay. Can Eng 40:255-6, 274 F 24-Mr 3 '21
- Transportation and the city plan. N. P. Lewis. Can Eng 39:509-11 N 11 '20; Same abr. Eng & Contr 54:547-8 D 1 '20
- 12th national city planning conference. Eng N 84:904 My 6 '20
- Types of city plans. J: Nolen. diag plans Am Arch 117:213-15 F 18 '20
- Urban congestion—a study of its causes and suggestions for its eradication. J: I. Bright. Am Arch 119:581-3 My 25 '21
- L'urbanisme en Allemagne. G: Mesnard. Génie Civil 79:63-5 Jl 16 '21
- What Ohio cities are doing in city planning. F. H. Eno. Eng & Contr 53:380 Ap 7 '20
- Where goes the city-planning movement? F: L. Ackerman. Am Inst Arch J 7:518-19; 8:108-10, 284-7, 351-4 D '19, Mr, Ag, O '20; Excerpt. Eng & Contr 53:489-91 Ap 28 '20
- Zoning dominates topics discussed at the 13th National conference on city planning, Pittsburgh, May 9-11. Eng N 86:872 My 19 '21
- See also Building laws and regulations; Housing problem; Model towns; Municipal centers; Nation planning; Streets

Bibliography

- City planning literature. Pub Works 48:573-4 Je 26 '20
- Ready references for shelf of a city planning commission. T. Kimball. 3 mim p Harvard School of Landscape Architecture, Cambridge. Je 1 '20
- Recent books and reports on housing and town-planning. F. W. Jenkins. Housing Betterment 9:60-71, 172-81 F, My '20
- Some recent references on rural planning and development. T. Kimball. American City 24:584-6 Je '21

Zone system

- Board of appeals in zoning. E: M. Bassett. Pub Works 51:110-11 Ag 6 '21
- Building zones for Newark. maps Munic J 47:290-2, 310-12 N 15-22 '19
- Changes in New York's building zones. E: M. Bassett. Pub Works 50:92 Ja 29 '21
- City zoning. W Soc E J 25:sup 20-7 S 5 '20
- City zoning. R. H. Whitten. W Soc E J 25:49-54 Ja 20 '20
- City zoning in Chicago. C. H. Hammond and others. W Soc E J 25:93-112 F 5 '20
- City zoning plan for Milwaukee. Eng N 85:450 S 2 '20
- Effect of zoning upon living conditions. H. S. Swan. Arch Forum 35:89-92 S '21
- How zoning helps real estate and business. H. S. Swan. Am Arch 117:216, 219-22 F 18 '20
- Importance of zoning a municipality. L: Bartlett. Munic Eng 58:163-4 Ap '20
- Making the New York zoning ordinance better. H. S. Swan. diags maps Arch Forum 35:125-30 O '21
- Minnesota cities to do zoning under police power. Eng & Contr 55:408 Ap 27 '21
- Model industrial town layout at Marysville Mich. plan Eng N 85:613-14 S 23 '20
- New building zone ordinance of Portland, Oregon. C: H. Cheney. Munic Eng 58:198-201 My '20; Same abr. Am Arch 117:659-61 My 26 '20
- New city zoning ordinance of Alameda, California. C: E. Hewes. Eng N 84:46-7 Ja 1 '20
- New York zoning resolution and its influence upon design. J: T. Boyd, jr. il plans Arch Rec 48:192-217 S '20
- Niagara Falls zoning ordinance. Eng N 84:527 Mr 11 '20
- Portion of East Cleveland zoning ordinance upheld. Eng N 84:1019-20 My 20 '20

City planning—Zone system—Continued

- Portland building zone ordinance. Pub Works 48:543-4 Je 19 '20
- Preliminary to city-planning—zoning. F: L. Ackerman. Am Inst Arch J 8:15-18 Ja '20
- Provisions of Washington, D.C., zoning plan. Eng & Contr 54:451-2 N 3 '20
- Relation of zoning to city planning. T: Adams. Can Eng 40:127-8, 142-3, 167-8 Ja 13-27 '21
- Relation of zoning to the work of the city engineer. E: S. Rankin. Can Eng 39:579-80 D 2 '20; Same. Eng & Contr 54:530 D 1 '20; Same. Munic Eng 60:126+ Mr '21; Excerpts. Eng N 85:884 N 4 '20
- Report on a tentative zoning plan for Lakewood, Ohio. R. H. Whitten. map Eng N 85:789-91 O 21 '20
- Residential and industrial zoning. H. S. Swan. Eng N 84:374 F 19 '20
- Simplifying zoning. G: B. Ford and E. P. Goodrich. map Pub Works 50:35-7 Ja 8 '21
- Some factors affecting zoning and living conditions. G: B. Ford. Eng N 87:577 O 6 '21
- Toronto branch, E.I.C., discussed zoning. Can Eng 39:557-8 N 25 '20
- What is zoning? R. H. Whitten. Eng & Contr 53:483 Ap 28 '20
- Zoning and architectural practice. Am Arch 116:686 D 3 '19
- Zoning, and its relation to town planning. H. L. Seymour. Can Eng 40:438-9 My 5 '21
- Zoning and the architecture of high buildings. I. K. Pond. il Arch Forum 35:131-4 O '21
- Zoning in Philadelphia. J: Ihlder. Am Inst Arch J 8:134-5 Mr '20
- Zoning of Portland, Ore. Eng N 84:899 My 6 '20
- Zoning ordinance for Omaha. Munic J 48:53 Ja 31 '20
- Zoning regulations in New York. T: Hastings. Am Arch 118:461-3 O 13 '20

Civil engineering

Civil engineering; what the man with the transit and level has done during the past seventy-five years. il Sci Am 123:326+ O 2 '20

See also Aqueducts; Arches; Blasting; Breakwaters; Bridges; Building; Canals; Cofferdams; Curves; Dams; Docks; Drainage; Dredging; Drilling and boring (earth and rocks); Dry docks; Earthwork; Embankments; Excavation; Filling; Flood control; Foundations; Highway engineering; Hydraulic engineering; Irrigation; Landslides; Lighthouses; Marine engineering; Masonry; Mechanical engineering; Mining engineering; Municipal engineering; Piers; Piles and pile driving; Public works; Railroad engineering; Railroads—Construction; Reclamation of land; Rivers—Regulation; Roads; Sanitary engineering; Steel construction; Strains and stresses; Streets; Strength of materials; Subways; Surveying; Tunnels and tunneling; Water supply engineering; Wharves

Bibliography

- A S C E papers and discussions available in pamphlet form issued since 1912. Am Soc C E Pro 47[Soc. aff.]:304-26 Mr '21
- Selected list of books on civil engineering. Am Soc C E Pro 47[Soc. aff.]:387-94 Ap '21
- Selected list of books on civil engineering. E. H. Frick and E. L. Shearer. Special Lib 12:27-30 F '21

Specifications

- Elements of specification writing. R: S. Kirby. 2d ed., rev. 153p Wiley '21

Civil engineers

- Class specifications for civil engineers in government service. Eng & Contr 53:17-18 Ja 7 '20

See also Highway engineers

Civil service**United States**

- For justice in the public service. Nation's Business 9:50-1 Ag '21
- Our biggest personnel problem; what the reclassification commission has found out. Nation's Business 9:55+ My '21
- See also* Government employees—Salaries

Civil service pensions

- Pensions for public service employees in Uruguay. Monthly Labor R 11:347-9 Ag '20
- Retirement of civil-service employees. Monthly Labor R 10:1490-2 Je '20

Claims

See Railroads—Claims; United States—Claims; Wage claims; *also* American steamship owners mutual protection and indemnity association, inc.

Clamps

- Clamping device with automatically locked spring plunger support. F. W. Shaw. diag Am Mach 53:430 Ag 26 '20
- Clamps for installing 2,000-ft. cables in shaft mines. F. C. Stanford. il diags Elec W 75:1319-20 Je 5 '20
- Pneumatic clamp for triple valves. T. H. Birch. diags Ry Mech Eng 94:462 Jl '20
- Pneumatically operated clamps for drilling machines. J. V. Hunter. il Am Mach 54:180-1 F 3 '21
- Quick-acting clamp. R. V. Terry. diags Mach 27:41 S '20
- Quick-operating clamp. H. M. Johnson. diags Am Mach 53:595 S 23 '20
- Rim clamp bolts; S.A.E. Standards report. diags Soc Auto Eng J 8:189-90 F '21
- Steel clamping dogs. G: W. Childs. diags Foundry 48:359 My 1 '20
- Unreliable grounding clamps. F. A. Cambridge. Elec W 78:420 Ag 27 '21

Clarifiers

- Centrifugal clarification for contents of dipping or spraying tanks. il diag Metal Ind 19:171-2 Ap '21

See also Filters and filtration

Clark, Edgar Erastus, 1856-

- Elected chairman of Interstate commerce commission. por Ry Age 68:773 Mr 12 '20
- Railroads' real rulers; Edgar E. Clark, chairman of the Interstate commerce commission. J. B. Morrow. Nation's Business 9:25-7 Mr '21

Clark, Le Roy, 1872-

- Portrait. Elec W 78:352 Ag 20 '21

Clark cells. *See* Electric batteries—Failures

- Clark equipment company, Buchanan, Michigan**
Stimulating cooperation between employer and employee. il Mach 26:544-50 F '20

Classical education

- Education by myth and verbal subtleties. Chem & Met Eng 23:811-12 O 27 '20; Same. Eng & Contr 54:507 N 24 '20

Classification

- Classification: class Q (science). 3d ed. 207p U.S. Library of Congress '21

- Classification system of library of American electric railway ass'n. J. R. Kelley. Eng & Contr 55:595 Je 15 '21

- Landscape architecture: a comprehensive classification scheme for books, plans, photographs, notes and other collected material; with combined alphabetic topic index and list of subject headings. H: V. Hubbard and T. Kimball. 132p '20 Harvard university press, Cambridge

- Mnemonic system of classification. H. K. Hathaway. il diags Ind Management 60:173-83 S '20

See also Files and filing (documents)

Classification, Dewey decimal

- Application of Dewey system for numbering county bridges. H. F. Harris. Eng & Contr 53:216-17 F 25 '20; Same. Good Roads n s 19:81-2 F 11 '20

- Classification, filing and indexing system for pulp and paper library. C. E. Curran. Paper 28:9-11+ Jl 13 '21

- Extension of the Dewey decimal classification applied to radio. 36p '20 (Typew.) U.S. Bureau of standards, Radio laboratory, Washington, D.C.

- Classified advertisements. *See* Advertisements, Classified

Classifiers

- Boylan classifier used in the Joplin-Miami district. P. R. Coldren. diag Eng & Min J 112:79 Jl 9 '21

Classifiers—Continued

- Classifier efficiency. R. T. Hancock. Eng & Min J 110:622-3 S 25 '20
 Dorr bowl-classifier. H. Hanson. il Min & Sci P 120:905-6 Je 19 '20
 Launder classifier. W. R. Canton. diags plan Eng & Min J 111:911 My 28 '21
 Upward current ore classifiers; patent. diag Chem & Met Eng 24:938 My 25 '21

Clay

- American clays prove their value. Foundry 48:370 My 1 '20
 Ceramic processes associated with colloid phenomena. A. V. Bleining. J Ind & Eng Chem 12:436-8 My '20
 Classification of clays on a ceramic basis. A. S. Watts. Am Cer Soc J 3:247-51 Mr '20
 Clay needles for the talking machine. A. P. Child. il Sci Am 123:275 S 18 '20
 Clay plant construction and operation. A. F. Greaves-Walker. 212p Brick and clay record, Chicago '19
 Clays and shales of Virginia west of the Blue Ridge. H. Ries and R. E. Somers. 118p (Virginia Geological survey. Bul. no. 20) University of Virginia. Charlottesville '20
 Coagulation of clay suspensions and silicic acid. O. M. Smith. il Am Chem Soc J 42:460-72 Mr '20
 Commercial application of electrical osmosis. J. S. Highfield, W. R. Ormandy and D. Northall-Laurie. Engineer 129:549 My 28 '20
 Commercial applications of electrical osmosis. Eng & Ind Management 6:212-14 Ag 25 '21
 Effect of aluminum chloride upon clays. H. P. Reinecker and J. S. George. Am Cer Soc J 3:994-6 D '20
 Effect of time on the drying shrinkage of clays. R. F. Geller. Am Cer Soc J 4:282-7 Ap '21
 Electrical purification of clays. Sci Am S 88:312 N 22 '19
 New American clay for loading paper. Sci Am 124:271 Ap 2 '21
 Physical properties of clay in relation to pile driving; abstracts. A. S. E. Ackermann. Eng & Contr 55:331-2 Mr 30 '21; Engineer 131:551 My 20 '21
 Properties of clay. A. L. Bell. Engineering 111:718 Je 10 '21
 Properties of some stoneware clays. H. G. Schurecht. il diags U S Bur Mines Tech Pa 233:1-38 '20
 Resistance of soft clay to penetration by pyramids and piles. A. S. E. Ackermann. Eng N 83:946 N 27 '19
 Storing and handling of raw clays. T. W. Garve. diags plans Am Cer Soc J 3:266-85 Ap '20
 Strip overburden and dig clay with drag-line. il Brick & Clay Rec 58:395-6 Mr 8 '21
 Ultramicroscopic examination of some clays. J. Alexander. Am Cer Soc J 3:pt 1, 612-25 Ag '20
 Use of colloidal clay in scouring. F. E. Weston. Color Tr J 6:183 Je '20
 Water smoking of clays. R. F. Geller. Am Cer Soc J 4:375-89 My '21
 "Why" of ageing clay. H. Spurrier. Am Cer Soc J 4:113-18 F '21; Abstract. Sci Am M 3:373-4 Ap '21
See also Bricks; Fire clay; Fuller's earth; Kaolin; Porcelain; Pottery

Bibliography

- Clay in the paper industry. C. J. West. comp. Paper Trade Journal 72:52+ Je 2 '21

Testing

- Direct reading overflow volumeter. H. G. Schurecht. il diags Am Cer Soc J 3:730-4 S '20
 How to test clay for foundry use. H. F. Staley. Foundry 48:101-2 F 1 '20
 Testing of clays for concrete aggregate. D. H. Fuller. Am Cer Soc J 3:256-8 Mr '20
See also United States—Mines, Bureau of—Ceramic station

Clay industries

- Ceramic industries pocket book. A. B. Searle. 267p Pitman '20

- Clay products industry rowing not drifting. M. B. Greenough. Brick & Clay Rec 59:498-500 O 4 '21
 Everlasting clay products. 74p W. S. Dickey clay mfg. co., Kansas City, Mo. '21
 Industry needs to apply available information. M. W. Blair. il Brick & Clay Rec 58:386-9 Mr 8 '21
 It's 1 to 9 that you will fail. chart Brick & Clay Rec 59:564-6 O 18 '21
 Post-war status of the ceramic industries. A. V. Bleining. Chem & Met Eng 23:629-30 S 29 '20
 Production wastes in the ceramic industry. R. H. Minton. Chem & Met Eng 25:440-1 Ag 31 '21
See also Brick industry and trade; Bricks; Fire brick; Glazes; Hollow tile; Porcelain; Pottery; *also* Franklin brick & tile company

Bibliography

- Selected bibliography of books, in the English language, dealing with ceramic chemistry and the ceramic industries. J Ind & Eng Chem 13:476-8 My '21

Tables, calculations, etc.

- Table of porcelain shrinkage equivalents. L. M. Case. Am Mach 52:352-3 F 12 '20

California

- Clay industry in California. E. S. Boalich and others. 102p California State mining bureau, Sacramento '20
 Developing a mountain of clay. il Brick & Clay Rec 59:122-4 Jl 26 '21

Great Britain

- British china-clay industry. Chem & Met Eng 23:147 Jl 28 '20

Nova Scotia

- Possibilities of ceramic industries in Nova Scotia. J. Keele. Can Chem & Met 5:20-1 Ja '21

Ohio

- Glimpses of Ohio ceramic industries. C. H. Jones. il Chem & Met Eng 25:562-6 S 21 '21

Sweden

- Ceramics as a byproduct of coal mining in Sweden. J. W. Beckman. Chem & Met Eng 25:882 N 9 '21

United States

- Clay-working industries, silica brick, and building operations in the larger cities in 1918. J. Middleton. U S Geol S Min Res of U S 1918, pt 2:857-944 '20
 1920 clay products value reaches highest mark. Brick & Clay Rec 59:341-4 S 6 '21
 Output of clay mines shows big gains in 1920. Brick & Clay Rec 59:350-1 S 6 '21
Clay products
 Clay products in 1920. Eng N 87:343 Ag 25 '21
 Clay products research work launched. Munic Eng 61:6 Jl '21
 How to reduce fuel and time in burning; with cost tables. J. H. Kruson. diag Brick & Clay Rec 59:661-3 N 1 '21
 National bodies begin joint clay-products research. Eng N 87:87 Jl 14 '21
 Standardization of burning. J. H. Kruson. Brick & Clay Rec 59:106-10 Jl 26 '21
 Trade names now in use on face brick and other clay products. See bi-weekly numbers of Brick and clay record
See also Bricks; Porcelain; Pottery; Tile; *also* Franklin brick & tile company

Clay products association

- Sells the idea of sewers by telling people of their need. Ptr Ink 112:113-14+ Jl 22 '20

Clay storage

- Clay storage within the factory. T. W. Garve. diags plans Am Cer Soc J 3:947-60 D '20

Clay working machinery

- Clay machinery presents problems. il Foundry 49:791-6 O 15 '21

Clayton act

- Hearings on substitute for section 10 of Clayton act. Ry Age 70:191-3 Ja 14 '21

Clayton and Shuttleworth, Ltd., Lincoln

Works of Messrs. Clayton and Shuttleworth, Ltd. il diags plans Engineering 109:741-7, 778-81, pl 40-3, pl 44-7 Je 4-11 '20

Cleaning

New rag cleanser. diags Paper 25:26 F 18 '20
Procedure chart for the removal of stains from wash goods. Sci Am M 4:52 JI '21

Removal of glue stains. Chem & Met Eng 25:241 Ag 10 '21; Same. Elec Ry J 58:243 Ag 13 '21; Same. Paper 28:16 Ag 17 '21; Same cond. Sci Am 125:136 Ag 20 '21

Removing stains from textiles. Textile World 58:3210 N 6 '20

To what extent does cleaning influence production and quality? H. F. Penney. Brass W 17:305-6 O '21

Treatment of stains; methods of stain removal adapted to various textiles. H. V. Elledge and A. L. Wakefield. Sci Am M 4:53-5 JI '21

See also Automobiles—Cleaning; Barns and stables—Cleaning; Bleaching; Boiler cleaning; Building stone—Cleaning; Car cleaning; Coal cleaning; Dyes and dyeing; Factories—Cleanliness; Felts (paper making)—Cleaning; Gas lamps—Cleaning; Gloves—Cleaning; Laundry; Metal cleaning; Sewer cleaning; Ships—Cleaning; Street cleaning; Vacuum cleaners; Vacuum cleaning; Water pipes—Cleaning

Cleaning of cities

New York's anti-litter bureau summarizes year's record. Am Arch 117:822 Je 30 '20

See also Street cleaning

Cleanliness

Cleanliness a business asset. Dom Eng 97:201 O 29 '21

Personal cleanliness an important factor in winning the world war. il plan Dom Eng 96:336-8+ Ag 20 '21

See also Baths

Clearance

Function of clearance. F. W. Shaw. Am Mach 52:1090 My 20 '20

Clearance volume. *See* Airplane engines—Clearance volume

Clearing houses

Clearing house examinations and abolition of clearing house bank returns. G: A. Kelsey. Comm & Fin Chr 113:180-3 sec 2 O 29 '21

Clearing house examiner system. C: H. Meyer. Comm & Fin Chr 113:179-80 sec 2 O 29 '21

Clearing house returns. Published in weekly numbers of Commercial and financial chronicle

Cleveland chamber of commerce opposed to movement to suspend publication of bank clearings. Comm & Fin Chr 113:1725-6 O 22 '21

New York clearing house yearly figures. Comm & Fin Chr 113:1830 sec 1 O 29 '21

Shall we abolish the publication of bank clearings? R. F. McNally. Comm & Fin Chr 113:174-5 sec 2 O 29 '21

Symposium of articles read before the 14th annual convention of the American bankers' association. Comm & Fin Chr 111:157-64 sec 2 N 20 '20

See also Banks and banking; Trust companies

Clearing of land

Effect of soil moisture on efficiency of explosives in stump blasting. Eng & Contr 53:582 My 19 '20

Engineering aspects of stump removal from land; machines and explosives are available, but the former need improvement—millions of acres await clearing. J: Swenhardt. Eng N 84:130 Ja 15 '20

Hand-power stump puller operated by one man. il Pop Mech 35:551 Ap '21

Machine that clears away land. W: Melas. il Sci Am 125:77 JI 30 '21

Method of blasting a standing tree. L. H. Sholts. il Eng & Contr 53:579 My 19 '20

Rapid stump-burner. H. C. Ridgeley. il Sci Am 122:118 Ja 31 '20

Stumps pulled and piled by gin poles. J. L. Crane, jr. il Eng N 85:1153-4 D 9 '20; Discussion. H. M. Burwell. 86:133 Ja 20 '21
T.N.T. used in pulling earth's molars. G: H. Dacy. il Pop Mech 35:405-7 Mr '21

Tree moving new enterprise of western city. J: E. Hogg. il Pop Mech 34:722-3 N '20

Use of explosives in clearing and preparing right of way for a highway. il Eng & Contr 55:539-40 Je 1 '21

Use of poison in maintenance work on drainage canals. O. C. Kulicka. Eng N 87:322-3 Ag 25 '21

Wisconsin county breaks land-clearing record. il map Pop Mech 35:695-6 My '21

See also Lumbering

Clemens, Samuel Langhorne, 1835-1920

Mark Twain, printer. H: L: Bullen. il pors Inland Ptr 67:783-4 S '21

Clerget divisor. *See* Sugar—Analysis

Cleveland, Ohio

Architecture

Euclid Golf, Cleveland, Ohio. H. D. Smith. il plans Arch Forum 34:165-72 My '21

Railroads

New passenger terminal for Cleveland planned. Ry Age 70:498 Mr 4 '21

Rapid transit

Cleveland railway arbitration findings. Elec Ry J 55:71-2 Ja 3 '20

Cleveland's Tayler grant—after ten years of trial. E: Hungerford. il map Elec Ry J 55:1292-6 Je 26 '20

New rapid transit line in Cleveland. il maps Elec Ry J 56:204-8 JI 31 '20

Rapid transit for Cleveland. H: M. Brinckerhoff. il map Elec Ry J 55:856-8 Ap 24 '20; Same. Eng N 84:803-5 Ap 22 '20

Reduced fare in Cleveland. map Elec Ry J 58:130-1 JI 23 '21

Service-at-cost accounting in Cleveland. H. J. Davies. Elec Ry J 56:765-9 O 16 '20

Service at cost and efficient management. F. Saunders. Elec Ry J 56:1142-3 D 4 '20

Sewerage

Cleveland sewage treatment plan. il Pub Works 51:177-80 S 3 '21

Cleveland's submerged sewage outfalls. G: B. Gascoigne. diags Pub Works 50:188-91 F 26 '21

Design of Cleveland's sewage-treatment works. G: B. Gascoigne. diags plans map Eng N 85:344-9 Ag 19 '20

Streets

Plan for widening and arcading parts of Euclid avenue. diags Eng N 86:715 Ap 28 '21

Thoroughfare plan and program for Cleveland. R. H. Whitten. diags plans Eng N 86:382-6 Mr 3 '21

Water supply

Development of Cleveland water system and the division station. J. N. H. Christman. il Power 53:1031 Je 21 '21

Planning the future of the Cleveland water supply. A. V. Ruggles. diag Eng N 85:886-9 N 4 '20

Cleveland better business bureau

Why truth in advertising should interest bankers. Ptr Ink 114:93-4 Mr 3 '21

Cleveland, Cincinnati, Chicago & St Louis railway

Annual report for 1920 of the Cleveland, Cincinnati, Chicago & St Louis; editorial. Ry Age 71:603-4 O 1 '21

Chicago-Indianapolis improvement Big Four railroad. diags Eng N 85:606-7 S 23 '20

31st annual report for the year ended December 31, 1919. Ry Age 69:386, 424-5 S 3 '20; Same abr. Comm & Fin Chr 111:801-3 Ag 21 '20

32d annual report for year ended Dec. 31 1920. Comm & Fin Chr 113:1370-1 S 24 '21; Same abr. Ry Age 71:648-9 O 1 '21

Cleveland-Cliffs iron company

Iron ore company has great expansion. map
Iron Tr R 68:1722-3 Je 23 '21

Cleveland crane and engineering company

Building morale in an industrial center. A. J.
Hain. il Iron Tr R 66:1394-8 My 13 '20

Cleveland worsted mills company

Healthful and profitable place to work. il
Textile World 59:3525+ My 28 '21

Cliff dwellings

Ancient remains in Colorado; the Mesa Verde
national park, landmark of a lost race. J.
W. Fewkes. il Sci Am 122:598+ My 29 '20
Camera's eye discovers ancient ruins. F: Kin-
ney. il Pop Mech 33:502-3 Ap '20
Excavating cliff dwellings in Mesa Verde. il
Sci Am M 3:9-13 Ja '21
Miles of cliff dwellings found in Colorado
canyon. Am Arch 118:782 D 15 '20
Why the cliff dwellers vanished. F: L. Hoff-
man. Sci Am 123:630+ D 25 '20

Climate

Bioclimatics. A. D. Andrews. Sci Am M 4:
273-4 S '21
Evolution of climate in northwest Europe. C.
E. P. Brooks. Sci Am M 4:255 S '21
Factors of climatic control. W. J. Humphreys.
J Fr Inst 188:775-810; 189:63-98 D '19-Ja '20
See also Paleoclimatology

Clinker breakers

Operation of the clinker breaker. D. E.
Dunn. il diags Gas Age 48:240-1 Ag 27 '21

Clinton, New Jersey**Bridges**

Sixty-year-old iron bridge in a New Jersey
village. R. Fleming. il diags plan Eng N
85:925-7 N 11 '20

Clocks

Cleaning one of the world's largest clocks. A.
A. Hopkins. il Sci Am 122:35+ Ja 10 '20
Clock adjustments now made by wireless
impulses. il Pop Mech 35:837 Je '21
Clocks, historically and architecturally con-
sidered. il Am Arch 117:445-50, 499-505 Ap
7, 21 '20
Keeping in step; comparing speed of syn-
chronous generator with exact time by
small motor installed in clock. R. Howard.
il Sci Am 123:473 N 6 '20
Unique astronomical clock has shining sun.
il Pop Mech 34:843 D '20
Why does your clock keep time? diags Sci
Am 122:127 F 7 '20
Wonderful clocks of olden times. il Sci Am
122:94+ Ja 24 '20
See also Time recording devices; Watches

Escapements

Detached escapement for clocks. C. M.
Lewis. Sci Am 125:115 Ag 13 '21
Horloge mécanique à échappement libre. C:
Féry. diag Génie Civil 78:139 F 5 '21

Clocks, Electric

Distribution de l'heure à bord du paquebot
Paris par horloges électriques, système
Brillié. il Génie Civil 79:194-5 Ag 27 '21

Cloisters

Cloisters of the Certosa Di Val D'emo, at
Galluzzo, near Florence, Italy. il diags Am
Arch 120:48d-f Jl 20 '21

Closed shops. See Open and closed shop**Closets**

Good closets make small houses more liv-
able. il Bldg Age 43:38-40 Ag '21
House pockets. B. B. Troster. Am Lumber-
man 2348:55-6 My 15 '20

Cloth. See Textile fabrics**Cloth cutting. See Garment cutting****Cloth-cutting machine**

Electric cloth-cutting machines. il Elec R
(Lond) 88:440 Ap 8 '21

Clothes hangers**Advertising**

Advertising finds ready market for household
accessory. Ptr Ink 112:118+ Ag 5 '20

Clothes lines

Clothesline operated from the window. F. E.
Leitch. diags Pop Mech 33:763 My '20

Clothes pins

Close utilization in lumber manufacture. W. C.
Hull. Am Lumberman 2345:62-3 Ap 24 '20

Clothing

Clothing; choice, care, cost. M. S. Woolman.
289p Lippincott '20
Clothing trades industry. B. W. Poole.
(Common commodities and industries ser-
ies) 100p Pitman '20
Dress design; an account of costume for ar-
tists and dressmakers. T. Hughes. 361p Pit-
man '20
Shall we wear paper clothes? il Sci Am 123:
475 N 6 '20
See also Garment cutting; Gloves; Ho-
siery; Paper textiles; Textile fabrics;
Underwear

Cost

Facts about the present cost of clothing. Tex-
tile World 58:1823+ S 18 '20
When the consumer starts to advertise. Ptr
Ink 111:89-90+ Ap 22 '20

Clothing trade

Advertising to remove the stigma of profl-
igate; labor conditions in the clothing indus-
try. G. A. Nichols. Ptr Ink 110:49-50+ Mr
11 '20
British adventure in cheap clothing. H. N.
Casson. Ptr Ink 112:129-30 Jl 8 '20
Builders of business. H. E. Martin. System
40:418+ O '21
Costs, merchandising practices, advertising
and sales in the retail distribution of
clothing. Northwestern university, School
of commerce, Chicago. Prentice-Hall, inc.,
New York '21
Dress manufacturers start style registry bu-
reau. M. Hastings, jr. Ptr Ink 117:81-2 O 13
'21
How to reduce style waste in the clothing
industry. J. J. Rosenthal. Ind Manage-
ment 62:138+ S '21
Men's wear market, 1920, witnesses com-
plete reversal. Textile World 59:1011-12 F
5 '21
New agreement affecting men's clothing in-
dustry in Rochester, N.Y. Monthly Labor
R 11:1219-21 D '20
New unionism in the clothing industry. J. M.
Budish and G. Soule. 344p Harcourt,
Brace and Howe, New York '20
Recent decision on wages of Chicago cloth-
ing workers. Monthly Labor R 12:1175-7
Je '21
Smoothing the salesman's way in a difficult
market. E. T. Tandy. Ptr Ink 116:61-2+
Ag 11 '21
Turns to women's clothes to help sell deal-
ers men's clothes. G. A. Nichols. Ptr Ink
111:3-4+ Je 24 '20
Wage agreements. Monthly Labor R 13:151-
5 Jl '21
Wages and hours of labor in the cigar and
the men's clothing industries. Monthly La-
bor R 10:671-84 Mr '20
What mail-order teaches in selling to women.
R. K. Wadsworth. Ptr Ink 116:61-2+ S 22
'21
See also Coats; Dress goods; Duxbak; In-
fants' clothing; Tailoring

Advertising

Advertising a real bargain sale of clothing.
Ptr Ink 114:33-4 Mr 10 '21
Advertising reduces high cost of clothes in
England. T. Russell. Ptr Ink 111:131-2 Ap
1 '20
Advertising that uprooted a foolish prejudice.
Ptr Ink 112:17-19 Jl 22 '20
Consumer copy that betters dealer co-opera-
tion. Ptr Ink 113:112+ O 14 '20
Garment advertising strikes at whims of
fashion. C. M. Harrison. Ptr Ink 117:33-4+
O 27 '21
How advertising has cut cost of selling cloth-
ing. C. M. Harrison. Ptr Ink 116:132+ S 29
'21

Clothing trade—Advertising—Continued

How to keep from cutting salesmen's commissions. *Ptr Ink* 114:25-6 F 3 '21

Makers of stouts band together for better retailing. E. McKenna. *Ptr Ink* 112:154+S 16 '20

Royal Tailors sell personality of their workmen to get foothold in big cities. *Ptr Ink* 113:77-8+ D 9 '20

Specialty manufacturer gets away from style illustrations. *Ptr Ink* 110:49-51 Mr 25 '20

Style and appearance appeal sells men's work clothing. *Ptr Ink* 110:35-6 Ja 1 '20

Sweet-Orr consumers' contest increases business fifty-two per cent; trade mark dramatized. R. Dickinson. *il Ptr Ink M* 2:17+ My '21

What's there for you in that other chap's success? Sacson house frocks. G. D. Ward. *Ptr Ink* 115:109-10+ Je 23 '21

See also Collars—Advertising; Overalls—Advertising

Directories

Directory of retailers; men's and boys' clothing, furnishings, etc. Ben Wiener co., New York '21

Cloud bursts. See Rain and rainfall

Cloud condensation apparatus

Shimizu-Wilson cloud-condensation apparatus. *il Electrician* 86:720 Je 10 '21

Cloud-flying instruments. See Aeronautic instruments

Clouds

Cloudland studies. J. Dewar. *Engineering* 111:144-5 F 4 '21

Clouds and their significance. C. F. Brooks. *Sci Am M* 3:104 F '21

Clouds, Photography of. See Photography of clouds

Clubhouses

Flintridge country club, Flintridge near Pasadena, Cal. J. T. Boyd, jr. *il plan Arch Rec* 50:93-101 Ag '21

Furnishing of community buildings with limited funds; the Chester club, Chester, Pa. *il Arch Forum* 34:107-8, pl 47-8 Mr '21

Madeira-Hill interests open a community club house for employees and public at the Natalie mine. D. C. Ashmead. *il plans Coal Age* 20:87-92 Jl 21 '21

Recreation in the modern mining community. *il plans Eng & Min J* 111:379-81 F 26 '21

Riverdale country club, Riverdale, N.Y. *Am Arch* 119:556 l-p, 557 My 11 '21

Riverdale country club, Riverdale-on-Hudson, New York city. M. A. Mikkelsen. *il plans Arch Rec* 48:432-40 N '20

San Antonio golf club. I. T. Frary. *il plans Arch Rec* 49:48-55 Ja '21

University club, Syracuse, N.Y.; views and plans. *Arch Rec* 47:169-73 F '20

Waterbury club, Waterbury, Conn. *Arch Forum* 32:112, pl 43-4 Mr '20

Clutches

Advantages of clutches; conserve power and lengthen life of machinery. *Textile World* 58:905 Ag 7 '20

Automatic safety device used on toggle presses. *diag Elec R* 77:673 O 30 '20

Clutch design. H. M. Brayton. *chart diags Mach* 26:415-18 Ja '20

Details of Diesel-engine clutches used in German submarines. M. C. Bowman. *diags Mech Eng* 43:278-9 Ap '21

High speed friction clutch. *il diag Ind Management* 59:429-30 My '20

Jaw clutches. J. S. Watts. *diags Mach* 26:1163 Ag '20

Simple quick reversing clutch. H. H. Parker. *diag Am Mach* 52:916 Ap 22 '20

See also Automobiles—Clutches; Tractors—Clutches

Clutches, Magnetic

Magnetic clutch. *Sci Am* 124:516 Je 25 '21

Magnetic clutches used with synchronous motors. *Elec R* 79:16 Jl 2 '21

New use for magnetic clutch in steel mill. *Elec R* 77:1002 D 25 '20

CO₂ recorders. See Carbon dioxide recorders

Coagulation

Coagulation of clay suspensions and silicic acid. O. M. Smith. *il Am Chem Soc J* 42:460-72 Mr '20

Coagulation of colloidal solutions by electrolytes: influence of concentration of sol. E. F. Burton and E. Bishop. *J Phys Chem* 24:701-15 D '20

Coal

Air for burning a pound of coal. C. C. Phelps. *il Power* 52:704 N 2 '20; Same. *Sci Am M* 3:58 Ja '21

Bituminous coal water gas fuel. W. W. Odell. *Gas Age* 47:424-6 My 25 '21

Burning steam sizes of anthracite with or without admixture of soft coal. *U S Bur Mines Tech Pa* 220:1-8 '19

Chemical data on coal pyrite. H. F. Yancey. *il Chem & Met Eng* 22:105-9 Ja 21 '20

Coal fire. M. W. Fishenden. 112p Great Britain Dept. of scientific and industrial research, London '20

Coal for to-day and to-morrow. F. Parsons. *il Gas Age* 48:343-7 S 24 '21

Coal mining institute of America studies present-day mining problems. R. D. Hall. *Coal Age* 18:1329-30 D 30 '20

Coal or oil fuel for refrigerating plants? J. E. Porter. *Power* 51:889-90 Je 1 '20

Coal quality—a factor in export trade. J. D. Davis. *map Coal Age* 18:537-9 S 9 '20; Discussion. F. R. Wadleigh. 18:948-50, 991-5 N 4-11 '20

Coal vs. oil performance chart. L. C. Lichty. *Heat & Ven* 17:47-8 S '20; Same. *Power* 52:402-3 S 7 '20

Coals used for steam generation. *Power Pl Eng* 25:24-6 Ja 1 '21

Combustion of lignites and high-moisture fuels; abstracts. T. A. Marsh. *Power* 53:158-60 Ja 25 '21; *Power Pl Eng* 25:214-17 F 15 '21

Comparative evaporative values of coal and oil. C. F. Wieland. *Power* 51:198 F 3 '20

Data of geochemistry. F. W. Clarke. *U S Geol S Bul* 695:746-73 '20

Distribution of mineral matter in coal. R. Lessing. *Engineering* 111:113-14 Ja 28 '21

Early history of anthracite coal. *diags Min & Met* 178:24 O '21

Economic value of coal. B. S. Murphy. *Power* 52:899-901, 936-7, 974-6, 1012-14 D 7-28 '20

Factors in stoker design which must be satisfied if dirty coals are to be burned successfully. J. Harrington. *Coal Age* 19:987-8 Je 2 '21

Form value of energy in relation to its production, transportation, and application. C. G. Gilbert and J. E. Pogue. *Mech Eng* 43:26-8 Ja '21

Fuel case of coke vs. coal. H. Townsend. *diag Sci Am* 122:491+ My 1 '20

Fuel oil versus mechanical stokers. F. H. Daniels. *chart Power* 51:684-6 Ap 27 '20; Same cond. *Iron Age* 105:203-4 Ja 15 '20; Discussion. H. A. Fox. *Power* 51:932 Je 8 '20

Fuel research bureau advocated to solve problems of scientific use and handling of coal. F. R. Wadleigh. *Coal Age* 19:581-3 Mr 31 '21

Fuel supply of the world. L. P. Breckenridge. *chart Coal Age* 19:60-3 Ja 13 '21; Same cond. *Mech Eng* 43:22-3 Ja '21; Excerpt. *Power Pl Eng* 25:98-9 Ja 1 '21; Excerpt. *Min & Met* 170:43-5 F '21; Excerpt. *Sci Am M* 3:188-9 F '21; Abstract. *Power* 52:996-7 D 21 '20

Geology of the coal miner. T. Hogarth. *Coal Age* 19:320 F 17 '21

Graphic method of determining proportions of coal mixtures. E. J. Clarke. *chart Power Pl Eng* 24:1066 N 15 '20

Heating value of coal calculated. *Coal Age* 18:1289 D 23 '20

In presence of oxygen and sulphur, peaty oils harden to bright coal substance. J. E. Hackford. *Coal Age* 18:582-4 S 16 '20; Abstract. *Min & Met* 163:35-6 Jl '20; Same. *Sci Am M* 2:94 Jl '20

Interrelations of the fossil fuels. J. J. Stevenson. 458p New era printing co., Lancaster, Pa. '16-'21

Kohle und erdöl. E. Donath and A. Lissner. 144p F. Enke, Stuttgart '20

Coal—Continued

- Minimizing steam boiler losses. R. June. Gas Age 48:7-9 JI 11 '21
- More facts about coal are needed. G: O. Smith. Coal Age 19:119-20 Ja 20 '21
- Oil fuel versus coal. D: M. Myers. Am Soc Heat & V E J 26:93-6 Ja '20; Excerpts. Power 51:352 Mr 2 '20
- On the oxidation of coal. Chem & Met Eng 23:346-7 Ag 25 '20
- Origin and growth of coal. J: Rose. Coal Age 18:1241 D 16 '20
- Origin of coal. Coal Age 16:460-1; 17:150 S 11 '19, Ja 15 '20
- Le point de fusion de la houille. G. Charpy and J. Durand. Génie Civil 78:40 Ja 8 '21
- Power plant coal and its selection. R. June. Gas Age 47:514-17 Je 25 '21
- Price of coal in relation to its heat value. J. S. Evenden. Elec R (Lond) 88:303-4 Mr 11 '21
- Puzzle in the oxidation of coal. M. Godchot. Coal Age 18:542 S 9 '20
- Recent developments in the microscopic study of coal. R. Thiessen. il Coal Age 18:1183-9, 1223-8, 1275-9; 19:12-15 D 9-23 '20, Ja 6 '21
- Relative value of coal and oil fuel. G: A. Evans. chart Power 51:637-8 Ap 20 '20
- Sale of small-size coal can be promoted by showing how it may be burned. il Coal Age 20:611 O 13 '21
- Structure in paleozoic bituminous coals. R. Thiessen. il U S Bur Mines Bul 117:1-290 '20; Abstract. Am Gas Eng J 114:29-30+ Ja 8 '21
- Substitution of oil for coal as fuel. F. M. Ashley. Textile World 57:3069+ Ap 24 '20
- Temperatures in stored coal. diags Ry Age 69:846-7 N 12 '20
- Thrift in the use of coal; abstracts. G: O. Smith. Coal Age 18:999-1001 N 11 '20; Am Gas Eng J 113:358-60 O 30 '20; Iron Age 106:1122-4 O 28 '20; Iron Tr R 67:1214-15 O 28 '20; Gas Age 46:389 N 10 '20; Power 52:716-18 N 2 '20; Power Pl Eng 24:1087-8 N 15 '20
- Using low grade fuels. diags Power Pl Eng 25:39-41 Ja 1 '21
- L'utilisation industrielle des combustibles à forte teneur en cendres; abstracts. A. Dessemmond. Génie Civil 78:179-80 F 19 '21; Power 53:525 Mr 29 '21
- Watering coal to improve combustion. K. R. Long. Power Pl Eng 25:714 JI 15 '21
- What becomes of our coal? il Sci Am 124:181 Mr 5 '21
- Why coal costs less than oil. R. K. Walling. Am Soc Heat & V E J 26:supXIII-XVII My '20

See also Anthracol; Briquetting (fuel); Cannel coal; Carbocoal; Coal, Pulverized; Coal ash; Coal handling; Coal lands; Coal mines and mining; Coal preparation; Coal storage; Coal supply; Coal-tar products; Coal testing; Coal trade; Coaling; Coaling stations; Coke; Culm; Fuel economy; Gas; Lignite; Locomotives—Fuel

Analysis

- Analyses of Iowa coals. G: S. Rice, A. C. Fieldner and F. D. Osgood. U S Bur Mines Tech Pa 269:1-28 '21; Excerpts. Power Pl Eng 25:506 My 15 '21
- Coal analyses made at the power plant. E. D. Hummel. diags Power 50:332-5 Ag 26 '19; Same. Sci Am S 88:284-5 N 15 '19
- La constitution chimique des charbons. H. Pouleur. Génie Civil 76:538 Je 12 '20
- Determination of sulfur forms in coal. A. R. Powell. J Ind & Eng Chem 12:887-90 S '20
- Developing high overload capacities with horizontally baffled boilers. diag Munic Eng 59:72+ Ag '20
- Does fusain cause mine and bin fires, spoil coke and aid explosions? F. S. Sinnatt, H. Stern and F. Bayley. Coal Age 18:384-8 Ag 19 '20
- Fixed-carbon gradients in West Virginia as indicated by analysis of lowest coals in any given location. map Coal Age 20:418-19 S 15 '21

- Growing importance of the analysis of coal by the Bureau of mines. F. G. Cottrell. Coal Age 19:192 Ja 27 '21
- Les matières volatiles de la houille. A. Delclève. il Chimie & Ind 6:33-40 JI '21
- New method for determining the volatile matter yielded by coals up to various temperatures. W: A. Bone and L. Silver. Chem Soc J 119:1145-52 JI '21
- Occurrence and origin of finely disseminated sulfur compounds in coal. R. Thiessen. il Min & Met 153:sup2431-44 S '19; Same. Coal Age 16:668-73 O 23 '19; Discussion. Min & Met 157:(sec 12) 40-4 Ja '20
- Origin and nature of the white partings in coal seams as illustrated by the coals of Lancashire, England. F. S. Sinnatt, A. Grounds and F. Bayley. Coal Age 20:93-5 JI 21 '21
- Study of the forms in which sulphur occurs in coal. A. R. Powell and S. W. Parr. diag Ill U Eng Exp Sta Bul 111:1-62 '19
- Use of classification of coal. G: H. Ashley. Am Inst Min Bul 152:1129-41 Ag '19; Same. Coal Age 16:918-25 D 25 '19

Ash content

See Coal ash

Bibliography

- List of bibliographies on coal. 11 mim. p S 16 '20 U.S. Library of Congress

Classification

- Bureau of mines will sample and test coals shipped through Tidewater exchange. Coal Age 19:506 Mr 17 '21
- Coals used for steam generation. Power Pl Eng 25:24-6 Ja 1 '21
- Kinds of coal that go into Tidewater pools. H: M. Payne. Coal Age 19:490-3 Mr 17 '21
- New Tidewater pooling association formed. Coal Age 17:451-2 Mr 4 '20
- Operators, shippers and railroads form new Tidewater coal exchange. Coal Age 17:764 Ap 15 '20
- Proposed classification of coals consists of 35 types divided into 9 grades. Coal Age 20:267-8 Ag 18 '21
- Public service co. analyses at variance with Dr Payne's data on Tidewater pool coals. G. A. de Graaf. Coal Age 20:222-3 Ag 11 '21; Discussion. 20:304-5 Ag 25 '21
- Scientific classification to rehabilitate good name of American coal abroad. O. P. Hood. Coal Age 19:190-2 Ja 27 '21
- Shallmar coal classification. Coal Age 20:268 Ag 18 '21
- Standardizing the pools of the Sewalls Point exchange. J. S. Burrows. Coal Age 19:509 Mr 17 '21
- Use of classification of coal. G: H. Ashley. Am Inst Min Bul 152:1129-41 Ag '19; Same. Coal Age 16:918-25 D 25 '19
- Where classified Tidewater coals come from. H: M. Payne. maps Coal Age 19:442-5 Mr 10 '21

Cost

- Coal costs and competition: the real problem. E. T. Good. Engineer 131:614 Je 10 '21
- Cost of a ton of coal. G: O. Smith. Coal Age 19:870-1 My 12 '21
- Government fuel yard delivers coal to 725 points, using 275,000 tons annually. G: S. Pope. Coal Age 18:908-10 O 28 '20

Prices

- Anthracite coal prices explained—opposition to government meddling with coal industry. Comm & Fin Chr 112:2494-6 Je 11 '21
- Are we buying coal enough? G: O. Smith and F. G. Tryon. Ry Age 70:841-2 Ap 1 '21
- Average prices realized for bituminous coal with production costs, January 1 to October 1, 1920. Coal Age 19:111 Ja 20 '21
- Coal prices and coal profits. charts Power 50:830-1 D 16 '19
- Coal stabilization bill not likely to pass. P. Wooton. Coal Age 19:1171-2 Je 30 '21
- Decline in coal prices despite industrial revival. H. A. Harding. Annalist 17:279+ F 28 '21

Coal—Prices—Continued

- Effect of higher coal prices on operating costs. Elec W 74:945-6 N 15 '19
- Federal regulation of coal industry recommended as only solution of vital problem of supply. Am Gas Eng J 113:465-8+ D 4 '20
- How coal prices have changed. Power 53:642 Ap 19 '21
- How long will it take the consumer to boost the price of coal, at the present rate of production? H: W. Gabell and H: M. Payne. Coal Age 19:712-13 Ap 21 '21
- Indiana commission fixes coal prices. Coal Age 18:864 O 21 '20
- Indiana legislature agrees on commission bill to regulate coal prices. Coal Age 18:309 Ag 5 '20
- I.C.C. reports on coal conditions. Ry Age 69:871-2 N 19 '20
- Kendall seeks to annul president's powers under Lever act. Coal Age 17:655-7 Ap 1 '20
- Market reviews; markets and production in 1920 and forecasts of the future. Coal Age 19:131-60 Ja 20 '21
- Outlaws and profiteers have no place in retail coal trade. E. B. Gordon. Coal Age 17:945-7 My 6 '20
- President Wilson approves coal commission's report and frees coal prices. Coal Age 17:657 Ap 1 '20
- Price of coal in relation to its heat value. J. S. Evenden. Elec R (Lond) 88:303-4 Mr 11 '21
- Quotations on bunker coal in foreign ports as of December 1. Coal Age 18:1343 D 30 '20
- Retail anthracite prices drop with mine prices; bituminous decline is more gradual. Coal Age 19:767-8 Ap 28 '21
- Retail domestic coal prices per short ton on Jan. 15 and July 15, 1913-1919 incl., also Jan. 15, 1920; tabulation. Coal Age 17:831-2 Ap 22 '20
- Retail prices of coal in the United States. See monthly numbers of Monthly labor review
- Retail prices of coal on Jan. 15 and July 15 of each year, 1913 to 1920, inclusive, and on June 15, 1920, by cities. Monthly Labor R 11:456-64 S '20; Same abr. [1914-1920]. Coal Age 18:1148-50 D 2 '20
- Retail prices of coal on July 15, 1919, and on Jan. 15, and June 15, 1920, for the United States and for each of the cities included in the total for the United States. Monthly Labor R 11:268-70 Ag '20; Same. Coal Age 18:812-13 O 14 '20
- Rise in coal prices is attributed to government regulation. G: H. Cushing. Coal Age 17:1205-7 Je 10 '20
- Seasonal coal rate bill reported favorably; text. Ry Age 70:1159-60 My 20 '21
- Seasonal coal rates. Ry Age 71:28-9 Jl 2 '21
- Shall I stock, contract or buy coal as required? Brick & Clay Rec 58:816-18 My 17 '21
- Version of coal profiteering. W. E. Edge. Power 52:879 N 30 '20

River coal

- Advantages of river coal and pulverized anthracite canvassed by engineers. R. D. Hall. il diags Coal Age 18:1280-2 D 23 '20
- Engineers club of Philadelphia discuss burning of river coal and culm. Elec Ry J 56:1195 D 11 '20; Power 52:957-8 D 14 '20

Specifications

- Purchase of coal on specifications. J: Howatt. W Soc E J 24:535-43 N '19; Same. Am Soc Heat & V E J 26:supI-IX My '20; Excerpt. Eng & Contr 53:438-9 Ap 14 '20; Abstract. Power 50:633-4 O 21 '19; Discussion. W Soc E J 24:553-66 N '19
- Purchase of coal on specifications. E: H. Taylor. W Soc E J 24:544-52; Discussion. 553-66 N '19

Sulfur content

- Analysis of sulphur forms in coal. A. R. Powell. chart U S Bur Mines Tech Pa 254: 1-19 '21; Same. Am Gas J 114:447-9, 454-8 My 21 '21

- Coal sulphur and its conversion in the gas retort. A. R. Powell. Am Gas Assn Technical sec v 2:244-54; Discussion. 254-5 '20
- Determination of sulfur forms in coal. A. R. Powell. J Ind & Eng Chem 12:887-90 S '20
- Distribution of the forms of sulfur in the coal bed. H. F. Yancey and T: Fraser. J Ind & Eng Chem 13:35-7 Ja '21
- Effect of sulfur in coal used in ceramic industries. C. W. Parmelee. Am Inst Min Bul 153:1845-50 S '19; Same. Coal Age 17:12-14 Ja 1 '20
- Effects of sulphur in coal. A. D. Bailey. Power 53:429-30 Mr 15 '21
- Geographic distribution of sulfur in West Virginia coal beds. I. C. White. maps Min & Met 153:2197-2206 S '19; Discussion. 157:(sec 12) 51-3 Ja '20
- Low-sulfur coal in Illinois. G. H. Cady. map Min & Met 151:1113-15 Jl '19; Discussion. 157:(sec 12) 34-9 Ja '20
- Mines producing low-sulphur coal in the central district. G. H. Cady. (Cooperative mining ser. Bul. 23) 14p '19 Department of registration and education, Division of the State geological survey, Urbana, Ill.
- Occurrence and origin of finely disseminated sulfur compounds in coal. R. Thiessen. il Min & Met 153:sup2431-44 S '19; Same. Coal Age 16:668-73 O 23 '19; Discussion. Min & Met 157:(sec 12) 40-4 Ja '20
- Some factors affecting the sulfur content of coke and gas in the carbonization of coal; with discussion. A. R. Powell. J Ind & Eng Chem 13:33-5 Ja '21
- Study of the forms in which sulphur occurs in coal. A. R. Powell and S. W. Parr. diag Ill U Eng Exp Sta Bul 111:1-62 '19
- Study of the reactions of coal sulfur in the coking process. A. R. Powell. diag J Ind & Eng Chem 12:1069-77 N '20
- Sulphur distrib'n in carbonization. U. O. Hutton and C. C. Thomas. diag Gas Age 47:88-94 F 10 '21
- Sulphur in coal and coke. A. R. Powell. Eng Soc W Pa 36:611-25 D '20; Excerpt. Iron Age 107:906 Ap 7 '21; Discussion. Eng Soc W Pa 36:626-40 D '20
- Sulphur in coal and coke. A. R. Powell. Am Gas Eng J 112:323 Ap 24 '20; Same. Coal Age 17:994 My 13 '20
- U.S. scientists seek method to control sulphur in gas. A. R. Powell. Am Gas Eng J 113:467-8+ D 4 '20

Taxation

- Trying to tax anthracite coal. Comm & Fin Chr 113:342-4 Jl 23 '21
- Validity of Pennsylvania coal tax act questioned; text. Comm & Fin Chr 112:2374 Je 4 '21

Testing

See Coal testing

Transportation

- Bituminous coal commission report made public. Ry Age 68:1043-6 Mr 26 '20
- Chairman Clark doubts authority of Commission to forbid coal exports. Coal Age 17:1223-4 Je 10 '20
- Cleveland and Akron object to lake priority. Ry Age 69:393-4 S 3 '20
- Coal is assembled by motor truck and shipped by railroad. D. J. Baker. il Coal Age 18:491 S 2 '20
- Coal order modified and extended. Ry Age 69:103-8 Jl 16 '20
- Coal shortage is explained by the railroads. D. Willard. Coal Age 18:299-300 Ag 5 '20
- Coastwise shipping conditions in 1919. G. G. Wolkins. Coal Age 17:216-17 Ja 29 '20
- Commerce commission unmoved by arguments for modification of order no. 7. Coal Age 18:116-18 Jl 15 '20
- Commission orders additional shipments of 500,000 tons to New England. Coal Age 18:303-5 Ag 5 '20
- Commission takes drastic steps to end coal shortage east of Mississippi river. Coal Age 17:1297-8 Je 24 '20
- Consumers' stewardship of the coal deposits. W. L. Abbott. N E L A Bul 8:210-12 Ap '21

Coal—Transportation—Continued

- Disadvantages urged against seasonal rates held to be untenable. Coal Age 17:653-4 Ap 1 '20
- Embargoes will force needed coal to the Northwest and New England. Coal Age 18:255-6 Jl 29 '20
- Ever-present bituminous coal problem. E. McAuliffe. Ry Age 69:447-50 S 10 '20
- Expect Commerce commission to give data on assigned cars. Coal Age 17:1269-70 Je 17 '20
- First ship-by-truck tipple to be constructed. D. J. Baker. il Coal Age 18:1173-7 D 9 '20
- Freight rates influence New England's choice of coal. Coal Age 18:290-2 Ag 5 '20
- Fuel for Canada—a problem in transportation. Can Chem & Met 5:231-2 Ag '21
- Hearing of wagon-mine operators' plea for modification of service order 14. Coal Age 18:648-9 S 23 '20
- How coal is handled in South Africa. il Coal Age 18:1178-9 D 9 '20
- Inside information as to development of coal transportation problems. Coal Age 17:559-61 Mr 18 '20
- Interstate commerce commission favors seasonal coal rates. Ry Age 68:1364-5 My 7 '20
- More priority ordered for coal shipments; service orders nos. 20 and 21. Ry Age 69:655-7 O 15 '20; Same abr. Comm & Fin Chr 111:1530 O 16 '20
- Movement of bituminous coal is speeded up. Ry Age 69:245-7 Ag 6 '20
- Movement of coal and coke by fourteen leading railroads during April 1919 and 1920; tabulation. Coal Age 18:494 S 2 '20
- Movements of coal and coke by fourteen leading railroads during February 1919 and 1920. Coal Age 17:1271-2 Je 17 '20
- New mine ratios and car distribution rules. Ry Age 68:258-60 Ja 16 '20
- New priority order for New England coal. Ry Age 69:193-5 Jl 30 '20
- New priority order issued for lake coal. Ry Age 69:158-9 Jl 23 '20
- Open-top car service orders supported by coal operators. J. D. A. Morrow. Ry R 67:99-100 Jl 17 '20
- Operators and jobbers clash over reconsignment rules; National coal association attempts modification of tidewater pools to stop speculation. Coal Age 18:357-8 Ag 12 '20
- Pipe-line transportation for anthracite and bituminous coal. G: A. Orrok and W. S. Morrison. Power 54:699-700 N 1 '21
- Piping coal from mines to New York city. W: R. Andrews. il Pop Mech 35:326-8 Mr '21
- Priority for coal shipments. Ry Age 68:1967-8 Je 25 '20
- Public utilities given assigned cars for coal. Coal Age 18:190-1 Jl 22 '20
- Pumping coal from mine to seaboard. C. H. Thomas. il Sci Am 124:121, 126+ F 12 '21; Discussion. R. F. Letts. 124:429 My 28 '21
- Railroad situation—causes and remedies. S: O. Dunn. Coal Age 18:453-6 Ag 26 '20; Excerpts. Ry Age 69:273-4 Ag 13 '20
- Reducing discrepancies in coal weights. Elec W 75:671-2 Mr 20 '20
- Remove inequalities in interstate freight rates from head of lakes; virtual mileage basis in effect. Coal Age 19:684 Ap 14 '21
- Seasonal coal freight rates supported by government officials. Coal Age 17:948-9 My 6 '20
- Seasonal coal rates to be put into effect. Ry Age 68:1477-9 My 21 '20
- Seasonal differential rates in coal proposed. Ry Age 68:1047-9 Mr 26 '20
- Seasonal freight rates will affect coal fields in varying degrees. F. G. Tryon. Coal Age 17:1033-7 My 20 '20
- Seasonal rate bill reported by committee. Coal Age 17:1038 My 20 '20
- Senate commerce committee hears arguments on seasonal freight rates. Coal Age 17:864-5 Ap 29 '20
- Simple operation of Tidewater coal exchange cuts transportation expense. H: M. Payne. map Coal Age 19:539-41 Mr 24 '21
- Testing the links in the transportation chain. J: Callahan. Coal Age 19:117 Ja 20 '21
- Text of seasonal coal rate bill. Coal Age 17:1153-4 Je 3 '20
- Transportation as a factor in irregularity of coal mine operation. S. L. Yerkes. Min & Met 159:(sec 3) 41-7 Mr '20; Same. Coal Age 17:439-42 Mr 4 '20
- Transportation of coal in pipes. R. P. Bolton. Power 53:261 F 15 '21; Same. Eng & Ind Management 5:586-7 My 19 '21; Same. Sanitary & Heat Eng 96:254+ O 21 '21
- Transportation problem in the coal industry. A. G. Gutheim. Ry Age 69:1149-52 D 31 '20; Same. Ry R 68:90-4 Ja 15 '21
- Utilities see in assigned cars the only solution of their fuel difficulties. P. Wooton. Coal Age 18:1059-60 N 18 '20
- What has happened to lake cargo rates and why they should be revised downward. W. P. Ellis. Coal Age 19:763-6 Ap 28 '21
- What the Deep Vein coal co. has learned about the ship-by-truck movement. D. Baker. il Coal Age 18:278-81 Ag 5 '20
- Wholesale coal association brief opposes seasonal coal rates. Coal Age 17:1214 Je 10 '20
- Yes! pumped coal! G: F. Zimmer. diag Eng & Contr 53:546-7 My 12 '20
- Youghiogeny coal co. delivers 60,000 tons monthly by motor trucks. D. J. Baker. il Coal Age 18:1234-8 D 16 '20
- See also Coal cars; Colliers; Motor trucks in coal delivery

Belgium

- Les phénomènes géologiques actuels dans les gisements houillers de la Belgique. A. Renier. Génie Civil 78:319 Ap 9 '21

England

- Kent coalfield. A. E. Ritchie. 309p Iron and coal trades review, London '20
- Origin and nature of the white partings in coal seams as illustrated by the coals of Lancashire, England. F. S. Sinnatt, A. Grounds and F. Bayley. Coal Age 20:93-5 Jl 21 '21

Europe

- Importance of coal in European construction. E. A. Filene. Factory 25:1788+ D 1 '20

Great Britain

- Coal in Great Britain. W. Gibson. 311p Edward Arnold, London '20

Illinois

- Coking of Illinois coal in Koppers type oven. R. S. McBride and W. A. Selvig. il U S Bur Stand Tech Pa 137:1-47; Appendix. F. W. Sperr, jr. 48-51 '19; Excerpts. Am Soc Heat & V E J 26:supVII-XXVI Ap '20

Ohio

- Ohio coal seams and strata. Coal Age 19:455 Mr 10 '21

Pennsylvania

- How the grand push determined present character of Pennsylvania coals. G: H. Ashley. maps Coal Age 17:1307-10 Je 24 '20

Saar valley

- Le prolongement du gisement houiller de la Sarre en Lorraine. Langrogne and Bergerat. Génie Civil 78:356 Ap 23 '21

United States

- Burning low-grade coals of the Southwest. W. M. Park. diags Elec W 75:947-8 Ap 24 '20; Same. Coal Age 17:1092-4 My 27 '20
- Coal in 1918. C. E. Leshner. U S Geol S Min Res of U S 1918,pt 2:695-813 '20
- How rank of eastern coal changes with location. R. D. Hall. map Coal Age 20:257-9 Ag 18 '21
- Limitations of mechanical stokers utilizing Mid-West coals. E: H. Tenney. Mech Eng 43:535-6 Ag '21

Coal—Continued

Utah

Fuel utilization and smoke abatement in Salt Lake City. O. Monnett. *il Power* 52:204-7 Ag 10 '20

Utah coals and the fuel supply of Salt Lake City. O. Monnett. *il Power* 52:247-9 Ag 17 '20

Virginia

So-called anthracite of Virginia really is a much softer coal. *Coal Age* 20:458 S 22 '21

West Virginia

Character of coal in the Thomas bed near Harrison, West Virginia. M. R. Campbell. *U S Geol S Bul* 716—H:239-41 '21

Coal, Cannel. See Cannel coal

Coal, Pulverized

Actual performance of powdered coal. C: Longenecker. *Blast F & Steel Pl* 9:59-61 Ja '21

Anneal steel with pulverized coal. C. H. Gale. *Foundry* 49:29 Ja 1 '21

Boiler tests with pulverized Illinois coal. H: Kreisinger and J: Blizard. *diags Mech Eng* 43:321-2+ My '21; Same. *Power* 53:904-6 My 31 '21; Same. *Power Pl Eng* 25:653-6 Jl 1 '21; Abstract. *Iron Age* 107:1401 My 26 '21

Burning coal at 100% efficiency. W. O. Renkin. *il Gas Age* 46:359-60 N 10 '20; Same. *Paper* 27:158+ N 10 '20; Same cond. *Power Pl Eng* 24:1106 N 15 '20

Burning of pulverized coal. H. D. Savage. *Elec Ry J* 58:629-30 O 8 '21

Burning powdered coal. F. R. Low. *Power* 53:745-6 My 10 '21; Discussion. 53:902; 54:112 My 31, Jl 19 '21

Burning powdered coal and blast-furnace gas at River Rouge. T: Wilson. *il diags plan Power* 54:664-70 N 1 '21

Burning pulverized coal in a sheet mill. *il diags Iron Age* 104:1167-72 D 11 '19

Le chauffage au charbon pulvérisé. P. Frion. *Soc Ing Civils Bul* 74:123-72 Ap '21

Development in powdered coal burning. H. D. Savage. *Power Pl Eng* 25:463 My 1 '21

Development of a powdered coal plant. C: Longenecker. *Blast F & Steel Pl* 9:567-9 S '21

Developments in power station design. *il diag Engineer* 132:90-1, 142-4, 162-3, 190-1 Jl 22, Ag 5-19 '21

Discussion of pulverized coal for boilers. F. A. Scheffler. *Iron Age* 105:1798-1800 Je 24 '20; Abstract. *Elec Ry J* 55:936 My 8 '20

Efficient use of pulverized coal in malleable foundry practice. M. W. Arrowood. *il diag Iron Age* 105:259-61 Ja 22 '20

L'emploi du charbon pulvérisé aux usines sidérurgiques de la Knoxville iron company (Tennessee, E.-U.). *il diag Génie Civil* 79:301-3 O 8 '21

L'emploi du charbon pulvérisé pour le chauffage des fours et des chaudières. *Génie Civil* 78:459-62 My 28 '21

Engineers afforded latest information on powdered coal and briquets. R. D. Hall. *Coal Age* 19:16-17 Ja 6 '21

Explosion hazards in industrial plants due to the use of pulverized coal. L. D. Tracey. *Coal Age* 19:746-9 Ap 28 '21; Abstracts. *Power* 53:718-19 Mr 3 '21; *Power Pl Eng* 25:578-9 Je 1 '21; *Iron Age* 107:1538 Je 9 '21

Fireman's experience with pulverized coal. M. S. Howard. *diag Power Pl Eng* 24:1163-5 D 15 '20

Forecasting the fuel of the future. *Sci Am M* 1:470 My '20

Four-day test on five Oneida Street boilers burning pulverized coal. *diag plan Power* 51:354-7 Mr 2 '20; Excerpt (table). *Elec R* 76:506 Mr 20 '20

Gasification of powdered coal. A. E. Bourcoud. *diags Chem & Met Eng* 24:600-4 Ap 6 '21

Grindle system for burning powdered coal. *diags Iron Age* 106:1614-15 D 16 '20

Heating furnaces and annealing furnaces. W. Trinks. *diags Blast F & Steel Pl* 8:288-91 My '20

Industrial application of powdered fuel. J. F. Shadgen. *Iron Age* 107:839-42 Mr 31 '21

Lakeside plant pulverized-fuel tests. H: Kreisinger. *Mech Eng* 43:693-4 O '21

Locomotive powdered fuel burning apparatus, Great Central Ry. *diags Ry R* 66:410-11 Mr 13 '20

Low-grade coals show high efficiency when pulverized. *il diag Pop Mech* 35:197 F '21

Manufacture of lime for chemical and metallurgical purposes. R: K. Meade. *diags Chem & Met Eng* 23:929-32 N 10 '20

Melting iron with powdered coal. *il diags Foundry* 48:136-9+ F 15 '20; Same. *Iron Tr R* 66:627-9 F 26 '20

Metallurgical use of pulverized fuel. C. F. Herington. *il Iron Age* 107:965-9 Ap 14 '21

Modern development in the use of pulverized fuel. *Power* 52:761 N 9 '20

Modern steel works power plant. W. N. Flanagan. *Blast F & Steel Pl* 9:445-6 Jl '21

New Lakeside pulverized-coal plant, Milwaukee. *il Power* 52:358-60 S 7 '20

Observations of an attempt to burn clay products with powdered coal. *il Brick & Clay Rec* 59:586-7 O 18 '21

Oil and powdered fuel for central stations. C. H. Delaney. *il Elec W* 75:128-9 Ja 17 '20

Operating by powdered coal to save fuel. A. C. Cole. *Blast F & Steel Pl* 8:417-18 Jl '20

Operation with pulverized coal. A. J. Dixon. *diags Power* 54:24-5 Jl 5 '21

Powdered coal. J: E. Muhlfield. *Eng Soc W Pa* 36:243-62 My '20; Same. *Blast F & Steel Pl* 8:527-31 S '20; Discussion. *Eng Soc W Pa* 36:263-73 My '20

Powdered coal applied in foundry. A. J. Grindle. *Foundry* 49:617-18 Ag 1 '21

Powdered coal as a fuel. C. F. Herington. 2d ed. 338p Van Nostrand '20

Powdered coal as a fuel for boilers. E: R. Welles and W. H. Jacobi. *diags Stevens Ind* 37:97-125 Ap '20

Powdered coal as fuel for boilers. F. Schulte. *diags Blast F & Steel Pl* 9:447-52 Jl '21

Powdered coal efficiencies. H. D. Savage. *Gas Age* 45:541-3 Je 25 '20

Powdered coal equipment. H. D. Savage. *diags Eng Soc W Pa* 37:136-42 Ap '21

Powdered coal for power-plant boilers. H: Kreisinger and J: Anderson. *Power* 53:7-8 Ja 4 '21

Powdered coal in the chemical and allied industries. W. H. Fitch. *Chem & Met Eng* 22:183 Ja 28 '20

Powdered coal plant at Seattle. *Elec Ry J* 55:482-3 Mr 6 '20

Powdered fuel for electrical purposes. *Electrician* 87:181-2 Ag 5 '21

Present status of powdered coal. C: Longenecker. *diag Blast F & Steel Pl* 9:394-7 Je '21

Progress in powdered coal for blast furnaces. W. L. Wotherspoon. *diags Eng & Min J* 109:803-4 Ap 3 '20; Abstract. *Iron Tr R* 66:853 Mr 18 '20

Pulverized coal. *Chem & Met Eng* 24:251 F 9 '21

Pulverized coal. *diags Power Pl Eng* 25:56-60 Ja 1 '21

Pulverized coal an effective means of fuel economy. *Concrete* 18:sup160-1 Mr '21; Same abr. *Elec R* 78:134 Ja 22 '21

Pulverised coal and colloidal mixtures. L. C. Harvey. *Eng & Ind Management* 6:310-12 S 15 '21

Pulverized coal and its future. H. G. Barnhurst. *Am Gas Eng J* 112:4-6 Ja 3 '20; Same abr. *Sci Am M* 1:183-4 F '20

Pulverized coal as fuel. L. H. Fry. *il Engineering* 110:628-31 N 12 '20

Pulverized coal at Milwaukee. *Power* 51:341-2 Mr 2 '20; Same. *Eng & Contr* 53:440 Ap 14 '20

Pulverized coal burning equipment for Europe. *il Ry Mech Eng* 94:581-2 S '20

Pulverized-coal equipment for steam boilers. *il Elec R* 78:78 Ja 8 '21

Coal, Pulverized—Continued

- Pulverized coal for boiler firing. H. C. Barnhurst. A S R E J 7:232-40 N '20
- Pulverised coal for copper smelter furnaces. Engineer 131:549 My 20 '21
- Pulverized coal for Italian locomotives. il Ry Age 68:1363-4 My 7 '20
- Pulverized coal for power plants. F: A. Scheffler. il diag Am Soc Heat & V E J 27:7-13 Ja '21; Excerpts. Power 53:444-5 Mr 15 '21; Discussion. Am Soc Heat & V E J 27:207-13 Mr '21
- Pulverized coal for steam boilers. il Textile World 58:1523+ S 4 '20
- Pulverized coal for steam boilers. R. June. diags Textile World 58:2529+ O 9 '20
- Pulverized coal in a Milwaukee power plant. il diags Elec R 76:469-72 Mr 20 '20
- Pulverized coal in central stations. J: Anderson. diags Elec W 75:589-91 Mr 13 '20
- Pulverized coal in metallurgical furnaces at high altitudes. O. L. McIntyre. il diags plan Mech Eng 42:225-7 Ap '20; Same. Min & Met 162:23-6 Je '20; Same. Min & Sci P 121:55-7 Jl 10 '20; Excerpts. Sci Am M 1:479-80 My '20
- Pulverized coal in open-hearth practice. W. H. Fitch. Iron Age 104:1323-8 D 25 '19
- Pulverized coal in power plants. H: Kreisinger. Power 52:637-8 O 19 '20
- Pulverized coal in the power station; a new boiler house fuel. L. C. Harvey and E. E. Noble. il diags Electrician 85:320-3, 393-6 S 17, O 1 '20
- Pulverized coal installation on the Lehigh Valley railroad. W. D. Wood. il Ry R 66:1013-14 Je 12 '20
- Pulverized coal under boilers. T. A. Marsh. Elec Ry J 55:764-5 Ap 10 '20
- Pulverized coal under central-station boilers. J: Anderson. il Power 51:336-9 Mr 2 '20; Same. Elec Ry J 55:473-6 Mr 6 '20
- Pulverized coal versus stoker firing. S. N. Clark. Elec W 76:1265 D 25 '20
- Pulverized coal versus stoker firing. F. P. Coffin. Power 54:52-4 Jl 12 '21; Abstract. Mech Eng 43:612-13 S '21
- Pulverized firing in steam generation. F. J. Crolus. Blast F & Steel Pl 9:453-60 Jl '21
- Pulverized fuel. E. R. Knowles. il diags plan Am Soc Heat & V E J 26:17-72 Ja '20
- Pulverized fuel at Oneida Street plant. P. W. Thompson. Power 51:339-40 Mr 2 '20; Same. Elec Ry J 55:476-7 Mr 6 '20
- Pulverized fuel for peak-load service in railway power plants; abstracts. O. M. Rau. Power 52:140-1 Jl 27 '20; Elec Ry J 55:1094 My 29 '20
- Pulverized low-grade coals successfully employed; comparative cost of pulverized coal installations. Can Eng 39:172-3 Jl 22 '20
- Rolling mill uses pulverized coal. T. R. Deacon. il Can Eng 39:433 O 14 '20
- Sawmill refuse, powdered coal, and oil fuels. D. Corbet. Am Inst E E J 39:726-9 Ag '20
- Science of powdered fuel combustion. J. F. Shadgen. Iron Age 106:457-61 Ag 19 '20
- Some phases of the fuel problem. G: A. Orrok. Sci Am M 1:426-8 My '20
- Special method of combustion; pulverized fuel. diags Ry Age 68:1641-3 Je 10 '20
- Status of the powdered fuel problem. J. F. Shadgen. Iron Age 105:32-4 Ja 1 '20
- Successful pulverized coal installation of the Milwaukee electric railway & light co. I. L. Kentish-Rankin. il diag plan Power Pl Eng 24:313-21 Mr 15 '20
- Use of powdered fuel. H. D. Savage. il diags Paper 28:18-21+ Ag 10; 23-5+ Ag 17; 22-5 Ag 24; 13-14+ Ag 31 '21; Excerpts. Iron Age 107:1464-7 Je 2 '21; Abstract. Elec Ry J 58:172-3 Jl 30 '21; Abstract. Ry Mech Eng 95:589-90 S '21
- Use of pulverized coal growing in favor. F. A. Scheffler. Elec R 78:20 Ja 1 '21
- Use of pulverized coal in steam power plants. H. A. Reichenbach. il diags Elec R 79:261-4 Ag 20 '21
- Washery sludge burned in pulverized form at Seattle. Power 51:729-31 My 4 '20

Waterford lake power plant of the Dominion coal co. F. H. Kneeland. il Coal Age 17:354-5 F 19 '20

See also Fuel, Colloidal; Lignite, Pulverized

Bibliography

Pulverized coal. Mech Eng 43:136 F '21

Cost

- Comparison of total operating expense, powdered coal vs. stoker firing, for 22,000 horse-power nominal rating, boiler plant in combination with 45,000-kilowatt central power station. J: E. Muhlfeld. Eng Soc W Pa 36:258-62 My '20
- Cost of preparing pulverized coal. H. G. Barnhurst. Power 54:229 Ag 9 '21
- Cost of preparing pulverized coal. Power 54:39 Jl 5 '21; Same. Coal Age 20:57 Jl 14 '21
- Preparation cost of pulverized coal. P. F. Coffin. Power 54:261-2 Ag 16 '21
- Preparing pulverized coal. Am Gas J 115:77 Jl 23 '21

Distribution

- Distributing pulverized coal to small plants. B. J. Cross. il diags Coal Age 17:635-7 Ap 1 '20
- Pipe-line transportation for anthracite and bituminous coal. G: A. Orrok and W. S. Morrison. Power 54:699-700 N 1 '21
- Piping coal from mines to New York city. W: R. Andrews. il Pop Mech 35:326-8 Mr '21
- Powdered coal plant with compressed air transport. diag Elec Ry J 55:817-18 Ap 17 '20
- Pulverized coal distributing systems. J. F. Shadgen. Iron Age 105:1423-6 My 20 '20
- Pulverized-material conveyor system. il diags Power 54:628-9 O 25 '21

Preparation

- Aero-pulveriser. il diags Engineer 129:306-7 Mr 19 '20
- Atritor coal drying and pulverizing machine. il Engineer 132:150 Ag 5 '21; Iron Age 108:742 S 22 '21
- Coal-pulverizing plant at Nevada Consolidated copper smelter. R. E. H. Pomeroy. flow sheet il Min & Met 158:(sec 28) 1-11 F '20
- Methods of preparing pulverized coal. J. F. Shadgen. Iron Age 105:389-92 F 5 '20
- Modern coal-pulverizing plant at the United Verde. J. B. Johnson. il plan Eng & Min J 110:358-60 Ag 21 '20
- Pulverizing stations. Coal Age 19:612 Ap 7 '21

Transportation

- Pumping coal from mine to seaboard. C. H. Thomas. il Sci Am 124:121, 126+ F 12 '21
- Transportation of coal in pipes. R. P. Bolton. Power 53:261 F 15 '21; Same. Eng & Ind Management 5:586-7 My 19 '21; Same. Sanitary & Heat Eng 96:254+ O 21 '21
- Coal agreement (Peace treaty, 1920)
Terms of Spa coal agreement with Germany published and epitomized. Coal Age 18:458 Ag 26 '20

Coal ash

- Avoidance of clinker when burning coal with low-fusing ash. T. A. Marsh. Coal Age 17:903-4 My 6 '20
- Comparison of the fusing temperature of coal and coke ash. H. J. Rose. Chem & Met Eng 25:141 Jl 27 '21
- Determination of combustible matter in ash. Eng & Ind Management 5:552 My 12 '21
- Determining ash content in coal for given fixed-carbon percentage in coke. E. S. Ward. Coal Age 19:403-4 Mr 3 '21
- Fusibility of ash from eastern coals. G. H. Berry. Power 51:437 Mr 16 '20
- Fusibility of the ash from certain eastern coals. W. A. Selvig, O. C. Brown and A. C. Fieldner. Coal Age 17:177-80, 225-30 Ja 22-29 '20; Abstract. Power 50:655-6 O 28 '19; Same. Chem & Met Eng 22:80-1 Ja 14 '20
- New process for reclaiming coal from combustion residue. H. O. Herzog. diag Elec W 77:486-7 F 26 '21; Same. Coal Age 19:580 Mr 31 '21

Coal ash—Continued

Recovery of unburned fuel from boiler furnace refuse. T: Fraser and H. F. Yancey. Power Pl Eng 25:1043-4 N 1 '21; Excerpts. Power 54:647 O 25 '21

Temperatures at which ash from western coals fuses to a sphere. W. A. Selvig, L. R. Lenhart and A. C. Fieldner. maps Coal Age 18:677-82, 851-4 S 30, O 21 '20

Tentative method for determination of fusibility of coal ash. il diags Am Soc T M Pro v 20 pt 1:796-803 '20

What constituents in ash cause it to fuse. G. A. de Graaf. il Coal Age 19:534-9 Mr 24 '21; Abstract. Mech Eng 43:331-2 My '21

See also Ash handling

Coal association, National. *See* National coal association

Coal bins, Concrete

Concrete coal bin of unusual design and construction. il diags plans Am Arch 119: 621-7 Je 8 '21

Concrete pits for submerging reserve coal supply. il diag Elec R 79:163-4 Jl 30 '21

Ferro-concrete silos and storage bunkers. W. N. Twelvetees. il Electrician 86:20-3 D 31 '20

3,500 ton reinforced concrete coal storage bins. D. C. Findlay. il diags plans Concrete 17: sup63-7 N '20

Coal breakers

Advance in the preparation of anthracite. D. C. Ashmead. il diags Coal Age 20:367-72, 409-12, 599-600 S 8-15, O 13 '21

Anthracite breaker that is different. D. C. Ashmead. flow sheet diag plans Coal Age 17:1039-42 My 20 '20

At a word sprays thoroughly drench every square foot in anthracite breakers. D. C. Ashmead. diags Coal Age 18:995-8 N 11 '20

Breaker-chute linings that last. D. C. Ashmead. il diags Coal Age 17:754-5 Ap 15 '20

Breaker-operation economies as illustrated by Cranberry Creek preparation plant. D. C. Ashmead. flow sheet il diags Coal Age 19: 305-12 F 17 '21

By using vertical box chutes and retarding conveyors Scott breaker greatly reduces degradation. D. C. Ashmead. flow sheets il diag Coal Age 20:127-31 Jl 28 '21

How an anthracite breaker was remodeled. D. C. Ashmead. il diags plan Coal Age 17: 483-6, 532-5 Mr 11-18 '20

Improved rolls, feeders and chutes greatly reduce degradation in anthracite breakers. D. C. Ashmead. diags plan Coal Age 20: 527-31 O 6 '21

Modernized breaker with hand pickers, spirals, jigs and concentrators. D. C. Ashmead. flow sheet il Coal Age 18:585-9 S 16 '20

New methods are used for preparing small sizes by Locust mountain coal co. D. C. Ashmead. flow sheet il diags Coal Age 19: 171-9 Ja 27 '21

Precautions taken to protect anthracite breaker from destruction by fire. D. C. Ashmead. il plan Coal Age 18:113-15 Jl 15 '20

Preparation methods Susquehanna has built into reconstructed Pennsylvania breaker. D. C. Ashmead. flow sheets il diag Coal Age 19:618-22 Ap 7 '21

Preparing anthracite for market without the use of water. D. C. Ashmead. flow sheet il Coal Age 18:935-8 N 4 '20

Price-Pancoast breaker relies on gravity to do much of the work. D. C. Ashmead. flow sheet il diags Coal Age 17:841-4 Ap 29 '20

Simplicity, labor economy and freedom from vibration mark the Alliance breaker. D. C. Ashmead. flow sheet il diags Coal Age 18: 671-6 S 30 '20

Single roll crusher is well safeguarded against breakage by tramp iron. il Coal Age 19:623-4 Ap 7 '21

Sizing and preparing a hard low-volatile coal in the broad top region to compete with anthracite. D. J. Baker. il diag Coal Age 19:1151-4 Je 30 '21

Woodward breaker sizes and prepares six thousand tons of anthracite per day. D. C. Ashmead. flow sheet il diags Coal Age 19:851-6 My 12 '21

See also Coal cutters

Coal bunkers. *See* Coal bins, Concrete

Coal-carbon ratio

Carbon ratios in carboniferous coals of Oklahoma, and their relation to petroleum. M. L. Fuller. map Econ Geol 15:225-35 Ap '20

Relation of oil to carbon ratios of Pennsylvanian coals in north Texas. M. L. Fuller. map Econ Geol 14:536-42 N '19; Discussion. S. L. Lloyd. 15:94-6 Ja '20

Coal carbonization. *See* Coal distillation

Coal cars

American 107-ton coal wagons. il Engineer 131:217 F 25 '21

Coal cars with bulged sides. il Ry R 67: 951-2 D 18 '20

New Norfolk & Western 100-ton coal cars. J. A. Pilcher. il diags Ry Mech Eng 95: 293-8, 367-70 My-Je '21; Excerpts. Ry Age 70:923-8 Ap 15 '21

100-ton coal cars for the Chesapeake & Ohio. il diags plans Ry Age 71:567-70 S 24 '21; Same. Ry Mech Eng 95:627-30 O '21

120-ton coal cars for Virginian railroad. il Ry R 68:41-3 Ja 8 '21

Coal cleaning

Can coal be cleaned by flotation. Coal Age 17:795, 1155-6; 18:177 Ap 22, Je 3, Jl 22 '20

Froth flotation applied to the separation of coal; abstract. Mech Eng 43:339 My '21

Froth flotation for cleaning coal being tried out in England. Coal Age 19:497 Mr 17 '21

In flotation process fine coal attaches itself to oil and bubbles, thus floating away with froth. E. G. Hill. diags plan Coal Age 19:993-5 Je 2 '21

New processes for treating coal. Elec Ry J 58:245 Ag 13 '21

Recent developments in coal cleaning processes. R. O. Nelson. Eng & Ind Management 6:72-3 Jl 21 '21; Same. Engineering 112: 76-7 Jl 8 '21; Abstract. Electrician 87:42-3 Jl 8 '21; Discussion. Engineering 112:45 Jl 8 '21; Electrician 87:43 Jl 8 '21

Some of the many problems in the cleaning of coal. E. O'Toole. il Coal Age 20:3-6, 53-5 Jl 7-14 '21

Trent process is oil flotation principle applied to powdered coal. Nat Pet N 13:43+ Ag 3 '21

Use of oil in cleaning coal. G. St J. Perrott and S. P. Kinney. il Chem & Met Eng 25: 182-8 Ag 3 '21; Same. Coal Age 20:132-4, 172-5 Jl 28-Ag 4 '21; Same. Am Gas J 115: 143-4+ Ag 13 '21; Abstract. Power 54:196-7 Ag 2 '21; Foreword. O. P. Hood. Chem & Met Eng 25:182 Ag 3 '21; Same. Coal Age 20:135 Jl 28 '21; Same. Iron Age 108: 323 Ag 11 '21

Washing coal with air instead of with water. L. E. Woods. il diags plan Coal Age 19:810-12 My 5 '21

See also Coal washing

Coal consumption

Analysis of industrial power in the Superpower Zone. H. Goodwin, jr. diags Power 54:584-8 O 18 '21

Coal conservation in the United Kingdom. D. Clerk. Engineering 109:543-5, 591-3 Ap 23-30 '20; Same cond. Engineer 129:418-20 Ap 23 '20

Coal consumed by public utility power plants, March-July, 1921. Coal Age 20:544 O 6 '21

Coal consumed in production of electric power, by states, in net tons. Coal Age 19:680 Ap 14 '21

Coal consumption by users. Elec Ry J 58: 201 Ag 6 '21

Coal custom of public utilities sought when spot market is low. map Coal Age 20:584 O 13 '21

Coal in 1918; distribution and consumption. C. E. Leshner. map U S Geol S Min Res of U S 1918, pt 2:1315-92 '20

Coal situation in New England. C. E. Leshner. Coal Age 18:100-1 Jl 15 '20

Coal consumption—Continued

- Consumption of coal according to principal uses. Power 54:201 Ag 2 '21; Same. Chem & Met Eng 25:648 O 5 '21
- Cutting coal consumption a third. il diags plan Elec Ry J 58:232-7 Ag 13 '21
- Fifteen million tons of coal! the clay industry's annual coal needs. Brick & Clay Rec 58:124-5 Ja 25 '21
- New York lighting companies use 3,453,408 tons of coal a year. il Power 51:926 Je 8 '20
- Relation of water power to the fuel problem. map Can Eng 40:503-6+ My 26 '21; Same. Engineer 132:4-6 Jl 1 '21
- Utah coals and the fuel supply of Salt Lake City; with graphs. O. Monnett. il Power 52:247-9 Ag 17 '20

Coal contracts

- Framing of a serviceable form of binding contract a vexing problem of the coal industry. C. Scholz. Coal Age 20:576-7 O 13 '21
- Problem in business law. T. Conyngton. Administration 2:539-40 O '21
- Uniform coal contract proposed. Power 53:662-3 Ap 26 '21; Same. Power Pl Eng 25:461-2 My 1 '21; Same. Coal Age 19:593 Mr 31 '21

See also Coal purchasing

Coal crushers

- Coal crusher installed as part of automatic stoker. diags Elec R 79:443 S 17 '21

See also Coal breakers

Coal crushing

- Crushing coal in by-product coke industry. il Blast F & Steel Pl 8:21-2 Ja '20

See also Coal, Pulverized—Preparation

Coal cutters

- Cutter chain with reversible bits that keep tight and wear pointed. il Coal Age 18:392-3 Ag 19 '20
- Economy and safety are secured by use of alternating-current coal cutters. C. B. Officer. il Coal Age 17:1303-6 Je 24 '20
- Machine that cuts coal without alighting from its carriage. il Coal Age 17:904-5 My 6 '20
- Matters that must not be overlooked if mining machines are to do their best. F. E. Van Slyke. Coal Age 17:1311 Je 24 '20
- Mining machine cuts coal in stratum that offers least resistance to cutter bar. M. P. Martin. il Coal Age 19:785-7 My 5 '21
- Modern electrical coal cutters. il Electrician 85:719 D 17 '20
- New cutter for coal mines cuts in any direction. il Pop Mech 36:338 S '21
- New features in cutters make them adaptable and easy to load and unload. S. B. King. il Coal Age 18:1323-5 D 30 '20
- Safe ways of using alternating current for coal-cutting machinery. L. C. Ilsley and E. J. Gleim. Coal Age 18:106-7 Jl 15 '20
- Three methods of abusing coal-cutting machines that your men should avoid. N. D. Levin. il Coal Age 18:339-40 Ag 12 '20
- Use of coal-cutting machinery spread in Great Britain in 1919. Coal Age 19:583 Mr 31 '21

Coal distillation

- Ammonia from coal. Gas Age 45:24-5 Ja 10 '20
- Assay of coal for carbonization purposes. Sci Am M 3:469 My '21
- British fuel research board already accumulating much data on low temperature carbonization. Am Gas Eng J 112:381-4+ My 15 '20
- Carbonization of coal stands out preeminently as the efficient method of extracting its greatest thermal and chemical values. Am Gas Eng J 112:27-8+ Ja 10 '20
- Carbonization: report of A.G.A. 1920 committee; Progress division. il diags Am Gas Assn Technical sec v 2:84-138 '20
- Chemists discuss colloidal fuel and new problems in the carbonization of coal. Coal Age 18:692-4 S 30 '20
- Coal as a future source of oil fuel supply. A. Duckham. Inst Pet Tech J 7:3-12; Discussion. 13-26 Ja '21

- Commercial realization of the low-temperature carbonization of coal. H. A. Curtis. il J Ind & Eng Chem 13:23-6 Ja '21
- Complete gasification favored. N. H. Humphrys. Gas Age 45:447 My 25 '20
- Converting coal into gas. Soc Auto Eng J 9:324 N '21
- Developments in power station design. il diags Engineer 132:324-5, 336-8 S 23-30 '21
- Distillation of fuels as applied to coal and lignite; abstracts. O. P. Hood. Mech Eng 43:23-4 Ja '21; Power 52:997-8 D 21 '20
- La distillation sèche des charbons en deux temps. F. Schwes. Génie Civil 79:333-4 O 15 '21
- L'état de la technique dans le domaine de la gazéification en gazogène, avec récupération du goudron et traitement de celui-ci. Allner. Chimie & Ind 5:39 Ja '21
- L'évolution dans la récupération et le traitement des sous-produits de la carbonisation de la houille. C. Berthelot. il diags Chimie & Ind 5:384-97, 508-17 Ap-May '21
- L'extraction des différents produits de la distillation de la houille; procédés et installations de la Société du gaz de Paris. A. Grebel. il diag Génie Civil 77:148-53, 165-70 Ag 21-28 '20
- Extraction des huiles de graissage de la houille. A. Sander. Chimie & Ind 6:188-9 Ag '21
- Low-temperature carbonization. G. Beilby. Chem & Met Eng 25:228 Ag 10 '21
- Low temperature carbonization. F. P. Coffin. il Gas Age 48:54-7 Jl 25 '21
- Low-temperature carbonization and its application to high oxygen coals. S. W. Parr and T. E. Layng. J Ind & Eng Chem 13:14-16; Discussion. 16-17 Ja '21
- Low temperature carbonization and its relation to the iron and steel industry. A. Thau. Blast F & Steel Pl 9:645-8 N '21
- Low temperature carbonization of coal. S. J. Lloyd. Am Gas J 114:353-4+ Ap 23 '21
- Low-temperature carbonization of coal. S. W. Parr and T. E. Layng. Min & Met 158:(sec 4) 1-7 F '20; Same. Coal Age 17:392-3 F 26 '20; Same cond. Iron Tr R 66:488-9 F 12 '20; Same cond. Blast F & Steel Pl 8:220 Mr '20
- Low-temperature carbonization of coal and manufacture of smokeless fuel briquets. H. A. Curtis. il diag Chem & Met Eng 23:499-501 S 8 '20
- Low-temperature carbonization of coal in England. Chem & Met Eng 22:692 Ap 14 '20; Same. Coal Age 17:697 Ap 8 '20; Same. Ry R 66:675-6 Ap 24 '20
- Low temperature carbonisation of coal; smokeless fuel plant at Barugh. il diags Engineer 132:464 O 28 '21
- Low-temperature distillation of coal in rotating coke oven. I. E. Roser. il Power 52:678-9 O 26 '20
- Low temperature distillation of sub-bituminous coal. H. K. Benson and R. E. Canfield. J Ind & Eng Chem 12:443-6 My '20
- Making the smokiest coal smokeless while saving byproducts. G. Esherick, jr. il Coal Age 18:275-7 Ag 5 '20; Excerpt. Eng & Contr 54:224-5 S 8 '20
- Manufacture of smokeless fuel. il diags Engineering 112:596-601, pl 35-7 O 28 '21
- Oxygen in gas production. H. J. Hodsmann and J. W. Cobb. Am Gas Eng J 113:5-8, 11-14 Jl 3 '20
- Pennsylvania coals and shales greatly vary in their content of oil. G. H. Ashley and C. R. Fettke. Coal Age 19:401-3 Mr 3 '21
- Pros and cons of low-temperature distillation of coal. Coal Age 17:1142 Je 3 '20
- Prospect that soon no coal will be used without preliminary devolatilization. G. Esherick, jr. il Coal Age 18:327-30 Ag 12 '20
- Regional power development and the low temperature distillation of coal. C. M. Garland. Am Inst E E J 39:455-7 My '20; Same cond. Power 51:824-5 My 18 '20
- Review of published information on the low temperature carbonization of coal. J. D. Davis. Am Gas Assn Technical sec v 2:105-38 '20

Coal distillation—Continued

- Smith continuous carbonization process. il diags Engineering 112:175-8 J1 29 '21; Same cond. Power 54:343 Ag 30 '21
- Smith continuous system of carbonisation. G. H. Thurston. Engineer 131:41 Ja 14 '21
- Some factors affecting the sulfur content of coke and gas in the carbonization of coal; with discussion. A. R. Powell. J Ind & Eng Chem 13:33-5 Ja '21
- Sulphur distrib'n in carbonization. U. O. Hutton and C. C. Thomas. diag Gas Age 47:88-94 F 10 '21
- Sulphur in coal and coke. A. R. Powell. Eng Soc W Pa 36:611-25; Discussion. 626-40 D '20
- L'utilisation des déchets de houille. Génie Civil 77:238-9 S 18 '20

See also Coal tar; Coal-tar products

Coal drying

- Atritor coal drying and pulverizing machine. il Engineer 132:150 Ag 5 '21; Iron Age 108:742 S 22 '21
- Drying coke-oven coal centrifugally in one continuous automatic operation. C. Wendell. il diag Coal Age 18:108-10 J1 15 '20

See also Coal washing

Coal dust

- Dangers from coal dust. L. D. Tracy. Power Pl Eng 24:247-8 F 15 '20; Same. Blast F & Steel Pl 8:147-8 F '20; Same. Iron Age 105:735-6 Mr 11 '20
- Does fusain cause mine and bin fires, spoil coke and aid explosions? F. S. Sinnatt, H. Stern and F. Bayley. Coal Age 18:384-8 Ag 19 '20
- L'état actuel de nos connaissances sur les coups de poussières dans les charbonnages et sur les moyens de les combattre. E. Audibert. Génie Civil 79:307-11 O 8 '21
- Explosion hazard and its prevention. J. F. Shadgen. Iron Age 108:205-6+ J1 28 '21
- Explosion hazard from partly consumed coal dust. Power 51:609 Ap 13 '20
- Explosion hazard in steel mills from partly consumed coal dust. Chem & Met Eng 22:422-3 Mr 3 '20
- Explosion hazards in industrial plants due to the use of pulverized coal. L. D. Tracy. Coal Age 19:746-9 Ap 28 '21; Abstracts. Power 53:718-19 My 3 '21; Power Pl Eng 25:578-9 Je 1 '21; Iron Age 107:1538 Je 9 '21
- Keeping down dust by sprinkling empties. E. E. Hughes. il Coal Age 18:990 N 11 '20
- La sixième série d'essais sur les inflammations de poussières, de la station des mines de Liévin. R. R. Marcy. Génie Civil 79:229-31 S 10 '21
- Stone used for dusting coal mines should be chosen with care. Coal Age 19:745 Ap 28 '21

Coal dust as fuel

- Anwendbarkeit der kohlenstaubfeuerung in eisenhüttenwerken. G. Bulle. il diags Stahl & Eisen 41:985-94 J1 21 '21

See also Coal, Pulverized

Coal fires. See Coal storage**Coal gas. See Coke-oven gas; Gas****Coal handling**

- L'abatage et le transport mécanique du charbon dans les mines de Carmaux. Caltaux. diags Génie Civil 78:482-3 Je 4 '21
- At Plumville coal is dumped in mine and carried by apron conveyor to tippie. D. J. Baker. il diags plan Coal Age 19:699-703 Ap 21 '21
- Belt conveyor transfers coal across river with suspension bridge as support. R. W. Shumway. il Coal Age 19:525-7 Mr 24 '21
- Burning pulverized coal in a sheet mill. il diags Iron Age 104:1167-72 D 11 '19
- Coal and ash handling equipment of the Colfax power station on the Allegheny river, U.S.A. plan Eng & Ind Management 6:50-1 J1 14 '21
- Coal and ash handling mechanism for an office building. W. F. Leggett. il diag Eng & Contr 54:648-9 D 29 '20

- Coal and ash handling plant at the new power station, Rotherham. il diags plans Eng & Ind Management 5:308-10 Mr 10 '21

- Coal and ash handling systems for power plant boiler houses. W. F. Leggett. il Munic Eng 60:32+ Ja '21

- Coal and ashes handling installation. H. J. Edsall. il diags plan Textile World 57:2501+ Ap 3 '20

- Coal-handling at Erie works plant of General electric co. H. J. Edsall. il Power 50:814-16 D 16 '19

- Coal-handling at Mooresville mills. il Textile World 60:1373+ S 3 '21

- Coal handling equipment of the Old Hickory powder plant. H. J. Edsall. il Ind Management 59:36-41 Ja '20

- Coal handling features new boiler plant of McKeesport tin plate co. il diag Iron Age 105:321-4 Ja 29 '20

- Coal handling in the power house; equipment of the British cellulose and chemical manufacturing company. G. F. Zimmer. diags plans Electrician 86:6-9 D 31 '20

- Coal handling in the power plant. il Elec Ry J 55:296 F 7 '20

- Coal handling plant of the new power house of Leyland motors, ltd. diags plans Eng & Ind Management 5:753-5 Je 30 '21

- Coal handling plant of the West Penn power company. diag Eng & Ind Management 5:361-2 Mr 24 '21

- Coal storage; insurance against shutdowns, proper location of pile, methods of piling. il diags Power Pl Eng 25:14-23 Ja 1 '21

- Coal storage with portable conveyors. il plan Power Pl Eng 24:455-61 My 1 '20

- Coal unloading conveyors. il Eng & Ind Management 5:364 Mr 24 '21

- Conveying at the pit banks of the Fushun mine, near Mukden, on the South Manchurian railway. G. F. Zimmer. diags plans Eng & Ind Management 5:181-3 F 10 '21

- Description of the Kathleen mine plant at Duquoin, Illinois. A. Allen. il diags plans W Soc E J 25:525-40; Discussion. 540-4 O '20

- Distributing pulverized coal to small plants. B. J. Cross. il diags Coal Age 17:635-7 Ap 1 '20

- Donk Bros.' No. 4 mine embodies many needed reforms in bottom and surface coal-handling methods. A. Allen. il diags plans Coal Age 19:1027-35 Je 9 '21

- Dragline cableway excavator rehandling coal. il Power 52:260 Ag 17 '20

- Economies effected in the handling of bank coal and breaker refuse. D. C. Ashmead. il Coal Age 19:266-7 F 10 '21

- 8,000-ton tippie with a 5,000-ton storage bin for coking coal erected at Lynch, Kentucky. H. N. Eavenson. il diags plans Coal Age 20:452-8 S 22 '21

- Electric hoists in the power plant. il diag Power Pl Eng 24:509-11 My 15 '20

- Equipment for handling coal and ashes in power plants. R. June. il Elec R 75:481-3, 691-2; 76:109-11 S 20, O 25 '19, Ja 17 '20; Same cond. Textile World 55:1453+, 2089+, 2719+ Mr 1, Ap 5, My 3 '19

- Export coal facilities at the Curtis Bay, Md., terminals of the Baltimore & Ohio railroad. P. G. Lang, jr. il Gen Elec R 24:433-5 My '21

- Fuel handling; comparison of various methods in the power plant. il diags Power Pl Eng 25:2-14 Ja 1 '21

- Handling coal by using belt conveyors. il diag plans Elec W 75:835-8 Ap 10 '20

- Handling coal with a monorail system. il diag Ry Age 69:197 J1 30 '20

- Handling coal with horse and drag scraper. H. A. Ward. il Power Pl Eng 25:507-8 My 15 '21

- Handling 50 per cent greater power station load with nine men less. il plan Elec Ry J 55:322-4 F 14 '20

- Handling the factory coal pile. C. L. Hubbard. il diags Factory 24:1531-6 My 15 '20

- How a small mine met its surface problems. D. J. Baker. il Coal Age 19:263-5 F 10 '21

Coal handling—Continued

- How Mather colliery stores coal at the mine in times of railroad-car shortage. D. J. Baker. *il Coal Age* 18:1317-21 D 30 '20
- Improved coal-handling facilities at Cos Cob, Conn. *il Elec Ry J* 55:143-6 Ja 17 '20; Same. *Power* 51:546-7 Ap 6 '20
- Improvements in handling ore and coal. *il Blast F & Steel Pl* 8:521-2 S '20
- L'installation de chargement du charbon à bord des navires, à Curtis Bay (Maryland, E.-U.). *il diags plan Génie Civil* 79:341-5 O 22 '21
- L'installation de manutention du charbon de la Fall River gas co, à Fall River (Mass., E.-U.). *il Génie Civil* 78:13-14 Ja 1 '21
- Installation of coal-handling equipment at the Old Hickory smokeless powder plant, at Nashville, Tenn. *diags Power Pl Eng* 24:557-8 Je 1 '20
- Interlocking belt conveyor system. A. M. Beebe. *il diags Gas Age* 48:105-7 Ag 6 '21
- La Belle coke plant. G. P. Blackiston. *il Chem & Met Eng* 22:561-3 Mr 24 '20; Same. *Blast F & Steel Pl* 8:149-52 F '20
- Loading a culm bank by means of breasts. D. C. Ashmead. *il plan Coal Age* 19:908-9 My 19 '21
- Long conveying apparatus in a Pittsburgh mine. *il Coal Age* 16:752-3 N 6 '19
- Lowering lump coal down a steep mountain on a moving bed of slack. D. J. Baker. *il diags Coal Age* 18:53-8 Jl 8 '20
- Lowering splint coal down a mountain with minimum breakage. J. Keely. *il Coal Age* 17:638-41 Ap 1 '20
- Machine vs. hand loading of ships with coal for foreign markets. W. S. Campbell. *il diags Coal Age* 19:573-5 Mr 31 '21
- Magnetic separator pulleys in coal plants. W. H. Costello. *il diags Blast F & Steel Pl* 9:401-3 Je '21
- New coal loading machine at Montour No. 10 mine of Pittsburgh coal company. R. W. Mayer. *il Coal Age* 16:853-5 N 27 '19
- New electric Barney hauling machine. *il Eng & Contr* 55:71 Ja 19 '21
- New station at Baltimore has unique coal-handling method. M. D. Engle. *il diags Elec W* 77:133-7 Ja 15 '21
- Les nouvelles installations de déchargement du port de Bordeaux. H. Martin. *il diags Génie Civil* 77:25-30, pl 2 Jl 10 '20
- Novel coal handling at the McKeesport tin plate company's plant. *il diags Power* 51:178-9 F 3 '20
- One man stores or reclaims 1,500 tons of coal a day at a West Virginia mine. F. C. Thornley. *plan Coal Age* 19:261-3 F 10 '21
- Perkins coal handling machinery in two Illinois state power plants. W. F. Leggett. *il Munic Eng* 60:204-5 My '21
- Pneumatic coal conveying at the chemical works of Boots, Ltd., Nottingham. *Eng & Ind Management* 5:252 F 24 '21
- Pneumatic handling of coal. *il diags Electrician* 86:801-3 Je 24 '21
- Powdered coal plant with compressed air transport. *diag Elec Ry J* 55:817-18 Ap 17 '20
- Power drives for rolling mills. W. O. Rogers. *diags Power* 51:295-6 F 24 '20
- Purchase and erection of engineering equipment. A. S. Loizeaux. *Paper* 27:24-5+ N 10 '20
- Reducing coal and ashes handling costs. H. J. Edsall. *il diag Textile World* 60:1931+, 2869+ O 1, N 12 '21
- Rocking towers with a clamshell bucket permit storage of coal over large areas. *diag Coal Age* 19:951-2 My 26 '21
- Shipping coal by wire; the Springdale undertaking—a great power house at the mine mouth. R. G. Skerrett. *il Sci Am* 124:144+ F 19 '21
- Shooter for moving coal. F. Szabo. *il diag Pop Mech* 35:925 Je '21
- Sixty tons per minute; Baltimore's new coal pier, and how it makes its records. J. F. Springer. *il Sci Am* 124:470+ Je 11 '21
- Small mine stores run-of-mine coal with derick and grab bucket. D. J. Baker. *il diag plan Coal Age* 19:393-4 Mr 3 '21

Springdale power station, West Penn power company. G. G. Bell. *il diags plan Power* 52:488-96 S 28 '20

Steam jet coal conveyor. *il Power Pl Eng* 25:460 My 1 '21

Successful pulverized coal installation of the Milwaukee electric railway & light co. I. L. Kentish-Rankin. *plan Power Pl Eng* 24:314-15 Mr 15 '20

Towers, cableways, and skip hoists in coal handling. C. B. Connely. *il diag Gen Elec R* 24:331-8 Ap '21

Universal coal conveyor. *diags Power* 53:592 Ap 12 '21; *Eng & Ind Management* 5:703 Je 16 '21

W. A. Slater mills' coaling plant. G. P. Carver. *il Textile World* 56:3163+ N 29 '19

Washery sludge burned in pulverized form at Seattle. *Power* 51:729-31 My 4 '20

West Penn power company's new coal-handling system. *il N E L A Bul* 7:874-5 D '20

See also Coal—Transportation; Coal piers; Coal storage; Coal trimmers, Mechanical; Coaling; Coaling stations; Motor trucks in coal delivery

Cost

How much it costs to handle coal. *il Brick & Clay Rec* 58:726-8 My 3 '21

Coal hods

Making a serviceable coal hod. *diags Metal Work* 93:240 F 20 '20

Coal lands

Carrying out burdensome contracts. A. L. H. Street. *Coal Age* 17:1188 Je 10 '20

Coal-land sales in 1918 and 1919; tabulation. *Coal Age* 17:79 Ja 15 '20

Taxing anthracite. W. E. Joyce. *Coal Age* 16:844 N 27 '19

See also Coal mines and mining; Mineral lands

Coal measurement

How many tons in a conical pile of anthracite coal? W. F. Schaphorst. *il Am Gas Eng J* 114:37 Ja 8 '21; Same. *Heat & Ven* 18:60 F '21

Weight and volume of legal bushel of coal in Pennsylvania. *Coal Age* 18:858 O 21 '20

Weights and measures of Ohio coal. *Coal Age* 18:498 S 2 '20

Coal meters

Lea coal meter for chain-grate stokers. *Engineering* 111:488 Ap 22 '21

Coal miners

Contract system of mining coal. *Coal Age* 17:959; 18:176, 348-9, 400, 639, 688-9, 808 My 6, Jl 22, Ag 12-19, S 23-30, O 14 '20

Deal squarely with the miner. S. C. Reynolds. *Coal Age* 17:553-4 Mr 18 '20

Direct negotiation and open shop cited as safeguards of mine worker's freedom. E. W. Parker. *Coal Age* 18:1086-9 N 25 '20

Discrediting the consulting economist in wage controversies. *Coal Age* 18:492-4, 549-50 S 2-9 '20

How age and occupation affect frequency and duration of disabilities. W. W. Adams. *Coal Age* 17:1256-8 Je 17 '20

How modern employment practices assure contented and efficient personnel. N. O. Irwin. *il Coal Age* 19:1077-80 Je 16 '21

Irregularity of employment in the anthracite industry [and other studies of coal mining]. Presented by W. J. Lauck on behalf of United mine workers of America before the United States Anthracite coal commission, Washington, D.C. '20

Is the health of mine workers adversely affected by mine conditions? C. L. Green. *Coal Age* 17:598-9 Mr 25 '20

Labor and its responsibilities. C. Piez. *Coal Age* 16:882-4 D 11 '19

Labor in a basic industry. W. Hard and P. R. Leach. 34p Chicago daily news, Chicago '20

Labor problem in the coal mining industry. C. L. Fay. *Coal Age* 16:833-4 N 27 '19

Miner's yearly and daily output of coal. W. W. Adams. *Monthly Labor R* 11:522-30 S '20

Coal miners—Continued

More labor is employed in mines mechanically equipped. W. H. Noone. Coal Age 18:294-5 Ag 5 '20

Physical work and the human machine. H. Briggs. Eng & Ind Management 6:323-6 S 22 '21

Some wage problems. C. E. Leshner. Coal Age 17:1281-3 Je 17 '20

Thirty-hour week of the coal miner. S. A. Taylor. Min & Met 157:(sec 1) 5-6 Ja '20

Welfare work at an anthracite colliery. D. C. Ashmead. il diags plans Coal Age 17:382-5 F 26 '20

Alabama

Six months' strike in Alabama; United mine workers of America failed in their efforts to dominate the coal industry. Coal Age 19:631-2 Ap 7 '21

Canada

New working agreement affecting coal miners in Alberta and eastern British Columbia. Monthly Labor R 11:1021-8 N '20

France

Wages and production in coal mines of France, 1914 to 1919. Monthly Labor R 11:517-21 S '20

Germany

Production and labor conditions in German hard-coal fields. A. Maylander, comp. Monthly Labor R 11:448-61 F '21

Shorter working day in German coal mines. Monthly Labor R 10:173-7 Ja '20

Great Britain

Coal dispute. Engineering 111:428-9 Ap 8 '21

Coal strike hurts U. K. shipping. C. Maughan. Marine R 51:358-60 Ag '21

Exit the butt system in England. M. Meredith. Coal Age 17:222 Ja 29 '20

Miners' wage rates based on output. N. H. Humphrys. Gas Age 46:512-13 D 25 '20

Mines and miners. Engineer 131:379-80 Ap 8 '21

Wages paid British coal mine workers. Coal Age 20:55 Jl 14 '21

Wages in the coal industry in England. Engineering 111:402 Ap 1 '21

See also Coal strike (British)

Illinois

Immigrant and coal mining communities of Illinois. G. Abbott. (Bul. no. 2) 43p Illinois immigrants' commission, Springfield '20

New wage scale for Illinois bituminous coal miners. Monthly Labor R 11:1198 D '20

Nova Scotia

Nova Scotia miners to vote on Montreal agreement. Coal Age 18:1243 D 16 '20

Ohio

Eastern Ohio miners concede a fair scale. Coal Age 17:1017-18 My 13 '20

Pennsylvania

Central Pennsylvania decides on wage scale for 1920-1922. Coal Age 17:947 My 6 '20

Company housing in anthracite region of Pennsylvania. L. Magnusson. il plans Monthly Labor R 10:1260-9 My '20

Scale in Pittsburgh field waits on house-rent decision. Coal Age 17:1006 My 13 '20

Wage-scale agreement for central Pennsylvania. Coal Age 17:1016-17 My 13 '20

United States

Achievement in price determination by a consulting economist. Coal Age 18:644-5 S 23 '20

Anthracite coal operators decline to meet wage demands of miners. Comm & Fin Chr 111:2482-3 D 25 '20; Same abr. Coal Age 18:1338 D 30 '20

Anthracite commission decides that it is not empowered to consider prices and profits. D. C. Ashmead. Coal Age 18:181-4 Jl 22 '20

Anthracite mine workers' argument for a larger wage presented by Jett Lauck. Coal Age 18:80-2 Jl 8 '20

Anthracite miners quote living costs to justify wage increase. Coal Age 17:620-1 Mr 25 '20

Anthracite wage conferees agree to make settlement operative from April 1. Coal Age 17:669-70 Ap 1 '20

Anthracite wage dispute will be submitted to arbitration. Coal Age 17:1170 Je 3 '20

Are the miners un-American? Coal Age 18:72, 543-5 Jl 8, S 9 '20

Award of the Anthracite coal commission and resultant wage rates. Monthly Labor R 11:716-33 O '20; Abstract. Coal Age 18:1056 N 18 '20

Bituminous coal commission report made public. Ry Age 68:1043-6 Mr 26 '20

Brief of majority report of Bituminous coal commission on wages. Coal Age 17:650-2 Ap 1 '20

Case of the anthracite coal mine workers. 95p United mines workers of America, Baltimore '20

Central competitive field makes new basic agreement. Coal Age 17:725-7 Ap 8 '20

Coal miners better paid than other classes of labor, president's commission expected to report. Coal Age 17:234-5 Ja 29 '20

Coal wage report accepted and price control ends. Ry R 66:525-7 Mr 27 '20

Concrete example of labor turnover. W: R. Rorer. Coal Age 17:1209-10 Je 10 '20

Diagrammatic illustration of labor turnover. W: R. Rorer. diag Coal Age 18:73 Jl 8 '20

District judge Anderson enjoins United mine workers from unionizing Williamson coal fields and orders discontinuance of check-off system. Comm & Fin Chr 113:1941-2 N 5 '21

Hard-coal operators meet Lauck's statements that miners are underpaid and short-lived. D. C. Ashmead. Coal Age 18:244-9 Jl 29 '20

Hours and earnings in anthracite and bituminous coal mining. U S Bur Labor Statistics Bul 279:1-114 '21

Last stand of the open shop; United mine workers of America have precipitated a strike. R. W. Hinds. il Coal Age 18:1037-40 N 18 '20

Mine workers present their initial argument to anthracite wage commission. Coal Age 18:29-31 Jl 1 '20

Miners and operators meet with coal commission. Coal Age 17:188-9 Ja 22 '20

Miners' scheme for regulating wages and profits. Engineering 111:432-3 Ap 8 '21

National coal association shows that miners make good wages. Coal Age 17:676-7 Ap 1 '20

Operators make full reply to the allegations of United mine workers especially as to wages and working time. Coal Age 18:193-205 Jl 22 '20

Operators make their case before the Bituminous coal commission. Coal Age 17:316-17 F 12 '20

President approves majority decision of Anthracite coal commission despite strike threat. Coal Age 18:510-11 S 2 '20

President Wilson accepts majority report of Anthracite coal commission; summary of report. Comm & Fin Chr 111:946-8 S 4 '20

Tonnage output per pick miner per day in bituminous coal fields. E. Stewart. Monthly Labor R 11:249-59 F '21

Two closed-shop fights and strikes against industrial relations court outstanding features of 1920. R. D. Hall. Coal Age 19:323-4 F 17 '21

Re-opening of anthracite wage award by President Wilson. Comm & Fin Chr 111:1624, 1710-11 O 23-30 '20

Report of the United States bituminous coal commission. Monthly Labor R 10:870-80 Ap '20

Wages and earnings in anthracite mines. J. Lauck. Coal Age 18:138-46 Jl 15 '20

Wages and hours of labor in anthracite coal mining industry, 1919 and 1920. Monthly Labor R 10:1401-9 Je '20

Coal miners—United States—*Continued*

- Wages of both anthracite and bituminous mine workers increase in 1920. R. D. Hall. *il* Coal Age 19:272-4 F 10 '21
- Warriner shows up many misinterpretations of fact in Lauck's voluminous exhibits. Coal Age 18:123-8 J1 15 '20
- White advocates larger concessions than soft-coal commission recommends. Coal Age 17:666-8 Ap 1 '20
- See also* Coal strike, 1919
- West Virginia**
- Civil war in West Virginia. W. D. Lane. 128p B. W. Huebsch, New York '21
- United mine workers of America charged with fomenting the Mingo rebellion. Coal Age 20:651-2 O 20 '21
- Wage scale drawn up in Kanawha field. Coal Age 17:835 Ap 22 '20
- Wage scale granted mine workers of northern West Virginia. Coal Age 17:953 My 6 '20
- War in the Mingo mine fields. B. C. Clarke. *il* Am Ind 22:7-10+ O '21
- West Virginia coal miners' troubles. C. Scholz. *Min & Met* 179:4 N '21
- Coal mines and mining**
- American institute of mining and metallurgical engineers New York session. Coal Age 19:406-7 Mr 3 '21
- Anthracite industry. C. F. Jackson. *Min & Met* 171:43-4 Mr '21
- Applying new methods in the mining of coal. M. L. O'Neale. *diag* Coal Age 20:340-1 S 1 '21
- Breakage of coal in mines. W. H. Luxton. Coal Age 20:422 S 15 '21
- Breaking down coal without use of powder; coal face is slotted near the roof, hydraulic pistons are placed in the slots and a water pressure forces down the already undermined coal. D. V. Sickman. *diags* Coal Age 19:180-3 Ja 27 '21
- Coal age catechism. 139p McGraw-Hill '20
- Coal industry in 1920 continued to borrow ideas liberally from metal-mining practices. R. D. Hall. *il* Coal Age 19:126-30 Ja 20 '21
- Coal mining as seen by an ore engineer. A. J. Mason. *il* Coal Age 19:708-11 Ap 21 '21
- Coal mining institute of America studies present-day operating problems. R. D. Hall. Coal Age 18:1283-6 D 23 '20
- Coal-pillar drawing methods in Europe. G. S. Rice. *il* *diags* plan Coal Age 19:481-5 Mr 17 '21; Abstract. *Min & Met* 170:36 F '21; Abstract. *Sci Am M* 3:284 Mr '21
- Concentration essential to better mining. Coal Age 20:585-6 O 13 '21
- Conservation of coal. E. Ludlow. *Min & Met* 159:(sec 3) 64-9 Mr '20; Same. Coal Age 17:442-5 Mr 4 '20; Same *abr.* *Iron Tr R* 66:708-9 Mr 4 '20
- Demand factor of coal mining loads. C. Lee. *W Soc E J* 26:350-9 O '21
- Demonstration coal mines. J. J. Rutledge. *Min & Met* 158:(sec 17) 1-4 F '20; Same. Coal Age 17:386-8 F 26 '20
- Despite a high hill and winding approach tunnel rapidly and accurately driven. M. W. Venable. *plan* Coal Age 19:704-5 Ap 21 '21
- Digging Panama canals underground by hand. *Mech Eng* 43:349-50 My '21
- Drilling borehole through 136 ft. of coal against head of water. D. C. Ashmead. *diag* Coal Age 18:390 Ag 19 '20
- Effect of working an underlying seam. Coal Age 18:594, 1003, 1004 S 16, N 11 '20
- Engineering features of modern large coal mines in Illinois and Indiana. C. A. Herbert and C. M. Young. *il* *diags* plans *Min & Met* 53:sup2445-73 S '19; Discussion. 155:3044-7; 157:(sec 12) 45-50 N '19, Ja '20
- Estimating requirements and equipment when opening a mine. Coal Age 18:451 Ag 26 '20
- L'exploitation aux mines de Brassac par gradins renversés. *diags* *Génie Civil* 76:300 Mr 20 '20
- Have mining engineers accepted all that developments in machinery for handling coal imply? R. D. Hall. *diag* Coal Age 20:13-15 J1 7 '21; Discussion. 20:301-2 Ag 25 '21
- Hydraulic flushing of mine workings. J. D. Paton. Coal Age 17:18-19 Ja 1 '20
- Jubilee steel bankhead at Sydney mines will introduce many innovations in that type of structure. A. Dawes. *il* *diags* plans Coal Age 20:327-32 S 1 '21
- Low load factor in the coal industry. charts Power 54:199 Ag 2 '21
- Lowering splint coal down a mountain with minimum breakage. J. Keely. *il* Coal Age 17:638-41 Ap 1 '20
- Making side of room a working face, thus combining room-and-pillar with longwall. C. Scholz. *diag* plan Coal Age 19:661-2 Ap 14 '21; Discussion. 19:1083 Je 16 '21
- Maximum coal extraction. J. H. McMillan. *diag* Coal Age 17:365-6 F 19 '20
- Mechanical mining of anthracite. H. D. Kynor. *il* *Min & Met* 177:43-4 S '21; Same. *Sci Am M* 4:286 S '21
- Mine layout arranged for large tonnage and minimum handling cost. J. R. Elliott. *diags* plans Coal Age 17:978-9 My 13 '20
- Miner's yearly and daily output of coal; how the American miner's production compares with miners of other nationalities. W. W. Adams. *Am Gas Eng J* 113:125-8 Ag 14 '20
- Mining the coal before blasting. Coal Age 19:676, 999, 1125-6 Ap 14, Je 2, 23 '21
- Modern pillar drawing practice. A. W. Hesse. *diags* Coal Age 16:845-9 N 27 '19
- Most advantageous methods of mining low coal. plans Coal Age 18:403, 807, 808-9, 855-7, 1046-8, 1138-9, 1239 Ag 19, O 14-21, N 18, D 2, 16 '20
- Open-air mining of coal by electric shovels. G. Orb. *il* *Sci Am* 122:567+ My 22 '20
- Oxyacetylene process in collieries and shops. C. C. Phelps. *il* Coal Age 16:887-90, 930-3 D 11, 25 '19
- Panel system of coal mining a graphical study of percentage of extraction. C. M. Young. *diags* maps *Ill U Eng Exp Sta Bul* 113:1-74 '19
- Pillar drawing in thick coal seams. G. B. Pryde and R. A. Magraw. *diags* Coal Age 19:576-9 Mr 31 '21
- Planning a mine so as to secure maximum recovery. W. B. Riggleman and E. L. Griffiths. *diags* Coal Age 17:389-91 F 26 '20
- Power company service for the coal mine. *il* map *J Elec* 46:242-4 Mr 1 '21
- Power requirements for coal mining. R. Anthony. *il* *Elec W* 76:14-15 J1 3 '20
- Primary considerations in hydraulic stowing. C. A. J. Hendry. *diags* plans Coal Age 16:787-92 N 13 '19
- Problem in coal extraction. Coal Age 16:804-5, 859-60; 17:194-5 N 13, 27 '19, Ja 22 '20
- Problem in levels; how the shaft and workings of coal mines are kept free of water. J. F. Springer. *il* *Sci Am* 125:198+ S 17 '21
- Problems of the coal industry. V. H. Manning. Coal Age 17:396-8 F 26 '20
- Research in the coal-mining industry. E. A. Holbrook. *Min & Met* 153:1723-37 S '19; Discussion. 155:3047-9; 157:(sec 12) 30-3 N '19, Ja '20
- Robbing pillars with machines. Coal Age 19:757-8, 997-8, 1125; 20:260 Ap 28, Je 2, 23, Ag 18 '21
- Room and pillar vs. longwall advancing and retreating. *diags* Coal Age 17:1159 Je 3 '20
- Steam versus electric winding. W. C. Moun-tain. *Electrician* 87:50 J1 8 '21
- Successful methods of working two coal beds separated by six feet of slate. D. C. Ashmead. *diags* Coal Age 17:1189-90 Je 10 '20
- Traversée, par congélation, de sables bou-lants soumis à une pression de 63 atmos-phères pour le creusement de deux puits. Sauvestre. *Génie Civil* 77:219 S 11 '20
- Unusual mining methods near Shenandoah. D. C. Ashmead. Coal Age 19:446-52 Mr 10 '21
- West Virginia coal mining institute meets in Fairmont, June 7-8. *il* Coal Age 19:1119-23 Je 23 '21
- What barrier coal has been and should be left to protect anthracite mines. W. B. Richards. *diags* plan Coal Age 17:1097-1101, 1135-40 My 27-Je 3 '20

Coal mines and mining—Continued

- Why do American mine workers produce more coal than British? G: S. Rice. Coal Age 17:762-3 Ap 15 '20; Discussion. 17:1278; 18:350, 687-8, 952-3, 1140-1; 19:71, 276 Je 17, Ag 12, S 30, N 4, D 2 '20, Ja 13, F 10 '21
- Working a coal reserve. plan Coal Age 18:690 S 30 '20
- Working a steep seam of coal. diag Coal Age 20:142-3 J1 28 '21
- Working an overlying coal seam. Coal Age 19:455-6, 865-7, 1163-4 Mr 10, My 12, Je 30 '21
- Working badly contorted coal. Coal Age 18:954, 1334; 19:187, 367-8, 674 N 4, D 30 '20, Ja 27, F 24, Ap 14 '21
- See also Coal breakers; Coal cutters; Coal dust; Coal handling; Coal lands; Coal miners; Coal mining machinery; Coal storage; Coal washing; Hydraulic mine filling; Mining engineering
- Accidents and explosions**
- At Minnie mine methane was left in the gob; is this why an explosion occurred? J. Ashworth. plan Coal Age 19:267-9 F 10 '21
- Causes and prevention of fires and explosions in bituminous coal mines. E: Steidle. il U S Bur Mines Miners' Circ 27:1-74 '20
- Causes of mine explosions. J: Rose. Coal Age 17:1064 My 20 '20
- Coal-mine explosions. J. W. Paul. il Eng Soc W Pa 37:69-79; Discussion. 80-6 Mr '21
- Coal-mine fatalities in the United States, 1919. A. H. Fay. U S Bur Mines Bul 196:1-84 '20; Abstract. Coal Age 17:78 Ja 15 '20
- Coal-mine fatalities in the United States, 1920. W: W. Adams. U S Bur Mines Tech Pa 288:1-112 '21; Abstract. Coal Age 19:122-3 Ja 20 '21
- Coal mining accidents in the state of Washington. Safety Eng 41:62-4 F '21
- Cokeburg shaft, just sunk into coal, explodes, causing death of six men. Coal Age 17:1225 Je 10 '20
- Death rate per coal-mine employee lower than ever in Great Britain. Coal Age 20:295 Ag 25 '21
- L'état actuel de nos connaissances sur les coups de poussières dans les charbonnages et sur les moyens de les combattre. E. Audibert. Génie Civil 79:307-11 O 8 '21
- Fatalities of 1918 and 1919; tabulation. A. H. Fay. Coal Age 17:184 Ja 22 '20
- Have fatal accidents been reduced by increased sobriety? W. W. Adams. Coal Age 17:829-30 Ap 22 '20
- Hazards encountered in anthracite stripping. F. S. Gallus. il Coal Age 18:887-9 O 28 '20
- Illinois mining institute meets at Springfield, November 20. Coal Age 18:1189-90 D 9 '20
- Lightning in unwired Cochran mine sets fire to gas. A. F. Brosky. il Coal Age 20:674-5 O 27 '21
- Mine foreman fails to observe standing orders; mine explosion at Renton, Pa., July 19, 1920. il Coal Age 18:1191-2 D 9 '20
- Monthly statement of coal-mine fatalities in the United States. U S Bur Mines
- Mystery in mine explosions results from our lack of knowledge. W. M. Chambers. Coal Age 17:1010-11 My 13 '20
- Shots fired by lightning discharges. M. Ferey. Coal Age 17:272-3 F 5 '20
- La sixième série d'essais sur les inflammations de poussières, de la station des mines de Liévin. R. R. Marcy. Génie Civil 79:229-31 S 10 '21
- Unaccountable explosion. Coal Age 17:197, 324, 718-19 Ja 22, F 12, Ap 8 '20
- With decline in tonnage, fatal accidents decreased in 1919. Coal Age 17:706 Ap 8 '20
- See also Coal mines and mining—Safety measures; Mine accidents

Accounting

See Mine accounting

Bibliography

Nationalization of coal mines; a list of references in the New York public library, comp. by R. A. Sawyer. 11p N.Y. Pub. Lib. '20

Cost

- Anthracite costs, realization and margin. W. J. Thompson. Coal Age 19:244 F 3 '21
- Bituminous costs and realizations in middle Appalachian field. Coal Age 18:257-8 J1 29 '20
- Bulletin of coal-production costs during May issued. Coal Age 18:501-2 S 2 '20
- Coal quality—a factor in export trade. J. D. Davis. map Coal Age 18:537-9 S 9 '20; Discussion. F. R. Wadleigh. 18:991-5 N 11 '20
- Cost of coal production in March. Coal Age 18:33-4 J1 1 '20
- Cost of mining anthracite totals \$6.953 per gross ton loaded on cars. Coal Age 20:468-9 S 22 '21
- Cost reports of the Federal trade commission: coal. nos. 1-6 6v U S Fed Tr Comm '19-'20
- Cost reports of the Federal trade commission: coal; trans-Mississippi states—bituminous. U S Fed Tr Comm no 7 459p '21
- Costs of coal production during April issued. Coal Age 18:345-7 Ag 12 '20
- Detailed costs of coal production during June issued. Coal Age 18:1008 N 11 '20
- Distribution of supplies next in importance to labor in efficient keeping of coal-production costs. R. W. Gardiner. Coal Age 20:648 O 20 '21
- Federal trade commission publishes coal production costs for January and February, 1920. Coal Age 17:853-7, 1113-14 Ap 29, My 27 '20
- Federal trade commission reports on cost of mining coal. Power 52:236 Ag 10 '20
- Federal trade commission's findings on bituminous coal costs. Comm & Fin Chr 111:842 Ag 28 '20
- First quarterly report of Federal trade commission. Am Gas Eng J 113:194-6 S 4 '20
- Items in coal-mining cost. Coal Age 17:437 Mr 4 '20
- Obstacles to return of pre-war mining costs. D: L. Wing. Coal Age 19:363-6 F 24 '21
- Panel system of coal mining a graphical study of percentage of extraction. C. M. Young. diags maps III U Eng Exp Sta Bul 113:1-74 '19
- Seventh trade commission coal-cost report covers trans-Mississippi states. Coal Age 19:375 F 24 '21

Examinations

Examination questions. See weekly numbers of Coal age

Explosives

- Handling and transporting explosives. G. E. Daugherty. Coal Age 18:807-8 O 14 '20
- Powder flask in pillar working. Coal Age 17:771, 1276-7, 1318 Ap 15, Je 17-24 '20
- Safe and sane practice in the handling of explosives. R: Bowen. Coal Age 18:293 Ag 5 '20
- Safe plan for taking powder into mines. D. C. Ashmead. il Coal Age 17:705-6 Ap 8 '20
- Le tir électrique dans les houillères; amorces, exploseurs et détonateurs. diags Génie Civil 76:97-101 Ja 24 '20
- See also Explosives; Trojan powder

Finance

See Mining industry and finance

Haulage

See Mine haulage

Law

See Mining law

Management

American institute of mining and metallurgical engineers New York session. Coal Age 19:457-8 Mr 10 '21

Coal mines and mining—Management—*Cont.*

Avoidable degradation of coal. Coal Age 16: 586-7; 17:416-17, 660-1, 955-6 O 2 '19, F 26, Ap 1, My 6 '20

Classifying the working places and grouping the men. W. H. Noone. Coal Age 18: 857 O 21 '20

Conference seeks to cure all mine ills. R. D. Hall. Coal Age 17:408-11, 449-50 F 26-Mr 4 '20

How excessive first cost and inadequate output may make mining unprofitable. E. Steck. Coal Age 18:998 N 11 '20

Maintaining uniform output by proper distribution of men. Coal Age 18:239, 592-3 JI 29, S 16 '20

Management methods that will secure results in mine construction. C. Gottschalk. Coal Age 17:987-9 My 13 '20

Observed difference in the handling of men. Coal Age 19:674-5 Ap 14 '21

Problems of the coal industry. V. H. Manning. Min & Met 159:(sec 3) 3-8 Mr '20

Scientific management in coal mining. H. Archbald. Eng & Ind Management 6:35-9 JI 14 '21

See also Coal miners

Safety measures

Bomb-proof coal mining. S. R. Winters. il Sci Am 123:299 S 25 '20

Coal mines act, 1911. 146p Great Britain. Home dept., H. M. Stationery off., London '20

Curtain of dust to check a fire. il Sci Am 122: 11 Ja 3 '20

Does organized safety at coal mines pay? Coal Age 18:752 O 7 '20

L'état actuel de nos connaissances sur les coups de poussières dans les charbonnages et sur les moyens de les combattre. E. Audibert. Génie Civil 79:307-11 O 8 '21

Ford collieries co. reduced its accident insurance cost. D. J. Baker. il diag Coal Age 17:743-8 Ap 15 '20

How managers could decrease frequency of gas explosions in anthracite mines. J. J. Walsh. Coal Age 18:1044-5 N 18 '20

Humidification of bituminous mines. J. J. Walsh. il Am Soc Heat & V E J 26:657-60 O '20

Pennsylvania will provide more electrical safeguards. F. Hall. Coal Age 17:445 Mr 4 '20

Removable auger bit as a safety device. il Coal Age 18:739-42 O 7 '20

Rules for prevention of gas explosions. R. A. Walter. Coal Age 18:945-7 N 4 '20

Rules for prevention of gas explosions in anthracite mines. J. J. Walsh. Safety Eng 41: 69-72 F '21

Safety devices vs. moral hazards. R. Bowen. Coal Age 18:1192-3 D 9 '20

Safety in shotfiring. R. Bowen. Coal Age 16: 692 O 23 '19

State mining laws on the use of electricity in and about coal mines. L. C. Ilsley. U S Bur Mines Tech Pa 271:1-51 '20

Unsafe practices among miners. B. Deeble. Coal Age 18:905 O 28 '20

See also Blasting—Safety measures; Coal mines and mining—Explosives; Mining engineering—Safety measures

Stripping operations

As stripping saves coal, deep pits should be favored by lower royalties. D. C. Ashmead. diags Coal Age 18:1031-3 N 18 '20

By charts of stripping progress and cost operating losses may be forestalled. T. F. Kennedy. Coal Age 18:381-3 Ag 19 '20; Same abr. Eng & Contr 54:259-60 S 15 '20

Estimation of quantities removed in the stripping of anthracite. T. F. Kennedy. diags Coal Age 17:1251-3 Je 17 '20

Hazards encountered in anthracite stripping. F. S. Gallus. il Coal Age 18:887-9 O 28 '20

Methods of operation followed at the largest anthracite stripping. D. C. Ashmead. diags map Coal Age 18:1125-8 D 2 '20

Open cut or strip mining and its development. H. B. Miller. Coal Age 17:434-6 Mr 4 '20

Solid cars at strip pit combine stability, strength and dumpability. D. J. Baker. il Coal Age 18:623-8 S 23 '20

Steam shovel has rendered operable many properties not hitherto worked. F. H. King. il Coal Age 17:937-8 My 6 '20

Stripping 85-ft. cover from an anthracite bed with a dragline excavator. il diags Coal Age 18:63-6 JI 8 '20; Excerpts. Eng & Contr 54:171-2 Ag 18 '20

Two strip pits and much allied industry operated by Fushun colliery. N. Yamaoka. il Coal Age 19:945-9 My 26 '21

Unusual mining methods practiced at Weston colliery near Shenandoah. D. C. Ashmead. il diags plans Coal Age 19:446-52 Mr 10 '21

Where stripping is regarded as a regular adjunct to underground mining. D. J. Baker. il Coal Age 17:1143-6, 1191-4 Je 3-10 '20

Subaqueous operations

Interesting facts regarding the working of coal under a river or the sea. A. O. Bain. Coal Age 17:1105 My 27 '20

Mining coal in submarine areas at Princess colliery, Sydney mines. A. S. McNeil. Min & Met 174:30-2 Je '21

Mining coal with a dredge. G. Gaulois. il Sci Am 123:59 JI 17 '20

Nova Scotia steel & coal co. is completely removing coal seam under ten square miles of sea area. A. S. McNeil. il map Coal Age 20:205-9 Ag 11 '21

Working Kanawha river coal. Coal Age 17: 419, 663, 716-17, 956-7, 1156-7 F 26, Ap 1-8, My 6, Je 3 '20

Working three overlying seams. R. W. Lightburn. Coal Age 17:1318 Je 24 '20

Working three seams of coal in a mountainous district. V. Frodsham. diag Coal Age 18:237-8 JI 29 '20

Working three seams of coal that extend under a river. W. Dickinson. diags plan Coal Age 17:1061-2 My 20 '20

Ventilation

See Mine ventilation

Wagon mines

Hearing of wagon-mine operators' plea for modification of service order 14. Coal Age 18:648-9 S 23 '20

Wagon mines vs. tippie operations. W. A. White. il Coal Age 18:597-9 S 16 '20

Africa

African coal reserves are smallest in world. Iron Tr R 66:1398 My 13 '20

Alaska

Alaskan coal fields. G. W. Evans. Min & Met 170:34-5 F '21; Same. Sci Am M 3:285-6 Mr '21

Alaska's coal fields. il Sci Am 125:225 S 24 '21

Coal leases operating in Alaska. Coal Age 17:1212 Je 10 '20

Investigate Alaska coal for navy's use. Coal Age 17:862 Ap 29 '20

Mining developments in the Matanuska coal field. T. Chapin. diags map U S Geol S Bul 712:131-67 '20; Same. U S Geol S Bul 712—E:131-67 '20

Mining in the Matanuska coal fields and the Willow Creek district. T. Chapin. maps U S Geol S Bul 714—D:197-206 '21

Arizona

Coal resources in Arizona. P. Cloke. Coal Age 17:637 Ap 1 '20

Australia

Coal mining in Australia shows promise of expansion. Coal Age 18:10 JI 1 '20

Belgium

Iron and associated industries of Lorraine, the Sarre district, Luxemburg, and Belgium. A. H. Brooks and M. F. La Croix. map (supp) U S Geol S Bul 703:86-98 '20

Notes on the coal industry of northeastern France, Belgium, the Saar, and Westphalia, 1904-1913. H. F. Crooks. Econ Geol 15: 288-95 Je '20

Coal mines and mining—Continued

British Columbia

British Columbia. G: Wilkinson. il Coal Age 17:134-5 Ja 15 '20

British Columbia's output expands; plans continued development of resources. R. Dunn. Coal Age 19:151 Ja 20 '21

Granby consolidated company's colliery, Cassidy, B. C. R. R. Wilson. il Coal Age 17:300-4 F 12 '20

Bulgaria

Bulgaria's coal resources are in need of development. Coal Age 17:961 My 6 '20

Burma

Geology of the Namma coal field, Burma. E. Moldenke. Min & Met 175:30-1 JI '21

Canada

Canada's 1920 coal production exceeded that of any previous year. Coal Age 19:548 Mr 24 '21

Colombia

Coal beds near Panama promise big coal industry in Colombia. P. L. Bell. map Coal Age 17:1102 My 27 '20

Czechoslovakia

Iron and coal in the new states of Europe. B. Schapira. map Iron Tr R 67:716-20 S 9 '20

France

Conditions in the French and Belgian coal fields. G: S. Rice. il Coal Age 17:16-18 Ja 1 '20

La destruction et la restauration des charbonnages du Nord et du Pas-de-Calais. A. Pawlowski. il Génie Civil 77:45-9, 69-73 JI 17-24 '20

La destruction et l'effort de reconstitution des houillères et plus particulièrement des mines de Courrières. M. P. Guerre. diag plan Soc Ing Civils Bul 74:57-82, pl 9 Ja '21

Destruction of French coal mines and plants and their rehabilitation. G: S. Rice. il map J Fr Inst 189:737-78 Je '20

La destruction systématique par les Allemands des houillères du Nord de la France et l'état actuel des efforts de reconstitution. il diag Génie Civil 78:365-9 Ap 30 '21

Les destructions systématiques commises par les Allemands dans les houillères du Nord de la France. il Génie Civil 76:113-18 Ja 31 '20

L'effort des houillères du Nord et du Pas-de-Calais pour rétablir leur production. Génie Civil 78:555 Je 25 '21

Exploring with a camera; searching for German traps in the Lens coal mines. il Sci Am M 2:172-3 O '20

Notes on the coal industry of northeastern France, Belgium, the Saar, and Westphalia, 1904-1913. H. F. Crooks. bibliog map Econ Geol 15:277-311 Je '20

Prévisions sur la production du charbon, en France, dans les prochaines années. L. Bailly. Génie Civil 78:258-9 Mr 19 '21

La production des houillères françaises en 1919. Génie Civil 76:189-90 F 14 '20

Reclaiming the coal mines at Lens. E. J. Mehren. il Coal Age 18:1084-5 N 25 '20

War devastation of mines in France. il diags plan Engineering 111:604-8, pl 30-3 My 20 '21

See also Coal mines and mining—Saar valley

Germany

Bill proposing socialization of German coal mines to be submitted at opening of next parliament. H. O. Herzog. Coal Age 19:325-6 F 17 '21

Consumer ownership winning in Germany. H. O. Herzog. Coal Age 19:230-1 F 3 '21

German coal production in 1920. H. O. Herzog. Coal Age 19:504 Mr 17 '21

Notes on the coal industry of northeastern France, Belgium, the Saar, and Westphalia, 1904-1913. H. F. Crooks. bibliog Econ Geol 15:295-311 Je '20

Production and labor conditions in German hard-coal fields. A. Maylander, comp. Monthly Labor R 11:448-61 F '21

Ruhr region of Germany. map Iron Age 107:1251 My 12 '21

Though output is increasing slightly, Germany continues to suffer coal shortage. C. A. Heise. Coal Age 19:279-80 F 10 '21

Will Germany nationalize coal mines or merely establish new trusts? H. O. Herzog. Coal Age 19:184-5 Ja 27 '21

Great Britain

As the British coal industry looks to a mining man. Coal Age 18:446-7 Ag 26 '20

British coal problem becomes a market problem. G: O. Smith. Coal Age 20:380-1 S 8 '21

Coal mining and the coal miner. H. F. Bulman. 338p Methuen & co., ltd., London '20

Great Britain's cabinet seeks substitute for discredited nationalization scheme. W. W. Wallace. Coal Age 18:441-2 Ag 26 '20

Industrial depression and a coal subsidy. Engineering 112:511-12 O 7 '21; Discussion. 112:567 O 21 '21

See also Coal miners—Great Britain; Coal strike (British)

Idaho

Coal in eastern Idaho. G: R. Mansfield. maps U S Geol S Bul 716—F:123-53 '20

Idaho's coal beds are now being developed. J. M. De Coster. il Coal Age 19:227-9 F 3 '21

Illinois

Description of the Kathleen mine plant at Duquoin. A. Allen. il diags plans W Soc E J 25:525-40; Discussion. 540-4 O '20

Donk Bros.' No. 4 mine embodies many needed reforms in bottom and surface coal-handling methods. A. Allen. il diags plans Coal Age 19:1027-35 Je 9 '21

Electric service in Illinois coal mine. H. W. Eales. il diag Elec W 75:676-8 Mr 20 '20

Engineering features of modern large coal mines in Illinois and Indiana. C. A. Herbert and C. M. Young. il diags Coal Age 16:820-5, 870-5 N 27, D 11 '19

Franklin and Williamson field properties. map Coal Age 17:437-8 Mr 4 '20

How the Valier shaft mine was quickly developed for large daily output. C. Scholz. il Coal Age 17:1299-1302; 18:5-10 Je 24-JI 1 '20

Panel system of coal mining a graphical study of percentage of extraction. C. M. Young. diags maps Ill U Eng Exp Sta Bul 113:1-74 '19

Indiana

Coal and food commission fixes total amount of coal to be produced in Indiana. J. E. Eschbach. Am Gas Eng J 113:379 N 6 '20

Engineering features of modern large coal mines in Illinois and Indiana. C. A. Herbert and C. M. Young. il diags Coal Age 16:820-5, 870-5 N 27, D 11 '19

Indiana considers purchase and operation of coal mine. Coal Age 18:122 JI 15 '20

Indiana operating problems as illustrated by the Black Betty mine. D. J. Baker. il plan Coal Age 17:1245-50 Je 17 '20

Some results of legislative regulation of the coal industry in Indiana. J. E. Eschbach. Coal Age 19:412-14 Mr 3 '21

Iowa

Iowa shaft sunk by a clamshell through quicksand uses preheated mine air. D. J. Baker. il Coal Age 19:217-21 F 3 '21

Operating conditions encountered in Iowa. D. J. Baker. il Coal Age 19:437-41 Mr 10 '21

Kanawha river

See Coal mines and mining—Subaqueous operations

Coal mines and mining—Continued

Kentucky

Lynch plant of the United States coal & coke co. H. N. Eavenson. diags map Coal Age 20:452-8, 492-4, 532-6, 676-8 S 22-O 6, 27 '21; Abstract. Min & Met 177:46-7 S '21
Plant at Lynch, Ky., is rapidly nearing completion. Coal Age 17:391 F 26 '20

Lorraine

Iron and associated industries of Lorraine, the Sarre district, Luxemburg, and Belgium. A. H. Brooks and M. F. La Croix. map (supp) U S Geol S Bul 703:20-8 '20

Manchuria

Conveying at the pit banks of the Fushun mine, near Mukden, on the South Manchurian railway. G: F: Zimmer. diags plans Eng & Ind Management 5:181-3 F 10 '21
Despite the dime-a-day wage labor-saving is practiced at a Manchurian mine. G: F: Zimmer. diags plan Coal Age 18:791-5 O 14 '20
Manchurian plant with seam in places four hundred feet thick uses sand filling. N. Yamaoka. il diags Coal Age 19:897-902, 945-9 My 19-26 '21

Missouri

Coal mining methods in Missouri. W: W. Weigel. il diags plan Mo U Sch Mines & Met Bul tech ser 5:1-114 My '21
Curious coal deposits in Missouri. W. M. Brodie. il Coal Age 16:876-81 D 11 '19

New Mexico

Coal in the middle and eastern parts of San Juan county, New Mexico. C. M. Bauer and J: B. Reeside, jr. il maps U S Geol S Bul 716—G:155-237 '21

Ohio

Bud and Dorothy mines of the Youghiogheny & Ohio coal co. W. L. Robinson. il Coal Age 17:223-4 Ja 29 '20

Pennsylvania

Bituminous output of Pennsylvania in 1919 137,058,500 tons; value \$327,475,400. Coal Age 18:961 N 4 '20
Burnside colliery of the Reading company at Shamokin, Pa. flow sheet il diag map Coal Age 17:340-6 F 19 '20
By new operating methods estimated life of Seneca colliery has been tripled. D. C. Ashmead. il diags map Coal Age 18:839-45 O 21 '20
Central Pennsylvania output in 1920 was nearly normal. D. E. Sell. Coal Age 19:142-3 Ja 20 '21
Conditioning Renton mine after severe gas explosion. A. F. Brosky. il Coal Age 20:215-17 Ag 11 '21
First ship-by-truck tipple to be constructed. D. J. Baker. il Coal Age 18:1173-7 D 9 '20
Little mines make big profits for owners. D. J. Baker. il Coal Age 18:799-800 O 14 '20
Lucerne mines, shaft and two drifts make current for thirty-two plants. R. W. Mayer. il Coal Age 18:481-4 S 2 '20
New field by-products coal co.'s plant one of largest in Pittsburgh region. D. J. Baker. il diags plans Coal Age 18:983-90 N 11 '20
New shaft operation of the Jamison coal & coke co. at Pleasant Unity. D. J. Baker. il Coal Age 17:212-15 Ja 29 '20
No. 1 plant of the Mather collieries. D. J. Baker. il Coal Age 16:783-6 N 13 '19
Susquehanna collieries co.'s improvements near Shamokin, Pa. diags plan Coal Age 17:756-7 Ap 15 '20
Transportation and preparation system at Nanty Glo. D. J. Baker. il Coal Age 17:791-5 Ap 22 '20
Unusual mining methods practiced at Weston colliery near Shenandoah. D. C. Ashmead. il diags plans Coal Age 19:446-52 Mr 10 '21
War-time plant in the Pittsburgh field. D. J. Baker. il diags plan Coal Age 17:527-31 Mr 18 '20

Working both Freeport beds together. D. J. Baker. il map Coal Age 17:691-7 Ap 8 '20
Working of the Pittsburgh coal seam. Coal Age 19:369-70, 825-6, 1164; 20:261 F 24, My 5, Je 30, Ag 18 '21
Working the Redstone coal, Pittsburgh district. Coal Age 19:232, 498 F 3, Mr 17 '21

Russia

Russian coal and iron industry. V. Gudkov. il Min & Met 174:10-13 Je '21

See also Coal mines and mining—Ukraine

Saar valley

Les mines de houilles de la Sarre. J. Carlioz. Chimie & Ind 4:403-8 S '20
Saar coal mining and its relations to France. Engineer 129:572 Je 4 '20
See also Coal—Saar valley

Scotland

Coal mines in Scotland. Coal Age 16:899-900; 17:556 D 11 '19, Mr 18 '20
New Wellesley colliery. M. Meredith. Coal Age 16:750-1 N 6 '19

South Wales

Practice in South Wales mines. G. Griffith. Coal Age 19:499 Mr 17 '21

Spitzbergen

Coal mining in Spitzbergen. H. M. Cadell. diag maps Min & Met 172:40-3 Ap '21; Excerpts. Sci Am M 3:380-1 Ap '21
Coal-mining in the Arctic. Engineering 111:461-2 Ap 15 '21
New coal fields in Spitzbergen. Sci Am 123:527 N 20 '20
Spitzbergen's coal is always found frozen but it explodes as readily as ours. map Coal Age 19:744-5 Ap 28 '21

Transvaal

Hanging-wall support on the Far East Rand. L. W. Macer. diags Min & Sci P 120:539-40 Ap 10 '20

Ukraine

Donetzbecken region of the Bolshevic government. M. Ullrich. Blast F & Steel Pl 9:273-4 Ap '21

United States

America's coal resources and their part in industrial development. il Americas 7:24-32 Ap '21
Anthracite region. F. W. Parker. diags Min & Met 178:25-6 O '21
Bituminous coal in 1920. Coal Age 19:97-102 Ja 20 '21; Excerpt (chart). Power 53:201 F 1 '21
Coal industry and the Bureau of mines. V. H. Manning. Coal Age 17:80-1 Ja 15 '20
Estimated production of bituminous coal in 1919, by states, with comparative figures for 1917 and 1918; tabulation. Power Pl Eng 24:297 Mr 1 '20
Fluctuations in coal production—their extent and causes. G: O. Smith and F. G. Tryon. Min & Met 159:(sec 3) 9-28 Mr '20; Same. Coal Age 17:399-407 F 26 '20; Same cond. Iron Tr R 66:770-4 Mr 11 '20; Same cond. Power 51:422-4 Mr 16 '20; Same cond. Power Pl Eng 24:421-6 Ap 15 '20
Injurious effects of irregular operation of the bituminous coal industry. F. G. Tryon. Coal Age 20:20-2, 62-4 Jl 7-14 '21
Mining losses in Middle West and means that may be taken to eliminate them. J. J. Rutledge. Coal Age 20:139 Jl 28 '21
National aspects of the coal industry. E. A. Holbrook. Coal Age 19:120-1 Ja 20 '21
Number of bituminous coal mines in operation as of January 1, 1919, 1920 and 1921. Coal Age 19:549 Mr 24 '21
Problems of coal supply. E. McAuliffe. diags Elec Ry J 56:754-9 O 16 '20
Reports on activities in coal-mining fields. Coal Age 17:119-34 Ja 15 '20
Situation in the coal-mining industry. E. Ludlow. Min & Met 178:5-6 O '21
Stabilization of bituminous coal industry. H. Hoover. Min & Met 159:(sec 3) 1-2 Mr '20

Coal mines and mining—United States—Cont.

- Stabilization of bituminous-coal industry. E. McAuliffe. *Min & Met* 159:(sec 3) 48-63 Mr '20; Same. *Coal Age* 17:486-93 Mr 11 '20; Discussion. M. L. O'Neale. *Coal Age* 17:593-4 Mr 25 '20
- Stabilization of coal industry depends on improvement in the railroad situation. H. N. Eavenson. *Min & Met* 162:5-6 Je '20
- Stabilization of the bituminous coal industry. E. Ludlow. *Min & Met* 160:3-4, 19-20 Ap '20
- Tonnage output per pick miner per day in bituminous coal fields. E. Stewart. *Monthly Labor R* 11:249-59 F '21
- Truth about the coal situation. C. A. Eaton. *Coal Age* 18:17 Jl 1 '20
- What the Bureau of mines purposes to do on behalf of the coal industry. F. G. Cottrell. *Coal Age* 18:731-5 O 7 '20
- See also* Coal miners—United States; Coal strike, 1919

Utah

- Coal mining in Utah during 1919. A. C. Watts. *Coal Age* 17:181-4 Ja 22 '20

Virginia

- Simultaneously working the superimposed coal beds of Virginia. D. J. Baker. *Coal Age* 17:479-82 Mr 11 '20

Washington

- Electric drive in a Washington coal mine. E. J. Barry. *Elec R* 76:731-3 My 1 '20; Same cond. *J Elec* 44:565-7 Je 1 '20
- Old Newcastle mine, flooded and filled with washery waste, is drained by diamond drill-holes. H. S. Ash. *Coal Age* 19:1069-73 Je 16 '21

West Virginia

- Abram Creek-Stony river coal field north-eastern West Virginia. G. H. Ashley. *diags map U S Geol S Bul* 711—F:85-103 '20
- Northern West Virginia in 1919. H. A. Williamson. *Coal Age* 17:185-7 Ja 22 '20
- Sewickley bed is being rapidly developed near Fairmont. H. A. Williamson. *map Coal Age* 18:1034-7 N 18 '20
- West Virginia coal mining operations show unprecedented growth in 1920. *Coal Age* 19:157-8 Ja 20 '21
- West Virginia coal output gained while coke production shrank during 1920. *Coal Age* 19:1128 Je 23 '21
- See also* Coal miners—West Virginia
- Coal mines and mining, Cooperative. *See* Mining companies, Cooperative
- Coal mining Institute of America
- Annual session, Pittsburgh, Dec. 3-4. R. D. Hall. *Coal Age* 16:839-44 N 27 '19
- Meeting, Pittsburgh, Dec. 8. R. D. Hall. *Coal Age* 18:1221-2, 1283-6, 1329-30 D 16-30 '20

Coal mining machinery

- Advantages of portable over stationary compressors in anthracite rockwork. F. H. Wagner. *Coal Age* 19:668-9 Ap 14 '21
- Approved explosion-proof coal-cutting equipment. L. C. Ilsley and E. J. Gleim. *diags U S Bur Mines Bul* 78:1-48 '20
- Breaking down coal without use of powder; coal face is slotted near the roof, hydraulic pistons are placed in the slots and a water pressure forces down the already undermined coal. D. V. Sickman. *diags Coal Age* 19:180-3 Ja 27 '21
- By making boom horizontal, surface type of shovel is adapted to mine work; the Brown electric shovel. D. C. Ashmead. *Coal Age* 19:395-6 Mr 3 '21
- Coal industry in 1920 continued to borrow ideas liberally from metal-mining practices. R. D. Hall. *Coal Age* 19:126-30 Ja 20 '21
- Coal loader based on a new principle. *il plan Coal Age* 17:900-2 My 6 '20
- Coal-loading shovel with jaws that close horizontally will build packwalls. *diags plan Coal Age* 20:639 O 20 '21
- Coal mining as seen by an ore engineer. A. J. Mason. *Coal Age* 19:708-11 Ap 21 '21

- Costs of scraper loading and conditions under which it works best. A. B. Benedict. *Coal Age* 19:222-6 F 3 '21
- Cutting and loading machines in working low coal. *il diag Coal Age* 19:21-2, 542-3, 955 Ja 6, Mr 24, My 26 '21
- Le développement de l'emploi des moyens mécaniques dans les mines. *Génie Civil* 78:15-16 Ja 1 '21
- Dillig tractor loader. G. F. Dillig. *diag Coal Age* 19:63-4 Ja 13 '21
- L'emploi des marteaux à air comprimé pour l'abatage de la houille. Dessemmond. *Génie Civil* 77:37-8 Jl 10 '20
- Improved equipment vs. conditions in mines. C. R. Stahl. *Coal Age* 19:319 F 17 '21; Discussion. E. N. Zern. 19:715 Ap 21 '21
- Loading machine and method of operating it so as to move a four-hundred foot slab in a day. M. Martin. *il plans Coal Age* 20:589-90 O 13 '21
- Loading machines for underground use. A. M. Gow. *il diags Eng & Min J* 109:319-37 Ja 31 '20
- Longwall coal cutting machinery. G. F. F. Eagar. 109p Pitman '21
- Mechanical coal loading as adapted to room-and-pillar work. W. Whaley. *diag Coal Age* 17:906-7 My 6 '20
- Mechanical equipment the solution. R. Bowen. *Coal Age* 18:641 S 23 '20
- Mining machine for rapid heading driving which cuts, dislodges and loads coal. *il Coal Age* 19:359-60 F 24 '21
- More labor is employed in mines mechanically equipped. *Coal Age* 18:294-5, 641, 1095 Ag 5, S 23, N 25 '20
- New conveyor car loader fills cars at rate of a ton in two minutes. *il Coal Age* 20:135-6 Jl 28 '21
- Nothing lacking in loading machines but co-operation of mine executives. N. D. Levin. *Coal Age* 18:1321-2 D 30 '20
- Refuse-stacking car, making pile sixty feet wide, much reduces labor of dumping and track shifting. A. F. Brosky. *il diag Coal Age* 20:591-3 O 13 '21
- Rotary shovel that clears wide path but delivers to fixed point of discharge. S. H. Hunt. *il diag plan Coal Age* 19:789-91 My 5 '21; Excerpts. *Eng & Contr* 55:593 Je 15 '21
- Scraper with gate to scrape coal on the advance and trap it on the retreat. *diags Coal Age* 20:9-10 Jl 7 '21
- Standardizing mining equipment. *Coal Age* 17:60-1 Ja 8 '20
- Wagon loader used for attacking a hill of anthracite culm. *il Coal Age* 18:393-4 Ag 19 '20
- West Virginia-Kentucky mine, mechanical and electrical engineers meet conjointly with coal exhibit. R. D. Hall. *Coal Age* 20:505-7 S 29 '21

See also Coal breakers; Coal cutters

Coal piers

- Design and operation of modern car-dump coal pier. *il diags plan Eng N* 84:759-62 Ap 15 '20
- Jersey City coal pier 1,100,000 yd. hydraulic fill. *Pub Works* 48:187-8 Mr 13 '20
- Mechanical trimmers facilitate coal loading. P. G. Lang, jr. *il Ry Age* 70:1433-6 Je 24 '21
- New coal pier for the Western Maryland Ry., at Port Covington, Md. *il diags plans Ry R* 68:395-6 Mr 12 '21
- Sixty tons per minute; Baltimore's new coal pier, and how it makes its records. J. F. Springer. *il Sci Am* 124:470+ Je 11 '21
- Vertical curves for coal piers and hump yards. *Eng N* 85:208-9 Jl 29 '20
- Coal pipe lines. *See* Coal—Transportation; Coal, Pulverized—Distribution
- Coal preparation
- Advances in the preparation of anthracite. D. C. Ashmead. *il diags Coal Age* 20:367-72, 409-12, 671-4 S 8-15, O 27 '21; Abstract. *Min & Met* 177:47-8 S '21

Coal preparation—Continued

- Among other preparation devices at Diamond mines is one for picking each car separately. D. J. Baker. *il* Coal Age 19:1111-16 Je 23 '21
- Anthracite breaker that is different. D. C. Ashmead. flow sheet diag plans Coal Age 17:1039-42 My 20 '20
- Breaker-operation economies as illustrated by Cranberry Creek preparation plant. D. C. Ashmead. flow sheet *il* diags Coal Age 19:305-12 F 17 '21
- Burnside colliery of the Reading company at Shamokin, Pa. flow sheet *il* diag Coal Age 17:343-6 F 19 '20
- By using vertical box chutes and retarding conveyors Scott breaker greatly reduces degradation. D. C. Ashmead. flow sheets *il* diag Coal Age 20:127-31 Jl 28 '21
- Coal has technical session in New York section of Mining institute. R. D. Hall. Coal Age 17:495-6 Mr 11 '20
- Concentrating tables turn 'incombustible sludge from pond into good fuel. W. Strain. *il* diags plan Coal Age 19:741-3 Ap 28 '21
- How to recover four million tons of usable coal from the slush made at anthracite breakers. J. Griffen. Coal Age 20:447-51 S 22 '21; Abstract. Min & Met 177:44 S '21; Same. Sci Am M 4:285 S '21
- How to test the fitness of coals for coking. G. H. Elmore. diags plan Coal Age 18:1130-4 D 2 '20
- Improved rolls, feeders and chutes greatly reduce degradation in anthracite breakers. D. C. Ashmead. diags plan Coal Age 20:527-31 O 6 '21
- Method of washing coal for metallurgical coke at Risco, in Birmingham field. E. P. Stewart. flow sheet *il* Coal Age 19:807-10 My 5 '21
- Modernized breaker with hand pickers, spirals, jigs and concentrators. D. C. Ashmead. flow sheet *il* Coal Age 18:585-9 S 16 '20
- New methods are used for preparing small sizes by Locust mountain coal co. D. C. Ashmead. flow sheet *il* diags Coal Age 19:171-9 Ja 27 '21
- Preparation methods Susquehanna has built into reconstructed Pennsylvania breaker. D. C. Ashmead. flow sheets *il* diags Coal Age 19:618-22 Ap 7 '21
- Preparing anthracite for market without the use of water. D. C. Ashmead. flow sheet *il* Coal Age 18:935-8 N 4 '20
- Removing boiler ash, burned coal and slate from the coal in a culm bank. D. C. Ashmead. *il* Coal Age 18:796-8 O 14 '20
- Sizing and preparing a hard low-volatile coal in the broad top region to compete with anthracite. D. J. Baker. *il* diag Coal Age 19:1151-4 Je 30 '21
- Slush breaker and mine-water problems. J. Griffen. *il* diag plan Coal Age 17:349-53 F 19 '20
- Slush problem in anthracite preparation. J. Griffen. Min & Met 177:44 S '21
- Suggestions as to the design of a tippie to suit ordinary market conditions of the west. B. Shubart. *il* diags Coal Age 20:631-4 O 20 '21
- Tests with jig having no suction effect suited to small sizes of coal. J. H. McNally. *il* diags Coal Age 18:1089-92 N 25 '20
- Transportation and preparation system at Nanty Glo. D. J. Baker. *il* Coal Age 17:791-5 Ap 22 '20
- Woodward breaker sizes and prepares six thousand tons of anthracite per day. D. C. Ashmead. flow sheet *il* diags Coal Age 19:851-6 My 12 '21
- See also* Coal breakers; Coal cleaning; Coal screening; Coal washing
- Coal prices.** *See* Coal—Prices
- Coal products.** *See* Coal distillation; Coal tar; Coke; Coke manufacture—By-products; Gas manufacture and works—By-products
- Coal pulverizing.** *See* Coal, Pulverized—Preparation

Coal purchasing

- Co-operative buying and reserve storage as shields against high coal prices and freight congestion. D. L. Wing. Coal Age 19:1045-7 Je 9 '21
- Co-ordinating the purchase of coal. E. Ludlow. Ry Age 71:20-1 Jl 2 '21
- Possibilities of co-operative buying and reserve storage of coal. D. L. Wing. Power 53:1029-30 Je 21 '21
- Purchase of coal on specifications. J. Howatt. W Soc E J 24:535-43 N '19; Same. Am Soc Heat & V E J 26:supl-IX My '20; Excerpt. Eng & Contr 53:438-9 Ap 14 '20; Abstract. Power 50:633-4 O 21 '19; Discussion. W Soc E J 24:553-66 N '19
- Purchase of coal on specifications. E. H. Taylor. W Soc E J 24:544-52; Discussion. 553-66 N '19
- Purchase of coal on the B.t.u. basis. A. L. Langtry. Power 51:606-7 Ap 13 '20
- Uniform coal contract proposed. Power 53:662-3 Ap 26 '21; Same. Power Pl Eng 25:461-2 My 1 '21; Same. Coal Age 19:593 Mr 31 '21
- See also* Coal contracts; Government fuel yard
- Coal sampling**
- Shipping American coals to Switzerland, with sampling methods in use. J. D. Davis. *il* Coal Age 18:334-8 Ag 12 '20
- See also* Coal—Analysis
- Coal screening**
- By rapid vibration, caused by electric motor, wire-cloth screen is made to afford large capacity. *il* diag Coal Age 19:991-2 Je 2 '21
- Coal tippie for a stripping operation. F. J. Schraeder, jr. *il* diag Coal Age 17:698-701 Ap 8 '20
- Device to prevent slack from riding over screen holes on lump coal. J. S. Watts. diag plan Coal Age 20:252 Ag 18 '21
- Horizontal screens offer many advantages over gravity in the screening of bituminous coal. W. S. Harris. diag Coal Age 20:607-8 O 13 '21
- Shaking screen which will deliver egg and slack or run-of-mine. diags Coal Age 18:900-1 O 28 '20
- Suggestions as to the design of a tippie to suit ordinary market conditions of the west. B. Shubart. *il* diags Coal Age 20:631-4 O 20 '21
- Coal shortage.** *See* Coal supply
- Coal storage**
- Air-dump cars carry to storage pile small coal for which Old Ben coal corporation has no market. *il* Coal Age 20:609-10 O 13 '21
- Application of cooling coils to coal storage. W. M. McNeill. Power 53:899 My 31 '21
- Bituminous coal storage practice. H. H. Stoek, C. W. Hippard and W. D. Langtry. *il* diags plans Ill U Eng Exp Sta Bul 116:1-149 '20
- Bulkhead for retaining coal piles. *il* Coal Age 17:611 Mr 25 '20
- Carbonic acid as a fire preventer. A. J. Keane. Sci Am 123:427 O 23 '20
- Carnegie coal storage; new yard near Clairton, Pa. diag Iron Age 106:1327 N 18 '20
- Catechism on safe storage of coal. Heat & Ven 17:38-40 S '20
- Coal fires traced to slack. Jäckel. Gas Age 46:99-100 Ag 10 '20
- Coal pockets—a construction opportunity. W. G. Kaiser. *il* diags Concrete 7:120-2 O '20
- Coal storage a factor in power plant economy. R. June. *il* Elec R 78:609-12 Ap 16 '21
- Coal storage; insurance against shutdowns, proper location of pile, methods of piling. *il* diags Power Pl Eng 25:14-23 Ja 1 '21
- Coal storage to prevent recurrence of coal shortage. J. W. Leib. N E L A Bul 8:17-20 Ja '21; Abstract, with discussion. Mech Eng 43:29-31+ Ja '21; Abstract. Elec W 77:882 Ap 16 '21
- Coal storage with portable conveyors. *il* plan Power Pl Eng 24:455-61 My 1 '20

Coal storage—Continued

Device that will show the temperature of the depths of a storage pile. R. P. Nichols. diags Coal Age 18:485-6 S 2 '20; Same cond. Gas Age 46:379-80 N 10 '20; Excerpts. Sci Am 123:539 N 27 '20

Device to show thermal conditions in coal pile; Thornley coalometer. diags Power 52:500 S 28 '20; Iron Age 106:588 S 2 '20; Textile World 58:2541 O 9 '20; Elec R 77:822 N 20 '20; Min & Sci P 121:787 N 27 '20; Ry R 67:987-8 D 25 '20; Ry Mech Eng 95:58-9 Ja '21

Effect of coal on concrete. Concrete 19:53 Ag '21

Effect of stored coal on concrete. Eng & Contr 53:736 Je 30 '20

Einwirkung von kohle auf beton. C. A. Heise. Stahl & Eisen 41:165 F 3 '21; Same (Effects of coal upon concrete). Concrete 18:249-50 My '21

Fire in coal piles. N E Water Works Assn J 35:41-2 Mr '21

Fuel and by-product handling risks. C. E. Paige. Gas Age 48:485-7 O 22 '21; Same. Am Gas J 115:315-16+ O 8 '21

Handling fires in stored coal. H. A. Ward. il diag Power 50:563-4 O 7 '19; Same. Coal Age 17:54 Ja 8 '20

Handling the factory coal pile. C. L. Hubbard. il diags Factory 24:1531-6 My 15 '20

How Mather colliery stores coal at the mine in times of railroad-car shortage. D. J. Baker. il Coal Age 18:1317-21 D 30 '20

Importance of coal stocks in insuring the consumer against fuel shortage. F. G. Tryon. il Coal Age 18:769-70 O 7 '20

Inexpensive coal storage equipment. diag plan Eng & Ind Management 6:49-50 Jl 14 '21

Injurious effects of irregular operation of the bituminous coal industry. F. G. Tryon. Coal Age 20:62-4 Jl 14 '21

Management of the power plant. R. June. Textile World 57:2509+ Ap 3 '20

Novel thermometer shows hot spots in coal pile. il diag Pop Mech 36:115 Jl '21

One man stores or reclaims 1,500 tons of coal a day at a West Virginia mine. F. C. Thornley. plan Coal Age 19:261-3 F 10 '21

Les pertes des charbons emmagasinés à l'air. F. Defize. Génie Civil 77:447 N 27 '20

Protection of soft coal from internal heating. F. C. Thornley. il Ind Management 61:112-14 F 1 '21

Reading's storage yards keep the mines running steadily. D. C. Ashmead. il diag Coal Age 17:581-6 Mr 25 '20

Recent developments in the storage of coal. il Ry Mech Eng 95:626 O '21

Report of the committee of International railway fuel association on storage coal. Ry Age 70:1236-7 My 27 '21; Ry R 68:810-11 My 28 '21

Safe storage of coal. H. H. Stoek. U S Bur Mines Tech Pa 235:1-10 '20; Same. Paper 28:17+ Mr 23 '21

Scientific principles of cold storage. W. Stiles. Engineering 111:456 Ap 15 '21

Shortage of coal looms a highly important factor in gas works economy. B. B. Saul. Am Gas Eng J 113:217-20 S 18 '20

Small mine stores run-of-mine coal with derrick and grab bucket. D. J. Baker. il diag plan Coal Age 19:393-4 Mr 3 '21

Spontaneous combustion of coal. Engineering 111:173-4 F 11 '21

Spontaneous combustion of coal in silo bunkers. il diag Power 52:428 S 14 '20; Elec Ry J 56:507 S 11 '20; Discussion. R. L. Beare. Power 52:675 O 26 '20

Stave coal pockets. il Concrete 18:228-9 My '21

Storage of bituminous coal. O. P. Hood. il diags Power 52:478-80 S 21 '20; Same. Coal Age 18:845-8 O 21 '20; Same. Am Soc Heat & V E J 27:753-9 O '21; Same cond. Elec Ry J 56:503 S 11 '20; Same cond. Min & Sci P 122:131 Ja 22 '21

Storage of bituminous coal. H. H. Stoek. Eng & Contr 53:272 Mr 10 '20

Storage of bituminous coal. H. H. Stoek. Min & Met 159:(sec 3) 29-40 Mr '20; Same. Coal Age 17:536-42 Mr 18 '20; Same cond. Iron Tr R 66:992-3+ Ap 1 '20; Same cond. Elec W 76:225-9 Jl 31 '20; Abstract. Power 51:522-3 Mr 30 '20

Storage of coal—symposium by engineers. Ind Management 59:399-408 My '20

Storage of coal with relation to fires. W. D. Langtry. il Power 52:693-4, 749-50, 815-17 N 2-9, 23 '20

Storing and handling fuel. N. P. Winchell, jr. il diag Paper 26:19-21 Ag 4 '20

Storing up a year of power; coal-storage methods manufacturers can use. W. L. Abbott. il diags Factory 26:954-5, 958-9 Ap 15 '21

Suggestions on storage and hand-firing of soft coal. diags Heat & Ven 17:36-8 S '20

Temperatures in stored coal. diags Ry Age 69:846-7 N 12 '20

Typical fires in stored coal. W. D. Langtry. il Power 52:546-7 O 5 '20

Using carbonic acid gas in storing coal in overhead bunkers. Am Gas Eng J 112:218 Mr 20 '20

Ventilation of coal in storage. J. Esiszter. diag Power 52:909 D 7 '20

Ventilation of coal in storage. W. D. Langtry. il diag Power 52:618-19 O 19 '20

Underwater pit for storing 100,000 tons of coal. diags Eng & Contr 54:378-9 O 13 '20

See also Coal bins, Concrete; Coalometer; Government fuel yard

Cost

Storage of bituminous coal. H. H. Stoek. Min & Met 159:(sec 3) 37-40 Mr '20; Same. Coal Age 17:541-2 Mr 18 '20

Coal stoves. See Stoves

Coal strike, 1919

Coal miners return to work. Ry R 65:924-5 D 20 '19

Coal strike and the railroads. map Ry Age 67:963-6 N 14 '19

Government and the coal strike issue. S. C. Mason. Am Ind 20:7 D '19

How Kansas ended strikes. H. J. Allen. Am Lumberman 2342:65 Ap 3 '20

Investigation of coal strike settlement. Comm & Fin Chr 110:43-4 Ja 3 sec 1 '20

Miners agree to end strike. Ry R 65:883-4 D 13 '19

Real danger signal of the coal strike. H. Tipper. Automotive Ind 41:1032-3 N 20 '19

Coal strike (British), 1920

British coal strike. R. E. Thayer. Ry Age 69:1109-10 D 24 '20

Settlement of the strike of British coal miners. Monthly Labor R 11:1295-8 D '20

Coal strike (British), 1921

British coal miners' strike, 1921. Monthly Labor R 13:446-55 Ag '21

British miners strike for subsidy, so that coal may be sold to foreigners and citizens at a loss. Coal Age 19:641 Ap 7 '21

Coal trouble in Great Britain. N. H. Humphrys. Gas Age 47:427-8 My 25 '21

Great issue involved in Great Britain coal strike. Iron Tr R 68:1098 Ap 21 '21

Meaning of the British coal strike. H. Tipper. Automotive Ind 44:1072-3 My 19 '21

Principle of the coal settlement. Engineering 112:61-2 Jl 8 '21

Settlement of miners' strike involves lower wages and increased output. Iron Tr R 69:182-3 Jl 21 '21

Settlement terms of British coal strike. Coal Age 20:108-9 Jl 21 '21

Significance of the British coal strike settlement. H. Tipper. Automotive Ind 45:132-3 Jl 21 '21

Some notes on the coal strike. Engineering 111:531 Ap 29 '21

Terms of the agreement between the miners and owners. Engineer 132:22 Jl 1 '21

Coal supply

Byproduct, steel and electric utility plants in relation to coal stocks. F. G. Tryon. Coal Age 18:813-15 O 14 '20

Coal supply—Continued

- Coal for facing becomes difficult to secure. Foundry 48:749-50 S 15 '20
- Coal production continues high. Power 52:802 N 16 '20
- Coal storage to prevent recurrence of coal shortage. J. W. Leib. N E L A Bul 8:17-20 Ja '21; Abstract, with discussion. Mech Eng 43:29-31+ Ja '21; Abstract. Elec W 77:882 Ap 16 '21
- Consumers' stewardship of the coal deposits. W. L. Abbott. N E L A Bul 8:210-12 Ap '21
- La crise des combustibles et ses remèdes. A. M. Witz. Génie Civil 76:449-53 My 15 '20
- La crise du charbon. C: Berthelot. Chimie & Ind 3:88-96, 229-43 Ja-F '20
- Effect of coal situation. Elec W 76:772-5 O 16 '20; Same abr. Coal Age 18:956-8 N 4 '20
- Engineers attack fuel problem at annual meeting of A.I.E.E. Iron Tr R 66:623-6 F 26 '20
- Gas industry vitally interested in equalizing coal demand over twelve months of the year. L. W. Alwyn-Schmidt. Am Gas Eng J 112:257-9 Ap 3 '20
- Glance into the future. G: H. Ashley. Elec W 74:942-4 N 15 '19
- Importance of coal stocks in insuring the consumer against fuel shortage. F. G. Tryon. il Coal Age 18:769-70 O 7 '20
- Present coal situation as it affects sales and advertising. J. G. Condon. Ptr Ink 112:41-4+ Ag 19 '20
- Present fuel supply from an engineering standpoint. H. M. Chance. il Coal Age 16:793-6 N 13 '19
- Problems of coal supply. E. McAuliffe. diags Elec Ry J 56:754-9 O 16 '20
- Reasons for last year's coal shortage. G: O. Smith. Comm & Fin Chr 112:329-30 Ja 22 '21
- Report of National committee of A.G.A. on gas and electric service. Am Gas Assn General Sessions sec v 2:81-93 '20
- Responsibility of the coal consumer. C. E. Leshner. Coal Age 19:74-6 Ja 13 '21
- Role of water power and coal in super-power systems. P. Torchio. Am Inst E E J 39:315-23 Mr '20
- Safeguarding coal supply for the future. il Elec W 74:1105-6 D 20 '19
- Soft coal supply problem. Ry R 68:670-3 Ap 30 '21
- Survey of existing coal-shortage situation. Elec R 77:285-6 Ag 21 '20
- Trends in management. G: H. Cushing. Factory 25:888-9 S 15 '20

See also Coal consumption; Coal trade

Statistics

- Coal output of 1920 near pre-war level; effect of war offset by heavier production in neutral lands. Coal Age 19:726 Ap 21 '21
- Coal output of principal countries of the world, calendar years 1919 and 1920. Coal Age 19:721 Ap 21 '21
- Coal report shows record production in December. Am Gas Eng J 114:23 Ja 1 '21
- Coal situation in 1913 and 1919. Int Labour R 1:79-90 Ja '21
- Coal statistics shown to have national importance. F. G. Tryon. Coal Age 18:1051-2, 1101, 1150-1 N 18-D 2 '20
- Estimated production of coal in the principal countries of the world during the years 1913 to 1919, inclusive; tabulation. F. G. Tryon. Coal Age 18:600 S 16 '20
- Production of coal in United States and some European countries, by months, first half of 1920, and monthly averages, 1913-1919; tabulation. Coal Age 18:959 N 4 '20
- World production of coal 1913-1918. Coal Age 16:753 N 6 '19
- World production of coal 1910-1919. Coal Age 17:839 Ap 29 '20
- World production of coal in 1920. Min & Met 174:22-3 Je '21

Canada

- Canada's coal problem. F. W. Gray. Can Chem & Met 5:197-9 Jl '21
- Despite high prices Canadian coal-supply situation gives no cause for alarm. S. J. Cook. Coal Age 18:701-2 S 30 '20
- Is Canada able to fill its coal needs without help from the United States? F. W. Gray. Coal Age 17:612-15 Mr 25 '20
- Official report of evidence taken during session of 1921 respecting future fuel supply of Canada, by a special committee of the House of Commons. map 790p Thomas Mulvey, printer, Ottawa, Canada '21

See also Coal trade—Canada

Germany

- Coal shortage threatens industrial crisis in Germany. Coal Age 17:634 Ap 1 '20
- Germany's coal supply, past and present. M. Meredith. Coal Age 17:347-8 F 19 '20
- Though output is increasing slightly, Germany continues to suffer coal shortage. C. A. Heise. Coal Age 19:279-80 F 10 '21

Great Britain

- American coals helped British gas plants to operate despite shutdown of collieries during strike. Coal Age 20:345 S 1 '21
- Coal conservation in the United Kingdom. D. Clerk. Engineering 109:543-5 Ap 23 '20
- Coal stoppage in Great Britain. N. H. Humphrys. Gas Age 47:470-1 Je 10 '21

Netherlands

- Though silent, Holland has acute need of coal. M. Meredith. Coal Age 17:997 My 13 '20

New England

- Relation of the government to basic industries as applied to New England's coal supply. H. A. Garfield. Coal Age 18:1331-3 D 30 '20
- Report on the coal situation in New England states. Ry R 67:156-9 Jl 31 '20

United States

- Although industry's coal pile is dwindling, stocks are nearly as large as two years ago. maps Coal Age 19:834-6 My 5 '21
- Another view of the coal situation. G: O. Smith. Elec Ry J 57:1046 Je 4 '21
- Bituminous coal situation. G: O. Smith. Power 53:40-1 Ja 4 '21
- Can we make up Europe's coal shortage? Sci Am 122:128 F 7 '20
- Coal and water in the United States compared as sources of power. R. S. McBride. maps Coal Age 18:343-4 Ag 12 '20; Abstract. Power 51:899-900 Je 1 '20
- Coal produced in the United States during 1919. Coal Age 20:471 S 22 '21
- Coal stocks reported in the hands of retailers. maps Coal Age 18:409-11 Ag 19 '20
- Coal supply for power plants during coming year. Elec R 78:977-9 Je 18 '21
- Commercial stocks of coal. Ry Age 70:1084 My 6 '21
- Estimate of American coal situation. G: H. Cushing. Coal Age 18:302-3 Ag 5 '20
- Estimate of coal in the hands of consumers. maps Coal Age 18:645-7 S 23 '20
- Estimated soft-coal output, January and February, 1921 and for 1920, by groups of states. Coal Age 19:829 My 5 '21
- Geographical shifts in coal production. F. G. Tryon and W. F. McKenney. Coal Age 19:106-9 Ja 20 '21
- Industry's stock of coal, though diminishing, remains at safe margin because of reduced consumption. Coal Age 19:881 My 12 '21
- Is a bituminous coal shortage facing the pulp and paper mills. E. B. Gordon. Paper 26:16+ Ag 11 '20
- Is the soft coal shortage real or imaginary? C. E. Leshner. diag Coal Age 18:429-33 Ag 26 '20; Abstract. Elec W 76:541 S 11 '20
- Is there a coal shortage? H. A. Mount. il Sci Am 123:174+ Ag 21 '20
- Our mineral supplies; coal. C. E. Leshner. U S Geol S Bul 666:73-9 '19

Coal supply—United States—Continued

Output of soft coal to be adequate for public needs. G: H. Cushing. Ry R 67:639-40 O 23 '20

Payment for coal diverted by the railroads. Ry R 65:884-5 D 13 '19

Production of anthracite in 1920 encountered numerous and varied obstacles. E. W. Parker. Coal Age 19:110-11 Ja 20 '21

Production of coal in 1918 by beds, as reported by the U.S. geological survey. Coal Age 19:494 Mr 17 '21

Stocks and production of bituminous coal in hands of consumers March 1 and June 1, 1920. F. G. Tryon. maps Power Pl Eng 24: 975-9 O 15 '20

Coal tar

Die bestimmung von teer, staub und wasser in generatorgas. E. Jenkner. diags Stahl & Eisen 41:181-3; Discussion. 183-5 F 10 '21

Bituminous binder for road surfaces. il Gas Age 45:23-4 Ja 10 '20

Coal tar coating for metal irrigation flumes. F. D. Pyle. Eng & Contr 55:40 Ja 12 '21

Coal-tar distillation. M. Meredith. Am Gas J 114:323 Ap 9 '21

Coal-tar research at Shadyside, Edgewater, N.J. J: M. Weiss and C: R. Downs. il plans Chem & Met Eng 24:150-5 Ja 26 '21

Coal tar solvents. Sci Am M 2:276 N '20

Determination of tar in gas. C. H. Stone and N. F. Prince. diags Gas Age 45:531-3 Je 25 '20

La distillation continue du goudron de houille. A. Grebel. diags Génie Civil 76:41-5, 68-70 Ja 10-17 '20

Fractional condensation of tar. diags Gas Age 45:220-2 Mr 10 '20

Gewinnung von urteer bei gaserzeugern und seine verarbeitung. K. Linck, J. Jaworski and F. Frank. diags Stahl & Eisen 41:325-33, 364-70 Mr 10-17 '21

Refined tar in road construction and maintenance. P. P. Sharples. Eng & Contr 56: 343-4 O 5 '21

Removing tar from coke gas. A. Thau. il Iron Tr R 66:1535-8; 67:34-7+, 241-7, 510-16, 1331-5 My 27, Jl 1, 22, Ag 19, N 11 '20

Tar disposal in a producer-gas plant. diag Sci Am M 1:16-17 Ja '20

Utilization of coal tar. P. P. Sharples. il diag Gas Age 45:205-11 Mr 10 '20; Abstract. Chem & Met Eng 22:903 My 12 '20

Why should gas companies sell their tar to distillers. R. P. Perry. Am Gas J 115: 255-6, 263-5 S 17 '21

See also Tar

Coal tar as fuel. See Tar burners

Coal-tar colors

Development of the aniline dye industry. Color Tr J 7:165-6 N '20

Industrial poisoning in making coal-tar dyes and dye intermediates. A. Hamilton. U S Bur Labor Statistics Bul 280:1-87 '21

Key index for dyestuff intermediates. W. N. Watson, A. R. Willis and R. N. Shreve. Color Tr J 8:189-93, 234-9; 9:35-9 My-Jl '21

Table of coal-tar intermediates used as developers in dyeing and printing. Color Tr J 8:145-6 Ap '21

Truth about the dye industry. H. G. McKerrow. Sci Am 124:408+ My 21 '21

See also Aniline black; Naphthol yellow; Rhodamines

Prices

Coal-tar dyes and intermediates. See weekly numbers of Oil paint and drug reporter

Coal-tar products

American coal-tar chemistry industry in 1919. Chem Age 29:5-9 Ja '21

American coal-tar industry during 1919. G. Jones. Textile World 58:2062+ S 25 '20;

Same. Chem & Met Eng 23:661-3 O 6 '20;

Same. Color Tr J 7:124-6 O '20; Same. J

Ind & Eng Chem 12:959-61 O '20; Same. Gas Age 46:258-9 O 11 '20

Bituminous coal product chemicals. E. C. Reese. chart diags Gas Age 48:137-41 Ag 13 '21

By-product coke and by-products of coal. T. E. Pierce. Blast F & Steel Pl 8:287 My '20

Census of dyes and coal-tar chemicals, 1918. (Tariff information ser. 11) 103p '19 U.S.

Tariff commission, Washington, D.C.; Excerpts. Gas Age 45:6-13 Ja 10 '20

Coal-tar products market, 1920. Iron Tr R 68:98 Ja 6 '21

Coal-tar products' protection. Gas Age 45: 67-8 Ja 26 '20

Coal-tar products used in rubber industry. F: Dannerth. il Color Tr J 6:113-16 Ap '20

Coal-tars and their derivatives, the production of tars from gas coals, coke ovens, water gas, oil gas, lignite, wood, and peat. G. Malatesta. 530p Spon '20

Demand for coal by-products expands. Iron Tr R 66:126 Ja 1 '20

Developments in power station design. il diags Engineer 132:324-5, 336-8 S 23-30 '21

Dyes and coal-tar chemicals in 1919. Chem & Met Eng 24:180 Ja 26 '21

Dyes and coal-tar chemicals in 1920. Oil Paint & Drug Rep 100:23+ sec 1 Jl 18 '21

Handling of liquids in coal-tar chemical manufacture. S. P. Miller. Chem Age 29: 325-7 Ag '21

Poisons in the tar products industry. Monthly Labor R 11:321-4 Ag '20

Powder—from face to gun. B. T. Bush. il Nation's Business 8:13-14 O '20

Present status of the domestic coal-tar products industry. By C. R. DeLong. Chem Age 29:423-5 O '21; Same. Oil Paint & Drug Rep 100:xxiii+ S 12 '21; Same. Color Tr J 9:164-6 O '21

Prospects for coal tar chemicals; census of dyes and coal tar chemicals for 1919. Gas Age 47:85-7 F 10 '21

Recovery of by-products from coal in power plants. Kreyssig. Elec W 77:246-7 Ja 29 '21

Tartaric oil from coal tar. J: M. Weiss and C. R. Downs. Am Gas Eng J 112:138 F 21 '20

Uses for low-temperature tar oils; preservation of wood by impregnation or painting with creosote. F. P. Coffin. il Gas Age 48: 97-100 Ag 6 '21

L'utilisation des déchets de houille. Génie Civil 77:238-9 S 18 '20

Utilization of coal tar. P. P. Sharples. il diag Gas Age 45:205-11 Mr 10 '20

See also Benzene; Benzol; Coal distillation, Coal-tar colors; Dekalin; Gas; Naphthalene; Toluene

Coal testing

Agglutinating curve of coal. Coal Age 17:753 Ap 15 '20

Burning Illinois coal from vein no. 5. T. A. Marsh. diag Power 51:1001 Je 22 '20

Burning low-grade coals of Montana and Wyoming. E. H. Bull. diags Elec W 75:68-9 Ja 10 '20

By-product coke, anthracite, and Pittsburgh coal as fuel for heating houses. H: Kreisinger. diag J Ind & Eng Chem 13:31-3 Ja '21

Coal assaying apparatus. diag Engineer 131: 355 Ap 1 '21

Deterioration of coking property of coal. W: Seymour. Blast F & Steel Pl 9:435-7 Jl '21

Experimental-retort tests of Orient coal. R. S. McBride and I. V. Brumbaugh. diag U S Bur Stand Tech Pa 134:1-10 '19

Four-day test on five Oneida Street boilers burning pulverized coal. diag plan Power 51:354-7 Mr 2 '20

Fusibility of the ash from certain eastern coals. W. A. Selvig, O. C. Brown and A. C. Fieldner. Coal Age 17:177-80, 225-30 Ja 22-29 '20; Abstract. Power 50:655-6 O 28 '19; Same. Chem & Met Eng 22:80-1 Ja 14 '20

How to test the fitness of coals for coking. G. H. Elmore. diags plan Coal Age 18: 1130-4 D 2 '20

Low-temperature coking of Utah coals. O. Monnett. il diags Chem & Met Eng 23:1246-9 D 29 '20

Middlewestern coal in underfeed stoker. T. N. Wynne. Elec W 75:495-6 F 28 '20

Coal testing—Continued

- Powdered coal efficiencies. H. D. Savage. Gas Age 45:541-3 Je 25 '20
 Pulverized coal in central stations. J: Anderson. diags Elec W 75:589-91 Mr 13 '20
 Temperatures at which ash from western coals fuses to a sphere. W. A. Selvig, L. R. Lenhart and A. C. Fieldner. maps Coal Age 18:677-82, 851-4 S 30, O 21 '20
 Testing of coals for byproduct coking and gas manufacture. H. C. Porter. diags Min & Met 153:1587-95 S '19; Same. Coal Age 17:218-21 Ja 29 '20; Discussion. Min & Met 157:(sec 12) 57-9 Ja '20
 What constituents in ash cause it to fuse. G. A. de Graaf. il Coal Age 19:534-9 Mr 24 '21; Abstract. Mech Eng 43:331-2 My '21

See also Coal—Analysis

Coal tipples. See Mine tipples

Coal trade

- American export possibilities denoted by sidelights on the coal situation in foreign countries. H: M. Payne. il Coal Age 19:671-3 Ap 14 '21
 American mining congress meets in 24th annual session at Chicago. C. E. Leshner. Coal Age 20:687-91 O 27 '21
 Better mining and marketing of coal. maps Coal Age 20:565-8 O 13 '21
 Bituminous demand unlikely to boost prices sharply or tax railroad facilities before July, 1922. G: H. Cushing. Coal Age 19:1049-50 Je 9 '21
 Development of better selling methods dependent upon education of consumer in coal values. G. B. Gould. Coal Age 20:569-70 O 13 '21
 Economists study the bituminous coal situation at Atlantic City, Dec. 27-29. Coal Age 19:29-30 Ja 6 '21
 Even coal can be sold by mail. Ptr Ink 116:109-10 Ag 18 '21
 Framing of a serviceable form of binding contract a vexing problem of the coal industry. C. Scholz. Coal Age 20:576-7 O 13 '21
 In selling coal, price is not the governing factor. G: H. Cushing. Coal Age 20:573-4 O 13 '21
 Industrial buyers are incredulous at coal man's urging to buy now or all is lost. E. Sampson. Coal Age 19:1009-10 Je 2 '21
 Resuscitation of business and the railroads awaits reasonable period of stable price conditions. G. N. Snider. Coal Age 20:467-8 S 22 '21
 Selling coal to industrial consumers requires educated salesmen of highest type. H. A. Requa. Coal Age 20:582-3 O 13 '21
 Success or failure of the retail coal merchant now dependent upon salesmanship. D. F. Williams. Coal Age 20:499-502 S 29 '21
 Voluntary publicity as a cure for intermittent operation of soft coal industry. T: R. Hay. Coal Age 20:223-4 Ag 11 '21
 What should be done to provide a 300-day working year. E. Ludlow. Coal Age 17:642-4 Ap 1 '20
 Will reformation of the coal industry proceed from forces within or without? E. McAuliffe. Coal Age 20:571-2 O 13 '21
 With respect to oil and coal supplies, who owns the earth? Nat Pet N 13:86+ F 16 '21

See also Coal—Prices; Coal supply; Motor trucks in coal delivery; also Tidewater coal exchange; Wholesale coal trade association of New York, inc.

Accounting

- Accurate information on coal-production costs of prime importance to operating department. R. W. Gardiner. Coal Age 20:578-9 O 13 '21
 National coal association adopts recommendation of standard cost accounting system for producers. Coal Age 20:547-8 O 6 '21
 Seek uniform accounting, new reconsignment rules, and unity in the coal trade. Coal Age 18:816-17 O 14 '20

Treatment of weight and degradation losses by coal dealers. H. B. Hawkins. J Account 32:347-51 N '21

Uniform accounting for retail coal and lumber trade. R. S. Pasley. J Account 29:118-22 F '20

Advertising

- Anthracite operators' advertising campaign to show that producers' profits are modest. Coal Age 20:509-10 S 29 '21
 Coal dealers' bureau gains goodwill by advertising. J: L. King. Ptr Ink 116:133-4 S 22 '21
 Coal enters national advertising ranks. Ptr Ink 113:77-8 O 28 '20
 One way to break the present buyers' strike on coal. J. G. Condon. Ptr Ink 116:130+ Ag 11 '21
 When will coal be advertised? Ptr Ink 115:125-6+ My 5 '21
 Wholesalers of coal advertise their functions. H. E. Agnew. Ptr Ink 112:65-6+ S 16 '20

Directories

- Classified directory of coal shippers. Coal Age 19:372 F 24 '21

Records

- Efficient sales-record system enables small force to keep track of large clientele and heavy tonnage. Coal Age 20:580-1 O 13 '21

Regulation

- C. S. Allen brands Riley charges before Senate committee as tissue of misrepresentation. Coal Age 19:241-2 F 3 '21
 Calder coal bill. P. Wooton. Coal Age 19:376-7, 418-19, 465-6 F 24-Mr 10 '21
 Calder presents coal bill; referred to committee on manufactures. Coal Age 19:125 Ja 20 '21
 Calder report advises legislation governing quality, production, distribution and price of coal. Coal Age 18:1249-50 D 16 '20
 Coal and food commission fixes total amount of coal to be produced in Indiana. J. E. Eschbach. Am Gas Eng J 113:379 N 6 '20
 Coal control law in Indiana. Gas Age 47:10 Ja 10 '21
 Coal men and government experts will meet to agree on information to be required by Frelinghuysen bill. P. Wooton. Coal Age 19:877-8 My 12 '21
 Decontrol of coal. Eng & Ind Management 5:161 F 10 '21
 Dr Garfield supports fact finding on coal; opposes giving quasi-judicial power to trade commission. Coal Age 19:286-7 F 10 '21
 Existing legislation will assure adequate coal production. J. D. A. Morrow. Coal Age 18:1245 D 16 '20
 Extracts from George H. Cushing's memorials on coal legislation. Coal Age 19:1131-2 Je 23 '21
 Federal court of Indiana upholds right of state to regulate price of fuel mined within its borders. Am Gas Eng J 113:269-70 O 2 '20
 Federal trade commission's cost order held unconstitutional. Coal Age 17:809 Ap 22 '20
 Frelinghuysen rewrites commissioner bill; now an ostensible aid to stabilizing coal industry. Coal Age 19:833 My 5 '21
 Government coal regulation. O. F. Schuette. Gas Age 46:157-8 Ag 25 '20
 Government co-operation, not interference, essential to functioning of coal industry. T: H. Watkins. Coal Age 19:874-6 My 12 '21
 Government intervention, not nationalization, wanted in coal industry. W. E. Edge. Coal Age 18:1107-8 N 25 '20
 Government regulation of coal as unjust as seizure of all private industries. J. A. Reed. Coal Age 20:189 Ag 4 '21
 Jobber vs. producer under the Lever act. E. J. McVann. Coal Age 18:933 N 4 '20
 Minority report says Calder committee's conclusions are founded on hasty and incomplete survey. Coal Age 19:330-1 F 17 '21

Coal trade—Regulation—Continued

- New Frelinghuysen bill vests in president decision to investigate coal costs and profits. P. Wooton. Coal Age 19:919 My 19 '21
- Operators join opposition to coal bill; Frelinghuysen measure made unfinished business of Senate. P. Wooton. Coal Age 19:1133 Je 23 '21
- Salient features of the Calder coal act. Coal Age 19:195 Ja 27 '21
- Senator Reed voices opposition to regulation of business by government commissions. Coal Age 19:242-3 F 3 '21
- Some results of legislative regulation of the coal industry in Indiana. J. E. Eschbach. Coal Age 19:412-14 Mr 3 '21
- Special coal and food commission appointed in Indiana. Am Gas Eng J 113:147-8+ Ag 21 '20
- Text and discussion of Frelinghuysen coal bills. Comm & Fin Chr 112:2707-9 Je 25 '21
- Text of injunction decision against Trade commission. Coal Age 17:810-12 Ap 22 '20
- Unfair treatment of coal industry by Calder committee. G: H. Cushing; E. Sanders. Coal Age 18:1293-4 D 23 '20
- U.S. judges enjoin Indiana fuel commission. Coal Age 18:1155 D 2 '20
- Vigorous fight opened to kill coal and packers' bill. Annalist 17:232 F 14 '21
- We need fewer laws but more sanity in enforcing those that we now have. J: E. Lloyd. Coal Age 19:917-19 My 19 '21
- Will attempt to jam Calder bill through Congress. Coal Age 19:197-9 Ja 27 '21
- See also* Coal—Transportation; Coal miners—United States

Statistics

- Bituminous coal statistics compiled by the Federal trade commission. Am Gas Eng J 112:332 Ap 24 '20
- Census figures show growth of bituminous mining industry between 1909 and 1919. Coal Age 20:226 Ag 11 '21

Alabama

- Alabama coal trade in 1919. H. B. McLaurine. Coal Age 17:231 Ja 29 '20
- Alabama production shrinks because of car shortage and labor troubles. H. B. McLaurine. Coal Age 19:159-60 Ja 20 '21
- Alabama's coal and coke output; chart. C. E. Bowron. Coal Age 17:225 Ja 29 '20
- Conditions in Alabama in 1919. E. Ramsay. il Coal Age 17:169-70 Ja 22 '20

Canada

- Alberta in 1919. J. A. Richards. Coal Age 17:224 Ja 29 '20
- Canada's coal production declines. J: McLeish. Coal Age 17:543-4 Mr 18 '20
- Canadian mine experts discuss problem of industrial independence. R. D. Hall. Coal Age 17:545-50 Mr 18 '20
- Canadian situation affected by decline in lake shipments. Coal Age 18:408 Ag 19 '20
- See also* Coal supply—Canada

Colorado

- Colorado operators had successful year; output nearly stationary. W. E. Boyer. Coal Age 19:158-9 Ja 20 '21

France

- Is France to become a great consumer of American coal. Annalist 17:495 My 2 '21

Germany

- Brikett- und koks- sowie eisen- und stahlerzeugung des deutschen reichs im jahre 1917. Stahl & Eisen 41:94-5 Ja 20 '21

Great Britain

- British coal control now ended. N. H. Humphrys. Gas Age 47:200-1 Mr 10 '21
- Exports of coal, coke and manufactured fuel from the United Kingdom during September, 1913, 1919 and 1920. Coal Age 18:1058 N 18 '20
- Iron, steel, coal, and engineering. Engineer 129:2-4, 29-31 Ja 2-9 '20

- Iron, steel, coal and engineering trades in 1920. Engineer 131:2-5, 31-4 Ja 7-14 '21
- See also* Coal supply—Great Britain

Greece

- Openings offered in coal trade by Greece. E. B. George. il Coal Age 18:397-9 Ag 19 '20

Kentucky

- Louisville jobbers had poor year; Kentucky operators had best in history. A. W. Williams. Coal Age 19:144-5 Ja 20 '21

Minnesota

- Minnesota dealers, in state survey, admit that coal prices are too high; no recommendations made. Coal Age 20:388-9 S 8 '21

Netherlands

- Hollands kohlenförderung im jahre 1920. Stahl & Eisen 41:206-7 F 10 '21

New England

- Anthracite in New England in 1919. G. G. Wolkins. Coal Age 17:91-2 Ja 15 '20
- Coal situation in New England. C. E. Leshner. Coal Age 18:100-1 Jl 15 '20
- Trade conditions in New England in 1920. G. G. Wolkins. Coal Age 19:133-6 Ja 20 '21
- See also* Coal supply—New England

Ohio

- Industries of northern Ohio threatened by inability to obtain coal in 1920. J: W. Hill. Coal Age 19:147-8 Ja 20 '21
- Ohio coal trade in 1920 enjoyed greatest prosperity in its history. J. W. Lehman. Coal Age 19:153-4 Ja 20 '21

Pennsylvania

- Production of Pennsylvania anthracite in 1919; tabulation. Coal Age 18:862 O 21 '20

Scotland

- Export of coal from Scotland shows increase. Coal Age 17:795 Ap 22 '20

South Africa

- Coal production in South Africa, 1910-1919 inclusive and during January and February, 1920. Coal Age 17:1117 My 27 '20

South America

- Coal market in South America. F: Todd. il Coal Age 17:173-4 Ja 22 '20

Sweden

- Despite widespread use of coke and cordwood for fuel, Sweden is a promising market for American coal. H: M. Payne. Coal Age 20:151 Jl 28 '21

Switzerland

- Shipping American coals to Switzerland, with sampling methods in use. J. D. Davis. il Coal Age 18:334-8 Ag 12 '20

United States

- American coal men adopt sellers' market methods to export coal in a buyers' market. G: H. Cushing. il Coal Age 19:115-16 Ja 20 '21
- America's export coal opportunities in 1921. C. Andrade, jr. il Coal Age 19:113 Ja 20 '21
- Another coal crisis on the way. S: Dunn. Ry Age 70:537-8 Mr 11 '21; Same. Coal Age 19:507-8 Mr 17 '21
- Anthracite conditions in 1919. E: W. Parker. il Coal Age 17:89-90 Ja 15 '20
- Are we buying coal enough? G: O. Smith and F. G. Tryon. Ry Age 70:841-2 Ap 1 '21
- Avert government control of the coal industry by reform from the inside. J. E. Lloyd. Coal Age 19:109 Ja 20 '21
- Bituminous coal exported overseas in 1920. Coal Age 18:911 O 28 '20
- Bituminous coal in 1920. Coal Age 19:97-102 Ja 20 '21; Excerpt (chart). Power 53:201 F 1 '21
- Bituminous coal mining industry must be stabilized. E. McAuliffe. Ry Age 68:427-30 F 6 '20

Coal trade—United States—Continued

Calder committee raid fails to yield evidence of wrongdoing by National coal association. Coal Age 18:1339-43 D 30 '20

Campaign to stabilize coal industry. Ry Age 68:1103-4 Ap 2 '20

Coal and coke shipments for first four months, 1919 and 1920; tabulation. Coal Age 18:596 S 16 '20

Coal and coke shipments for January, 1919, and January, 1920, compared; tabulation. Coal Age 17:996 My 13 '20

Coal exports in 1919. H: M. Payne. Coal Age 17:84 Ja 15 '20

Coal exports in 1921. Annalist 18:297 S 26 '21

Coal in 1918; distribution and consumption. C. E. Leshner. map U S Geol S Min Res of U S 1918, pt 2:1315-92 '20

Coal quality—a factor in export trade. J. D. Davis. map Coal Age 18:537-9 S 9 '20; Discussion. F. R. Wadleigh. 18:948-50, 991-5 N 4-11 '20

Coal reconsignment evil. Power 52:239 Ag 10 '20

Complex features of 1920 Lake traffic in coal. W: A. White. il Coal Age 19:103, 105 Ja 20 '21

Conference seeks to cure all mine ills. R. D. Hall. Coal Age 17:449-50 Mr 4 '20

Engineers and railroad presidents study stabilization of coal industry. Coal Age 17:859-60 Ap 29 '20

Exit the coal pool? Coal Age 17:446-9 Mr 4 '20

Fluctuations in coal production—their extent and causes. G: O. Smith and F. G. Tryon. Min & Met 159:(sec 3) 9-28 Mr '20; Same. Coal Age 17:399-407 F 26 '20; Same cond. Iron Tr R 66:770-4 Mr 11 '20; Same cond. Power 51:422-4 Mr 16 '20; Same cond. Power Pl Eng 24:421-6 Ap 15 '20

Further fields inviting expansion of overseas coal trade of the United States. H: M. Payne. Coal Age 19:1001-2 Je 2 '21

Geological survey production estimates. Coal Age 17:118 Ja 15 '20

Independence of the coal industry threatened; one thousand operators at Cleveland discuss plans to meet impending hostile legislation. Coal Age 18:915-16 O 28 '20

Is price regulation any longer of legal force? Coal Age 17:616-17 Mr 25 '20

Judge McGee's report inaccurate, unfair and misleading. J. D. A. Morrow. Coal Age 18:1297-8 D 23 '20

McAdoo's statements of big operating profits not sustained. charts Coal Age 17:674-5 Ap 1 '20

Market reviews; markets and production in 1920 and forecasts of the future. Coal Age 19:131-60 Ja 20 '21

Movement of coal and coke by fourteen leading railroads during June and first six months of 1920; tabulation. Coal Age 18:866 O 21 '20

National coal association holds convention at Atlantic City. Coal Age 17:1161-4 Je 3 '20

New orders regarding coal diversion. Ry Age 68:779-80 Mr 12 '20

New Tidewater pooling association formed. Coal Age 17:451-2 Mr 4 '20

North Atlantic exports for 1918, 1919 and 1920 compared. Coal Age 17:1258 Je 17 '20

Ore and coal exchange begins season of 1921; 1,222,568 tons of coal loaded to May 1. Coal Age 19:873 My 12 '21

Problems and accomplishments of retailers in 1920. E. Gordon. Coal Age 19:121-2 Ja 20 '21

Refutes profiteering charges made by Lauck and Senator Walsh. J. D. A. Morrow. Coal Age 17:1114-15 My 27 '20

Reported tidewater movement of coal during July and August. Coal Age 18:548 S 9 '20

Secretary Payne denies government liability for diversion of coal. Coal Age 17:807 Ap 22 '20

Shipments of lake coal by originating districts. Coal Age 18:252 Jl 29 '20

Southern operators plan organization of Tidewater coal exchange at Charleston. Coal Age 19:25 Ja 6 '21

Southern West Virginia in the year past. J. Keely. il Coal Age 17:175-6 Ja 22 '20

Stabilization of bituminous-coal industry. E. McAuliffe. Min & Met 159:(sec 3) 48-63 Mr '20; Same. Coal Age 17:486-93 Mr 11 '20; Discussion. M. L. O'Neale. Coal Age 17:593-4 Mr 25 '20

Stabilization of coal industry depends on improvement in the railroad situation. H. N. Eavenson. Min & Met 162:5-6 Je '20

Stabilization of coal industry; the Coal stabilization committee. Min & Met 168:11 D '20

Stabilization of coal industry urged before Senate committee—storing of coal recommended. Comm & Fin Chr 110:2039-40 My 15 '20

Tidewater coal exchange is to be continued for sixty days. Coal Age 17:508-9 Mr 11 '20

Trade conditions in New England and other coal centers in 1919. G. G. Wolkins. il Coal Age 17:93-104, 106-17 Ja 15 '20

What well known New York coal men think of the future—with some remarks on coal exports; symposium. Coal Age 17:85-8 Ja 15 '20

Wholesalers seek injunction against railroad administration. Coal Age 17:510-11 Mr 11 '20

Why America's export coal business should be built up. E. W. Zimmermann. Coal Age 18:1180-2, 1272-4; 19:18-20, 67-9 D 9, 23 '20, Ja 6-13 '21

See also Coal—Prices; *also* American wholesale coal association; Consolidation coal company; National retail coal merchants' association

West Virginia

Sale of large coal properties foreshadows expansion in northern West Virginia. H. A. Williamson. Coal Age 19:149-50 Ja 20 '21

Coal trimmers, Mechanical

L'installation de chargement du charbon à bord des navires, à Curtis Bay (Maryland, E.-U.). il diags plan Génie Civil 79:341-5 O 22 '21

Mechanical coal trimmer. il Iron Age 108:276 Ag 4 '21; Iron Tr R 69:371 Ag 11 '21; Marine R 51:476-7 O '21

Mechanical coal trimmers solve ship loading problem. P. G. Lang, jr. il diags Eng N 85:412-14 Ag 26 '20

Mechanical trimmers facilitate coal loading. P. G. Lang, jr. il Ry Age 70:1433-6 Je 24 '21

Coal washing

Advances in the preparation of anthracite. D. C. Ashmead. il diags Coal Age 20:671-4 O 27 '21

Coal washing. E. Prochaska. 382p McGraw-Hill '21

Coal washing at the Northwest experimental station, Seattle. E. R. McMillan. diags plan Elec R 78:143-4 Ja 22 '21; Same cond. J Fr Inst 190:898-9 D '20; Discussion. B. J. Roberts. Elec R 78:144-5 Ja 22 '21

Concentrating tables turn incombustible sludge from pond into good fuel. W: Strain. il diags plan Coal Age 19:741-3 Ap 28 '21

Étude théorique du lavage des charbons. diags Génie Civil 76:271-3 Mr 13 '20

Mechanical separation of sulfur minerals from coal. J. R. Campbell. flow sheets il Min & Met 153:1779-89 S '19; Discussion. 156:3121-3 D '19; 157:(sec 12) 17-18 Ja '20

Method of washing coal for metallurgical coke at Risco, in Birmingham field. E. P. Stewart. flow sheet il Coal Age 19:807-10 My 5 '21

Modern practice in coal washing. H. C. Ray. il Coal Age 17:2-9 Ja 1 '20

Some of the many problems in the cleaning of coal. E: O'Toole. il Coal Age 20:3-6 Jl 7 '21

Tests with jig having no suction effect suited to small sizes of coal. J. H. McNally. il diags Coal Age 18:1089-92 N 25 '20

Washing coal. Min & Sci P 121:848 D 11 '20

See also Coal cleaning

Coal waste. *See* Coal distillation; Culm

- Coal weighing**
Automatic coal scales at Dalmarnock power station. diags Engineering 109:754-6 Je 4 '20
Bureau of standards is testing scales at mines. L. A. Fisher. il Coal Age 20:333-4 S 1 '21
Coal weighing devices and meters. il Power Pl Eng 24:70-2 Ja 1 '20
Fuel economy by the adoption of scientific management in power generation and utilisation. D: Brownlie. il diags Eng & Ind Management 6:560-2 N 17 '21 (to be cont)
How to install a tippie scale so that it will not fail to give correct weight. E. C. Dodge. Coal Age 19:821 My 5 '21
- Coaling**
Coaling barge combines dragline bucket and conveyor. il diags Eng N 87:603-4 O 13 '21
Coaling facilities of New Orleans. H. H. Dunn. il plan Marine R 51:251-3 Je '21
From coal barge to bunker. J. F. Springer. il Sci Am 122:163+ F 14 '20
Steamship coaling equipment. il diag Int Marine Eng 25:13-14 Ja '20
See also Coal trimmers, Mechanical
- Coaling stations**
Automatic coaling stations of the Bay City foundry and machine co. il Ry R 65:911-12 D 20 '19
Coaling station for city engine terminal: P. & R. R. diags plan Eng N 86:673-4 Ap 21 '21
Coaling station for Norfolk & Western R.R., Roanoke, Va. il diag Ry R 65:869, 870 D 13 '19; Ry Age 67:1225-6 D 26 '19
Coaling station of pre-cast concrete construction. il diag Ry Age 71:354 Ag 20 '21
Coaling stations of pre-cast concrete construction. il diag Eng & Contr 56:305-6 S 28 '21
Concrete coaling station. il diags Engineer 132:271-3 S 9 '21
Efficiency in coaling of railway locomotives. il Pop Mech 35:588 Ap '21
Electric billy goat and its work. Sci Am 124: 413+ My 21 '21
Fuel stations; report of the standing committee. Ry R 66:877-8 My 29 '20; Ry Age 68: 1984-6 Je 25 '20; Ry Mech Eng 94:579-80 S '20
Locomotive ash-pit and coaling station at Communipaw, New Jersey. il diags Engineering 112:125-7 Jl 15 '21
Modern refinement in coaling station design. il Ry Age 71:172-4 Jl 23 '21
New coaling station for the Kentucky & Indiana. il Ry Age 69:149 Jl 23 '20
New coaling station speeds up engine service at Brightwood, Pa. il plan Ry Age 68:1085-7 Ap 2 '20
Principal steamship coaling stations of the world with special maps of important districts. Marine R 50:414a Jl '20
San Francisco develops as a coaling station. C: W. Geiger. il Coal Age 18:445-6 Ag 26 '20
Sewell Point coaling plant, Norfolk, Va. il Engineer 131:460, 466 Ap 29 '21
Shallow pit coaling station for the Chesapeake & Ohio R. R. diags plan Eng N 84: 520-1 Mr 11 '20
Six-track coal and water station for through trains. il plan Eng N 85:107-8 Jl 15 '20
World's principal oil and coal bunkering stations; map. Marine R 51:310a Jl '21
See also Coal piers
- Coaling vessels.** *See* Colliers
- Coalite**
Coalite. Min & Sci P 122:849 Je 18 '21
- Coalometer**
Device that will show the temperature of the depths of a storage pile. R. P. Nichols. diags Coal Age 18:485-6 S 2 '20; Same cond. Gas Age 46:379-80 N 10 '20; Excerpts. Sci Am 123:539 N 27 '20
Device to show thermal conditions in coal pile; Thornley coalometer. diags Power 52: 500 S 28 '20; Iron Age 106:588 S 2 '20; Textile World 58:2541 O 9 '20; Elec R 77:822 N 20 '20; Min & Sci P 121:787 N 27 '20; Ry R 67:987-8 D 25 '20; Ry Mech Eng 95:58-9 Ja '21
- Coast artillery.** *See* United States—Army—Coast artillery
- Coast guard.** *See* United States—Coast guard
- Coasting**
Coasting without a hill. D. R. Van Horn. il diags Pop Mech 33:463-4 Mr '20
See also Electric railroads—Coasting
- Coated paper.** *See* Paper finishing
- Coats**
Growth of unit patterns in cloak trade; fringed Shetland blankets. Textile World 58:2791 O 23 '20
- Cobalt, Ontario**
Diffusion in vein-genesis at Cobalt. A. R. Whitman. Econ Geol 15:136-49 Mr '20
Veins of Cobalt. W. L. Whitehead. il diags map Econ Geol 15:103-35 Mr '20
- Cobalt**
Cobalt. Min & Sci P 121:560; 122:644 O 16 '20, My 7 '21
Cobalt brasses. L. Guillet. il Chem & Met Eng 24:439-43 Mr 9 '21
Cobalt in Jackson county, Ore. A. E. Kellogg. Eng & Min J 112:650 O 22 '21
Cobalt in 1917. F. L. Hess. U S Geol S Min Res of U S 1917, pt 1:899-906 '20
Cobalt in 1920. C. W. Drury. Eng & Min J 111:150 Ja 22 '21
Determination of cobalt and nickel in cobalt steels. G. E. F. Lundell and J. I. Hoffman. J Ind & Eng Chem 13:540-3 Je '21
Mineral industry of the British empire and foreign countries, war period: cobalt (1913-1919). Great Britain Imperial mineral resources bureau, London
New method for the detection and estimation of cobalt. S. A. Braley and F. B. Hobart. Am Chem Soc J 43:482-4 Mr '21
Nitroso R-salt, a new reagent for the detection of cobalt. H. S. van Klooster. Am Chem Soc J 43:746-9 Ap '21
Passivity of cobalt. H. G. Byers and C. W. Thing. diags Am Chem Soc J 41:1902-8 D '19
Ueber vernicklung und verkobaltung. M. Schlötter. Stahl & Eisen 41:293-7 Mr 3 '21
See also Stellite
- Cobalt alloys**
Analysis of molybdenum, cobalt, and chromium alloys. J. R. Camp and J. W. Marden. J Ind & Eng Chem 12:998 O '20
See also Chrobaltic alloy; Cobalt steel
- Cobalt amines**
Complex metallic amines; cis-succinatodienediaminecobaltic salts, and other cobaltamine salts containing a seven-membered ring in the complex. J. C. Duff. Chem Soc J 119:385-90 Ap '21
Stability of the cobaltamines. A. B. Lamb and A. T. Larson. diag Am Chem Soc J 42:2024-46 O '20
- Cobalt chloride**
Magnetic susceptibility of nickel and cobalt chloride solutions. L. Brant. diag Phys R 17:678-99 Je '21
- Cobalt compounds**
Properties of subsidiary valence groups; the molecular volume relationships of the hydrates and amines of some cobalt compounds; subsidiary group mobility as studied by the heat decomposition of some cobaltamines. G: L. Clark, A. J. Quick and W: D. Harkins. Am Chem Soc J 42:2483-98 D '20
Researches on co-ordination and residual affinity; the constitution of simple and complex cobaltic quinoneoxime lakes. G. T. Morgan and J. D. M. Smith. Chem Soc J 119:704-16 My '21
- Cobalt oxides**
Colors developed by cobalt oxides. H. J. Witteveen and E. F. Farnau. bibliog J Ind & Eng Chem 13:1061-6 N '21
Note on cobalt oxide. N. B. Davis. Am Cer Soc J 3:322-5 Ap '20

Cobalt steel

Determination of cobalt and nickel in cobalt steels. G. E. F. Lundell and J. I. Hoffman. *J Ind & Eng Chem* 13:540-3 Je '21

Cobalt sulfates

Cobalt stain in white ware bodies. A. S. Watts. *Am Cer Soc J* 4 pt 1:451-2 Je '21
Some minerals of the melanterite and chalcantite groups with optical data on the hydrous sulphates of manganese and cobalt. E. S. Larsen and M. L. Glenn. *J Ind & Eng Chem* 12:225-33 S '20

Cobwebs. See Spider webs**Coca-cola**

Coca-cola company uses advertising to help enforce court decree. *J: P. Wilder. Ptr Ink* 115:17-19 My 5 '21

Cockle-bur oil

Cockle-bur oil; a new seed oil. L. B. Rhodes. *Am Chem Soc J* 42:1507-8 Jl '20

Cockles. See Mollusks**Cocks, Corporation**

Standardization of brass goods for water works; with discussion. A. Mueller. *Am Water Works Assn J* 8:48-54 Ja '21

Cocoa

Cocoa. E. A. Browne. 88p A. & C. Black, Ltd., 4, 5 & 6 Soho Square, London, W.1 '21
Cocoa and chocolate; their chemistry and manufacture. R. Whympers. 2d ed., rev. and enl. 568p J. & A. Churchill, London '21

Coconut

Cutting the cocoanut cake; the growth of the tree and the preparation of its products. M. Tevis. *il Sci Am M* 1:404-7 My '20
Most valuable crop. *Sci Am M* 1:316 Ap '20
Some amino-acids from the globulin of the coconut as determined by the butyl alcohol extraction method of Dakin. C. O. Johns and D. B. Jones. *J Fr Inst* 191:127 Ja '21

Coconut charcoal. See Charcoal**Coconut Grove, Florida**

Housing and community planning; the plan for Coconut Grove. *il maps plans Am Inst Arch J* 9:110-27 Ap '21

Coconut oil

Coconut oil production and refining. A. W. Krebs. *il Chem Age* 29:313-15 Ag '21
Handling of cocoanut oil. C: W. Geiger. *il diag plan Power Pl Eng* 24:121-6 Ja 15 '20
How cocoanut oil is handled on the Pacific coast. C: W. Geiger. *il plan Heat & Ven* 18:28-31 Ag '21
Problems in the preparation of copra and coconut oil. H. C. Brill. *Chem & Met Eng* 24:567-8 Mr 30 '21

Codfish cakes

Fish firm finds big new seller in housewives' old dish. E: T. Tandy. *Ptr Ink* 112:17-19 S 9 '20

Cody, William, 1846-1917

Shrine to Buffalo Bill on Lookout Mountain. E. C. MacMechen. *il Pop Mech* 36:325-7 S '21

Coe, William R.

Residence of William R. Coe, Oyster Bay, L.I. J. T. Boyd, jr. *il plan Arch Rec* 49:194-224 Mr '21

Coelenterata

Flower-like fauna of the sea. T. A. Marchmay. *il Sci Am M* 4:129-33 Ag '21

Coffee

Campbell's tea, coffee and spice manual; a comprehensive trade manual. L. E. Campbell. 180p L. E. Campbell, Los Angeles, Cal. '20
Conveyors speed delivery of sacked coffee to ships. S. T. Henry. *il Eng N* 85:757-8 O 14 '20
Painted coffee; trick little known outside Brazil. R. C. Brown. *Sci Am* 123:425 O 23 '20
Plant that roasts all of navy's coffee uses gas. L. E. Ruggles. *Am Gas Eng J* 112:485-6 Je 19 '20

Putting a new brand of coffee into 1,500 grocers' stores in one week. *Ptr Ink* 111:34-6 Ap 8 '20

Advertising

Coffee advertising campaign apportioned on new basis. *Ptr Ink* 115:19-20 Ap 7 '21
Promotion work that backs up the national advertising. *Ptr Ink* 114:33-5 Ja 20 '21

Cofferdams

Cofferdam formed of 20 ft. rails. *diags Eng & Contr* 53:370 Mr 31 '20
Crib and cofferdam work. F. W. Skinner *il diags Pub Works* 51:195-8, 255-7, 281-3 S 10, O 1-8 '21
Drag-line cofferdams. *il Pub Works* 50:372-3 Ap 30 '21
Enormous cofferdam for Chicago bridge. *il Pop Mech* 33:92 Ja '20
Improved coffer-dam and foundation wall. *diag Eng & Contr* 56:191-2 Ag 24 '21
Low cofferdams on hard bottom. *Pub Works* 49:420-1 O 30 '20
Method of constructing cofferdams for Key Bridge, Washington. J: T. Tolman. *il diags plan Eng & Contr* 53:332-4 Mr 24 '20
Railway metal cofferdam. *Engineer* 129:241 Mr 5 '20
Shallow-water cofferdams on soft bottom. *Pub Works* 49:392-4 O 23 '20
Types of foundations. C: E. Fowler. *diags Eng & Contr* 55:274-7 Mr 23 '21
See also Bridges—Foundations and piers

Coils

Adjustable home-made coil puller. L. E. Wood. *il diags Elec W* 77:548-9 Mr 5 '21
Almost laborless dipping and baking plant; Cold Spring shops of the International railway. *il Elec Ry J* 55:386-7 F 21 '20
Armature and field coil bake oven in the shops of the Newport News & Hampton railway, gas & electric company at Hampton, Va. *il Elec Ry J* 55:399-400 F 21 '20
Devices for measuring turns of coils. S. C. Hoare. *il diags Gen Elec R* 24:869-72 O '21
Magnetic properties of compressed powdered iron. B. Speed and G. W. Elmen. *il Am Inst E E J* 40:596-609 Jl '21; *Abstract. Sci Am M* 4:374 O '21
Order system for coil-winding shop. A. C. Roe. *diag Elec W* 78:65-70 Jl 9 '21
Practical method for calculating operating characteristics of magnet coils. C: R. Underhill. *Elec W* 78:872-5 O 29 '21
Progress in the manufacture of high-voltage alternating-current windings; abstract. W. Zederbohm. *Elec W* 77:1005 Ap 30 '21
Repairing mica-insulated coils. C. R. Reid. *diags Elec W* 77:1487-8 Je 25 '21
Steps in making an aluminum moving coil for an ammeter. K. H. Condit. *il diags Am Mach* 51:1055-6 D 18 '19
Strap coils reinsulated with cotton sleeving to save time. A. C. Roe. *Elec W* 78:475 S 3 '21
Thermal conductivity of coil wrappers. T. S. Taylor. *diags Elec W* 75:369-71 F 14 '20
Thorough system of baking coils, armatures and stators. L. E. Wood. *Elec W* 78:275-6 Ag 6 '21
See also Armatures; Choke coils; Inductance coils; Induction coils; Reactors; Resistance coils

Coils, Induction. See Induction coils**Coin-handling machine.** See Counting machines**Coinage**

Recoinage of silver dollars. *Comm & Fin Chr* 112:790-1 F 26 '21
See also Money

Coins

Coins of the ages. H. Wood. *il Sci Am S* 88:292-4, 308-10+ N 15-22 '19
German porcelain money—an old idea revived to offset cheap marks. A. A. Hopkins. *Sci Am* 123:281 S 18 '20
Red sea dollar; how a trade coin of more than a century's standing is being retired. F. P. Stockbridge. *Sci Am* 125:97 Ag 6 '21
Zinc used for money in Belgium and France. *il Min & Met* 159:(sec 1) 34-5 Mr '20

Coke

- By-product coke. W: T. Harms. Am Soc Heat & V E 25:203-8 '19
- By-product coke ovens and their relation to our fuel supply. E. B. Elliott. il diag Am Soc Heat & V E J 27:381-400 My '21
- Carbon blisters and carbon threads are said to be evidence of good coke. il Coal Age 18:173-4 J1 22 '20
- Characteristics of foundry cokes and slags. Y. A. Dyer. Iron Age 108:407-9 Ag 18 '21
- Coke and byproducts as fuels for metals melting. F. W. Sperr, jr. Min & Met 167:33 N '20; Same. Sci Am M 2:284 N '20
- Coke as a fuel for commercial vehicles. T: Clarkson. Engineering 112:579-80 O 21 '21
- Coke in 1918. C. E. Leshner and F. G. Tryon. U S Geol S Min Res of U S 1918, pt 2: 1439-1528 '21
- Coke makes concrete for building houses. il Pop Mech 33:903 Je '20
- Comparison of beehive and by-product coke. Blast F & Steel Pl 9:638-9 N '21
- Cupola practice is not consistent. P. Dwyer. il Foundry 48:671-8 S 1 '20
- Desulfurizing action of hydrogen on coke. A. R. Powell. J Ind & Eng Chem 12:1077-81 N '20
- Effect of coke hardness. O. R. Rice. diags Iron Tr R 68:423-5 F 10 '21; Same cond. Iron Age 107:380-1 F 10 '21; Abstracts. Min & Met 167:34-5 N '20; Sci Am M 2:284-5 N '20
- Fuel case of coke vs. coal. H: Townsend. diag Sci Am 122:491+ My 1 '20
- Hygroscopicity of by-product coke. W. A. Selvig and B. B. Kaplan. J Ind & Eng Chem 12:783-4 Ag '20
- Moisture content of blast furnace coke. W: H. George. Blast F & Steel Pl 8:154-7 F '20
- La possibilité d'obtenir du coke métallurgique avec le charbon de la Sarre. Génie Civil 78:338-9 Ap 16 '21
- Report of A.G.A. carbonization committee; Coke division. Am Gas Assn Technical sec v 2:138-50 '20
- La sidérurgie en Haute-Silésie et la question du coke. Durnerin. Génie Civil 78:503-5 Je 11 '21
- Some factors affecting the sulfur content of coke and gas in the carbonization of coal; with discussion. A. R. Powell. J Ind & Eng Chem 13:33-5 Ja '21
- Sulphur distrib'n in carbonization. U. O. Hutton and C. C. Thomas. diag Gas Age 47:88-94 F 10 '21
- Sulphur in coal and coke. A. R. Powell. Eng Soc W Pa 36:611-25 D '20; Excerpt. Iron Age 107:906 Ap 7 '21; Discussion. Eng Soc W Pa 36:626-40 D '20
- Taking sulfur out of coke with hydrogen. Sci Am 125:148 Ag 27 '21
- Use of carbonized fuels for generating steam. F. P. Coffin. Power 54:94 J1 19 '21
- Why and how coke should be used for domestic heating. H: Kreisinger and A. C. Fieldner. diag U S Bur Mines Tech Pa 242:1-17 '19; Same. Metal Work 92:634-6, 671-3 N 28-D 5 '19; Same. Sci Am S 88:326-8 N 29 '19; Excerpt. Gas Age 45:99-100+ Ja 26 '20; Abstract. Heat & Ven 17:45-6 S '20
- See also Coal; Coke-oven gas; Coke ovens

Prices

- Bee-hive coke losing ground. Iron Tr R 66:100-2 Ja 1 '20
- Coke rise and fall spectacular. Iron Tr R 68:82-3 Ja 6 '21
- Coke soars to high prices. Iron Age 107:55, 57 Ja 6 '21
- Connellsville coke prices for eighteen years, 1902-1919; tabulation. Iron Age 105:54 Ja 1 '20; Same. Coal Age 17:230 Ja 29 '20

Testing

- By-product coke, anthracite, and Pittsburgh coal as fuel for heating houses. H: Kreisinger. diag J Ind & Eng Chem 13:31-3 Ja '21

- Coking of Illinois coal in Koppers type oven. R. S. McBride and W. A. Selvig. il U S Bur Stand Tech Pa 137:1-47; Appendix. F. W. Sperr, jr. 48-51 '19; Excerpts. Am Soc Heat & V E J 26:supVII-XXVI Ap '20; Abstract. Coal Age 17:162-8 Ja 22 '20
- Determination of the hardness of blast-furnace coke. O. R. Rice. Min & Met 167:34-5 N '20; Same. Sci Am M 2:284-5 N '20
- Les essais de réception du coke métallurgique. A. Baille-Barrelle. Génie Civil 76:435-7 My 8 '20
- Testing of coke standardized. C: J. Rice. il diags Iron Tr R 68:1037-8 Ap 14 '21

Coke ash

- Comparison of the fusing temperature of coal and coke ash. H. J. Rose. Chem & Met Eng 25:141 J1 27 '21

Coke breeze

- Burning coke breeze on underfeed stokers. F. A. De Boos. diags Blast F & Steel Pl 8:362-4 Je '20
- Coke breeze used in building. il Gas Age 47:155 F 25 '21
- Use of carbonized fuels for generating steam. F. P. Coffin. Power 54:94 J1 19 '21

Coke handling

- Coke handling equipment used by Equitable gas co., of Elrama, Pa. il Gas Age 47:354 Ap 25 '21
- Coke handling system at Lawrence, Mass. H. B. Mosley. il diag Am Gas J 114:421-2+ My 14 '21
- New type of coke handling plant at the Augsburg gas works. diags Eng & Ind Management 5:119-20 Ja 27 '21

Coke hoppers

- Concrete coke hopper. E. M. Osbourne. il Gas Age 48:484 O 22 '21

Coke industry

- Alabama's coal and coke output; chart. C. E. Bowron. Coal Age 17:225 Ja 29 '20
- Byproduct coke passes beehive. Chem & Met Eng 22:767 Ap 28 '20
- By-product plants make new record. Iron Tr R 69:362 Ag 11 '21; Same abr. Blast F & Steel Pl 9:549 S '21
- Coal and coke shipments for first four months, 1919 and 1920; tabulation. Coal Age 18:596 S 16 '20
- Coke and by-product statistics. Gas Age 45:74-7 Ja 26 '20
- Coke business carried gas sales in Indianapolis. Am Gas J 115:72-4+ J1 23 '21
- Coke industry and the by-product oven. Chem Age 29:327-29 Ag '21
- Coke industry in 1919. Iron Age 105:1178 Ap 22 '20; Same. Min & Sci P 120:873-4 Je 12 '20
- Compulsory coke sales a burden. Am Gas J 115:368 O 22 '21
- Connellsville and the byproduct coke industries in 1919. B. E. V. Luty. Coal Age 17:104-5 Ja 15 '20
- French may erect coke ovens in Lorraine. Coal Age 17:986 My 13 '20
- Government returns for 1919. Coal Age 17:357 F 19 '20
- History of by-product gas business. Am Gas J 115:140-2+ Ag 13 '21
- Large possibilities in the coking of our coal. R. S. McBride. Coal Age 17:649 Ap 1 '20
- New by-product coke record. O. F. Schuette. Gas Age 45:362 Ap 26 '20
- 1919 coke output shows big decrease. Iron Tr R 66:986 Ap 1 '20
- Official report of coke industry in 1919. Coal Age 17:702-4 Ap 8 '20
- Problems of marketing by-product coke. Am Gas J 115:33-4 J1 9 '21
- Putting the furnace on the street helps company to sell seventy-five per cent of its coke on the minute. H. H. Stinson. il Am Gas Eng J 111:573-4 D 20 '19
- Selling coke to domestic consumers. Gas Age 45:14-15 Ja 10 '20

See also Coke—Prices

Coke manufacture

- Byproduct coke ovens in 1919. C. J. Ramsburg. Coal Age 17:117-18 Ja 15 '20
- By-product industry progresses. A. Thau. Iron Tr R 68:695-7+ Mr 10 '21

Coke manufacture—Continued

- Coke cooled by gas. Gas Age 48:288 S 10 '21
 Coking industry of the Pacific Northwest. J. Daniels. il chart map Wash U Eng Exp Sta Bul 9:1-35 Ag '20
 Coking mid-continent coals. il Chem & Met Eng 25:710-12 O 12 '21
 Coking of Illinois coal in Koppers type oven. R. S. McBride and W. A. Selvig. il U S Bur Stand Tech Pa 137:1-47; Appendix. F. W. Sperr, jr. 48-51 '19; Excerpts. Am Soc Heat & V E J 26:supVII-XXVI Ap '20; Abstract. Coal Age 17:162-8 Ja 22 '20
 Contribution à l'étude de la cokéfaction des charbons de la Sarre. Baille-Barrelle. Génie Civil 79:40-1 JI 9 '21
 Desulfurizing action of hydrogen on coke. A. R. Powell. J Ind & Eng Chem 12:1077-81 N '20
 Deterioration of coking property of coal. W. Seymour. Blast F & Steel Pl 9:435-7 JI '21
 L'évolution de l'industrie du coke métallurgique. C. Berthelot. il Chimie & Ind 3:717-28; 4:165-77 Je, Ag '20
 Fortschritte auf dem gebiete der kokserzeugung, der einfluss der koksbeschaffenheit auf den hochofenbetrieb und vorschläge für die verbesserung des letzteren. H. Koppers. diags Stahl & Eisen 41:1173-81, 1254-7 Ag 25, S 8 '21; Discussion. 41:1258-62 S 8 '21
 How to test the fitness of coals for coking. G. H. Elmore. diags plan Coal Age 18:1130-4 D 2 '20
 Low-temperature coking of Utah coals. O. Monnett. il diags Chem & Met Eng 23:1246-9 D 29 '20
 Making foundry by-product coke. E. H. Bauer. il diags Foundry 48:509-16 JI 1 '20
 Process for coking non-coking coals; patent. Chem & Met Eng 23:1131 D 8 '20
 Study of the reactions of coal sulfur in the coking process. A. R. Powell. diag J Ind & Eng Chem 12:1069-77 N '20
 Sulfur in the coking process. S. W. Parr. Min & Met 153:1807-9 S '19; Discussion. 157:(sec 12) 64-8 Ja '20
 Technical progress of coke ovens reviewed. F. T. Moran. Blast F & Steel Pl 8:18-20 Ja '20
 U.S. scientists seek method to control sulphur in gas. A. R. Powell. Am Gas Eng J 113:467-8+ D 4 '20

See also Coke ovens; Coke plants, By-product

By-products

- Ammonia and benzene column stills. A. Thau. diags Chem & Met Eng 23:1203-7 D 22 '20
 Ammonia from coal distillation. Sci Am M 4:309-11 O '21
 By-product coke and by-products of coal. T. E. Pierce. Blast F & Steel Pl 8:283-7 My '20
 By-product coke oven and its place in the gas industry. A. H. Harris, jr. il Am Gas Assn Technical sec v 1:56-77; Discussion. 77-100 '19
 By-product coke ovens and their relation to our fuel supply. E. B. Elliott. il diag Am Soc Heat & V E J 27:381-400 My '21
 By-product coke-ovens of the Granby consolidated company, at Anyox, B.C. W. A. Williams. il Min & Sci P 120:600-2 Ap 24 '20
 By-product coking. F. W. Sperr, jr., and E. H. Bird. J Ind & Eng Chem 12:26-30 Ja '21; Same. Gas Age 47:193-6 Mr 10 '21; Discussion. J Ind & Eng Chem 12:30-1 Ja '21
 By-product ovens—natural gas. C. J. Ramsburg and others. Gas Age 45:456-61 My 25 '20; Same without table. Am Gas Eng J 112:423-4+ My 29 '20
 By-products coke. J. F. Springer. il Sci Am M 1:422-5 My '20
 Coke and by-product statistics. Gas Age 45:74-7 Ja 26 '20
 Coke plants assure nitrates. G. B. Cramp. Iron Tr R 69:874-5 O 6 '21
 Coke practice changes rapidly. M. L. Feiser. map Iron Tr R 68:72-4 Ja 6 '21
 L'évolution dans la récupération et le traitement des sous-produits de la carbonisation de la houille. C. Berthelot. il diags Chimie & Ind 5:384-97, 508-17 Ap-May '21

- L'extraction des différents produits de la distillation de la houille. A. Grebel. diags Génie Civil 78:35-7 Ja 8 '21
 Fields for investigating waste elimination. A. Thau. Iron Age 105:1155-7 Ap 22 '20
 Method for the determination of thiocyanates in ammoniacal liquor and waste liquor from ammonia stills in the by-product coking industry. J. A. Shaw. J Ind & Eng Chem 12:676-7 JI '20
 Modern by-product oven operation. C. R. Bellamy. charts Gas Age 46:340-2 N 10 '20
 Official report of coke industry in 1919. Coal Age 17:702-4 Ap 8 '20
 Plant capacity for the manufacture of by-product coke. Blast F & Steel Pl 8:268 Ap '20
 Preliminary statistics of production of by-product coke in 1920. Gas Age 47:521 Je 25 '21
 Les produits de distillation de la houille; procédés d'extraction et installations de la C^{ie} des forges et aciéries de la Marine et d'Homécourt aux usines du Boucau (Basses-Pyrénées). A. Grebel. il diags Génie Civil 78:449-54, pl 5 My 28 '21
 Progress in the byproduct coke industry. C. R. Bellamy. il diags Chem & Met Eng 23:321-6 Ag 25 '20; Same. Am Gas Eng J 113:83-6+ JI 31 '20; Same abr. Gas Age 46:169-73 S 10 '20
 Recovery of pyridine from byproduct coke ovens. F. E. Dodge and F. H. Rhodes. diag Chem & Met Eng 22:274-5 F 11 '20
 Removing tar from coke gas. A. Thau. il Iron Tr R 66:1535-8; 67:34-7+, 241-7, 510-16, 1331-5 My 27, JI 1, 22, Ag 19, N 11 '20
 Some pointers on by-product coke oven operations. Blast F & Steel Pl 8:701 D '20
See also Coke-oven gas; Coke plants, By-product

Standards

- Normalisierung von kokereien; mitteilung aus dem kokereiausschuss des bergbauvereins und des Vereins deutscher eisenhüttenleute. Stahl & Eisen 41:150-3; Discussion. 153-5 F 3 '21

Coke-oven gas

- Advocates regenerative coke oven in localities where its use is practical as most efficient means of gas manufacture. H. E. Wright. Am Gas Eng J 113:237-8+ S 25 '20
 Baltimore sells 80,000 thrift lights. C. W. Pierson. Gas Age 46:203 S 10 '20
 Beiträge zur erhöhung der ammoniakausbeute bei der destillation der steinkohle; die gewinnung des im koksofengase enthaltenen zyanwasserstoffs durch umwandlung in ammoniumsulfat. F. Sommer. diags Stahl & Eisen 41:852-9 Je 23 '21
 By-product coking. F. W. Sperr, jr., and E. H. Bird. J Ind & Eng Chem 12:26-30 Ja '21; Same. Gas Age 47:193-6 Mr 10 '21; Discussion. J Ind & Eng Chem 12:30-1 Ja '21
 By-product ovens—natural gas. C. J. Ramsburg and others. Gas Age 45:456-61 My 25 '20; Same without table. Am Gas Eng J 112:423-4+ My 29 '20; Abstract. Chem & Met Eng 22:1214-15 Je 30 '20
 Chloroform from coke-oven gas. Am Gas Eng J 112:324 Ap 24 '20
 Composition de quelques gaz de fours à coke. P. Lebeau and A. Damiens. Génie Civil 78:43 Ja 8 '21
 Determination of benzol in coke-oven gas. A. Thau. diag Blast F & Steel Pl 9:474-6 Ag '21
 Ethyl alcohol from coke oven gas. E. Bury and O. Ollander. Am Gas Eng J 112:179-83 Mr 6 '20; Abstract. Gas Age 45:294-5 Ap 10 '20
 Gas heating and the manufacture of coke ovens and water gas. Heat & Ven 17:52 O '20
 Industrial alcohol can be made from coke-oven gases. Coal Age 17:910 My 6 '20
 Internal combustion engine:heat value of gases. M. Meredith. Am Gas J 114:425-6 My 14 '21
 Manufacture of alcohol from coke-oven gas. C. F. Tidman. Blast F & Steel Pl 9:411, 519 Je, Ag '21

Coke-oven gas—Continued

- Method of extracting ethylene from coke oven gas on commercial scale developed. Am Gas Eng J 112:87-8 Ja 31 '20
- Modern coke plant at Birmingham, Ala. J. M. Hastings, jr. il Gas Age 46:461-5 D 10 '20
- Modern developments in the manufacture and utilisation of coal gas. F. J. West and T. A. Tomlinson. Engineer 130:567 D 3 '20
- New by-product from coke-oven gas. Iron Age 106:13-14 Jl 1 '20
- La production du gaz d'éclairage par fractionnement du gaz de fours à coke. Génie Civil 79:233-4 S 10 '21
- Récupération de l'acide cyanhydrique et du sulfure de carbone du gaz de fours à coke et du gaz de ville. Minot. il diag Chimie & Ind 6:135-40 Ag '21; Same cond. Am Gas J 115:386-8+ O 29 '21
- Removing tar from coke gas. A. Thau. il Iron Tr R 66:1535-8; 67:34-7+, 241-7, 510-16, 1331-5, 1607-10 My 27, Jl 1, 22, Ag 19, N 11, D 9 '20
- Running Martin furnaces with cold coke oven gas. F. Springorum. Sci Am M 1:530 Je '20
- Treating waste gases from coke ovens; patent. Chem & Met Eng 23:1133 D 8 '20
- Using waste fuels. Power Pl Eng 25:41-2 Ja 1 '21
- Waste gases from beehive ovens supply power needed in Star Junction plant. C. R. Weihe. il diags plan Coal Age 18:479-81 S 2 '20

See also Blast furnace gas; Coke manufacture—By-products

Coke-oven machinery

- Coke oven machines. pls 5-6 (supp) Engineering 109:78 Ja 16 '20
- Multi-spindle drive for reversing parts at the coke oven battery. A. A. Rackoff. diags Gas Age 47:183 F 25 '21
- New design of multi-spindle reversing machine for coke oven plants. diags Iron Tr R 68:360-1 F 3 '21

Coke ovens

- By-product ovens at Woodward, Ala. E. Piron. il diags Gas Age 47:83-5 F 10 '21
- Corrosion of coke oven walls. W. J. Rees. Blast F & Steel Pl 8:551-2 O '20
- Gas ovens for small plants. A. MacArthur. il diag Gas Age 47:229-33 Mr 25 '21
- Low-temperature distillation of coal in rotating coke oven. I. E. Roser. il Power 52: 678-9 O 26 '20
- Piette by-product oven. Am Gas J 115:sup16-17 S 24 '21
- Piron by-product coke ovens. il diags Iron Age 107:1531-3 Je 9 '21
- Progress in coal carbonization since 1916. J. A. Brown. il Gas Age 44:475-7 D 1 '19
- Recent by-product coke oven developments. J. Becker and F. W. Sperr, jr. il diags Blast F & Steel Pl 8:330-7 Je '20
- Repeated shut downs of coke ovens. J. M. Hastings, jr. il Iron Age 108:73-4 Jl 14 '21; Same. Blast F & Steel Pl 9:465 Jl '21
- Report of the investigation into the properties of refractory materials used in coke-oven construction. W. C. Hancock. Iron & Steel Inst C S M 10:41-63 '20
- Silica bricks or fireclay bricks for coke ovens. Engineering 110:537 O 22 '20
- Some information on the Piette by-product oven. Blast F & Steel Pl 9:679 N '21
- Testing coke oven refractories. F. A. Harvey and E. N. McGee. Am Cer Soc J 4:pt 1:474-90; Discussion. 491-2 Je '21

See also Coke manufacture; Coke-oven gas; Fire brick

Accidents

- Accidents in the by-product coke ovens. F. H. Rowe. Blast F & Steel Pl 9:150-1+ F '21
- Coke-oven accidents in the United States during the calendar year 1919. W: W. Adams. U S Bur Mines Tech Pa 266:1-24 '20
- Coke-oven accidents in the United States during the year 1919. Iron Tr R 67:1617 D 9 '20
- Coke-oven accidents in the United States during the calendar year 1920. W: W. Adams. U S Bur Mines Tech Pa 293:1-32 '21

Charging

- Coke-oven charging car and means of discharging smoke. diag Chem & Met Eng 24:1115 Je 22 '21

Coke plants, By-product

- Alternating current in by-product plants, by W. V. Dunn; Direct current in by-product plants, by E. P. Winters. Blast F & Steel Pl 9:545-9 S '21
- By-product coke oven plants of yesterday and today. J. M. Hastings, jr. il Blast F & Steel Pl 9:10-13 Ja '21
- Byproduct coke ovens. G. W. Marshall. il Min & Met 168:43-4 D '20; Same. Sci Am M 2:377-8 D '20
- By-product coke plant of the Jones & Laughlin steel co. C. R. Meissner. il Chem & Met Eng 24:891-4 My 18 '21; Same. Gas Age 47:503-6 Je 25 '21
- By-product coke plant regulation. W. M. Shallcross. il Blast F & Steel Pl 9:661-4 N '21
- Byproduct coke plants in the United States; tabulation. Chem & Met Eng 24:1056 Je 15 '21; Same. Coal Age 19:1129 Je 23 '21; Same, with annual capacity net tons. Iron Age 108:264 Ag 4 '21
- By-product industry progresses. A. Thau. Iron Tr R 68:695-7+ Mr 10 '21
- By-product ovens in the United States. Iron Age 108:265 Ag 4 '21
- By-product plant for Sydney. C. E. Wallin. il Gas Age 45:69-73 Ja 26 '20
- By-product yield from fifteen-year-old coke oven plant. W. L. Graul. il Blast F & Steel Pl 9:313-14 My '21
- Coke industry and the by-product oven. Chem Age 29:327-9 Ag '21
- Have we too many rolling mills?: by-product ovens completed in 1920; tabulation. Iron Tr R 68:68 Ja 6 '21
- Inspection of Clairton coke plant. F. F. Treschow. Blast F & Steel Pl 8:641 D '20
- Jones & Laughlin new by-products plant. il Blast F & Steel Pl 9:13-17 Ja '21
- La Belle coke plant. G. P. Blackiston. il Chem & Met Eng 22:561-3 Mr 24 '20; Same. Blast F & Steel Pl 8:149-52 F '20
- Making by-product foundry coke in New England. H. R. Simonds. il Iron Tr R 66: 1467-71 My 20 '20
- Modern coke plant at Birmingham, Ala. J. M. Hastings, jr. il Gas Age 46:461-5 D 10 '20
- New by-product coke ovens at Birmingham. W. B. Bridge and J. M. Hastings, jr. il Iron Age 106:380-2 Ag 12 '20
- New by-product coke plants. Iron Age 105: 1237 Ap 29 '20
- New by-product plant at Indiana Harbor. il Blast F & Steel Pl 8:12-16 Ja '20
- New coke plant at Wisconsin steel works. G. L. Lacher. il plan Iron Age 106:507-13 Ag 26 '20
- Post-war conditions in Europe, with some comparisons of American and European by-product coke-oven practice. J: I. Thompson. Eng Soc W Pa 35:427-44 D '19; Excerpt. Blast F & Steel Pl 8:22-4 Ja '20; Excerpt. Iron Tr R 66:921-3 Mr 25 '20; Excerpt. Iron Age 105:940-1 Ap 1 '20; Discussion. Eng Soc W Pa 35:445-8 D '19
- Progress in the by-product coke industry. Am Gas Eng J 113:315-16 O 16 '20
- Remotely controlled electric locomotives in the by-product coke industry. H. H. Johnston. il diags Elec J 17:49-51 F '20
- Report of carbonization committee; by-product coke oven plants in operation in 1917; by-product coke oven plants built or building in 1918-1919. Am Gas Assn Technical sec v 1:12-14 '19

See also Coke manufacture—By-products

Safety devices and measures

- Reducing hazards in coke plants. F. F. Marquard. Iron Tr R 69:943-5+ O 13 '21
- Colburn, C. L.
Mine safety engineers of note. por Eng & Min J 112:576 O 8 '21

Cold (disease)

Curing colds by acid fumes. *Sci Am M* 2: 204 N '20

Room that stops sneezing. *S. De Hart. il Factory* 27:482-3 O '21

Cold light. See Luminescence; Phosphorescence

Cold rolling. See Rolling (metal work)

Cold storage

Chemical study of frozen fish in storage for short and long periods. E. D. Clark and L. H. Almy. *J Ind & Eng Chem* 13:656-63 JI '20

Cold facts about storage. A. H. Ulm. *Nation's Business* 8:48+ Je '20

Cold storage and ice-making. B. H. Springett. 122p Pitman '21

Direct expansion piping in egg rooms. N. J. Waite. *A S R E J* 7:41-2 JI '20; Discussion. 7:42-7; 8:19-22 JI '20, JI '21

Effect of the war upon the cold storage industry. I. C. Franklin. maps *A S R E J* 6: 237-50; Discussion. 250-5 Ja '20

Le frigorifique à poissons de Lorient (Morbihan). Verrière and Tayon. *il diags plans Génie Civil* 77:245-50, pl 4 S 25 '20

More products for cold storage. *Sci Am* 124:173 F 26 '21

Refrigeration study course; cold-storage and packing-house refrigeration. H. J. Macintire. *diags Power* 52:855-7 N 30 '20

Scientific problems of cold storage industries. W. B. Hardy. *A S R E J* 6:201-8 N '19; Abstract. *Mech Eng* 42:360-1 Je '20

See also Fish, Frozen; Refrigeration and refrigerating machinery; Refrigerator barges; Refrigerator cars

Colemanite

Callville wash colemanite deposit. H. S. Gale. *il diag maps Eng & Min J* 112:524-30 O 1 '21

Origin of the colemanite deposits of California. W. F. Foshag. *Econ Geol* 16:199-214 Ap '21

Colgate and company

Story of Colgate & co. R. R. Updegraff. *Ptr Ink M* 3:13-14+ JI '21

Collars**Advertising**

Collar manufacturer changes demand for certain styles to demand for make. R. Cole. *Ptr Ink* 111:133+ My 27 '20

How advertising has transformed the collar industry. R. W. Johnson. *Ptr Ink* 114:3-4+ Mr 17 '21

Unusual quality proves good talking point for fifty-cent collar. B. Gannon. *Ptr Ink* 116:129-30+ JI 21 '21

Collecting of accounts

Collection letters that collect. *Dom Eng* 96: 558; 97:9, 57, 99, 159 S 24-O 22 '21

Collections 99.78%—our 10 years' experience. P. F. Victor. *il System* 39:32-4+ Ja '21

Credits and collections. *System* 39:52+, 364, 520-1 Ja, Mr-Ap '21

Credits and collections from a public service company's standpoint. W. E. Dorsey. *N E L A Bul* 7:846-8 N '20

Final bill collections. D: Darlington. *N E L A Bul* 8:290-1 My '21

Good letters that collect from bad accounts. *Elec R* 79:562-3 O 8 '21

How to avoid the harmful collection letter. J. K. Novins. *Dom Eng* 95:72-3 Ap 9 '21

Human interest angle the credit man needs. C. B. McCuaig. *Ptr Ink* 111:162+ Je 17 '20

Ideas for the man who writes letters. *System* 39:684+ My '21

Mail collection of consumers' bills in scattered territory. B. W. Little. *Elec W* 77:1253-4 My 28 '21

Why write collection letters. S. C. Gunn. *System* 39:222+ F '21

Collective bargaining

Collective bargaining. bibliog *Univ North Carolina Rec Ext Ser* 40:1-75 N '20

See also Railroads—Employees—National agreements; Trade agreements

College annuals

Things that make for speed in handling college annuals. D: A. James. *Inland Ptr* 67:621-2 Ag '21

College architecture

Architecture of the small college. S. B. P. Trowbridge. *Am Arch* 119:614 Je 8 '21

Capuchin college, Washington, D.C.; views and plans. *Arch Forum* 31:pl 89-90 D '19

Emory university, Atlanta, Georgia. A. T. North. *il Am Arch* 118:429-32, 444a-h O 6 '20

Harkness memorial quadrangle at Yale. M. Wilcox. *il plan Arch Rec* 50:162-82 S '21

Hart House, University of Toronto, Canada; views and plans. *Am Arch* 117:492a-g Ap 21 '20

Loughborough technical college. plans *Engineering* 110:199-202, pl 21-2 Ag 13 '20

Massachusetts college of pharmacy, Boston, Mass.; views and plans. *Arch Forum* 32:pl 17-21 F '20

Memorial quadrangle and the Harkness memorial tower at Yale. *il plans Am Arch* 120:298-314, 312a-p O 26 '21

Theological seminary, Oberlin college, Oberlin, Ohio. *Am Arch* 117:pl 522c-d Ap 28 '20

Yale memorial quadrangle and Harkness tower. *Arch & Bldg* 53:35-8, pl 58-64 My '21
See also Stadia

College buildings

Sanitation and water supply for a group of university buildings; Seminary of St Mary's of the Lake. L. M. Emmett. *diags plan Dom Eng* 95:100-2 Ap 16 '21

See also College architecture

College education

College education and practical affairs. *Comm & Fin Chr* 112:1456-7 Ap 9 '21

See also Edison questionnaire

College graduates

Are college graduates too humble? P. B. McDonald. *Eng & Contr* 53:517-18 My 5 '20

College men in railway work. F. H. Dixon. *Ry Age* 69:7-8 JI 2 '20; Same. *Eng & Contr* 54:66-7 JI 21 '20

Do the railroads want college men? *Ry Age* 70:1384; 71:121-2, 153-4, 703-4, 866 Je 17, JI 16-23, O 15, N 5 '21

Humanizing the college man. W: A. McGarry. *Nation's Business* 8:32 O '20

Is the college graduate properly equipped for railroad work? S. Ennes. *Ry Age* 71:323-4 Ag 20 '21; Discussion. 71:480, 523 S 10-17 '21

Making better engineers of college men; power to think is more important than mind filled with facts. *Elec W* 78:567-9 S 17 '21

College professors

See also Professional service

College women

How college girls buy. M. V. Cobb. *Ptr Ink* 116:111-12 Ag 25 '21

Colleges and universities

Student population on the campus; census taking. C. H. Benjamin. *Eng Educ* 11:61-6 O '20

University and research. V. Kellogg. (Reprint & Circ. Ser. 19) 10p '21 15c National Research Council, 1701 Massachusetts av, Washington, D.C. [Reprinted from *Science*, July 8, 1921]; Same. *Chem Age* 29:274-6 JI '21

See also College architecture; Engineering colleges; Labor colleges; Scholarships and fellowships; also names of colleges and universities, e.g. Antioch college; Cornell university; University college, London

Advertising

Colleges unite in advertising to prospects. *Ptr Ink* 112:105-6+ S 2 '20

Cornell university uses paid space. *Ptr Ink* 110:35-6 F 19 '20

Colleges and universities—Continued

Bibliography

List of references on college and university government and administration, 1819-1920. F. Borden, comp. Vassar College Bul (Poughkeepsie, N.Y.) 10:1-39 My '21

Finance

College and university finances. J. W. Richards. Chem & Met Eng 23:604-5 S 29 '20

Professional service

See Professional service

United States

What must the colleges do? M. L. Burton. Eng Educ 11:39-53 O '20

Colliers

Bateaux en béton armé de l'amirauté Britannique; charbonniers et bateaux pour l'amarrage des ballons captifs. il diags Génie Civil 78:33-5 Ja 8 '21

Colloid mill

Colloid mills and ultra-filters: their operation and application. I. Ginsberg. diags Oil Paint & Drug Rep 100:24+ sec 1 Jl 4 '21
Colloidal chemistry and a colloid mill. H. Plauson. Engineering 110:429-30 O 1 '20
Industrial preparation and filtration of colloidal masses; abstract. J. H. Frydlender. Paper 28:24 Ag 31 '21

Colloidal fuel. See Fuel, Colloidal

Colloids

Adsorption by precipitates. H. B. Weiser. J Phys Chem 25:399-414 My '21
Adsorption by precipitates. H. B. Weiser and E. B. Middleton. J Phys Chem 24:30-73 Ja '20
Application of colloid chemistry to the filter-pressing of sewage sludge. J: A. Wilson, W: R. Copeland and H: M. Heisig. Am Water Works Assn J 8:486-96 S '21
Applied colloid chemistry. W. D. Bancroft. Chem & Met Eng 23:454-6 S 8 '20
Applied colloid chemistry; general theory. W. D. Bancroft. 345p McGraw-Hill '21
Bubbles, drops and grains. W. D. Bancroft. Sci Am M 1:366-9 Ap '20
Caoutchouc considered as a colloid. D. F. Twiss. India Rubber W 63:429-30 Mr '21
Catalytic hydrogenation with protected hydro-sols. E. K. Rideal. Am Chem Soc J 42:749-56 Ap '20
Ceramic processes associated with colloid phenomena. A. V. Bleininger. J Ind & Eng Chem 12:436-8 My '20
Certain aspects of the chemistry of cellulose acetate from the colloidal viewpoint. G. J. Esselen, jr. J Ind & Eng Chem 12:801-3 Ag '20
Chemistry of cellulose and its compounds from the colloidal standpoint. G. J. Esselen, jr. Chem & Met Eng 23:861-6 N 3 '20
Coagulation of colloidal solutions by electrolytes: influence of concentration of sol. E. F. Burton and E. Bishop. J Phys Chem 24:701-15 D '20
Colloid chemistry and electrochemistry. W. D. Bancroft. Am Electrochem Soc Trans v 37 (preprint 10):105-20 Ap '20
Colloid chemistry in industry. R. C. Coleman. Chem & Met Eng 23:58-9 Jl 14 '20
Colloid chemistry in textile industries. W. Harrison. Color Tr J 6:50-5, 91-5 F-Mr '20
Colloid chemistry of petroleum. F. W. Padgett. Chem & Met Eng 25:189-92 Ag 3 '21
Colloid theory of the corrosion and passivity of iron, and of the oxidation of ferrous salts. J: A. N. Friend. Chem Soc J 119:932-49 Je '21
Colloidal adsorption. A. Mutscheller. diag Am Chem Soc J 42:2142-60 N '20
Colloidal chemistry and a colloid mill. H. Plauson. Engineering 110:429-30 O 1 '20
Colloidal chemistry is useful in many industrial processes. I. Ginsberg. Oil Paint & Drug Rep 99:24 sec 1 My 30 '21
Colloidal electrolytes; soap solutions and their constitution. J. W. McBain and C. S. Salmon. diag Am Chem Soc J 42:426-60 Mr '20

Colloidal rosin in beater sizing. J: Traquair. Paper 26:11-12 Ap 7 '20
Colloidal state in metals and alloys. J. Alexander. Min & Met 166:22 O '20
Colloidal state of matter; recent investigations in colloidal chemistry. J: J. Birch. Sci Am M 3:321-4 Ap '21
Colloidal viewpoint of rubber chemistry. E. B. Spear. India Rubber W 62:809-10 S '20
Les colloïdes, leurs gelées & leurs solutions. P. Bary. 508p Dunod, Paris '21
Les colloïdes; préparation, propriétés, applications. H. Vigneron. Génie Civil 78:472-7, 496-500, 525-7, 545-8 Je 4-25 '21
Colloids in paper mill waste waters. W. S. Coulter. Paper 26:22 Ap 28 '20
Commercial applications of electrical osmosis. Eng & Ind Management 6:212-14 Ag 25 '21
Discussion on colloids. Engineering 110:580-2, 595-6 O 29-N 5 '20
How colloidal chemistry aids the paving industry. D. T. Pierce. il Sci Am 122:337+ Mr 27 '20
Hydrous oxides, hydrous aluminum oxide. H. B. Weiser. J Phys Chem 24:505-38 O '20
Hydrous oxides; hydrous ferric oxide. H. B. Weiser. J Phys Chem 24:277-328 Ap '20
Influence of colloids on the rate of reactions involving gases; decomposition of hydroxylamine in the presence of colloidal platinum. A. Findlay and W: Thomas. Chem Soc J 119:170-6 F '21
Kolloidaler zustand in metallen und legierungen. H. Meyer. Stahl & Eisen 41:696-8 My 19 '21
Laboratory manual of elementary colloid chemistry. E. Hatschek. 9-135p J. & A. Churchill, London '20
Methods for determining the amount of colloidal material in soils. C: J. Moore, W: H. Fry and H. E. Middleton. J Ind & Eng Chem 13:527-30 Je '21
Milk and petroleum. E: G. Acheson. Sci Am M 1:324-5 Ap '20
Moisture content of cereals. O. A. Nelson and G. A. Hulett. diags J Ind & Eng Chem 12:40-5 Ja '20
Mutual action of sols. W. D. Bancroft. J Phys Chem 24:21-9 Ja '20
Notes on troubles from colloids in flotation. Eng & Min J 108:510-12 S 20 '19; Same abr. Sci Am S 88:390 D 27 '19
Nouveaux procédés industriels de préparation de dispersions colloïdales. H. Plauson. Chimie & Ind 5:164-5 F '21
On magnetic double refraction of gold colloids. Y. Björnsthål. diags Philos Mag 6th ser 42:352-68, pl 13 S '21
Photometric methods and apparatus for the study of colloids. S. E. Sheppard and F. A. Elliott. il diags Am Chem Soc J 43:531-9 Mr '21
Plant colloids; some cellulose dextrans. M. Samec and J. Matula. Chem Soc J 120 pt 1:397-400 Je '21
Properties of elastic gels. E. Hatschek. Engineering 110:574 O 29 '20
Relation of colloid chemistry to tank treatment of sewage. F. W. Mohlman. Eng & Contr 56:134-5 Ag 10 '21
Removal of colloids from sewage: theory and practice. W. S. Coulter. Eng N 87:571-3 O 6 '21
Research problems in colloid chemistry. W. D. Bancroft. J Ind & Eng Chem 13:83-9, 153-8, 260-4, 346-51 Ja-Ap '21; Same. Nat Research Council (Reprint & Circular ser. no. 13) 54p '21
Rôle of protective colloids in catalysis. T: Iredale. Chem Soc J 119:109-15 Ja '21
Settling problems. W. A. Deane. Am Electrochem Soc Trans v 37 (preprint 41)659-85; Bibliography. 686-8 Ap '20
Short survey of the physics and chemistry of colloids. T. Svedberg. Engineering 110:587-9 O 29 '20; Same. Chem & Met Eng 24:23-7 Ja 5 '21
Soaps and proteins; their colloid chemistry in theory and practice. M. H. Fischer and others. 272p Wiley '21
Soaps as protective colloids for colloidal gold. T: Iredale. Chem Soc J 119:625-34 My '21

Colloids—Continued

- Sols and gels of vulcanized rubber. H: P. Stevens. diags India Rubber W 65:117-19 N '21
- Some practical applications of colloidal chemistry. J. Alexander. J Ind & Eng Chem 12:434-6 My '20
- Structures in disperse systems; abstract. G. Weissenberger. Chem Soc J 120 pt 2:578-9 O '21
- Suggestions for separating colloids from flotation feed. B. R. Bates. Eng & Min J 109: 552 F 28 '20
- Symposium on colloid chemistry. Chem & Met Eng 22:726, 778 Ap 21-28 '20
- Zone of maximum colloidal; its relation to viscosity in hydrophile colloids, especially karaya gum and gelatin. J. Alexander. Am Chem Soc J 43:434-40 Mr '21
- See also* Absorption; Brownian movements; Catalysis; Gelatin; Graphitic acid; Proteins

Bibliography

- Colloid development. J Ind & Eng Chem 13: 357-8 Ap '21
- Properties and constitution of glues and gelatines. R. H. Bogue. Chem & Met Eng 23:202-3 Ag 4 '20

Cologne, Germany**Bridges**

- Le nouveau pont-route suspendu sur le Rhin, à Cologne. diags Génie Civil 77:460-2 D 4 '20

Colombia

- See also* Aeronautics, Commercial—Colombia; Engineering—Colombia; Mines and mineral resources—Colombia; Petroleum—Colombia; Railroads—Colombia

Commerce

- Colombia; a commercial and industrial handbook. P. L. Bell. il maps U S Bur For & Dom Com 206:1-423 '21

Foreign relations

- Treaty with Colombia. Min & Sci P 122:555-6 Ap 23 '21
- United States Senate ratifies Colombian treaty. Comm & Fin Chr 112:1831-2 Ap 30 '21

Industries and resources

- Colombia; a commercial and industrial handbook. P. L. Bell. il maps U S Bur For & Dom Com 206:1-423 '21
- See also* Automobile industry and trade—Colombia

Colonial architecture. See Architecture, Colonial Colonies

- Review of the world's colonies, protectorates, dependencies, and mandated areas. O. P. Austin. Americas 7:1-5 Jl '21
- See also* Agricultural colonies; France—Colonies

Colophenic acids

- Über neue kolophonium-bestandteile, die kolophensäuren und analogen. O. Aschan. Deutsche Chem Gesell Ber 54:867-86 My '21; Abstract. Chem Soc J 120 pt 1:512-13 Jl '21

Colophony. See Rosin**Color**

- Blue eyes and blue feathers. W. D. Bancroft. Sci Am M 1:461-3 My '20
- Calculation of the colour of cyclic coloured substances. J. Moir. Chem Soc J 119:1654-68 O '21
- Chromogenetic properties of sulphur and certain other elements. O. C. M. Davis and F. W. Rixon. Philos Mag 6th ser 42:259-62 Ag '21
- Color and chemical constitution. G. N. Lewis. Chem & Met Eng 24:871-5 My 18 '21
- Color and its applications. M. Luckiesh. 2d ed., enl. 419p Van Nostrand '21
- Colorations produced by substituted nitroforms. H. Graham and A. K. Macbeth. Chem Soc J 119:1362-8 S '21

- Effect of color of walls and ceilings on resultant illumination. A. L. Powell. bibliog il Gen Elec R 23:209-13 Mr '20
- Examination of the Munsell color system. I. G. Priest, K. S. Gibson and H. J. Mc-Nicholas. U S Bur Stand Tech Pa 167: 1-33 '20
- Grammar of color. T: M. Cleland. 28p Strathmore paper co., Mittineague, Mass. '21; Review. Ptg Art 37:337-40 Je '21
- Ostwald's color theory in paper tinting. diags Paper 26:11-12 Ap 14 '20
- Relation of dyestuffs to the theatre. N. Tempest. Color Tr J 8:8-9 Ja '21
- Selecting the color for the house. diags Bldg Age 42:30-2 S '20
- Value of color in window displays. B. M. Angus. il J Elec 44:611-12 Je 15 '20
- See also* Camouflage; Coal-tar colors; Colorimeters and colorimetry; Colorimetric analysis; Coloring matter; Colors; Dyes and dyeing; Glass, Colored; Indigo; Light; Paint; Painting; Phototropy; Pigments; *also* headings beginning Color

Standards

- Standard color card invaluable in many industries. Color Tr J 6:56-7 F '20
- Standardization of colors. Color Tr J 8:221-2 Je '21

Color blindness

- Color vision and color-blindness. F. W. Edridge-Green. Color Tr J 8:226-7 Je '21

Color filters. See Color photography**Color in architecture**

- Color in architecture. Am Arch 119:202-4 F 23 '21

Color laboratory. See United States—Chemistry, Bureau of—Color laboratory**Color lighting. See Light, Colored; Color screens****Color matching**

- Artificial daylight for merchandising and industry. G. H. Stickney. bibliog il Gen Elec R 23:527-33 Je '20
- Artificial daylight; the problem of matching colours. A. P. Trotter. Illum Engr 12:341-2 D '19
- Color match and spectral distribution. E: P. Hyde and W. E. Forsythe. J Fr Inst 189:663 My '20
- Colour-matching by natural and artificial light. L. C. Martin. Illum Engr 13:31-7; Discussion. 43-59 F '20; Abstract. Electrician 84:169 F 13 '20

Color measurement. See Colorimeters and colorimetry**Color photography**

- Color filters for photographic uses. C: D. Hodgman. Phys R 17:246-9 F '21
- Development of autochromes. J Fr Inst 191: 839-40 Je '21
- Romance of invention. C. H. Claudy. il Sci Am 123:104+ Jl 31 '20
- Uva-chrom process of color photography. Sci Am 125:225 S 24 '21

See also Moving pictures, Colored

Color printing

- Decorative printing of William Savage, 1815-1823. il Ptg Art 37:442-4+ Jl '21
- How the offset process helps feminize store literature. D. L. Smith. il Ptr Ink M 3: 50+ N '21
- Two specimens of textile advertising. Ptg Art 36:152a O '20
- When is color in printing justified? O. De Camp. Ptr Ink M 2:45-6 Ap '21
- When to use the second color. E. R. Currier. Ptr Ink M 2:19-21 Ja '21
- Wood-block printing. F. M. Fletcher. 132p Pitman
- Working toward standard colors for process printing. Ptr Ink 111:65-6 Ap 1 '20

Specimens

- Booklet cover appropriately designed and printed. Ptg Art 37:40a Mr '21

- Color reactions**
Experimental study of the significance of lignin color reactions. E. C. Crocker. J Ind & Eng Chem 13:625-7 JI '21; Abstract. Paper 28:22-3+ Ag 31 '21
- Color screens**
Window displays any desired color or two- or three-tone mixture by use of color screens. A. L. Powell. N E L A Bul 7: 748-50 O '20
- Color sense**
Quantum theory of vision. J. Joly. Philos Mag 6th ser 41:289-304 F '21
Statistical survey of the color vision of 1000 students. R. A. Houstoun and M. A. Dunlop. il diags Philos Mag 6th ser 41: 186-200 F '21
See also Color blindness
- Colorado**
See also Carnotite; Mesa Verde national park; Mines and mineral resources—Colorado
Antiquities
See also Yucca house national monument
- Colorado & Southern railroad**
22d annual report for 1920. Ry Age 71:560-1, 599 S 24 '21
- Colorado river**
Bridge across the Colorado in Grand Canyon. il diags plans Eng N 86:254-6 F 10 '21
Engineers active in study of Colorado river problems. Eng N 86:862 My 19 '21
Gigantic Colorado river project. il chart J Elec 46:60-1 Ja 15 '21; Excerpt. Eng & Contr 55:242 Mr 9 '21; Excerpt. Sci Am M 4:88 JI '21
Harnessing a mad river in a reclaimed desert. J: E. Hogg. il map Pop Mech 36:485-91 O '21
Interstate commission formed to regulate Colorado river development. J Elec 46:580 Je 1 '21
Power projects. Min & Sci P 122:77-8 Ja 15 '21
Reclamation service reports on Colorado river problem. Eng N 87:617 O 13 '21; Same. Elec W 78:791 O 15 '21
Solving the complex problem of the lower Colorado river. C. E. Grunsky. il map J Elec 47:143-4 Ag 15 '21
State treaty settlement of interstate water controversies. A. L. Fellows. Eng N 87: 94-5 JI 21 '21
To develop electric power from Colorado river. Elec R 78:35-6 Ja 1 '21
World's greatest electrical project. C: H. Peirson. N E L A Bul 8:458-61 Ag '21; Same. Elec R 79:586-8 O 15 '21
See also Grand Canyon of the Colorado
- Colorado school of mines**
Colorado school of mines. Min & Sci P 121: 369-70; 122:247-8, 413-14, 552-3, 773-4 S 11 '20, F 19, Mr 26, Ap 23, Je 4 '21; Eng & Min J 111:814-15 My 14 '21
- Colored glass.** *See* Glass, Colored
- Colored light.** *See* Light, Colored
- Colorimeters and colorimetry**
Colorimeter operating on the subtractive principle. L. A. Jones. J Fr Inst 191:279-80 F '21
Colorimetric evaluation of dyestuffs. H. B. Gordon. diag Color Tr J 6:61-3 F '20
Colorimetry of nearly-white surfaces. A. H. Pfund. diags J Fr Inst 189:371-9 Mr '20
Hess-Ives tint-photometer and its use with raw sugars. G: P. Meade and J. B. Harris. J Ind & Eng Chem 12:686-8 JI '20
Measurement and specification of color. L. A. Jones. Chem & Met Eng 23:1273 D 29 '20
Measurement of color. C. E. K. Mees. il diags J Ind & Eng Chem 13:729-31 Ag '21; Abstract. Illum Eng Soc 16:76-8 no 5 '21
Measuring shades of colors; Dr Ostwald's mathematical method of defining dye tints. H. Heller. Sci Am M 3:231-4 Mr '21
Methods of color determination on products of petroleum. C. K. Francis. diags Nat Pet N 13:34-5 Je 10 '21
- New colorimeter for white pigments and some results obtained by its use. A. H. Pfund. diag Am Soc T M Pro v 20 pt 2: 440-8; Discussion. 449-50 '20
Simple changes which effect a marked improvement in the Schreiner colorimeter. C. W. Davis. J Fr Inst 190:243-4 Ag '20
See also Comparators
- Colorimetric analysis**
Colorimetric determination of titration curves without buffer mixtures. L: J. Gillespie. diags Am Chem Soc J 42:742-8 Ap '20
Colorimetric estimation of adrenalin. W. L. Scoville. J Ind & Eng Chem 12:769-71 Ag '20
Colorimetric estimation of tyrosine by the method of Folin and Denis. R. A. Gortner and G: E. Holm. Am Chem Soc J 42:1678-92 Ag '20
Combination of fractionation with spectrophotometry in proximate organic analysis. W. E. Mathewson. Am Chem Soc J 42:1277-9 Je '20
New method for the determination of phenol in the presence of certain other phenols. R. M. Chapin. J Ind & Eng Chem 12: 771-5 Ag '20
Salt error of cresol red. R. C. Wells. diag Am Chem Soc J 42:2160-7 N '20
Some observations on the color changes of the diphenylamine reaction. E. M. Harvey. Am Chem Soc J 42:1245-7 Je '20
- Coloring matter**
Colors for stenciling and stamping. W. Hacker. Color Tr J 8:226 Je '21
Laboratory experiments on the manufacture of Chinese ang-khak in the United States. M. B. Church. J Ind & Eng Chem 12:45-6 Ja '20
National organic colouring matters. A. G: Perkin and A. E. Everest. J Ind & Eng Chem 13:274-5 Mr '21
Relative importance of some coloring matters in cane juices and sirups. F. W. Zerbán. J Ind & Eng Chem 12:744-51 Ag '20
See also Concrete, Effect of coloring on; Dyes and dyeing; Pigments; Titanium dioxide; Uranium oxide
- Colors**
Colors developed by cobalt oxides. H. J. Witteveen and E. F. Farnau. bibliog J Ind & Eng Chem 13:1061-6 N '21
Contrasting and mixing colors. S. Brierley. Textile World 57:3647+ My 15 '20
Does your necktie match your shirt; information concerning combination of colors. Motor Age 38:33 Ag 26 '20
What mail-order teaches in selling to women. R. K. Wadsworth. Ptr Ink 116:61-2+ S 22 '21
What you can do with two colors to improve your packages. W. L. Larned. Ptr Ink 115:89+ Ap 7 '21
See also Coal-tar colors; Color; Pigments; also names of colors, e.g. Black, Red, Yellow
- Colston, W. A.**
Director of Bureau of finance, I.C.C. Ry Age 68:1466 My 21 '20
- Columbia gas and electric company**
Annual report, 1919. Comm & Fin Chr 110: 1429-30 Ap 3 '20
Annual report—for the fiscal year ending December 31, 1920. Comm & Fin Chr 112:1169-70 Mr 19 '21
- Columbia river**
Hydroelectric construction sites along Columbia river. W. A. Scott. il Elec R 79:339-41 S 3 '21
- Columbia River highway**
Columbia River highway in Oregon. F. J. Brady. il Good Roads n s 20:167-71 O 6 '20
- Columbia university**
Chemical engineering school
Teaching chemical engineering in Columbia university. E. Hendrick. il Chem & Met Eng 22:162-4 Ja 28 '20

Columbia university—Continued**School of mines**

Columbia school of mines idea. G: J. Young. il Eng & Min J 111:744-6 Ap 30 '21

Columbus, Ohio

All ready for American foundrymen's convention. il Foundry 48:709-16+ S 15 '20

Columbus the convention city. E. B. Deutsch. il Metal Ind 18:393-9 S '20

Converging lines make Columbus an industrial hub. D. M. Avey. il Iron Tr R 67:915-18 S 30 '20

Bridges

Unique plant concretes seven-span arch bridge. A. Richards and W. Carmichael. il diags plans Eng N 84:76-9 Ja 8 '20

Sanitary affairs

Nine years' operation results of the municipal garbage reduction works at Columbus, Ohio. J. W. Follin. Eng N 85:991-4 N 18 '20

Water supply

New water works improvements in Columbus. J: H. Gregory. Munic Eng 59:140-2 O '20

Operating results of water softening and purification works of Columbus, in 1919.

C: P. Hoover. Eng & Contr 53:428 Ap 14 '20

Water softening and purification at Columbus. Pub Works 51:123-5 Ag 13 '21

Columbus railway, power & light company

Master's report condemns management contract. Elec Ry J 58:714-15 O 15 '21

Column bases

Steel construction; column bases. Arch Forum 34:209-11 Je '21

Column footings

Analysis of combined wall and interior column footings. N. E. Helff. diag plan Can Eng 39:203-4 Jl 29 '20

Standard method of computing combined footings. N. E. Helff. diag Can Eng 38:536 Je 3 '20; Same. Eng & Contr 54:292 S 22 '20

Column footings, Concrete

Bond stresses in reinforced concrete footings. I. F. Morrison. diag Can Eng 39:623-4 D 23 '20

Practical design of concrete cap footings. H. H. Frenzel. diag Eng N 85:464-5 S 2 '20

Columns

Calculation of entasis. J. T. Tubby. diags Am Arch 119:550-1 My 11 '21

Designing columns for bending moment. H. L. Bowman. Eng N 84:588-9 Mr 18 '20

Eccentric loading in rigid frames. F. E. Richart. diags Eng N 84:331-2 F 12 '20

Moments in columns and girders of building frames due to vertical loads. W. M. Wilson and F. E. Richart. diag Eng & Contr 53:93-4 Ja 28 '20

Moments in external columns of a building. W. M. Wilson and F. E. Richart. diags Eng & Contr 53:205-6 F 25 '20

Posts and lintels. il Am Arch 120:205-8 S 14 '21

Quick method of calculating strength of timber posts, struts or columns. E. I. Freese. Bldg Age 41:355-6 N '19

Review of column formulas for bridge design. Eng N 86:431-3 Mr 10 '21

Strength of pipes as columns. J: S. Watts. Am Mach 55:341 S 1 '21

See also Architecture; Poles; Strains and stresses

Testing

Fire resistance of building columns as shown by test. R. E. Wilson. il diags Eng N 87:106-10, 145-6 Jl 21-28 '21; Discussion. 87:292 Ag 18 '21

Fire tests of building columns. S. H. Ingberg and others. il diags plans U S Bur Stand Tech Pa 184:1-375 '21; Abstract. Eng & Contr 55:510 My 25 '21

La résistance à l'incendie des différents genres de piliers et colonnes. P. Calfas. il diags plan Génie Civil 79:261-5, 283-8 S 24-O 1 '21

Test of timber posts with warp and seasoning cracks. T. W. Greene. il Eng N 85:342-3 Ag 19 '20

Tests of building columns under fire conditions. W. C. Robinson and S. H. Ingberg. W Soc E J 26:315-18 S '21

See also Columns, Steel—Testing

Columns, Concrete

Behavior of reinforced concrete columns under fire test. W. A. Hull. il Am Arch 116:561-6, 589-94 O 29-N 5 '19

Designing concrete columns with cast-iron core. W. H. Roney, jr. chart Eng N 84:459-61 Mr 4 '20

Fire tests of concrete columns. W. A. Hull. Concrete 16:172-4 Ap '20

Report of committee on fireproofing of the American concrete institute. Can Eng 38:505-6 My 27 '20; Same. Eng & Contr 53:717 Je 23 '20

Columns, Sheet iron

Sheet metal columns for a church. il diag Sheet Metal Worker 12:675 O 28 '21

Columns, Steel

Chart for determining safe loads of round steel columns. J: S. Watts. chart Mach 26:761-2 Ap '20

Comparison of formulas for steel columns. N. B. Hunt. Mach 27:852-4 My '21

Diagram for use in designing steel pillars. E. S. Andrews. diag Eng & Contr 55:319 Mr 30 '21

Steel design for buildings. C: L. Shedd. Arch Forum 35:59-62 Ag '21

Testing

Provisional working stresses for steel columns. C. R. Young. Can Eng 38:169-70 Ja 29 '20

Colvin, Henry F., 1838-1921

Sketch. por Am Mach 55:288f Ag 18 '21

Combinations (mathematics)

Introduction to combinatory analysis. P. A. MacMahon. 71p University press, Cambridge, England '20

Combs

Manufacture of hard rubber combs. W: Roberts. il diags India Rubber W 64:649-50 Je '21

War department specifications for rubber combs. diag India Rubber W 62:725 Ag '20

Combustion

Adapting the furnace to the fuel. il diags Power Pl Eng 25:26-30 Ja 1 '21

Air for burning a pound of coal. C. C. Phelps. il Power 52:704 N 2 '20; Same. Sci Am M 3:58 Ja '21

Air for combustion. O. R. McBride. charts Power 52:952 D 14 '20

Automatic control of combustion. C. G. Gray. diag Power Pl Eng 24:649-51 Jl 1 '20

Automatic graduated power plant control. F. A. Moreland. il chart Blast F & Steel Pl 8:256-8 Ap '20

Boiler operation at the power plant of the Mesta machine company. C. Fischer. il charts Blast F & Steel Pl 9:239-47 Ap '21

Burning powdered coal. F. R. Low. Power 53:745-6 My 10 '21; Discussion. 53:902; 54:112 My 31, Jl 19 '21

Calculations from a flue-gas analysis. H. M. Brayton. Power 51:264-6 F 17 '20

Chemical reactions in foundry cupolas. Y. A. Dyer. Iron Age 108:259-62 Ag 4 '21

Chemistry of combustion. E. V. Evans. Engineer 132:32-3 Jl 8 '21

Coal is saved by automatic regulation of fire to accord with steam used. T. A. Peebles. diags Coal Age 17:1049-51 My 20 '20

Coal wastage in tank boilers: its causes and prevention. W. H. Casmey. Eng & Ind Management 6:182-3 Ag 18 '21

La comburimétrie industrielle. A. Grebel. il diags Génie Civil 78:78-82, 103-4 Ja 22-29 '21

Combustion. M. B. Smith. Am Soc Heat & V E 25:411-16 '19

Combustion and flue gas analysis. diags Eng & Contr 52:566-8 N 12 '19

Combustion control. J: Van Brunt. Power Pl Eng 24:245 F 15 '20

Combustion—Continued

- Combustion control apparatus. D. E. Thompson. diag Paper 27:214 N 10 '20
- Combustion guide for the fireman. diag Power Pl Eng 25:198 F 1 '21; Textile World 59:2311 Ap 2 '21
- Combustion of fuels in the internal-combustion engine. T. Midgley, jr. il diags Soc Auto Eng J 7:489-97; Discussion. 497-9 D '20
- Combustion of heavier fuels in constant-volume-type and superinduction-type engines. L. Cammen. Mech Eng 41:941-2 D '19
- Combustion of lignites and high-moisture fuels; abstracts. T. A. Marsh. Power 53:158-60 Ja 25 '21; Power Pl Eng 25:214-17 F 15 '21
- Combustion of oil fuel. P. J. Woolf. Engineering 112:536-7 O 14 '21
- Combustion phenomena revealed by indicator cards. V. R. Gage. diags Automotive Ind 45:110-15 J1 21 '21
- Combustion process in the oil engine. diags Mech Eng 42:627-8 N '20
- Comparative evaporative values of coal and oil. C. F. Wieland. Power 51:198 F 3 '20
- Controlling combustion; study of furnace efficiency apart from boiler efficiency. G. H. Gibson. il Power Pl Eng 25:510-13 My 15 '21
- Draft; air supply and methods of draft control. diags Power Pl Eng 25:33-6 Ja 1 '21
- Draft and CO₂ influence on evaporation. J. T. Beard, jr. diag Power 53:775-7 My 17 '21
- Draft-combustion and boiler stacks. F. J. Denk. Blast F & Steel Pl 8:575-7, 631-2+ O-N '20
- Economical combustion of fuel oil. C. H. Leicester. charts Power 51:780-1 My 11 '20
- Effect of compression on fuel consumption. L. H. Morrison. diags Power 53:938 Je 7 '21
- Effect of preheat and excess air on combustion of fuel. A. D. Williams. Power 53:960-2 Je 14 '21
- Elements of combustion of fuel oil. Power 51:333-5 Mr 2 '20; Same. Sci Am M 1:319-20 Ap '20
- Elements of efficient combustion. N. P. Winchell, jr. il diag Paper 26:18-22 Ag 18; 21-2 S 1 '20
- Excess air chart. R. Brown. Power 54:568 O 11 '21
- Les facteurs d'économies dans la production de l'énergie électrique. Scoumanne. Génie Civil 78:162 F 12 '21
- Flame characteristics and their influence upon combustion. C. A. French. Automotive Ind 44:1100-2+ My 26 '21
- Fuel oil. diags Power Pl Eng 25:51-5 Ja 1 '21
- Gradeca combustion control. il Power 54:146 J1 26 '21
- Gray system of automatic combustion control. il Power 52:1023-4 D 28 '20
- Hagan combustion-control regulator. chart diags Power 50:610-11 O 21 '19
- Heating furnaces and annealing furnaces. W. Trinks. diags Blast F & Steel Pl 8:234-8, 327-30 Ap, Je '20
- Influence of the initial air temperature on combustion processes in furnaces. J. Hudler. Mech Eng 43:48 Ja '21
- Kinds of chimney losses and their relative importance. O. Rodhe. Elec W 77:544 Mr 5 '21
- Mechanism of some combustions; abstract. H. von Wartenberg and B. Sieg. Chem Soc J 120 pt 2:107-9 F '21
- New combustion process; burning solid fuel in suspension without prepowdering. diag Power 54:403 S 13 '21
- Percentage of CO₂ is not final test of good combustion. O. Rodhe. Elec W 77:429 F 19 '21
- Le point de fusion de la houille. G. Charpy and J. Durand. Génie Civil 78:40 Ja 8 '21
- Present state of manufacturing electrical energy. J. Frith. Inst E E J 59:42-6 D '20
- Problems of fuel combustion. C. F. Kettering. diags Motor Age 37:18-19+ My 6 '20; Same cond. Automotive Ind 42:1119 My 13 '20
- Product combustion guide. diag Power 52:1018 D 28 '20
- Rate of steam flow to regulate boiler. il diag chart Blast F & Steel Pl 8:208-10 Mr '20

- Relation between boiler efficiency and CO₂. E. A. Uehling. Power 53:274 F 15 '21
- Science of powdered fuel combustion. J. F. Shadgen. Iron Age 106:457-61 Ag 19 '20
- Scientific control of combustion. H. T. Ringrose. il diags Iron & Steel Inst J 103:63-71 no 1 '21; Same. Engineer 131:511-12 My 13 '21; Same abr. Engineering 111:565-6 My 6 '21; Same. Eng & Ind Management 5:538-40 My 12 '21; Discussion. Iron & Steel Inst J 103:72-3 no 1 '21
- Smokeless combustion of coal in boilers. F. J. Denk. diags Blast F & Steel Pl 8:469-73 Ag '20
- Stopping the chimney thief. C. C. Phelps. il Sci Am 124:101+ F 5 '21
- Tables de calcul relatives à l'analyse des fumées et des gaz d'échappement. W. Ostwald. Chimie & Ind 3:328-9 Mr '20
- Tables for computing combustion data from CO₂ readings. Power 51:966-8 Je 15 '20
- L'utilisation industrielle des combustibles à forte teneur en cendres; abstracts. A. Dessemond. Génie Civil 78:179-80 F 19 '21; Power 53:525 Mr 29 '21
- Voraussetzungen und auswahl bei abgas-rechentafeln. W. Ostwald. Stahl & Eisen 41:1328-30 S 22 '21
- Vortical process of combustion. il diag Power 53:875-6 My 31 '21
- Watering coal to improve combustion. K. R. Long. Power Pl Eng 25:714 J1 15 '21
- What happens in the combustion of an engine. R. E. Berg. diag Motor Age 38:12-13 J1 1 '20

See also Carbon dioxide recorders; Draft; Firing; Flue gas—Analysis; Fuel; Mechanical draft; Smoke; Smoke prevention; Spontaneous combustion; Surface combustion

Combustion, Heat of

- Heats of combustion and formation of nitro-compounds; benzene, toluene, phenol and methylaniline series. W. E. Garner and C. L. Abernethy. Chem Soc J 120 pt 2:435-6 J1 '21
- Heats of combustion of benzene, toluene, aliphatic alcohols, cyclohexanol, and other carbon compounds. T. W. Richards and H. S. Davis. Am Chem Soc J 42:1599-1617 Ag '20

Combustion, Spontaneous. See Spontaneous combustion

Combustion, Surface. See Surface combustion

Combustion indicator. See Carbon dioxide recorders

Comets

- Origin of comets. E. Strömgren. Sci Am M 1:491-2 Je '20; Discussion. R. M. Bailey. 2:286+ N '20

Commerce

- Conditions in foreign countries. Am Ind 21:38-48 Ap; 38-40+ My '21
- Foreign viewpoint; expressions at convention of National association of manufacturers by diplomatic representatives. Am Ind 21:12-14+ Je '21
- International trade situation. G. B. Roorbach, ed. 227p American academy of political and social science, Philadelphia '21
- Introduction to the survey of the world's trade. S. C. Mason. Am Ind 21:7-8 Ap; 13 My '21
- Routine of commerce. A. Schofield. 168p Pitman '20
- Unorganized trade of the world. E. A. Bradford. Annalist 17:635-6 Je 13 '21
- World trade languishing under opposing policies. J. Oakwood. Annalist 18:128 Ag 8 '21
- See also* Accounting; Advertising; Banks and banking; Barter; Bookkeeping; Business; Canals; Chambers of commerce; Commercial law; Commission merchants; Communication and traffic; Competition; Contracts; Cooperation; Credit; Delivery of goods; Dumping (commercial policy); Economic conditions; Export trade; Finance; Free harbors; Free trade and protection; Freight and freightage; Geography, Commercial; Government regulation of industry; Harbors; Insurance, Marine; Interest; International chamber of commerce; In-

Commerce--Continued

terstate commerce commission; Marketing; Mercantile agencies; Merchandizing; Merchant marine; Money; Panics; Peddlers and peddling; Ports; Prices; Profit sharing; Railroads; River traffic; Salesmanship; Shipment of goods; Shipping; Statistics; Stock exchange; Stocks; Success; Tariff; Trade marks; Transportation; Trust companies; Trusts, Industrial; Warehouses; Waterways; Weights and measures; *also* subdivision Commerce under names of countries, e.g. France—Commerce, South America—Commerce, United States—Commerce

Bibliography

List of bibliographies on commerce. 20 mim. p. U.S. Library of Congress, Washington '21

Directories

Market guide for Central and South America, Cuba, Mexico and the West Indies. 482p American manufacturers foreign credit underwriters, inc., New York, Chicago '21

History

History of commerce. C. Day. 640p Longmans '20

Statistics

See Commercial statistics

Commercial agencies. *See* Mercantile agencies

Commercial art. *See* Art, Commercial

Commercial associations

Commercial and industrial organizations of the United States. U S Bur For & Dom Com misc ser 99:1-121 '20

Service organizations—their relation to the government and the public. J. H. Defrees. Comm & Fin Chr 111:118-20 sec 2 N 20 '20

What your association can do for you. *See* monthly numbers of System

See also Chambers of commerce

Commercial correspondence

Advanced business correspondence. G: B. Hotchkiss and E: J. Kilduff. 513p Harper '21

Analysis of correspondence costs and suggestions for their reduction. L: Balsam. Eng & Contr 53:466-7 Ap 21 '20

Better business letters. J: M. Manly and J: A. Powell. 167p F. J. Drake & co., Chicago '21

Business correspondence. H. B. Center. 64p La Fayette inst. '21

Business correspondence. H. McJohnston. 322p Alexander Hamilton institute, New York '21

Canning the cant phrase from letters. H. Wiseman. Ptr Ink 114:25-8 Ja 6 '21

Correspondence of commerce. A. R. Palmer. 158p Pitman '20

Correspondence supervision; importance of psychology. J: T. Bartlett. Am Mach 54: 94-7 Ja 20 '21

Daily blues. C. A. Elliott. System 39:162-3 Ja '21

Don't forget the apostrophe. W. E. Walker. Ptr Ink 115:141-2 Je 2 '21

Efficiency increased by short-cut in answering routine letters. W. N. Elliott. J Elec 47:234 S 15 '21

11 better letter ideas. System 39:446+ Mr '21

Engineer's letters. P. B. McDonald. Can Eng 38:435-6 My 6 '20

Form paragraph as a means of expediting correspondence. Ptr Ink 115:141+ Je 9 '21

Good way to keep down letter costs. M. L. Allen. System 40:170-1+ Ag '21

How letters may lose good-will. C: H: Macintosh. Ptr Ink 114:161+ Mr 3 '21

How the National city bank trains 400 employees to write better letters. R. Steffan. Ptr Ink 115:33-5+ Ap 7 '21

How to get employees to improve their correspondence. J: T. Bartlett. Ptr Ink 115: 91-2+ Je 9 '21

How to write a business letter. L. R. Collier. 60p Review of reviews co., New York '21

Ideas for the man who writes letters. System 39:524+, 684+ Ap-My '21

Improving the quality of correspondence as a stimulant to business. Ptr Ink 113:158+ O 28 '20

Instruction needs of business letter writers. S. C. Lambert. Ptr Ink 116:121-2+ Jl 7 '21

Letter which acknowledges receipt. J: T. Bartlett. Ptr Ink 112:149+ Ag 12 '20

Letter-writing diplomat. F. C. Manning. Ptr Ink 112:117-18+ S 16 '20

Letter writing for the business builder. W: D. McDaniels and La V. A. Wilson. 119p Ellis pub. co., Battle Creek, Mich. '20

Letter-writing problems of individuals in the organization. J. T. Bartlett. Ptr Ink 112:149-50+ Jl 8 '20

Master letter writer, including The 500 master business letters. E. B. Davison. 2d ed. 672p Opportunity press, New York '21

Modern business correspondence. F. M. Erskine. Bobbs-Merrill '20

Modern business writing. C: H. Raymond. 476p Century co. '21

Moods that make good letters. J. T. Bartlett. Ptr Ink 110:178+ Mr 18 '20

New business letter writer. A. B. Johnston. 217p The Sherwood company, New York '20

Old-fashioned personality in letters of big corporations. R. B. Newton. Ptr Ink 116: 112+ Jl 21 '21

Putting good will in your letters. E. P. Corbett. Ptr Ink 111:73-4+ My 27 '20

Retail merchant gives his recipe for good letters. S. S. Wilson. Ptr Ink 110:33-6 Mr 11 '20

Use of bulletins in correspondence supervision. L. C. Wilsey. Administration 2:488-92 O '21

What is a correspondence supervisor supposed to do? R. B. Newton. Ptr Ink 112:95-6 Jl 22 '20

Will Hays, letter writer extraordinary. C. H. Claudy. Ptr Ink 117:49-50+ O 6 '21

You cannot fake sincerity. E. P. Corbett. Ptr Ink 111:97-8+ Ap 15 '20

See also Follow-up systems; Postscripts; Sales letters; Stenographers

Commercial correspondence, French

Commercial French. I. A. Schwartz. 330p Harcourt, Brace and Howe, New York '20

Commercial correspondence, Spanish

Spanish correspondence. E. S. Harrison. 160p Holt '21

Commercial crises. See Panics**Commercial education. See Business education****Commercial geography. See Geography, Commercial****Commercial law**

American and foreign stock exchange practice, stock and bond trading, and the business corporation laws of all nations. W: J: Greenwood. 1048p Financial books co., New York '21

Commercial law. 480p American institute of banking, New York '21

Commercial law. J: A. Chamberlain. 316p American technical society, Chicago '20

Commercial law. A. T. Hills. 308p Practical text book company, Cleveland '20

Commercial law. F. H. Shields and M. Carey. 77p La Fayette inst. '21

Commercial law and interstate commerce, legal forms. A. H. Putney. 467p Lincoln institute of business, Chicago '21

Gano's commercial law. D. C. Gano. rev. ed. 409p American book co., New York '21

Latin-American commercial law. T. E. Obregón ... with the collaboration of E. M. Borchard. 972p Banks law pub. co., New York '21

Law and business. W: H. Spencer. 611p Univ. of Chicago press '21

Law in business problems. L. F: Schaub and N. Isaacs. 821p Macmillan '21

Meeting legal problems in business. T: Conyngton. Administration 2:257-60 Ag '21

Peters' commercial law. P. B. S. Peters. 291p South-western publishing company, Cincinnati. '20

Commercial law—Continued

- Plans and possibilities of the Division of commercial laws, Bureau of foreign and domestic commerce. A. J. Wolfe. Am Ind 22: 13-14 S '21
- Pocket manual of standard legal and business forms, annotated. L. M. O'Connor. 549p Flynn pub. co., Chicago '21
- Putnam's handy law book for the layman. A. S. Bolles. 340p Putnam '21
- La réforme de la législation des effets de commerce. M. Kahn. Chimie & Ind 3:846-50 Je '20
- Le registre du commerce créé par la loi du 18 mars 1919. A. Lainé. Génie Civil 77: 335-7 O 23 '20
- Some modern ideas reflected in current law. T. Rich. Eng & Ind Management 5:720-2 Je 23 '21
- Vermont law on money, negotiable instruments and banking. L. S. Tillotson. 369p Capital city press, Montpelier, Vt. '20
- Wastes in litigation. W. Gustin. Chem & Met Eng 25:423-7 Ag 31 '21
- See also* Acceptances; Advertising—Laws and regulations; Agency (law); Banking law; Bills of lading; Carriers; Checks; Contracts; Corporation law; Foreign exchange; Government regulation of industry; Guarantees and sureties; Landlord and tenant; Partnership; Patent laws and legislation; Public utilities; Railroad law; Sales; Trusts, Industrial

Study and teaching

- American institute examinations, November, 1920; examination in commercial law. J Account 31:302-7 Ap '21
- American institute of accountants board of examiners, May, 1920; examination in commercial law. J Account 29:404-7 Je '20
- American institute of accountants examination in commercial law, May, 1921; questions. J Account 31:409-11 Je '21; Answers. 32:300-12 O '21
- Commercial libraries. *See* Business libraries
- Commercial photography. *See* Photography, Commercial
- Commercial policy
- Dangers of discriminating prices and export duties. T. Tittoni. Comm & Fin Chr 113: 1101-2 S 10 '21
- Restriction of trading with European countries. G. F. Bauer. Automotive Ind 42: 818-19 Ap 1 '20
- See also* Dumping (commercial policy); Free harbors; Tariff
- Commercial products
- Commercial commodities. F. Matthews. 319p Pitman '21
- Import and export schedule of France. U S Bur For & Dom Com misc ser 102:1-56 '20
- Import and export schedules of Italy (translation). U S Bur For & Dom Com misc ser 100:1-93 '20
- See also* Animal products; Chemicals; Farm produce; Geography, Commercial; *also* names of individual products
- Commercial research. *See* Business research
- Commercial secretaries. *See* Chambers of commerce—Secretaries
- Commercial secretaries, National association of. *See* National association of commercial organization secretaries
- Commercial statistics
- Commercial statistics and their value to the executive. G. P. Baldwin. maps Gen Elec R 23:648-52 Ag '20
- Consumption estimates; showing production, imports, exports, and amounts available for consumption of various articles in the United States by years specified. U S Bur For & Dom Com misc ser 95:559-72 '19
- Statistical record of the progress of the United States, 1800-1920 and monetary, commercial, and financial statistics of principal countries. E. Whitney. U S Bur For & Dom Com p 750-852 '20

Commercial travelers

- Salesman's rights under federal and state laws as applied to interstate commerce. 30p Bryan, McCormick & Wilber, Chicago '20

Hotel accommodations

- Why more buyers choose this market. C. Phillips. il System 40:556-7+ N '21

Commission merchants

- Piratical commission merchants' attacks on freight rates. Ry Age 70:967-8 Ap 22 '21
- Protest from the commission merchants. Ry Age 70:1201-2 My 27 '21
- Railways and the commission merchants. Ry Age 70:1199-1201 My 27 '21
- Sheldon's export trade. J. D. Sheldon co., New York '21

Commissions

- Computation of commissions and federal taxes; where commissions are based upon profits after deducting taxes. A. van Oss. J Account 31:1-20 Ja '21

Common brick manufacturers' association

- C.B.M.A. shows tangible evidence of progress. il Brick & Clay Rec 58:202-8 F 8 '21
- Meeting, New York, Jan. 31. Brick & Clay Rec 58:127 Ja 25 '21

Commonwealth Edison company, Chicago

- Power development in Chicago. il Elec W 76: 620-2 S 25 '20

Communication, Interplanetary

- Interplanetary communication. N. Tesla. Elec W 78:620 S 24 '21
- Interplanetary radio signals? Wireless Age 7:11-15 Mr '20
- Marconi and Mars. Wireless Age 9:16 O '21
- Perhaps Mars is signaling earth. P. H. Woodruff. il Pop Mech 33:495-9 Ap '20
- Those Martian radio signals. Sci Am 125: 194 S 17 '21
- What shall we say to Mars? H. W. Nieman and C. W. Nieman. Sci Am 122:298+ Mr 20 '20

Communication and traffic

- Unifying the world. G. N. Clark. 116p Harcourt, Brace & Howe, New York '20
- See also* Aeronautics; Canals; Carriers; Commerce; Express service; Harbors; Postal service; Railroads; Rapid transit; Roads; Shipping; Street railroads; Telegraph; Telephone; Traffic regulations; Transportation; Waterways

Community advertising

- Advertising for new citizens sold a territory to the old ones. Ptr Ink 113:109-10+ N 25 '20
- Florida has an advertising awakening. F. W. Northrup. Ptr Ink 110:173+ F 12 '20
- See also* Municipal advertising

Bibliography

- Community advertising campaigns in Printers' Ink. Ptr Ink 113:113-14 N 11 '20
- Community centers
- Arrange new memorial hall for many uses. il plans Pop Mech 33:640 Ap '20
- Community building, Watertown, Conn.; views. Am Arch 120:188j-1 S 14 '21
- Community capitol; a program for American unity. M. C. Kelly. 325p Mayflower press, Pittsburgh '21
- Community center developments; the North shore suburbs of Chicago. il plans Am Arch 118:271-9 S 1 '20
- Community club brings farmers and merchants together; Battle Creek (Mich.). C. H. Wheelock. Am Lumberman 2355:56-7 Jl 3 '20
- How the war memorial problem has been solved. M. Candler. il plans Bldg Age 56: 370-6+ N '19
- Hutton settlement, Spokane, Wash.; views and plans. Arch Forum 33:pl 81-4 D '20
- Industrial community provided with recreation building and hall; Cherry river boom and lumber co. il plan Am Lumberman 2328:55 D 27 '19
- Model soldier-civilian community house. il plan Pop Mech 33:320 F '20
- Oil companies back Y.M.C.A. community centers in Texas. il Nat Pet N 12:65+ Ap 14 '20

Community centers—Continued

- Organization of rural community buildings. W. C. Nason. (Farmers' Bul. 1192) 42p U.S. Dept. of agric., Washington '21
- Rural community buildings. Dom Eng 91:192 My 1 '20
- Rural community buildings in the United States. W. C. Nason and C. W. Thompson. il U S Agric Bul 825:1-36 '20
- Successful Americanization work in an industrial city, Whiting, Indiana. B. C. Skidel-sky. Munic Eng 60:226-7 Je '21
- War memorials; community buildings for large cities. C. O. Cornelius. il plans Arch Rec 47:39-57 Ja '20
- War memorials; community houses for towns and small cities. C. O. Cornelius. il diag plans Arch Rec 46:535-55 D '19

Community trusts

- Community trusts—wise almoning. Comm & Fin Chr 111:1315-16 O 2 '20
- Spread of community trusts. F. J. Parsons. Comm & Fin Chr 113:205-6 sec 2 O 29 '21

Commutating poles. See Interpoles**Commutation (electricity)**

- Principles of commutation. diags J Elec 43: 564-5 D 15 '19

Commutators

- Assembly of complete sets of commutator segments. J: S. Dean. il Elec J 18:424-5 S '21
- Brush and commutator troubles prevented by proper care. A. L. Heath. Elec W 77: 1376-7 Je 11 '21
- Carbon and commutator wear. R. E. Hell-mund. diags Am Inst E E J 39:579-82 Je '20
- Care and operation of commutators on new machines. J. Dixon. Elec W 76:1268 D 25 '20
- Causes of commutation troubles. J. Dixon. Elec W 77:435-6 F 19 '21
- Commutation on direct-current machines. C. Shenfer. diags Am Inst E E J 40:842-50 N '21
- Commutator made from copper block. V. Pearson. diags Power 52:458 S 21 '20
- Commutator maintenance of synchronous converters. R. H. Newton. il diags Elec J 18:105-6 Mr '21; Same cond. Power Pl Eng 25:757-8 Ag 1 '21
- Commutator slotting and maintenance. D. S. Merton. Elec W 75:1270 My 29 '20
- Commutator troubles, their cause and remedies. J. Dixon. Elec W 75:1144 My 15 '20
- Connection of commutating poles and their effect. E. W. Schilling. diags Elec R 78: 616-17 Ap 16 '21
- Grinding and polishing of commutators. O. Linley. Elec R (Lond) 89:302-3 S 2 '21; Discussion. 89:461-2, 530 O 7, 21 '21
- Method of tightening commutators on large motors. J. S. Dean. il Elec W 75:1009 My 1 '20
- Operation of shop motor brushes and contact devices. C. E. Clewell. il diags Am Mach 51: 939-41 N 27 '19
- Preventing sparking at commutators on slow speed machines. B. A. Briggs. diags Power 50:691 N 11 '19
- Repairing a commutator under difficulties. H. Wilson. diags Power 51:108 Ja 20 '20
- Ring fire and flash-overs. W. B. DeMuth. Power Pl Eng 25:719-20 Jl 15 '21
- Ring fire and the flashing of commutators and their prevention. O. P. Forster. Coal Age 18:115 Jl 15 '20; Same. Power Pl Eng 25:225-6 F 15 '21
- Slotting machine for undercutting mica on commutators. R. H. N. Lockyer. il diags Elec W 77:1170-1 My 21 '21
- Smoothing of commutators by sanding and stoning. D. S. Merton. Elec W 76:1221 D 18 '20
- Synchronous commutator. J. B. Whitehead and T. Isshiki. diags Am Inst E E J 39: 105-16 F '20
- Toledo standard improved commutator construction. diag Automotive Ind 42:753 Mr 25 '20
- Tools and methods for correctly soldering commutator tails. R. L. McIntyre. diags Elec W 75:958 Ap 24 '20

Turning a commutator in place. J. Dixon. diag Elec W 76:129 Jl 17 '20

Turning down a commutator without shutting down. R. M. Orr. diag Power 53:676 Ap 26 '21

See also Brushes (electric machinery); Electric generators; Electric motors

Company schools. See Corporation schools**Company stores**

- Company store and the co-operative store. Eng & Min J 110:197 Jl 31 '20
- Company stores—do they pay? E. E. Adams. il Iron Tr R 67:374-7 Ag 5 '20
- Food as a factor in industrial morale. J: T. Bartlett. il Ind Management 62:83-8 Ag '21
- Ford stores cut thousands from employees' living costs. Automotive Ind 42:1030 Ap 29 '20
- Lowering living costs. Factory 25:70+ Jl 1 '20
- Making wages mean more. il Factory 26: 184-5 Ja 15 '21
- Packard cooperative store. D. G. Stanbrough. il Ind Management 59:281-3 Ap '20
- Plan to reduce employes' cost of living. E. P. Harris. Textile World 57:943+ F 7 '20
- Putting a store in your factory. L. I. Thomas. il Factory 25:686-90, 863-7, 1060-4, 1220-2 S 1-O 15 '20
- Selling necessities at cost to the workers. H. N. Kimball. Textile World 57:942+ F 7 '20
- Stores in mining communities. Min & Sci P 121:649-50 N 6 '20
- Varied experiences in operating a mill store. Textile World 57:944+ F 7 '20

See also Cooperative stores

Comparators

- Ames dial comparator. il Mach 27:903 My '21; Am Mach 54:751 Ap 28 '21
- Gaging screw threads with a beam of light. M. M. Hunting. il Sci Am 122:215+ F 28 '20
- Improved comparator. L. H. Cooledge. il diag J Ind & Eng Chem 12:499 My '20
- Sykes gear-tooth comparator. il diag Engineering 112:103 Jl 15 '21

Comparators, Dynamometrical

- Dynamometrical comparator. E. Velander. il diags Am Inst E E J 39:680-6 Jl '20

Compass

- Bamberg remote control compass for aviators. A. Gradenwitz. il Aviation 10:19-20 Ja 3 '21
- Distant compass. W. Friedensburg. diags Aerial Age 13:587-9 Ag 29 '21
- Navigational magnetic compass considered as an instrument of precision. M. B. Field. il diags Inst E E J 57:349-86 My '19; Abstract. Sci Am S 88:302-3 N 22 '19
- New aviator's compass the Bamberg tele-compass. Automotive Ind 43:1058 N 25 '20; Same. Sci Am M 2:274 N '20
- New non-magnetic compass invented. il Int Marine Eng 25:234 Mr '20
- Practical manual of the compass. H. Lan-ling, comp. 234p United States naval institute, Annapolis '21
- Radio compass and automatic pilot developed for naval flying boats. J. B. Kean. il diag Pop Mech 34:485-7 O '20
- Selenium aviation compass placed on tail of plane. Pop Mech 34:840 D '20

See also Wireless compass

Testing

- Testing magnetic compasses. il Sci Am 124: 271 Ap 2 '21
- Testing of magnetic compasses. R. L. San-ford. il U S Bur Stand Sci Pa 382:273-9 '20
- Turntable tests accuracy of airplane com-passes. il Pop Mech 35:247 F '21

Compass, Gyrostatic

- Anshutz self-steering compass. il diag Marine Eng 26:462-3 Je '21
- La direction et le controle automatiques de la marche des navires, à l'aide d'appareils gyroscopiques automatiques. E. Weiss. il diag Génie Civil 79:311-14 O 8 '21
- Flyer's artificial eye and ear. A. Graden-witz. il Sci Am 123:573 D 4 '20

- Compass, Gyrostatic—Continued**
 Gyroscopic compass. T: W. Chalmers. 167p Constable & co., London '20
 Gyroscopic compass: a non-mathematical treatment. il diags Engineer 129:55-7, 81-3, 105-7, 136-8, 160-2, 190-2, 210-12, 242-5 Ja 16-Mr 5 '20
 Gyrostatic compass. S. G. Brown. il diags Engineering 109:202-6 F 13 '20
 Nerve center of the battleship Tennessee. C. B. Mills. il Elec J 18:288-9 Je '21
 Principles of the gyro-compass. G: B. Crouse. il diags Mech Eng 42:619-23 N '20
 Romance of invention. C. H. Claudy. il Sci Am 122:420+ Ap 17 '20
- Compass, Radio.** See Wireless compass
- Compeb mills**
 Merits of compeb mills discussed. O. J. Binford. Concrete 18:sup90-1 My '21
- Compensating devices**
 Compensating devices. diags Power Pl Eng 24:1142-3 D 1 '20
- Compensation, Workmen's.** See Workmen's compensation
- Compensation insurance.** See Insurance, Employers' liability
- Compensators**
 Troubles on compensators which should be checked at start. H. E. Stafford. Elec W 78:276-7 Ag 6 '21
- Competition**
 Competition and co-operation. R. O. Lounsbury. Am Ind 21:17-20 N '20
 Economics of competition. Ptr Ink 110:97-8+ Mr 25 '20
 Swapping accounts or more intensive development of present customers? Ptr Ink 117:95-6 O 6 '21
 See also Price fixing; Purchasing, Co-operative; Restraint of trade; Trusts, Industrial
- Competition, International**
 Why German competition need not be feared. F: Todd. Annalist 18:225 S 5 '21
- Competition, Unfair**
 Cannot use the name Overland for tires. Ptr Ink 116:35-6 Jl 7 '21
 On the government's unfair list. C. H. Claudy. Ptr Ink 110:98+ Mr 11 '20
 Only attempt to sell goods as another's is unfair competition. W. Gustin. Chem & Met Eng 25:69 Jl 13 '21
 Unfair competition. R. M. Leonard. 28p Bribery and secret commissions prevention league, London '21
 What constitutes unfair trade practice? W: B. Colver. Chem & Met Eng 23:191-2 Ag 4 '20
 See also Bribery, Commercial
- Competitive bidding.** See Contracts, Letting of
- Complaints**
 Letter-writing diplomat. F. C. Manning. Ptr Ink 112:117-18+ S 16 '20
 Our dealers have the home office viewpoint. G. C. Lewis. System 40:551-2+ N '21
 Smoothing out difficulties in letters. M. L. Allen. Ptr Ink 113:125-6+ O 21 '20
 Taking the backfire out of complaint settling. E: T. Tandy. Ptr Ink 112:49-50+ Ag 26 '20
 See also Electric utilities—Complaints; Gas companies—Complaints
- Composing machines.** See Typesetting machines
- Compound words**
 Our bewildering seesaw of detail in practice. F. H. Teall. Inland Ptr 65:63-4 Ap '20
 Our confusion as to compounding. F. H. Teall. Inland Ptr 65:725-6 S '20
- Compressed air**
 Air blast by induction. F. Richards. il diags Am Mach 54:654-5 Ap 14 '21
 Air consumption of locomotive auxiliaries; report. Ry Mech Eng 94:395-8 Je '20; Abstracts. Ry Age 68:1403-5 My 14 '20; Ry R 66:805-6 My 15 '20
 Air plus oil equals more oil; compressed air takes the place of natural gas in stimulating the flow of oil wells. R. G. Skerrett. il Sci Am 124:190+ Mr 5 '21
 Alcohol keeps water in compressed air from freezing. diags Pop Mech 33:284 F '20
 Appareil pour la mesure du débit des conduites d'air comprimé et la consommation des outils pneumatiques. Piette. diags Génie Civil 78:65 Ja 15 '21
 Artesian reservoirs for intermittent supplies of energy. Sci Am 125:229 O 1 '21
 Baseball-pitching machine uses compressed air. F. B. Howe. il Pop Mech 36:703 N '21
 Blasting granite with compressed air. O. Bowles. Eng & Contr 54:261 S 15 '20
 Care of compressed air lines. J: S. Watts. diag Am Mach 55:696 O 27 '21
 Cleaning road surface with compressed air. W. A. Welch. il Eng & Contr 54:209 S 1 '20
 Compressed air. T. Simons. 2d ed. 173p McGraw-Hill '21
 Compressed-air in chipping paint and repainting steel steamers. il Pop Mech 34:552-3 O '20
 Compressed air plant. R. Peele. 4th ed. 508p Wiley '20
 Compressed air power. A. W. Daw and Z. W. Daw. 375p Pitman '20
 Compressed air used to clean road surface before oiling. W. A. Welch. il Eng N 83:933-4 N 27 '19
 Dynamical method for raising gases to a high temperature without the use of high pressures. W. H. Watkinson. diags Engineering 110:276 Ag 27 '20
 Early use of compressed air for salvaging ships. W. Nash. Sci Am 124:227 Mr 19 '21
 L'emploi de l'air comprimé pour calmer l'agitation de la mer. A. Poïdlouë. Génie Civil 77:465 D 4 '20
 L'emploi des marteaux à air comprimé pour l'abatage de la houille. Dessemont. Génie Civil 77:37-8 Jl 10 '20
 Fighting waves with compressed air. G: F. Paul. Sci Am 123:61+ Jl 17 '20
 Floating pneumatic grain elevator at Avonmouth dock. G: F: Zimmer. il diags Eng & Ind Management 6:221-5 Ag 25 '21
 Free as air. H. M. Crawford. Am Gas Eng J 113:141-2+ Ag 21 '20
 Fundamental properties of closed-cycle pneumatic transmissions. J. de Lassus. Mech Eng 43:129-30 F '21
 Hydraulic air compressor plant. il diags Eng & Contr 53:552 My 12 '20
 Locomotive de mines, à air comprimé, à triple expansion et à récupération aux freinages, système Leroux. L. Pierre-Guédon. diags plan Génie Civil 78:312-15 Ap 9 '21
 New ways to make compressed air serve in operating service stations. il Nat Pet N 12:36+ Ag 25 '20
 Novel method of quarrying with compressed air. Pop Mech 36:218 Ag '21
 Pneumatic ship-steering system has advantages. il diags Pop Mech 35:568 Ap '21
 Powdered coal plant with compressed air transport. diag Elec Ry J 55:817-18 Ap 17 '20
 Pressure losses in compressed-air piping. Mech Eng 43:478-9 Jl '21
 Pumping by compressed air. 2d ed. E. M. Ivens. 266p Wiley '20
 Removing pavement by compressed air-operated machines. il Eng & Contr 55:545-6 Je 1 '21; Same. Concrete 18:298 Je '21; Same. Gas Age 48:85-6 Jl 25 '21
 Saving fuel by decreasing air waste. N. A. Craigue. il diag Ind Management 61:418-21 Je '21
 Simplification of venturi-meter calculations. G. B. Warren. diag Mech Eng 42:220-1+ Ap '20
 Something different in salvaging operations; compressed air. R. G. Skerrett. il diags Sci Am 123:518+ N 20 '20
 Storing compressed air in rock reservoir. diags Coal Age 20:252 Ag 18 '21
 Textile uses of compressed air. diag Textile World 57:233+ Ja 10 '20; Same cond. Am Ind 22:35-6 O '21

Compressed air—Continued

Unloading logs with compressed air. *il Sci Am* 124:249 Mr 26 '21

L'utilisation rationnelle des forces naturelles; moteurs à explosion à rendement élevé et dispositifs améliorant le rendement des locomotives à vapeur. L. Pierre-Guédon. *diags Génie Civil* 76:178-80 F 14 '20

See also Air compressors; Air hoist cylinders; Air lifts; Caissons; Elevators, Pneumatic; Pneumatic conveying; Pneumatic tools; Vacuum cleaners; Vacuum cleaning

Laws and regulations

Revised rules on compressed-air work in New York. *Eng N* 85:1225 D 23 '20

Tables, calculations, etc.

Air receiver calculations. W. S. Weeks. *diag Eng & Min J* 111:988-9 Je 11 '21

Further air receiver calculations. T. Simons. *Eng & Min J* 112:244-5 Ag 13 '21

Compressed cotton. *See* Fabroil

Compressed gas. *See* Gas, Compressed

Compressibility

Compressibility of benzene, liquid and solid. T. W. Richards, E. P. Bartlett and J. H. Hodges. *Am Chem Soc J* 43:1538-42 Jl '21

Compressibility of indium. T. W. Richards and J. Sameshima. *diag Am Chem Soc J* 42:49-54 Ja '20

Surface energy, latent heat, and compressibility. D. L. Hammick. *Philos Mag* 6th ser 41:22-32 Ja '21

See also Elasticity

Compressors

Compresseur à membrane. H. Corblin. *diag Génie Civil* 78:66 Ja 15 '21

Griscom-Russell regenerative compressor. *il Power* 53:777 My 17 '21; *Power Pl Eng* 25:540 My 15 '21

Perfected high-pressure rotary compressor. C. B. Lord. *diags Mech Eng* 41:877-8+ N '19; *Abstracts. Power* 51:156-7 Ja 27 '20; *Génie Civil* 76:579 Je 26 '20

See also Air compressors; Ammonia compressors; Gas compressors

Compressors, Gas. *See* Gas compressors

Compulsory labor. *See* Labor, Compulsory

Computing-tabulating-recording-company

9th annual report for the year ended December 31, 1920. *Comm & Fin Chr* 112:1528 Ap 9 '21

Comstock, Louis Kossuth, 1865-

Portrait. *Elec W* 77:468 F 26 '21

Concentrating tables. *See* Concentrators

Concentration cells

Determination of the hydrogen-ion concentration in pure water by a method for measuring the electromotive force of concentration cells of high internal resistance. E. T. Oakes. 22p Columbia university press, New York '20

Free energy of dilution and the transference numbers of lithium chloride solutions. D. A. MacInnes and J. A. Beattie. *diags Am Chem Soc J* 42:1117-28 Je '20

Concentration of ore. *See* Ore treatment

Concentrators

Preliminary roughing concentration by sorting, jigging and tabling. E. S. Wiard. *il diags plan Eng & Min J* 112:411-17 S 10 '21

Concrete

Action of chemical agents on concrete; abstract. M. Jacobson and J. G. de Keravenaut. *Chem & Met Eng* 23:1269 D 29 '20

Address on use of concrete. H. C. Boyden. *Gas Age* 46:405-6 N 25 '20

Le béton de mâchefer; abstract. L. Demure. *Génie Civil* 78:426 My 14 '21

Les bétons légers et les records de la grande construction. C. Rabut. *Génie Civil* 76:256-8 Mr 6 '20

Cements producing quick-hardening concrete.

P. H. Bates. *Am Soc T M Pro* 19 pt 2:426-38 '19; *Abstract. Sci Am M* 1:190 F '20; *Discussion. Am Soc T M Pro* 19 pt 2:439-43 '19

Concrete, its manufacture and use. 207p Koehring co., Milwaukee '21

Concrete, its use and abuse. I. K. Pond. *Am Arch* 117:177-80 F 11 '20; *Excerpts. Can Eng* 38:487 My 20 '20; *Eng & Contr* 53:605-6 My 26 '20

Concrete materials and construction. L. N. Edwards. *il Can Eng* 39:177-81 Jl 22 '20

Effects on concrete of immersion in boiling water and oven drying. W. J. Schlick. (*Eng. exp. sta. bul.* 59) 24p Iowa state college of agriculture and mechanic arts, Ames '21

Summary. *Min & Sci P* 123:199 Ag 6 '21

Facts about concrete. R. G. Skerrett. *il Sci Am* 124:486+ Je 18 '21

How to make good concrete and why. H. Whipple. *Concrete* 17:103 O '20

Improving a tropical market. O. C. Gould. *Concrete* 17:122-3 O '20

Inspection of concrete. B. Brown. *diags Arch Forum* 32:83-4 F '20

Methods of securing impermeability in concrete. E. S. Andrews. *Engineering* 111:262-3 Mr 4 '21

Modulus of elasticity of concrete. S. Walker. 93p Structural materials research laboratory, Lewis Institute, Chicago '20

New facts and studies on concrete. *Eng N* 86:348-9 F 24 '21

New stone age. H. E. Howe. 289p Century co. '21

Newly patented cheap building material. *Sci Am* 124:47 Ja 15 '21

Recent developments in concrete. H. C. Boyden. *Am Water Works Assn J* 7:672-82 S '20

Stonehenge ruins restored with concrete. *il diags plan Concrete* 19:124 S '21

Wet concrete hauled three miles for pavement base; concrete flows freely after half an hour on the trucks. C. B. Montgomery. *plan Eng N* 85:885 N 4 '20

See also Cement; Concrete, Reinforced; Concrete construction; Grouting; Gunite; Pavements, Concrete; Pipes, Concrete; Roads, Concrete; Sewers, Concrete; Ships, Concrete; Waterproofing

Aggregate

All sand aggregate for concrete in middle western roads. T. L. Brockway. *Eng N* 84:573-5 Mr 18 '20; *Same. Eng & Contr* 53:408 9 Ap 7 '20

Behavior of reinforced concrete columns under fire test. W. A. Hull. *il Am Arch* 116:561-6, 589-94 O 29-N 5 '19

Blast-furnace slag in concrete and reinforced concrete. J. E. Stead. *Iron Age* 104:1251-2 D 18 '19

Building with cinders. *Sci Am* 122:393+ Ap 10 '20

Bulking of sand noted years ago by Feret. A. E. W. King. *Eng N* 86:136 Ja 20 '21; *Discussion. G. M. Williams.* 86:312 F 17 '21

Cement and aggregate production in 1921 close to 1920. *Eng N* 87:171 Jl 28 '21

Coke makes concrete for building houses. *il Pop Mech* 33:903 Je '20

Concrete aggregates. *Can Eng* 38:440-1 My 6 '20

Concrete road work: special reference to available aggregates. A. N. Johnson. *Concrete* 16:179-83 Ap '20; *Same. Good Roads n s* 19:182-6 Ap 7 '20; *Same. Boston Soc C E J* 7:203-15 S '20; *Same cond. Eng & Contr* 53:514-17 My 5 '20; *Excerpt. Eng N* 84:964-6 My 13 '20; *Discussion. Boston Soc C E J* 7:215-22 S '20

Costly experiment with feldspar aggregate. R. B. Lammens. *il Concrete* 15:221-3 D '19

Does it pay to determine void percentages in coarse aggregate for concrete pavement? W. C. Crandall. *diags Munic Eng* 57:264-6 D '19

Effect of crusher screenings in concrete. W. C. Adams and J. G. Ross. *Can Eng* 40:500-2 My 26 '21

Concrete—Aggregate—Continued

- Impact test on concrete to regulate coarse and fine aggregate qualities and mixes for highways; with discussion. H. S. Mattimore. *il Am Soc T M Pro v 20 pt 2: 266-77 '20*
- Light aggregate for concrete buildings. A. W. Stephens. *Concrete 17:26-7 Jl '20*
- More light on protecting concrete against fire. *Eng N 84:469-70 Mr 4 '20*
- New methods of proportioning concrete in theory and practice. R. B. Young. *diag Boston Soc C E J 8:73-106 Mr '21; Excerpts. Eng & Contr 56:87-91 Jl 27 '21; Discussion. Boston Soc C E J 8:106-8 Mr '21*
- Permissible tolerance of sand in coarse aggregates. W. K. Hatt. *Pub Roads 4:19-21+ O '21*
- Practical scheme for proportioning concrete. G. M. Williams. *Eng & Contr 56:184-8 Ag 24 '21*
- Proportioning concrete aggregates when unscreened or pit run gravel is used. L. A. Doan. *Eng & Contr 54:534 D 1 '20; Discussion. G. M. Williams. 55:2-3 Ja 5 '21*
- Proportioning concrete from study of the aggregate. M. Williams; R. B. Young; H. A. Davis. *Eng N 84:811-13 Ap 22 '20*
- Report of A.S.T.M. sub-committee on weight, voids, density, specific gravity and consistency. *il Am Soc T M Pro v 20 pt 1: 340-79, 652 '20*
- Rod method of determining unit weight of concrete aggregate. *Eng & Contr 53:602 My 26 '20*
- Slag aggregate makes satisfactory concrete. *Eng N 85:689 O 7 '20*
- Slag as coarse aggregate for concrete pavements. C. Gray and F. Kallam. *Eng & Contr 53:525-6 My 5 '20*
- Some problems in concrete construction. W. K. Hatt. *Munic Eng 60:182-7 My '21*
- Study of the composition of blast-furnace slags suitable for concrete aggregate. L. G. Carmick. *Eng & Contr 56:82-3 Jl 27 '21*
- Tentative method for determination of voids in fine aggregate for cement concrete. *Am Soc T M Pro v 20 pt 1:652 '20*
- Tentative test for unit weight of aggregate for cement concrete. *Am Soc T M Pro v 20 pt 1:624-5 '20*
- Testing of clays for concrete aggregate. D. H. Fuller. *Am Cer Soc J 3:256-8 Mr '20*
- Unwashed and ungraded river gravel makes good concrete. J. S. Kennedy. *Eng N 87:418 S 8 '21*
- Use of wet and dry sand for concrete. *Sci Am M 2:178 O '20; Same. Bldg Age 42:62 D '20*
- Using 6-in. bank run aggregate on Stevenson dam. *il diag Eng N 85:638-40 S 30 '20*
- Versuche mit hochofenschlacke. H. Burchartz. *Stahl & Eisen 41:193-200 F 10 '21*
- Volume-moisture relation in sand and a method of determining surface area based thereon. R. B. Young and W. D. Walcott. *Am Soc T M Pro v 20 pt 2:137-48 '20; Same. Can Eng 38:475-8 My 20 '20; Same. Eng & Contr 54:91-4 Jl 28 '20; Same. Eng N 85:82-4 Jl 8 '20*
- See also Concrete mixing; Gravel*

Cleaning

- Clean concrete with burning gasoline. *il Eng N 87:703 O 27 '21*
- See also Floors, Concrete—Cleaning*

Coloring

- Metallized cement decoration in Holland. *il Concrete 17:216-17 D '20*

Curing

- Effect of curing condition on the wear and strength of concrete. D. A. Abrams. 32p Structural materials research laboratory, Lewis institute, Chicago '19
- Soaking concrete in $MgSiF_6$ and $Na_2Si_4O_9$ solutions. *Concrete 17:28-9 Jl '20*

Finishing

- Concrete for attractive and permanent dwellings; plates. *Concrete 16:15-26 Ja '20*

- Enrichment of concrete surfaces with clay tile. J. H. Donahey. *il Concrete 16:14+ Ja '20*

- New developments in surface treated concrete and stucco. J. C. Pearson and J. J. Earley. *il Concrete 16:110-14 Mr '20; Same. Am Arch 117:386-92 Mr 24 '20; Same, without il. Can Eng 38:468-9 My 13 '20; Same abr. Eng & Contr 53:317-18 Mr 24 '20; Excerpts. Bldg Age 42:35-7 Jl '20*
- Treatment of exterior surfaces of industrial buildings. *Concrete 18:263-5 Je '21*
- What shall be done about the surface? H. Whipple. *il Concrete 16:12-13 Ja '20*

See also Concrete, Ornamental; Concrete stone

Flowability

See Concrete—Testing

Freezing

- Porous filter walls and dams spall under frost action. *il Eng N 86:947 Je 2 '21*
- Protecting concrete from frost. *Pub Works 49:464-6, 493-4, 520-2 N 13-27 '20*
- See also Concrete construction in winter*

Mixing

See Concrete mixing

Protection

- Acid proof coatings for concrete surfaces. F. H. Berger. *Concrete 16:267-9 Je '20*
- Acid-proofing and hardening of concrete. *il Chem & Met Eng 23:297 Ag 18 '20*
- Best way of protecting reinforced concrete from marine deterioration. F. E. Wentworth-Sheilds. *Engineering 112:73; Discussion. 40-2 Jl 8 '21*
- Bituminous acid-proof coatings for acid-proofing concrete surfaces. *Chem & Met Eng 23:287-9 Ag 18 '20*
- Floating oil as protection of concrete from action of sea water. *Eng & Contr 55:88 Ja 26 '21*
- Floor hardener tests by Bureau of standards. *Concrete 16:279-80 Je '20*
- Surface treatment of concrete on Bloor st. viaduct, Ont. T. T. Black. *Eng & Contr 55: 283 Mr 23 '21*
- Use of gunite in preservation of concrete structures affected by sea water action. B. C. Collier. *il Can Eng 39:457-9 O 21 '20*
- See also Concrete—Freezing; Concrete construction—Fire resistance*

Rodding

- Better concrete. F. E. Giesecke. *Sci Am 123:27 Jl 3 '20*
- Effect of rodding concrete. F. E. Giesecke. *Am Soc T M Pro v 20 pt 2:219-30 '20; Excerpt. Eng & Contr 54:184-6 Ag 25 '20; Excerpt. Ry Age 68:1972 Je 25 '20; Discussion. Am Soc T M Pro v 20 pt 2:231-2 '20*
- Effect of rodding concrete. F. E. Giesecke. *Can Eng 38:118-19 Ja 8 '20; Same cond. Concrete 16:102-3 F '20; Excerpts. Eng & Contr 53:212-13 F 25 '20*
- Rodded concrete tests. D. A. Abrams. *Concrete 15:214 D '19*
- Variation in the effect of rodding concrete. F. E. Giesecke. *Eng & Contr 56:81-2 Jl 27 '21*

Setting

- Expediting the hardening of concrete. *Pub Works 49:260 S 18 '20*
- Time of set of concrete. W. Davis. *Eng & Contr 56:79-81 Jl 27 '21; Same. Good Roads 61:121-2+, 135-8 S 7-14 '21; Same cond. Eng N 87:30-1 Jl 7 '21*
- See also Cement—Setting*

Specifications

- American society for testing materials joint committee presents draft of specifications for concrete. *Eng N 86:1128-30 Je 30 '21; Discussion. L. G. Hall. 87:334 Ag 25 '21*
- Joint committee's tentative concrete specifications. *Eng N 87:68-71 Jl 14 '21; Discussion. 87:331 Ag 25 '21*

Concrete—Specifications—Continued

- New specifications for concrete. Ry Age 71: 243-4 Ag 6 '21
 Personnel of the joint committee on standard specifications for concrete and reinforced concrete. Am Soc T M Pro v 20 pt 1:253-7 '20
 Tentative specifications for concrete and reinforced concrete. Am Soc C E Pro 47:59-64 Ag '21; Discussion. W. A. Slater. 47:243-50 S '21

Temperature

- Making the final 15-ft. raise of the Spaulding dam; dam is now 275 ft. high—careful plans to observe shrinkage of concrete. I. C. Steele. il diags plan Eng N 85:1020-4 N 25 '20
 Studies on cooling of fresh concrete in freezing weather. T. Yoshida. diags III U Eng Exp Sta Bul 123:1-63 '21; Excerpts. Eng & Contr 56:474-8 N 23 '21
 Study of temperature stresses in rigid pavement slabs. C. H. Scholer. il diag Eng N 85:943-4 N 11 '20

Terminology

- Consistency and workability. Concrete 17: 143 N '20

Testing

- Apparatus for determining the consistency of concrete. F. L. Roman. diags Eng & Contr 53:240-1 Mr 3 '20
 British tests on concrete for ships. T. B. Abell. Eng N 86:901-2 My 26 '21
 Compressive strength of concrete in flexure. W. A. Slater and R. R. Zippodt. diags Can Eng 39:123-7 Jl 8 '20
 Concrete aggregates. Can Eng 38:440-1 My 6 '20
 Concrete consistency measured by the flow table. G. M. Williams. il Eng N 84:1044-6 My 27 '20; Same. Eng & Contr 53:623-5 Je 2 '20; Same. Good Roads n s 20:77-80+ Ag 18 '20; Same. Concrete 16:274-7 Je '20; Same. Can Eng 38:545-7 Je 10 '20; Abstract. Sci Am 124:353 Ap 30 '21
 Concrete in alkali soils and waters. A. S. Dawson. Can Eng 39:474-7 O 28 '20; Excerpt. Eng & Contr 54:388-9 O 20 '20
 Concrete mixtures in alkali soils. C. J. Mackenzie. Can Eng 38:344-6 Ap 1 '20
 Control cement content by field beam tests. M. G. Findley. il diags Eng N 85:703-4 O 7 '20
 Density tests of concrete made under actual road building conditions. Eng & Contr 55:99 F 2 '21
 Determinations of stress-deformation relations for concretes under repeated and continuous loadings. G. M. Williams. il Am Soc T M Pro v 20 pt 2:233-49 '20; Same cond. Eng & Contr 54:190-2 Ag 25 '20; Summary. Eng N 85:81 Jl 8 '20; Discussion. Am Soc T M Pro v 20 pt 2:250-65 '20; Eng & Contr 54:424-6, 506 O 27, N 24 '20
 Effect of age and curing conditions on concrete—results of tests of ten year old specimens. M. O. Withey. Eng & Contr 54:519-20 N 24 '20
 Effect of colorings on concrete strength determined by test. D. A. Abrams. Eng N 86: 721 Ap 28 '21
 Effect of crusher screenings in concrete. W. C. Adams and J. G. Ross. Can Eng 40:500-2 My 26 '21
 Effect of hydrated lime and other powdered admixtures in concrete. D. A. Abrams. Am Soc T M Pro v 20 pt 2:149-203; Discussion. 204-18 '20
 Effect of tannic acid on the strength of concrete. D. A. Abrams. Am Soc T M Pro v 20 pt 1:309-39 '20; Excerpt. Ry Age 68: 1971 Je 25 '20; Same. Eng & Contr 54:277 S 22 '20; Same. Concrete 17:172 N '20; Abstract. Power Pl Eng 25:853 S 1 '21
 Effect of vibration, jigging and pressure on fresh concrete. D. A. Abrams. Munic J 48: 43-5 Ja 31 '20

- Effects of cal as an accelerator of the hardening of Portland cement mixtures. R. N. Young. U S Bur Stand Tech Pa 174:1-24 '20; Summary. Eng & Contr 54:542-3 D 1 '20
 Effects of organic impurities on concrete. D. A. Abrams. il Pub Works 50:425-6 My 21 '21
 How can laboratory tests of concrete materials be made of greater value to the field engineer and contractor? G. M. Williams. Can Eng 38:172-4 Ja 29 '20; Same. Eng & Contr 53:213-15 F 25 '20; Same. Concrete 16:194-6 Ap '20
 How strong is the concrete? A. H. Lynch. il Sci Am 124:229 Mr 19 '21
 Immersion in boiling water reduces the strength of concrete. Min & Sci P 123:199 Ag 6 '21
 Impact test on concrete to regulate coarse and fine aggregate qualities and mixes for highways; with discussion. H. S. Mattimore. il Am Soc T M Pro v 20 pt 2:266-77 '20
 Making sure of the concrete batch. R. F. Mundorff. il Sci Am 123:379 O 9 '20
 Method for securing test specimens of hardened concrete from the structure. Eng & Contr 56:172 Ag 24 '21
 Modulus of elasticity of concrete. chart Eng & Contr 53:483-5 Ap 28 '20
 New laboratory abrasion test for concrete. C. H. Scholer. il Eng N 87:488-9 S 22 '21
 New methods of proportioning concrete in theory and practice. R. B. Young. diag Boston Soc C E J 8:73-106 Mr '21; Excerpts. Eng & Contr 56:87-91 Jl 27 '21; Discussion. Boston Soc C E J 8:106-8 Mr '21
 Outline of compression tests of concrete for investigation of properties of concrete mixtures. Am Soc T M Pro v 20 pt 1:294-308 '20
 Paper molds for concrete test blocks. S. R. Winters. il Sci Am 125:235 O 1 '21
 Permeability of concrete. Elec R 79:164 Jl 30 '21
 Permissible tolerance of sand in coarse aggregates. W. K. Hatt. Pub Roads 4:19-21+ O '21
 Planning compression tests on concrete. Can Eng 39:301-3 S 2 '20
 Practical application of surface area method of proportioning materials for concrete. R. B. Young. Can Eng 38:101-6 Ja 1 '20; Same abr. Eng N 84:33-7 Ja 1 '20
 Proportioning concrete on job by exact methods. R. B. Young and T. V. McCarthy. il Eng N 86:456-8 Mr 17 '21; Discussion. 86:867-8 My 19 '21
 Proposed method of estimating density and strength of concrete and of proportioning the materials. A. N. Talbot. Eng & Contr 56:306-12 S 28 '21; Same cond. Eng N 87: 147-52 Jl 28 '21
 Recent developments in concrete testing methods. Eng & Contr 53:225-6 F 25 '20
 Slag as coarse aggregate for concrete pavements. C. Gray and F. Kallam. Eng & Contr 53:525-6 My 5 '20
 Soaking concrete in MgSiF_6 and $\text{Na}_2\text{Si}_4\text{O}_9$ solutions. Concrete 17:28-9 Jl '20
 Standard test specimens from concrete structures. Pub Works 51:191 S 3 '21
 Strength tests on pre-mixed concrete on Detroit street railways. W. R. Dunham, jr. Eng N 87:681 O 27 '21
 Tentative methods for making and storing specimens of concrete in the field. diags Am Soc T M Pro v 20 pt 1:653-7 '20
 Testing and proportioning concrete. Eng N 86:1131 Je 30 '21
 Testing concrete with a flow of shot. F. C. Perkins. il Sci Am 121:639 D 27 '19
 Tests of concrete in alkali soil. A. S. Dawson. Eng & Contr 56:403-4 O 26 '21
 Tests of concrete in tension. T. H. Carver and J. H. Quense. il diags Eng N 83:1005-6 D 11 '19

Concrete—Testing—Continued

Thermal conductivity and diffusivity of concrete. A. P. Carman and R. A. Nelson. *il diags Ill U Eng Exp Sta Bul* 122:1-32 '21; *Abstract. Eng & Contr* 56:391-2 O 26 '21

See also Concrete, Reinforced—Testing; Concrete construction—Fire resistance; Concrete slabs—Testing; Floors, Concrete—Testing

Waterproofing

See Waterproofing

Wrecking

See Wrecking

Concrete, Effect of acids on

Deteriorating effects of acids upon concrete. C. A. Heise. *Concrete* 17:169 N '20; Same. *Eng & Contr* 54:620 D 22 '20

Effect of tannic acid on strength of concrete. D. A. Abrams. *Am Soc T M Pro v* 20 pt 1: 309-39 '20; *Excerpt. Ry Age* 68:1971 Je 25 '20; Same. *Eng & Contr* 54:277 S 22 '20; Same. *Concrete* 17:172 N '20

Effects of organic impurities on concrete; results of D. A. Abrams' investigation. *il Pub Works* 50:425-6 My 21 '21

Concrete, Effect of age on

Effect of age and curing conditions on concrete—results of tests of ten year old specimens. M. O. Withey. *Eng & Contr* 54:519-20 N 24 '20

Effect of age on the strength of concrete. D. A. Abrams. *Concrete* 19:14-15 Jl '21; Same. *Munic Eng* 61:47-9 Ag '21

Concrete, Effect of alkalis on

Action of alkali soils on concrete structures. W. G. Chase. *Concrete* 17:sup44-5 S '20

Alkali and concrete pipe. *Concrete* 19:81 Ag '21

Alkali damages part of Winnipeg concrete aqueduct. *diags plan Eng N* 84:1097-8 Je 3 '20

Concrete in alkali soils and waters. A. S. Dawson. *Can Eng* 39:474-7 O 28 '20; *Excerpt. Eng & Contr* 54:388-9 O 20 '20

Concrete mixtures in alkali soils. C. J. Mackenzie. *Can Eng* 38:344-6 Ap 1 '20

Concrete pipe in alkali soils. *Pub Works* 51:292-4 O 15 '21

Durability of concrete in alkali soils and waters. *Sci Am, M* 2:178-9 O '20

Effect of alkali upon concrete. S. H. McCrory. *il Pub Works* 50:390-2 My 7 '21

Effect of alkali water on concrete. B. F. Erdahl. *Concrete* 17:sup23-4 Ag '20; *Discussion. 17:sup53-4 O '20*

Engineers and chemists must co-operate in evolving standards of practice for concrete work in alkali soil. C. J. Mackenzie. *Can Eng* 39:477 O 28 '20

Investigations of effect of alkali on concrete drain tile not convincing. *il Concrete* 19:107-8 S '21

Life of concrete when used as carrier of domestic sewage. A. C. Shaver. *il Sanitary & Heat Eng* 96:189-92 S 23 '21; Same. *Dom Eng* 96:559-62 S 24 '21

Tests of concrete in alkali soil. A. S. Dawson. *Eng & Contr* 56:403-4 O 26 '21

Concrete, Effect of ammonia on

Effect of ammonia water on concrete. C. A. Heise. *Concrete* 18:249 My '21

Concrete, Effect of coal on

Effect of coal on concrete. *Concrete* 19:53 Ag '21

Einwirkung von kohle auf beton. C. A. Heise. *Stahl & Eisen* 41:165 F 3 '21; Same (Effects of coal upon concrete). *Concrete* 18:249-50 My '21

Concrete, Effect of coloring on

Effect of colorings on concrete strength determined by test. D. A. Abrams. *Eng N* 86:721 Ap 28 '21

Concrete, Effect of hydrated lime on

Does hydrated lime weaken concrete? Abrams' tests discussed pro and con. L. H. Hart; D. A. Abrams. *Eng N* 85:1295-7 D 30 '20

Effect of hydrated lime and other powdered admixtures in concrete. D. A. Abrams. *bibliog Am Soc T M Pro v* 20 pt 2:149-203 '20; *Conclusions. Eng N* 85:55-6 Jl 8 '20; *Conclusions. Munic Eng* 59:50 Ag '20; *Conclusions. Concrete* 17:sup42 S '20; *Discussion. Am Soc T M Pro v* 20 pt 2:204-18 '20

Concrete, Effect of salts on

Concrete in the construction of salt plants. *il Concrete* 18:271 Je '21

Concrete, Effect of sea water on

Action of sea water on concrete. *Eng & Contr* 55:290 Mr 23 '21

Action of sea water on concrete. E. R. Mathews. *Eng & Contr* 53:739-40 Je 30 '20

Attrition of concrete surfaces by sea action. J. S. Owens. *Eng & Contr* 53:356-7 Mr 31 '20

Concrete for salt water works. H. C. Boyden. *Engineer* 131:384-5 Ap 8 '21

Concrete in sea water. *Pub Works* 50:374 Ap 30 '21

Effect of sea water on concrete structures. C. E. W. Dodwell. *il Can Eng* 39:279-80 Ag 26 '20; Same. *Eng & Contr* 54:281-2 S 22 '20

More observations of effect of sea water on concrete. *il Eng N* 86:121-3 Ja 20 '21; *Discussion. 86:652-3, 910 Ap 14, My 26 '21*

Pronounced reinforcement corrosion due to sea water or electrolysis. W. A. Snow. *il Eng N* 87:528-9 S 29 '21

Reasons for the deterioration of reinforced-concrete structures above mean tide level. L. H. Savile. *Engineering* 112:73-4; *Discussion. 40-2 Jl 8 '21*

Recommend concrete for ocean structures at New York. *Eng N* 86:1032-3 Je 16 '21

Steel in concrete construction in sea water. J. L. Harrison. *il Concrete* 15:236-9 D '19; *Excerpts. Eng & Contr* 53:94-5 Ja 28 '20

Use of gunite in preservation of concrete structures affected by sea-water action. B. C. Collier. *il Can Eng* 39:457-9 O 21 '20

Water content affects wear of concrete test pieces. D. Patch. *Eng N* 86:373 Mr 3 '21

Concrete, Effect of sugar sap on

Sugar beet sap destroys concrete roads. *Pub Works* 50:509 Je 11 '21

Concrete, Ornamental

Concrete garden furniture. D. MacKay. *il diags Pop Mech* 35:795-8, 946-8; 36:147-9, 309-10, 469-71 My-S '21

Concrete rock formations for fountain. H. Lindquist. *il Concrete* 15:234-5 D '19

Concrete stone, stucco and tile inserts in concrete building decoration. *il Concrete* 17:54-5 Ag '20

Concrete used to make cascade simulate nature; Loring Cascade, at Glenwood park, Minneapolis. H. Lindquist. *il Concrete* 16:71-5 F '20

Creating a market for ornamental products as a sideline. *il Concrete* 18:105-6 Mr '21

New developments in surface treated concrete and stucco. J. C. Pearson and J. J. Earley. *il Concrete* 16:110-14 Mr '20; Same. *Am Arch* 117:386-92 Mr 24 '20; Same without *il. Can Eng* 38:468-9 My 13 '20; Same *abr. Eng & Contr* 53:317-18 Mr 24 '20; *Excerpts. Bldg Age* 42:35-7 Jl '20

Pre-cast architectural trimstone for monolithic structures. A. J. R. Curtis. *il diags Concrete* 18:65-6 F '21

Precast ornaments in polychrome enrich storage warehouse. *il diags Concrete* 19:26-8 Jl '21

Sculptor's experiment in the decoration of concrete surfaces. A. Perrett. *il Arch Rec* 48:31-8 Jl '20

Trimstone and building ornaments. A. Schilling. *il Am Arch* 117:483-8 Ap 21 '20

See also Concrete brick; Concrete slabs

Concrete, Porous

New material used in manufacturing building at Newark, N.J. *il diags plans Am Arch* 118:255-60 Ag 25 '20

Porous concrete slabs used in building construction. *il diags plans Bldg Age* 42:23-7 O '20

Concrete, Reinforced

- Asphalt coating for exposed steel in water-front concrete. Eng N 84:1075 My 27 '20
- Le béton armé de bois. diags Génie Civil 77:394-6 N 13 '20
- Bond in reinforced concrete. Engineer 131: 65-6 Ja 21 '21
- Concrete hearths. Eng & Min J 110:802-3 O 23 '20
- Concrete parts for generators. C. M. Hackett. diags plan Gen Elec R 22:843-5 N '19; Same. Can Eng 38:178-9 Ja 29 '20; Same. Power Pl Eng 24:239-40 F 15 '20; Same cond. Elec R 76:142-3 Ja 24 '20
- Concrete reinforced with wood; abstract. M. Levatel. diags Mech Eng 43:543-4 Ag '21; Same. Sci Am M 4:189 Ag '21
- Construction details of General motors office building. J. Matte, jr. il diags plans Eng N 86:624-30 Ap 14 '21
- Design of simple reinforced concrete structural members. H. W. Barker. diags Concrete 18:123-5, 169-70 Mr-Apr '21
- Effect of repeated reversals of stress on double-reinforced concrete beams. W. A. Salter, G. A. Smith and H. P. Mueller. il diags U S Bur Stand Tech Pa 182:1-51 '21
- Electrolysis in concrete. E. B. Rosa, B. McCollum and O. S. Peters. bibliog il diags U S Bur Stand Tech Pa 18:1-142 '19; Excerpts. Eng & Contr 52:611-12 N 26 '19; Same. Can Eng 38:199-200 F 5 '20
- Graphical method for determining the proportions of reinforced concrete T-beams. G. I. Cope. Engineering 111:215 F 25 '21; Same. Min & Met 172:44-5 Ap '21; Same. Eng & Contr 55:635 Je 29 '21
- Hangar en béton armé pour deux dirigeables à Luçon (Vendée). C. Dantin. il diags Génie Civil 78:145-8 F 12 '21
- In wrecked slag concrete little corrosion of reinforcing shown. il Concrete 18:128-9 Mr '21
- Light load buildings of reinforced concrete. il diags Concrete 19:89-92 S '21
- Modern practice in reinforced concrete construction. il diags plans Am Arch 119:177-85 F 16 '21
- New design reinforced-concrete road built in Massachusetts. W. S. Edge. il Eng N 87:193-4 Ag 4 '21
- New theory of reinforced concrete. V. Karpen. Sci Am M 1:48 Ja '20
- Present status of reinforced concrete design. F. G. Engholm. il diag Can Eng 38:151-5 Ja 22 '20
- Reinforced concrete for wharves and breakwaters. G. FitzGibbon. Engineering 112: 73 JI 8 '21; Discussion. Engineer 132:31 JI 8 '21; Engineering 112:40-2 JI 8 '21
- Reinforced concrete pit headgear. il Engineer 129:48 Ja 9 '20
- Reinforced concrete road. il Engineer 132: 126-7 JI 29 '21
- Reinforcement for diagonal tension in reinforced concrete beams. E. Godfrey. diags Concrete 17:15-20 JI '20; Discussion. 17:43-6+, 116-19 Ag, O '20
- Relative economy of wood, steel and concrete for ore docks. Eng N 85:922 N 11 '20
- Series of corrosion tests to determine the effects of various materials used in construction upon reinforcing steel. Concrete 17:56 O '20
- Six stories added to reinforced-concrete building. W. H. Wheeler. il diags plan Eng N 86:585-7 Ap 7 '21; Abstract. Concrete 19:65-6 Ag '21; Discussion. Eng N 86:825, 1005, 1133 My 12, Je 9, 30 '21
- Some examples of corrosion of reinforcing steel. F. P. McKibben. il Eng N 87:531-2 S 29 '21
- Steel fabric in concrete road costs 1c a yard to place. H. E. Breed. il Eng N 87: 139-40 JI 28 '21
- Steel from slag concrete shows little corrosion. il Eng N 86:212-13 F 3 '21
- Strengthen concrete paving without increasing cost. B. H. Wait. il diag Eng N 87: 192-3 Ag 4 '21
- Treatise on reinforced concrete. W. N. Twelvetrees. 264p Pitman '20
- Unique construction in reinforced concrete. W. R. Swanson. il diags plans Am Arch 117:30-4 Ja 7 '20

Use of reinforced concrete on railways; abstracts. W: W. Grierson. Engineering 112: 79-80 JI 8 '21; Engineer 132:59 JI 15 '21; Discussion. Engineering 112:49-50 JI 8 '21

Use of steel reinforcement for concrete pavements. H. E. Breed. Eng N 85:1231-4 D 23 '20

Why iron sticks in concrete. Sci Am 121:637 D 27 '19

Wire mesh used for concrete flat slab reinforcement. S. Goldstein. il diags plan Eng N 85:883-4 N 4 '20

See also Concrete; Concrete brick; Concrete construction; Concrete slabs; Retaining walls, Concrete; Steel reinforcing bars

Corrosion

See Concrete, Effect of sea water on; Corrosion and anti-corrosives

Design

See Concrete construction—Design

Patents

Mr Luten's attorney takes exception. R. T. MacFall. Eng N 84:1220-1 Je 17 '20

Specifications

Tentative specifications for concrete and reinforced concrete. Am Soc C E Pro 47:59-64 Ag '21; Discussion. W. A. Slater. 47:243-50 S '21

Tables, calculations, etc.

Calcul du ciment armé sans formules algébriques. N. de Tédesco. 176p Éditions du Constructeur de ciment armé, Paris '21

Computing reinforcement steel in dams and retaining walls. W. C. Taylor. diags Can Eng 39:223-4 Ag 5 '20; Same. Eng & Contr 54:289-90 S 22 '20

Diagrammes donnant les épaisseurs et les renforcements des dalles de hourdis en béton armé. H. Kampmann. Génie Civil 76:312-14 Mr 27 '20

Règle logarithmique, système Rieger, pour le calcul des constructions en béton armé. J. Rieger. diags Génie Civil 79:6-9 JI 2 '21

Short cuts for calculating and estimating reinforced concrete. M. S. Farwell. charts Am Arch 119:251-4 Mr 2 '21

Testing

Concrete shear values proposed to concrete institute. diags Eng N 84:465-9 Mr 4 '20

Effect of temperature on some of the properties of materials. F. C. Lea. il diags Engineering 110:293-8 Ag 27 '20

Field beam tests by reclamation service. W. H. Fisher. Concrete 16:236-7 My '20; Same. Eng & Contr 53:714-15 Je 23 '20

Formule rationnelle du taux de compression du béton. Génie Civil 78:263 Mr 19 '21

Pouring and pressure tests of concrete. W. A. Slater and A. T. Goldbeck. il diags U S Bur Stand Tech Pa 175:1-13 '20; Excerpts. Eng & Contr 54:615-17 D 22 '20

Reinforced concrete investigations of U.S. Bureau of standards. Eng & Contr 53:210-11 F 25 '20

Tests of bond resistance between concrete and steel. W. A. Slater, F. E. Richart and G. G. Scofield. il diags U S Bur Stand Tech Pa 173:1-66 '20

Tests on high tension steels in reinforced concrete design. H. K. Dyson. Eng & Contr 55:653-5 Je 29 '21

Concrete barges. See Barges, Concrete

Concrete benches. See Benches, Concrete

Concrete bins. See Bins, Concrete

Concrete blocks

Agglomérés en éléments dits double C pour la construction économique des bâtiments. diags Génie Civil 78:379 Ap 30 '21

Block with paper insulation. A. Cochran. diag plan Concrete 17:164 N '20

Building with concrete blocks. il diags plan Bldg Age 43:30-5 Ja '21

Concrete block construction at Halifax. il Concrete 16:50-2 Ja '20

Concrete block lining for fuel oil tanks. Eng & Contr 55:321 Mr 30 '21

Concrete blocks—Continued

- Concrete block men organize. plan Concrete 16:48-9 Ja '20
 Concrete block vehicular tunnel investigation. Pub Works 48:549-51 Je 19 '20
 Concrete building unit statistics. G. F. Loughlin. Concrete 16:232-4 My '20
 Concrete stone and concrete blocks in 1919. G. F. Loughlin and M. E. McCaslin. U S Geol S Min Res of U S 1919, pt 2:325-33 '21
 Controversy over concrete-block tunnel construction. Eng N 84:624-6 Mr 25 '20
 Fire-resistance of concrete block and brick. J. E. Freeman. Concrete 18:231-2 My '21
 Precast blocks used alternately with concrete in dam coping. D. C. Finston. il diag Eng N 87:371-2 S 1 '21
 Success of cinder block. il Concrete 17:13 Jl '20

See also Concrete brick

Cost

- Comparative cost of laying block and brick. A. J. R. Curtis. Concrete 17:130 O '20
 Detroit products men organize; cost analysis of concrete blocks. S. H. Wightman. Concrete 16:225-7 My '20

Manufacture

- How to make good block, brick and structural tile. Concrete 17:207-10 D '20
 Machine for making aero concrete building blocks. diags Engineering 110:72-3 Jl 16 '20
 Making concrete block for Miami river revetment. il diag plans Concrete 15:227-9 D '19

Marking

- Branding concrete building units—why and how. il Concrete 18:207-10 My '21

Testing

- How to use slump test for better block. A. J. R. Curtis. il plan Concrete 17:57-8 Ag '20
 Concrete boats. *See* Boats, Concrete
 Concrete breakwaters. *See* Breakwaters, Concrete
Concrete brick
 Brick making by builders in England. R. F. Skinner. Concrete 19:33 Jl '21
 Bricks of concrete with texture of clay. il Am Arch 120:24-6 Jl 6 '21
 Concrete brick development in West. Concrete 18:233 My '21
 Concrete brick plant—25,000 capacity. il Concrete 17:56 Ag '20
 Concrete bricks made without forms on commercial basis by the Brooklyn Crozite corporation. il diags plan Eng N 86:148-51 Ja 27 '21; Excerpt. Eng & Ind Management 6:48-9 Jl 14 '21
 Development of concrete brick—manufacture and use. Concrete 16:202-3 Ap '20
 Equipment and operation of Brooklyn Crozite brick plant. il Concrete 18:74-8 F '21
 La fabrication des briques de béton sans emploi de formes. diags Génie Civil 79:90 Jl 23 '21
 Fire-resistance of concrete block and brick. J. E. Freeman. Concrete 18:231-2 My '21
 Sand-lime and other concrete bricks. H. O. Weller. 11p (Special report no. 1) Great Britain Department of scientific and industrial research, London '21

See also Concrete blocks

Concrete bridges. *See* Bridges, Concrete

Concrete buildings

- Concrete building interiors. G. W. Maker. il Concrete 17:178-81 D '20
 Light load buildings of reinforced concrete. il diags Concrete 19:89-92 S '21
 Protection of concrete buildings against damp. diags Eng & Contr 52:756-7 D 31 '19
 Ventilation of concrete buildings. E. L. Joseph. Can Eng 39:181-3 Jl 22 '20
See also Concrete construction; Concrete houses; Garages, Concrete; Silos, Concrete; Warehouses, Concrete

Concrete cars. *See* Freight cars, Concrete

Concrete construction

- Armstrong shipyard; main office building. il diags plans (supp) Engineering 109:468, 469-72 Ap 9 '20
 Ashmore engine terminal, Lehigh Valley R. R. il diags plans Rx R 66:904-5 Je 5 '20
 Auto body plant built of reinforced concrete; Fisher body Ohio co.'s new plant. V. E. Winell. il plan Concrete 18:160-4 Ap '21
 Beams vs. trusses for pier shed. L. C. Jordan; G. W. True. diags plan Eng N 85:375-6 Ag 19 '20
 Better building methods. L. S. Keir. diag Bldg Age 43:28-9 Mr '21
 Brown Lipe gear building construction involves unusual features. W. H. Barney. il Concrete 18:171-3 Ap '21
 Build Brighton Beach bath houses of precast slabs. diags plans Concrete 15:224-6 D '19
 Building a model textile plant of concrete at Somersworth, N. H. il Concrete 18:144-5 Mr '21
 Building for Transport service co., inc., Long Island City, N.Y. il diags plans Am Arch 119:429-33 Ap 6 '21
 Chicago electrification and elevation on C., M. & St P. Ry. il diags Eng N 85:1226-30 D 23 '20
 Coaling station of pre-cast concrete construction. il diag Ry Age 71:354 Ag 20 '21
 Concrete and stucco in Stockton baths. G. Allen. il Concrete 17:91-3 S '20
 Concrete and the building crisis; advantages which have led to adoption of this structural type. R. G. Skerrett. Sci Am 123:398-9+ O 16 '20
 Concrete bathtub makes contented hogs. il diags Metal Work 93:210 F 13 '20
 Concrete coaling station. il diags Engineer 132:271-3 S 9 '21
 Concrete construction in the tropics. B. P. Floyd. il Concrete 18:173-5 Ap '21
 Concrete flax rettery in Belgium. W. W. Hay. diag Concrete 17:127 O '20
 Concrete in irrigation systems. A. J. R. Curtis. il Pop Mech 36:657-60 N '21
 Concrete in water works construction. A. C. Irwin. il Can Eng 38:142-7 Ja 15 '20; Same cond. Am Water Works Assn J 7:203-11 Mr '20
 Concrete job mechanical; building the substructure for the New York county court house. il diags plan Pub Works 50:5-8, 26-9 Ja 1-8 '21; Same. Eng & Contr 55:75-8 Ja 26 '21
 Concrete materials and construction. L. N. Edwards. il Can Eng 39:177-81 Jl 22 '20
 Concrete replaces wood as frame of existing warehouses. il diags plan Eng N 85:261-2 Ag 5 '20
 Concrete work. W. K. Hatt and W. C. Voss. 451p Wiley '21
 La construction des réservoirs en béton armé à l'aide de formes et d'échafaudages mobiles. il diags Génie Civil 78:441-2 My 21 '21
 Construction work by cement gun methods. A. J. White. il Eng Soc W Pa 36:109-30 Mr '20; Excerpts. Sci Am M 2:249-53 N '20; Discussion. Eng Soc W Pa 36:131-44 Mr '20
 Details of various types of concrete construction for dwelling houses. il diags plans Concrete 16:29-36 Ja '20
 Diversified construction on a cement plant job. il diags plans Concrete 16:94-7 F '20
 Double-deck freight station in six-story building. diags plans Eng N 85:732-6 O 14 '20
 Duties of a young engineer on the construction of a hydro-electric plant. H. S. Slocum. il diags plans Can Eng 38:375-84 Ap 15 '20
 Elementary concrete construction. L. H. Baxter. 101p Bruce pub. co., Milwaukee '21
 Éléments de constructions en béton armé avec armatures à enveloppes tubulaires. H. Ferron. diags Génie Civil 76:514-15 Je 5 '20
 Elliptical vaulting as primary factor in contemporary architecture. M. S. R. Adams. il Eng & Contr 53:353-4 Mr 31 '20
 Engine foundation. diags Locomotive 33:164-75 Ap '21

Concrete construction—Continued

- Extension to Dunlop tire co.'s plant, Toronto. il diags plans Can Eng 40:259-63 Mr 3 '21
- Falsework for a big dam; Warm Springs dam, Oregon. J. F. Springer. il Sci Am 124:204+ Mr 12 '21
- Fewer design units—cheaper construction. Concrete 16:146-8 Mr '20; Same. Eng & Contr 53:609-11 My 26 '20
- First modern grain elevator in Australia. il diags plans Eng N 85:114-18 Jl 15 '20
- Good progress in concreting at Taylorsville outlet works; with organization chart and cost tables. il Concrete 18:213-16 My '21
- Grounds about the house; concrete sunken garden. A. Marple. il Bldg Age 43:23-4 Je '21
- High line construction for the Kansas City passenger terminal. il diags maps Ry R 67:263-9 Ag 21 '20
- Hyman tannery building, London, Ont. R. E. W. Hagarty. il Can Eng 38:495-7 My 27 '20
- The know how of concreting. H. C. Campbell. 127p Sheldon mfg. co., Nehawka, Neb. '21
- Largest concrete loft building on Manhattan Island. W. F. Lockhardt. il diags plan Concrete 18:165-8 Ap '21
- Long span concrete arches used in garage. il diags plan Am Arch 117:743-7 Je 9 '20
- Machine-made reinforced concrete houses and other structures. F. G. Engholm. il diags plan Can Eng 40:337-42 Mr 31 '21
- Machine shop extensions at Witton works. il Engineer 129:558 My 28 '20
- Million and a quarter yard concrete job was carried on rapidly at Wilson dam. il diags plan Eng N 86:536-41 Mr 31 '21
- Minimum of forms and equipment on this house job. A. P. Rounds. il diags plans Concrete 18:21-3 Ja '21
- Modern practice in reinforced concrete construction. il diags plans Am Arch 119:177-85 F 16 '21
- Monolithic concrete houses. Can Eng 38:451-3 My 6 '20
- New facts and studies on concrete. Eng N 86:348-9 F 24 '21
- New graving docks at Portsmouth, Va. H. S. Taft. il Int Marine Eng 25:647-50 Ag '20
- New material used in manufacturing building at Newark, N.J. il diags plans Am Arch 118:255-60 Ag 25 '20
- New type of cotton mill; mushroom concrete construction. il Textile World 57:1208-9+ F 7 '20
- New York city adopts rules governing reinforced concrete flat slab design and construction. diags Am Arch 118:89-93 Jl 21 '20; Same abr. Eng & Contr 54:89-91 Jl 28 '20; Same. Eng N 85:300-2 Ag 12 '20
- New York's new concrete skyscraper; Hide and leather realty building. C. W. Van Dyke. il Concrete 18:256-9 Je '21
- Le nouveau cirque de Copenhagen, en béton armé. il diags plan Génie Civil 76:273-5 Mr 13 '20
- Novel concrete arches for garage roof supports. G. E. Warren. il diags Concrete 16:210-12 My '20
- Philadelphia's sewage disposal system. J. F. McClarren. il diags plans Concrete 17:109-16 O '20
- Pier 18, Jersey City. il Pub Works 48:252-4 Mr 27 '20
- Precast concrete roof trusses in Panama pier shed. G. W. True. il diags plans Eng N 84:1232-8 Je 24 '20
- Precast slabs set on submerged concrete piles; unit construction plan for seaplane landing in San Francisco. il diags plan Eng N 86:984-5 Je 9 '21
- Prest-o-lite buildings of flat-slab construction. il diags plan Can Eng 39:189-94 Jl 29 '20
- Progress on new Welland ship canal. il diags plans (supp) Can Eng 39:319-30 S 9 '20
- Rapid construction of concrete apartment houses. J. B. Woods. il Concrete 17:156-7 N '20
- Record time in garage alterations. C. C. Alley. il Concrete 19:161-2 O '21

- Reinforced concrete cattle shed of Bourbon stock yards, Louisville, Ky. G. A. Brink. il Eng & Contr 56:179-80 Ag 24 '21
- Reinforcing foundation walls to avoid cracks. B. G. Best. il diags Concrete 19:97-9 S '21
- Schuylkill Valley hosiery mills. il Textile World 59:1853+ Mr 12 '21
- Six stories added to reinforced-concrete building. W. H. Wheeler. il diags plan Eng N 86:585-7 Ap 7 '21; Abstract. Concrete 19:65-6 Ag '21; Discussion. Eng N 86:825, 1005, 1133 My 12, Je 9, 30 '21
- Snapshots of concrete construction in France. S. Warren. il Concrete 17:93-5 S '20
- Some problems in concrete construction. W. K. Hatt. Munic Eng 60:182-7 My '21
- Special features of Imhoff tank construction. G. B. Gascoigne. il diags plan Munic Eng 60:135-40 Ap '21
- La station radiotélégraphique Lafayette à Croix-d'Hins, près Bordeaux; foundations en béton armé des pylônes de l'antenne. H. de la Noë. il diags Génie Civil 79:32-5 Jl 9 '21
- Successful building in stucco. il diags Am Arch 118:61-4 Jl 14 '20
- Texas houses combine precast and monolithic construction. S. B. Moore. il diags plans Concrete 16:249-54 Je '20
- To turn war debris into houses. M. D. Morrill. il Concrete 19:69-70 Ag '21
- Washington university stadium. il Concrete 18:282-3 Je '21
- Well designed elevators offer good field for concrete contractors. A. J. R. Curtis. il map Concrete 18:268-71 Je '21
- Worumbo mfg. co. builds new mill, dye-house, garage, etc., Lisbon Falls, Maine. W. H. Nye. il diag plan Textile World 59:1129+ F 5 '21

See also Arches, Concrete; Barges, Concrete; Breakwaters, Concrete; Bridges, Concrete; Column footings; Concrete; Concrete, Reinforced; Concrete blocks; Concrete brick; Concrete houses; Concrete lining; Concrete mixing; Concrete piling; Concrete placing; Concrete plants; Concrete slabs; Concrete staves; Concrete stone; Concreting; Culverts, Concrete; Curbs; Dams, Concrete; Dipping vats, Concrete; Fireproof construction; Floors, Concrete; Flumes, Concrete; Freight cars, Concrete; Garages, Concrete; Igloos, Concrete; Poles, Concrete; Refuse incinerators, Concrete; Reservoirs, Concrete; Retaining walls, Concrete; Roofs, Concrete; Sewers, Concrete; Ships, Concrete; Silos, Concrete; Stairways, Concrete; Standpipes, Concrete; Tanks, Concrete; Towers, Concrete; Trestles, Concrete; Trusses, Concrete; Walls, Concrete; Warehouses, Concrete; Wharves, Concrete

Contraction

- Contraction in long buildings. O. H. Menger and E. V. Meyer. diags Concrete 17:60-2 Ag '20

Cost

- Analysis of cost of elements entering into construction of a reinforced concrete building. J. M. Oxley. diag plan Eng & Contr 55:177-80 F 23 '21
- Concrete vs. brick for mill building walls. il diags Concrete 19:117-18 S '21
- Cost trend of concrete and mill buildings. C. F. Dingman. Concrete 18:159 Ap '21
- Costs of concrete and organization employed on the Taylorville works of Miami conservancy district. il chart plans Eng & Contr 55:152-4 F 16 '21
- Finding cost of concrete work. G. C. Habicht. Bldg Age 43:32-3 Ag '21
- Graphic building costs. C. E. Patch. Eng & Contr 54:84 Jl 28 '20
- Method and cost of constructing 1¼ mile concrete flume with cement gun. R. G. Clifford. il Eng & Contr 53:654-5 Je 9 '20
- Progress and costs on Erie, Pa. flood control project. F. Gannett. il Eng N 84:852-4 Ap 29 '20

Concrete construction—Cost—Continued

Use of portable track and cars in concrete construction. W: W. Hay. Concrete 17:128-30 O '20

See also Concrete houses—Cost; Walls, Concrete—Cost

Design

Architectural expression in concrete. F. J. Helmle. il diags plans Arch Forum 34:11-16 Ja '21

Les bétons légers et les records de la grande construction. C: Rabot. Génie Civil 76:256-8 Mr 6 '20

Bond stresses in reinforced concrete footings. I. F. Morrison. diag Can Eng 39:623-4 D 23 '20

Cellular flat slabs lighten concrete building; Noyes-Buick automobile building on Commonwealth ave., Boston. O. S. Hussey. il diags plans Eng N 85:776-80 O 21 '20

Codes show great divergence in concrete unit stresses. Concrete 17:213-14 D '20

Combined stresses on reinforced concrete sections. E. Montgomery. diags Can Eng 40:331 Mr 24 '21

Concrete-beam diagram with top and bottom steel. A. G. Hayden. diags Eng N 84:634-5 Mr 25 '20

Concrete cantilever construction in Chicago garage. diags plan Eng N 85:609-11 S 23 '20

Concrete designers' manual. G: A. Hool and C: S. Whitney. 276p McGraw-Hill '21

Concrete shear values proposed to concrete institute. diags Eng N 84:465-9 Mr 4 '20

Concrete shipping pier at Panama has novel design. G. W. True. il diags plan Eng N 83:912-16 N 27 '19

Concrete T-beam diagram permits direct designing and checking. A. V. Karpof and V. T. Givotovsky. diag Eng N 87:520-1 S 29 '21

Construction details of General motors office building. J. Matte, jr. il diags plans Eng N 86:624-30 Ap 14 '21

Construction joints in concrete girders of 62½-ft. span. il diags plan Eng N 87:348-50 S 1 '21; Discussion. 87:620-1 O 13 '21

Curves for design of beams and slabs. C. N. Haggart. Concrete 18:235-6 My '21

Curves for the design of reinforced concrete floor slabs. Canfield engineering co., Des Moines, Ia. '21

Design of a long-span reinforced concrete girder. A. E. Wynn. diags plans Engineering 109:777-8 Je 11 '20

Design of column and wall forms. E. F. Rockwood. chart Eng & Contr 55:528-9 My 25 '21

Design of reinforced concrete beams. E: F. Hammel. diags Bldg Age 43:47-9 N '21

Design of simple reinforced concrete structural members. H. W. Barker. diags Concrete 18:123-5, 250-1, 285-7; 19:73-4 Mr, My-Je, Ag '21

Designing the reinforced concrete T-beam. E. A. Kunz. diag Bldg Age 42:26-8 D '20

Détermination rapide des dimensions à donner aux poutres en béton armé. H: Kampmann. Génie Civil 76:470-2 My 22 '20

Diagram for flat slab design. O. Wolpert. chart Eng & Contr 54:411 O 27 '20; Same. Concrete 17:142-3 N '20

Diagrams for designing reinforced concrete chimneys. F. E. Hertel. diags Eng N 86:803-4 My 12 '21

Graphical method for determining the proportions of reinforced concrete T-beams. G. I. Cope. Engineering 111:215 F 25 '21; Same. Min & Met 172:44-5 Ap '21; Same. Eng & Contr 55:635 Je 29 '21

Grid flat slab floor system. W. L. Cronin. il Arch & Bldg 52:8-10 Ja '20

New joint committee and standard reinforced concrete design. E: Godfrey. diags Eng & Contr 54:423-4 O 27 '20

Novel design features in Stromberg motor devices building. G. E. Warren. il diags plans Concrete 17:36-42 Ag '20

Noyes-Buick building. H: F. Bryant. il diags map plans Am Arch 119:207-11+ F 23 '21

Present status of reinforced concrete design. F. G. Engholm. il diag Can Eng 38:151-5 Ja 22 '20

Rectangular beam design diagram. A. V. Karpov, C. E. Givotovsky and V. T. Givotovsky. Concrete 19:153-4 O '21

Reinforced concrete design standards. E: Godfrey. diags Concrete 17:85-9 S '20

Reinforced concrete design standards. C. A. P. Turner. il diags Concrete 17:152-5 N '20; Discussion. 17:205-6; 18:73 D '20, F '21

Reinforced concrete sawtooth slab design. J. W. Pearl. diag Concrete 17:163-4 N '20

Rigid frame construction for Machinery & foundries, ltd., Brockville, Ont. il diags plans Can Eng 40:391-5 Ap 21 '21; Excerpt. Eng & Contr 55:521-2 My 25 '21

Shear in reinforced concrete; Mr Godfrey issues a challenge. E: Godfrey. diags Eng N 85:425-6 Ag 26 '20

Simple designing of double reinforced concrete beams. R. R. Martel. diag Eng N 84:880 Ap 29 '20

Tests on high tension steels in reinforced concrete design. H. K. Dyson. Eng & Contr 55:653-5 Je 29 '21

Torsion on rectangular cross-sections. C. R. Young. diags Can Eng 40:315-18 Mr 24 '21; Excerpts. Eng & Contr 55:415-16 Ap 27 '21

Estimates

Estimating amounts of material in concrete. R. W. Crum. Eng & Contr 56:106-8 Ag 3 '21

Estimating concrete buildings. C. W. Mayers. 51p Aberthaw construction co., Boston '20

Estimating the cost of a concrete building. J. Fruchtbaum. Concrete 17:83-4 S '20

See also Concrete construction—Tables, calculations, etc.

Expansion joints

Expansion in concrete structures. P. Didier and others. Concrete 16:175 Ap '20

Expansion joints for Rouge river bridge. diag Eng & Contr 55:290 Mr 23 '21

Expansion joints in buildings. G. W. Maker. Concrete 17:195 D '20

Expansion rollers under large concrete girders in Roosevelt road viaduct, Chicago. M. Grodsky and F. W. Shaw. diags Eng & Contr 55:284-5 Mr 23 '21

Ingenious transverse expansion joint for reinforced concrete building. diags Eng & Contr 55:288 Mr 23 '21

Joints and slabs in concrete walks. C. McGrath. diags Concrete 18:266-7 Je '21

Providing for expansion in large concrete buildings. G. W. Maker. Concrete 17:165 N '20

Failures

Collapse of basin wall and roof at Toledo. il diags Eng N 85:537-9 S 16 '20

Concrete building failures. E: Godfrey. diag Concrete 18:70-3 F '21

Failures in concrete construction. R. E. W. Hagerty. Can Eng 38:411-12 Ap 22 '20

Failures in concrete construction. T. D. Mylrea. Can Eng 38:417-18 Ap 29 '20

Form settlement causes concrete building collapse; report on Salina, Kan., Masonic temple. il diags Eng N 87:432-6 S 15 '21

Masonic temple falls during construction. il Eng N 87:165 JI 28 '21

Ocean pier to be scrapped because of concrete disintegration. il diags Eng N 84:621-3 Mr 25 '20

Remedying troubles in concrete foundations. Coal Age 20:342-3 S 1 '21

Steel in concrete construction in sea water. J. L. Harrison. il Concrete 15:236-9 D '19; Excerpts. Eng & Contr 53:94-5 Ja 28 '20

See also Culverts, Concrete—Failures

Fire resistance

Behavior of reinforced concrete columns under fire test. W. A. Hull. il Am Arch 116:561-6, 589-94 O 29-N 5 '19

Causes of failure of concrete in fire. A. M. Schoen; I. H. Woolson. Concrete 17:35 JI '20

Effect of fire on concrete in warehouse at Galveston. il Eng N 85:980-3, 1101-2, 1298; 86:353 N 18, D 2, 30 '20, F 24 '21

Concrete construction—Fire resistance—Cont.

- Effect of high temperature fire on concrete building. *il diags plans Eng N 86:760-3 My 5 '21*
 Effects of fire on concrete. *Sci Am 125:223 S 24 '21*
 Fire-resistance of concrete block and brick. J. E. Freeman. *Concrete 18:231-2 My '21*
 Fire tests of concrete columns. W. A. Hull. *Concrete 16:172-4 Ap '20*
 More light on protecting concrete against fire. *Eng N 84:469-70 Mr 4 '20*
 N.F.P.A. gives new recognition to concrete. *Concrete 16:278 Je '20*
 Report of committee on fireproofing of the American concrete institute. *Can Eng 38:505-6 My 27 '20*; *Same. Eng & Contr 53:717 Je 23 '20*

Forms

- Brandt system of wall construction. *il diags Concrete 19:37-8 Jl '21*
 Collapsible forms used in pouring walls of deep circular pits. *il Eng N 84:1030 My 20 '20*
 Concrete elevator construction by the slip form method. C. R. Connaghan. *il Concrete 17:196-7 D '20*
 Concrete forms and surface treatment. T. T. Black. *il Can Eng 40:239-43 F 24 '21*; *Abstract. Eng & Contr 55:279 Mr 23 '21*
 Concrete river wall poured inside large steel form. *il diag Eng N 87:716-19 N 3 '21*
 Concrete tankers built with slip forms. *il Concrete 17:198-200 D '20*
 Cutting labor costs on double-wall concrete houses. H. W. Remington. *il diags Bldg Age 43:21-3 S '21*
 Form design for Miami flood-control dam conduits. *diags Eng N 84:430 F 26 '20*
 Lay concrete channel lining with large traveling form. *il diags Eng N 84:1056-8 My 27 '20*
 Movable form used on channel-concreting job. A. P. Child. *il Pop Mech 35:720-1 My '21*
 New system of concrete construction making use of standard wood forms. *il Bldg Age 42:23-5 D '20*
 New system of forms for concrete house construction. *diags Eng & Contr 55:328-9 Mr 30 '21*
 Pressure of concrete in forms. G. Paaswell. *Eng & Contr 53:208-9 F 25 '20*
 Pressure of green concrete against forms. E. B. Smith. *il diags plan Concrete 16:158-61 Mr '20*; *Same. Can Eng 38:321-3 Mr 25 '20*; *Same. Eng N 84:665-7 Ap 1 '20*; *Same. Eng & Contr 53:480-1 Ap 28 '20*
 Self-sustaining forms for concrete casing of steel girders. C. A. Peck. *diag Eng N 84:688 Ap 1 '20*
 Sliding form for lining Chippawa power canal. *il Eng N 87:20-1 Jl 7 '21*
 Sliding forms for concrete wall construction. *diag Ry R 66:697-8 Ap 24 '20*
 Slip form for circular concrete construction. *il plan Eng & Contr 53:722 Je 23 '20*
 Steel forms for concrete columns and floor slabs; Columbia graphophone company's new seven-story structure in Baltimore. *il Am Arch 119:332-4 Mr 16 '21*
 Systems of monolithic concrete house construction. *diags plans Eng & Contr 54:179-82 Ag 25 '20*
 Using 1¾-in. plank for flat slab floor forms. J. E. Gurvin. *il diags Eng N 87:400 S 8 '21*
 Wood forms for concrete silos. J. B. McQueen. *diags plan Concrete 18:272-3 Je '21*

Inspection

- Inspection of concrete. B. Brown. *diags Arch Forum 32:83-4 F '20*
 Inspection of construction in concrete and steel. E. E. Seelye. *Am Arch 120:163-7 Ag 31 '21*
 Inspection of workmanship in concrete construction. R. W. Crum. *diags Eng & Contr 53:706-10 Je 23 '20*

Specifications

- Joint committee's tentative concrete specifications. *Eng N 87:68-71 Jl 14 '21*

Standards

- Standardization of units of design. *Concrete 18:117-18 Mr '21*

Tables, calculations, etc.

- Détermination rapide des dimensions à donner aux poutres en béton armé. H. Kampmann. *Génie Civil 76:470-2 My 22 '20*
 Règle logarithmique, système Rieger, pour le calcul des constructions en béton armé. J. Rieger. *diags Génie Civil 79:6-9 Jl 2 '21*
 Rod method of determining unit weight of concrete aggregate. *Eng & Contr 53:602 My 26 '20*
 Short cuts for calculating and estimating reinforced concrete. M. S. Farwell. *charts Am Arch 119:251-4 Mr 2 '21*
 Slab form design data. *Concrete 19:80-1 Ag '21*
 Standard method of measurement for reinforced concrete. *Eng & Contr 54:297 S 29 '20*
See also Concrete construction—Estimates
Concrete construction, Military
 Concrete structures in German defenses. R. R. Cameron. *il Concrete 16:218-24 My '20*
 Notes on battle-front concrete. R. B. Lammen. *Concrete 17:210 D '20*
Concrete construction, Subaqueous
 Caisson system of reinforced concrete jetty construction at Cape Thevenard, South Australia. E. G. Stone. *diags plan Eng & Contr 55:320-1 Mr 30 '21*
 Method of constructing cofferdams for Key Bridge, Washington. J. T. Tolman. *il diags plan Eng & Contr 53:332-4 Mr 24 '20*
 Methods of placing concrete under water. H. R. Lordly. *il diags Eng & Contr 53:571-3 My 19 '20*
 New intake and sedimentation basin at Sarnia, Ont. F. W. Thorold. *il plans Can Eng 38:413-16 Ap 29 '20*; *Excerpt. Eng & Contr 53:670 Je 9 '20*
 Pearl harbor dry dock pump well large precast unit. R. W. Gaylord. *il diags plan Eng N 83:861-4 N 13 '19*
Concrete construction in mines
 Alteration in a ventilation shaft. J. H. Stovel. *il diag plan Eng & Min J 111:96-7 Ja 15 '21*
 Building reinforced-concrete shaft houses. J. E. Hayden and L. Eaton. *il diags Min & Met 164:25-6 Ag '20*
 Concrete overcast where rods in part replace rails, lowering cost. *diags Coal Age 18:735 O 7 '20*
 Concrete shaft houses at Ishpeming iron mines. J. E. Hayden and L. Eaton. *il Concrete 17:191-3 D '20*
 Concreting the Chief consolidated shaft at Eureka, Utah. R. D. Gardner. *il diags Eng & Min J 110:460-2 S 4 '20*
 Engineers and architects in artistic collaboration. A. T. North. *il diags Am Arch 118:783-7+ D 15 '20*
 Ferro-concrete pithead frame at Bentley colliery, Doncaster. *il diags Engineering 110:499-501, pl 63 O 15 '20*; *Excerpts. Min & Met 168:42-3 D '20*
 Lining a shaft with concrete and gunite without interfering with operation. R. H. Gillespie. *diags Coal Age 20:287-90 Ag 25 '21*
 New concrete shaft of the Chief consolidated mining company. A. B. Parsons. *il diags plan Min & Sci P 122:595-600 Ap 30 '21*
 Sinking and concreting of Pyne and Songa shafts. J. H. Stovel. *il diags Eng & Min J 111:698-701 Ap 23 '21*
 Triple compartment concrete-lined mine shaft. V. Brothers. *il diags Concrete 17:124-7 O '20*
Concrete construction in winter
 Beating the overhead in winter. H. C. Campbell. *il Bldg Age 42:54-6 D '20*
 Close regulation makes winter concreting safe. G. A. Stockhus. *Eng N 84:197-8 Ja 22 '20*
 Concrete construction in zero weather. *il Eng & Contr 54:518 N 24 '20*
 Concreting in cold weather. *Am Arch 120:326-7 O 26 '21*

Concrete construction in winter—Continued

- Concreting in freezing weather. A. J. R. Curtis. Can Eng 39:472+ O 28 '20
- Concreting in winter. R. K. Turner. Arch Forum 32:39-40 Ja '20
- Doing concrete work in freezing weather. T. S. Burns. diag Pop Mech 33:286 F '20
- Don't stop work when the mercury drops. il Bldg Age 42:56-7 F '20
- Great Alaskan bridge built during coldest weather. il diags Ry Age 71:103-5 Jl 16 '21
- Hyman tannery building, London, Ont. R. E. W. Hagarty. il Can Eng 38:496-7 My 27 '20
- Method of protecting concrete in zero weather construction operations. diag Eng & Contr 53:297 Mr 17 '20
- Novel method of heating aggregates for cold weather paving job. diags Eng & Contr 54:447 N 3 '20
- Protecting concrete from frost. Pub Works 49:464-6, 493-4, 520-2 N 13-27 '20
- Reinforced concrete coal tipple built in winter. H. B. Cooley. il Concrete 19:16-17 Jl '21
- Studies on cooling of fresh concrete in freezing weather. T. Yoshida. diags Ill U Eng Exp Sta Bul 123:1-63 '21; Excerpts. Eng & Contr 56:474-8 N 23 '21
- Twelve month year in construction; important buildings put up during winter. G. E. Warren. il Concrete 17:136-41 N '20
- Winter concreting offers advantages to owners. A. E. Wells. Concrete 15:205 N '19; Same. Eng & Contr 52:471-2 O 22 '19; Same. Heat & Ven 16:33-4 N '19; Same. Textile World 56:2737 N 1 '19
- Winter work on a Quebec water-power development. il plan Eng N 86:1122-5 Je 30 '21
- Zero weather construction on Somerset hotel. S. N. Crowen. Concrete 17:190 D '20
- Concrete culverts.** See Culverts, Concrete
- Concrete dams.** See Dams, Concrete
- Concrete dikes.** See Dikes, Concrete
- Concrete fish troughs.** See Fish troughs, Concrete
- Concrete floors.** See Floors, Concrete
- Concrete flumes.** See Flumes, Concrete
- Concrete footings.** See Column footings, Concrete
- Concrete garages.** See Garages, Concrete
- Concrete gun**
Tunnel concrete lining placed by pneumatic gun. W. D. Shannon. il diags Eng N 87:14-15 Jl 7 '21
- Concrete handling**
Aggregates for concrete road job supplied by hydraulic plant. il Eng & Contr 55:209 Mr 2 '21
- Bucket with bottom door speeds concrete work. il Pop Mech 33:89 Ja '20
- Handling aggregate on a Massachusetts road job. A. G. Watt. il Concrete 19:84 Ag '21
- Handling aggregate with a drag scraper. H. W. Walter. il Eng N 85:90 Jl 8 '20
- Handling aggregate with wagon loaders and tractors. il Eng & Contr 55:212 Mr 2 '21
- Handling concrete aggregate. Pub Works 48:240 Mr 27 '20
- Marketing ready-mixed concrete from products plants. A. J. R. Curtis. il Concrete 18:200-1 Ap '21
- Mechanical loader cuts road concreting crew to 13 men. il Eng & Contr 55:9 Ja 5 '21; Same. Concrete 18:93 F '21; Same cond. Eng N 86:170-1 Ja 27 '21
- New concrete materials conveyor. il Good Roads n s 19:74 F 4 '20
- Serving concrete paving mixers from central storage plants. Pub Works 50:454-5 My 28 '21
- Stamp mixer loader for concrete highway work. il diags Pub Works 50:201 F 26 '21
- Tail-gate measuring box minimizes handling of road materials. il Eng N 86:695 Ap 21 '21
- Trestle unloading and storage arrangement for aggregate for concrete road. il Eng & Contr 53:632 Je 2 '20
- Use of portable track and cars in concrete construction. W. W. Hay. Concrete 17:128-30 O '20
- See also Gravel handling
- Concrete houses**
Architecture of the small concrete house. R. B. Williamson. il diags plan Concrete 18:15-19, 61-5 Ja-F '21
- Building monolithic concrete houses on Long Island. F. F. Wilson. il diags plans Concrete 18:33-6 Ja '21
- Cambria steel co. building 100 concrete houses. il diags plans Concrete 19:2-5+ Jl '21
- Concrete block construction at Halifax. il Concrete 16:50-2 Ja '20
- Concrete building units in England. J. T. Stewart. Concrete 18:115 Mr '21
- Concrete bungalow made in two and a half hours. il Pop Mech 36:232-3 Ag '21
- Concrete cottages in England. il plans Concrete 16:44-5, 178 Ja, Ap '20
- Concrete for attractive and permanent dwellings; plates. Concrete 16:15-26 Ja '20
- Concrete house. R. P. Blake. Sci Am 122:161 F 14 '20
- Concrete house and its status as regards building codes. F. W. Lumis. Arch & Bldg 52:76-7 Ag '20; Excerpt. Eng & Contr 53:497 Ap 28 '20
- Concrete house construction at Valley View development of Ingersoll-Rand co. il diags plans Eng & Contr 55:89-90 Ja 26 '21
- Concrete house progress. H. Whipple. il plans Concrete 18:1-2 Ja '21
- Concrete houses. Engineering 111:526-7 Ap 29 '21
- Concrete houses at Dairen, South Manchuria. T. Tanaka. diags plans Concrete 18:237-8 My '21
- Concrete houses in France and Italy. il Concrete 17:159-60 N '20
- Concrete houses on Long Island, N.Y. il plans Concrete 17:31-3 Jl '20
- Concrete withstands hurricane. H. N. Mottern. il Concrete 16:46 Ja '20
- Cutting labor costs on double-wall concrete houses. H. W. Remington. il diags Bldg Age 43:21-3 S '21
- Details of various types of concrete construction for dwelling houses. il diags plans Concrete 16:29-36 Ja '20
- Development of concrete for housing in England. il diags Concrete 18:279-81 Je '21
- Easy-to-keep house. M. D. Morrill. diags plans Concrete 16:37-42 Ja '20
- Elliott system houses built of pre-cast pan-shaped units. il diags plan Concrete 18:41-2 Ja '21
- First Portland cement concrete houses. W. H. Pope. il Concrete 19:122 S '21
- Four concrete houses in Syracuse. H. Whipple. il diags plans Concrete 18:3-7, 106 Ja, Mr '21
- German concrete houses poured to full height in one operation. il Eng N 87:201 Ag 4 '21
- Houses by the bucketful. F. H. Hazard. il Sci Am 121:553 D 6 '19
- How a woman builds houses to sell at a profit for \$4,000. K. Gleason. il diags plans Concrete 18:8-14 Ja '21
- How France is building new and better low-cost houses. M. D. Morrill. il diags plans Bldg Age 43:36-8 S '21
- How will the individual builder get a concrete house? H. Whipple. Concrete 16:1-2, 27-8 Ja '20
- Living in concrete houses. W. E. Andrews and others. il diags Concrete 16:3-7 Ja '20
- Low labor cost on Milwaukee double wall house. il plan Concrete 18:25-6 Ja '21
- Machine-made reinforced concrete houses and other structures. F. G. Engholm. il diags plan Can Eng 40:337-42 Mr 31 '21
- Monolithic concrete houses. Can Eng 38:451-3 My 6 '20
- Le moulage en usine de maisons en béton et leur transport sur le terrain d'édification. il Génie Civil 79:66 Jl 16 '21
- National conference on concrete house construction, Chicago, Feb. 17-19. Am Arch 117:229-30 F 18 '20

Concrete houses—Continued

- New method of gunite wall construction reduces cost to fifty cents per square foot. R. H. Gillespie. *il diag Can Eng* 38:480-2 My '20
- New system of gunite building wall construction. *il Eng & Contr* 53:592-4 My '20
- Notes on the concrete housing conference, Chicago. *il plans Arch Forum* 32:123-6 Mr '21
- One-piece house; Simon Lake's scheme for producing ready-to-live-in concrete unit dwellings and transporting them to the site. H. A. Mount. *il Sci Am* 124:424-5 My '21
- Patterson double wall and floor system. *il diags Concrete* 19:118 S '21
- Plans of a six-room colonial cottage. *il plans Concrete* 19:29 J1 '21
- Plastered or concrete gun types of concrete houses. *Eng & Contr* 53:325 Mr '20; Same. *Can Eng* 38:361-2 Ap '20
- Recommended practice for concrete house construction; report of committee of American concrete institute. *Concrete* 18:114-15 Mr '21; Same *abr. Eng & Contr* 55:278 Mr '21
- Reinforced concrete bungalow supported by round columns. B. R. Canfield. *il diags plan Concrete* 18:146-7 Mr '21
- Small concrete houses—attractive, quickly built and low in cost. *il diags plans Bldg Age* 43:24-6 Ag '21
- Solving the concrete house design problem. R. B. Williamson. *Arch & Bldg* 53:56-7, Dwelling house series 11-12 J1 '21
- Southern California home of H. L. Hitchcock, built of double wall concrete. C. M. Winslow. *il plan Concrete* 19:54-7 Ag '21
- Systems of monolithic concrete house construction. *diags plans Eng & Contr* 54:179-82 Ag '20
- Texas houses combine precast and monolithic construction. S. B. Moore. *il diags plans Concrete* 16:249-54 Je '20
- Type of double-walled concrete construction suitable for small homes. *il diags plan Bldg Age* 42:38-41 My '20
- See also* Concrete construction; Floors, Concrete; National conference on concrete house construction

Cost

- Acme system hollow wall houses. *il diags Concrete* 18:40-1 Ja '21
- Concrete house costs 12 per cent. more than frame. *il plan Concrete* 19:67-8 Ag '21
- Costs on steel formed houses in Massachusetts. L. H. Allen. *il Concrete* 18:23-4 Ja '21
- Further cost and construction notes on Ingersoll system houses. *il Concrete* 18:27-30 Ja '21
- Quantity construction of houses cheaper with concrete. *diags plans Concrete* 16:176-7 Ap '20
- Concrete housing conference.** *See* National conference on concrete house construction
- Concrete institute, American.** *See* American concrete institute
- Concrete lining**
- Circular forms and tamped concrete hold swelling tunnel ground; San Pablo tunnel. *diag Eng N* 86:737 Ap '21
- Concrete for lining railroad tunnel poured through 50-ft. drill holes. *il diag Eng & Contr* 54:159-60 Ag '20
- Concrete lined irrigation canals; with cost tables. A. N. Burch. *il diag plans Concrete* 16:244-6 My '20; *Excerpt (table). Eng & Contr* 53:556 My '20; *Eng N* 84:975 My '20
- Concrete lining for cast iron tunnel. *il Pub Works* 49:247-9, 471-3, 511-12 S 18, N 20-27 '20
- Lay concrete channel lining with large traveling form. *il diags Eng N* 84:1056-8 My '20
- Lining a 20 foot well, 50 feet deep. *Pub Works* 50:507-9 Je '21
- Lining canals with concrete without forms. K. Sanborn. *il diag Concrete* 17:167-9 N '20

- Lining irrigation canals with concrete without forms. F. Cuttle. *il Eng N* 85:17-18 J1 '20
- Lining rock tunnels in New York. *il Pub Works* 49:185-7 Ag '20
- Method of lining irrigation canal with reinforced concrete. *il Eng & Contr* 53:35 Ja '20
- Method of lining the Connaught tunnel of Canadian Pacific Ry. *il Eng & Contr* 55:393-4 Ap '21
- Methods and costs of constructing tunnel for heating and power lines. W. C. Huntington and W. E. Brockway. *diags map Eng & Contr* 53:459-62 Ap '21
- Movable form used on channel-concreting job. A. P. Child. *Pop Mech* 35:720-1 My '21
- Operation and maintenance of the Gunnison irrigation tunnel. F. D. Pyle. *diags Eng & Contr* 54:231-2 S 8 '20
- Placing concrete membrane lining in Herron Hill reservoir by cement gun. *il diag Eng N* 85:1043-5 N '20
- Plant and equipment for lining the Selkirk tunnel. *il Eng N* 86:418-20 Mr '21
- Relining a leaky park lake with gunite. D. J. Baker. *il Eng N* 85:410-11 Ag '20
- Relining Pacific coast railroad tunnels with concrete. *il diag Eng N* 87:134-7 J1 '21
- Taylorville dam controlling conduits. *il diag Pub Works* 48:464-6 My '20
- Tunnel lining continued beyond portals for protection from slides. *il Eng N* 87:247 Ag '21
- Tunneling and lining the penstocks for the extension to the Niagara Falls power company's station No. 3. G. W. Hewitt. *il Eng N* 85:698-701 O 7 '20; Same. *Can Eng* 39:343-5 S 16 '20
- Tunneling through soft ground. R. W. Jones. *diags Eng & Min J* 111:625-6 Ap 9 '21; Same. *Eng & Contr* 55:583 Je 15 '21
- Water rings in a shaft lined with concrete. *diags Coal Age* 18:295 Ag 5 '20
- See also* Cement gun; Concrete construction in mines; Concrete placing; Gunite
- Concrete mangers.** *See* Mangers, Concrete
- Concrete mixers**
- American concrete mixing machinery. *il Engineer* 130:193-6, 197, 275-6, 343-5, 354, 382-4; 131:60-3 Ag 27, S 17, O 8-15 '20, Ja 21 '21
- Appareil réchauffeur-mélangeur, système Campistrou, pour bétons à liants asphaltiques. *diags Génie Civil* 79:67 J1 16 '21
- Bétonnière aéro-malaxeur. *diag Génie Civil* 78:278 Mr 26 '21
- Care of concrete mixers. L. P. Lessard. *Munic Eng* 60:sup23-4 My '21; Same *abr. Pub Works* 50:437 My 21 '21
- Centrifugal concrete mixer. *il Sci Am* 125:269+ O 15 '21
- Concrete mixer blows cement over wet mix. *il Pop Mech* 36:410 S '21
- Concrete-mixer meter pump regulates water supply. *il Pop Mech* 36:85 J1 '21
- Dunn mixer uses pan and shovel principle. *il Concrete* 17:176 N '20
- Heavy paver shows speed in handling dry mix. *il Concrete* 18:210 My '21
- Horizontal revolving tub features concrete mixer. *il Pop Mech* 35:539 Ap '21
- How a portable mixing plant was used in constructing duct lines. *il Eng & Contr* 55:234 Mr 9 '21
- Improved concrete mixer. *il Bldg Age* 43:47 O '21
- Mixing concrete thoroughly, quickly and correctly. *il Bldg Age* 43:35-7 Mr '21
- Operation and care of concrete mixers. *Pub Works* 51:44-6 J1 16 '21
- Pneumatic concrete mixer for Jap tunnel. *diags Pub Works* 50:452-4 My 28 '21
- Ransome concrete machinery. *il Pub Works* 49:328-30 O 2 '20
- Sprenger process of making concrete; abstract. E. Weiss. *diag Mech Eng* 43:400 Je '21; Same. *Sci Am M* 3:568 Je '21
- Wanted: a table of proportions on the mixer. *Concrete* 17:166 N '20

Concrete mixing

- Analysis of concrete proportioning theories; tests all agree but interpretations differ. Eng & Contr 52:735-8 D 24 '19
- Applying Abrams' water-ratio to proportioning concrete. S. Walker. Concrete 16:261-6 Je '20
- Bureau of standards criticizes Hydro's method of proportioning concrete materials. Can Eng 38:159-61 Ja 22 '20
- Central proportioning successful on Minnesota road. Concrete 19:125 S '21
- Combined washing and mixing plant proportions materials. diag Concrete 16:167-9 Ap '20
- Comparison of the results of the slump test and the flow table in the measurement of the consistency of concrete. W. L. Schwalbe. Eng & Contr 56:79 Jl 27 '21
- Concrete consistency measured by the flow table. G. M. Williams. il Eng N 84:1044-6 My 27 '20; Same. Eng & Contr 53:623-5 Je 2 '20; Same. Good Roads n s 20:77-80+ Ag 18 '20; Same. Concrete 16:274-7 Je '20; Same. Can Eng 38:545-7 Je 10 '20; Abstract. Sci Am 124:353 Ap 30 '21
- Concrete for salt water works. H. C. Boyden. Engineer 131:384-5 Ap 8 '21
- Concrete mixtures in alkali soils. C. J. Mackenzie. Can Eng 38:344-6 Ap 1 '20
- Concrete road mix proportioned at central plant. H. T. Tuthill. il Eng N 86:595-6 Ap 7 '21
- Concrete road work: special reference to available aggregates. A. N. Johnson. Concrete 16:179-83 Ap '20; Same. Good Roads n s 19:182-6 Ap 7 '20; Same. Boston Soc C E J 7:203-15 S '20; Same cond. Eng & Contr 53:514-17 My 5 '20; Discussion. Boston Soc C E J 7:215-22 S '20
- Fineness modulus and surface area methods of proportioning concrete mixtures. G. M. Williams. Eng & Contr 53:96-9 Ja 28 '20; Same. Can Eng 38:133-7 Ja 15 '20
- Getting the correct mixer gang organization. W. R. Basset. charts diag Concrete 16:151-4 Mr '20
- Lose money through improper mixing. E. L. Castile. Concrete 18:293 Je '21
- Marketing ready-mixed concrete from products plants. A. J. R. Curtis. il Concrete 18:200-1 Ap '21
- New concrete proportioning theories put into practice. Eng N 84:6 Ja 1 '20
- New methods of proportioning concrete; abstract, with discussion. R. B. Young. Can Eng 40:263-5 Mr 3 '21
- New methods of proportioning concrete in theory and practice. R. B. Young. diag Boston Soc C E J 8:73-106 Mr '21; Excerpts. Eng & Contr 56:87-91 Jl 27 '21; Discussion. Boston Soc C E J 8:106-8 Mr '21
- New type of mixing plant used on 11-mile concrete paving job in Oregon. R. F. Hoffmark. il plan Eng & Contr 53:116-18 F 4 '20
- Practical application of surface area method of proportioning materials for concrete. R. B. Young. Can Eng 38:101-6 Ja 1 '20; Same abr. Eng N 84:33-7 Ja 1 '20
- Practical scheme for proportioning concrete. G. M. Williams. Eng & Contr 56:184-8 Ag 24 '21
- Presaturated sand facilitates concrete mixing. il Eng N 85:264 Ag 5 '20
- Proportioning and making concrete on Barrett dam. H. N. Savage. il plan Eng N 87:695-7 O 27 '21
- Proportioning concrete. Bldg Age 42:63-4 Ag '20
- Proportioning concrete from study of the aggregate. G. M. Williams; R. B. Young; H. A. Davis. Eng N 84:811-13 Ap 22 '20
- Proportioning concrete on job by exact methods. R. B. Young and T. V. McCarthy. il Eng N 86:456-8 Mr 17 '21; Discussion. 86:867-8 My 19 '21
- Proportioning slag concrete. W. L. Leach. Concrete 17:131 O '20
- Proportioning theories agree, while their interpretations differ. R. B. Young. Concrete 16:184-8 Ap '20
- Proportions for concrete for highway construction. Eng & Contr 54:122 Ag 4 '20
- Proposed method of estimating density and strength of concrete and of proportioning the materials. A. N. Talbot. Eng & Contr 56:306-12 S 28 '21; Same cond. Eng N 87:147-52 Jl 28 '21
- Recent developments in concrete mixtures. H. C. Boyden. diags Ry R 67:778-83 N 20 '20
- Simple means of finding quantity of water required for concrete or mortar. H. G. Lloyd. Eng & Contr 53:750-1 Je 30 '20; Same cond. Eng N 84:1211-12 Je 17 '20
- Void theory revived. Eng N 87:133 Jl 28 '21
- Volume-moisture relation in sand and a method of determining surface area based thereon. R. B. Young and W. D. Walcott. Am Soc T M Pro v 20 pt 2:137-48 '20; Same. Can Eng 38:475-8 My 20 '20; Same. Eng & Contr 54:91-4 Jl 28 '20; Same. Eng N 85:82-4 Jl 8 '20
- Water content affects wear of concrete test pieces. D. Patch. Eng N 86:373 Mr 3 '21
- Wet concrete hauled three miles for pavement base; concrete flows freely after half an hour on the trucks. C. B. Montgomery. plan Eng N 85:885 N 4 '20
- Wet haulage to road excels dry haulage to mixer. il Eng N 85:356-7 Ag 19 '20
- See also Concrete—Aggregate; Concrete mixers; Concrete plants; Gravel handling
- Concrete mixing plants.** See Concrete plants
- Concrete pavements.** See Pavements, Concrete
- Concrete piling**
- Bamboo reinforced concrete piles for bridge foundations. C. J. Carroll. Eng N 87:32 Jl 7 '21
- Bignell-Jones premolded pile. diag Concrete 19:35 Jl '21
- Blumenthal-Gardner concrete piles. il Pub Works 48:341 Ap 17 '20
- Concrete bridge foundation piles. il Pub Works 51:127 Ag 13 '21
- Hollow concrete piling. il Concrete 18:130-1 Mr '21
- How can concrete sheet piles be installed? diags Pub Works 50:41-3 Ja 8 '21
- Long concrete piles built up with cement gun. il plan Eng N 86:420-2 Mr 10 '21
- Murs de quai en pieux-palplanches en béton armé. C. Dantin. il diags Génie Civil 76:425-7 My 8 '20
- New concrete pile system. M. Blumenthal. diags Concrete 16:198-9 Ap '20
- Odd use of paper; cores for cement pilings. D. Phillips. il Paper 27:11 D 22 '20
- Piling that always holds. Factory 25:254+ Jl 15 '20
- Reinforced concrete pile wharf. A. C. Weston. diag Eng & Contr 56:207 Ag 31 '21
- Sprayed-concrete piling has paper-tube core. F. B. Howe. il Pop Mech 35:706-7 My '21
- Test on giant concrete pile. il Concrete 17:21-2 Jl '20
- Wood and concrete piling—an informal discussion. C. R. Gow and others. Boston Soc C E J 7:273-99 D '20; Excerpt (Gow). Eng & Contr 55:62-3 Ja 19 '21
- Concrete pipe association, American.** See American concrete pipe association
- Concrete pipes.** See Pipes, Concrete
- Concrete placing**
- Alkali corroded steel water main protected by concrete; cost tables. G. H. Hand. il Concrete 19:95-6 S '21; Excerpt. Eng & Contr 56:357 O 12 '21
- Belt conveyor used in placing concrete. J. Stearns. il Eng N 87:420 S 8 '21
- Belt conveyors for placing concrete. il Concrete 19:155 O '21
- Concrete chuting plant at Clyde. diag Eng & Contr 52:773 D 31 '19
- Concreting large stock bins. diags Pub Works 51:204-5 S 10 '21
- Concreting small tunnel under difficult circumstances by pneumatic method. diags Eng & Contr 54:486-7 N 17 '20
- Deposition of concrete by chute conveyors. E. A. Cross. il diags plan Engineering 111:479-80 Ap 22 '21

Concrete placing—Continued

- Equipment for constructing concrete buildings. H. C. Johnson. *il Engineer* 128:614, 621 D 19 '19
- Hoist tower plant kink. W: F. Lockhardt. *diags Concrete* 17:195 D '20
- How to concrete a 2 on 1 slope with a slab lining having few joints. *Pub Works* 50:287-8 Ap 2 '21
- Limitations and advantages of spouting concrete. L. C. Wason. *Concrete* 16:143-4 Mr '20; Same. *Eng & Contr* 53:607-8 My 26 '20
- Methods employed in sinking large open caisson. *il diags Eng N* 84:916-18 My 6 '20
- Methods of placing concrete under water. H: R. Lordly. *il diags Eng & Contr* 53:571-3 My 19 '20
- Placing concrete beyond reach of derrick boom. *il Eng & Contr* 55:498 My 18 '21
- Pneumatic concrete mixer for Jap tunnel. *diags Pub Works* 50:452-4 My 28 '21
- Practical hints on erection, operation and maintenance; concrete chuting plants. *il diags Eng N* 87:280-3 Ag 18 '21
- Progress on Queenston-Chippawa power canal. *il Can Eng* 39:347-52 S 16 '20
- Sliding form for lining Chippawa power canal. *il Eng N* 87:20-1 Jl 7 '21
- Tunneling the Selkirks; the pneumatic placing of concrete. *il Sci Am* 125A:50-1 N '21

See also Cement gun; Concrete gun; Concrete plants

Concrete plants

- Aggregate storage plant for winter work. *diags plan Eng & Contr* 53:111-12 Ja 28 '20
- Averages and maximum runs in concrete paving. *il plan Eng N* 86:222-3 F 3 '21
- Central mixing and proportioning plants in National Old Trails road construction in Illinois. *il Eng & Contr* 54:339-42 O 6 '20
- Central mixing for concrete roads. C. S. Hill. *Eng N* 87:636-7 O 20 '21
- Central mixing plant makes new paving record at Big Lake, Minn. *il Munic Eng* 59:sup21-2+ N '20; *Pub Works* 49:434-6 N 6 '20
- Combination central material and mixing plants on Illinois highway work. *il Eng & Contr* 56:333-4 O 5 '21
- Complete road plant in Iowa. *Pub Works* 50:317-18 Ap 16 '21
- Concrete building plant layout for limited room. C. A. Markgraf. *diag plan Eng N* 87:225-6 Ag 11 '21
- Concrete building plant plans. *il plan Eng N* 85:89, 137, 185 Jl 8-22 '20
- Concrete chuting plant for dam laid out in miniature. C. W. Garrison. *il Eng N* 87:231-2 Ag 11 '21
- Concrete for Miami conservancy district work. *il diag Pub Works* 48:487-90 Je 5 '20
- Concrete hauled three miles from central mixing plant. *il Eng N* 87:176-8 Ag 4 '21
- Concrete plant in old canal bed. *Pub Works* 48:270-1 Ap 3 '20
- Concrete road contract has plant for rapid progress. *il diags plan Eng N* 84:28-31 Ja 1 '20
- Concrete road mix proportioned at central plant. H. T. Tuthill. *il Eng N* 86:595-6 Ap 7 '21
- Concreting plant and operations. F. W. Skinner. *il Pub Works* 49:83-5, 109-14 Jl 24-31 '20
- Concreting plant for restricted quarters. *il plan Eng & Contr* 56:319 S 28 '21
- Concreting plant for wall construction. *diags plan Concrete* 16:170-1 Ap '20
- Contractor saves \$25,000 on paving plant then establishes new record. *il Munic Eng* 60:sup28+ F '21
- Contractor's plant for reinforced concrete construction. *plans Concrete* 16:115-20 Mr '20
- Contractor's plant in reinforced concrete building construction. *diags plans Concrete* 18:100-4 Mr '21; *Abstract. Eng & Contr* 55:515-16 My 25 '21
- Contractor's plant on a concrete road job. *il Good Roads n s* 21:164-5 Mr 16 '21
- Details of tower guying methods for concrete chuting plant. *diags Eng N* 84:1270 Je 24 '20

- Economical handling on winter work. *diags plan Concrete* 16:125-6 Mr '20
- Efficient plant for handling concrete on dam. *il diags plan Eng N* 86:752-4 My 5 '21
- Floating plant used in harbor. *il Concrete* 19:149 O '21
- Graphic wattmeter checks gravity plant operation. *il charts Eng N* 86:1067-8 Je 23 '21
- Hamilton block plant, Detroit. *plan Concrete* 19:33 Jl '21
- Handling plant for the construction of the Eel river dam. *diag Eng & Ind Management* 6:281-3 S 8 '21
- How a portable mixing plant was used to solve a construction problem. *il Munic Eng* 60:sup25-6 Mr '21
- Itinerant concrete mixing plants. *il Pub Works* 50:297-8 Ap 9 '21
- Labor saving machinery on Minnesota road contract. G: C. Scales. *il Eng & Contr* 54:118-19 Ag 4 '20
- Mechanical loader cuts road concreting crew to 13 men. *il Eng & Contr* 55:9 Ja 5 '21; Same. *Concrete* 18:93 F '21; Same cond. *Eng N* 86:170-1 Ja 27 '21
- Method of constructing Horicon-Beaver Dam concrete road. *diags Eng & Contr* 56:237 S 7 '21
- Mixing plant designed for long, narrow site. *diags plan Eng N* 85:329 Ag 12 '20
- Mixing plant on motor truck saves cost. *il Concrete* 18:288 Je '21
- Mobile concrete mixing plant. *Sci Am* 123:617+ D 18 '20
- Modern concrete road construction; machinery and methods. G: A. Sherron. *Eng Soc W Pa* 36:519-29; Discussion. 530-8 N '20
- Old cellar used as aggregate bin in plant layout for candy factory. W. F. Lockhardt. *il diags plans Concrete* 18:55-7 F '21
- Planning a plant layout—the Metropolitan life printing building. W: F. Lockhardt. *il plans Concrete* 19:140-1 O '21
- Plant layout at close quarters. *plan Concrete* 19:74 Ag '21
- Plant layout for southern textile mill. W: F. Lockhardt. *il plans Concrete* 17:183-5 D '20
- Plant layout studied by concrete institute committee. *plans Eng N* 86:505-7 Mr 24 '21
- Plant problems on remote power house. L. Helbak. *il Concrete* 19:156-7 O '21
- Practical hints on erection, operation and maintenance; concrete chuting plants. *il diags Eng N* 87:280-3 Ag 18 '21
- Road construction plants. B. H. Piepmeier. *Good Roads n s* 21:273-4+ My 25 '21; Same. *Mech Eng* 43:386-8 Je '21; Same cond. *Eng N* 86:949-51 Je 2 '21; Same cond. *Munic Eng* 61:sup21+ Jl '21; Same cond. *Pub Works* 51:71-2 Jl 23 '21
- Silo and corncrib stave and building block plant at Oskaloosa. H. E. Kilmer. *il plan Concrete* 15:218-20 D '19
- Simple plant makes good record in dam construction. *il Eng N* 85:202-3 Jl 29 '20
- Stationary concreting plant for constructing 1,036 ft. river wall at Dayton. *diags plan Eng & Contr* 53:331-2 Mr 24 '20
- Street paving in Philadelphia. *il Pub Works* 49:208-10 S 4 '20
- Successful coordination of plant units on Wisconsin road job. *il diags Munic Eng* 61:sup 17-18+ Ag '21
- Twin concreting plants for large foundation area. *il plan Eng N* 84:1107-9 Je 3 '20
- Unique plant concretes seven-span arch bridge at Columbus. A. Richards and W. Carmichael. *il diags plans Eng N* 84:76-9 Ja 8 '20

See also Concrete construction; Concrete mixers; Concrete placing; *also* Arnold stone, brick, and tile plant, Jacksonville

Concrete products

- Centrifugal machine casts solid concrete shapes. L. Cammen. *diags Eng N* 87:366 S 1 '21
- Decisive day for concrete products. G. E. Warren. *Concrete* 16:205 Ap '20
- See also* Concrete blocks; Concrete brick; Concrete staves; Concrete tile; Urns, Concrete

Concrete products--Continued**Accounting**

Credits and costs in the products business. G. E. Warren. Concrete 17:147-51 N '20

Concrete products association

2d annual convention, Chicago, March 28-30. Concrete 18:229-30 My '21

Concrete proportioning. See Concrete mixing

Concrete railroad ties. See Railroad ties, Concrete

Concrete reservoirs. See Reservoirs, Concrete

Concrete roads. See Roads, Concrete

Concrete ships. See Ships, Concrete

Concrete sidewalks. See Sidewalks, Concrete

Concrete slabs

Bank protection and restoration: a problem in sedimentation. W. C. Curd. il Eng & Contr 54:459-61 N 10 '20; Same. Ry R 67:923-6 D 18 '20; Same cond. Ry Age 69:829-31 N 12 '20

Canadian Pacific uses heavy slabs for bridge spans. il diags Ry Age 71:216-17 J1 30 '21

Cellular flat slabs lighten concrete building; Noyes-Buick automobile building on Commonwealth ave., Boston. O. S. Hussey. il diags plans Eng N 85:776-80 O 21 '20

Concrete base repaired with precast slabs. C. B. Dugan. il Eng N 85:20-1 J1 1 '20

Concrete elevated-railway floor with precast form slabs. il diags Eng N 85:120-1 J1 15 '20

Concrete facing placed on old masonry sea wall. il diags plan Eng N 84:996-8 My 20 '20

Concrete oil reservoir with flat-slab roof and floor at Three Rivers, Que. E. E. Halmos. il diags plans Eng N 86:260-3 F 10 '21

Concrete roadbed for track, tunnels and stations. diags plan Eng N 84:826-8 Ap 22 '20

Concrete slabs under crossing frogs. diag plan Eng & Contr 53:469 Ap 21 '20

Design of reinforced concrete slabs with saw-tooth top. J. W. Pearl. chart Eng & Contr 54:178 Ag 25 '20

Diagram for flat slab design. O. Wolpert. chart Eng & Contr 54:411 O 27 '20; Same. Concrete 17:142-3 N '20

Experiences with thin concrete slabs. J. V. Schaefer. il Concrete 18:119-20 Mr '21; Same abr. Eng & Contr 55:289 Mr 23 '21

Fatal concrete roof failure in Atlantic City hotel. Eng N 87:294-5 Ag 18 '21; Discussion. E: Godfrey. 87:418 S 8 '21

Illinois has new concrete road slab design. diags plan Eng N 86:504 Mr 24 '21

Interesting type of flat slab construction. diags plans Ry Age 68:1233-5 Ap 23 '20; Same. Eng & Contr 53:600-2 My 26 '20

New York city adopts rules governing reinforced concrete flat slab design and construction. diags Am Arch 118:89-93 J1 21 '20; Same abr. Eng & Contr 54:89-91 J1 28 '20; Same. Eng N 85:300-2 Ag 12 '20

Porous concrete as a stucco base. il diag plans Bldg Age 43:43+ J1 '21

Porous concrete slabs used in building construction. il diags plans Bldg Age 42:23-7 O '20

Pre-cast concrete slab pavement between Casper and Salt Creek. il Pub Works 50:319-20 Ap 16 '21

Pre-cast concrete slab pavement on Casper-Salt Creek, Wyoming, road. C. H. Bowman. il Munic Eng 60:47-9 F '21; Same. Good Roads n s 21:109-10+ F 23 '21

Precast concrete slabs for small irrigation structures. R. W. Olmsted. il Eng N 84:1167-8 Je 10 '20

Precast slabs set on submerged concrete piles; unit construction plan for seaplane landing in San Francisco. il diags plan Eng N 86:984-5 Je 9 '21

Replacing concrete slabs at joints. diags Eng N 86:263 F 10 '21

Slab form design data. Concrete 19:80-1 Ag '21

Small concrete roof-slab failure in seashore hotel. L. R. Ferguson. diag Eng N 87:271-2 Ag 18 '21; Discussion. 87:323 Ag 25 '21

Thin bath-house concrete slabs cast and handled on edge. il Eng N 84:912-13 My 6 '20

Typical flat-slab working drawing. H. H. Sondheim. diag plan Eng N 85:1171 D 16 '20

Why flat-slab action is not understood. C. A. P. Turner. Eng N 85:620 S 23 '20

Wire mesh used for concrete flat slab reinforcement. S. Goldstein. il diags plan Eng N 85:883-4 N 4 '20

Testing

Method of calculating the strength of slabs. A. Ingerslev. diags Engineering 112:209-11, 245-6 Ag 5-12 '21

Reinforced concrete design standards. C. A. P. Turner. il diags Concrete 17:152-5 N '20; Discussion. E: Godfrey. 17:205-6 D '20

Strength of reinforced gunite slabs. G. E. Strehan. Concrete 18:132-4 Mr '21

Study of temperature stresses in rigid pavement slabs. C. H. Scholer. il diag Eng N 85:943-4 N 11 '20

Test results upon reinforced concrete slabs. Eng & Contr 55:633 Je 29 '21

Tile and concrete floor shows to advantage under test. il diags plan Am Arch 118:193-9; 119:327-31 Ag 11 '20, Mr 16 '21

Concrete spouting. See Concrete placing

Concrete standpipes. See Standpipes, Concrete

Concrete staves

Hooping concrete stave grain tanks and coal pockets. Concrete 17:70 Ag '20

Increasing demand for concrete staves for many uses. H. A. La Roy. Concrete 18:226-8 My '21

Silo stave business expands. W. G. Kaiser. il Concrete 18:45-6 Ja '21

Stave coal pockets. il Concrete 18:228-9 My '21

Concrete stone

Concrete building unit statistics. G. F. Loughlin. Concrete 16:232-4 My '20

Concrete stone and concrete blocks in 1919. G. F. Loughlin and M. E. McCaslin. U S Geol S Min Res of U S 1919, pt 2:325-33 '21

Trimstone and building ornaments. A. Schilling. il Am Arch 117:483-8 Ap 21 '20

See also Concrete blocks; also Arnold stone, brick, and tile plant, Jacksonville

Concrete surfaces. See Concrete—Finishing

Concrete tanks. See Tanks, Concrete

Concrete ties. See Railroad ties, Concrete

Concrete tile

Concrete roof tile manufacture. D. Helmuth. Concrete 18:289-91 Je '21

Making concrete floor tile. C. H. Neimeyer. il Concrete 19:108-9 S '21

Wightman tile plant involves new ideas in quantity production. H. Whipple. il diags Concrete 17:3-7 J1 '20

Cost

Concrete roof tile manufacture. D. Helmuth. Concrete 18:289-91 Je '21

Concrete tracks

Twin reinforced-concrete tracks for highways suggested. J. Berg. diags Eng N 85:520-1 S 9 '20

Concrete trestles. See Trestles, Concrete

Concrete urns. See Urns, Concrete

Concrete vats

Structural service department; concrete vats for tanneries. S. W. Jones and L. E. Kern. Am Inst Arch J 8:437-8 D '20

See also Dipping vats, Concrete

Concrete walls. See Walls, Concrete

Concrete warehouses. See Warehouses, Concrete

Concrete wharves. See Wharves, Concrete

Concreting

Cement bottoms for pneumatic flotation cells. H. C. McCrae. Eng & Min J 109:837 Ap 10 '20

Concrete seals cofferdams on rough-rock bottom. J. T. Talman. diag Eng N 84:688 Ap 1 '20

Concreting—Continued

- Concrete sump pit for concreting pumping station foundations. G: W. Sharp. Eng & Contr 55:234 Mr 9 '21
 New method of concreting wooden piles. H: W. Schlueter. diags Concrete 18:149 Mr '21
 Watertight concreting in wet gravel. diag Eng N 86:394 Mr 3 '21

Concretions

- Occurrence of structures like Walcott's Algonkian algæ in the Permian of England. O. Holtedahl. il diags Am J Sci 5th ser 1: 195-206 F '21

Condensation, Chemical

- Condensation of acetylene with benzene and its derivatives in the presence of aluminum chloride. O: W. Cook and V: J. Chambers. Am Chem Soc J 43:334-40 F '21
 Condensation of benzoyl chloride with ethylene in the presence of aluminum chloride. J. F. Norris and H: B. Couch. Am Chem Soc J 42:2329-32 N '20
 Condensation of *p*-nitrobenzyl chloride with nitroso-compounds; a new mode of formation of *N*-oximino-ethers. F. Barrow and E. D. Griffiths. Chem Soc J 119:212-16 F '21
 Experiments on the syntheses of the polyacetic acids of methane; some abnormal condensations of malonic and cyanoacetic esters with halogenated methanes. C. K. Ingold and W. J. Powell. Chem Soc J 119: 1222-31 Ag '21
 Influence of steric factors on intramolecular condensation. J. Kenner and E. Witham. Chem Soc J 119:1452-61 S '21
 Mechanism underlying the reaction between ethyl cyanoacetate and tautomeric substances of the keto-enol type. C. K. Ingold. Chem Soc J 119:329-41 Mr '21
 Researches of pyrimidines; the condensation of benzamidine with ethyl γ -diethoxyaceto-acetate. T. B. Johnson and L: A. Mikeska. Am Chem Soc J 42:2349-55 N '20

Condensers

- Multiwhirl subcooling condenser. il Chem & Met Eng 24:267-8 F 9 '21
 Velocity chart for double pipe condensers. H. B. Hall. chart Power Pl Eng 25:287 Mr 1 '21

Condensers, Ammonia. See Ammonia condensers**Condensers (electricity)**

- Automatic-operated synchronous condenser equipment. il Elec R 79:30 Jl 2 '21
 Condenser construction. diags Wireless Age 7:19-20 Je '20
 Condensers for small installation work. L. C. Grant. Elec R (Lond) 88:8-9 Ja 7 '21
 Correction of power-factor with static condensers. E: A. Roeser. diag Elec R 76:836-8 My 15 '20
 Economy of static condensers. F. Hershey. il Elec W 75:252-3 Ja 31 '20
 Electrical characteristics of transmission circuits; synchronous motors and condensers for power-factor improvement. W: Nesbit. diags J Elec 18:365-73 Ag '21
 Electrostatic condensers. V. E. Goodwin. diags Am Inst E E J 39:976-83 N '20
 Electrostatic transformers and coupling coefficients. F. C. Blake. diags Am Inst E E J 40:23-9 Ja '21
 Graphical interpretation of static condenser economy. O. C. Roff. Elec W 74:1013 N 29 '19
 Large horizontal alternating-current water-wheel-driven generators and synchronous condensers. M. C. Olson. il diag Gen Elec R 23:147-52 F '20; Excerpts. Elec R 76:505 Mr 20 '20
 Making molded high-tension condensers. F. L. Brittin. il diags Pop Mech 35:143-4 Ja '21
 Method of determining the size of static condensers. Elec W 75:325-6 F 7 '20
 Protection of transmission lines with condensers. G: Lewis il diags Elec R 79:691-4, 765-9 N 5, 19 '21
 Something new in electrical variable condensers. il Sci Am 123:384 O 9 '20

Static condenser raises industrial power factor from 60 to 90 per cent. E. A. Roeser. diags Elec W 76:195 Jl 24 '20

Static condensers. V: H. Todd. il diags Power Pl Eng 24:1071-5 N 15 '20

Static condensers for power-factor correction. il Power 52:790 N 16 '20

Synchronous condenser automatically operated. il Power Pl Eng 25:689 Jl 1 '21

Synchronous condenser operated without an attendant. C. C. Steck. Elec W 75:1200 My 22 '20

Synchronous condensers. E. B. Plenge. il diags Gen Elec R 23:143-6 F '20

Synchronous condensers operated by automatic control. C. M. Gilt. Elec R 79:421-2 S 17 '21

Condensers (steam)

Air-pump capacities and incondensable-gas volumes in industrial vacuum-evaporator plant. E: Corner. Engineering 109:74-5 Ja 16 '20

Air separation process; elimination of economizer and boiler corrosion. il diags Power Pl Eng 24:561-6 Je 1 '20

Application of steam condensers. F. A. Burg. il diags Elec J 17:583-7; 18:17-20 D '20-Ja '21

Calculation of dimensions and conditions of operation of surface condensers with air leakage. K. Hoefer. Mech Eng 41:962-3 D '19

Chilling of condensate. C. H. Berry. charts Power 54:181-2 Ag 2 '21

Columbian flask steam condenser; abstract. Mech Eng 43:407 Je '21

Condenser-tube and cast-iron shell disintegration. J. N. Walton. Power 52:554 O 5 '20

Condensing equipment and oil cooling system for the U.S.S. Tennessee. J: H. Smith and A. O. Loomis. il diags Elec J 18:273-7 Je '21

Cooling of water in a canal; abstract. L. C. Kemp. Mech Eng 43:337 My '21

Corrosion in condensers; abstract. E. Bate. Mech Eng 43:684 O '21

Corrosion of condenser tubes. G. D. Bengough, R. M. Jones and R. Pirret. Engineering 109:357 Mr 12 '20; Same. Engineer 129:267-8 Mr 12 '20; Same. Chem & Met Eng 22:707-8 Ap 14 '20; Same. Iron Age 105:990-1 Ap 1 '20; Abstract. Mech Eng 42:290-1 My '20; Abstract. Power 51:786-7 My 11 '20

Development of low level multi-jet condensers. C. R. May and N. E. Taylor. il diag Power 52:978-80 D 21 '20

Economic considerations of power plants. N. E. Taylor. il Blast F & Steel Pl 8:669-70+ D '20

Electrical method of detecting surface condenser leakage. W. E. Caldwell. il diags Power 54:217-19 Ag 9 '21

Flow of water through condenser tubes. W: L. De Baufre and M. C. Stuart. diags Mech Eng 41:949-51 D '19

Improved shape suggested for condenser tubes. L. Cammen. diags Power 53:551-2 Ap 5 '21

Leakage in surface condensers. G: C. Cook. Power Pl Eng 25:896-7 S 15 '21

Limitations of high vacuum in actual practice. A. D. Bailey. Elec R 76:1019-20 Je 19 '20; Same. Power 52:192-3 Ag 3 '20; Same. Sci Am M 2:167-8 O '20

Low level multi-jet condensing plant. il Power Pl Eng 24:1011 O 15 '20

Management of the power plant. R. June. Textile World 57:3503+ My 8 '20

Methods of recooling condensing water. diags Power Pl Eng 25:361-5, 408-10, 454-7 Ap 1-My 1 '21; Abstract. Mech Eng 43:406-7 Je '21

New developments in high vacuum apparatus. G. L. E. Kothny. diags Engineering 109:28-31 Ja 2 '20; Same. Int Marine Eng 25:364-71 Ap '20; Abstract. with discussion. Int Marine Eng 24:830-2 D '19

New Wheeler auxiliary tube-plate condenser. il Power 51:227 F 10 '20; Same. Power Pl Eng 24:310-11 Mr 1 '20

Condensers (steam)—Continued

- Practical ideas for the engineer; weak points of present day condensers. G. B. Allen. diag Marine R 50:614-16 N '20
- Principles and functions of condensing. F. R. Parsons. Electrician 84:60-1 Ja 16 '20
- Prolonging the life of condenser tubes. J. N. Walton. il Power 51:588-9 Ap 13 '20
- Relative efficiency of various types of condensing apparatus. A. F. Brewer and F. A. Stivers. Mech Eng 43:672-3 O '21
- Salt-water leakage in condenser. C. E. Overend. Power 52:262 Ag 17 '20
- Selecting condensing equipment for power plants. R. June. il Elec R 79:431-4 S 17 '21
- Separation of dissolved gases from water. J. R. McDermet. il diag Mech Eng 42:273-8 My '20; Abstract. Sibley J 34:133 S '20
- Service experience with condensers. G. B. Allen. diag Engineering 110:423-4 S 24 '20; Same. Marine R 50:614-16 N '20; Same cond. Power 52:914-16 D 7 '20
- Simplified chemical method of detecting surface condenser leakage. W. E. Caldwell. il Power 54:141-2 Jl 26 '21
- Size and type of condenser required for small plants. A. B. Clark. Elec W 77:1052 My 7 '21
- Steam-condensing plants. P. A. Bancel. il diags Mech Eng 43:711-16+ N '21
- Steam-jet air pumps for condensers. De W. M. Taylor. diags Power 51:995-9 Je 22 '20
- Surface-condenser maintenance; many steam-station troubles directly traceable to salt-water leakage. R. J. C. Wood. il Elec W 76:623-4 S 25 '20
- Surface condenser maintenance where scale forms on tubes. E. B. Ricketts. diag Elec W 76:638-9 S 25 '20
- Surface condenser operation. G. C. Cook. Power 54:365-7 S 6 '21
- Surface condenser problems. Engineering 109:687-8 My 21 '20
- Surface condensers. L. D. Lovekin. diags Engineering 111:153-6 F 4 '21; Excerpts. Engineer 130:618-19 D 17 '20; Marine Eng 25:1010-11 D '20; Mech Eng 43:44-6 Ja '21; Discussion. Engineering 111:180 F 11 '21
- Test results of a 50,000 square-foot surface condenser. il plan Power 53:414-16 Mr 15 '21
- Turbogenerators and condensers for modern power plants. A. H. Ganshird and R. E. Carothers. il Elec R 79:419-21 S 17 '21
- Union engineering handbook; pumping machinery, air compressors, condensers. E. P. Ordway, comp. Union steam pump co., Battle Creek, Mich. '21
- Using check valves with jet condensers. R. A. Cultra. diag Power 53:715-16 My 3 '21
- La vaccination des eaux de circulation des condenseurs à surface par le procédé Scam-Balcke. il diags Génie Civil 78:153-7 F 12 '21; Abstract. Power 54:39 Jl 5 '21
- Water film on evaporating and condensing tubes. P. H. Parr. Engineer 131:559-61 My 27 '21; Discussion. 131:617 Je 10 '21
- See also Cooling towers; Feed water; Steam engines; Steam plants

Cleaning

- Cleaning condensers saves one fireman on two 3,000-kw. turbines. A. L. Platt. Elec W 76:738 O 9 '20
- Cleaning power-house condensers. diag Elec R 76:666-7 Ap 17 '20
- Cleaning surface condenser tubes. D. W. R. Morgan. il diags Elec J 18:313-15 Jl '21; Abstract. Mech Eng 43:613 S '21
- Removing scale from surface condenser tubes with hydrochloric acid. N. G. Hardy. diag Power 54:22-4 Jl 5 '21; Same cond. Elec W 78:64 Jl 9 '21; Excerpts. Mech Eng 43:613-14 S '21; Excerpt. Sci Am M 4:280-1 S '21; Discussion. Power 54:390 S 6 '21
- Rubber slugs for cleaning condenser tubes. diags Power 50:651 O 28 '19
- Some methods used to clean condenser tubes. Elec W 78:273 Ag 6 '21

Failures

- Failure of condenser tubes. il Power Pl Eng 24:142-5 Ja 15 '20

Condensite celoron

- Condensite celoron a non-metallic gear material. Automotive Ind 44:921 Ap 28 '21

Conductivity, Electric. See Electric conductivity**Conductivity, Heat.** See Heat conductivity**Conduits, Electric.** See Electric conduits**Conduits, Water.** See Water conduits**Coney Island**

- Handling Coney Island's crowds. il map plans Elec Ry J 55:186-90 Ja 24 '20

Confectionery. See Candy**Conference club**

- Conference club dedicated to electrical industry. Elec W 75:340-1 F 7 '20
- 12th meeting, New York city, Jan. 29-31. Elec R 76:234-6 F 7 '20

Conference of state sanitary engineers

- State sanitary engineers perfect their organization. Eng N 86:1009 Je 9 '21

Conference on the limitations of armaments, Washington, D.C.

- Disarmament conference will be ordeal of faith. G. Harvey. Comm & Fin Chr 113:1944-6 N 5 '21

- Naval armaments and the Washington conference. Engineer 132:443-5 O 28 '21

- World rehabilitation from armament conference? R. Bean. Annalist 18:435 N 7 '21

Conglomerate

- Origin of the Dighton conglomerate of the Narrangansett basin of Massachusetts, and Rhode Island. E. H. Perkins. map Am J Sci 49:61-75 Ja '20

Congo, Belgian. See Kongo, Belgian**Coniferae**

- Maps and tables show clearly the distribution of coniferous woods in the western states. W. H. Lamb. map Am Lumberman 2342:56-7 Ap 3 '20

- Proximate analysis of coniferous woods. W. H. Dore. J Ind & Eng Chem 12:476-9 My '20

See also Hemlock; Spruce

Connecticut

- See also Electric plants (central stations)
—Connecticut; Roads—Connecticut

Public service commission

- Public utilities commission of the Nutmeg state. Elec Ry J 57:210-13 Ja 29 '21

Connecticut company

- Connecticut zone system revised. Elec Ry J 55:807-11 Ap 17 '20

Connecting rods

- Another method of machining connecting rods. F. H. Colvin. il Am Mach 54:1068-9 Je 23 '21

- Assembling Liberty motor connecting-rods. H. A. Carhart. il Am Mach 51:995-8 D 11 '19

- Automatic milling of connecting rods for production. G. M. Meyncke. il diag Automotive Ind 43:114-15 Jl 15 '20

- Building motors on the Pacific coast; connecting rod of the Hall-Scott motor. F. E. Colvin. il Am Mach 54:133-6 Ja 27 '21

- Comparative methods of machining automobile engine connecting rods; Packard, Cadillac, Peerless, Chandler, Franklin. F. H. Colvin. il diags Am Mach 52:1023-35 My 13 '20

- Connecting-rod bolts. Power 52:197 Ag 3 '20

- Connecting-rod forgings for the Liberty motor. H. A. Carhart. il Am Mach 52:89-92 Ja 8 '20

- Connecting rods for the Fordson tractor. F. H. Colvin. il diags Am Mach 53:273-7 Ag 5 '20

- Design of connecting rods for internal-combustion engines. J. L. Bogert. diags Engineering 109:114 Ja 23 '20

- Detecting elongation of connecting-rod bolts. E. Long. diag Power 52:832 N 23 '20

- Failure of connecting rods at high speeds. G. Wiedeman. Automotive Ind 42:1254-5 Je 3 '20; Discussion. 43:476-7 S 2 '20

- Finishing Liberty motor connecting-rods. H. A. Carhart. il Am Mach 52:457-60 F 26 '20

Connecting rods—Continued

- Fitting connecting-rods. M. Jacker. diag Mach 26:763 Ap '20
- Inspecting pistons and connecting rods. F. H. Colvin. il Am Mach 54:407-10 Mr 10 '21
- Liberty motor connecting-rods; machining. H. A. Carhart. il diags Am Mach 52:1148-52 My 27 '20
- Machining operations on locomotive connecting rods. F. A. Stanley. il Am Mach 54:811-13 My 12 '21
- Machining Packard connecting-rods. il Mach 26:953-7 Je '20
- Machining the connecting rods of two well known motors; Oakland and Studebaker. il diags Am Mach 53:829-34 N 4 '20
- Making connecting-rods for Franklin cars. F. D. Jones. il diag Mach 27:470-4 Ja '21
- Milling automobile connecting-rods. J. M. Henry. il Mach 27:1104-5 Ag '21
- Producing 17,000 connecting rods a day; methods used by the Ford motor co. F. H. Colvin. il diags Am Mach 52:1199-1203, 1305-9 Je 3, 17 '20
- Rolls-Royce connecting rods. F. H. Colvin. il Am Mach 54:1041-3 Je 16 '21
- Seventy-five operations give accuracy in connecting rod production. J. E. Schipper. il Automotive Ind 43:522-6 S 9 '20
- Straddle-milling fixture for connecting-rods. C. M. Schleh. diags Mach 28:63-4 S '21
- Straightening connecting rods. diags Pop Mech 33:766 My '20
- Unusual connecting-rod fixtures. I. B. Rich. il Am Mach 52:239 Ja 29 '20
- Weber connecting-rod machine. il Am Mach 55:322-3 Ag 25 '21

Conservation of resources

- Address at the American institute of mining and metallurgical engineers, August 26. H. Hoover. Eng & Min J 110:453-5 S 4 '20
- Conservation of natural resources. E. G. Acheson. Can Eng 39:570-1 D 2 '20
- Conservation through engineering. F. K. Lane. U S Geol S Bul 705:1-35 '20
- Engineering as insurance for future prosperity. G. O. Smith. Elec R 76:175-9 Ja 31 '20; Same cond. Eng & Contr 53:109-10 Ja 28 '20; Same cond. Power 51:480-1 Mr 23 '20
- Private rights and public responsibilities. F. K. Lane. Ind Management 59:91-3 F '20

See also Coal supply; Forests and forestry; Fuel economy; Gas, Natural—Conservation; Petroleum; Reclamation of land; Water power; Water supply; Water waste

Conservatories. See Greenhouses**Conservators, Oil. See Electric transformers—Tanks****Consignment selling**

- Does consignment selling offer manufacturers any help? Ptr Ink 115:64+ My 19 '21
- From tank cars to bottles; the U.S. industrial alcohol co.'s unusual consignment selling. Ptr Ink 116:41-2+ Ag 11 '21

Consolidated accounts. See Corporations—Accounting**Consolidated gas company of New York**

- New York's gas business in 1920. Gas Age 47:94-7 F 10 '21
- 1920 report shows deficit of \$5,692,000. Am Gas Eng J 114:105-8+ Ja 29 '21

Consolidated gas, electric light and power company of Baltimore

- Annual report, 1919. Comm & Fin Chr 110:1316-19 Mr 27 '20

Consolidated gold fields of South Africa, limited

- American operations of the Consolidated gold fields. Min & Sci P 121:881-2 D 18 '20

Consolidation coal company

- 56th annual report—for the year ending December 31, 1919. Comm & Fin Chr 110:1201-3 Mr 20 '20
- 57th annual report—for the year ending December 31, 1920. Comm & Fin Chr 112:1162-4 Mr 19 '21; Same abr. Annalist 17:380-1 Mr 28 '21

Constantinescu sonic waves. See Sonic waves**Constantinople**

- Plan for Constantinople. F. W. Kelsey. il plan Am Inst Arch J 8:399-402 N '20

Constants, Physical. See Physics—Tables, calculations, etc.**Constitution (United States). See United States—Constitution****Constitutions (state)**

- Treatment of state constitutions—with special reference to New York. Comm & Fin Chr 113:1512-14, 1629-30 O 8-15 '21

Construction camps

- Keeping the construction laborer satisfied. A. P. Child. il Sci Am 122:491 My 1 '20
- Mess- and bunk-houses on wheels make mobile construction camp. R. M. Adams. diags plan Eng N 86:1006 Je 9 '21
- Sanitation of road construction camps. J. N. Edy. Munic Eng 59:sup28+ Ag '20; Same. Eng & Contr 54:205-6 S 1 '20
- Trailer camp train for housing construction gangs. il Eng & Contr 54:345 O 6 '20

See also Labor camps

Construction equipment

- Building plant on sidewalk provides for convenience of traffic. il Eng N 85:1008 N 18 '20
- Care of asphalt paving equipment. H. B. Drowne. Eng & Contr 55:439-40 My 4 '21
- Contractors' plants for asphalt paving jobs. H. B. Drowne. il Good Roads 61:55-6+, 71-3+ Ag 3-10 '21
- Design of mill and workshop for Minneapolis filter plant. W. N. Jones. diags plan Munic Eng 60:117-18 Mr '21
- Essentials of a rental contract. Eng N 85:476 S 2 '20
- Estimating equipment rental. Eng N 84:1126 Je 3 '20
- Handbook of construction equipment, its cost and use. R. T. Dana. 849p McGraw-Hill '21
- How can a general construction organization be utilized during winter shut-down? Pub Works 50:103-4 Ja 29 '21
- List of construction equipment used on fifteen concrete road jobs in Illinois. Munic Eng 58:sup34+ Ap '20
- New shops and storage yards of Ferro concrete construction co. P. P. Suiter. il diags Eng & Contr 56:149-50 Ag 17 '21
- Organizing contractor equipment for prompt use. il Concrete 16:123-5 Mr '20
- Oversize construction plant demonstrates value in building of Fisher Body Ohio co. plant. il map Eng N 86:82-5 Ja 13 '21
- Rental charges for construction equipment. Eng & Contr 53:81; 56:184 Ja 21 '20, Ag 24 '21
- Rental charges for contractor's equipment based on capacity and power units. Eng & Contr 52:702-3 D 17 '19
- Rental schedule for estimating construction equipment expense. Eng & Contr 54:583-4 D 15 '20; Same abr. Eng N 85:1288-9 D 30 '20; Same abr. Ry R 68:460-1 Mr 19 '21
- Rental values for construction equipment. F. J. Herlihy. Eng N 84:125-8 Ja 15 '20; Excerpt (Table). Eng & Contr 53:180 F 18 '20
- State road equipment. Pub Works 50:529 Je 18 '21
- What disposition is best for construction equipment during the winter? Pub Works 50:82-3 Ja 22 '21
- Winter work on a Quebec water-power development. il plan Eng N 86:1122-5 Je 30 '21
- See also* Concrete plants

Layout

- Construction plant lay out eliminates man handling of material. il plan Eng & Contr 53:308 Mr 17 '20

Construction Industries. See Building trades**Construction industries, National federation of. See National federation of construction industries**

Consuls

Government's foreign trade service. G: E. Holt. *Ptr Ink* 114:104, 109-10 Mr 31 '21
Yankee consuls—new style. F. Simpich. *Nation's Business* 9:27-8 Ja '21

Consumers' co-operative societies

Works councils in Consumers' co-operative societies in Germany. *Int Labour R* 3:188-204 Jl '21

Consumers' cooperative wholesale societies

Consumers' cooperative wholesale societies in the United States. F. E. Parker. *Monthly Labor R* 10:947-58 Ap '20

Consumers' leagues

League of consumers would be out of place. G: H. Corey. *Ptr Ink* 112:73-4+ Jl 29 '20
Some union of consumers necessary. H. G. McKerrow. *Ptr Ink* 112:65-6+ Jl 29 '20

Consumers service stations, inc., Rock Island, Illinois

Co-operative service stations promotion rather than operating success. *Nat Pet N* 12:35-8 Je 23 '20

Consumption (economics)

Consumers' place in society. P. Redfern. 107p
Co-operative union limited, Manchester '20
Consumption estimates; showing production, imports, exports, and amounts available for consumption of various articles in the United States by years specified. *U S Bur For & Dom Com* 105:543-57 '20

Contact. See Surface tension**Contactors, Magnetic. See Magnetic contactors****Container cars**

Container car expedites mail service. *il Ry Age* 70:1128-9 My 13 '21; *Ry R* 68:811-12 My 28 '21

Container car in express service on N.Y.C. lines. *il Ry Age* 70:315-16 F 4 '21; *Ry R* 68:214-16 F 5 '21; *Ry Mech Eng* 95:171-2 Mr '21

Container system extended on the New York Central. *il Ry R* 68:600-2 Ap 16 '21

New container car for store-door delivery freight service. *il Eng N* 86:557-8 Mr 31 '21; *Ry Age* 70:905-6 Ap 8 '21

Container system (freight handling)

Advantages of containers in freight traffic. F. W. Wenn. *Elec Ry J* 57:220 Ja 29 '21

Carloads of safes; portable steel compartments. *il Sci Am M* 3:353-4 Ap '21

Container system extended on the New York Central. *il Ry R* 68:600-2 Ap 16 '21

Container system on British railways. F. C. Coleman. *il Ry R* 69:328-9 S 10 '21

Demountable truck bodies as standard unit freight containers. *Am Mach* 52:1252 Je 10 '20

Standardized containers and sectionalized freight cars. R. H. McLain. *il Gen Elec R* 24:366-8 Ap '21

Steel containers that help in handling southern river traffic. C: F. Paul. *il Sci Am* 121:585 D 13 '19

Steel freight containers moved on monster car. *il Pop Mech* 36:31 Jl '21

Store-door delivery a reality. *Am Ind* 22:26 Ag '21

Unit containers for freight shipments. B. W. Dunn. *Ry Age* 69:684-5 O 22 '20

Unit freight handling system; interchangeable metal container. *il Ry Mech Eng* 94:730-1 N '20; *Ry Age* 69:515-17 S 24 '20; *Coal Age* 18:1178-9 D 9 '20; *Eng & Contr* 54:597 D 15 '20; *Mach* 27:427 Ja '21; *Pop Mech* 35:198-9 F '21

Unit system of freight transportation. C: N. Winter. *il Sci Am* 123:595 D 11 '20

Containers

Adding conveniences to the package; patented ideas that form an advertising theme in themselves. W. L. Larned. *Ptr Ink* 111:33-6 My 27 '20

Are you ignoring one of your best sales points? C. B. Larrabee. *il Ptr Ink M* 2:27-8 Ap '21

Container in the growth of chemical manufacture. *il Chem Age* 29:178-9 My '21

Container that brings year round merchandise into season; Valentine record gift envelope. C. B. Larrabee. *Ptr Ink M* 2:74+ F '21

Containers that cut shipping costs. D. L. Quinn. *il Factory* 26:741-3 Mr 15 '21

Containers that suggest luxury of the product. C. B. Larrabee. *il Ptr Ink M* 2:25+ D '20

Containers the ultimate answer. J. C. Bonner. *Elec Ry J* 57:219-20 Ja 29 '21

Damaged in transit. R. L. Beach. *il Factory* 24:1541-4 My 15 '20

Food carriers for serving long-distance meals. *il Sci Am* 122:226 F 28 '20

Foreign packages in domestic trade. L. Lodian. *il Ptr Ink M* 3:33+ Ag '21

Getting the consumer to select your package. R: B. Franken. *il Ptr Ink M* 2:55-6+ D '20

New type returnable container for differentials. *il Automotive Ind* 44:873 Ap 21 '21

Oil containers; manufacture of millions of oil barrels and cans. R. G. Skerrett. *il Sci Am M* 2:337-40 D '20

Package design a factor in establishing a new habit. N. Warren. *il Ptr Ink M* 3:19-20 Jl '21

Reinforced collapsible bag new freight container. *il Pop Mech* 36:35 Jl '21

Report of committee D-10 on shipping containers. *Am Soc T M Pro v* 20,pt 1:449-52 '20

Suggested relief for paper shortage; lumber wasted in the manufacture of packing cases. *Paper* 25:30-1 F 11 '20

What you can do with two colors to improve your packages. W. L. Larned. *Ptr Ink* 115:89+ Ap 7 '21

See also Ammonia containers; Bags; Barrels; Bottles; Boxes; Container system; Gas containers; Jute board; Mail bags; Packing for shipment; Paper bags; Paper barrels; Paper board; Paper containers; Tin cans

Standardization

Simplification in industry. *il Factory* 27:175-7 Ag '21

Standardization of containers for food-stuffs and the marking of the weight of commodities in package form. A. W. Schwartz. *U S Bur Stand misc pub* 43:122-7 '21

Testing

Home-made tests that insure safer shipment. A. E. Snyder. *il Factory* 25:358-60 Ag 1 '20

Containers, Cement

Cement container for silver nitrate solution. *Concrete* 18:295 Je '21

Containers, Steel

Manufacturing seamless steel tubes. *il diags Mach* 26:1018 Jl '20; *Same. Iron Age* 106:377-9 Ag 12 '20

Use of metal containers to prevent theft of freight. *Ry R* 66:658-9 Ap 17 '20

See also Container system (freight handling); Tanks, Steel

Contract bonds. See Guaranties and sureties**Contractors**

Classification of contractors by standard ratings. L. C. Wason. *Can Eng* 38:498 My 27 '20

Code of practice for contractors adopted by the Minneapolis master builders' association. *Can Eng* 39:515-16 N 11 '20; Excerpt (Cost-plus work). *Dom Eng* 93:306 N 13 '20

Code of practice for the contractor. *Can Eng* 38:363 Ap 8 '20

Congressional persecution of contractors and manufacturers. W: B. King. *Eng N* 83:1044-5 D 25 '19

Construction labor's instability; symposium. *Eng N* 83:759-60, 813-14, 876, 939-40, 1051-2 O 23-30, N 13, 27, D 25 '19

Contracting as a profession. F. C. Young. *Munic Eng* 60:sup32-5 Mr '21; *Same. Eng & Contr* 56:382-3 O 19 '21

Contractor's organization and planning for asphalt paving jobs. H: B. Drowne. *Eng & Contr* 55:453-4 My 4 '21

Contractors—Continued

Contractor's right to use non-union steam-fitters when contract does not provide that only union men shall be used. Dom Eng 96:477+ S 10 '21

Eliminating the irresponsible contractor. W: B. Joyce. Eng & Contr 55:193 F 23 '21

Engineer and contractor—mutual use, not abuse. S. H. Wright. Eng N 85:1166-7 D 16 '20

Minimizing the risk in contracting and the engineer's part therein. W: B. King. Eng N 86:227-9 F 3 '21; Same. Eng & Contr 55:160-2 F 16 '21

Organization for construction work. R. U. Fitting. charts Administration 2:161-6 Ag '21

Personnel board keeps close tab on contractor's field forces. M. A. Darville. il diag Eng N 86:860-1 My 19 '21

Present status of general contractors. C. B. Jackson. Can Eng 39:365-7 S 23 '20; Excerpts. Eng & Contr 54:291-2 S 22 '20

Proposed code of ethics for contractors; submitted at New Orleans convention of the Associated general contractors. Eng N 86:257-8 F 10 '21

Some difficulties arising between engineer and contractor. C: H. Brower. Can Eng 39:195-6 J1 29 '20

Sub-contractor may be able to enforce order on owner given by general contractor even if owner does not accept it. Dom Eng 93:411+ N 27 '20

See also Building contracts; Construction equipment; Contracts, Letting of; Day labor; Electric contractors; Engineering contracts; Estimates

Accounting

Accounting forms on construction work. A. H: Wright. Pub Works 49:338-40 O 9 '20

Accounting problems. H. D. Greeley. Administration 1:246-54 F '21

Accounts of engineers and contractors. C. A. H. Narlian. J Account 30:81-7 Ag '20

Construction costs; with discussion. W. N. Connor. Boston Soc C E J 8:157-97 My '21; Excerpts. Eng & Contr 56:66-70 J1 20 '21

Cost keeping and its value to the average contractor. B. G. Best. Concrete 16:87-93 F '20

Cost keeping on construction work. F. H. Austin. Munic Eng 60:121-3 Mr '21

Cost keeping under the cost-plus-fixed-fee contract. F. A. Wells. Eng & Contr 52:447-9 O 15 '19; Same. Concrete 15:244-7 D '19; Same. Arch & Bldg 52:3-6 Ja '20

Cost system telling what every contractor wants to know. G. E. Holloway. Bldg Age 41:392-4 D '19

Distribution sheets of contractor's accounting system. Eng & Contr 54:60-1 J1 21 '20

How costs are kept by A. J. Yawger & co. J. L. Schnitz. Concrete 16:255-7 Je '20

What are the essentials of cost keeping accounts? Pub Works 50:382-4 Ap 30 '21

See also Electric contractors—Accounting

Advertising

Let the world know who you are and what you are doing! D. J. Hauer. il Can Eng 39:473-4 O 28 '20

Contractors' equipment. *See* Construction equipment

Contracts

Agreement with promoters not the contract of the corporation subsequently organized. W. Gustin. Chem & Met Eng 23:32 J1 7 '20

Cases on the law of contracts. G: P. Costigan, jr. 1489p Callaghan & co., Chicago '21

Contract under war provision upheld. W. Gustin. Chem & Met Eng 22:980 My 26 '20

Contracts and contractual relations. C. C. Sherlock. Am Mach 52:151-3, 191-3, 241-3, 349-51 Ja 15-29, F 12 '20

Correspondence and telegrams held to constitute a valid contract. W. Gustin. Chem & Met Eng 23:60 J1 14 '20

Enforcing terms of contracts. C. C. Sherlock. Iron Tr R 66:568-9 F 19 '20

General principles for securing relief from pre-war contracts. E. R. Ferguson. Eng & Contr 53:303-5 Mr 17 '20

Keeping legal tangles out of the factory. L. Childs. Factory 25:1158+; 26:1254+ O 1 '20, My 15 '21

Law regulating contracts for an approximate amount such as the output for a season. W. Gustin. Chem & Met Eng 22:740 Ap 21 '20

Legal effects of variations on contract terms. Engineering 112:62 J1 8 '21

Minor has right to demand back money paid under contract, even if he cannot return the property which he bought. Dom Eng 96:379+ Ag 27 '21

Modern industry must recognize moral obligations. H. Tipper. Automotive Ind 43:1132-3 D 2 '20

Mutual benefit should be major thought in dealer contract. C. Jennings. Automotive Ind 44:468-9 F 24 '21

Option in a chemical contract must be exercised within a reasonable time. Chem & Met Eng 23:1076 D 1 '20

Plea of set-off good where company sold product exclusively contracted for by another. Chem & Met Eng 24:735-6 Ap 27 '21

Preparation of contracts and conveyances with forms and problems. H: W. Ballantine. 226p Macmillan '21

Reliability of trade journal quotations in trade contracts. W. Gustin. Chem & Met Eng 22:943 My 19 '20

Schwebende lieferungsverträge und die rechtssprechung des Reichsgerichts. K. Dittmar. Stahl & Eisen 41:155-9 F 3 '21

Stability of contracts. H. Hirst. Elec R (Lond) 88:259 F 25 '21

What constitutes a contract by letters and telegrams. W. Gustin. Chem & Met Eng 24:930-1 My 25 '21

See also Agency; Building contracts; Coal contracts; Contractors; Electric utilities—Contracts; Guarantees and sureties; Heating contracts; Labor contracts; Partnership; Pavements—Contracts; Plumbing contracts; Pavements—Contracts; Plumbing contracts; Refuse disposal—Contracts; Roads—Contracts; Sales; Trade agreements

Contracts, Cost-plus. *See* Contracts, Letting of

Contracts, Government

Congress and the cantonments. Eng N 84:842-3 Ap 29 '20

House committee condemns army camp construction. Eng N 84:849-50 Ap 29 '20

Reforms needed to make government contracts more equitable to contractors. L. C. Wason. Eng & Contr 52:597-8 N 19 '19

Contracts, Letting of

Advantages of the fixed price contract. J. O. Heyworth; J. W. Rollins. Eng & Contr 53:180-2 F 18 '20

Contract clauses that work hardship on the contractor. Can Eng 39:333-4 S 9 '20

Contract forms. G: W. Tillson. Munic Eng 60:150-4 Ap '21

Contract to do work for a lump sum. Engineering 112:380-1 S 9 '21

Contractor agreeing to excavate for cellar for certain price, cannot charge extra if he strikes a ledge. Dom Eng 95:469+ Je 4 '21

Contracts—a comparison of cost plus with other forms. E. W. Clarke. Eng & Contr 52:283-5 S 3 '19; Same. Can Eng 38:183-4 Ja 29 '20

Co-operation between the engineer and the contractor. C. D. Franks. Munic Eng 58:206-7 My '20; Same. Can Eng 39:307 S 2 '20

Cost-plus-a-fixed-fee contract. Am Arch 118:867-70 D 29 '20

Cost-plus contract for impounding dam at Decatur, Ill. Eng & Contr 54:238 S 8 '20

Cost plus contract form of Bent brothers. Eng & Contr 52:728 D 24 '19

Cost-plus contract gives low cost on Ashland, Ky., filters. L. R. Howson. Eng N 86:388 Mr 3 '21

Contracts, Letting of—Continued

- Cost plus contract involving profit sharing between owner, contractor and employees. J. A. L. Waddell. Eng & Contr 53:20-3 Ja 7 '20
- Cost-plus contract satisfactory on Boston army base. il Eng N 84:326-9 F 12 '20
- Cost plus contracts for water works construction. G: W. Fuller. Am Water Works Assn J 7:683-92 S '20; Same. Can Eng 38:599-601 Je 24 '20; Same. Munic Eng 59:34-5, 36-8 Jl '20; Same abr. Eng & Contr 54:32-4 Jl 14 '20; Excerpts. Eng N 85:78-9 Jl 8 '20
- Cost plus method in contracting. Am Arch 116:503-4 O 15 '19
- Dam contract has special cost-plus feature. Eng N 85:878-9 N 4 '20
- Desirable type of contract. Pub Works 49:536 D 4 '20
- Discussion of cost-plus and other forms of contracts. C. F. Allen and others. Boston Soc C E J 7:1-39 Ja '20
- Elements of an attractive contract. Pub Works 50:31-2 Ja 8 '21
- Equitable railroad contracts. H. R. Safford. Eng & Contr 55:252-3 Mr 16 '21
- Fair contracts and their legal aspects. J. B. Kerr. Eng & Contr 53:573-4 My 19 '20
- Forms of construction contracts. Pub Works 50:344-5 Ap 23 '21
- Highway bid not permitted to be withdrawn. Pub Works 48:315 Ap 10 '20
- Illinois waterway contract provisions for taking care of increases in labor and material prices. Eng & Contr 54:367 O 13 '20
- Letting grading and bridge contracts on Illinois state bond issue roads. C. M. Hathaway. diags Munic Eng 60:140-4 Ap '21
- Modification of contracts to meet present conditions. W. R. Neel. Good Roads n s 20:310-12 D 29 '20; Same. Munic Eng 60:sup27-8+ Ja '21; Same. Pub Roads 3:16-17 F '21; Same. Eng & Contr 55:452-3 My 4 '21; Excerpt. Eng N 86:224 F 3 '21; Discussion. Pub Roads 3:18-19 F '21
- Modified cost plus contract for city use. E. S. Dorr. Eng & Contr 53:178-9 F 18 '20
- New contract drafted to cover Detroit sewer work. Eng N 85:349-50 Ag 19 '20
- New contract provisions proposed by contract committee of A.G.C. Eng N 84:1119 Je 3 '20; Same. Eng & Contr 53:596 My 26 '20; Same. Pub Works 48:499-500 Je 5 '20
- Placing of a cost-plus building contract. Arch Forum 33:227-8 D '20
- Plea for a fair contract. S. M. Swaab. Eng & Contr 54:193-5 Ag 25 '20
- Proposal advertisements should attract bidders. E. W. Bush. Eng N 85:122-3 Jl 15 '20
- Proposed A. G. C. contract provisions. Concrete 17:14 Jl '20; Same. Metal Work 94:39-40 Jl 9 '20
- Protecting contractors against rising prices. Pub Works 48:294-5 Ap 3 '20
- Protective and operative features of the emergency contract. R. H. Case. Am Arch 117:489-90, 522 Ap 21-28 '20
- Regulations for competitive bidding under Clayton law. Ry Age 70:231-2 Ja 21 '21
- Sacramento adopts cost-plus plan on water filter work. C. G. Gillespie. Eng N 86:77 Ja 13 '21
- Specified manager made essence of contract. Eng N 85:247 Ag 5 '20
- Sub-contracts on road construction. D. J. Hauer. Munic J 48:5-6 Ja 3 '20
- Suggestions for a standard form of contract. G. W. Buchholz. Am Water Works Assn J 7:657-62 S '20
- Swiss method of letting contracts advocated by member of Associated general contractors. Am Arch 116:566 O 29 '19
- Value of engineering advice in making a power contract. E. C. Lang. Ind Management 59:56 Ja '20
- Wanaque dam. diags plans Pub Works 48:324-30; 49:533 Ap 17, D 4 '20
- Wanaque dam contract provides for variable labor costs. Eng N 84:734 Ap 8 '20
- What is the objective in a construction contract? F. A. Wells. Munic Eng 60:sup30-2 F '21

Workable form of contract. J: L. Harrington. Pub Works 50:361-2 Ap 23 '21

Working on cost plus professional charges. R. D. Kohn. Am Inst Arch J 9:275-8 Ag '21

See also Building contracts; Estimates; Heating contracts; Plumbing contracts; *also* subdivision Contracts under special subjects, e.g. Airplane industry and trade—Contracts, Roads—Contracts, Sewers—Contracts

Contracts, Sales. See Sales

Control boards

- Board that helps plan production and keep time. Factory 24:816-17 Mr 15 '20
- Color cycle production control. C. M. Bigelow. diags Ind Management 61:168-70 Mr 1 '21
- Control board for truck production. J. F. Danielson. il Ind Management 58:384-7 N '19
- Control board the machines can't fool. J. C. W. Hinshaw. il Factory 25:375 Ag 1 '20
- Cutting out motions in controlling the factory. L. J. Belnap. il Factory 27:617-19 N '21
- Keeping an eye on 8,000 orders. H. Swift. il Factory 25:205-8 Jl 15 '20
- Production control through a routing department. N. G. Shidle. il Automotive Ind 43:322-5 Ag 12 '20
- Production records at the Hart-Parr factory. A. W. Sawyer. il Am Mach 53:445-6 S 2 '20
- Speeding shop orders by accurate tool records. H. P. Johnson. il Factory 25:1224-6 O 15 '20
- Successful textile planning departments. G: H. Goldsmith. Textile World 59:3105+ My 7 '21
- Visualizing facts for control. L. V. Estes. Ind Management 59:209-14 Mr '20

Control of production. See Factory management

Conventions

- Why we send our executives to conventions. B. E. Hutchinson. Factory 25:36-7 Jl 1 '20

Conventions, Sales. See Sales conventions

Conversion tables

- Conversion factors for weights of metals. C. E. Josselyn. Am Mach 53:1236 D 30 '20
- Conversion table for plotting curves. J. G. Walsh. Eng N 84:486 Mr 4 '20

Conversion tables, Temperature. See Temperature—Measurement

Converters

- Acid Bessemer Duplex process. J. W. Haulman. Blast F & Steel Pl 9:658-60 N '21
- Converting high-grade matte in magnesite-lined converters. H. C. Robson. diags Min & Met 169:32-3 Ja '21
- Copper-converters at Clarkdale, Arizona. il Min & Sci P 121:145-6 Jl 24 '20
- Protects workers in converter shop. H. L. Campbell. il Foundry 48:371+ My 1 '20; Same. Iron Tr R 66:1548-9 My 27 '20
- Side-blow converter foundry. G. P. Fisher. il diags Blast F & Steel Pl 9:98-9 Ja '21
- See also* Foundry practice; Metallurgy; Ore treatment

Converters (electricity). See Electric current converters; Rotary converters

Converters, Synchronous. See Rotary converters

Conveying machinery

- Advantages of mechanical handling. E. Reed. il diag Electrician 86:9-14 D 31 '20
- Application of power-driven machinery to the horizontal transference of miscellaneous freight. J. A. Jackson. il Gen Elec R 24:325-30 Ap '21
- Ash disposal in modern power plants. G. S. Hamilton. il diags plan Blast F & Steel Pl 8:378-83 Je '20
- At Plumville coal is dumped in mine and carried by apron conveyor to tipples. D. J. Baker. il diags plan Coal Age 19:699-703 Ap 21 '21

Conveying machinery—Continued

Belt conveyor transfers coal across river with suspension bridge as support. R. W. Shumway. *il* Coal Age 19:525-7 Mr 24 '21

Belt conveyor used in placing concrete. J: Stearns. *il* Eng N 87:420 S 8 '21

Belt conveyors for placing concrete. *il* Concrete 19:155 O '21

Belt-conveyors on the gold mines of the Witwatersrand. H. D. Grumbley. *il* Min & Sci P 122:313-14 F 26 '21

Blaisdell distributor and a conveyor applied to storage problems. W. A. Harris. *il* diags Electrician 86:31-3 D 31 '20

Brief directory of material handling apparatus. R. H. McLain. *il* diags Gen Elec R 24: 306-17 Ap '21

Building stockpiles by means of scoop conveyors. *il* Eng & Min J 109:1361 Je 19 '20

Construction and operation of an aerial pulp conveyor. C. Crusius. *il* diag Paper 26:20+ Ag 11 '20

Conveying machinery in the refrigerating industry. F. McQueen. *il* A S R E J 6:344-63 Mr '20; Abstract. Eng & Ind Management 5:311-12 Mr 10 '21; Discussion. A S R E J 6:363-8 Mr '20

Conveying systems in textile mills. *il* Textile World 57:225+, 1849+ Ja 10, Mr 6 '20

Conveyor mechanism counts packages carried. *il* Pop Mech 35:419 Mr '21

Conveyors and loaders. *il* Pub Works 49: 322-6 O 2 '20

Conveyors speed delivery of sacked coffee to ships. S. T. Henry. *il* Eng N 85:757-8 O 14 '20

Conveyors speed foundry's work. H. E. Diller. *il* diags Foundry 48:51-8 Ja 15 '20

Cost cutting with conveyors. W. T. Spivey. *il* Textile World 58:3863+ D 4 '20; Same. Paper 27:146+ N 10 '20

Donald elevator-conveyor at Alexandria, Egypt. *il* diags Eng & Ind Management 5: 185-6 F 10 '21

Efficiency exhibition from the standpoint of conveying. *il* diag Eng & Ind Management 5:245-7 F 24 '21

Electric motors for conveyor drive. G. Fox. *il* Power 53:837-40 My 24 '21

Elevating and conveying machinery. W. H. Atherton. *il* Eng & Ind Management 5: 535-6, 589-92 My 5, 19 '21

Fuel handling; comparison of various methods in the power plant. *il* diags Power Pl Eng 25:2-14 Ja 1 '21

Handling bulk materials with less labor. *il* Ry Age 69:408 S 3 '20

Handling coal by using belt conveyors. *il* diag plans Elec W 75:835-8 Ap 10 '20

Handling of materials in industrial plants. R. H. Whitehead. *il* diags Gen Elec R 24: 318-22 Ap '21

History of continuous conveying devices. G: F: Zimmer. *il* Engineer 132:403-4 O 14 '21

Hoisting and conveying system for heavy trench work. *il* Pub Works 49:414 O 30 '20

Hopper dredger with discharging conveyor and cranes. *il* diag plan Engineer 130:176-7 Ag 20 '20

How a small mine met its surface problems. D. J. Baker. *il* Coal Age 19:263-5 F 10 '21

How to reduce frictional losses in conveying machinery. *il* diags Eng & Ind Management 6:388-91 O 6 '21

Interesting applications of electricity to the handling of materials. *il* Electrician 84: 422-3 Ap 16 '20

Interesting uses for conveyors. *il* Sci Am 122: 191 F 21 '20

Interlocking belt conveyor system. A. M. Beebe. *il* diags Gas Age 48:105-7 Ag 6 '21

Last word in band conveyors. G: F: Zimmer. *il* diag plan Eng & Ind Management 6:105-7 Jl 28 '21

Lowering lump coal down a steep mountain on a moving bed of slack. D. J. Baker. *il* diags Coal Age 18:53-8 Jl 8 '20

Mechanical loading of petrol cans into ships. G: F: Zimmer. *il* diag plan Eng & Ind Management 6:45-7 Jl 14 '21

Mechanical loading of ships. H. J. Smith. *il* diags Engineering 111:117-20, 149-51, 184-6 Ja 28-F 11 '21; Excerpts. Engineer 131:103-5 Ja 28 '21; Excerpts. Eng & Ind Manage-

ment 5:420-4, 529-33 Ap 7, My 5 '21; Discussion. Engineering 111:111-12 Ja 28 '21; Engineer 131:91 Ja 28 '21

Neuzeitliche schlepper für warmbetten. W. Heintges. *il* diags Stahl & Eisen 41:446-9 Mr 31 '21

Package conveyor for loading and unloading ships. *il* Sci Am 125:235 O 1 '21

Portable belt conveyor for conveying molten glass. *il* Eng & Ind Management 5:759 Je 30 '21

Portable scoop conveyor for bulk materials. *il* Elec R 78:481-2 Mr 19 '21

Progressive assembly conveyors. *il* plan Eng & Ind Management 6:166-8, 228 Ag 11, 25 '21

Progressive assembly conveyors. C. W. Star-ker. *il* Mach 27:831-2 My '21

Pulverized-material conveyor system. *il* diags Power 54:628-9 O 25 '21

Putting gravity to work in office and shop. *il* Sci Am 122:11 Ja 3 '20

Putting the factory floor on wheels. *il* Factory 26:475-80 F 15 '21

Roe cable conveyor. G: F: Zimmer. *il* diags plans Engineering 110:665-7, pl 69 N 19 '20

Steel band conveyor introduced in the U.S. *il* Concrete 18:sup29-30 F '21

Storing coal or similar material by means of scoop conveyors. *il* Munic Eng 58:42+ Ja '20; Textile World 57:241 Ja 10 '20

Straight line—finished stores to packing box. G. W. Wolfe. *il* Factory 26:965-6 Ap 15 '21

Wharf conveyor meets any river level. *il* Pop Mech 34:331 S '20

Whiting short-turn overhead trolley system. *il* Am Mach 55:117 Jl 21 '21

See also Ash handling; Cableways; Coal handling; Cranes, derricks, etc.; Freight handling; Hoisting machinery; Loading and unloading; Log piling machine; Mechanical handling; Mine haulage; Mine hoisting; Ore handling; Pneumatic conveying; Runways; Telpherage

Safety devices and measures

Hoisting and conveying; machinery safeguards and safe operation recommended by the Engineering department of the National safety council. Power Pl Eng 25:912-14, 1000-3 S 15, O 15 '21

Conveyors. *See* Conveying machinery

Convict labor

Study of wage-payment to prisoners as a penal method. L. D. Weyand. 106p [bibliog. p. 97-106] Univ. of Chicago '20

See also Roads—Convict labor

Cooke, Charles John Bowen, 1859-1920

Sketch. *por* Engineer 130:397-8 O 22 '20

Cooke, Jay, 1821-1905

Jay Cooke and the Northern Pacific. H. Elliott. *Comm & Fin Chr* 113:1728-9 O 22 '21

Cookery

Comparative cooking values of coal, gas, various fluid fuels and electricity. B. L. Steele. *Elec W* 75:1272 My 29 '20

See also Bakers and bakeries; Canning and preserving; Electric cooking; Gas cooking; Kitchens; Shortening (cookery)

Cooking, Electric. *See* Electric cooking

Cooking utensils

Note on the acid resistance of enameled cooking utensils. B. T. Sweely. *Am Cer Soc J* 4:407-9; Discussion. 409-12 My '21

Coolants. *See* Lubrication and lubricants (cutting and grinding)

Cooley, Mortimer Elwyn, 1855-

New president of American engineering council. *por* Mech Eng 43:759-60 N '21; *Elec W* 78:795 O 15 '21; *Min & Met* 179:31-2 N '21; *Power* 54:576-7 O 11 '21; *Am Mach* 55:618b O 13 '21; *Eng N* 87:583 O 6 '21

Coolidge, William David, 1873-

Romance of invention; invention makes tungsten workable, revolutionizes the lighting industry and makes the X-ray an instrument of precision. C. H. Claudy. *Sci Am* 123:282+ S 18 '20

Coolidge tube. See X ray tubes

Cooling

- Air-cooler for hardening high-speed steel. diags Mach 26:1174 Ag '20
- Application of cooling coils to coal storage. W: M. McNeill. Power 53:899 My 31 '21
- Cooling liquids in spray systems and cooling towers. E. M. Baker. il Chem & Met Eng 22:173-6 Ja 28 '20
- Cooling oil for quenching tanks. S. E. Derby. diags Iron Tr R 69: 674-6 S 15 '21; Abstract. Iron Age 108:668 S 15 '21
- Design and use of water cooled floors. W. H. Melaney. Blast F & Steel Pl 8:399-400 Jl '20
- Double pipe heat interchangers. G: A. Richter. diags plans Chem & Met Eng 22:551-6 Mr 24 '20
- Fuller's earth cooling device for small refineries. diags Nat Pet N 12:49+ Ap 14 '20
- Keeping factory temperatures where you want them; how air washers and coolers are used in factory ventilation. C: L. Hubbard. il diags plan Factory 26:1195-8 My 15 '21
- Method of utilizing heating systems for cooling rooms in summer. A. M. Feldman. diags Am Soc Heat & V E J 27:15-18 Ja '21; Abstract. Heat & Ven 18:43-4 Ap '21
- Water-cooled acid chambers adopted in England. A. M. Fairlie. il diags plan Chem & Met Eng 24:786-9 My 4 '21
- Water-spray air cooler for the shop. J. H. Van Nice. diags plan Pop Mech 34:123-4 Jl '20
- See also Automobile engines—Cooling; Cold storage; Cooling of water; Cooling ponds; Cooling towers; Cooling water; Electric generators—Cooling; Electric transformers—Cooling; Gas and oil engines—Cooling; Oil coolers; Refrigeration and refrigerating machinery
- Cooling beds (conveyors)**
- George patent for cooling bed held an advance in art and valid. W. Gustin. Chem & Met Eng 25:324 Ag 24 '21
- New Interstate mill has pack cooling bed. G. L. Lacher. il Iron Age 108:859-64 O 6 '21
- Cooling of water**
- L'appareil de refroidissement d'eau pour moteurs, système Heenan and Froude. diags Génie Civil 78:464 My 28 '21
- Cooling of water in a canal; abstract. L. C. Kemp. Mech Eng 43:337 My '21
- Economizer fountain. diags Mach 27:992 Je '21
- Heenan water cooler. il diags plan Engineering 111:193 F 18 '21
- Keeping drinking water cool. Factory 24: 1268+ Ap 15 '20
- Methods of recooling condensing water. diags Power Pl Eng 25:361-5, 408-10, 454-7 Ap 1-My 1 '21; Abstract. Mech Eng 43:406-7 Je '21
- Self-contained water cooler of stationery internal-combustion engines. diags Power Pl Eng 24:865 S 1 '20
- Spray cooling systems. P. K. Lindsay. il A S R E J 7:247-58 Ja '21
- Cooling ponds**
- Cooling ponds. plan Power Pl Eng 25:364 Ap 1 '21
- Cooling ponds for textile mills. L. H. Parker. il Textile World 56:2763+ N 1 '19
- Methods of recooling condensing water. diags Power Pl Eng 25:408-10 Ap 15 '21; Abstract. Mech Eng 43:406-7 Je '21
- Spray ponds. H. M. Brayton. il Power 50:742-4 N 25 '19
- Cooling towers**
- Cooling liquids in spray systems and cooling towers. E. M. Baker. il Chem & Met Eng 22:173-6 Ja 28 '20
- Cooling tower serves banks of large transformers. diags Elec R 77:219 Ag 7 '20
- Cooling tower structure details. diags Power Pl Eng 24:861-2 S 1 '20
- Cooling towers. diags Power Pl Eng 25:365 Ap 1 '21
- Cooling towers. F. K. T. van Iterson. il diags Electrician 84:690-2 Je 25 '20

Cooling towers for condensers. J. B. Harry. diags A S R E J 6:178-82; Discussion. 182-9 N '19

Corrugated zinc used in Louvers for cooling towers. il Sheet Metal Worker 12:227 Ap 29 '21

Cross-current flow type water-cooling tower. Mech Eng 43:547 Ag '21

Design and testing of water-cooling towers. I. V. Robinson. Mech Eng 43:405-6 Je '21; Same. Sci Am M 3:568-9 Je '21

Design of a cooling tower. R. L. Mossman. diags plans Power Pl Eng 24:712-13 Jl 15 '20

Dutch cooling towers of concrete. il Sci Am 123:215 S 4 '20

Experience with transformer cooling methods. G. E. Armstrong. il Elec W 75:541-2 Mr 6 '20

Methods of recooling condensing water. diags plan Power Pl Eng 25:454-7 My 1 '21

Theory of cooling towers compared with results in practice. B. H. Coffey and G: A. Horne. A S R E J 7:173-88; Discussion. 188-201 N '20

Cooling water

Refrigeration study course; cooling water. H. J. Macintire. il diags Power 51:1004-6 Je 22 '20

La vaccination des eaux de circulation des condenseurs à surface par le procédé Scambalcke. il diags Génie Civil 78:153-7 F 12 '21; Abstract. Power 54:39 Jl 5 '21

Coonley, Howard

Builders of business. B. G. Priestley. por System 40:281-2 S '21

Cooper Hewitt mercury vapor lamp. See Electric lamps, Mercury vapor

Cooperation

Aims and possibilities of the consumers' cooperative movement. F. E. Parker. Monthly Labor R 10:1423-8 Je '20

Comparative study of the cooperative movement in various countries. F. E. Parker. Monthly Labor R 11:777-91 C '20

Cooperation. See monthly numbers of Monthly labor review

Cooperation, a study in constructive economic reform. G. S. Watkins. Monthly Labor R 13. 456-8 Ag '21

Cooperative movement. J. P. Warbasse. Am Soc Heat & V E J 26:189-96 Mr '20

Cumulative cooperation. S. M. Kennedy. J Elec 44:512-15 My 15 '20

Manufacturers must take action on farmers' co-operative buying. G. A. Nichols. Ptr Ink 113:105-6+ O 14 '20

Our social heritage. G. Wallas. 307p Yale university press, New Haven '21

Progress of cooperation in various countries. Monthly Labor R 10:1436-50; 11:142-50 Je-Jl '20

Report of the committee on cooperation in the electric industry. N E L A Bul 7:678-81; Discussion. 681-3 O '20

See also Advertising, Cooperative; Agriculture, Cooperative; Benefit societies; Building, Cooperative; Building and loan associations; Company stores; Cooperative stores; Employee representation in management; Housing projects, Cooperative; Industrial management; Laundry, Cooperative; Marketing, Cooperative; Mining companies, Cooperative; Profit sharing; Purchasing, Cooperative; Savings banks; Socialism; Trade unions; also All-American cooperative congress, International cooperative alliance, National cooperative convention, 2d

Pamphlets on cooperation may be obtained from The Co-operative league of America, 2 W. 13th st., New York city

Bibliography

Social movements. S. Zimand. p. 72-80 H. W. Wilson co. '21

Czechoslovakia

Co-operative movement in Czecho-Slovakia. Int Labour R 4:145-56 O '21

Cooperation —Continued**Germany**

Works councils in Consumers' co-operative societies in Germany. *Int Labour R* 3:188-204 J1 '21

Great Britain

Activities of British cooperative societies during 1917. *Monthly Labor R* 10:181-3 Ja '20

British co-operative movement. H. W. Laidler. 16p Co-operative league of America, New York '21

Political action by the English cooperative movement. *Monthly Labor R* 11:532-4 S '20

Ireland

Co-operation in Ireland. L. E. P. Smith-Gordon and C. O'Brien. 92p (Int. coop. ser. no. 3) The Co-operative union, Manchester, England '21

Japan

Co-operative societies of Japan; origin and development. *Int Labour R* 1:265-79 F '21

Poland

Consumers' co-operative societies in Poland. *Int Labour R* 2:89-96 Ap '21

Solving Poland's industrial dilemma. H. Anielewski. *il Am Mach* 53:1004-5 N 25 '20

Russia

Russian cooperative movement. F. E. Lee. *il U S Bur For & Dom Com misc ser* 101:1-83 '20

Russian cooperative movement. A. J. Zelenko. *Monthly Labor R* 10:1428-36 Je '20

Russian coöperative movement and its relation to capital and labor. W. G. Perkins. *il Min & Met* 158:(sec 1) 7-11 F '20

United States

Consumers' cooperative wholesale societies in the United States. F. E. Parker. *Monthly Labor R* 10:947-58 Ap '20

Cooperative movement in the United States. F. E. Parker. *Monthly Labor R* 10:732-9 Mr '20

Railway brotherhood to extend manufacture of gloves and overalls. *Ptr Ink* 110:84+ Mr 11 '20

Cooperative advertising. See Advertising, Co-operative

Cooperative agriculture. See Agriculture, Co-operative

Cooperative building. See Building, Co-operative

Cooperative buying. See Purchasing, Co-operative

Cooperative garages. See Garages, Co-operative

Cooperative league of America
Cooperative league of America. *Monthly Labor R* 12:131-2 Ja '21

Cooperative marketing. See Marketing, Co-operative

Cooperative mining. See Mining companies, Co-operative

Cooperative purchasing. See Purchasing, Co-operative

Cooperative stores

Co-operative store educates employees in business principles. *Automotive Ind* 43:1020-1 N 18 '20

Elements of success and possibilities of saving in cooperative stores. F. E. Parker. *Monthly Labor R* 11:136-42 J1 '20

Farmers' organizations tire of co-operative store. *Ptr Ink* 114:113-14 F 17 '21

How to start and run a co-operative store on the Rochdale plan. 30p [bibliog 1p] '20 Co-operative league of America, 2 West 13th St., New York

New Cornelia co-operative store at Ajo. *Min & Sci P* 121:591 O 23 '20

Rise of the labor-union store. *Ptr Ink* 111:41-2+ My 13 '20

Store that educates. M. L. Brandely. *Factory* 26:1112+ My 1 '21

See also Company stores

Cooperite

Cutting tools which contain no iron. *Sci Am* 124:367 My 7 '21; Same. *Brass W* 17:133 My '21; Abstract. *Pop Mech* 36:232 Ag '21

Coordinates

Alignment chart for circular and hyperbolic functions of a complex argument in rectangular coordinates. V. Bush. chart diag *Am Inst E E J* 39:658-9 J1 '20

Co-partnership

Profit-sharing and labour co-partnership in Great Britain. *Int Labour R* 4:114-26 O '21

Bibliography

Social movements. S. Zimand. p. 86-8 H. W. Wilson co. '21

Copper

Action of reducing gases on heated copper. H. Moore and S. Beckinsale. *il diag Engineering* 111:729-32 Je 10 '21; Discussion. 111:315-16 Mr 18 '21; *Engineer* 131:285-6 Mr 18 '21

Behavior of copper in molybdenum ores. J. P. Bonardi and M. Shapiro. *Chem & Met Eng* 24:847-50 My 11 '21

Copper—a delicate material. N. B. Pilling. *il Elec J* 17:320-2 Ag '20

Copper implements of the copper Eskimo. D. A. Cadzow. *il Eng & Min J* 111:1024-7 Je 18 '21

Copper metal from the consumer's point of view. *Min & Sci P* 122:287-90 F 26 '21

Copper, zinc, tin and their alloys; general use by electric railways. N. Litchfield. *Elec Ry J* 56:1051-4 N 20 '20

Data on the composition of arsenic enamels for copper. B. T. Sweely. *Am Cer Soc J* 4:350-6 My '21

Diffusion of solid copper in liquid aluminum. R. J. Anderson. *il Chem & Met Eng* 23:575-7 S 22 '20

Electricity and copper. *Min & Sci P* 123:110-11 J1 23 '21

Electro-deposition of copper and its industrial applications. C. W. Denny. 108p Pitman '21

German war copper supply. H. Schulz. *Iron Age* 105:1227 Ap 29 '20

Handling of copper. J. V. Dobson. *Elec J* 18:76 F '21

Influence of cold rolling on the physical properties of copper. F. Johnson. *diags Engineering* 110:257-60 Ag 20 '20

Influence of copper on some physical properties of iron and steel. E. A. Richardson and L. T. Richardson. *Chem & Met Eng* 24:565-7 Mr 30 '21

Influence of copper on the rate of solution of iron in acids. F. K. Bell and W. A. Patrick. *diag Am Chem Soc J* 43:452-65 Mr '21

Laying copper roofing and gutters. W. Neubecker. *diags Sheet Metal Worker* 12:403-4+, 465-6, 595-6, 665-6 J1 8, Ag 5, S 30, O 28 '21 (to be cont)

Metallic copper in a meteorite vein. T. T. Quirke. *il Econ Geol* 14:619-24 D '19

Metallographic etching reagents: for copper. H. S. Rawdon and M. G. Lorentz. *il U S Bur Stand Sci Pa* 399:641-68 '20

More uses of copper. *Min & Sci P* 123:179-80 Ag 6 '21

Observations on the mechanism of the increased corrosion resistance of steel and iron due to small copper contents. D. M. Buck. *Am Electrochem Soc Trans v* 39 (preprint 6):47-54 Ap '21

Our mineral supplies; copper. B. S. Butler. *U S Geol S Bul* 666:103-6 '19

Peculiar type of intercrystalline brittleness of copper. H. S. Rawdon and S. C. Langdon. *il U S Bur Stand Tech Pa* 158:1-5 '20; Same. *Min & Met* 158:(sec 19) 1-4 F '20

Presence of copper in food plants. *Sci Am M* 2:204 N '20

Copper—Continued

- Relationship of physical and chemical properties of copper. F. L. Antisell. *Min & Met* 157:(sec 2) 1-5 Ja '20; Same. *Metal Ind* 18:71-2 F '20; Abstract. *Chem & Met Eng* 22:344-6 F 25 '20; Abstract. *Foundry* 48:135 F 15 '20
- Requirements of refined copper. L. Addicks. *Chem & Met Eng* 22:449-53 Mr 10 '20
- Research committee to investigate copper industry. *Elec R* 77:292-3 Ag 21 '20
- System copper:cupric oxide:oxygen. H. S. Roberts and F. H. Smyth. *Am Chem Soc J* 43:1061-79 My '21
- Tempered copper and the gas industry. I. Ginsberg. *Am Gas J* 115:280+ S 24 '21
- Thermal expansion of copper and its important industrial alloys. P. Hidnert. *Min & Met* 169:32-3 Ja '21
- Why is copper a luxury? *Eng & Min J* 111:45 Ja 8 '21
- World's production of copper, 1911-1920; tabulation. *Min & Sci P* 122:887 Je 25 '21; Same. *Eng & Min J* 111:1050 Je 18 '21
- See also Brass; Bronze; Copper alloys; Copper founding; Copper industry and trade; Copper metallurgy; Copper mines and mining; Copper plating

Analysis

- Accurate and quick determination of copper in slag. A. M. Smoot. *Eng & Min J* 109:699 Mr 20 '20
- Chemical analysis of plain carbon steel; determination of copper. *Foundry* 49:738a S 15 '21
- Determining copper in slag. F. E. Lathe. *Eng & Min J* 109:1010 My 1 '20
- Electrolytic copper assay—a new modification. F. G. Hawley. *Eng & Min J* 110:162-5 Jl 24 '20
- New method for copper assaying. G. J. Hough. *Eng & Min J* 111:505 Mr 19 '21
- Recherche de très petites quantités de cuivre. A. Kling and A. Lassieur. *Chimie & Ind* 4:329-30 S '20

Coloring

- Coloring and bronzing copper. *Sheet Metal Worker* 12:443 Jl 22 '21

Cost

- Copper costs average 16c.; Federal trade commission publishes results of an investigation. *Eng & Min J* 108:764-5 N 8 '19
- Cost of copper in 1918. *Chem & Met Eng* 22:38-9 Ja 7 '20
- Cost of copper in 1921. E. E. Thum. *Eng & Min J* 111:91-2 Ja 15 '21

Prices

- Copper a hundred years ago. *Eng & Min J* 110:574 S 18 '20
- Future of copper. E. C. Holden. *Min & Sci P* 122:98 Ja 15 '21

Specifications

- Development and use of some A. S. T. M. copper specifications. *Min & Met* 172:29-30 Ap '21
- Old metals classification of National association of waste material dealers, inc. *Iron Age* 106:451 Ag 19 '20
- Standard specifications for electrolytic copper wire bars, cakes, slabs, billets, ingots, and ingot bars; English and French. U S Bur For & Dom Com Industrial Standards 139:1-12 '21
- Standard specifications for hard-drawn copper wire; English and French. *diags U S Bur For & Dom Com Industrial Standards* 135:1-22 '21
- Standard specifications for lake-copper wire bars, cakes, slabs, billets, ingots, and ingot bars; English and French. U S Bur For & Dom Com Industrial Standards 138:1-12 '21
- Standard specifications for soft or annealed copper wire; English and French. U S Bur For & Dom Com Industrial Standards 137:1-16 '21

Testing

- Influence of the width of the specimen upon the results of tensile tests of mild steel and rolled copper. T. H. Beare and W. Gordon. *Engineering* 112:389-91 S 9 '21; Excerpts. *Engineer* 132:288 S 16 '21

Copper, Hardening of

- Hard copper. *Automotive Ind* 44:1095 My 26 '21
- Is hardening copper a lost art? E. E. Thum. *Eng & Min J* 111:461-3 Mr 12 '21

Copper alloys

- Les alliages de cuivre, de zinc et de nickel. L. Guillet. *il Génie Civil* 76:259-60 Mr 6 '20
- Aluminum-copper alloys. R. J. Anderson. *diag Am Electrochem Soc Trans v 40 (preprint 16):207-36 S '21*
- Constitution of the alloys of copper with tin. J. L. Haughton. *il diags Engineering* 111:789-93 Je 24 '21
- Copper-aluminum-iron bronze as an acid resisting alloy. O. L. Kowalke. *Chem & Met Eng* 22:37-8 Ja 7 '20
- Copper-nickel alloys. P. D. Merica. *il diag Chem & Met Eng* 24:558-60 Mr 30 '21
- Copper, zinc, tin and their alloys; general use by electric railways. N. Litchfield. *Elec Ry J* 56:1051-4 N 20 '20
- Density of the copper-zinc alloys. T. G. Bamford. *Engineering* 112:585-7 O 21 '21
- Distinguishing lead in brass and bronze. F. P. Gilligan and J. J. Curran. *il Iron Age* 105:657-8 Mr 4 '20
- Distinguishing lead in brass and bronze. O. A. Knight. *il Iron Age* 105:327-8 Ja 29 '20
- Experience with a 91:9 copper-aluminum alloy. A. I. Krynitzky. *diags Chem & Met Eng* 21:770-1 D 24 '19
- Experiences with the alkaline and alkaline earth metals in connection with non-ferrous alloys. C. Vickers. *Am Electrochem Soc Trans v 40 (preprint 14):191-8 S '21; Same. Brass W* 17:288-90 O '21
- Experiments in manufacturing no. 12 alloy. R. J. Anderson. *il Chem & Met Eng* 23:883-7 N 3 '20
- Figuring percentages of metals in alloys. *Foundry* 49:440 Je 1 '21
- Formulas for the brass foundryman. *Foundry* 48:780a, 830a, 868a O 1-N 1 '20
- Manufacture of cupro-nickel. H. D. Swift. *Metal Ind* 19:394-5 O '21
- Manufacture of rich copper; aluminum alloys or hardeners. R. J. Anderson. *il Chem & Met Eng* 23:617-21 S 29 '20
- Mechanism of solidification of a copper aluminum alloy. J. D. Edwards. *Chem & Met Eng* 24:217-20 F 2 '21
- Plastic deformation of some copper alloys at elevated temperatures. C. A. Edwards and A. M. Herbert. *diags Engineering* 111:341-4 Mr 18 '21; Abstract. *Engineer* 131:285 Mr 18 '21; Discussion. *Engineering* 111:315 Mr 18 '21; *Engineer* 131:285-6 Mr 18 '21
- Production of copper calcium alloys. F. O. Bense. *Metal Ind* 18:277 Je '20
- Proper melting order for copper alloys. *diags Foundry* 48:947 D 1 '20
- Properties of some nickel-aluminum-copper alloys. A. A. Read and R. H. Greaves. *il Engineering* 112:453-6; Discussion. 448 S 23 '21
- Season cracking of brass and other copper alloys. H. Moore, S. Beckinsale and C. F. Mallinson. *il Engineering* 112:262-4, 297-9, 327-30 Ag 12-26 '21; Abstracts. *Engineer* 131:264 Mr 11 '21; *Iron Age* 107:913 Ap 7 '21; *Metal Ind* 19:155 Ap '21; Discussion. *Engineering* 111:300-1 Mr 11 '21; *Engineer* 131:264 Mr 11 '21; *Iron Age* 107:913-14 Ap 7 '21
- Some theoretical principles of alloying. R. J. Anderson. *il diag Chem & Met Eng* 23:317-20 Ag 25 '20
- See also Alloys; Biakmetal; Brass; Brazing; Bronze; Gun metal; Nickel silver
- Copper-ammonia-cellulose. See Schweizer's reagent

Copper ammonium carbonate

Absorption of carbon monoxide by cuprous ammonium carbonate solutions. W: R. Hainsworth and E. Y. Titus. diag Am Chem Soc J 43:1-11 Ja '21

Copper assaying. See Copper—Analysis**Copper chlorides**

Convenient method for the preparation of a hydrochloric acid solution of cuprous chloride for use in gas analysis. F. C. Krauskopf and L. H. Purdy. J Ind & Eng Chem 12:158-61 F '20

Copper chromate

Some factors affecting rhythmic precipitation. A. E. Koenig. il J Phys Chem 24:466-77 Je '20

Copper-clad malleable range company

How Loyd Scruggs built an immense business by disregarding precedent. G. A. Nichols. Ptr Ink 113:3-4+ D 30 '20

Copper cleaning

Cleaning copper after tinning. Sheet Metal Worker 11:376 N 26 '20

Copper compounds

Reaction between copper and nitrogen peroxide. H. V. Tartar and W. L. Semon. diag Am Chem Soc J 43:494-500 Mr '21

See also Copper oxides; Copper sulfate; Cupritartrates

Copper export association

Financing of the copper surplus. Eng & Min J 111:371 F 19 '21

Public relieves banks of their \$40,000,000 load of copper. Annalist 17:227-8 F 14 '21

Copper-fouling. See Guns (ordnance)**Copper founding**

Casting copper in spinning molds. L: J. Josten. il Foundry 47:910-13 D 15 '19

Casting copper melted in iron cupola. T. F. Jennings. il Foundry 48:946 D 1 '20

Notes on the effects of hydrogen on copper. W. C. Hothersall and E. L. Rhead. il Engineering 109:391-3 Mr 19 '20

See also Brass founding

Copper industry and trade

Copper prosperity deterrents. Eng & Min J 109:1438-9 Je 26 '20

Copper-selling drive. L. S. Ropes. Min & Sci P 123:149-50 Jl 30 '21

Copper situation as seen by the fabricator. Eng & Min J 111:616-17 Ap 9 '21

Distribution of copper. A. Bregman. Metal Ind 18:217-20 My '20

Future of copper. E. C. Holden. Min & Sci P 122:14-16 Ja 1 '21

Future outlook for the copper industry is one of great promise. ii Americas 7:22-9 Ja '21

Importance of European copper purchases. Eng & Min J 110:436 Ag 28 '20

New form of copper contract on New York metal exchange. Comm & Fin Chr 112:2492 Je 11 '21

No immediate improvement in copper market is expected. Annalist 17:23 Ja 3 '21

Opportunities for copper. Eng & Min J 111:209-10 Ja 29 '21

World's production of copper. Brass W 17:91 Ap '21

See also Copper—Prices; Copper export association

Advertising

Copper gets ready to advertise. R. Dickinson. Ptr Ink 116:45-6+ S 15 '21

China

Copper in China. Min & Sci P 121:82 Jl 17 '20

United States

Analysis of the copper situation for first half of 1920. Eng & Min J 110:387 Ag 21 '20

Bracing up copper and brass. W: A. Willis. Am Ind 22:11-13 O '21

Charge in Congress against copper producers. W. Douglas. Eng & Min J 109:67-9 Ja 10 '20

Copper. H. A. C. Jenison. Eng & Min J 111:137-8 Ja 22 '21

Copper in 1918. B. S. Butler. U S Geol S Min Res of U S 1918,pt 1:877-935 '20

Copper in 1919. H. A. C. Jenison. U S Geol S Min Res of U S 1919,pt 1:537-614 '21

Copper industry in 1919. Chem & Met Eng 23:337 Ag 25 '20

Copper market. Comm & Fin Chr 113:1639-40 O 15 '21

Copper market in 1919. Eng & Min J 109:114-15 Ja 17 '20

Copper prices, production, and exports. Eng & Min J 111:128 Ja 15 '21

Copper produced in the United States from domestic ores, 1913-1920; tabulation. Sanitary & Heat Eng 96:57 Jl 15 '21

Copper yield and most important producing districts. Eng & Min J 110:1046 N 27 '20

Curtailment in the copper industry. Eng & Min J 110:1154 D 11 '20

Decline of copper. Eng & Min J 110:889 O 30 '20

Domestic production of copper during 1920. Elec R 78:174 Ja 29 '21; Same. Min & Sci P 122:14-16 Ja 1 '21

Importance of foreign trade in copper and other non-ferrous metals. F. E. Wormser. Eng & Min J 111:826 My 14 '21

Outlook in the copper industry shows great promise. Elec R 78:727-8 Mr 5 '21

Principal American copper-mining companies and what becomes of their copper. E: H. Robie. Eng & Min J 111:847-8 My 14 '21

Problem of domestic copper consumption. H. A. C. Jenison. Eng & Min J 111:502-4 Mr 19 '21

Problems and peculiarities of the copper situation. F. E. Wormser. Annalist 18:247 S 12 '21

Production of copper in the United States, 1913 to 1919; tabulation. Min & Sci P 121:383 S 11 '20

Production of copper in the United States, 1916-1919. Eng & Min J 109:114 Ja 17 '20

Production of copper in the United States, 1920. Min & Sci P 122:348-9 Mr 12 '21

Reports of the porphyry coppers. Eng & Min J 110:392, 437 Ag 28 '20

Statistical review; production of base metals for 1919. Min & Sci P 120:202 F 7 '20

United States copper production in 1920. Iron Age 108:136 Jl 21 '21

Copper metallurgy

Ajo test mill. C. A. Mette. flow sheet Eng & Min J 109:1314 Je 12 '20

Ammonia leaching process as used at the the Kennecott copper co. plant, Kennecott, Alaska. E: L. Sweeney. Min & Met 170:17 F '21

Application of copper-refining practice to other fields. L. Addicks. Chem & Met Eng 23:110-12 Jl 21 '20

Chloridizing and leaching as practiced in Sweden. N. Ostman. il diags Eng & Min J 111:417-22 Mr 5 '21; Discussion. G. D. Van Arsdale; H. A. De Fries. 111:578 Ap 2 '21

Chuquicamata enterprise. A. W. Allen. il diags Min & Sci P 122:835-42; 123:117-21 Je 18, Jl 23 '21

Converting high-grade matte. Eng & Min J 112:206 Ag 6 '21

Converting high-grade matte in magnesite-lined converters. H. C. Robson. diags Min & Met 169:27-8 Ja '21

Copper and magnetite in copper smelter slags. C: G. Maier and G. D. Van Arsdale. il Chem & Met Eng 22:1101-7, 1157-62 Je 16-23 '20; Discussion. R. C. Canby. 23:48 Jl 14 '20

Copper leaching and precipitation practice in North and South America outlined. F. E. Lathe. Eng & Min J 111:467-8 Mr 12 '21; Discussion. 111:656-7, 817 Ap 16, My 14 '21

Copper losses in slags. F. E. Lathe. Eng & Min J 110:1076-80 D 4 '20; Discussion. 111:48, 257 Ja 8, F 5 '21

Copper refining. L. Addicks. 211p McGraw-Hill '21

Copper smelting and refining works. Eng & Min J 109:116-17 Ja 17 '20

Developing a mill flow sheet at Morenci, Ariz. A. Crowfoot and E. Wittenau. flow sheets Eng & Min J 109:1349-54 Je 19 '20

Copper metallurgy—Continued

- Development of copper precipitating apparatus. J. Irving, jr. diags Min & Sci P 123:533-8 O 15 '21
- Economics of copper blast furnace charging. C. A. Grabill. Eng & Min J 110:510-14 S 11 '20
- Effect of sizing a copper blast-furnace charge. J. H. Gillis. Eng & Min J 112:175 J1 30 '21
- Electrolytic separation of copper from a copper-cobalt-nickel matte. R. G. Knickerbocker. flow sheet diags Min & Sci P 121:45-50 J1 10 '20
- Elements of design of a copper refinery. L. Addicks. Chem & Met Eng 23:193-6 Ag 4 '20
- Engels copper mine and mill, California. G. J. Young. flow sheets il diag plan Eng & Min J 111:904-8 My 28 '21
- Flotation practice at Mount Lyell. L. V. Waterhouse. diags plan Min & Sci P 123:87-93 J1 16 '21
- Flotation tests of Idaho ores. C. A. Wright, J. G. Parmelee and J. T. Norton. il U S Bur Mines Bul 205:49-55. 61-5 '21
- Heap-leaching of copper ore at Bisbee. J. Irving, jr. Min & Sci P 122:225 F 12 '21
- Hidachi copper smelter of Japan. C. F. Mason. flow sheet il Eng & Min J 111:55-7 Ja 8 '21
- Hydrometallurgical process for copper ores. flow sheet Chem & Met Eng 22:473-4 Mr 10 '20
- Hydrometallurgical recovery of copper by the use of iodine; patent. Chem & Met Eng 23:347 Ag 25 '20
- Hydrometallurgy and pyrometallurgy of copper in 1919. Chem & Met Eng 22:6-7 Ja 7 '20
- Hydrometallurgy of copper sulfides. W. E. Greenawalt. Min & Met 166:20-1 O '20; Same. Sci Am M 2:188-9 O '20
- Is moist air desirable for copper blast furnaces? J. H. Gillis. Eng & Min J 112:250 Ag 13 '21; Discussion. F. K. Brunton. 112:404-5 S 10 '21
- Leaching and concentrating mixed copper ores. A. Crowfoot and K. H. Donaldson. flow sheets il Eng & Min J 110:471-4 S 4 '20
- Low sulphur content presents a metallurgical problem. Eng & Min J 111:230, 550, 736 Ja 29. Mr 26. Ap 30 '21
- Metal business. A. Bregman. il Metal Ind 18:1-6 Ja '20
- Metal prices and mining in Mexico. H. G. Nichols. il Min & Sci P 121:655-8 N 6 '20
- Metallurgical methods at Rio Tinto; details of the cementation plant. C. De Kalb. il Min & Sci P 122:185-91 F 5 '21; Discussion. 122:451, 638-40 Ap 2, My 7 '21
- Metallurgical plan for Consolidated copper-mines. Chem & Met Eng 21:512-13 O 22 '19
- Metallurgical progress in Shasta county, Cal. G. J. Young. il map Eng & Min J 112:286-90 Ag 20 '21
- Metallurgy of copper in 1919. A. L. Walker. Eng & Min J 109:189-90 Ja 17 '20
- Metallurgy of copper in 1920. E. P. Mathewson. Eng & Min J 111:196-7 Ja 22 '21
- Method of and apparatus for precipitating copper from hot solutions; patents. diag Chem & Met Eng 22:1041 Je 2 '20
- Modern practice in operating copper refining furnaces. diags Eng & Min J 111:793 My 7 '21
- Modification of Horwood's process for the treatment of copper-zinc ores. H. L. Hazen. Min & Sci P 120:455-6 Mr 27 '20
- Nevada consolidated copper co.; concentration of the ore. A. B. Parsons. flow sheets il diag plan Min & Sci P 123:319-31 S 3 '21
- Nevada consolidated copper company; the smelter. A. B. Parsons. il diags plan Min & Sci P 123:393-402 S 17 '21
- New Copper Queen concentrator, at Bisbee. J. B. Trimble, jr. flow sheet il Eng & Min J 111:1079-81 Je 25 '21
- New plant of the West Virginia metal products corp. il Metal Ind 18:543-8 D '20
- Operation of the Engels copper mining company. A. B. Parsons. flow sheet il plan Min & Sci P 123:183-94 Ag 6 '21

Power problem in a copper refinery. L. Addicks. Chem & Met Eng 23:275-8 Ag 18 '20

Present state of the art of copper metallurgy. E. P. Mathewson. Min & Met 178:13-14 O '21

Primitive copper metallurgy. A. C. Preston. il Eng & Min J 109:1262 Je 5 '20

Principles of leaching and precipitation of copper. F. E. Lathe. Can Chem & Met 5:202-3 J1 '21

Production of copper from secondary material. L. Addicks. Chem & Met Eng 22:119-22 Ja 21 '20

Pyritic smelting of refractory sulphides in a Knudsen furnace. E. H. Robie. il diags plan Eng & Min J 111:304-7 F 12 '21

Queen nine-hearth roaster. J. M. Samuel. Min & Met 175:27+ J1 '21

Remodeled Arizona Hercules concentrator. J. T. Shimmin. flow sheet il diags plan Eng & Min J 109:1115-17 My 15 '20

Reverberatory copper smelting in Arizona. C. F. Mason. il diags Eng & Min J 109:1070-1 My 8 '20

Reverberatory furnace for treating converter slag at Anaconda. F. Laist and H. J. Maguire. il diag plan Min & Met 157:(sec 13) 1-12 Ja '20

Russian copper refinery under bolshevik control. R. G. Knickerbocker. flow sheet il Min & Sci P 120:677-82 My 8 '20

Selecting a slag and apportioning slag losses. C. A. Grabill. Eng & Min J 110:569-72 S 18 '20

Selective converting at Clifton, Ariz. J. O. Ambler. Eng & Min J 111:267-8 F 5 '21; Discussion. H. L. Hancock. 111:1056 Je 25 '21

Smelter of the Calaveras copper co. E. H. Robie. il diag Eng & Min J 111:984-7 Je 11 '21

Smelting with bituminous coal in blast furnaces. H. C. Robson. il diags Min & Sci P 121:409-12 S 18 '20

Some observations on smelting. Min & Sci P 120:893-4; 121:41-2 Je 19, J1 10 '20

Stack losses at Arizona copper co. J. O. Ambler. diags Chem & Met Eng 22:305-6 F 18 '20

Sulphatizing roasting of basic mill tailings; method developed by Shannon copper co., Clifton, Ariz. W. L. Maxson. flow sheets il Eng & Min J 109:869-73 Ap 10 '20

Tidewater mine, on Vancouver island. D. M. Drumheller, jr. il diag Min & Sci P 122:423-4 Mr 26 '21

Treatment of American low-grade copper ores. Min & Sci P 121:419-21 S 18 '20

Treatment tests on ores of Consolidated copper-mines co. R. Linton. flow sheet Min & Met 162:30-1 Je '20

United Verde smelter. L. A. Parsons. flow sheet il diag map Min & Sci P 121:547-57 O 16 '20

Costs

Calculation of unit smelting costs and values. C. A. Grabill. Eng & Min J 110:615-20 S 25 '20

Selecting a slag and apportioning slag losses. C. A. Grabill. Eng & Min J 110:569-72 S 18 '20

Copper mines and mining

Churn drilling of disseminated copper deposits. E. R. Rice. il Eng & Min J 111:1058-64; 112:11-18 Je 25-J1 2 '21

Engineers visit copper and iron ranges. R. D. Hall. il Coal Age 18:527-32 S 9 '20

Mining copper from fire stopes. L. Abbott. il diag Pop Mech 34:165-8 Ag '20

Selecting electric haulage equipment. R. H. Bacon. il Elec W 75:831-3 Ap 10 '20

Status of the metal mining industry: an interrogatory. Min & Sci P 123:539-44 O 15 '21

Alaska

Salt Chuck palladium-copper mine. J. B. Mertie, jr. il Eng & Min J 110:17-20 J1 3 '20

Copper mines and mining—Continued

Argentina

Mining in Argentina. M. R. Walker. il map
Eng & Min J 112:291-4 Ag 20 '21

Arizona

- Arizona's oldest copper mine. F. L. Thurmond. il Min & Sci P 120:647 My 1 '20
Copper deposits of Ray and Miami, Arizona. F. L. Ransome. il diags maps plans U S Geol S Prof Pa 115:1-192 '19
Copper in Arizona. W. Douglas. Eng & Min J 109:115-16 Ja 17 '20
Development methods at Morenci branch of Phelps Dodge corporation. J. P. Hodgson and P. B. Lord. Eng & Min J 111:620-2, 791 Ap 9, My 7 '21
Mining methods and costs at the United Verde mine. H. D. Smith and W. H. Sirdevan. diag plan Min & Met 161:30-2 My '20; Excerpts. Eng & Min J 110:457-8 S 4 '20
Moving Sacramento Hill. il Min & Sci P 121:847-8 D 11 '20
New surface-plant for the United Verde copper company. L. A. Parsons. il diags plans Min & Sci P 122:873-8 Je 25 '21
Ore deposits of Cave Creek district, in Arizona. A. S. Lewis. il map Eng & Min J 110:713-16 O 9 '20
Power of copper. G. J. Mitchell. il Eng & Min J 110:1207-8 D 25 '20
Steam-shovel operations at the United Verde mine. L. A. Parsons. il diag Min & Sci P 122:447-8, 453-5 Ap 2 '21
Vertical extent of copper ore minerals in the Junction mine, Warren district, Arizona. G. J. Mitchell. il Eng & Min J 109:1411-12 Je 26 '20

British Columbia

Boundary district, British Columbia. C. M. Campbell. il map Eng & Min J 109:968-73 Ap 24 '20

California

- Engels copper mine and mill, California. G. J. Young. flow sheets il diag plan Eng & Min J 111:904-8 My 28 '21
Operations of the Engels copper mining company. A. B. Parsons. il diags Min & Sci P 123:151-8 Jl 30 '21; Discussion. H. W. Turner. 123:333-4 S 3 '21

Chile

- Anaconda enterprise in Chile. Min & Sci P 121:698 N 13 '20
Braden copper company's power system in Chile. il diags map plan Power 52:730-4 N 9 '20
Chuquicamata enterprise. A. W. Allen. il Min & Sci P 122:779-84, 835-42; 123:117-21 Je 4, 18, Jl 23 '21
Mines at Chuquicamata. W. L. Schurz. Min & Sci P 121:280 Ag 21 '20; Discussion. R. Clarke. 121:405 S 18 '20

Idaho

Copper deposits of the Seven Devils and adjacent districts (including Heath, Hornet Creek, Hoodoo, and Deer Creek). D. C. Livingston and F. B. Laney. 105p (Idaho. Bureau of mines and geology. Bul. no. 1) University of Idaho, Moscow '20

India

Rakha Hills mines. Min & Sci P 120:605 Ap 24 '20

Japan

Large Kajika or Bullhead deposit. M. Otawaga. Min & Met 168:54 D '20

Manitoba

Discovery of the first operating mine in Manitoba. J. E. Spurr. il Eng & Min J 109:650-3 Mr 13 '20

Michigan

Geology of the Michigan copper district. H. Guck. Eng & Min J 108:948-9 D 27 '19

Nevada

Nevada consolidated copper company. A. B. Parsons. il map Min & Sci P 122:325-34, 525-34, 709-16 Mr 5, Ap 16, My 21 '21; Excerpts. Eng & Contr 55:501-3 My 18 '21

Oregon

Copper in southern Oregon. A. E. Kellogg. il Eng & Min J 109:343 Ja 31 '20

Peru

Mining at Cerro de Pasco, Peru. M. R. Walker. il Eng & Min J 109:314-18 Ja 31 '20

Siberia

Spassky and Atbasar copper mines in Siberia. J. M. Bell. il maps Min & Sci P 120:765-9, 825-9 My 22, Je 5 '20
Spassky copper mine. Min & Sci P 122:295 F 26 '21

Copper ores

- Copper deposits of Ray and Miami, Arizona. F. L. Ransome. il diags maps plans U S Geol S Prof Pa 115:1-192 '19
Copper ores of Lake Superior. J. E. Spurr. il Eng & Min J 110:355-7 Ag 21 '20; Discussion. S. S. Lang. Min & Sci P 121:407-8 S 18 '20
Earth and rock pressures. H. G. Moulton. il diags Min & Met 158:(sec 13) 1-25 F '20
Geology and ore deposits of Jerome district, Arizona. L. E. Reber, jr. Min & Met 161:25-7 My '20; Abstract. Eng & Min J 110:566 S 18 '20
Ore deposition in the Warren district, Arizona. G. J. Mitchell. Eng & Min J 109:874-5 Ap 10 '20
Replacement copper deposits in the Warren district. G. J. Mitchell. diags Eng & Min J 112:246-50 Ag 13 '21
Salt Chuck palladium-copper mine. J. B. Mertie, jr. il Eng & Min J 110:17-20 Jl 3 '20
Textures and relationships in the Globe copper ores. G. M. Schwartz. diag Econ Geol 16:322-9, pl 11 Je '21
Vertical extent of copper ore minerals in the Junction mine, Warren district, Arizona. G. J. Mitchell. il Eng & Min J 109:1411-12 Je 26 '20

Copper oxides

- System copper:cupric oxide:oxygen. H. S. Roberts and F. H. Smyth. Am Chem Soc J 43:1061-79 My '21
System cupric oxide, cuprous oxide, oxygen. F. H. Smyth and H. S. Roberts. diags Am Chem Soc J 42:2582-2607 D '20

Copper plating

- Brightener for copper. Metal Ind 18:466 O '20
Cleaning and copper-plating in the same solution. W. McKeon. Metal Ind 19:244 Je '21
Copper plating. C. H. Proctor. Metal Ind 19:74 F '21
Copperplating nonmetallic articles. K. Coggeshall. Pop Mech 36:451 S '21
Effect of depth of copper plating on carburization. F. P. Zimmerli. il Mech Eng 42:565-6+ O '20
Metal plating. W. G. Knox. Metal Ind 18:14-15, 168-9 Ja, Ap '20

Copper salts

Catalytic action of copper salts on the oxidation of ferrous compounds; abstract. L. Maquenne and E. Demoussy. Chem & Met Eng 23:538 S 15 '20

Copper smelting. See Copper metallurgy

Copper sulfate

- Algae cause odors from Monona lake at Madison, Wisconsin. Eng N 85:907-8 N 4 '20
Application of copper sulphate to basin walls for control of algae. G. F. Gilkison. il Am Water Works Assn J 8:88-90 Ja '21; Same. Eng & Contr 54:468-9 N 10 '20; Same. Can Eng 39:596 D 9 '20; Same. Munic Eng 59:216 D '20; Same. Pub Works 50:260 Mr 26 '21
Resistance of solutions of copper sulphate in glycerine. A. Gilmour. diags Philos Mag 6th ser 41:544-8 Mr '21

Copper sulfate—Continued

Treatment to counteract algae growths in large reservoirs. W: W. Brush. *Am Water Works Assn J* 7:149-52 Mr '20; Same. *Eng & Contr* 53:432-3 Ap 14 '20

Copra

Vacuum process successful for unloading copra. *il J Elec* 47:278 O 1 '21

Copra meal

Copra meal as fuel. C: W. Geiger. *Power Pl Eng* 24:336-7 Mr 15 '20

Copra oil

Problems in the preparation of copra and coconut oil. H. C. Brill. *Chem & Met Eng* 24:567-8 Mr 30 '21

Copyright

Copyrighting advertising designs. *Ptr Ink* 115:154+ Ap 28 '21

Limitations of copyright protection. *Ptr Ink* 117:12 O 13 '21

What recourse, if advertising phrases are copied? *Ptr Ink* 113:144+ N 18 '20

Cordage

See also Hemp, Manila

Corduroy

Advertising brings corduroy back with a wallop. E: T. Tandy. *Ptr Ink* 112:33-6 Ag 19 '20

Dyeing and finishing cotton corduroys. L: J. Matos. *Textile World* 59:3537+ My 28 '21

Core boxes. See Foundry practice

Core making machinery. See Foundry machinery

Core oils

Comments on qualities sought in core oil. A. L. Goddard. *Foundry* 49:564 Jl 15 '21

Core oils as a profitable specialty for jobbers in certain territories. J: R. Battle. *Nat Pet N* 13:75+ Ja 26 '21

Petroleum-blended core oils save on cost over straight linseed product. J: R. Battle. *Nat Pet N* 13:87+ Mr 2 '21

Tests show the quality of core oils. R. F. Harrington. *il Foundry* 49:447-8 Je 1 '21

Core ovens. See Foundries—Equipment

Core ovens, Electric heating of. See Foundries—Electric equipment

Cores. See Foundry practice

Corindite. See Bauxite

Coriolis, Law of. See Machinery, Kinematics of

Cork

Story of cork. J. F. Springer. *il Sci Am* 125:270-1 O 15 '21

Cork board

Heat-insulating value of cork and lith board. A. A. Potter and others. *il diags Mech Eng* 42:624-6+ N '20; Abstract. *Power Pl Eng* 25:285-6 Mr 1 '21; Excerpt (tables). *Power* 52:995 D 21 '20; Same. *Eng & Ind Management* 5:165 F 10 '21

Heat transmission—corkboard and air spaces. A. J. Wood and E. F. Grundhofer. *diag Am Soc Heat & V E J* 27:455-62 My '21

Cork carpets

Modern floor coverings. E. H. Howard. *Arch Forum* 35:29-30, 63 Jl-Ag '21

Corless, C. V.

Sketch. *por Eng & Min J* 111:549 Mr 26 '21

Corliss engines. See Steam engines

Cormorants

Making the cormorant earn his living. *il Sci Am M* 2:126 O '20

Corn

Cause of deterioration and spoiling of corn and corn meal. J. S. McHargue. *J Ind & Eng Chem* 12:257-62 Mr '20

Effect of mold upon the oil in corn. F. Rabak. *J Ind & Eng Chem* 12:46-8 Ja '20

Rag-doll seed-tester. *il Sci Am* 125:7 Jl 2 '21

Shall the corn fields run our cars? R. G. Skerrett. *il Sci Am* 123:274+ S 18 '20

Spoilage of corn. *Sci Am* 123:279 S 18 '20

Study of the relation of the length of kernel to the yield of corn; abstract. C. C. Cunningham. *Sci Am M* 4:367-8 O '21

Bibliography

Bibliography of investigations bearing on the composition and nutritive value of corn and corn products. M. H. Keith. 178p (mim.) National research council, Washington, D.C. '20

Diseases and pests

Fighting plant pests with fire. R. P. Crawford and G. H. Dacy. *il Sci Am* 122:392+ Ap 10 '20

Corn cribs. See Corncribs

Corn exchange bank, New York city

Corn exchange bank. W: A. Nash. *Comm & Fin Chr* 112:2049-50 My 14 '21

Corn meal

Cause of deterioration and spoiling of corn and corn meal. J. S. McHargue. *J Ind & Eng Chem* 12:257-62 Mr '20

Corn sirup. See Glucose

Corn sugar. See Dextrose

Corn trade. See Grain trade

Corncocks

Corncocks used in gas manufacture. *Am Gas Eng J* 112:sup18 Je 26 '20

Fermentation process for the production of acetic and lactic acids from corncocks. E. B. Fred and W. H. Peterson. *J Ind & Eng Chem* 13:211-13 Mr '21

Fermentation process for the production of acetone, alcohol, and volatile acids from corncocks. W. H. Peterson, E. B. Fred and J. H. Verhulst. *J Ind & Eng Chem* 13:757-9 S '21

Finding work for the corncock. E. T. Meredith. *Nation's Business* 8:14 Je '20

Possible uses of corncock cellulose in the explosives industry. L. G. Marsh. *J Ind & Eng Chem* 13:296-8 Ap '21

Practical study of corn cob utilization. F: B. La Forge. *Paper* 27:15-18+ D 22 '20

Production of furfural by the action of superheated water on aqueous corncock extract. F. B. LaForge. *J Ind & Eng Chem* 13:1024-5 N '21

Corncribs

Cribs and granaries—modern farm elevators. *il diags plan Concrete* 18:175-80 Ap '21

New type concrete and steel corncribs. *il diags Concrete* 19:110-11 S '21

Cornell university

U. S. army school of military aeronautics at Cornell university. W: N. Barnard. *il Sibley J* 33:63-5 Je '19

Sibley college

Beginnings of Sibley college at Cornell. A. D. White. *Sibley J* 33:57-62+ Je '19

Department of experimental engineering in Sibley college from 1895 to date. H. Dieckrichs. *Sibley J* 35:2-3 Ja '21

Cornice brake machine

Few tips on the use of the cornice brake. L. Broemel. *il diags Sheet Metal Worker* 12:467-70 Ag 5 '21

Cornices

Early architecture of Pennsylvania; cornices. A. L. Kocher. *il diags Arch Rec* 49:408-22 My '21

Corona (electricity)

Corona discharge. E. H. Warner and J. Kunz. *il diags Ill U Eng Exp Sta Bul* 114:1-133 '19

Corona voltmeter and the electric strength of air; a natural secondary standard of voltage. J. B. Whitehead and T. Isshiki. *il diags Am Inst E E J* 39:441-4, 511-26 My '20

Determining corona voltages for actual lines. F. W. Peek, jr. *il Elec W* 76:1258-9 D 25 '20

Distribution of ozone in the direct current corona. E. K. Rideal and J. Kunz. *diag J Phys Chem* 24:379-92 My '20

Electric strength of air under continuous potentials and as influenced by temperature. J. B. Whitehead and F. W. Lee. *bibliog il diags Am Inst E E J* 40:373-87 My '21; Abstract. *Elec W* 78:12 Jl 2 '21

Corona (electricity)—Continued

Motion of droplets and particles in the field of the corona discharge. R: C. Tolman and S. Karrer. *il diag Chem & Met Eng* 22:1203-6 Je 30 '20

Some corona loss tests. W. W. Lewis. *diags Gen Elec R* 23:419-26 My '20

Utilization of corona loss for protective purposes. R. Nagel. *Elec W* 75:1496 Je 26 '20

Voltage and current harmonics caused by corona. F. W. Peek, jr. *il diags Am Inst E E J* 40:455-61 Je '21; *Abstract. Elec W* 78:11-12 Jl 2 '21

Corona typewriter company

Horse sense in foreign advertising. R. Dickinson. *Ptr Ink* 110:97-8+ F 26 '20

Corporate names

Corporate names may be recorded in patent office. C. P. Carter. *Ptr Ink* 117:84+ O 20 '21

Corporation cocks. See Cocks, Corporation**Corporation law**

Agreement with the promoters not the contract of the corporation subsequently organized. W. Gustin. *Chem & Met Eng* 23:32 Jl 7 '20

Can stockholders of a corporation be held personally liable for the salary of an employee under certain conditions? *Dom Eng* 97:16-17 O 1 '21

Corporation laws of the District of Columbia. G. Willett. 115p J. Byrne & co., Washington '21

Directors held liable for paying unwarranted dividends. W. Gustin. *Chem & Met Eng* 23:1177 D 15 '20

Liability of stockholders—license to make and sell patented article construed. W. Gustin. *Chem & Met Eng* 22:321-2 F 18 '20

New Pennsylvania law requiring names of resident bondholders of outside corporations. *Comm & Fin Chr* 110:1475-7 Ap 10 '20

New York laws affecting business corporations. J. B. R. Smith, ed. 2d ed. 248p United States corporation co., New York, Albany '21

See also Commercial law; Income tax; Public utilities—Law; Railroad law; Trusts, Industrial

Corporation schools

Continuation school conducted by a large soap manufacturer in England. *Monthly Labor R* 11:1017-20 N '20

✓ Educating an entire personnel. M. H. Reasoner. *Am Mach* 52:439-41 F 26 '20

Goodyear company's industrial university. *il Textile World* 58:523+ Jl 24 '20

Goodyear industrial university. R. C. Busbey. *il India Rubber W* 62:574-5 Je '20

How Swift develops boys into executives and salesmen. E. L. Ward. *il Ptr Ink M* 3:42+ O '21

✓ Industrial education inspiring; work as conducted by the American steel and wire corp. C: R. Sturdevant. *Iron Tr R* 68:1520-2 Je 2 '21; *Same cond. Iron Age* 107:1460-2 Je 2 '21

✓ Production and instruction in an apprentice school. P: F. O'Shea. *il Am Mach* 52:505-8 Mr 4 '20

✓ Programs of apprenticeship and special training in representative corporations. J. V. L. Morris. *il Am Mach* 54:13-14 Ja 6 '21

Successful substitute for apprenticeship; Willys-Overland co., Toledo, Ohio. *il Mach* 26:746-8 Ap '20

Training electric welders. *il diags Mach* 26:1142-5 Ag '20

Training future mechanics. E. Oberg. *il Mach* 27:26-30 S '20

Training men for the machine industry; departments established by the Norton co. E. Oberg. *il diag plan Mach* 27:779-82 Ap '21

Training 300 apprentice die-makers with one instructor. N. G. Shidle. *diags Auto-motive Ind* 43:472-5 S 2 '20

University in an industry. E. Kurtz. *Ind Management* 61:191-3 Mr 1 '21

✓ Westinghouse electric & mfg. co. trains executives in its own plants. *il Iron Age* 105:869-72 Mr 25 '20

✓ Worth-while training department; American tool works company, Cincinnati. L. C. Morrow. *il Am Mach* 53:893-6 N 11 '20

See also Davis-Bournonville institute for welding and cutting; Ford institute of technology; National association of corporation training

Corporations

Corporations; organization, financing, management. A. H. Putney. *Lincoln institute of business, Chicago* '21

See also Banks and banking; Building and loan associations; Corporate names; Corporation law; Electric utilities; Gas companies; Government ownership; Municipal ownership; Promoters; Public utilities; Railroads; Securities; Stocks; Street railroads; Trust companies; Trusts, Industrial; Water companies

Accounting

Computation of commissions and federal taxes; where commissions are based upon profits after deducting taxes. A. van Oss. *J Account* 31:1-20 Ja '21

Considerations of consolidated accounts. E. A. Saliers. *Administration* 1:773-82 Je '21

Mortgage bond problem. G: W. Greenwood. *Ind Management* 60:199 S '20

Finance

Banker's advice on financing the small industrial plant. F. R. Kerman. *J Elec* 47:263-4 O 1 '21

Capital control in New York. D. C. Baldwin. 255p McDevitt-Wilson's, inc., New York '20

Corporation finance. E: S. Mead. 477p Appleton '20

Determining limits of legitimate capital expenditure. J. R. Wade. *diags Eng N* 85:358-9 Ag 19 '20

Financial policy of corporations. A. S. Dewing. 5 vols. Ronald press '20

Financing a business through advertising. B. C. Forbes. *Ptr Ink M* 2:13-14+ My '21

Financing an enterprise. H. R. Conyngton. 5th ed. 3v Ronald press '21

Organization and management of the small shop. E. W. Leach. *Am Mach* 55:338-41 S 1 '21

Principles of sound financing for the machine tool industry. F. A. Geier. *Am Mach* 54:753-4 Ap 28 '21

Problem in corporate financing. A. S. Dewing. *Administration* 1:678-84 My '21

Problems to accompany the Financial policy of corporations. A. S. Dewing. 116p Ronald press '21

Profits and financing of manufacturing corporations. E. E. Staub. *J Account* 32:91-100 Ag '21

Some too little considered factors of corporate credit. C. T. Chenery. *Annalist* 17:471 Ap 25 '21

See also Public utilities—Finance; Railroads—Finance

Taxation

American business handicapped by corporation tax ruling. S. Chevalier. *Annalist* 17:329 Mr 14 '21

Burden imposed by the income tax on corporations and partnerships. H. H. Bailly. *Administration* 2:511-18 O '21

Calculating corporation taxes. *Iron Tr R* 66:178-9 Ja 8 '20

Capital investment and federal taxes. L. G. Hawkins. *Ind Management* 58:409 N '19

Corporation profits tax. *Eng & Ind Management* 5:493-4 Ap 28 '21

Corporation profits tax under part v. of the Finance act, 1920. C. W. Legge. 87p Butterworth & co., London '20

Dividend source vital in an undistributed profits tax. N. F. Ross. *Annalist* 17:567 My 23 '21

Federal corporate income taxes. E. E. Rossmore. 338p Dodd, Mead & co., New York '21

Federal taxation of corporations. F. R. C. Steele. *J Account* 28:420-34 D '19

Corporations—Taxation—Continued

- Foreign dividends involve undistributed profits tax. N. F. Ross. *Annalist* 17:613 Je 6 '21
- Many problems mar the simplicity of undistributed profits tax. N. F. Ross. *Annalist* 17:543-4 My 16 '21
- New York state franchise tax on business corporations. 46p. Guaranty trust co., New York '21
- Le nouveau régime fiscal des titres d'une société possédés par la société mère. A. Lainé. *Génie Civil* 79:132-3 Ag 6 '21
- Partnership vs. corporation in federal taxation. C. T. Chenery. *Annalist* 17:373-4 Mr 28 '21
- Problem in federal taxes. E. L. Kohler. *Administration* 1:106-11 Ja '21
- Short-cut to income and excess profits taxation. C. T. Chenery. *Annalist* 17:111 Ja 17 '21
- Some accounting anomalies of tax laws. F. W. Thornton. *J Account* 31:417-20 Je '21
- Undistributed profits tax plan fails in important purpose. N. F. Ross. *Annalist* 17:590 My 30 '21
- What are distributable profits for taxation purposes? N. F. Ross. *Annalist* 17:517 My 9 '21

See also Excess profits tax; Income tax; Mine taxation

Corporations, Public service. *See* Public utilities

Corpulence

- Report of the chairman at the annual meeting of the National research council; normal weight. W. D. Bancroft. *J Ind & Eng Chem* 12:913-14 S '20

Corpus Christi, Texas

- Tidal storm at Corpus Christi and its effect on engineering structures. T. Bartlett. *il map Eng N* 83:848-52 N 13 '19

Correspondence, Commercial. *See* Commercial correspondence

Correspondence schools and courses

See also Edison school of salesmanship

Corros iron

- Advances in the preparation of anthracite. D. C. Ashmead. *il diags plan Coal Age* 20:599-600 O 13 '21

Corrosion and anti-corrosives

- Action on aluminum of hard industrial waters. R. Seligman and P. Williams. *Engineering* 109:362-4 Mr 12 '20
- Air separation process; elimination of economizer and boiler corrosion. *il diags Power Pl Eng* 24:561-6 Je 1 '20
- Anomalies encountered in a study of immersion tests of iron and steel. A. S. Cushman and G. W. Coggeshall. *il Am Electrochem Soc Trans v* 39 (preprint 22):249-67 Ap '21
- Anti-corrosion engineering; a practical method for preventing the destruction of steam and hot-water pipes. W. H. Walker. *diag Sci Am* 122:110 Ja 31 '20
- Anti-rust compound, Stazon, resists high temperature. *Ry Age* 69:456-7 S 10 '20; Same. *Ry Mech Eng* 94:512 Ag '20
- Attacks of chlorinated water on metals. *Eng N* 87:394-6 S 8 '21
- Behavior of wrought manganese bronze exposed to corrosion while under tensile stress. P. D. Merica and R. W. Woodward. *il diag U S Bur Stand Tech Pa* 135:1-9 '19
- Boiler feed water treatment and treatment control. E. C. Bashore. *Power Pl Eng* 25:1050-2 N 1 '21
- Cause and prevention of after-corrosion on the bores of firearms. W. J. Huff. *il J Ind & Eng Chem* 12:862-70 S '20
- Chlorinated water destroys metals in intake works. C. G. Gillespie. *il plan Eng N* 85:127-8 Jl 15 '20
- Colloid theory of the corrosion and passivity of iron, and of the oxidation of ferrous salts. J. A. N. Friend. *Chem Soc J* 119:932-49 Je '21
- Control of corrosion in iron and steel pipe. F. N. Speller. *il diag Can Eng* 40:359-62 Ap 7 '21; Same. *Mech Eng* 43:661-2+ O '21

- Copper in steel tie plates reduces corrosion. *il Ry Age* 69:146 Jl 23 '20; Excerpts. *Iron Age* 106:444 Ag 19 '20; Excerpts. *Eng & Contr* 54:256 S 15 '20
- Copper-steel as a rust-resisting metal. *Can Eng* 39:300 S 2 '20
- Corrosion caused by coal-pile seepage. R. H. Jackson. *Power* 50:671 O 28 '19
- Corrosion in condensers; abstract. E. Bate. *Mech Eng* 43:684 O '21
- Corrosion of boiler supporting columns. G. C. Stierhoff. *diags Power Pl Eng* 25:556-7 Je 1 '21
- Corrosion of coke oven walls. W. J. Rees. *Blast F & Steel Pl* 8:551-2 O '20
- Corrosion of column of high building due to inadequate protection. E. H. Eardley. *il Eng N* 85:442 S 2 '20
- Corrosion of condenser tubes. G. D. Bengough, R. M. Jones and R. Pirret. *Engineering* 109:357 Mr 12 '20; Same. *Engineer* 129:267-8 Mr 12 '20; Same. *Chem & Met Eng* 22:707-8 Ap 14 '20; Same. *Iron Age* 105:990-1 Ap 1 '20; Abstract. *Mech Eng* 42:290-1 My '20; Abstract. *Power* 51:786-7 My 11 '20
- Corrosion of dissimilar metals under water. *Marine Eng* 26:173 F '21
- Corrosion of old iron. E. A. Richardson and L. T. Richardson. *Am Electrochem Soc Trans v* 39 (preprint 7):55-8 Ap '21
- Corrosion of steam boilers. *Engineering* 111:651-2 My 27 '21
- Corrosion of steel in concrete roof over dry kiln. A. H. Weber. *Eng N* 84:915 My 6 '20
- Corrosion of steel ranges. O. W. Storey. *Am Electrochem Soc Trans v* 39 (preprint 3):13-21 Ap '21
- Corrosion prevention in petroleum refining vapor systems. R. R. Mathews and P. A. Crosby. *Chem & Met Eng* 23:1122-3 D 8 '20
- Corrosion protective action of certain colloidal solutions. W. J. Huff. *Chem & Met Eng* 25:865-6 N 9 '21
- Corrosion, season cracking, decay of metals. E. G. Jarvis. *Brass W* 17:220-1 Ag '21
- Corrosion symposium at annual spring meeting of American electrochemical society. *Iron Age* 107:1119-21 Ap 28 '21; *Iron Tr R* 68:1166 Ap 28 '21; *Chem & Met Eng* 24:841-5 My 11 '21; *Metal Ind* 19:198 My '21
- Les corrosions du fer et leur suppression par le dégazage de l'eau. G. Paris. *bibliog il diags Chimie & Ind* 6:11-32 Jl '21
- Effect of air and water on materials used in engineering work. H. E. Yerbury. *Inst E E J* 57:sup118-26; Discussion. sup126-33 '19
- Effect of cal on corrosion. J. C. Witt. *Concrete* 18:sup32 F '21
- Effect of copper and silver salts on the corrosion of iron by acids. O. P. Watts and H. C. Knapp. *il Am Electrochem Soc Trans v* 39 (preprint 14):135-40 Ap '21; Same. *Brass W* 17:252-3 S '21
- Experiments on the corrosion of iron and steel. T. S. Fuller. *il Am Electrochem Soc Trans v* 39 (preprint 29):337-46 Ap '21
- Experiments on the corrosion of iron and steel. W. D. Richardson. *Chem & Met Eng* 23:243-50 Ag 11 '20
- Four years' experience in prevention of corrosion of pipe. F. N. Speller and W. H. Walker. *diags Am Soc Heat & V E J* 26:97-102 Ja '20; Same. *Metal Work* 93:236-8 F 20 '20; Discussion. *Am Soc Heat & V E J* 26:276-87 Mr '20
- Gap between theory and practice in the production of corrosion-resisting iron and steel. W. D. Richardson. *Am Electrochem Soc Trans v* 39 (preprint 16):147-65 Ap '21; Excerpt (Electrolytic theory of corrosion). *Brass W* 17:275 S '21
- Generation of steam. J. Dewrance. *diags Engineer* 131:182-3 F 18 '21; Excerpt. *Power* 53:525 Mr 29 '21
- Graphitic corrosion of cast iron. J. V. Davies. *Iron Age* 108:942-3 O 13 '21
- Grooving in steam boilers. E. J. Reed. *Eng & Ind Management* 5:600 My 26 '21

Corrosion and anti-corrosives—Continued

- In wrecked slag concrete little corrosion of reinforcing shown. *il* Concrete 18:128-9 Mr '21
- Influence of copper, manganese and chromium and some of their combinations on the corrosion of iron and steel. E. A. Richardson and L. T. Richardson. bibliog *il* Am Electrochem Soc Trans v 38 (preprint 13): 123-35 O '20
- Influence of copper on the rate of solution of iron in acids. F: K. Bell and W. A. Patrick. diag Am Chem Soc J 43:452-65 Mr '21
- Influence of enclosed slag on the corrosion of wrought iron. L. T. Richardson. bibliog *il* Am Electrochem Soc Trans v 37 (preprint 9):99-104 Ap '20; Excerpts. Chem & Met Eng 22:845-6 My 5 '20; Excerpt. Iron Age 105:1165-6 Ap 22 '20
- Introduction to symposium on corrosion of iron and steel. W. H. Walker. Am Electrochem Soc Trans v 39 (preprint 2):9-12 Ap '21; Same. Chem Age 29:136 Ap '21
- Investigating boiler pitting. K. Rankin. Power Pl Eng 25:482-3 My 1 '21
- Iron bacteria in relation to the incrustation of pipes. D: Ellis. *il* Engineering 112:457 S 23 '21
- Letters of a plumber to his helper; some causes of the bursting of water fronts and short service of range boilers and connections. W: Hutton. Metal Work 94: 281-2 Ag 27 '20
- Meeting of the American electrochemical society; papers on corrosion. Chem & Met Eng 25:684-5 O 12 '21
- New theory of the corrosion of iron. J. N. Friend. Am Electrochem Soc Trans v 40 (preprint 1):1-13 O '21
- Observations on stack corrosion. K. Rankin. Power Pl Eng 25:677 J1 1 '21
- Observations on the corrosion of iron and steel. J. A. Aupperle and D. M. Strickland. *il* Am Electrochem Soc Trans v 39 (preprint 17):167-77 Ap '21
- Observations on the mechanism of the increased corrosion resistance of steel and iron due to small copper contents. D. M. Buck. Am Electrochem Soc Trans v 39 (preprint 6):47-54 Ap '21
- Oxygen the prime factor in corrosion. W: D. Richardson. Chem & Met Eng 23:23-8 J1 7 '20
- Phosphatic coatings for rust proofing iron and steel. L. E. Eckelmann. *il* Chem & Met Eng 21:787-9 D 24 '19
- Pitting of tail shafts. diags Marine R 50:34-5 Ja '20
- Practical aspect of the corrosion problem. J: F. Thompson. Am Electrochem Soc Trans v 39 (preprint 30):347-54 Ap '21
- Practical means of preventing corrosion of iron and steel where not exposed directly to the atmosphere. F. N. Speller. diags Am Electrochem Soc Trans v 39 (preprint 5): 37-46 Ap '21; Same. Chem & Met Eng 24: 1009-12 Je 8 '21; Abstract. Sci Am M 4:220 S '21
- Preventing corrosion in heating systems. P. West. *il* diags Dom Eng 97:50-3+ O 8 '21
- Preventing corrosion of marine boilers. F. N. Speller and others. *il* diag Int Marine Eng 25:421-6 My '20
- Preventing rust at high temperatures; aluminum-coated metals that will go to the melting point without formation of scale. R. June. *il* Sci Am 123:404+ O 16 '20
- Prevention and cure of red water. W: H. Walker. Munic J 47:312+ N 22 '19
- Prevention and removal of rust. J. F. Springer. Gas Age 47:11-12 Ja 10 '21
- Prevention of corrosion in water pipes. *il* Sanitary & Heat Eng 96:194-5 S 23 '21
- Prevention of season cracking in brass by the removal of internal stress. H. Moore and S. Beckinsale. diag Engineering 111:665-6 My 27 '21
- Principles of alloying to resist corrosion. O. P. Watts. *il* Am Electrochem Soc Trans v 39 (preprint 10):81-4 Ap '21; Same. Iron Tr R 68:1451-2 My 26 '21; Same. Brass W 17:267 S '21
- Pronounced reinforcement corrosion due to sea water or electrolysis. W. A. Snow. *il* Eng N 87:528-9 S 29 '21
- Protecting stove tops from rust. diags Foundry 48:104-7 F 1 '20
- Protecting the surface of aluminum from corrosion. M. Tevis. Sci Am 122:321+ Mr 20 '20
- Protection of iron from corrosion. L. McCulloch. bibliog Elec J 17:288-92 J1 '20
- Protection of iron with paint against atmospheric corrosion. J. N. Friend. Iron & Steel Inst J 103:365-8 no 1 '21; Same. Eng & Ind Management 5:711-12 Je 23 '21
- Protective covering for steel pipe. L. M. Klauber. *il* plan Gas Age 48:478-84, 514-16 O 22-29 '21
- Protective metallic coatings for the rust-proofing of iron and steel. *il* diags U S Bur Stand Circ 80:1-34 '19; Conclusions. Am Arch 117:93 Ja 21 '20
- Recent foreign developments in water treatment. J. H. Blakey. *il* diags Power Pl Eng 25:950-2 O 1 '21
- Red rust in hot water pipes and the cause. Sci Am 124:489 Je 18 '21
- Report of committee A-5 on corrosion of iron and steel. *il* Am Soc T M Pro v 20 pt 1:145-226 '20
- Report of sub-committee V on immersion tests. diags Am Soc T M Pro v 20 pt 1:227-30 '20
- Review of the development of copper steel. D. M. Buck. Iron Age 106:1109-10 O 28 '20; Excerpts, with bibliog. Blast F & Steel Pl 8:593 N '20; Abstract. Chem & Met Eng 23:824 O 27 '20
- Rostversuche mit kupferhaltigen eisenblechen. O. Bauer. diags Stahl & Eisen 41:37-45, 76-83 Ja 13-20 '21
- Rust prevention by slushing. H. Styri. Am Electrochem Soc Trans 40 (preprint 8):113-28 S '21
- Rusting of steel containing copper. Engineering 111:213 F 18 '21; Same. Eng & Contr 55:329 Mr 30 '21; Same cond. Ry Mech Eng 95:291 My '21; Discussion. D. M. Buck. Ry Mech Eng 95:538 S '21
- Rustproofing processes; a treatise on the application of protective paints and various zinc-coating and chemical processes. 59p Industrial press, New York '21
- Season-cracking of brass and other copper alloys. H. Moore, S. Beckinsale and C. E. Mallinson. *il* Engineering 112:262-4, 297-9, 327-30 Ag 12-26 '21; Abstracts. Chem & Met Eng 24:976-80 Je 1 '21; Engineer 131: 264 Mr 11 '21; Iron Age 107:913 Ap 7 '21; Metal Ind 19:155 Ap '21; Discussion. Engineering 111:300-1 Mr 11 '21; Engineer 131: 264 Mr 11 '21; Iron Age 107:913-14 Ap 7 '21
- Separation of dissolved gases from water. J. R. McDermet. *il* diag Mech Eng 42: 273-8 My '20
- Sheet metal, salt air, and rust. B. Chapple. Int Marine Eng 25:656 Ag '20
- Slushing oils. P. H. Walker and L. L. Steele. U S Bur Stand Tech Pa 176:1-23 '20
- Small concrete roof-slab failure in seashore hotel. L: R. Ferguson. diag Eng N 87: 271-2 Ag 18 '21; Discussion. 87:323 Ag 25 '21
- Solution of metals in acids as related to corrosion. W: D. Richardson. Am Electrochem Soc Trans v 38 (preprint 15):153-86 O '20; Abstract. Chem & Met Eng 23:725 O 13 '20
- Some examples of corrosion of reinforcing steel. F. P. McKibben. *il* Eng N 87:531-2 S 29 '21
- Steel from slag concrete shows little corrosion. *il* Eng N 86:212-13 F 3 '21
- Studies in the corrosive action of chlorine-treated water; the effects of steel on the equilibrium; $\text{Cl}_2 \text{H}_2\text{O} \rightleftharpoons \text{HCl} + \text{HClO}$, and of products of the equilibrium on steel. G: L. Clark and R. B. Iseley. J Ind & Eng Chem 12:1116-22 N '20
- Tests for relative corrosion. B. Feuer. Chem & Met Eng 22:1197-8 Je 30 '20
- Types of non-ferrous corrosion. H. S. Rawdon. *il* Am Electrochem Soc Trans v 39 (preprint 9):73-9 Ap '21; Same cond. (without pls). Brass W 17:268-9 S '21

- Corrosion and anti-corrosives—Continued**
 Unusual boiler tube corrosion by carbon dioxide. B. G. Worth. *il Am Electrochem Soc Trans* v 39 (preprint 28):329-35 Ap '21; Same. *Power* 53:1068-9 Je 28 '21
 Water-passage corrosion in gas-engine piston rods. W. P. Flint. *il diag Power* 53:710 My 3 '21
 Water treatment for boilers. J. S. Simson. *il Mech Eng* 43:597-600+ S '21
 What caused the boiler heads to corrode? *il diags plan Power* 52:901-2 D 7 '20
 What it pays to know about corrosion. G. A. Van Brunt. *Factory* 27:621-3 N '21
See also Air separation process; Concrete—Protection; Electrolytic corrosion; Galvanizing; Metal coating; Metal protection; Paint; Zinc plating
- Corrugated cardboard.** See Paper board, Corrugated
- Corrugating machines**
 Corrugated barrel and how made. L. Broemel. *il diags Sheet Metal Worker* 12:532-5 S 2 '21
- Corset trade**
 How Gossard is making better retail saleswomen. *Ptr Ink* 114:61-2 Mr 3 '21
- Corsets**
Advertising
 How advertising produced a corsetry revolution. C. M. Harrison. *Ptr Ink M* 3:37+ N '21
 Using the art of ancient sculptors to sell stylish stouts. E. T. Tandy. *Ptr Ink* 116:49-50+ S 1 '21
- Corticelli silk mills**
 How Corticelli makes advertised leader work for whole line. R. Cole. *Ptr Ink* 117:49-50+ O 13 '21
- Corundum**
 Alumina, corundum and alumina-thermic corundum in refractories. A. Granger. *Engineering* 112:537 O 14 '21
 Corundum in the northern and eastern Transvaal. A. L. Hall. 223p (South Africa. Department of mines and industries. Geological survey. Memoir no. 15) Government printing and stationery off., Pretoria '20
- Cosden and company**
 Consolidated balance sheet and income account as of June 30, 1920. *Comm & Fin Chr* 111:1288 S 25 '20
- Cosmic electric rays.** See Auroras
- Cosmogony**
 Dualistic theory of cosmogony; new explanation of the origin of the stars and of the planets. E. Belot. *il diags Sci Am M* 2:292-9 D '20
 Limits of the universe; recent researches which have extended our concept of the star-filled heavens. S. Arrhenius. *Sci Am M* 3:4-6 Ja '21
 Ultra X-rays and cosmogony. J. Perrin. *Sci Am M* 4:248-50 S '21
- Cost**
 What shall we do about high costs? H. Gibson. *System* 39:359-61+ Mr '21
See also Cost accounting; Labor cost; Manufactures—Costs; Power cost; Prices; also subdivisions Cost, Cost of construction, Cost of operation, Costs, under special subjects, e.g. Building—Cost, Electric plants (central stations)—Costs, Motor trucks—Cost of operation, Railroads—Cost of construction
- Cost accounting**
 Accounting for proprietary preparations. J. H. Devlin. *J Account* 30:36-42 Jl '20
 Accounting problems. H. D. Greeley. *Administration* 1:389-96 Mr '21
 Accurate business methods essential for heating contractor. L. M. Emmet. *Dom Eng* 96:2-4+ Jl 2 '21
 Accurate costs without red tape. E. Szepesi. *Textile World* 59:2421+, 2673+ Ap 9, 23 '21
 Advantages of uniformity in costs. C. E. Knoepfel. *Foundry* 48:132-5 F 15 '20
 Aligning the power plant with the cost department. M. C. W. Tomlinson. *Ind Management* 61:171-3 Mr 1 '21
 Analyzing of the elements of production cost. W. E. Hundley. *Automotive Ind* 44:863-5 Ap 21 '21; Abstract. *Iron Age* 107:984 Ap 14 '21
 Brick dust versus gold dust. G. W. Greenwood. *Brick & Clay Rec* 59:505-6+ O 4 '21
 Budget as basis for calculating predetermined rates. E. O. Sommer. *Ind Management* 59:24-8 Ja '20
 Burden absorption for administrative control. A. L. Hamburger. *Administration* 2:325-9 S '21
 Burning brick in the lime light. G. W. Greenwood. *Ind Management* 59:207-8 Mr '20
 Business costs. D. C. Eggleston and F. B. Robinson. 587p Appleton '21
 Comparative cost records as an aid to manufacturing profits. S. R. Gordon. *il diags Ind Management* 61:17-22 Ja 1 '21
 Construction costs; with discussion. W. N. Connor. *Boston Soc C E J* 8:157-97 My '21; Excerpts. *Eng & Contr* 56:66-70 Jl 20 '21
 Controlling production and keeping costs in a broaching tool plant. H. R. Simonds. *il Iron Tr R* 66:697-702 Mr 4 '20
 Cooperation of executives and men in cost accounting. *Paper* 26:11-12+ My 26 '20
 Cost accounting. J. P. Jordan and G. L. Harris. 529p The Ronald press company, New York '20
 Cost accounting and its meaning to management. W. M. Lybrand. *Ind Management* 61:266-9 Ap 1 '21
 Cost accounting as a basis for selling cars. C. Jennings. *Automotive Ind* 44:151-2 Ja 27 '21
 Cost accounting by machinery; the Hollerith systems. E. W. Workman. *il Eng & Ind Management* 6:314-18 S 22 '21
 Cost accounting for the machine builder: report of Scovell, Wellington & co. to the National machine tool builders' association. *chart Am Mach* 54:726-31 Ap 28 '21
 Cost accounting for the motion-picture industry. W. S. Holman. *J Account* 30:420-32 D '20
 Cost accounting from an executive's standpoint. H. D. Schmidt. *Paper* 27:16-17 O 27 '20
 Cost accounting fundamentals. B. E. Hutchinson. *Paper* 27:26-9 F 2 '21
 Cost accounting in textile industry. C. R. Stevenson. *Textile World* 57:3051+ Ap 24 '20
 Cost accounting in the chain industry. F. W. Hilditch. *J Account* 29:10-18 Ja '20
 Cost accounting in the new industrial day. G. C. Harrison. *Ind Management* 58:441-4; 59:13-17 D '19, Ja '20
 Cost accounting in the rubber industry. F. G. Kirby. *India Rubber W* 63:155-7, 241-2 D '20-Ja '21
 Cost accounting is indispensable. B. C. Moise. *Iron Tr R* 68:1106-7 Ap 21 '21; Abstract. *Iron Age* 107:1388 My 26 '21
 Cost accounting—the key to cost control. G. W. Armstrong. *Ry Mech Eng* 94:374-9 Je '20
 Cost accounting to aid production. G. C. Harrison. 234p Engineering magazine co., New York '21
 Cost factors of engineering practice. C. H. Young. *Eng & Contr* 55:81-4 Ja 26 '21; Same cond. *Eng N* 86:542-3 Mr 31 '21
 Cost keeping and its value to the average contractor. B. G. Best. *Concrete* 16:87-93 F '20
 Cost keeping and overhead accounting. C. F. Warning. *Sheet Metal Worker* 12:191-4 Ap 15 '21
 Cost keeping in the small shop. F. H. Colvin. *Am Mach* 53:442-3 S 2 '20; Discussion. T. P. Schustek. 53:1026 D 2 '20
 Cost keeping on construction work. F. H. Austin. *Munic Eng* 60:121-3 Mr '21
 Cost keeping under the cost-plus-fixed-fee contracts. F. A. Wells. *Eng & Contr* 52:447-9 O 15 '19; Same. *Concrete* 15:244-7 D '19; Same. *Arch & Bldg* 52:3-6 Ja '20

Cost accounting—Continued

- Cost of cost keeping. B. Daniels. Inland Ptr 65:344 Je '20
- Cost of cost systems. J: R. Godfrey. Am Mach 55:3 Jl 7 '21
- Cost of costing systems. E. J. P. Benn. Electrician 85:687-8 D 10 '20
- Cost or market—whichever is lower. R. E. Booth. Administration 2:96-7 Jl '21
- Cost plans for associations. H. S. Bartholomew. Textile World 57:3245+ My 1 '20
- Cost system necessary to business. E: N. Hurley. Paper 28:25+ My 4 '21
- Cost system that guides policies. W: R. Basset and S. R. Gordon. Factory 24:43-8 Ja '20
- Cost systems stabilize overhead. E. W. McCullough. Iron Tr R 68:1043-5 Ap 14 '21
- Costing as an aid to management. Eng & Ind Management 5:300-1 Mr 10 '21
- Costing; some phases of modern cost finding with particular reference to the manufacture of electrical apparatus. R. Townsend. Electrician 84:491-5, 540-3 Ap 30, My 14 '20
- Costs—a short study of factory economics. A. G. Peterkin. Chem & Met Eng 24:253-9 F 9 '21
- Costs and works accountant. Eng & Ind Management 6:40-1 Jl 14 '21
- Costs constitute the only fair basis for fixing prices. F. W. Main. Coal Age 17:1095-6 My 27 '20
- Costs in wood operations. D. A. Crooker. Paper 27:13-14+ D 22 '20
- Credits and costs in the products business. G. E. Warren. Concrete 17:147-51 N '20
- Danger in cost systems. Nation's Business 9: 15 S '21
- Decimals and their application to costing. G. E. M. Johnson. Eng & Ind Management 5:13-14 Ja 6 '21
- Disclosing waste through better cost methods. E. J. Wessen. Chem & Met Eng 25:389-93 Ag 31 '21
- Distribution of defective and spoiled material costs, by C. H. Smith. Review. Administration 1:571-3 Ap '21
- Distribution sheets of contractor's accounting system. Eng & Contr 54:60-1 Jl 21 '20
- Economics in relation to costing. W. H. Grainger. Eng & Ind Management 5:345-7 Mr 24 '21
- Engineer vs. auditor in cost keeping. Elec Ry J 57:893-4 My 14 '21
- Factory administration and cost accounts. E: T. Elbourne. new ed. 811p Longmans '21
- Factory costs. L. T. Konopak. J Account 30: 329-37 N '20
- Factory costs and overhead. F. E. Seeley. diag Am Gas Assn Manufacturers' sec v 1: 95-105; Discussion. 105-16 '19
- Figure costs accurately for profit. Metal Work 92:689-91 D 12 '19
- Figuring costs in sales estimates. G: A. Galiver. Paper 26:18 Ap 7 '20
- Finding the stop loss price point. H. R. Boston. Ind Management 62:266-8 N '21
- Fitting the cost department into the plant. O. W. Williams. Factory 25:224-6 Jl 15 '20
- Handling factory costs. Factory 24:200+, 356+, 1748+; 25:740+ Ja-F 1, Je 1, S 1 '20
- Have you a danger line in your cost estimates. A. A. Alles, jr. Automotive Ind 41: 1067-9 N 27 '19
- How cost accounting helps any business man. H. B. Stephens. Sheet Metal Worker 11:402-3 D 10 '20
- How costs are kept by A. J. Yawger & co. J. L. Schnitz. Concrete 16:255-7 Je '20
- How graphics help in estimating costs. J. B. Carr. Ind Management 61:41-4 Ja '21
- How the cost accountant works in the paper industry. J: Balch. Paper 26:14 Je 30 '20
- How to distribute overhead expenses. Plumber 95:310-12 My 20 '21
- How to handle long time contracts. W. A. Fink. Dom Eng 92:268-70 Ag 7 '20
- How to handle scrap credits. C. B. Williams. Iron Tr R 69:31-2 Jl 7 '21; Excerpts. Administration 1:852-3 Je '21; Factory 27:38 Jl '21
- How to install an accounting system in an electric industry. J Elec 46:391 Ap 15 '21
- How to obtain monthly material inventories. P. M. Atkins. Factory 26:587-90 Mr 1 '21
- Idle time as a manufacturing loss. H. A. Wingate. Paper 29:11-12 O 12 '21
- Idleness and its relation to industry. T. W. Dinlocker and A. W. Wainright. Automotive Ind 44:1012-17 My 12 '21; Excerpt. Iron Age 107:1105 Ap 28 '21
- Importance of costs and their relation to manufacturing and banking. E. A. Baker. Paper 28:71-5 Ap 20 '21
- In favor of uniform cost methods. J. Bainter. Am Mach 55:595 O 13 '21
- Increasing production by frequent cost reports. S. P. Keator. Ind Management 58: 481-2 D '19
- Industrial cost association conference, East Aurora, N.Y. Iron Age 107:1491 Je 2 '21
- Installing management methods in the wood-working industry. C. M. Bigelow. Ind Management 58:470-7 D '19
- Keeping building costs. F. A. Wells. Bldg Age 43:28-32 F '21
- Labor costs and the workman. E. H. Fish. Ind Management 59:412-15 My '20
- Maintenance cost accounting. E. A. Palmer. il Elec Ry J 57:715-18 Ap 16 '21
- Modern production methods. W. R. Basset. Am Mach 53:709-11, 798-802 O 14, 28 '20
- Necessity of proper cost accounting. J. B. Sehl. Iron Age 108:391-3 Ag 18 '21
- On what bases are costs established? A. F. Stock. Administration 2:88-95 Jl '21
- On what should profits be based? W. L. Churchill. Ind Management 58:375-80 N '19
- Opinions of leading executives on value of cost systems. Paper 27:17-19 Mr 9 '21
- Organization and management of the small shop. E. W. Leach. Am Mach 55:513-16 S 29 '21
- Perfecting uniform cost accounting in the bituminous coal industry. W: B. Reed. Coal Age 18:760-2 O 7 '20
- Philadelphia electric company payroll system for cost work on departmental man-hour rate basis in operation June 1, 1919. G. P. Landwehr. N E L A Bul 7:47-51 Ja '20
- Planning records of cost data; with analyses. chart diag Power Pl Eng 24:8-19, 47-9 Ja 1 '20
- Point in cost-finding. A. B. MacAttammany. Am Mach 52:1117 My 20 '20
- Position of cost and works accountants in co-ordinating the aims of capital and labor. Eng & Ind Management 5:196-8 F 17 '21
- Preliminaries to cost accounting in refrigerating plants. P: Neff. Power 52:130-3 Jl 27 '20
- Preparation of cost figures for administration control. H. D. Greeley. Paper 28:77+ Ap 20 '21
- Process costs. H. A. Eppston. J Account 29: 266-75 Ap '20
- Production manager's need for cost accounting. L. R. Clapp and D. S. Davis. Paper 27: 13-15+ O 13 '20
- Production methods in shipbuilding. W: P. Ferguson. chart Ind Management 60:295-300 O '20
- Profiting. W. L. Churchill. Metal Ind 18:125-7 Mr '20
- Rapid rise in the cost of equipment—an important factor in rubber production cost accounting. L. W. Alwyn-Schmidt. diags India Rubber W 61:342-4 Mr '20
- Reading executive policies in factory cost figures. P. M. Atkins. Factory 25:1874-7 D 15 '20
- Relation of cost department to other departments. J. L. Nicholson. Administration 1: 46-52 Ja '21
- Report on the uniform cost of accounting plan at National machine tool builders' association. Iron Age 107:563-5 Mr 3 '21; Iron Tr R 68:642-3 Mr 3 '21
- Scientific basis for cost accounting. G. C. Harrison. Ind Management 59:237-42 Mr '20
- Scientific costing. C. C. Garrard. Inst E E J 58:57-9 D '19
- Scientific management; costing. H: Atkinson. Eng & Ind Management 5:370-1, 427-30+ Mr 31, Ap 14 '21

Cost accounting—Continued

- Selling scientifically and manufacturing methodically. T. J. Burke. Paper 28:11-13 Ag 31 '21
- Shop production-control and accounting systems. A. G. Drefs. Soc Auto Eng J 7:33-8 Jl '20; Same cond. Automotive Ind 43:22-5 Jl 1 '20; Discussion. Soc Auto Eng J 7:470-2 N '20
- Simple tests that determine costs. A. W. Cook. Factory 25:704-5 S 1 '20
- Some deviations in costing principles. R. J. H. Ryall. Eng & Ind Management 5:376-7 Mr 31 '21
- Some practical aspects of installing cost systems. C. O. Wellington. Paper 28:69-70 Ap 20 '21
- Standard accounting system. P. B. Kelly. J Elec 46:234-7 Mr 1 '21
- Standard foundry cost system. Foundry 48:407-13, 438-42, 474-80 My 15-Je 15 '20
- Standardized cost methods for sheet metal work. A. Baruch. Sheet Metal Worker 12:669-72 O 28 '21
- Technical cost accounts. A. Miller. Eng & Ind Management 5:458 Ap 21 '21
- This helps us to secure contracts. B. Fleeger. Factory 27:623-4 N '21
- Time and cost-keeping on county roads. K. W. McKay. Can Eng 38:307-8 Mr 18 '20
- Treatise on standardized cost keeping methods for the sheet metal trade. A. Baruch. Sheet Metal Worker 12:621-5 O 14 '21
- Treatment of costs during periods of varying volumes of production. C. B. Williams. J Account 32:321-33 N '21
- Trends in management. W. R. Basset. Factory 24:1905-7 Je 15 '20
- Uniform cost accounting. W. R. Basset. Am Mach 51:991-3 D 11 '19
- Uniform cost system, designed for the National machine tool builders' association. 71p Miller, Franklin, Basset & company, Worcester, Mass. '20
- Uniform cost system use advised. R. E. Belt. Iron Tr R 69:807-9 S 29 '21
- Unit cost accounting for control. L. V. Estes. Ind Management 58:359-63 N '19
- Use of a cost system for reducing the cost of production. J. L. Nicholson. Administration 1:803-11 Je '21
- Use of uniform cost system advised. R. E. Belt. Foundry 49:524-6 Jl 1 '21
- Using material costs so they don't deceive. T. W. Howard. Factory 25:1217-18 O 15 '20
- Value of cost accounting in commercial laboratories. W. W. Caswell. J Ind & Eng Chem 12:79-81 Ja '20
- Value of cost-finding in volume production. G. A. Ware. Paper 27:20-2+ O 20 '20
- We give more and waste less. J. Huckins, jr. System 40:407-10+ O '21
- What a cost system should do for you. Paper 27:12+ Ja 12 '21; Same, with table. Plumber 95:105-6 F 25 '21
- What are the essentials of cost keeping accounts? Pub Works 50:382-4 Ap 30 '21
- When, what and how much to buy; pre-determining raw material needs as a function of cost accounting. C. W. Dean. Ind Management 60:362-4 N '20
- Why install a cost system—. T. J. Burke. Paper 27:13 Mr 2 '21
- Why some firms lose money despite big sales. E. T. Tandy. Ptr Ink 113:3-4+ N 4 '20
- Work in progress account: an essential feature in modern costing. R. Stelling. Eng & Ind Management 5:734-6 Je 30 '21
- Work unit in cost analysis units of product per operator per hour! L. V. Estes. Eng & Contr 53:465 Ap 21 '20
- Year book. National assn. of cost accountants, New York '21
- Years of experience back of this cost system. C. Haig. Dom Eng 96:468-71 S 10 '21
- See also Accounting, and references under that subject; Depreciation; Estimates; Farm accounting; Inventories; Overhead expense; Power cost—Accounting; Time tickets

Bibliography

- Bibliography of cost books. 24p National assn. of cost accountants, 130 W. 42d St., New York '21
- Cost association of the paper industry 5th convention, New York. Paper 27:9-11+ O 6 '20
- Cost of living
- Attacks upon cost of living indexes. Eng & Contr 56:145-6 Ag 17 '21
- Changes in cost of living and prices 1914 to 1920. (Bul. 6) 24p '20 U.S. Bureau of applied economics, inc., Washington, D.C.
- Changes in cost of living as basis for adjustment of salaries of bank employees. Monthly Labor R 11:326-8 F '21
- Changes in living costs in several industrial centers in the U.S. in December, 1919. Elec Ry J 55:1100 My 29 '20
- Changes in the average cost of living in the United States between July, 1914, and March 1, 1921. Eng & Contr 55:382 Ap 13 '21
- Changes in the cost of living, July, 1914-March, 1920. Ind Management 60:73 Jl '20
- Changes in the cost of living, July, 1914-July, 1920. 28p National industrial conference board, New York '20
- Cost of living among wage-earners, Greenville, South Carolina; Pelzer, South Carolina; Charlotte, North Carolina, January and February, 1920. 25p National industrial conference board, Boston, Mass. '20
- Cost of living among wage-earners, Worcester, Massachusetts, June, 1920. 16p National industrial conference board, New York '20
- Cost of living and wages. C. S. Duncan. Annalist 18:200+ Ag 29 '21
- Cost of living and wages. J. W. Scoville. Administration 2:507-10 O '21
- Cost of living at Holyoke, Massachusetts. G. H. Curtis. Am Ind 20:24-5 F '20
- Cost of living in China. Elec R (Lond) 88:378 Mr 25 '21
- Decrease in retail prices of food. Comm & Fin Chr 111:2005-6 sec 1 N 20 '20
- Engineer can do more about it than pay and grin. C. Townley. Gen Elec R 23:222-6 Mr '20
- Engineer, employer and employee. C. Townley. Am Inst E E J 39:234-7 Mr '20
- Engineer's salary and present conditions. Mech Eng 42:195-7 Mr '20
- Fuel, heat and light advance least among living costs. Coal Age 17:934 My 6 '20
- Living costs and wages. J. F. Layng. Elec Ry J 57:628-30 Ap 2 '21
- Living costs drop in Akron. Elec Ry J 58:51 Jl 9 '21
- Plan to reduce employees' cost of living. E. P. Harris. Textile World 57:943+ F 7 '20
- Prices and cost of living. See monthly numbers of Monthly labor review
- Quantity-cost budget necessary to maintain single man or woman in Washington, D.C. Monthly Labor R 10:35-44 Ja '20
- Railway wages and the cost of living. Ry Age 70:700-1 Mr 18 '21
- Readjustment of living costs and wages. Mach 27:741-2 Ap '21
- Relative retail prices of the principal articles of food in the United States, January 1913 to November 1920. Comm & Fin Chr 111:2481-2 D 25 '20
- Retail prices of food in the United States. See monthly numbers of Monthly labor review
- Return of the roads and cost of commodities. J. Kruttschnitt. Ry R 66:217-18 F 7 '20; Same. Ry Age 68:425-6 F 6 '20
- Some reliable and some unreliable figures. Am Ind 20:11 D '19
- Statistics on cost of living disagree; rail pay rolls devour price of grain. S. Thompson. Ry R 69:52-3 Jl 9 '21
- Wages and the cost of living. Eng N 86:1055-6 Je 16 '21
- See also Index numbers (economics); Prices; Standards of living
- Cost-plus contracts. See Contracts, Letting of

Costa Rica

United States notifies Panama to yield jurisdiction of territory awarded to Costa Rica. *Comm & Fin Chr* 112:1938-9 My 7 '21

See also Mines and mineral resources—Costa Rica

Coster, Laurens Janszoon, 1370-1440

Account of Laurens Janszoon Coster and the introduction of printing in Europe. H: L: Bullen. *por* (front) *il Inland Ptr* 66:358-60 D '20

Cotswold architecture. *See* Architecture, Domestic—England

Cottages

Ancient cottages and modern requirements.

B. Shaw. *Am Inst Arch J* 8:177-8 My '20

Concrete cottages in England. *il plans Concrete* 16:44-5 Ja '20

Cottage on estate of Mrs Henry B. Stone at Milton, Mass.; view and plans. *Bldg Age* 42:47 Ja '20

Development at Bronxville, N. Y. *il diags plans Bldg Age* 42:34-7 My '20

Farm cottage at Locust Valley, L.I. *il diags plans Bldg Age* 41:351-3 N '19

House in Los Angeles, Cal. *il plan Bldg Age* 42:43 O '20

Plans for a servantless cottage. *il plans Concrete* 18:86-7 F '21

Pueblo-type cottages are cement throughout. *il plan Pop Mech* 35:160 Ja '21

Small studio cottage. R. S. Price. *il plans Bldg Age* 43:23-4 My '21

Summer cottage that was once a house boat. *il plan Bldg Age* 42:19-21 S '20

Tiny summer cottages for seashore and mountain resorts. F. Burton. *il Bldg Age* 43:28-9 Ag '21

See also Architecture, Domestic; Bungalows; Country houses

Cotton

American cotton association holds important consultation, New York. *Textile World* 59:3748-50 Je 4 '21

Bale an acre no idle cotton dream. G: L. Fossick. *il Textile World* 58:1301+ Ag 28 '20

Better cotton through seed selection. E. C. Ewing. *Textile World* 56:2459+ O 25 '19

Bleaching and boiling-out of cotton. J. M. Matthews. *il diags Color Tr J* 8:10-13, 38-42, 76-80, 118-23, 202-6; 9:4-8, 58-61, 109-12 Ja-Ap, Je-Ag '21

California's new industry. *il J Elec* 44:305-6 Ap 1 '20

Colloid chemistry in textile industries. W. Harrison. *Color Tr J* 6:50-5, 91-2 F-Mr '20

Common interest of grower and spinner. D: R. Coker. *Textile World* 59:2883-4 Ap 30 '21

Cotton acreage and condition, June 1, 1920. *Comm & Fin Chr* 110:2523-7 Je 19 '20

Cotton acreage and condition June 1, 1921. *Comm & Fin Chr* 112:2585-90 Je 18 '21

Cotton and cotton manufacture. J. P. Warburg. 2d ed. 61p First national bank of Boston, Boston '21

Cotton and the automobile tire. E. H. Barnwell. *il Textile World* 58:249+ Jl 10 '20

Cotton bonanza in the Southwest. *il India Rubber W* 61:284-5 F '20

Cotton crops of United States for 1919-20. *Textile World* 58:1169+ Ag 21 '20

Cotton farmer and prosperity. B. F. McLeod. *Textile World* 58:2792+ O 23 '20

Cotton for automobile tires. *il Sci Am* 122:603 My 29 '20

Cotton required by the spinner. W: Howarth. *Textile World* 60:335+ Jl 9 '21

Culture du coton dans les colonies françaises. *Génie Civil* 77:400 N 13 '20

Early English cotton industry, with some unpublished letters of Samuel Crompton. G: W. Daniels. 214p The University press, Manchester; Longmans '20

Facts about new types of Egyptian cottons. N: Parachimonas. *il Textile World* 58:2513+ O 9 '20

Future of the cotton industry. H. E. Howe. *Sci Am* 122:300 Mr 20 '20

Growing and handling of cotton. *Textile World* 57:3014+ Ap 24 '20

Growing and handling of cotton. A. L. Scott. *Textile World* 57:3999+ My 29 '20

Growing of cotton. J: M. Parker. *Textile World* 56:2463+ O 25 '19

Growth of the cotton fiber. D. E. Douty. *il Textile World* 57:1393 F 14 '20

Irrigation and cotton growing in Mesopotamia. *map Engineer* 129:133-6 F 6 '20

New cotton fields within British empire. W. H. Himbury. *Textile World* 60:303+ Jl 9 '21

New cotton variety withstands pests. *il Pop Mech* 35:527 Ap '21

New sources of cotton production. D. B. Heard. *Textile World* 56:2447+ O 25 '19

Problem of country damage. E. A. Calvin. *Textile World* 56:2471-2 O 25 '19

Producing better cotton by better farming. B. Knapp. *Textile World* 56:2465+ O 25 '19

Producing cotton in Arizona. W. H. Knox. *Textile World* 57:3023 Ap 24 '20

La production cotonnière de l'Indochine. *Génie Civil* 78:16 Ja 1 '21

Relations between grower and spinner. D. S. Murph. *Textile World* 57:3039 Ap 24 '20

Reporting and forecasting cotton crops. W. L. Balls. *Textile World* 60:324g+ Jl 9 '21

Spinner and grower cooperation. H. M. Cottrell. *Textile World* 57:3039+ Ap 24 '20

Spinning value of cotton. D: R. Coker. *Textile World* 60:1774-5 S 24 '21

Tire fabric and long-staple cotton. L. W. Alwyn-Schmidt. *India Rubber W* 62:640-1 Jl '20

To reduce cotton crop by credit strike. G: L. Fossick. *Textile World* 59:873+ F 5 '21

Uniform classification of cotton. D. S. Murph. *Textile World* 56:2485+ O 25 '19

U.S. long-staple cotton production. *India Rubber W* 64:570 My 1 '21

Utilization of low grade cotton. E. H. Rooney. *Textile World* 59:3417+ My 21 '21;

Same cond. *Mech Eng* 43:596+ S '21

World cotton conference meets in England. H: G. Lord. *Textile World* 60:257+ Jl 9 '21

See also Cotton fabrics; Cotton mills; Cotton trade; Dyes and dyeing—Cotton

Bibliography

Cotton in British West Africa. N. M. Penzer. p 44-53 '20 Thomas Murby & co., 1 Fleet Lane, Ludgate Circus, London, E.C. 4

Diseases and pests

See also Boll weevils

Prices

Can cotton hold its new price level? W. F. Wamsley. *Annalist* 18:243-4 S 12 '21

Price collapse of cotton a repetition of history. *Annalist* 17:301 Mr 7 '21

Prices of cotton and cotton products. *India Rubber W* 62:489-94 My '20

Purchase and sale of cotton. A. B. Muir. *Textile World* 60:311+ Jl 9 '21

Societies

See also International federation of master cotton spinners' and manufacturers' associations; World cotton conference

Standards

Universal standards for American cotton. W: R. Meadows. *Textile World* 60:306+ Jl 9 '21

Tables, calculations, etc.

Johnson cotton calculator, embracing fractional multiplications. 257p T. G. Johnson co., Atlanta, Ga. '21

New cotton calculator. 384p The John A. Hertel co., Chicago '20

See also Cotton manufacture—Tables, calculations, etc.

Testing

Detection of ligneous impurities in cotton and cotton waste. F. L. Barrett. *Paper* 26:13-14 My 5 '20

- Cotton—Testing—Continued**
 Effect of processes on tensile strength. R. S. Greenwood. Textile World 59:587+ Ja 29 '21
See also Cotton fabrics—Testing; Cotton research
- Cotton, Effect of heat on**
 Action of heat on cotton. E. Knecht. Textile World 58:1841+ S 18 '20
- Cotton, Pulverized**
 Pulverized cotton and wool used in many industries. Pop Mech 36:539 O '21
- Cotton association, American.** *See* American cotton association
- Cotton balling**
 Compressing cotton to save freight space. F. B. Howe. il Sci Am 122:455 Ap 24 '20
 Compressing of cotton. W. D. Nesbitt. Textile World 56:2469+ O 25 '19
 Dense cotton bales made by three-ram compress. il Pop Mech 33:356 Mr '20
 High density bales of cotton. J. Thorpe. Textile World 58:1029+ Ag 14 '20
 High density baling defended. R. D. Webb. Textile World 58:1683+ S 11 '20
 Need for uniformity of bales. J. Thorpe. Textile World 56:2525+ O 25 '19
See also Bale tiering machine
- Cotton boll weevil.** *See* Boll weevils
- Cotton carding**
 Better goods from poorer cotton. E. D. Walen. il Textile World 57:4021+ My 29 '20
 Carding defects and their causes. L. J. Mills. Textile World 56:3348+ D 13 '19
 Essentials of cotton preparation. M. Dilling. Textile World 57:4024 My 29 '20
 Report on carding. M. Dilling. Textile World 56:2523 O 25 '19
See also Carding machines
- Cotton cellulose.** *See* Cellulose
- Cotton duck.** *See* Canvas
- Cotton fabrics**
 Blotch ground effects on cotton piece goods. J. A. Wilson. Color Tr J 6:28 Ja '20
 Cotton cloth defects. W. H. Harriss. Textile World 60:1775-6 S 24 '21
 Effect of certain fire-proofing solutions on cotton fabric. R. L. Sibley. J Ind & Eng Chem 13:676-7 Ag '21; Same. Textile World 60:2437 O 29 '21
 Manufacture of tobacco shade cloth. J. W. Cox, jr. il Textile World 59:3415+ My 21 '21
 Notes on colored mercerized goods. R. Sansone. Textile World 56:2929+ N 15 '19
 Sea grass to cheapen cotton in Japan. K. Hoshino. Color Tr J 7:42 Ag '20
 Toron finish on cotton goods. H. S. Miller. il Textile World 58:3639+ N 27 '20
 Variables affecting the indicated breaking strength of cotton fabrics. W. O. Jelleme. Am Soc T M Pro v 20 pt 1:456-9 '20
 Yarn and cloth contracts. J. Taylor. Textile World 60:317+ Jl 9 '21
See also Balloon fabric; Canvas; Cotton finishing; Dyes and dyeing—Cotton; Shirt-ing; Tire fabric
- Exhibitions**
- Textile products show. W. G. Sirrine. Textile World 59:3797 Je 4 '21
- Prices**
- International comparisons of cloth prices. M. T. Copeland. Textile World 60:324c-d Jl 9 '21
- Stains**
- Friction marks on dyed cotton goods. E. O. Holmes, jr. il Textile World 59:4171+ Je 25 '21
- Testing**
- Standard general methods for testing cotton fabrics. diags India Rubber W 62:643-5 Jl '20
 Standard tests for textile materials. A. E. Jury. Textile World 59:870-1 F 5 '21
 Testing of textiles. A. E. Jury. Textile World 59:2879+ Ap 30 '21
- Cotton finishing**
 Electric drives on tentering machines. C. T. Guilford. il diags Textile World 60:1631+ S 17 '21
 Finishing bleached muslins. Textile World 57:2818 Ap 17 '20
 Finishing cantoons. Color Tr J 6:10 Ja '20
 Finishing glazed shirtings. Color Tr J 6:14 Ja '20
 Finishing of cotton goods. J. W. Clark. Textile World 58:2988d-89 O 30 '20
 Mixings for finishing cotton goods. Textile World 58:3645 N 27 '20
 Preparation of cloth for finishing. S. H. Higgins and A. Hodge. Textile World 60:337+ Jl 9 '21
 Recent improvements in the finish of linen and cotton goods. M. Fort. Color Tr J 9:142-5 O '21
 Research possibilities in cotton finishing. C. M. E. Schroeder. Textile World 59:1529 F 26 '21
 Variable speed motor in finishing. W. B. Lewis. il Textile World 60:77+, 681+ Jl 2, 30 '21; Same cond. Mech Eng 43:589-92 S '21; Excerpts. Power 54:272-3 Ag 16 '21
 Wilmington and the chemical industry. Chem & Met Eng 23:1083-5 D 1 '20
- Cotton gins**
 Cotton gin shows energy consumption of 16.5 kw.-hr. per bale. Elec W 77:324 F 5 '21
- Cotton growers' co-operative association, Georgia.** *See* Georgia cotton growers' co-operative association
- Cotton handling**
 Barnes cotton loading machine. il Ry Age 69:407 S 3 '20
 Cotton hauling in Galveston by electric trucks cuts cost. Textile World 59:2317 Ap 2 '21
 Municipal warehouses and docks, New Orleans. il Textile World 56:2511-13 O 25 '19
 Transportation of cotton. W. S. Turner. Textile World 56:2472+ O 25 '19
 Transportation of cotton. A. Watson. Textile World 60:329+ Jl 9 '21
See also Bale tiering machine; Cotton balling
- Cotton hull fiber**
 Cooking cotton hull fiber for pulp. O. Kress. Paper 25:24-8 Ja 21; 21-3 Ja 28 '20
- Cotton industry research association, British.**
See British cotton industry research association
- Cotton linters**
 Cotton linters for paper making. H. A. Lindenberg. Paper 27:20+ Mr 16 '21
 Utilisation des linters pour les cotons à nitrer et la fabrication du papier. M. H. Lacombe. Soc Ing Civils Bul 74:53-6 Ja '21
- Cotton machinery**
 Art of creeling. diags Textile World 59:341+, 1299+ Ja 15, F 12 '21
 Cotton mill machinery and equipment. A. J. Holt. Textile World 60:324a-c Jl 9 '21
 Machinery requirements of immediate future. E. K. Swift. Textile World 56:2497+ O 25 '19
 Power consumption of machines. H. E. Collins. Ind Management 60:36-7 Jl '20
 Power required by textile machinery. Elec J 18:494 N '21
 Principles of manufacturing textile goods from an engineering point of view. W. Myers and W. A. Hanton. il diags Electrician 84:244-9 Mr 5 '20
 Recent improvements in cotton machinery. C. Mills. Textile World 57:1391 F 14 '20
 Standardization of cotton machinery. G. R. Merrill. Textile World 58:3367+ N 13 '20
 Why American cotton machinery excels. C. Mills. Textile World 59:1976 Mr 19 '21
See also Bale tiering machine; Carding machines; Cotton gins; Spooling; Textile machinery
- Cotton manufacture**
 Analysis of a bobbin roving. G. R. Merrill. Textile World 60:1511+ S 10 '21
 Art of creeling. diags Textile World 59:341+, 1299+ Ja 15, F 12 '21

Cotton manufacture—Continued

- Better goods from poorer cotton. E. D. Walen. *il Textile World* 57:4021+ My 29 '20
- From cotton plant to cotton print. *il Ind Management* 61:8-11 F 15 '21
- Individual differences in output in the cotton industry. 13p Gt. Brit. Industrial fatigue research board. H. M. Stationery off., London '20
- Principles of manufacturing textile goods from an engineering point of view. W. Myers and W. A. Hanton. *il diags Electrician* 84:244-9 Mr 5 '20
- Value of careful blending of cotton mixes to insure uniform yarn and cloth. N. A. Batchelder. *Textile World* 60:2291 O 22 '21
- See also* Cotton carding; Cotton finishing; Cotton mills; Cotton spinning; Cotton waste; Cotton yarn; Spooling

History

- Rise of cotton mills in the South. B. Mitchell. 281p (J. H. U. studies no. 2) Johns Hopkins press, Baltimore '21

Tables, calculations, etc.

- Practical cotton calculations. E. Whitworth. 144p Fibre and fabric, Boston '21

Belgium

- Belgian cotton-spinning industry. C: R. Nasmith. *Textile World* 58:931+ Ag 7 '20

China

- Cotton manufacturing industry in China in 1920. S. Z. Yang. *il Textile World* 59:1971 Mr 19 '21

England

- Present position of the Lancashire cotton industry. F. Nasmith. *il Electrician* 84:240-3 Mr 5 '20

United States

- Textile industry in the South. J: Gelzer. *il Elec J* 18:491-4 N '21
- Cotton manufacturers, National association of. *See* National association of cotton manufacturers
- Cotton manufacturers association, American. *See* American cotton manufacturers association
- Cotton manufacturers' association of North Carolina
- 14th summer session. Asheville, N.C., June 25-26. *Textile World* 58:92+ J1 3 '20
- 15th summer convention, Asheville, N.C., July 8-9. *Textile World* 60:451+ J1 16 '21
- Cotton manufacturers' association of South Carolina
- Annual meeting, Greenville, S.C., Oct. 6. *Textile World* 60:2167-9 O 15 '21
- South Carolina manufacturers at Greenville. *Textile World* 58:2789+ O 23 '20
- Cotton mills
- Bay State cotton corporation development. *il Textile World* 57:1235-6 F 7 '20
- Bay State cotton corporation; new combed yarn mill, Lowell, Mass. *Textile World* 59:3421 My 21 '21
- Electric service at Naumkeag cotton mills. *il Elec W* 74:933-6 N 15 '19
- Electrical driving of cotton spinning mills. V. Mallalieu. *Electrician* 84:275-6 Mr 5 '20
- Extensions at Riverside and Dan River mills. *il Textile World* 59:1120-1+ F 5 '21
- J. R. Montgomery company's additions and other new mills and extensions. *il Textile World* 59:1139+ F 5 '21
- Marlboro cotton mills' mercerizing mill. *il Textile World* 57:1219+ F 7 '20
- New Manomet no. 4 mill, New Bedford, Mass. *il Textile World* 59:1123+ F 5 '21
- New type of cotton mill; mushroom concrete construction. *il Textile World* 57:1208-9+ F 7 '20
- Pacific mills rehabilitate villages. *il Textile World* 58:2515+ O 9 '20

- Planning of a cotton mill for tire fabrics. G. J. Nord. *il plans India Rubber W* 64:750-2 J1 '21

- Power applications to cotton-finishing plants. L. Loeb. *il Mech Eng* 43:5-8 Ja '21; Abstract. *Power* 53:405-7 Mr 8 '21

- Present position of the Lancashire cotton industry. F. Nasmith. *il Electrician* 84:240-3 Mr 5 '20

- Recent changes in mill design. J. E. Sirrine. *Textile World* 57:3067 Ap 24 '20

- Réchauffeur d'air électrique, à accumulation, de la filature d'Aarau (Suisse). *il diag plan Génie Civil* 78:376-7 Ap 30 '21

- Record year in southern cotton mills. *Textile World* 57:1021+ F 7 '20

- Samoset cotton mills construction; new dye plant, weave shed and apartment houses. *il plan Textile World* 59:1137+ F 5 '21

- Shall we sell our cotton mills? T. H. Price. *Textile World* 57:3997+ My 29 '20

- Southern mill village developments. E. S. Draper. *il plan Textile World* 59:2297+ Ap 2 '21

- Textile industrial institute; model mill erected for instruction in cotton manufacturing at Spartanburg, S.C. *il Textile World* 57:2003 Mr 13 '20

- Value of central station service in the cotton industry. F. E. Sawyer and H. E. Duren. *N E L A Bul* 8:586-90 O '21

Accounting

- Distinctive features of cotton goods accounts. P. F. Brundage. *J Account* 31:266-74 Ap '21

Employees

- Capital interest vs. wages. C: W. Macara. *Textile World* 57:2665 Ap 10 '20

- Child welfare work at the mills. M. A. Potwine. *Textile World* 58:3627+ N 27 '20

- Human element in a cotton mill. R. W. Davis. *Textile World* 58:2988c-d O 30 '20

- Industrial relations in the South. J. M. Gamewell. *Textile World* 57:4678+ Je 26 '20

- Movement of wages in the cotton manufacturing industry of New England since 1860. S. E. Howard. 99p National council of American cotton manufacturers, Boston '20

- Preventable death in cotton manufacturing industry. A. R. Perry. *U S Bur Labor Statistics Bul* 251:1-534 '19

- Publicity as an aid to cotton industry. A. A. Talmage. *Textile World* 57:3043+ Ap 24 '20

- Study of spooling. J. A. Hunter. *Textile World* 59:345+ Ja 15 '21

- Wages and hours of labor in cotton-goods manufacturing and finishing, 1918. *U S Bur Labor Statistics Bul* 262:1-147 '19

- Wages and hours of labor in cotton-goods manufacturing, 1907 to 1920. *Monthly Labor R* 11:318-20 F '21

Equipment

- Cotton mill machinery and equipment. A. J. Holt. *Textile World* 60:324a-c J1 9 '21

- Rubber belts in cotton mills. J. H. Pullman. *Textile World* 57:1393+ F 14 '20

See also Cotton machinery

Cotton picking

- Pick cotton, bolls and all, in promising new system. *il Pop Mech* 33:42 Ja '20

Cotton picking machinery

- Tractor operated cotton picker. *Sci Am* 125A:61 N '21

Cotton research

- Approach to textile fibre research. N. A. Cobb. *Textile World* 57:949+ F 7 '20

- Cotton research in Egypt. *Sci Am M* 2:356 D '20

- Cotton research laboratories in Egypt. *diag Textile World* 58:4011 D 11 '20

- Fundamental research in cotton industry. D. E. Douty. *il Textile World* 59:869-70 F 5 '21

- Practical aspects of cotton fibre research. E. D. Walen. *Textile World* 57:2001 Mr 13 '20
- Research and cotton. H. E. Howe. *Sci Am* 121:606 D 20 '19

- Research in the cotton industry. *Textile World* 58:2263+ O 2 '20

Cotton research—Continued

- Research institute for cotton industry. A. W. Crossley. Textile World 60:324d-e J1 9 '21
- Cotton research company, inc., Boston**
Developments of the Cotton research co. G. H. Goldsmith. chart Textile World 59:871+ F 5 '21
Research department of a modern mill. il Textile World 57:950-1+ F 7 '20
- Cotton rope.** See Rope, Cotton
- Cotton seed.** See Cottonseed
- Cotton sizing**
Research in sizing of cotton warps. E. H. Hinckley. Textile World 59:2881+ Ap 30 '21
Review of a report on sizing. W: R. Cathcart. il Textile World 59:2895+ Ap 30 '21
Sizing of cotton warps. G. Smith. Color Tr J 8:147-52 Ap '21
- Cotton spinners' and manufacturers' associations, International federation of master.**
See International federation of master cotton spinners' and manufacturers' associations
- Cotton spinning**
Cotton spinning. W: S. Taggart. 3v Macmillan 1919-20
Report on spinning. J. E. Harris. Textile World 56:2523+ O 25 '19
Self-weighted top roll. diags Textile World 56:2925+, 3347 N 15, D 13 '19
Some observations on bobbin-winding. 40p Gt. Brit. Industrial fatigue research board. H. M. Stationery off., London '20; Abstract. J. A. Hunter. Textile World 59:345+ Ja 15 '21
Twist in ring spinning. diag Textile World 58:2321+ O 2 '20
- Cotton stains.** See Cotton fabrics—Stains
- Cotton trade**
Advent of the banker-warehouseman. R: H. Tingley. il Textile World 59:874-5+ F 5 '21
Basis of better times. J. S. Alexander. Textile World 59:2891+ Ap 30 '21
Buying cotton for future delivery. R. N. Durfee. Textile World 56:2489+ O 25 '19
Buying cotton net weight. J. R. McColl. Textile World 57:3041+ Ap 24 '20
Co-operative marketing of cotton. D. S. Murph. Textile World 59:873+ F 5 '21
Cotton exchange attitude on broader contract. A. R. Marsh. Textile World 57:954+ F 7 '20
Cotton goods market breaks records. Textile World 57:969-83 F 7 '20
Cotton insurance. M. Dargan. Textile World 56:2477+ O 25 '19
Cotton webbing industry. Textile World 56:3569 D 27 '19
Egyptian cotton controversy. W. L. Marvin. Textile World 60:1626-7 S 17 '21
Grain, cotton and co-operative marketing. H: M. Robinson. Comm & Fin Chr 111:103-7 sec 2 N 20 '20
Importance of warehouses. A. F. Lever. Textile World 56:2485 O 25 '19
Improved methods of cotton financing. J: Bollinger. Textile World 56:2491+ O 25 '19
International system of cotton reports. O. P. Austin. Textile World 56:2493+ O 25 '19
International trade in cotton yarns. T: W. Page. Textile World 56:2495+ O 25 '19
Necessity of paying to the producer a profitable price for his cotton. J. S. Wannamaker. Textile World 56:2452+ O 25 '19
Old and new methods in cotton warehousing and financing. R: H. Tingley. il India Rubber W 62:710-12 Ag '20
Plans of Union warehouse and compress co. R. R. Wilson. Textile World 57:955+ F 7 '20
Stabilizing the price of cotton. T. H. Price. Textile World 56:2451-2 O 25 '19
10th international cotton congress. Textile World 57:4523+ Je 19 '20
Top crop of the World cotton conference. R. N. Durfee. Textile World 57:953+ F 7 '20
Warehouse receipts and cotton loans. J. H. Ardrey. Textile World 56:2481+ O 25 '19
Warehousing of cotton. W. B. Thompson. Textile World 56:2479+ O 25 '19

- World cotton conference permanently organized. Textile World 56:2413-15+ O 25 '19
World cotton federation. W. I. Bullard. Textile World 56:2499+ O 25 '19
World cotton outlook. J. L. Watkins. Textile World 57:4676 Je 26 '20
World's future needs of cotton. J: A. Todd. Textile World 56:2445+ O 25 '19
See also Cotton—Prices; Cotton yarn

Accounting

- Distinctive features of cotton goods accounts. P. F. Brundage. J Account 31:266-74 Ap '21

Statistics

- Cotton carry-over placed at less than million bales. E. D. Smith. Annalist 17:350 Mr 21 '21
Cotton movement and crop of 1919-20. Comm & Fin Chr 111:858 Ag 28 '20
Cotton movement and crop of 1920-21. Comm & Fin Chr 113:923-35 Ag 27 '21
International cotton statistics. Textile World 58:2656 O 16 '20
Manufacture of cotton goods; census bureau's summary concerning this industry for 1919 compared with 1914. Textile World 60:975 Ag 13 '21
Movement of the crop. Published in weekly numbers of Commercial and financial chronicle
Production and shipments of finished cotton fabrics. Textile World 59:2842 Ap 30 '21
Value of statistics to business. S. L. Rogers. Textile World 56:2503 O 25 '19
World cotton consumption shows decrease. Textile World 60:2047+ O 8 '21
World cotton statistics; consumption of cotton for six months ending Jan. 31; also spindleage and stocks. Textile World 59:2427+ Ap 9 '21

Germany

- German cotton industry. Comm & Fin Chr 111:841 Ag 28 '20
Improved German cotton industry. Textile World 60:1208 Ag 27 '21
Real status of German cotton industry. Textile World 59:1512 F 26 '21
Slow recovery of German cotton industry. M. Metzner. Textile World 58:3353+ N 13 '20
Trying year for German cotton industry. M. Metzner. Textile World 59:901 F 5 '21

Great Britain

- Financing cotton importing. J. H. Simpson. Textile World 60:313+ J1 9 '21
Financing the mills. E. T. Parkes. Textile World 60:332-3+ J1 9 '21
Lancashire cotton industry in 1920. F: W. Tattersall. Textile World 59:885+ F 5 '21

Italy

- Condition of the Italian cotton industry. R. Sansone. Textile World 57:1991+ Mr 13 '20

Poland

- Textile industry in Poland. W: J. Kelly. il Textile World 59:1691+ Mr 5 '21

South America

- South American opportunities. G. D. Woodside. Textile World 56:2519-20 O 25 '19

United States

- American cotton manufacturers association 25th annual convention, Philadelphia. Textile World 59:3743+ Je 4 '21
Assures cotton interests of government's financial support. D. R. Crissinger. Comm & Fin Chr 112:1817 Ap 30 '21
Caution in financing of cotton exports urged. B. M. Anderson. Comm & Fin Chr 112:2478 Je 11 '21
Cotton industry of the United States. F. Nasmith. il map Electrician 84:249-54 Mr 5 '20
Cotton yarn; import and export trade in relation to the tariff. (Tariff information series no. 12) 320p il charts diags '20 U.S. Tariff commission, Washington, D.C.

Cotton trade—United States—Continued

- Destruction of cotton gins in South. Comm & Fin Chr 111:1523 O 16 '20
- Export situation on cotton goods. P. B. Kennedy. Textile World 57:3045+ Ap 24 '20
- Export trade in the cotton industry. D. E. Douty. Textile World 58:2299+ O 2 '20
- Extremes in raw cotton prices. Textile World 59:887+ F 5 '21
- Financing cotton through War finance corporation. Comm & Fin Chr 113:902-3 Ag 27 '21
- Financing of cotton exports arranged by War finance corporation. Comm & Fin Chr 113:243-4 Jl 16 '21
- Foreign demand for American cotton goods. L. W. Alwyn-Schmidt. Textile World 58:933+ Ag 7 '20
- Foreign markets for American cotton. 18p U.S. Dept. of state, Washington, D.C. '21
- Growers favor broader cotton contract. J. S. Wannamaker. Textile World 57:1107+ F 7 '20
- How we are helping exports. E. Meyer, jr. il Nation's Business 9:17-18 O '21
- Phenomenal growth of southern textile industry. Textile World 59:3761 Je 4 '21
- Plans of the War finance corporation to help cotton exporters. Comm & Fin Chr 112:2032-3 My 14 '21
- Predictions regarding cottons unfulfilled. chart Textile World 59:881-3 F 5 '21
- Problems of financing American cotton for European use. W. H. Booth. Textile World 60:309+ Jl 9 '21
- Quality and quantity of American cotton. D. R. Coker. Textile World 60:301+ Jl 9 '21
- Rediscounting of cotton paper. W. P. G. Harding. Comm & Fin Chr 113:579-80 Ag 6 '21
- Report of export committee. D. Y. Cooper. Textile World 57:3987+ My 29 '20
- Responsibility of cotton manufacturers. O. K. Davis. Textile World 58:2293+ O 2 '20
- Sec. Hoover confers with cotton men; definite steps taken toward closer cooperation of department with industry. Textile World 59:3798-9 Je 4 '21
- Southern mill stock market for 1920. B. Manning. Textile World 59:1091+ F 5 '21
- Tariff briefs of wool and cotton industries; textile manufacturers optimistic on outlook. Textile World 59:850-1+ F 5 '21
- Ter Meulen credit plan as applied to cotton exports. D. Fraser. Comm & Fin Chr 113:241-2 Jl 16 '21
- This king has kept his throne. C. Ousley. il Nation's Business 8:34+ Ap '20
- Troubles of king cotton. C. T. Crowell. Nation's Business 8:76+ D '20

See also International cotton mills

Venezuela

- Venezuela rapidly developing cotton manufacture. H. C. Plummer. Textile World 57:2799+ Ap 17 '20

Cotton warehousing. See Cotton trade**Cotton waste**

- Artificial wool from cotton waste. Sci Am 123:569 D 4 '20
- Deflation period in cotton wastes. Textile World 59:897+ F 5 '21
- Detection of ligneous impurities in cotton and cotton waste. F. L. Barrett. Paper 26:12-13 My 5 '20
- Perplexing year in cotton wastes. Textile World 57:983+ F 7 '20
- Reducing waste from drawing frames. G. R. Merrill. Textile World 56:3355 D 13 '19
- Value of industrial laundries. il Textile World 58:3195+ N 6 '20
- Value of waste as raw material. J. B. Lomax. Textile World 60:341 Jl 9 '21
- Waste reclaiming apparatus. il Ry R 67:310-11 Ag 28 '20

Cotton weaving

- Clark's weave room calculations. W. A. G. Clark. 172p Clark pub. co., Charlotte, N.C. '20

Cotton yarn

- Causes of damage in warp dyeing. Textile World 59:589+ Ja 29 '21
- Cotton yarn; import and export trade in relation to the tariff. (Tariff information series no. 12) 320p il charts diags '20 U.S. Tariff commission, Washington, D.C.
- Cotton yarn situation. A. T. Bradlee. Textile World 57:372-4 Ja 17 '20
- Cotton yarns start weakly but finish strong; market for 1919. Textile World 57:1011+ F 7 '20
- Cotton yarns used by hosiery trade. W. Davis. Textile World 60:323 Jl 9 '21
- Defects in cotton yarn. Textile World 57:2675+ Ap 10 '20
- Effect of twist on cotton yarn. Textile World 58:1027+ Ag 14 '20
- International trade in cotton yarns. T. W. Page. Textile World 56:2495+ O 25 '19
- New southern mercerizing plant; Dixie mercerizing company, Chattanooga. W. C. Clark. il Textile World 59:1519+ F 26 '21
- Number of fibres in yarns. W. S. Taggart. Textile World 59:3803+ Je 4 '21
- Possibilities of export yarn trade. R. W. Meyerkort. Textile World 59:4162 Je 25 '21
- Preventing yarn and thread mixtures. diags Textile World 58:385+ Jl 17 '20
- Record cotton yarn prices shattered, 1919-1920. Textile World 59:921+ F 5 '21
- Report of the Federal trade commission on combed cotton yarns. 94p U.S. Federal trade commission '21
- Review of a report on sizing. W. R. Cathcart. il Textile World 59:2895+ Ap 30 '21
- Yarn and cloth contracts. J. Taylor. Textile World 60:315+ Jl 9 '21
- Yarn exports to Argentine and their future. F. E. Hagemeyer. il Textile World 57:959+ F 7 '20

Testing

- Effect of processes on tensile strength. R. S. Greenwood. Textile World 59:587+ Ja 29 '21

Cottonseed

- Cottonseed encounters competition. Am Ind 21:26 D '20
- Millions of dollars a year from a once wasted product. Annalist 17:85+ Ja 10 '21
- Paper from cottonseed waste. S. R. Winters. il Sci Am 122:299 Mr 20 '20
- Report of the committee on cottonseed products, Division of industrial and engineering chemistry, American chemical society. J Ind & Eng Chem 12:707-11 Jl '20

Cottonseed crushers' association, Interstate. See Interstate cottonseed crushers' association**Cottonseed hulls**

- Acid hydrolysis of sugar-cane fiber and cottonseed hulls. E. C. Sherrard and G. W. Blanco. J Ind & Eng Chem 12:1160-2 D '20

Cottonseed meal

- Cottonseed meal as a human food. J. E. Haligan. Sci Am 123:616 D 18 '20

Cottonseed oil

- Catalytic hydrogenation of cottonseed oil. L. Kahlenberg and G. J. Ritter. diags J Phys Chem 25:89-114 F '21
- Heat balance of a distillation plant for the recovery of fatty acids from cottonseed foots. J. Alsberg. diag J Ind & Eng Chem 12:490-3 My '20
- History and development of the cottonseed oil industry. D. Wesson. Chem & Met Eng 21:661-2 N 26 '19
- Kreis reaction of cottonseed-oil products. W. B. Smith. J Ind & Eng Chem 12:764-6 Ag '20
- Pictorial description of the cotton oil industry. D. Wesson. il diags Chem & Met Eng 22:465-72 Mr 10 '20
- Report of the committee on cottonseed products, Division of industrial and engineering chemistry, American chemical society. J Ind & Eng Chem 12:707-11 Jl '20

Cottonseed oil —Continued**Analysis**

Chemical composition of cottonseed oil. G: S. Jamieson and W. F. Baughman. *Am Chem Soc J* 42:1197-1204 Je '20

Cottrell, Frederick Gardner, 1877-

International scientific relations. *por J Ind & Eng Chem* 12:697-700 Jl '20

Making a nuisance pay. J. B. Morrow. *Nation's Business* 8:46+ Jl '20

Metallurgists of note. *por Eng & Min J* 112:339 Ag 27 '21

New Bureau of mines director. *por Chem & Met Eng* 22:884 My 12 '20; *Coal Age* 17:1007-8 My 13 '20; *Concrete* 16:sup78 My '20; *Iron Tr R* 66:1420 My 13 '20; *Power* 51:827 My 18 '20; *Min & Met* 162:7-8 Je '20

Romance of invention. C. H. Claudy. *por Sci Am* 123:8+ Jl 3 '20

Cottrell process. See Electric precipitation

Coulee cricket. See Crickets

Coumaranones. See Benzofuranones

Coumarin

Production of coumarins from maleic and malic acids. G. C. Bailey and F. Boettner. *J Ind & Eng Chem* 13:905-6 O '21

Council Bluffs, Iowa

Flood protection project for Council Bluffs. *diags map Eng N* 85:596-8 S 23 '20

Council Grove, Kansas**Water supply**

Life notes and sale, water system at Council Grove. L: L. Tribus. *Am Water Works Assn J* 8:91-109 Ja '21

Council of management education

Balanced ration of management. H. Godfrey. *Textile World* 59:2884+ Ap 30 '21

Council of management education; meeting ground between colleges and industry in needs of men. H. Godfrey. *Textile World* 59:864+ F 5 '21

Management education. H. Godfrey. *Textile World* 59:3789+ Je 4 '21

Council of national defense

U.S. council of national defense. *Ind Management* 59:47 Ja '20

Council on industrial relations for the electrical construction industry in the United States and Canada

National labor council for the electrical construction industry. *Monthly Labor R* 12:610-11 Mr '21

Strikeless building industry. S. W. Jones. *Am Inst Arch J* 9:158-60 My '21

Councils, Industrial. See Industrial councils

Counterbores

Back counterbore. G. D. Watson. *diags Am Mach* 55:523 S 29 '21

Counterbore with detachable cutter and pilot. *diags Mach* 27:172-3 O '20

J. C. Glenzer interchangeable counterbore. *il Mach* 26:1188 Ag '20

Machine for cutting off and counterboring tubing. J: A. H. Phillips. *diags Mach* 26:1153 Ag '20

Counterweights

Machine tool counterweights. F. Horner. *il diags Mach* 27:108-14 O '20

Counting

Storeroom equipment and its use. H. B. Twyford. *il Iron Age* 105:597-9 F 26 '20

Counting machines

Automatic machine counts and wraps coins. *il Pop Mech* 36:336 S '21

Handling increased fares mechanically. *il Elec Ry J* 55:892-3 My 1 '20

How a street railway counts its receipts. A. P. Child. *il Pop Mech* 34:676-7 N '20

How counters offset low prices in silk industry. N. L. Bull. *Textile World* 60:1791 S 24 '21

New counting machine. *diag Eng & Ind Management* 6:283 S 8 '21

Country churches

Motorizing the rural church. O. R. Geyer. *il Sci Am* 124:385+ My 14 '21

Country clubs. See Clubhouses

Country homes

Melody farm, residence of J. Ogden Armour, esq., Lake Forest, Ill.; views and plan. *Arch Rec* 49:156-63 F '21

See also Country houses; Sewage disposal, Rural; Water supply, Rural

Country houses

Attractive design for a country house. *il plans Bldg Age* 42:46-51 Ap '20

Buxton Hall, Williamstown, Mass.—country house of Alvah K. Lowrie. *il plan Am Arch* 118:397-400, 412a-h S 29 '20

Casa Dorinda, a California country house; house of Mrs William H. Bliss, Montecito. *il diags plan Arch Forum* 34:9-10, pl 1-5 Ja '21

Country house alteration. *il plans Arch Forum* 34:21-2 Ja '21

Country house at Columbus, Ohio; views and plans. *Arch Forum* 33:pl 75-8 N '20

Country house details. A. B. Greenberg. *diags Bldg Age* 42:58-9 F '20

Modern Swiss country house. *il plans Arch Forum* 33:171-4 N '20

Natural influences in building; the problem of the country house. M. H. Baillie-Scott. *Am Arch* 117:49-50 Ja 14 '20

Pidgeon Hill residence of Meredith Hare. H. Croly. *il plans Arch Rec* 48:179-91 S '20

Residence of William R. Coe, Oyster Bay, L.I. J: T. Boyd, jr. *il plan Arch Rec* 49:194-224 Mr '21

Some interesting country house alterations. L: E. Welsh. *il plans Arch Forum* 32:195-202 My '20

See also Architecture, Domestic; Architecture, Domestic—Italy; Bungalows; Farmhouses; Sewage disposal, Rural

Couplers. See Car couplings; Couplings

Couplings

A. E. G. flexible coupling. *il Am Mach* 54:526-7 Mr 24 '21

Cincinnati compression coupling. *il Ry Mech Eng* 94:410-11 Je '20

Cushion coupler. *il Automotive Ind* 45:420 S 1 '21

Fabric universal couplings; manufacture of the Hardy disc. *il Automobile Eng* 11:128-9 Ap '21

Fast flexible turbo coupling. *il diags Ind Management* 59:337-8 Ap '20

Ferris safety coupler. *il Motor Age* 37:41 My 27 '20

Flexible coupling. J: J. Thompson. *diags Mach* 27:789 Ap '21

Fractional-size automatic couplers for mine and industrial cars. *il Min & Sci P* 123:77-8 Jl 9 '21

International metallic engine and tender connection. *il Ry R* 67:3-4 Jl 3 '20

Les joints de transmissions flexibles à dilatation, système Robertson-Fairfield. *diags Génie Civil* 78:463-4 My 28 '21

Karge cushion couplings, pulleys, gears and clutch. *il Am Mach* 55:76-7 Jl 14 '21

Robertson-Fairfield flexible expansion coupling. *diags Engineering* 110:357 S 10 '20; *Power* 52:656-7 O 26 '20

Wellman Bibby flexible coupling. *il diags Engineer* 130:252 S 10 '20; *Iron Age* 106:1131 O 28 '20

Whitney free-floating coupling. *il Am Mach* 54:1102-3 Je 23 '21; *Power* 54:24 Jl 5 '21

See also Car couplings; Hose couplings

Coupons. See Advertisements—Coupons

Courthouses

Hamilton county court house, Cincinnati, Ohio. *Arch & Bldg* 51:79-80, pl 158-61 D '19

Hamilton county courthouse, Cincinnati, Ohio; views. *Arch Forum* 33:pl 39-45 S '20

New sessions house, London county council. *il Elec R (Lond)* 88:228-30 F 25 '21

New York county court house. *il plans Am Arch* 116:681-6 D 3 '19

Preble county court house, Eaton, Ohio. *il plans Am Arch* 117:511-18, pl 522f-i Ap 28 '20

See also New York (county)—Court house

Courthouses—Continued**Heating and ventilation**

Ventilating, heating, and humidifying plant in the new court house for the London quarter sessions. diags plan Engineering 112:518-19, pl 27-8 O 7 '21

Lighting

New sessions house, London county council. il Elec R (Lond) 88:228-30 F 25 '21

Courts (architecture)

Community court of exceptional attractiveness. C: A. Byers. il plans Bldg Age 42: 29-30 Jl '20

Cortile of the Palazzo Peretti in Rome. H. D. Eberlein. il diag plan Arch Rec 48:107-20 Ag '20

Courts, Industrial

British industrial court. W: Mackenzie. Int Labour R 3:41-50 Jl '21

Decisions affecting Kansas court of industrial relations. Monthly Labor R 11:1065-7 N '20

First annual report of the Court of industrial relations, state of Kansas, February 1, 1920, to November 30, 1920. 16p Kansas state ptg. plant, Topeka '21

Getting the jump on strikes. C. M. Reed. Nation's Business 8:20-1 S '20

Haling flour industry to Kansas court for shutting down mills. Nation's Business 9: 42+ Ja '21

Industrial court of Great Britain and Ireland. R. W. Patmore. Ind Management 62:269-71 N '21

Industrial courts act (1919) of Great Britain. Monthly Labor R 10:345-50 F '20

Industrial courts in Great Britain. Chem & Met Eng 22:968 My 26 '20

Industrial courts of inquiry. Elec R (Lond) 88:47 Ja 14 '21

Industrial relations law of Kansas declared constitutional—text of the law. Comm & Fin Chr 110:2150-2 My 22 '20

Industry's eternal triangle; case for the union, the industrial court and the open shop. M. Woll; H: J. Allen. Nation's Business 8:17-18 Je '20

Is the industrial court making good? H: J. Allen. System 39:25-6+ Ja '21

Kansas court in action. Elec Ry J 56:1026-7 N 13 '20

Kansas court of industrial relations. 46p Kansas state printing plant, Topeka '21

Kansas court of industrial relations. Monthly Labor R 10:808-11, 1126-8 Mr, My '20

Kansas court of industrial relations. P. F. Walker. Ind Management 59:290-3 Ap '20

Kansas industrial court. Ry R 66:222-3 F 7 '20

Kansas industrial court. K. H. Condit. Am Mach 53:749-52 O 21 '20

Kansas industrial court—pushing doctrine of concessions too far. Comm & Fin Chr 112: 599-600 F 12 '21

Party of the third part; the story of the Kansas industrial relations court. H: J. Allen. 283p Harper '21

Recent decisions of the Kansas court of industrial relations. Monthly Labor R 12: 838-41 Ap '21

Settlement of labor disputes. H: J. Allen. Elec Ry J 56:751-3 O 16 '20

Two views of the Kansas industrial court. Factory 27:72 Jl '21

What I learned about the court in Kansas. A. Pittman. il System 39:26-8+ Ja '21

Why the Kansas industrial court reorganized. Factory 26:842+ Ap 1 '21

Bibliography

List of references on the Kansas court of industrial relations. L. A. Thompson. 10 mim. p. U. S. Dept. of labor, Library, Washington, D. C. '21

Courts, International

See also Hague. Permanent court of international justice

Cover crops

Cover crops for our orchards. H. A. Crafts. il Sci Am 123:567+ D 4 '20

Cows

Cow as a laboratory. Sci Am M 1:563 Je '20

Coyotes

Commercializing the coyote. J: L. Von Blon. il Sci Am 122:246+ Mr 6 '20

Crabs

Harvesting the giant Pacific crab. L. W: Pedrose. il Pop Mech 33:877-8 Je '20

Huge Alaska crabs to be canned. L. W: Pedrose. il Pop Mech 35:423-4 Mr '21

Crackers

Function of the chemical engineer in the biscuit and cracker baking industry. O. C. F. Lippert. Chem & Met Eng 22:893-7 My 12 '20

See also Shortening (cookery)

Cracking processes. See Hydrocarbons; Petroleum refining

Craddock-Terry company

Annual report, 1920. Comm & Fin Chr 112: 2316-17 My 28 '21

Cranberries**Advertising**

Net of what advertising has done for the cranberry. C. Moran. Ptr Ink 117:89-90+ O 13 '21

Crane, R. T., co., Chicago

Growth of the Crane co. il Textile World 58:95+ Jl 3 '20

Crane hooks

Sling chains and hooks for crane use. G: W. Childs. diags Foundry 49:314a Ap 15 '21

Useful formula in the design of crane hooks. W. A. Thomas. diag Am Mach 53:23 Jl 1 '20

Cranes, derricks, etc.

Armstrong shipyard. Engineering 109:370 Mr 19 '20

Bridge cranes at the Boston army base. il Int Marine Eng 25:221-3 Mr '20

Cargo cranes. J. A. Jackson. il diag plans Gen Elec R 24:339-45 Ap '21

Caterpillar traction drive feature of crane. il Iron Tr R 67:1617 D 9 '20

Crane installed at League Island navy yard, Philadelphia. il Marine R 50:123 F '20

Crane of 300 tons weight set in place by larger crane. W. M. Angas and E. M. Bredin. il Eng N 87:210 Ag 4 '21

Cranes speed up handling of canal freight. il Iron Tr R 67:1351-2 N 11 '20; Same. Marine R 50:667 D '20

Details of heavy timber framing. diags Eng N 84:1016-18 My 20 '20

Determination of the loads on crane wheels. E. L. Montagnon. diags Engineering 109: 705-7 My 28 '20

Development of crange facilities for discharging vessels of the largest size. H: J. Deane. Engineering 112:31-2; Discussion. 21-3, 38-40 Jl 1-8 '21

Dock cranes of new type. il Iron Age 104:1335 D 25 '19

Dockside crane at the works of the Fairfield shipbuilding and engineering co., ltd., Govan, Glasgow. il Eng & Ind Management 5:534 My 5 '21

Driving mechanism for Champion 10-ton roundhouse crane. il Ry Mech Eng 95:528 Ag '21

Eclipse portable electro-hydraulic crane. il Elec R (Lond) 88:676 My 27 '21

Gap crane saves erecting shop headroom. diags Ry Mech Eng 95:259-60 Ap '21

Gasoline or electric operated portable crane. il Iron Age 106:1320 N 18 '20

Grue de 350 tonnes des chantiers navals de Philadelphie. il Génie Civil 77:497-9 D 18 '20

Half-ton traveling crane. J. V. Romig. diags Pop Mech 34:603 O '20

Handling blast furnace material by crane. Iron Tr R 69:1155 N 3 '21

High gantry used for handling heavy members of large bascule. il Eng N 84:79-80 Ja 8 '20

Home made light derrick for raising poles. E. G. Robinson. diag Eng & Contr 54:495 N 17 '20

Cranes, derricks, etc.—Continued

Jib crane for enginehouse columns. N. McLeod. diags Ry Mech Eng 94:544 Ag '20

Labor problem demands cranes. B. K. Price. il Iron Tr R 66:89-92 Ja 1 '20

Large capacity navy yard crane. il J Elec 45:265-6 S 15 '20

Large-capacity portable crane is a labor saver. il Pop Mech 35:15 Ja '21

Largest derrick built to erect great hammer-head crane. il diag Eng N 84:172-4 Ja 22 '20

Largest fitting-out crane in America. il Int Marine Eng 25:412-16 My '20

Level luffing crane. il diags Engineer 132:354 S 30 '21

Little tugger derrick. il diag Eng & Contr 56:289 S 21 '21

Locomotive crane in the power plant. il Power Pl Eng 24:599-601 Je 15 '20

Magnetic plate handling cranes. il Engineer 131:298 Mr 18 '21

Main hoists for open hearth ladle cranes. Iron Age 105:124-5 Ja 8 '20

Many purpose locomotive crane. il Ry Age 71:174 JI 23 '21

Mos telescopic-mast crane. diags Engineering 110:866, 868 D 31 '20; Same cond. Eng & Contr 56:202-3 Ag 31 '21

New crane (40 years old) enters the field. il Metal Ind 17:500-1 N '19

New cranes at Dover harbour. Engineer 129:111, 116 Ja 30 '20

New cranes at the Tilbury docks. A. W. Campbell. il Electrician 86:24-6 D 31 '20

New crawling tractor crane. il Iron Age 108:476 Ag 25 '21

New equipment installed in French works; Société Normande de métallurgie, Caen, France. il diags Blast F & Steel Pl 8:227-31 Ap '20

New 500-ton capacity crane at Philadelphia navy yard. il Eng & Contr 53:221-3 F 25 '20

New form of long-span crane. il diags Engineer 130:631-2 D 24 '20

New traveling crane shows many improvements. il Pop Mech 35:195 F '21

Northwest crawler crane. il Eng & Contr 54:500 N 17 '20

Northwest crawler-type industrial crane. il Am Mach 54:435 Mr 10 '21

O. S. dependable crawling tread locomotive crane. il Eng & Contr 55:357 Ap 6 '21; Iron Tr R 68:978-9 Ap 7 '21; Iron Age 107:970 Ap 14 '21

135-ft. wooden derrick crane jib. il Engineering 110:206-7 Ag 13 '20

Overhead travelling crane with telescopic cage. il diags Engineer 130:66 JI 16 '20

Powerful crane lifts million-pound load. il Pop Mech 33:172-3 F '20

Practical ideas for the engineer. il diags Marine R 51:45-7 Ja '21

Principles of design of shipyard cranes and description of Hok crane. W. H. Hok. diags Mech Eng 42:353-4 Je '20; Same. Sci Am M 1:569 Je '20

Properties of crane girder sections. J. H. Sawkins. diags Eng N 86:13 Ja 6 '21

Recent wharf cranes erected by the Wellman Smith Owen engineering corporation, ltd. il diags Eng & Ind Management 5:478-80 Ap 21 '21

Revolving jib crane. H. A. Pearson. diag Am Mach 51:957-8 N 27 '19

Roundhouse crane. A. P. Sharp. diags Ry Mech Eng 94:160 Mr '20

Shipyard cranes. H. H. Vernon. il Gen Elec R 24:230-3 Mr '21

Special storage gantry designed by Barber-Foster engineering co., Cleveland. il Iron Age 107:1041 Ap 21 '21

Stiff-leg derrick with wood members mounted on pier roof. il diag plan Eng N 84:382 F 19 '20

350-ton hammer head fitting out crane. J. A. Jackson. Gen Elec R 23:550-1 Je '20

Time and labor saved in handling freight at New York barge terminal by installation of modern crane equipment. H. Cunningham, jr. il Marine Eng 26:592 Ag '21

Toplis horizontal luffing cranes for the Royal Albert dock extensions. C. T. Pearce. il Electrician 86:17-20 D 31 '20

Traveling cranes announced by old manufacturing company. il Iron Age 104:1124 D 4 '19

Traveling wall type crane in a longitudinal shop. il Ry Mech Eng 94:113 F '20

20-ton steam Goliath crane. il Engineer 132:374, 381 O 7 '21

25-ton electric luffing crane. il diags Engineering 110:501-3 O 15 '20

25-ton electric overhead foundry crane. il diags Engineer 131:667-8 Je 24 '21

Universal small crane. il Am Mach 53:1253 D 30 '20

Using an underslung crane in erection. A. R. De Kuzelewski. il diags plan Am Mach 51:1031-2 D 18 '19

Wind loads on miscellaneous structures: billboards, sky signs, fences and walls, traveling cranes, etc. R. Fleming. Eng N 85:67-8 JI 8 '20

World's largest crane. il Sci Am 123:178-9 Ag 21 '20

See also Buckets; Crane hooks; Hoisting machinery; Loading and unloading

Control

Direct-current crane controllers. H. D. James. il diags Elec J 17:380-5 S '20

Les ponts roulants électriques à commande système Ward Leonard des ateliers de réparations de locomotives de l'État, à Sotteville-les-Rouen. il Génie Civil 79:281-3 O 1 '21

Ward Leonard control applied to heavy cranes. H. H. Broughton. diag plan Electrician 85:292-5 S 10 '20

Cost

Cost of standard rig declines \$600 or 30 per cent from peak prices. W. K. Halbert. Nat Pet N 13:87 Mr 16 '21

Cost of operation

Crane operating costs of blast furnaces. G. L. Collord. il Iron Age 108:935-6 O 13 '21

Electric equipment

Direct-current motors for crane and hoist work. F. L. Moon. il Elec J 17:532-5 N '20

Electric hammerhead cranes. il J Elec 45:269 S 15 '20

Electric motor drive for traveling cranes. G. Fox. Blast F & Steel Pl 9:413-16, 485-8 JI-Ag '21; Correction. 9:540 S '21

Electric soaking pit crane. il Engineer 131:490 My 6 '21

Electrical handling of materials. H. H. Broughton. Benn brothers, London '20

15-cwt. electric run-about crane. il Engineering 112:564-5 O 21 '21; Electrician 87:545 O 28 '21

5-ton electric fixed tower timber handling crane. il Engineer 131:624-5 Je 10 '21

Generator requirements for crane motors. H. H. Vernon. Gen Elec R 24:491 Je '21

Insulators and connectors for crane contact wires. C. M. Benton. diags Power Pl Eng 25:131-2 Ja 15 '21

Large electrically propelled gantry crane at Newark Bay shipyard. il Iron Age 106:140 JI 15 '20

Motor-operated cranes used for cargo transfer. H. Cunningham, jr. il Elec R 79:90-2 JI 16 '21

60-ton electric overhead travelling forge crane. il diag Engineering 110:572, 576 O 29 '20

Substation capacity for heavy duty material handling cranes. W. C. Raube. Gen Elec R 24:492-4 Je '21

Failures

Erection derrick falls with steel framework of school. diags Eng N 85:1294 D 30 '20

Safety devices

Automatic brake for traveling cranes. diags Foundry 48:118 F 1 '20; Same. Marine R 50:188 Mr '20

Cranes; safe practice and safety devices in connection with overhead and locomotive cranes; abstracts. C. C. Rausch. Power Pl Eng 24:150-1 Ja 15 '20; Eng & Contr 53:193 F 18 '20

Cranes, derricks, etc.—Safety devices—Cont.

Designing traveling cranes with regard for safe operation. N. Prakken. *il Am Mach* 54: 761-5 My 5 '21
 Many safety devices increase service of cranes. N: Prakken. *Iron Age* 106:1128-9 O 28 '20; Same. *Safety Eng* 42:27-30 Jl '21; Excerpts. *Foundry* 49:379 My 15 '21

Cranes, Floating

Big lifting barge. C. W. Geiger. *il Sci Am* 123:205 Ag 28 '20
 Derricking jib type floating crane Mammoth. *il diag plan Marine Eng* 26:590-2 Ag '21
 Greatest of floating cranes. R. Howard. *il Sci Am* 123:247+ S 11 '20
 Grue flottante mammoth, de 200 tonnes. *il Génie Civil* 77:365-7 N 6 '20
 Mare Island pontoon crane of 150-ton capacity. *il diags plans Eng N* 84:1245-8 Je 24 '20
 One hundred and fifty ton floating crane. *il Engineer* 130:18-19 Jl 2 '20
 150-ton floating crane for the United States navy. *il Engineering* 110:704-5, pl 70 N 26 '20
 60-ton self-propelling floating crane. *il Engineer* 132:72-3 Jl 15 '21; *Marine Eng* 26: 684-5 S '21
 Two hundred-ton floating crane for Liverpool. *il Engineer* 130:375, 378 O 15 '20
 200-ton, self propelled floating crane, Mammoth, built for England. *il Marine R* 51: 171-3 Ap '21
 200-ton steam floating crane. *Engineering* 109:851, pl 56 Je 25 '20
 250-ton crane to be built on U.S.S. Kearsarge. *diags Iron Tr R* 67:1684 D 16 '20
 U.S. navy to have largest crane ship. *il Am Mach* 54:208-a F 3 '21; Same. *Iron Age* 107:443 F 17 '21

Testing

Load strain-gage test of 150-ton floating crane for the Bureau of yards and docks, U.S. Navy department. L: J. Larson and R: L. Templin. *il diags U S Bur Stand Tech Pa* 151:1-34 '20

Crankcases

Accuracy essential feature of crankcase manufacture. J. E: Schipper. *il Automotive Ind* 43:116-19 Jl 15 '20
 Building motors on the Pacific coast; Hall-Scott motor car company, Berkeley, Calif. F. H. Colvin. *il Am Mach* 53:1215-20 D 30 '20
 Crankcase boring fixture with adjustable supports. I. B. Rich. *il diags Am Mach* 53:357 Ag 19 '20
 Crank cases made of malleable iron. *il Foundry* 49:762-6 O 1 '21
 Details of crankcase work. *il Am Mach* 54: 1088-90 Je 23 '21
 Examples of European practice in three and four-point suspension. M. W. Bordon. *diags Automotive Ind* 44:1419-20 Je 30 '21
 Machining an eight-cylinder crankcase. J. E: Schipper. *il Automotive Ind* 45:220-5 Ag 4 '21
 Machining the Liberty crankcases. H. A. Carhart. *il diag Am Mach* 52:1247-52, 1361-5 Je 10, 24 '20
 Machining the Peerless lower crankcase and front cover. F. H. Colvin. *il diags Am Mach* 55:436-8 S 15 '21
 Machining the Peerless upper crankcase. F. H. Colvin. *il diags Am Mach* 55:376-80 S 8 '21

Crankpins

Steam-engine operation and maintenance—loose crankpins and loose cranks. H. Hamkens. *diags Power* 51:805-7 My 18 '20

Manufacture

Gardner crankpin turning machine. *il Am Mach* 52:969 Ap 29 '20
 Rotating-tool crank pin turning machine. *il diags Engineer* 131:102-3 Ja 28 '21

Crankshafts

Adjustable center blocks for crank shafts. J. K. Blair. *il diags Ry Mech Eng* 94:608 S '20
 Circumferential cracks in crankshafts. D. L. Fagnan. *Power* 51:736 My 4 '20
 Circumferential cracks in crankshafts. J: F. Whitney. *Power* 52:45 Jl 13 '20
 Crank shaft alignment indicator. *il Engineer* 131:355 Ap 1 '21; Same. *Power* 53: 975 Je 14 '21
 Crankshaft and jib crane problems. *diag Marine Eng* 26:488-9 Je '21
 Crankshaft vibrations in multi-cylinder engines. A. A. Remington. *Automobile Eng* 11:298 S '21
 Critical speeds of torsional vibration. F. M. Lewis. *diags Soc Auto Eng J* 7:418-24; Discussion. 424-31 N '20
 Determining depth of crack in crankshaft. *diags Power* 52:190 Ag 3 '20
 Diesel engine crankshafts. J. Hecking. *diags Marine Eng* 26:147-53 F '21
 Experiences with large center-crank shafts. L: Illmer. *diags Mech Eng* 42:610-12 N '20; Same cond. *Power* 53:84-5 Ja 11 '21
 Fitting crank-rod brasses. T: W. Aircy. *diags Power* 51:1015-16 Je 22 '20
 Gas-engine crankshaft alignment. W: P. Flint. *il diags Power* 53:788-9 My 17 '21
 Gas-engine crankshaft failures. W: P. Flint. *il Power* 53:739 My 10 '21
 Heavy crankshaft features new Marmon engine. J. E: Schipper. *il diags Automotive Ind* 42:347-53 Ja 29 '20
 How to prevent torsional vibration in the crankshaft. P. M. Heldt. *diag Automotive Ind* 42:26-8 Ja 1 '20
 Metalwood crankshaft-straightening presses. J. V. Hunter. *il diags Am Mach* 53:256-8 Ag 5 '20
 Proportions of crankshafts of petrol motors. *diags Engineering* 111:639 My 27 '21
 Repair of oil-engine crankshaft. J. Wilson. *il Power* 54:410 S 13 '21
 Slow speed vs. high speed balancing. N. W. Akimoff. *Am Mach* 53:925-6 N 18 '20
 Special truck for handling crankshafts. E. H. Tingley. *il Pop Mech* 36:618 O '21
 Springing a 15-ton crankshaft into alignment. R. Miller. *diags Power* 51:76 Ja 13 '20
 Straightening a bent crankshaft. V. Pearson. *diag Power* 54:691 N 1 '21
 Torsional vibration and critical speeds in crankshafts. J. F. Fox. *il diags Soc Auto Eng J* 7:413-17+; Discussion. 424-31 N '20

Manufacture

Accuracy essential feature of crankshaft manufacture. J. E: Schipper. *il Automotive Ind* 42:1458-60 Je 24 '20
 Case-hardening process for crankshafts successfully developed. N. G. Shidle. *il Automotive Ind* 43:1016-19 N 18 '20
 Cost of making a pair of offset centers for a crankshaft. *Am Mach* 51:300, 605-6, 767; 52: 76 Ag 14, S 25, O 23 '19, Ja 8 '20
 Crankshaft turning practice. J. V. Hunter. *il diags Am Mach* 54:456-8 Mr 17 '21
 Economy in the manufacture of crankshafts. *il Automotive Ind* 42:963-4 Ap 22 '20
 Electric welding a six-ton crankshaft. *il Am Mach* 51:987-8 D 11 '19
 Heat-treatment of low-carbon steel automobile crankshafts. F. D. Jones. *il Mach* 27: 521-3 F '21
 Interesting inspection methods. F. H. Colvin. *il Am Mach* 55:633-5 O 20 '21
 Large crank-shaft turning machine. *il diags Engineer* 129:350, 358 Ap 2 '20
 Machining Essex crankshafts; methods used by the Hudson motor car co. *il diag Mach* 27:449-51 Ja '21
 Rolls-Royce crankshaft. F. H. Colvin. *il Am Mach* 55:453-4 S 22 '21
 Stamets crankshaft milling machine. E. Viall. *il diags Am Mach* 53:245-8 Ag 5 '20
 L'usinage rapide des arbres à manivelles par une machine à outils multiples. *il diags Génie Civil* 76:576-7 Je 26 '20
 Wickes crankshaft lathes. J. V. Hunter. *il Am Mach* 52:57-8 Ja 8 '20

Cream separators

Machining cream separator bowls; De Laval separator co., Poughkeepsie, N.Y. F. R. Daniels. *il diags Mach* 27:333-7, 444-8 D '20-Ja '21

Creamerles

Purification of creamery wastes. H. B. Hommon. 87p [bibliog p. 56-8] (U.S. Public health service. Pub. health bul. no. 109) Washington '21

Creative ability and its compensation. C. N. Young. *Ind Management* 59:33-5 Ja '20

Credit

Advertising methods of customers used as basis of credit extension. H. Uehlinger. *Ptr Ink* 115:161-2 Ap 21 '21

Analysis of credit history during last eighteen months. *Comm & Fin Chr* 113:470 Jl 30 '21

Bankers' credits. W. F. Spalding. 115p Pitman '21

Business and credit conditions in 1920, reviewed in annual report of New York federal reserve bank. *Comm & Fin Chr* 112:1819-20 Ap 30 '21

Can you tell if a customer will pay his bills? J. H. Tregoe. *Ptr Ink* 112:141+ Jl 1 '20

Certified financial statements as a basis for credit. J. R. Wildman. *J Account* 30:161-8 S '20

Credit conditions confronting business men. B. G. Watson. *Metal Work* 93:588-9 My 7 '20

Credit control and dear money. J. H. Mason. *Comm & Fin Chr* 112:1816-17 Ap 30 '21

Credits and collections. *System* 39:52+, 364, 520-1, 672-3, 806-7; 40:37+, 167+, 280 Ja, Mr-S '21

Credits and collections. G. A. Fromm. *Metal Work* 94:390+. S 24 '20

Credits and the selling instinct. A. H. Deute. *Ptr Ink* 110:17-20 Ja 1 '20

Decline of gold as a credit base. R. H. Tingley. *Annalist* 18:365+ O 17 '21

Discounting the future vs. cashing the present. F. H. Sisson. *Annalist* 17:734 Jl 11 '21

Efforts to curtail credit expansion. W. P. G. Harding. *Comm & Fin Chr* 111:1226-9 S 25 '20

Essential credits. H. P. Willis. *Comm & Fin Chr* 111:150-3 sec 2 N 20 '20

Estimated future balance sheets as a basis for loans. G. G. Munn. *Administration* 1:504-8 Ap '21

Falling prices change credit standards. J. Oakwood. *Annalist* 17:661+ Je 20 '21

Federal reserve board in annual report on control of credits—recommendations. *Comm & Fin Chr* 110:815-16 F 28 '20

Federal reserve board in annual report urges a new credit conservation. *Comm & Fin Chr* 112:793-4 F 26 '21

Federal reserve system and credits. H. P. Willis. *Textile World* 57:3259+ My 1 '20

Fiscal and currency standards as measure of credit. P. M. Warburg. *Comm & Fin Chr* 110:306-8 Ja 24 '20

Frozen credit and improved conditions. J. Oakwood. *Annalist* 17:710 Jl 4 '21

How advertising aids the credit seeker. B. Ashbrook. *Ptr Ink* 115:3-4+ Ap 14 '21

How conservation of credits will affect advertising. A. R. Howell. *Ptr Ink* 111:25-7+ My 27 '20

How the credit manager builds business. J. M. Schlachter. *Ptr Ink* 111:77-9 My 20 '20

How to find customers when selling is hardest. E. M. Skinner. *il System* 40:291-3+ S '21

Increased credit service. *Textile World* 57:3769+ My 22 '20

Keep your credit clutch in! *Motor Age* 38:7-8 Jl 8 '20

Lower price levels will better credits. G. E. Roberts. *Ptr Ink* 113:153-4+ O 7 '20

Making the salesman credit manager. *Ptr Ink* 116:81-2+ Ag 11 '21

Manufacturer's plan increases charge account business more than ninefold. *Ptr Ink* 116:101-4 Jl 28 '21

Methods in credit accounting. C. M. Neubauer. *Administration* 1:151-68 F '21

Optimism rules M. & A. M. A. credit meeting. J. C. Dalton. *Automotive Ind* 43:601-3+ S 23 '20

Plans to ease credit situation—opposes resumption of War finance corporation. D. F. Houston. *Comm & Fin Chr* 111:1419-20 O 9 '20

Present prices and credit situation. G. E. Roberts. *Comm & Fin Chr* 111:2097-8 sec 1 N 27 '20

Scientific distribution of credit. H. P. Willis. *Am Ind* 20:32-3 Je '20

Some too little considered factors of corporate credit. C. T. Chenery. *Annalist* 17:471 Ap 25 '21

Tell your banker—he is sole judge of loans. *Motor Age* 38:19-20 S 23 '20

To create long-term credits. J. McHugh. *Nation's Business* 9:32 Mr '21

Tremendous credit demand taxes banking tact. *Annalist* 17:351 Mr 21 '21

Use and abuse of credit. *Comm & Fin Chr* 110:499-500 F 7 '20

What not to do with credit. W. H. H. Koelsch. *System* 40:145-8+ Ag '21

When the dealer needs protection from himself; over-extension of credit by manufacturers and jobbers frequently leads to business disaster. J. E. Bullard. *Ptr Ink* 117:113-14+ O 20 '21

See also Acceptances; Agricultural credit; Banks and banking; Billing; Collecting of accounts; Instalment plan; Letters of credit; Mercantile agencies; Promissory notes; Securities

Credit, Foreign

British government's revised export credit plan. *Comm & Fin Chr* 113:787-8 Ag 20 '21

Federal reserve board on export and long term credits. *Comm & Fin Chr* 112:610-11 F 12 '21

Financing of export credits by First federal foreign banking association. *Comm & Fin Chr* 111:937 S 4 '20

Importance of foreign credit machinery. F. W. Gehle. *Comm & Fin Chr* 112:2695 Je 25 '21

Long-term credits for export trade as solution of unemployment problem. G. E. Smith. *Coal Age* 19:458-9 Mr 10 '21

Many ways of determining foreign credit risks. W. F. Wyman. *Ptr Ink* 113:61-2+ N 4 '20

There's no mystery to foreign credits. W. F. Wyman. *il System* 39:213-15+ F '21

Three C's export credit granting. B. B. Tregoe. *Ptr Ink* 114:73-4+ Ja 13 '21

Credit, International

Basis for world credits; the ter Meulen plan. F. O. Watts. *Nation's Business* 9:13-14 O '21

International credit scheme. *Electrician* 86:595 My 13 '21

International credits. D. D. Fraser. *Textile World* 60:313 Jl 9 '21

International credits—the ter Meulen bond scheme. D. Fraser. *Comm & Fin Chr* 113:109-13 sec 2 O 29 '21

Official text of the ter Meulen bond scheme. *Comm & Fin Chr* 113:115 sec 2 O 29 '21

Proposed international credit scheme of League of nations. *Annalist* 17:141-2 Ja 24 '21

Synopsis of the report of the Financial committee of the League of Nations. *Comm & Fin Chr* 113:113-14 sec 2 O 29 '21

Ter Meulen credit plan as applied to cotton exports. D. Fraser. *Comm & Fin Chr* 113:241-2 Jl 16 '21

Ter Meulen plan of credits. *Comm & Fin Chr* 113:240-1 Jl 16 '21

Ter Meulen scheme as a workable device for providing export credits. *Americas* 7:31-5 Je '21

Credit unions

Can you cut wages? W. L. Stoddard. *Factory* 26:315-16 F 1 '21

Cremation

Ultra-modern crematory in a western city.
A. P. Child. *il Pop Mech* 33:393-4 Mr '20

Creosote

Damage by fire to creosoted trestle, N.C. & St L. Ry. *il diag plan Ry R* 69:133-5 Jl 30 '21

Heating creosote in house heating boiler.
diag Dom Eng 96:201-2 Jl 30 '21

Light creosote oils in wood preservation.
Eng & Contr 53:722 Je 23 '20; Same.
Chem & Met Eng 23:56 Jl 14 '20; Same.
Elec R 79:14 Jl 2 '21

Long life for creosoted piles in railroad trestle. *il Ry Age* 68:247-9 Ja 16 '20

Loss of creosote by evaporation from open tanks. *Eng & Contr* 55:87 Ja 26 '21

Proper grade of creosote oil for wood paving blocks. K. M. Waddell. *il Munic Eng* 57:269-70+ D '19

Relation between viscosity and penetrance of creosote into wood. E. Bateman. *Chem & Met Eng* 22:359-60 F 25 '20

Toxicity of various fractions and combinations of fractions of coal-tar creosote to wood-destroying fungi. H. Schmitz and S. M. Zeller. *J Ind & Eng Chem* 13:621-3 Jl '21

Uses for low-temperature tar oils; preservation of wood by impregnation or painting with creosote. F. P. Coffin. *il Gas Age* 48:97-100 Ag 6 '21

Why not save timber above and below ground by use of creosote oil? *Coal Age* 20:637 O 20 '21

See also Wood preservation

Specifications

Tentative specifications for creosote oil for priming coat with coal-tar pitch for use in damp-proofing and waterproofing. *Am Soc T M Pro v* 20 pt 1:725-6 '20

Creosoting apparatus

Chattanooga's successful creosote plant. *il diags plan Elec Ry J* 58:101-2 Jl 16 '21

Logan patent for creosoting apparatus held not infringed. W. Gustin. *Chem & Met Eng* 23:1223 D 22 '20

New creosoting plant for the N.Y.N.H. & H. R. R. *Ry R* 69:619 N 5 '21

Crepe

Crepe yarns and fabrics. J. Chittick. *Textile World* 58:3519-20 N 20 '20

Manufacture of crepe fabric; patent. *diag Color Tr J* 8:194-5 My '21

Crepe meteorite

Cross bars in crepe meteorite. J. Chittick. *Textile World* 59:3116 My 7 '21

Crescograph

Measurement of minute motion. *Mech Eng* 42:308 My '20; Same cond. *Mach* 26:915 Je '20

Cresol

Freezing point curve of the system: ortho-cresol:naphthalene. F. H. Rhodes and F. E. Hance. *J Phys Chem* 25:491-4 Je '21

Purified cresol (cresylic acid). H. C. Hamilton. *J Ind & Eng Chem* 12:50-2 Ja '20

Cribs

Wood cribs hold toe of riprap on slopes. *il diag Eng N* 83:899 N 13 '19

Crickets

Cricket on the wire. *Sci Am* 125A:13 N '21
Warring the coulee cricket to extinction. H. E. Thomas. *il Pop Mech* 33:899-902 Je '20

Crime and criminals

Fighting a crime organization; the Chicago crime commission. W. Evans. *Nation's Business* 8:17 D '20

Relation between street lighting and crime. W. Harrison. *Elec W* 78:728 O 8 '21

See also Berlin criminal museum

Crimson antimony. See Antimony sulfide**Crinoidea**

Lilies of stone. W. A. Butterfield. *il Sci Am* 122:458+ Ap 24 '20

Cripples

See also Artificial limbs; Disabled; Disabled—Rehabilitation

Critical point

Critical ranges of some commercial nickel steels. H. Scott. *diags U S Bur Stand Sci Pa* 376:1-214 '20; Same. *Min & Met* 158:(sec 16) 1-17 F '20

Les points critiques dus à l'écrouissage. L. Guillet and M. Ballay. *diags Génie Civil* 79:16-17 Jl 2 '21

Ueber einige methoden und apparate zur bestimmung der kritischen punkte in metallen und legierungen. P. Dejean. *diags Stahl & Eisen* 41:17-20 Ja 6 '21

See also Thermal analysis

Crocker, Francis Bacon, 1861-1921

Tributes to Prof. Crocker. *por Elec W* 78:134-5 Jl 16 '21; *Aerial Age* 13:436 Jl 18 '21

Crops**United States**

Our harvests in 1920. *Comm & Fin Chr* 112:307-9 Ja 22 '21

Crops, Cover. *See* Cover crops

Cross, C. F.

Bibliography

Paper research literature; bibliography of the works of C. F. Cross. C. J. West. *Paper Trade Journal* 73:46+ Jl 21 '21

Cross connections. *See* Water distribution

Cross ties. *See* Railroad ties

Crosses

Old crosses and lych gates. *il Am Arch* 118:100-1 Jl 28 '20

Crowds

Behavior of crowds. W. Molde. *Sci Am M* 4:355-6 O '21

Crowe process

Crowe process. J. S. Colbath. *Min & Sci P* 120:38-9 Ja 10 '20; Discussion. 120:219-20 F 14 '20

Crowell, Benedict, 1869-

Sketch. *por Eng & Min J* 109:1074 My 8 '20

Crozite brick. *See* Concrete brick

Crucibles

American clay in graphite crucibles. *Eng & Min J* 111:592 Ap 2 '21

Cast nichrome carbonizing containers. *Automotive Ind* 44:275 F 10 '21

Crucible skimmer bridge. *diag Brass W* 17:7 Ja '21

Fusibility of mixtures of graphite ash and bond clays. R. N. Long. *Am Cer Soc J* 3:pt 1, 626-33 Ag '20

Largest crucible furnace at Sheffield, England, has forty-eight fires. *il Pop Mech* 36:57-8 Jl '21

Late-model crucible pours at a constant point. *il Pop Mech* 35:899 Je '21

Note on the use of alundum filtering crucibles. D. T. Englis. *diag J Ind & Eng Chem* 12:799-800 Ag '20

Properties of American bond clays and their use in graphite crucibles and glass pots. A. V. Bleining. *U S Bur Stand Tech Pa* 144:30-40 '20

Seven centuries of brass making. O. A. Kenyon. *il diag Am Mach* 53:835-8 N 4 '20

Substitute for platinum crucibles in electric analysis. H. Gewecke. *Sci Am M* 1:180 F '20

Uniform high temperature throughout a large volume. E. F. Northrup. *diag J Ind & Eng Chem* 13:639 Jl '21

Crushing

Dust exhaust system at Arizona copper co. mill. M. R. Hull. *flow sheet plans Chem & Met Eng* 22:207-8 F 4 '20

Economy of modern grinding methods. H. Hardinge. *Chem & Met Eng* 25:229-32 Ag 10 '21; Excerpt. *Sci Am M* 4:379 O '21

Grinding efficiency. S. L. Meyers. *Concrete* 18:sup89-90 My '21; Correction. 18:sup112 Je '21

Handling broken rock and ore chunks. H. H. Hunner. *diags Eng & Min J* 110:117 Jl 17 '20; Same. *Eng & Contr* 54:398 O 20 '20

Modern rock crushing and storage system. D. C. Findlay. *il diags plans Concrete* 19:sup17-23 Ag '21

Crushing—Continued

Nevada consolidated copper co.; concentration of the ore. A. P. Parsons. flow sheets il diag plan Min & Sci P 123:323-31 S 3 '21

New crushing installation at Security plant. A. W. Cox. il Concrete 18:sup95-7 Je '21

Rock crushing department in the cement plant. Concrete 16:sup47-8 Mr '20

Some ideas on ball-mill practice. C. Lindley, jr. Min & Sci P 120:221-2 F 14 '20

Use of electric drive in rock-crushing plants. W. D. Myers. Elec R 76:485-6 Mr 20 '20

See also Coal crushing; Crushing machinery; Gold milling; Ore treatment

Cost

Cost of quarrying and crushing operations in eastern Ontario. T. V. Anderson. Eng & Contr 53:415-16 Ap 7 '20

Crushing machinery

Advantages of river coal and pulverized anthracite canvassed by engineers. R. D. Hall. il diags Coal Age 18:1280-2 D 23 '20

Cheap and efficient rod-mill lining. M. S. Presler. il Eng & Min J 112:301 Ag 20 '21

Development of the rod mill. E. H. Robie. il diags Eng & Min J 111:897-903 My 28 '21

Electric drive for small rock crusher and pulverizer. A. G. Drury. Elec W 78:176 JI 23 '21

Experiments on copper crusher cylinders. A. I. Krynitsky. diags U S Bur Stand Tech Pa 185:1-32 '21

Fairbanks special pulverizing machine. il Am Mach 52:862 Ap 15 '20

Grinding and mixing apparatus in dyestuff manufacture. il Color Tr J 7:136-42; 8:4-8; 9:103-5 N '20, Ja, S '21

Grinding roll shells. J. O. Enberg. Min & Sci P 122:670-1 My 14 '21

Important road building machinery. W. E. Voorhees. il Pub Works 49:308-9 O 2 '20

Kennedy gearless rock crusher. il Iron Age 108:336 Ag 11 '21; Min & Met 178:59 O '21; Sci Am 125:277 O 15 '21

Krupp mills vs. rolls for 10-mesh grinding. M. G. F. Söhnlein. Eng & Min J 110:568 S 18 '20

Magnetic pulleys protect rock-crushing plant. C. H. Fobian. il Elec R 79:347-50 S 3 '21

New limestone crushing plant at Cedar Hollow. I. Warner. il diags plans Concrete 16:sup87-93 Je '20

New method of grinding coal for colloids. Pop Mech 36:214 Ag '21

Research in grinding practice needed. C. H. Sonntag. Concrete 19:sup61-2 O '21

Traylor 60-in. gyratory crusher. il Min & Sci P 120:437 Mr 20 '20

See also Coal breakers; Crushing; Stamp mills; Tube mills

Repair

Repair of a broken jaw crusher. W. R. Canton. il Eng & Min J 111:228 Ja 29 '21

Suggestions for repairing rock crushers. C. Labbe. il Eng & Contr 52:701 D 17 '19

Safety devices

Safety measures in operation of gyratory crushers. Eng & Contr 53:683 Je 16 '20

Standards

Standardization of mining and milling materials. E. A. Wraight. Min & Sci P 122:361-6 Mr 12 '21; Discussion. A. B. Foote. 122:739 My 28 '21

Crutches

Comfortable crutch. diag Pop Mech 34:446 S '20

Cryogenic laboratory. See United States—Mines, Bureau of—Cryogenic laboratory

Cryolite

Fluorspar and cryolite in 1920. H. W. Davis. diag U S Geol S Min Res of U S 1920, pt 2:65-80 '21

Cryoscope

Ebullioscope and the cryoscope. Sci Am M 3:36 Ja '21

Freezing-point apparatus—cryoscopes. J. Hortvet. J Ind & Eng Chem 13:199-200, 202-3 Mr '21

Cryptometer

La mesure du pouvoir couvrant des peintures; le cryptomètre Pfund. diag plan Génie Civil 76:455-7 My 15 '20; Abstract. J Fr Inst 188:675-81 N '19

Crystal palace, London

Repairs to the structure of the Crystal palace. il diags Engineering 111:510-14, pl 24 Ap 29 '21

Crystallization

Concentration of radium and mesothorium by fractional crystallization. J. L. Nierman. J Phys Chem 24:192-200 Mr '20

Crystal growth and recrystallisation in metals. H. C. H. Carpenter and C. F. Elam. il diags Engineering 110:385-9, 424-6, 486-90 S 17-24, O 8 '20; Abstract. Chem & Met Eng 24:224-5 F 2 '21; Discussion. Engineering 110:403-4 S 24 '20

Crystallization of a radium-barium solution. C. E. Scholl. Am Chem Soc J 42:889-96 My '20

Differential crystallization in a cast-steel runner. F. B. Foley. il Am Inst Min Bul 151:1117-21 JI '19; Same. Iron Tr R 65:30 JI 3 '19; Same. Iron Age 104:1273-4 D 18 '19; Discussion. Am Inst Min Bul 154:2934-5 O '19

Recrystallisation of aluminium on heating. H. C. H. Carpenter and C. F. Elam. il Engineering 111:302-7 Mr 11 '21; Abstract. Engineer 131:286 Mr 18 '21; Discussion. Engineering 111:316 Mr 18 '21

Rhythmic crystallization. R. E. Liesegang. Sci Am S 88:299 N 22 '19

System potassium sulphate-glucinum sulphate-water at 25°. H. T. S. Britton and A. J. Allmand. Chem Soc J 119:1463-70 S '21

See also Crystallography; Solutions, Solid

Crystallography

Additional notes on the crystallography and composition of boulangerite. E. V. Shannon. Am J Sci 5th ser 1:423-6 My '21

Analysis by X-rays. il diags Engineering 109:365-6 Mr 19 '20

Aqueous pressure of some hydrated crystals; oxalic acid, strontium chloride and sodium sulfate. G. P. Baxter and J. E. Lansing. Am Chem Soc J 42:419-26 Mr '20

Arrangement of atoms in crystals. W. L. Bragg. Engineering 109:761-2 Je 4 '20; Abstract. J Fr Inst 190:592-3 O '20

Average force between revolving electrons. A. C. Crehore. diag J Elec 44:388-9 Ap 15 '20

Binary system åkermanite-gehlenite. J. B. Ferguson and A. F. Buddington. Am J Sci 50:131-40 Ag '20

Chemistry and crystallography of some fluorides of cobalt, nickel, manganese and copper. F. H. Edmister and H. C. Cooper. Am Chem Soc J 42:2419-34 D '20

Crystal structure of calcium. A. W. Hull. il Phys R 17:42-4 Ja '21

Crystal structure of cesium dichloro-iodide. R. W. G. Wyckoff. il diags Am Chem Soc J 42:1100-16 Je '20

Crystal structure of ice. D. M. Dennison. Phys R 17:20-2 Ja '21

Crystal structure of magnesium oxide. R. W. G. Wyckoff. il Am J Sci 5th ser 1:138-52 F '21

Crystal structure of the silver halides. R. B. Wilsey. Philos Mag 6th ser 42:262-3 Ag '21

Crystal structure of titanium, zirconium, cerium, thorium and osmium. A. W. Hull. Phys R 18:88-9 Ag '21

Crystal structures of some carbonates of the calcite group. R. W. G. Wyckoff. diags Am J Sci 50:317-60 N '20

Crystal structures of wulfenite and scheelite. R. G. Dickinson. diag plan Am Chem Soc J 42:85-93 Ja '20

Crystal structures on the ammonium halides above and below the transition temperatures. G. Bartlett and I. Langmuir. Am Chem Soc J 43:84-91 Ja '21

Crystallography—Continued

- Crystalline structure of antimony and bismuth. A. Ogg. *Philos Mag* 6th ser 42:163-6 JI '21
- Crystalline structure of bismuth. R. W. James. *Philos Mag* 6th ser 42:193-6 JI '21
- Crystalline structure of metals. Z. Jeffries and R. S. Archer. *il diags Chem & Met Eng* 24:771-9 My 4 '21
- Crystalline structures of sputtered and evaporated metallic films. H. Kahler. *Phys R* 18:210-17 S '21
- Crystallography of alpha and beta iron. F. Giolitti. *il Chem & Met Eng* 22:585-9 Mr 31 '20
- Crystallography of melezitose. E. T. Wherry. *diags Am Chem Soc J* 42:125-8 Ja '20
- Crystals, solids and vitreous matter. A. Portevin. *diags Sci Am M* 4:137-41 Ag '21
- Crystals that speak. H. A. Mount. *il Sci Am* 122:615 Je 5 '20
- Determination of the structure of crystals. R. W. G. Wyckoff. *il diags J Fr Inst* 191:199-230 F '21
- Effect of surface tension on crystalline form. C. H. Desch. *diags Chem & Met Eng* 21:773-6 D 24 '19
- Existence of tetrahydrated sodium sulfate in mix-crystals with sodium chromate. T. W. Richards and W. B. Meldrum. *Am Chem Soc J* 43:1543-5 JI '21
- Graphical determination of hexagonal and tetragonal crystal structures from X-ray data. A. W. Hull and W. P. Davey. *Phys R* 17:549-70 My '21
- Methyl and ethyl ammonium mercuric iodides: their preparation, crystallography, and optical properties. G. S. Jamieson and E. T. Wherry. *diags Am Chem Soc J* 42:136-45 Ja '20
- Microscopic study of vein quartz. S. F. Adams. *il Econ Geol* 15:623-64 D '20
- Model for demonstrating crystal structure. H. P. Whitlock. *il Am J Sci* 49:259-64 Ap '20
- Natural designs artificially produced. *il Sci Am* 125:205+ S 17 '21
- New crystalline form of potassium chlorate. E. R. Wolcott. *il J Ind & Eng Chem* 13:215-16 Mr '21
- Outline of the application of the theory of space groups to the study of the structure of crystals. R. W. G. Wyckoff. *diags Am J Sci* 5th ser 1:127-37 F '21
- Properties of plastic crystals of ammonium nitrate. W. N. Bond. *diags Philos Mag* 6th ser 41:1-21, pl 1-2 Ja '21
- Rate of formation of copper sulfate stalactites. G. J. Mitchell. *Min & Met* 170:33 F '21
- Relationship between dendritic structure and ferrite mesh. F. Giolitti. *il Chem & Met Eng* 22:921-9 My 19 '20
- Studies of crystal structure with X-rays. E. C. Bain. *il diags Chem & Met Eng* 25:657-64 O 5 '21
- Supersaturation and crystal size. W. D. Bancroft. *J Phys Chem* 24:100-7 F '20
- Ternary system ammonium chloride-manganous chloride-water. F. W. J. Clendinnen and A. C. D. Rivett. *Chem Soc J* 119:1329-39 Ag '21
- Testing explosives force with the piezometer; pressure-electricity produced in crystals by the explosive gases of guns and motors. *Sci Am M* 3:337-8 Ap '21
- Vibrations of a crystalline medium. H. Hilton. *Philos Mag* 6th ser 42:148-56 JI '21
- X-ray crystal analysis of thirteen common metals. A. W. Hull. *il diag Phys R* 17:571-88 My '21
- See also* Crystallization; Liquid crystals; Piezo-electricity

Cuba

See also Banks and banking—Cuba; Electric plants (central stations)—Cuba

Commerce

- Cuba as purveyor and customer. C. M. De Céspedes. *Am Ind* 21:33-4 N '20
- Jewelry and silverware in Cuba. S. W. Rosenthal. *pls U S Bur For & Dom Com* 181:1-78 '19

Economic conditions

- Industrial conditions in Cuba and Mexico. E. H. Farrell. *Mach* 27:839 My '21
- Moratorium in Cuba—a symposium. *Am Ind* 21:31-2+ N '20

Industries and resources

See also Electric industries—Cuba; Mines and mineral resources—Cuba

Railroads

See Railroads—Cuba

Cuba (steamship)

- Electrically propelled passenger ship Cuba. J. A. Kelley. *il diags plans Marine Eng* 25:949-61 D '20

Cuba cane sugar corporation

- 5th annual report for the fiscal year ended September 30 1920. *Comm & Fin Chr* 111:2051-4 sec 1 N 20 '20

Official statement to New York stock exchange in connection with the listing of its ten year seven per cent convertible debenture bonds. *Comm & Fin Chr* 110:1884-6 My 1 '20

Cuban-American sugar company

- Annual report for the fiscal year ended September 30, 1920. *Comm & Fin Chr* 111:2531-2 D 25 '20

Cube, Duplication of

- Duplicating the cube—almost. J. Smith. *diag Sci Am M* 3:364 Ap '21

Cubic equations. See Equations, Cubic**Culm**

- Burning mine refuse. *Power Pl Eng* 25:46-7 Ja 1 '21
- Conveyor and self-moving loader remove culm hill. *il Pop Mech* 34:678 N '20
- Engineers club of Philadelphia discuss burning of river coal and culm. *Elec Ry J* 56:1195 D 11 '20; *Power* 52:957-8 D 14 '20
- How to recover four million tons of usable coal from the slush made at anthracite breakers. J. Griffen. *Coal Age* 20:447-51, 490-2 S 22-29 '21
- Loading a culm bank by means of breasts. D. C. Ashmead. *il plan Coal Age* 19:908-9 My 19 '21
- Loree plant recovers seven tons of anthracite slush for one dollar. *Coal Age* 20:608 O 13 '21
- Moving 2,000,000 tons of culm with bottomless power scraper. *il Eng & Contr* 56:283 S 21 '21
- Removing boiler ash, burned coal and slate from the coal in a culm bank. D. C. Ashmead. *il Coal Age* 18:796-8 O 14 '20

Cultivators

- Late-model cultivator can work two rows. *il Pop Mech* 36:261 Ag '21

Cultivators, Motor

- Growing demand for the motor cultivator presents an opportunity to the dealer. *il Motor Age* 38:16-18 O 7 '20

Culverts

- Corrugated metal culverts. J. L. G. Stuart. *Can Eng* 40:170-1 Ja 27 '21
- Culvert pipe standardization. *Concrete* 16:133+ Mr '20
- Economics of bridge and culvert construction. A. Sedgwick. *Can Eng* 40:267-9 Mr 3 '21
- Highway bridges and culverts; with cost tables. M. A. Lyons. *Can Eng* 38:578-80 Je 17 '20; *Same abr. Eng & Contr* 54:88-9 JI 28 '20; *Same cond. Good Roads n s* 20:135-6+ S 15 '20
- Interesting drainage culvert constructed through a high railway fill. *Sci Am* 123:637 D 25 '20
- New flat-top culvert form. *il Eng & Contr* 54:125-6 Ag 4 '20
- Rustic culvert for park. *il Pub Works* 50:447-8 My 28 '21
- Standard field forms for culvert data. O. H. Hampsch. *Eng & Contr* 55:337 Ap 6 '21
- Swamp drained by conduits under floor of culvert. R. C. Hardman. *diag Eng N* 84:925 My 6 '20

Culverts —Continued

- Testing of galvanized culverts for serviceability. L. G. Carmick. *Can Eng* 39:222-3 Ag 5 '20
- Testing of galvanizing improved. A. S. Cushman. *diags Iron Tr R* 67:445-7 Ag 12 '20; Abstract. *Iron Age* 106:722 S 16 '20
- Culverts, Concrete**
- Bilger steel culvert forms. *il Pub Works* 49:311-12 O 2 '20
- Concrete box culverts for railways. L. E. Willmott. *diags map plan Can Eng* 39:112-15 Jl 1 '20
- Novel concrete culvert business grows. *il diags Concrete* 17:24-5 Jl '20
- Raising a 500-ton concrete culvert. D. E. Crouse. *il Elec Ry J* 57:733 Ap 16 '21
- Reinforced pipe for highway culverts. A. J. R. Curtis. *diags Concrete* 17:29-30 Jl '20
- Unique design of reinforced concrete wing walls. *il diags plans Ry Age* 68:1207-9 Ap 16 '20
- Wendelken culvert has varied uses. *il diag Concrete* 18:244 My '21

Failures

- Concrete destroyed in vacuum in Calaveras dam culvert. *il diags plans Eng N* 84:1197-8 Je 17 '20
- Cumarandione. See Benzofurandione
- Cumberland county (Me.) power & light company
- Report for fiscal year ending Dec. 31 1919. *Comm & Fin Chr* 111:2518 D 25 '20
- Cummings, J. Howell
- Sketch. W: S. Dutton. *por System* 39:376-8 Mr '21
- Cunard building, New York
- Cunard building. *Arch & Bldg* 52:88-9, pl 113-15 O '20
- Cunard building. B. W. Morris. *il plans Arch Forum* 33:1-6 Jl '20
- Cunard building, New York. *il Arch & Bldg* 53:61-4, pl 110-24 Ag '21
- Cunard building a great achievement. R. Cortissoz. *il plans Arch Forum* 35:1-8, pl 1-15 Jl '21
- Electrical, heating and ventilating equipment of the Cunard building. H: C. Meyer. *Arch Forum* 35:22-3 Jl '21
- Mural decorations of the Cunard building. E. Winter. *il Arch Forum* 35:9-16 Jl '21
- Plumbing in the Cunard building. C. R. Place. *Arch Forum* 35:24 Jl '21
- Special problems in foundations of the Cunard building. C. S. Proctor. *diags Arch Forum* 35:21-2 Jl '21
- Structural features of the Cunard building. S. O. Miller. *il Arch Forum* 35:17-20 Jl '21

Cup races. See Yachts**Cupferron**

- Determination of iron by the cupferron method. G. E. F. Lundell. *Am Chem Soc J* 43:847-51 Ap '21
- Notes on the preparation of cupferron. D. R. Kasanof. *J Ind & Eng Chem* 12:799 Ag '20
- Les sels complexes organiques en analyse; emploi du cupferron. A. Kling and A. Lasseur. *Chimie & Ind* 4:326-9 S '20
- Use of cupferron in quantitative analysis. G. E. F. Lundell and H. B. Knowles. *J Ind & Eng Chem* 12:344-50 Ap '20

Cupola furnaces

- British cupola practice outlined. R. R. McGowan. *Foundry* 48:360-1 My 1 '20
- Builds small cupola within larger. *il diag Foundry* 49:641-3 Ag 1 '21
- Cast-iron blocks conserve cupola lining. *il Foundry* 48:651 Ag 15 '20
- Chemical reactions in foundry cupolas. Y. A. Dyer. *Iron Age* 108:259-62 Ag 4 '21
- Cupola designed to save time and labor. *il Iron Age* 105:1647-9 Je 10 '20
- Cupola is rapid melter. T. N. Burman. *diag Foundry* 49:577 Jl 15 '21
- Cupola practice is not consistent. P. Dwyer. *il Foundry* 48:671-8 S 1 '20

- Cupola tapping device. *diags Foundry* 49:744 S 15 '21
- Design of cupola and accessory areas. Y. A. Dyer. *Iron Age* 107:1313-14+ My 19 '21
- Device keeps iron out of the wind box. C. W. Crook. *diags Foundry* 49:662-3 Ag 15 '21
- Dr Edward Kirk's system of foundry practice. 3d ed. 212p Dr Edward Kirk, Philadelphia '21
- Electric furnace as an adjunct to the cupola. G: K. Elliott. *Am Mach* 51:1012-14 D 11 '19
- Fuel economy in cupola practice. H. J. Yates. *Iron Age* 105:412 F 5 '20
- Gray iron foundrymen discuss cupola practice. *Iron Tr R* 67:1058-9 O 14 '20
- Home made cupola meets requirements. H. D. McClintock. *il Foundry* 48:114+ F 1 '20
- How slags affect cupola operations. J. W. Bolton. *Foundry* 49:675-82 S 1 '21
- Die kontrolle der verbrennung im kuppelofen und des arbeitsvorganges durch windmengenmessung. H. Bansen. *diag Stahl & Eisen* 41:114-15 Ja 27 '21
- Lime slag lowers sulphur in cupola iron. A. C. Porter. *il Foundry* 49:306-7 Ap 15 '21
- Melting process involved in 21-inch cupola. *Foundry* 49:535 Jl 1 '21
- Neuere versuche mit oelzusatzfeuerung für kuppelofenbetrieb. K. K. Berthold. *diags Stahl & Eisen* 41:393-9 Mr 24 '21; Abstract. *Foundry* 49:530-1 Jl 1 '21
- Points on operating a 36-inch cupola. *Foundry* 49:63 Ja 15 '21
- Production of good iron castings. R: Moldenke. *Iron Age* 106:316-18 Ag 5 '20; Same abr. (Chemical reactions in the cupola). *Foundry* 48:591-2 Ag 1 '20
- Proper size of blower important factor. *Foundry* 49:243-4 Mr 15 '21
- Scientific melting in the cupola urged. A. C. Porter. *Foundry* 48:960 D 1 '20
- Shot iron for use in sash weight castings. *Foundry* 48:568 Jl 15 '20
- Study in cupola operation. R: M. Van Gaasbeek and J. M. Nichol. *Metal Work* 94:242-5 Ag 20 '20
- Superheats in the electric furnace. G: K. Elliott. *Foundry* 49:714-19 S 15 '21; Same. *Iron Tr R* 69:1007-11 O 20 '21
- Use of cupolas in open-hearth practice. V. W. Aubel. *Iron Age* 108:403-5 Ag 18 '21
- Where heavy scrap was melted in cupola. J. Goostray. *diag Foundry* 49:264 Ap 1 '21
- See also Foundry practice

Charging

- Adapting a skip hoist to the cupola. *il Foundry* 48:6-10 Ja 1 '20
- Efficient method of charging cupolas and small copper blast furnaces. A. W. Carroll. *il Min & Met* 168:44-5 D '20
- Fitting the cupola to its work. Y. A. Dyer. *Iron Age* 107:1675, 1727-9 Je 23 '21
- New charging machine in Rundle foundry. G. L. Lacher. *il diags plan Iron Age* 107:4-8 Ja 6 '21
- Place cupola on a weight schedule. H. M. Landgraf. *chart Foundry* 49:519 Jl 1 '21
- Weigh all charges before the heat. H. E. Diller. *il Foundry* 49:377-9 My 15 '21

Cupreine

- Über china-alkaloide; umwandlungen der diazoniumverbindungen des amino-5-cupreins und des amino-5-hydrocupreins und deren methyl- und äthyläther. G. Giemsa and J. Halberkann. *Deutsche Chem Gesell Ber* 54:1167-89 Je '21

Cupric oxide. See Copper oxides**Cupritartrates**

- Cupritartrates. J: Packer and I. W: Wark. *Chem Soc J* 119:1348-55 Ag '21

Cuprous chloride. See Copper chlorides**Cuprous oxide. See Copper oxides****Curbs**

- Device for finishing concrete curb and gutter. *diags Eng & Contr* 53:118 F 4 '20
- Hanging forms for curb work. D. H. Fleming. *diag Eng N* 84:638 Mr 25 '20

- Curie, Marie Sklodowska, 1867-
Box with one gram of radium presented to Madame Curie. *il Pop Mech* 36:371 S '21
Chat with Madame Curie; what the discoverer of radium thinks of us and what we think of her. A. C. Lescarbours. *Sci Am* 125:25+ JI 9 '21
Marie Sklodowska Curie and the story of radium. R. Abbe. *por Eng & Min J* 111:824 My 14 '21; Same. *Comm & Fin Chr* 112:2139-40 My 21 '21
Presentation of the Gibbs medal to Mme. Curie. *por Chem & Met Eng* 24:1132-40 Je 29 '21
- Curle (unit of radioactivity)
Now the curie. *Sci Am* 124:503 Je 25 '21
- Curled hair. See Hair work
- Currency. See Money
- Current meters
Defects in current meters and a new design. S. Fortier and E. J. Hoff. *il Eng N* 85:923-4 N 11 '20
- Current motors. See Hydraulic motors
- Currents, Alternating. See Electric currents, Alternating
- Curtains
Bleaching and finishing of lace curtains; abstract. W. Albert. *Color Tr J* 9:63 Ag '21
See also Car curtains
- Curtis, Charles G.
Romance of invention. *por Sci Am* 123:182+ Ag 21 '20
- Curtis service bureau
Standardizing the made-to-order product. D. Kirkland. *Ptr Ink* 115:33-6 Je 30 '21
- Curtiss, Glenn Hammond, 1878-
Biography. *por Aviation* 10:803-6 Je 27 '21
- Curtiss aeroplane and motor corporation
Curtiss aeroplane and motor corporation after the war. C. M. Keys. *il Aerial Age* 13:295-6 Je 6 '21
- Curve plotting
Chart showing template for a given degree of curve to any scale. D. P. Maxwell. *Eng N* 85:158 JI 22 '20
Diagram for plotting vertical curves. H. T. Avery. *diag Eng N* 86:1004 Je 9 '21
Laying out curves by folding paper. F. M. Weston, jr. *Sci Am* 125:121 Ag 13 '21
Mass curve ordinates computed by aid of adding machine. R. T. Brown. *Eng N* 85:1172 D 16 '20
Table for converting from scale of 1 in.=100 ft. in plotting curves. *Eng N* 84:486 Mr 4 '20
- Curves (engineering)
Calculation of the vertical curve. J. A. Kitts. *Eng & Contr* 53:627 Je 2 '20
Computation of backwater curves in sewer design. C. D. Hill. *Munic Eng* 58:164-7 Ap '20
Computing parabolic curves for street grades. W. W. Kane. *diags Pub Works* 50:373-4 Ap 30 '21
Effect of curvature upon flow in open channels. H. P. Eddy. *Eng N* 87:516-17 S 29 '21
Empirical formula for curved bars and some notes on design. E. H. Wood. *diags Sibley J* 35:30-1 F '21
Explanation of curves; discussion of C. F. Loweth's paper "Classification of old railway bridges." R. F. Jensen. *W Soc E J* 26:297-9 Ag '21
Instructions and table for reducing labor in curve computation. J. A. Lilly. *diag Eng & Contr* 53:137-8 F 4 '20
Method of calculating vertical curves. S. D. Newton. *Eng & Contr* 53:504-5 My 5 '20
New method for laying out circular curves by deflections from the P.I. T. F. Hickerson. *diags Eng & Contr* 53:618-23 Je 2 '20
Precise inspection of large and irregular curves. E. O. Brower. *diags Am Mach* 54:60-6 Ja 13 '21
Reduction of labor in the computation of vertical curves. B. E. Brevid. *diags Eng & Contr* 53:413 Ap 7 '20
- Solution for highway curve problem with P.I. inaccessible. C. H. Olmstead. *Eng N* 85:125-6 JI 15 '20
Solutions of compound curve problems. L. R. Brown. *diags Elec Ry J* 55:160-1 Ja 17 '20; Same. *Eng N* 84:378-9 F 19 '20
Table simplifies use of templates in track plotting. J. G. Walsh. *Eng N* 85:276 Ag 5 '20
Vertical curves for coal piers and hump yards. *Eng N* 85:208-9 JI 29 '20
See also Railroads—Curves and turnouts; Roads—Curves; Street railroads—Curves and turnouts
- Cuspidors
Suggestions for cuspidors in industrial plants. H. F. Smyth. *diags J Ind Hygiene* 3:204-5 N '21
- Custer battlefield hiway
Nine hundred miles on horseback along the Custer highway. W. Eagle. *il map Pop Mech* 35:844-5 Je '21
- Cut glass
Craftsmanship exhibited in fine cut glass. J. J. Valley. *Am Cer Soc J* 3:149-51 F '20
Modern glass manufacture; American methods of making cut glass. J. F. Springer. *il Sci Am M* 1:30-2 Ja '20
- Cut-off tools
Cut-off tools for Brown & Sharpe automatics. F. E. Wilder. *Am Mach* 54:337 F 24 '21
- Cutch
Analysis of catechu and gambier. R. Sansone. *Color Tr J* 6:78-9 Mr '20
Use of organic dyestuffs in the manufacture of lakes; chlorophyll, turmeric, cutch and fustic. B. DePuyster. *Color Tr J* 5:175-8 D '19
- Cutlery
Manufacture
German cutlery manufacturing practice. F. B. Colver. *Metal Ind* 18:172-4 Ap '20
- Cutters. See Milling cutters
- Cutting machines
Bevico automatic wire straightening and cutting machine. *il Am Mach* 55:118 JI 21 '21
Cutting ratchet teeth on a drilling machine. *il Mach* 27:926 Je '21
Davis-Bournonville oxy-acetylene cutting machines. *il diag Engineering* 112:274-5, 307-11, 356-7, pl 14 Ag 19-S 2 '21
Fretter multiple tube cutting-off machine. *il Am Mach* 55:157-8 JI 28 '21; *Mach* 27:1163 Ag '21
Godfrey automatic oxy-acetylene cutting machine. *Mach* 27:418 Ja '21
Modern welding and cutting; cutting machines. E. Viall. *il diags Am Mach* 53:54-9 JI 8 '20
Oil grooving attachment. *il diags Iron Age* 106:918 O 7 '20
Pratt & Whitney Curvex spiral tooth cutter and grinding machine. *il Ry Mech Eng* 94:805-6 D '20
Redesigned Garvin 12-inch cam cutting machine. *il Automotive Ind* 42:609 Mr 4 '20
Soft packing cutter. N. Macleod. *diags Ry Mech Eng* 95:320 My '21
Standard radius lathe and planer tool. *il Automotive Ind* 43:723 O 7 '20
See also Cut-off tools; Ellipsograph; Gear cutting machines; Thread cutting machines
- Cutting of metals. See Metal cutting
- Cyanamide
Changes in cyanamide when mixed with fertilizer materials. E. J. Franke. *Chem & Met Eng* 23:1102 D 8 '20
Changes taking place in cyanamid when mixed with fertilizer materials. R. N. Harger. *J Ind & Eng Chem* 12:1111-16 N '20; Abstract. *Sci Am M* 3:85-6 Ja '21
Cyanamide; patent. *Chem & Met Eng* 24:38 Ja 5 '21

Cyanamide—Continued

Dicyanodiamide: a rapid, direct method for its determination in cyanamid and mixed fertilizers. R. N. Harger. *il J Ind & Eng Chem* 12:1107-11 N '20

Electrolytic dissociation of cyanamide and some of its salts in aqueous solutions. N. Kameyama. *Am Electrochem Soc Trans* v 40 (preprint 25):327-34 S '21

Les rendements dans la fabrication de la cyanamide. C. Pluvillage. *Chimie & Ind* 3: 438-9 Ap '20

Cyanara scolymus. See Artichoke

Cyanide plants

Construction and operation of a cyanide plant in Ecuador. P. C. Schrap. *il plan Eng & Min J* 111:579-86 Ap 2 '21

Cyanide plant without frills at Calico, Cal. L. A. Palmer. *il Eng & Min J* 109:1260-2 Je 5 '20

Power

Analysis of motor load in 400-ton cyaniding plant. F. Krug. *Elec W* 78:471-2 S 3 '21

Cyanide process

Amalgamation and cyanidation. *Min & Sci P* 123:317-18 S 3 '21

Beginning of the cyanide process on the Rand. A. F. Crosse. *Min & Sci P* 123:405-6 S 17 '21

Charcoal and cyanidation. *Min & Sci P* 123: 493-4 O 8 '21

Comments on cyanidation and on progress in gold (and silver) ore treatment, 1920. A. James. *Eng & Min J* 111:102-4, 199-201 Ja 15-22 '21

Comparison of high- and low-grade cyanide. J. G. Kirchen. *Eng & Min J* 110:614 S 25 '20

Construction and operation of a cyanide plant in Ecuador. P. C. Schrap. *il plan Eng & Min J* 111:579-86 Ap 2 '21

Cyanide notes. A. Del Mar. *diag Min & Sci P* 122:810-12 Je 11 '21; Discussion. 122:870-1; 123:81-2, 225 Je 25, Jl 16, Ag 13 '21

De-aeration of cyanide solution. H. A. White. *Min & Sci P* 122:430 Mr 26 '21

Electrical precipitation of cyanide solutions. D. Lay. *diags Eng & Min J* 110:58-62 Jl 10 '20

Factors affecting zinc consumption in cyanide practice. *Eng & Min J* 109:839 Ap 10 '20

Improved zinc feeder. A. J. Clark. *diags Eng & Min J* 109:862 Ap 10 '20

Lead salts in the cyanidation of silver ores. R. W. Perry. *Min & Sci P* 122:221-5 F 12 '21

Milling practice at the Benguet Consolidated mine. C. M. Eye and M. F. Dodd. *flow sheet il Min & Sci P* 121:805-10, 841-6 D 4-11 '20

Oxygen in cyanide solutions. E. M. Hamilton. *Eng & Min J* 110:116 Jl 17 '20

Professional advice from the Bureau of mines. *Min & Sci P* 122:801-2 Je 11 '21; Discussion. H. F. Bain. 123:221-3 Ag 13 '21

Rapid determination of silver in cyanide solutions. J. E. Clennell. *Eng & Min J* 108:785 N 8 '19

Solubility of gold in cyanide solutions. A. H. White. *Chem & Met Eng* 22:183 Ja 28 '20

Tests of low-grade cyanide at Tonopah confirm earlier results. J. G. Kirchen. *Eng & Min J* 111:336-7 F 19 '21

Thickeners and decanting appliances. H. Hanson. *il Eng & Min J* 109:853-6 Ap 10 '20

Troubles of a cyanider. *Eng & Min J* 109: 702, 808, 1200-1; 110:52 Mr 20, Ap 3, My 29, Jl 10 '20

See also Crowe process; Gold metallurgy

Costs

Costs at Las Dos Estrellas mill. T. S. Saunders. *Eng & Min J* 111:578 Ap 2 '21

Cyanides

Aero brand cyanide. *Min & Sci P* 120:513 Ap 3 '20

Carburizing and casehardening; properties of cyanide. S. P. Rockwell. *Mach* 26:631 Mr '20

Casehardening steel. S. P. Rockwell. *Mach* 26: 770 Ap '20

New cyanide; description of the process for converting calcium cyanamide to a new cyanide in a modern sodium chloride solution. W. S. Landis. *Chem & Met Eng* 22: 265-8 F 11 '20; Same. *Am Electrochem Soc Trans* v 37 (preprint 8):87-97 Ap '20

Production of ammonia formates from cyanides, ferrocyanides, and cyanized briquets. G. W. Heise and H. E. Foote. *diag J Ind & Eng Chem* 12:331-6 Ap '20

Some aspects of cheap cyanide processes. H. Philipp. *Chem & Met Eng* 22:313-17 F 18 '20

Cyano-acetic acid

Butyl- and isobutyl-cyano-acetic acids. J. C. Hessler and W. F. Henderson. *Am Chem Soc J* 43:672-6 Mr '21

Cyanogen bromide

Über die einwirkung von bromcyan auf triphenyl-phosphin. W. Steinkopf and K. Buchheim. *diag Deutsche Chem Gesell Ber* 54:1024-35 My '21

Zur kenntnis organischer arsenverbindungen; die einwirkung von bromcyan auf cyclopentamethylen-phenyl-arsin. W. Steinkopf and A. Wolfram. *diag Deutsche Chem Gesell Ber* 54:848-57 Ap '21

Zur kenntnis organischer arsenverbindungen; die einwirkung von bromcyan auf triäthyl-arsin. W. Steinkopf and J. Müller. *Deutsche Chem Gesell Ber* 54:841-7 Ap '21

Cyanogen compounds

Zur kenntnis einfacher cyan- und cyanurverbindungen; über das cyanurtriazid. E. Ott and E. Ohse. *Deutsche Chem Gesell Ber* 54:179-86 F '21

Cyanogen gas

New cyanide process for hardening steel; abstracts. W: J. Merten. *diag Iron Age* 106: 1267-8 N 11 '20; *Iron Tr R* 67:998-9 O 7 '20; *Mach* 27:230-1 N '20; *Ry Mech Eng* 94:716-17 N '20; *Am Mach* 53:1169-70 D 23 '20

Cyanogen halides

Action of cyanogen haloids on phenylhydrazine; melamine derivatives. G. Pellizzari. *Chem Soc J* 120 pt 1:620-2 Ag '21

Cyanonitrophenylhydrazine

Über cyan-nitro-phenylhydrazine. W. Borsche. *Deutsche Chem Gesell Ber* 54:660-9 Ap '21

Cycle cars

La définition officielle du cycle-car. *Génie Civil* 78:321 Ap 9 '21

Engineering features of a popular British runabout. M. W. Bourdon. *il diags plan Automotive Ind* 45:404-6 S 1 '21

Cycle counters

Timing relays with a cycle counter. V: H. Todd. *il diags Power* 52:751-2 N 9 '20

Cyclic compounds

Calculation of the colour of cyclic coloured substances. J. Moir. *Chem Soc J* 119:1654-68 O '21

Conditions underlying the formation of unsaturated and cyclic compounds from halogenated open-chain derivatives; products derived from α -halogenated adipic acids. C. K. Ingold. *Chem Soc J* 119:951-70 Jl '21

Conditions underlying the formation of unsaturated and of cyclic compounds from halogenated open-chain derivatives; products derived from α -halogenated glutaric acids. C. K. Ingold. *Chem Soc J* 119:305-29 Mr '21

See also Tricyclic compounds

Cyclobutane

Spiro-pyrimidines cyclobutane-1,5-spiro-pyrimidines. A. W. Dox and L. Yoder. *Am Chem Soc J* 43:677-84 Mr '21

Cyclohexane

Preparation of certain derivatives of cyclohexane. A. E. Osterberg and E. C. Kendall. *Am Chem Soc J* 42:2616-26 D '20

Spiro-pyrimidines; cyclohexane-1,5-spiro-pyrimidines. A. W. Dox and L. Yoder. *Am Chem Soc J* 43:677-84, 1366-70 Mr, Je '21

Cyclones

Causes and paths of cyclones. *diag maps Marine R* 51:305-11 Jl '21

Cyclones—*Continued*

Problems relating to rotating fluid in the atmosphere. G: Green. *Philos Mag* 6th ser 41:665-75 Ap '21

See also Tornadoes

Cycloparaffin series

Molekularer brechungskoeffizient, sein additives verhalten und seine verwendbarkeit zur konstitutionsbestimmung; die zahlenmässigen zusammenhänge in der reihe der polymethylen-verbindungen. F. Eisenlohr. *Deutsche Chem Gesell Ber* 54: 299-320 F '21

Cyclopidius

Leptauchenia Leidy and *cyclopidius* (pithe-cistes) Cope, with descriptions of new and little known forms in the Marsh collection. M. R. Thorpe. *bibliog il Am J Sci* 5th ser 1:405-19 My '21

Cyclopropane

Formation and stability of spiro-compounds; new derivatives of cyclopropane and cyclohexanespirocyclopropane. S. F. Birch, W: H: Gough and G: A. R. Kon. *Chem Soc J* 119:1315-28 Ag '21

Cyclopropanol

Das apo-tricyclol, ein abkömmling des cyclopropanols und seine ketisierung. P. Lipp and C. Padberg. *Deutsche Chem Gesell Ber* 54:1316-29 Je '21; *Abstract. Chem Soc J* 120 pt 1:559-61 Ag '21

Cycloramas

Battle of Atlanta; memorial museum. *il Am Arch* 118:210-11 Ag 18 '20

Competition for a cyclorama building at Atlanta, Ga. *Am Mach* 118:216d-j Ag 18 '20

Cylinders

Determination of fiber stress caused by force fits. S. R. Cummings. *diags Mech Eng* 42:533-4 S '20

Strength of thick hollow cylinders. W: W. Gaylord. *Mech Eng* 42:250 Ap '20

Testing

Experiments on copper crusher cylinders. A. I. Krynitsky. *diag U S Bur Stand Tech Pa* 185:1-32 '21

Cylinders (engines)

Accelerating cylinder production. *il Foundry* 48:311-18 Ap 15 '20

Automobile cylinders in the machine shop; how they are handled at five big shops. F: H. Colvin. *il diags Am Mach* 52:705-18 Ap 1 '20

Boring a gas engine cylinder. R. McHenry. *il Am Mach* 55:483 S 22 '21

Building motors on the Pacific coast; Hall-Scott motor car company, Berkeley, Calif. F. H. Colvin. *il Am Mach* 53:1117-21 D 16 '20

Casting and machining oil-engine pistons, piston rings and cylinders. S: Rosswell. *diags Am Mach* 54:137-40 Ja 27 '21

Cylinder actions in gas and gasoline engines. D. Clerk. *diags Soc Auto Eng J* 8:523-39 Je '21; *Discussion. 9:253-6 O '21*

Cylinder blocks manufactured in an efficient manner. J. E: Schipper. *il plan Automotive Ind* 44:72-7 Ja 13 '21

Cylinder boring, reaming and grinding. F. D. Jones. 110p *Industrial press*, New York '21

Cylinder cores made in green sand. *il plan Foundry* 48:861-6 N 1 '20

Cylinder grinding in motor repair shops. *diags Am Mach* 55:342-3, 387-8 S 1-8 '21

Cylinders in the Oakland shop. F. H. Colvin. *il diags Am Mach* 53:571-4 S 23 '20

Cylinders of 0-8-0 type superheater locomotive; North-eastern railway. *diags plan Engineering* 109:208 F 13 '20

Eagle process for scored cylinder repairs. *il Motor Age* 37:33 My 20 '20

Electric welding of a Diesel cylinder head. L. H. Morrison. *il diags Power* 50:659-60 O 28 '19

Fatal drying cylinder explosion. *Engineering* 112:217 Ag 5 '21

Formerei von auto-zylinderblöcken. C. Irresberger. *il diags Stahl & Eisen* 41:1217-22, 1329-33 S 1, O 27 '21

How cylinders are made in England. H. C. Estep. *il plan Foundry* 48:933-9 D 1 '20

How we make automobile cylinders. F. H. Colvin. *il diags Am Mach* 52:123-6 Ja 15 '20

Internal-combustion engines with large cylinders. J. McKechnie. *Engineering* 112:132-4; *Discussion. 123-4 Jl 15 '21*

Machining impeller pump cylinders. *il diags plan Mach* 26:330-1 D '19

Machining operations on a six-cylinder and crankcase block. P. M. Heldt. *il Automotive Ind* 43:712-16 O 7 '20

Machining over 200 cylinder blocks per hour. F. H. Colvin. *il diags Am Mach* 52:563-9 Mr 11 '20

Machining the Rolls-Royce cylinders. F. H. Colvin. *il Am Mach* 54:785-6 My 5 '21

Make marine cylinders in new shop; practice pursued at the Boston navy yard. H. R. Simonds. *il Foundry* 49:1-4 Ja 1 '21

Milling and boring Winton cylinders. I. B. Rich. *il Am Mach* 52:623-4 Mr 18 '20

Molding cylinders in an Austrian shop. C: Irresberger. *il diags Foundry* 49:383-90 My 15 '21

Nature of flame movement in closed cylinder. C. A. Woodbury, H. A. Lewis and A. T. Canby. *il diag Soc Auto Eng J* 8:209-18 Mr '21; *Discussion. 9:237-42 O '21*

Oxyacetylene welding of damaged engine cylinders. *il Power* 52:465-6 S 21 '20

Piston rod cracks cylinder. A. J. Dixon. *diags Power* 53:900 My 31 '21

Preliminary calculation of cylinder dimensions for aircraft engines. O: Schwager. *Aerial Age* 14:179-80+ O 31 '21

Regrinds engine cylinders without dismantling. *il Pop Mech* 35:758 My '21

Repairing a fractured pump cylinder. A. J. Dixon. *diags Power* 53:555-6 Ap 5 '21

Repairing cast iron cylinders by welding. H. G. Knox and J. W. Owens. *il diags Int Marine Eng* 25:340-6 Ap '20

Shop work on locomotive cylinder and valve parts. J. V. Hunter. *il diags Am Mach* 55:305-8 Ag 25 '21

Special features in cylinder block production. J. E: Schipper. *il Automotive Ind* 45:116-22 Jl 21 '21

Steam-engine cylinder liners. H. T. Yust. *diag Power* 51:562 Ap 6 '20

Strength of hydraulic cylinders. *Mach* 27:219 N '20

Stubborn leak. R. A. Cultra. *diags Power Pl Eng* 25:677-8 Jl 1 '21

Studebaker methods of cylinder production. *il diags Am Mach* 53:575-9 S 23 '20

Studying conditions within the cylinder by indicator cards. *il Automotive Ind* 42:562-4 F 26 '20

Utilization of aluminum for engine cylinders. W. Rosenhain. *Automotive Ind* 42:912-13 Ap 15 '20

Utilization of special machines in cylinder block production. J. E: Schipper. *il Automotive Ind* 44:756-61 Ap 7 '21

Welding an engine cylinder from the inside. O. A. Kenyon. *il Int Marine Eng* 25:188-90 Mr '20

Welding large mill engine cylinders. L. M. Malcher. *il Foundry* 47:908-9 D 15 '19; *Same. Iron Tr R* 65:1710-11 D 25 '19; *Same. Am Mach* 52:81-2 Ja 8 '20

Welding locomotive cylinders. *Am Mach* 51: 932-3 N 27 '19

Welding the interior surface of a cast-iron cylinder. O. A. Kenyon. *il Mach* 26:642-3 Mr '20

Wilson plant cylinder-head explosion. *plan Power* 54:430, 542 S 13, O 4 '21

See also Pistons

Testing

Device tests cylinders for roundness. *il Pop Mech* 36:740 N '21

Cymene

Hydrolysis of fats by reagents made from cymene. R. H. McKee and L. J. Lewis. *Chem & Met Eng* 24:969-75 Je 1 '21

Cymene—Continued

Para cymene as a solvent. A. S. Wheeler.
Am Chem Soc J 42:1842-6 S '20

Cymene sulfonic acids

Patent. Chem & Met Eng 22:42 Ja 7 '20

Cyperaceæ

Studies in the cyperaceæ. T. Holm. il Am J
Sci 4th ser 49:195-206, 429-42; 4th ser 50:
159-68; 5th ser 2:285-94 Mr, Je, Ag '20, N
'21

Cypress

Making the birds sell cypress. Ptr Ink 111:
109-10 Ap 8 '20

Advertising

Advertising plan that picks its prospects.
G: E. Watson. il Ptr Ink M 2:29-30+ F '21
How advertising stabilized prices in up and
down markets. Ptr Ink 114:33-4 Ja 13 '21

Czechoslovakia

Labor laws of Czecho-Slovakia. Monthly La-
bor R 10:543-9 F '20

Regulation of child labor in Czecho-Slovakia.
Monthly Labor R 10:1008-12 Ap '20

Some impressions of Prague and Czecho-Slo-
vakia. Illum Engr 13:210-11 Jl '20

See also Labor laws and legislation—
Czechoslovakia; Prices—Czechoslovakia;
Wages—Czechoslovakia

Economic conditions

Central European recovery led by Czecho-
slovakia. J. Moritzen. Annalist 18:319-20 O
3 '21

See also Money—Czechoslovakia

Industries and resources

Ambitious industrial plans of Czecho-Slo-
vakia. J: B. Woods. Am Mach 53:238-9 Jl
29 '20

Czechoslovak glass situation. Chem & Met
Eng 23:57 Jl 14 '20

Czecho-Slovakia industry. Electrician 87:547
O 28 '21

Electrification program of Czechoslovakia.
F. Pietsch. Elec W 78:359-60 Ag 20 '21; Ab-
stract. Sci Am M 4:373 O '21

Turning the Skoda works from swords to
plow-shares. A. J. Herschmann and C.
Scheid. il Sci Am 123:246-7 S 11 '20

See also Chemical industries—Czecho-
slovakia; Electric plants (central stations)
—Czechoslovakia; Iron industry and trade
—Czechoslovakia; Machine tool industry—
Czechoslovakia; Steel industry and trade—
Czechoslovakia; Steel works—Czechoslovakia

D

Dairy barns. See Barns and stables

Dairy products

See also Butter; Buttermilk; Cheese;
Milk; Milk, Condensed

Advertising

When farmers and middle interests co-op-
erate. J. T. Bartlett. Ptr Ink 112:129+ Jl
29 '20

Dallas, Texas**Railroads**

Railway tracks removed from streets of
Dallas. il map Eng N 87:646-8 O 20 '21

Water supply

Dallas, Tex., water purification plant. H.
Rosenthal. Can Eng 39:204-5 Jl 29 '20

Dam failures

Dam failure danger exaggerated. F. W.
Scheidenhelm. Eng N 87:119 Jl 21 '21

Failure of concrete slab facing of dam and
method of making repairs. W. H. Fisher;
A. Weiss. diags Eng & Contr 54:371-3 O 13
'20

Floods wash out part of apron of granite
reef dam. diag Eng N 85:355 Ag 19 '20

Hydraulic-dam core exposed by slope wash-
out. Eng N 87:744 N 3 '21

Record of 100 dam failures. L. Jorgensen. il
J Elec 44:274-6, 320-1 Mr 15-Ap 1 '20

Spillways in Nova Scotia proven inadequate.
K. G. Chisholm. il Can Eng 38:371-2 Ap
15 '20

Damages

Measure of damages for loss caused by negli-
gence in repairing machinery. L. Childs.
Am Mach 53:1051 D 2 '20

See also Accident law; Personal injuries

Damascening

New method of damascening metals. Sci Am
M 2:42-5 Jl '20

Damp-proofing. See Waterproofing

Damped electric oscillations. See Oscillations

Dampers

Arrangement of fans and dampers permitting
flexibility of heating system in accordance
with weather conditions or repairs to the
system. diag Heat & Ven 17:43-4 N '20

Damper governor maintains constant draft
in chimney. F. J. Lillis. diag Pop Mech 34:
292 Ag '20

Miscellaneous details of fan blast heating.
diags plans Heat & Ven 17:43-5 My '20

New development in damper regulation. diags
Power Pl Eng 24:1053-4 N 1 '20

Victor high-pressure damper regulator. diags
Power 54:140 Jl 26 '21

Dampers, Reversing

Design and operation of reversing dampers
for theatre ventilation. diags plans Heat
& Ven 17:35-9 Ag '20

Dams

Arch action in curved dams. F. A. Noetzli.
diag Eng & Contr 55:372-4 Ap 13 '21

Arkansas river dammed by a single large
blast. I. E. Houk. il Eng N 87:601 O 13 '21

Baltimore's tilting dam. J. F. Springer. il
diags Sci Am 123:12+ Jl 3 '20

Le barrage de la Scoltenna (Italie). il diags
Génie Civil 78:97-9 Ja 29 '21

Big Eddy dam. J. F. Springer. il Sci Am
124:164 F 26 '21

Building the earth dams at the Bridgewater
project. R: Pfaehler. il diag Eng N 85:
306-9 Ag 12 '20

Building the Gilboa dam. il map Pub Works
51:1-6 Jl 2 '21

Circular arch under normal loads. W: Cain.
Am Soc C E Pro 47:285-300 O '21

Completing Germantown dams. il diag plan
Pub Works 50:183-7 F 26 '21

Constructing the Wanaque dam. il diag Pub
Works 51:157-61 Ag 27 '21

La construction des barrages en terre et en
maçonnerie. il diags Génie Civil 77:205-11,
230-2 S 11-18 '20

Construction methods on three recent earth
and concrete dams. J. P. Wells. diags
Eng & Contr 54:149-50 Ag 11 '20

Core-pool overflow forms core inspection
well. diag Eng N 85:1138 D 9 '20

Costs of concrete and organization employed
on the Taylorsville works of Miami con-
servancy district. il chart plans Eng &
Contr 55:152-4 F 16 '21

Dam and its appurtenances. N. L. Devendorf.
diags Power 54:213-16 Ag 9 '21

Dam at Marysville, N. B., that withstood
unusual service test. A. W. Thwing. il
plans Can Eng 38:517-18 Je 3 '20

Damming a river with dry weed. W: H.
Hamby. il Pop Mech 34:583 O '20

Design and cost of water supply dams at
Jacksonville and Decatur, Ill. S: A. Greeley.
Munic Eng 58:88+ F '20; Same. Eng &
Contr 53:147-8 F 11 '20

Design of dams and auxiliary structures of
Miami conservancy district. il diags plans
Eng N 84:1142-8 Je 10 '20

Development of early hydraulic fill dams out-
lined by pioneer. J. M. Howells. J Elec 47:
259 O 1 '21

Devil's Gate dam near Pasadena, Cal. il
Pub Works 49:121-2 Ag 7 '20

Drag-line rock excavation for large dams.
Pub Works 48:113-14 F 21 '20

Dams—Continued

- Dragline excavator operations at the Englewood dam. H. S. R. McCurdy. map Eng N 86:603-4 Ap 7 '21
- Earth fill irrigation dam has some novel details. C. V. Mann. il diags Eng N 86:1030-2 Je 16 '21
- Economical use of flashboard supports on a curved dam. C. I. Hosmer. Elec W 77:1051 My 7 '21
- Famous dams raised by Pacific gas & electric co. Elec R 76:191 Ja 31 '20
- Flood check dams formed by fill behind wire frame; Pratt porous dams. il diags plan Eng N 85:506-7 S 9 '20
- Form design for Miami flood-control dam conduits. diags Eng N 84:430 F 26 '20
- Gilboa dam. J. F. Springer. il Sci Am 121:608-9+ D 20 '19
- Hydraulic fill at the Miami conservancy dams. C. S. Hill. il diags plans Eng N 85:486-90, 547-50, 600-3 S 9-23 '20
- Hydraulic fill construction of Huffman dam. map Pub Works 49:232-4 S 11 '20
- Hydraulic-fill dams. A. Hazen. diags Can Eng 38:443-50 My 6 '20; Same. Engineering 110:374-5, 427-8, 457-9 S 17-O 1 '20; Same cond. Eng & Contr 53:536-40 My 12 '20; Summary. Eng N 84:929 My 6 '20
- Hydraulic-fill dams. J. A. Holmes. il diag Engineering 111:181-4, 211-13 F 11-18 '21; Excerpt. Eng & Contr 55:143-6 F 9 '21
- Hydraulic fill dams for Miami conservancy district. il Pub Works 48:391-4, 419-22 My 8-15 '20
- Hydraulic fill practice on Terrace reservoir dam. J. E. Field. il diag Eng N 86:597-601 Ap 7 '21
- Hydraulic-jump pools effective. il Eng N 86:764 My 5 '21
- Hydraulic sluicing for Ochoco dam in heavy material. il Eng N 85:939-40 N 11 '20
- Improve small water power by building eight dams. il Eng N 85:1142-3 D 9 '20
- Indian state builds a power and irrigation dam. E. W. T. Slater. il Eng N 86:1107-8 Je 30 '21
- Les irrigations de la vallée du Rio Negro (Argentina) et le barrage de Neuquén. il diags plans Génie Civil 78:353-4 Ap 23 '21
- Is the dam safe? Sci Am 123:238 S 4 '20
- Is the dam safe? S. R. Winters. il diag plan Sci Am 122:419+ Ap 17 '20
- Jackson lake dam the savior of the Snake river valley. il diags Eng N 83:992-4 D 11 '19
- Lake Eleanor dam. il Pub Works 48:436-7 My 22 '20
- Lockington dam completed. il Eng N 87:730-1 N 3 '21
- Making the final 15-ft. raise of the Spaulding dam; dam is now 275 ft. high—careful plans to observe shrinkage of concrete. I. C. Steele. il diags plan Eng N 85:1020-4 N 25 '20
- Making the flood dam itself; a simple wire netting structure that gathers mud, boulders and miscellaneous debris to form a barrier. J. F. Springer. il Sci Am 125A:38-9 N '21
- Measuring internal pressures in hydraulic-fill cores. il diags Pub Works 48:553-5 Je 26 '20; Same. Can Eng 39:207-8 Jl 29 '20; Same abr. Eng & Contr 53:674-5 Je 16 '20
- Measuring upward pressure under a masonry dam. E. W. Lane and E. L. Chandler. il diags plans Eng N 84:1014-16 My 20 '20; Abstract. Eng & Contr 54:237-8 S 8 '20
- Method of topping out Germantown hydraulic fill dam. il diag Eng & Contr 55:224-5 Mr 9 '21
- Mitta Mitta dam. Pub Works 48:246 Mr 27 '20
- Muscle Shoals hydro-electric development. C. H. Jones. il map Chem & Met Eng 22:417-19 Mr 3 '20
- Plastic fill method cuts cost of earth dike at Taylorsville. diag plan Eng N 85:268-9 Ag 5 '20
- Plastic fill method of embankment construction; Taylorsville dam. plan Eng & Contr 53:302-3 Mr 17 '20
- Precautions to observe when operating gates at a dam. L. W. Wyss. Power 51:222-3 F 10 '20

- Progress on proposed American Falls dam, Idaho. Eng N 85:659 S 30 '20
- Relation between deflections and stresses in arch dams. F. A. Noetzli. Am Soc C E Pro 47:261-84 O '21
- Reservoir and plant for new Southern water power at Bridgewater, N.C. W: S. Lee and R: Pfaehler. il diags maps plan Eng N 84:1088-95 Je 3 '20
- River control by wing dams. R. W. MacIntyre. Eng & Contr 55:162-3 F 16 '21
- Roadway crosses top of remarkable dam; Devil's Gate dam, Pasadena, Calif. il Pop Mech 34:864-5 D '20
- Rock excavation with drag lines for Miami conservancy dams. il diags Eng & Contr 53:61-3 Ja 21 '20
- St Francis river water storage. A. Duperon. il diags plan Can Eng 39:651-4; 40:107-8 D 30 '20-Ja 6 '21
- Sheerboards used in building hydraulic fill dam. il diag Eng N 86:291-2 F 17 '21
- Sluicing methods for core of hydraulic fill dam at Huffman, O. il plan Eng & Contr 54:255-6 S 15 '20
- Some dams of the ancients. C: Prelini. Eng N 87:556-7 O 6 '21
- Storage and power possibilities of the St John river, New Brunswick. A. Langlois. diags Can Eng 39:501-2+ N 4 '20
- Study of pressures in hydraulic dam cores. il diags plans Eng N 83:1040-4 D 25 '19
- Taylorsville dam controlling conduits. il diag Pub Works 48:464-6 My 29 '20
- Tennessee's highest dam overtops Niagara; views. Pop Mech 33:323 Mr '20
- Two large dams proposed in the West. Pub Works 50:208 Mr 5 '21
- Unique reservoir dams on New York barge canal. F. M. Williams. Munic Eng 58:130-2 Mr '20
- Upper Ottawa river storage: its value and possibilities. A. Langlois. Can Eng 39:460-1 O 21 '20
- L'utilisation des fleuves par barrages ou dérivations; étude de l'usine et du barrage d'Augst-Wyhlen, sur le Rhin. L. Mähl. Génie Civil 76:212-14 F 21 '20
- Vast irrigation reservoir planned for Australia. map Pop Mech 33:119 Ja '20
- Wanaque dam. diags plans Pub Works 48:324-30; 49:533 Ap 17, D 4 '20
- Water-filled canvas pipes form temporary dams. il Pop Mech 36:184-5 Ag '21
- Water-filled hose that controls shallow rivers. il Sci Am 125:49 Jl 16 '21
- See also* Barrages; Cofferdams; Dam failures; Dikes (engineering); Embankments; Hetch Hetchy project; Hydroelectric plants; Irrigation; Reservoirs; Spillways

Contracts

- Dam contract has special cost-plus feature. Eng N 85:878-9 N 4 '20

Failures

- See* Dam failures

Foundations

- Excavating the foundation for Hetch Hetchy dam. il diag Eng N 87:222-4 Ag 11 '21
- François cementation process. H. S. Ball. plan Eng & Contr 56:213 Ag 31 '21
- Testing rock bearing by leverage loading machine. H. J. Gavit. diag plan Eng N 85:417 Ag 26 '20; Same. Eng & Contr 54:495 N 17 '20

See also Dams, Concrete—Foundations

Repair

- Clay blanket stops leakage in earth dam. B. E. Torpen. il diags plan Eng N 84:365-6 F 19 '20
- Experience with precast revetment block on a dam. diag plan Eng N 85:26-7 Jl 1 '20
- Location and remedy of leaks in rock-filled dams. R. V. McDonald. Power 51:626-7 Ap 20 '20

See also Dams, Concrete—Repair

Dams, Concrete

- American arched dam with tangent ends. Canyon Creek dam, Utah. diags plan Engineer 131:88-90 Ja 28 '21
- America's greatest dam; the Muscle Shoals project on which congressional economy is about to force a halt. W. B. West. il Sci Am 124:364-5 My 7 '21
- Big dam on the little San Diego. J. F. Springer. il Sci Am 124:108+ F 5 '21
- Big Eddy storage dam. il diag plan Pub Works 48:319-22, 529-34 Ap 17, Je 19 '20
- Building big Eddy dam on Spanish river, Ont. il plan Eng N 85:402-5 Ag 26 '20
- Computing reinforcement steel in dams and retaining walls. W. C. Taylor. diags Can Eng 39:223-4 Ag 5 '20; Same. Eng & Contr 54:289-90 S 22 '20
- Concrete arch dam built from superposed trestle. il Eng N 84:421-2 F 26 '20
- Concrete chuting plant for dam laid out in miniature. C. W. Garrison. il Eng N 87:231-2 Ag 11 '21
- Concrete dam built with small force. il Concrete 18:168-9 Ap '21
- Concrete for Miami conservancy district work. il diag Pub Works 48:487-90 Je 5 '20
- Constructing Sherman Island dam. il Pub Works 51:305-9 O 22 '21
- Construction features of Snow Mountain dam. il Elec R 77:725-6 N 6 '20
- Construction of the Gibraltar dam. N. A. Bowers. il J Elec 45:325-7 O 1 '20
- Controlling inrush of water in tunnel driving by reinforced concrete dam. T. Blandford. Eng & Contr 53:376 Mr 31 '20
- Design and construction features of the Kerckhoff dam. B. F. Jakobsen. il diags Eng & Contr 55:565-8 Je 8 '21
- Design details and field methods on thin arch dam. il diags plans Eng N 84:474-6 Mr 4 '20
- Existing and proposed power development on the Rainy river. A. Langlois. diags map Can Eng 39:519-20 N 11 '20
- Experience with slab pavements at Minatare dam. W. H. Fisher and A. Weiss. Eng N 85:689-90 O 7 '20
- Falsework for a big dam; Warm Springs dam, Oregon. J. F. Springer. il Sci Am 124:204+ Mr 12 '21
- Gibraltar concrete water supply dam. il diags Concrete 17:64 Ag '20
- Gibraltar water-supply dam at Santa Barbara. il diags Eng N 84:1003-4 My 20 '20
- Handling plant for the construction of the Eel river dam. diag Eng & Ind Management 6:281-3 S 8 '21
- Hetch Hetchy dam. il Sci Am 122:117 Ja 31 '20
- Hydro-electric development at St Jerome, Que. L. A. Wright. il diag Can Eng 38:299-302 Mr 18 '20
- Making the final 15-ft. raise of the Spaulding dam; dam is now 275 ft. high—careful plans to observe shrinkage of concrete. I. C. Steele. il diags plan Eng N 85:1020-4 N 25 '20
- Million and a quarter yard concrete job was carried on rapidly at Wilson dam. il diags plan Eng N 86:536-41 Mr 31 '21
- New stop-water for joints in concrete structures. diags plan Eng N 86:681 Ap 21 '21
- Permanent type of check dam in southern California. Eng & Contr 53:586 My 19 '20
- Progress on Muscle Shoals dam construction. il Eng N 84:106 Ja 8 '20
- Proportioning and making concrete on Barrett dam. H. N. Savage. il plan Eng N 87:695-7 O 27 '21
- Reinforced concrete arch dam in Sweden. F. A. Noetzli. diag J Elec 45:79-80 Jl 15 '20
- Reinforced concrete dam for controlling inrush of water in mining tunnel. Eng & Contr 55:330 Mr 30 '21
- San Francisco goes to the mountains; some details of the Lake Eleanor dam. J. F. Springer. il Sci Am 122:704+ Je 26 '20
- Santa Barbara's Gibraltar dam. il Pub Works 48:556-8 Je 26 '20
- Simple plant makes good record in dam construction. il Eng N 85:202-3 Jl 29 '20

- Using 6-in. bank run aggregate on Stevenson dam. il diag Eng N 85:638-40 S 30 '20
- Volume relation of constant angle arch dams and gravity dams. B. J. Jakobsen. diags Eng & Contr 54:554-7 D 8 '20
- Water-power developments in North Wales. J. B. C. Kershaw. il diag map plan Engineer 132:210-11 Ag 26 '21

Foundations

- Concrete dam on Eel river built on shale foundation. il diags plans Eng N 86:750-4 My 5 '21

Repair

- Failure of concrete slab facing of dam and method of making repairs. W. H. Fisher; A. Weiss. diags Eng & Contr 54:371-3 O 13 '20
- Method employed in closing a leak under a dam. W. D. P. Warren. Munic Eng 59:101-2 S '20

Dams, Movable

- Design and operation of movable crest dams. W. G. Fargo. il diags Munic Eng 58:157-9 Ap '20
- Plan to regulate Great Lakes level by Niagara dam. F. C. Shenehon. diags maps plan Eng N 84:308-13 F 12 '20

Dancers

- Dance and architecture; etchings of dancers by Troy Kinney. Am Inst Arch J 8:322, 323-30 S '20

Danger signs. See Signs, Danger**Daniels, Josephus**

- Senate naval committee reports on the Sims-Daniels controversy. Comm & Fin Chr 113:366-8 Jl 23 '21

Danzig

- Developing the free city of Danzig. Am Ind 22:37 Ag '21

Darby, Abraham

- How Abraham Darby made iron pots. J. H. Taylor. Foundry 49:410-11 My 15 '21

Darling, J. N.

- Builders of business. A. V. Levering. por System 39:530-2 Ap '21

Dartmouth college**Amos Tuck school**

- Larger view of business education—the Amos Tuck school. Comm & Fin Chr 110:701-2 F 21 '20

Spalding swimming pool

- Spalding swimming pool at Dartmouth college. L. V. Solon. il diags plan Arch Rec 50:183-92 S '21

Date palms

- Rare date palms are found after 20-year search. Pop Mech 35:890 Je '21

Datura stramonium. See Jimson weed**Davenport, Iowa****Rapid transit**

- One-man operation saves \$110,000 in Davenport, Iowa. il Elec Ry J 58:727-8 O 22 '21
- Two years of bickering ended in Davenport, Iowa. Elec Ry J 57:1142-3 Je 18 '21

Davies, C. E.

- New editor of Mechanical engineering. Am Mach 55:40a Jl 7 '21

Davis, Arthur Powell, 1861-

- Elected president, Am. Soc. C. E. por Eng N 84:199+ Ja 22 '20

Davis, James John

- From Tredegar to Washington. J. B. Morrow. Nation's Business 9:14-15 My '21

Davis-Bournonville institute for welding and cutting

- Acetylene welding and cutting institute; Davis-Bournonville co., Jersey City, N.J. il Sheet Metal Worker 11:307-10 O 29 '20

Davits

- Gravity type lifeboat davits installed on passenger vessels. il Marine Eng 26:323 Ap '21

- Size of lifeboat davit. diags Int Marine Eng 25:777-8 S '20

Day, Joseph P.

Joseph P. Day, salesman plus. C. P. Russell.
il Ptr Ink M 3:25-6 S '21

Day labor

County roads constructed cheaply by day
labor. S: H. Lea. Eng N 85:363 Ag 19 '20

Day labor construction on Lincoln highway
at Frankfort, Ill. B. H. Peipmeier. il Munic
Eng 61:sup23-4+ O '21

Wisconsin experience with day-labor road
construction. W. C. Buetow. Eng N 86:
1070-3 Je 23 '21

Daylight

Daylight illumination in the shops. il Int
Marine Eng 25:122, 125-6 F '20

See also Twilight

Daylight, Artificial

Artificial daylight achieved by a British in-
vention. Arch Rec 47:384 Ap '20

Artificial daylight for merchandising and in-
dustry. G. H. Stickney. bibliog il Gen Elec
R 23:527-33 Je '20

Artificial daylight; the problem of matching
colours. A. P. Trotter. Illum Engr 12:341-2 D
'19

Colour-matching by natural and artificial
light. L. C. Martin. Illum Engr 13:31-7;
Discussion. 43-59 F '20; Abstract. Elec-
trician 84:169 F 13 '20

Development in the Sheringham daylight. il
diag Illum Engr 14:12-13 Ja '21

Sheringham daylight. L. C. Martin. diag
Illum Engr 12:323 N '19

Daylight saving

Argument for daylight saving. Safety Eng
41:51+ F '21

Data on daylight saving in Boston residences.
R. S. Hale. Elec W 75:169-70 Ja 17 '20

Daylight saving. P. S. Millar. il Am Inst E E
J 39:146-58 F '20; Abstract. Sci Am M 1:
280-1 Mr '20; Abstract. Illum Eng Soc 15:
372-3 no 6 '20

Daylight saving in effect in New York.
Comm & Fin Chr 112:1690-1 Ap 23 '21

Daylight saving law of New York repealed
—city ordinance amended to limit period to
five months. Comm & Fin Chr 112:1236 Mr
26 '21

Report of the Illuminating engineering so-
ciety committee on progress. Illum Eng Soc
15:486 no 7 '20

Why Fort Wayne, Ind., failed to pass a
localized daylight-saving law. F. H. Wil-
liams. Am Mach 52:921 Ap 22 '20

Dayton, Ohio**Bridges**

Failure and proposed repair of Third St.
arch bridge. J: L. Harrington. Eng N 86:
511-12 Mr 24 '21

Pier of Dayton arch bridge split and listed.
il Eng N 86:264 F 10 '21

Rapid transit

Chaotic conditions in Dayton. Elec Ry J 58:
450-1 S 17 '21

Water supply

New 10,000,000 gallon flat slab roof concrete
reservoir. Eng & Contr 52:556-8 N 12 '19

**Dayton engineering laboratories company, Day-
ton, Ohio**

Delco inspection system; description of the
methods used in the Dayton engineering
laboratories co. L: Ruthenburg, R. A. Crist
and E. Oberg. il Mach 27:921-6, 1032-5, 1127-
30; 28:43-7 Je-S '21

Dayton process. See Gas manufacture and
works

Daytona, Florida**Sewerage**

Sewerage of Daytona. il Pub Works 48:435-
6 My 22 '20

Water supply

Water softening in Florida. il Pub Works
48:295-7 Ap 3 '20

Deaerating apparatus. See Air separation
process

Deafness, Instruments for

Small ear telephone; abstract. L. Weber. Elec
W 77:1328 Je 4 '21

Using the vacuum tube so that the deaf
may hear. il Sci Am 124:251+ Mr 26 '21

See also Microphone for the deaf

Dealer cooperation. See Advertising—Dealer
cooperation

Dealers. See Retail trade

Dean, Francis Winthrop, 1852-

Francis Winthrop Dean. por Power 52:339-
40 Ag 31 '20

Death

Fear of being buried alive; infallible signs
of death. Sci Am M 1:396-7 My '20

Death rate. See Mortality

Death registration

Birth and death registration areas. map Eng
N 84:732 Ap 8 '20

Death Valley, California

Death Valley transportation; how the borax is
transported from this hottest of regions to
the nearest rail connection. J: L. Von Blon.
Sci Am 125:232 O 1 '21

Farming in Death Valley. J: E. Hogg. il Pop
Mech 33:339-44 Mr '20

Debts

Redemption and replacement of bonded in-
debtedness. E. J. Rock. J Account 32:36-40
Jl '21

See also Bankruptcy; Credit

Debts, Public

Adjusting the debt of the allies to the United
States. Comm & Fin Chr 113:120-1 Jl 9
'21

All allied indebtedness will be paid. T: W.
Lamont. Comm & Fin Chr 112:886-8 Mr 5
'21

Amounts of foreign indebtedness to United
States. Comm & Fin Chr 112:2692 Je 25 '21

Bill for refunding of allied war debt passed
by House. Comm & Fin Chr 113:1822-3 sec
1 O 29 '21

British budget shows \$75,000,000 reduction
in amount owed United States. Comm &
Fin Chr 112:1806-7 Ap 30 '21

Bugbear of national debts. R. Estcourt. An-
nalist 18:339-40 O 10 '21

Cancellation of British debts to U.S. J. A.
Chamberlain. Comm & Fin Chr 112:605-6
F 12 '21

Cancellation of foreign indebtedness. D. F.
Houston. Comm & Fin Chr 112:606 F 12
'21

Foreign loan remission a threat to financial
leadership. Annalist 17:251-2 F 21 '21

Hearings by Senate judiciary committee on
foreign loans. Comm & Fin Chr 112:1085-6
Mr 19 '21

Majority and minority House views on bill
for refunding of allied war debt. Comm &
Fin Chr 113:1932-4 N 5 '21

Must Europe pay? System 40:410+ O '21

National debts of the world. O. P. Austin.
Am Ind 20:11-13 Jl '20

National loans of the world. 65p Equitable
trust company of New York '20

President Wilson's advices to Great Britain
regarding cancellation of allied war debts.
Comm & Fin Chr 113:346 Jl 23 '21

Problems of future government finance. R.
C. Leffingwell. Comm & Fin Chr 112:517-
20 F 5 '21

Proposals by Great Britain for cancellation
of allied debts. Comm & Fin Chr 113:234-5
Jl 16 '21

Secretary Mellon's testimony regarding re-
funding of allies' debts—use of German
bonds. Comm & Fin Chr 113:17-18 Jl 2 '21

Senate committee orders bill reported giving
Secretary Mellon new powers for refund-
ing allies' debts. Comm & Fin Chr 113:
477-8 Jl 30 '21

State and city section of Commercial and
financial chronicle; New England, middle
and central states. Comm & Fin Chr 111:
1-168 sec 2 Jl 31 '20; 112:3-168 sec 2 Je
25 '21

Debts, Public—Continued

- State and city section of Commercial and financial chronicle; western, Pacific and southern states and island possessions. Comm & Fin Chr 111:3-192 sec 2 D 25 '20
 Virginia-West Virginia debt dispute. A. G. Potter. J Account 32:167-82 S '21
 War costs and their financing. E. L. Bogart. 509p Appleton '21
 Would have allied debts converted into business obligations. D. R. Crissinger. Comm & Fin Chr 112:1939-40 My 7 '21
See also Bonds, Government; Municipal bonds

Decatur, Illinois**Sanitary affairs**

- Sewerage and water improvements at Decatur. Eng N 85:457-8 S 2 '20

Decedents' estates. See Executors and administrators**Decimal classification, Dewey.** See Classification, Dewey decimal**Decimal system**

- Octaval notation and the measurement of binary inch fractions. A. Watkins. diags Am Mach 52:685-8 Mr 25 '20; Same cond. Mech Eng 41:870-1+ N '19

- War on the decimal system. F. Franz. Am Mach 52:682-4 Mr 25 '20

See also Metric system

Decimals

- Finding decimal equivalents on the slide rule. W. H. Kellogg. Am Mach 53:651 S 30 '20

See also Metric system

Decolorization

- Bone-black and decolorizing carbons. W. D. Horne. J Ind & Eng Chem 12:1015-17 O '20

- Effect of varying hydrogen-ion concentration upon the decolorization of cane juice with carbon. J. F. Brewster and W. G. Raines, jr. J Ind & Eng Chem 13:1043-4 N '21

See also Bleaching

Decorah, Iowa

- Flood-protection reservoir for Decorah. plan Eng N 84:565-6 Mr 18 '20

Decoration and ornament

- Architect's control of furniture and decoration. il Arch Forum 34:17-20 Ja '21

- English architectural decoration. A. E. Bullock. il Arch Rec 41:105-25, 210-29, 325-35; 43:160-75, 335-43, 426-34; 44:31-47, 237-51; 46:133-52, 220-36, 569-82; 47:77-83, 154-68, 268-82, 333-47, 462-76, 527-43; 48:39-51, 224-35 F-Ap '17, F, Ap-My, Jl, S '18, Ag-S, D '19-Jl, S '20

- Enrichment of concrete surfaces with clay tile. J. H. Donahey. il Concrete 16:14+ Ja '20

- Louis XVI shopfront. C. O. Cornelius. il diag Arch Rec 49:62-5 Ja '21

- Mutual relations between art and technology. L. V. Solon. Am Cer Soc J 4:263-70 Ap '21

- Volute in architecture and architectural decoration. R. Newcomb. il diags map Ill U Eng Exp Sta Bul 121:1-77 '21

See also Architecture—Details; Bas-relief; Bronzes; Church decoration and ornament; Color in architecture; Concrete, Ornamental; Damascening; Design, Decorative; Enamel and enameling; Fretwork; Furniture; Graffiti decoration; House decoration; Inlay; Ironwork, Architectural; Mantels; Metal work, Artistic; Mural painting and decoration; Pavements, Mosaic; Pottery; Show windows; Stained glass; Stucco; Textile design; Trellis work

Bibliography

- Books on architecture, decoration and furniture in the library of the Peabody institute. 23p Peabody institute, Baltimore, Maryland '20

Decorations of honor. See Medals; United States—Army—Medals, decorations, etc.; United States—Navy—Medals, decorations, etc.**Decoys**

- Fritton decoy; curious method of snaring game. G. C. Davies. il Sci Am M 3:402-4 My '21

Deduction. See Logic**Dee river**

- Tidal bore studies on River Dee and its estuary. W. Gore. il map Eng N 87:491-4 S 22 '21

Deer

- Study in offspring herds; what the New York Zoological garden has done in the way of supplying bison and deer to others. W. T. Hornaday. il Sci Am 125A:46-7 N '21

Defective and delinquent classes

- Experiment to determine the possibilities of subnormal girls in factory work; abstract. E. B. Bigelow. J Ind Hygiene 3:sup125-6 O '21

- Poverty and dependency; their relief and prevention. J. L. Gillin. 707p Century '21

See also Blind; Deafness, Instruments for; Disabled

Defectoscope

- Defectoscope and elevator accidents. Sci Am 125A:51 N '21

- Durkee defectoscope. il Am Mach 53:1110-11 D 9 '20

- New magnetic testing apparatus of steel; the defectoscope. il Iron Age 106:1125-8 O 28 '20

Defenses. See Fortification**Definitions**

- Defining words, exemplified by engineering. Eng & Contr 53:29-30 Ja 14 '20

Deflection

- Deflecting a 4½-inch bar with a visiting card; measuring the amount of deflection by bands of light. R. W. Porter. il diags Am Mach 55:557-8 O 6 '21

- Measuring deflection with interference bands. H. L. VanKeuren. il Sci Am 122:705+ Je 26 '20

Deflocculation

- Romance of invention; father of the lubrication of the future, Edward G. Acheson. C. H. Claudy. Sci Am 122:332+ Mr 27 '20

Deformations (mechanics)

- Correction for shear of the differential equation for transverse vibrations of prismatic bars. S. P. Timoshenko. diag Philos Mag 6th ser 41:744-6 My '21

- Electromagnetic process of removing internal strains. diag Mach 27:320 D '20

- Justification du principe du travail de déformation minimum. P. Sonier. Génie Civil 78:234 Mr 12 '21; Discussion. 78:377-8 Ap 30 '21

- Mixed orientation developed in crystals of ductile metals by plastic deformation. E. C. Bain and Z. Jeffries. il diag Chem & Met Eng 25:775-7 O 26 '21

- New general law of deformation. P. G. Nutting. J Fr Inst 191:679-85 My '21; Abstract. Eng N 87:22 Jl 7 '21

- Note sur le théorème du travail minimum. L. Tournayre. Génie Civil 78:211-12 Mr 5 '21; Discussion. 78:377-8 Ap 30 '21

- Plastic deformation of some copper alloys at elevated temperatures. C. A. Edwards and A. M. Herbert. diags Engineering 111:341-4 Mr 18 '21; Abstract. Engineer 131:285 Mr 18 '21; Discussion. Engineering 111:315 Mr 18 '21; Engineer 131:285-6 Mr 18 '21

- Strengthening metals by cold-work. E. Heyn. diags Chem & Met Eng 25:735-6 O 19 '21

See also Extensometer; Strains and stresses; Torsion

De Freminville, Charles, 1856-

- Elected to honorary membership in the A. S. M. E. por Mech Eng 42:73 Ja '20

Dehydration

- Calcium chloride method for the determination of water in gasoline and in certain other substances. C. W. Clifford. diag J Ind & Eng Chem 13:628-31 Jl '21

- Dehydration of transil oils by centrifugal force. C. H. Hapgood. il Elec W 78:473 S 3 '21

Dehydration—Continued

Evaporation losses from the dehydration of crude oils. J. H. Wiggins. Nat Pet N 13: 59+ J1 1 '21; Same cond. Oil Paint & Drug Rep 99:12 sec 2 Ja 10 '21

Oil field practice in handling crude oil emulsion. S. Born. J Ind & Eng Chem 13:1013-14 N '21

Role of acidity in the dehydration of sewage sludge. J. A. Wilson and H. M. Heisig. J Ind & Eng Chem 13:406-10 My '21

Sharples process for the dehydration of water gas tar emulsions. Am Gas Assn Technical sec v 2:447-50 '20

Solubility of water in gasoline and in certain other organic liquids, determined by the calcium chloride method. C. W. Clifford. J Ind & Eng Chem 13:631-2 J1 '21

See also Drying (food); Drying (fruit and vegetables); Milk, Dried

Dehydration, Electric

Decision on patents of Cottrell and Speed. W. Gustin. Chem & Met Eng 23:327-8 Ag 25 '20

Discussion on electrical dehydration of crude oil. W. G. Eddy and H. C. Eddy. J Ind & Eng Chem 13:1016-17 N '21

Dry substance in molasses, sirups and juices by the Spencer electric oven. G. P. Meade. J Ind & Eng Chem 13:924-5 O '21

Electric oven for rapid moisture tests. G. L. Spencer. J Ind & Eng Chem 13:70-2 Ja '21

Electrical dehydration of oil. Sci Am M 3: 89 Ja '21

Dehydration of food. *See* Drying (fruit and vegetables)

Dehydrogenation

Dehydrogenation of primary and secondary alcohols by catalytic oxidation. C. Moureu and G. Mignonac. Chem & Met Eng 22:1083 Je 9 '20

De-inking of paper. *See* Waste paper

Dekalin

Tetralin and dekalin; a new illuminant, a new lubricant and a new source of synthetic drugs. Sci Am M 4:65-6 J1 '21

De la Vergne machine company, New York

Programs of apprenticeship and special training in representative corporations. J. V. L. Morris. il Am Mach 53:1078-80 D 9 '20

Delaware

See also Roads—Delaware

Delaware & Hudson railroad

1920 annual report; editorial. map Ry Age 70: 1154-5 My 20 '21

90th annual report. Ry Age 68:1283-4, 1326-8 Ap 30 '20; Same. Comm & Fin Chr 110: 1863-7 My 1 '20

91st annual report for the year ended December 31, 1920. Comm & Fin Chr 112: 1750-5 Ap 23 '21; Excerpts. Ry Age 70: 1146-9 My 13 '21

Utilizing motive power on the lines of the Delaware & Hudson. F. P. Gutelius. Ry R 67:961-7 D 25 '20

Delaware, Lackawanna & Western railroad

Annual report, 1920; editorial. map Ry Age 70:1430-1 Je 24 '21

Delaware, Lackawanna & Western. Ry Age 69:472-3 S 17 '20

D. L. & W. wants to capitalize its surplus. Ry Age 69:697 O 22 '20

Hearing on Burlington and Lackawanna financing. Ry Age 70:417-19 F 18 '21

I.C.C. authorizes Lackawanna stock dividend. Ry Age 70:995-6 Ap 22 '21

Lackawanna proposes a stock distribution. Ry Age 69:517-18 S 24 '20

Delaware river

Delaware river to be developed on broad scale. Elec R 78:359-60 F 26 '21

Delaware river bridge. *See* Philadelphia—Bridges

Delivery of goods

Delivering a perishable product to ten million people each day; Fleischmann's yeast. R. Dickinson. il map Ptr Ink M 3:15-16 N '21

Why it costs us less to deliver. J. Mench. System 39:34+ Ja '21

See also Motor trucks—Management; Motor trucks in coal delivery; Shipment of goods

Demand meters. *See* Electric meters; Watt-meters

Democracy

Bryce's modern democracies; editorial. Comm & Fin Chr 112:1801-2, 1912-14 Ap 30-My 7 '21

Degradation of the democratic dogma. Comm & Fin Chr 110:1685-7 Ap 24 '20

Demolition. *See* Wrecking—Safety devices and measures

Demonstration mines. *See* Mines, Experimental

Demurrage

Demurrage rates increased in England. Ry Age 68:768 Mr 12 '20

Economy of high demurrage. Ry Age 69: 177-8 J1 30 '20

Pacific car demurrage bureau's campaign. Ry Age 69:349-51 Ag 27 '20

Storage tanks for road oil cut out demurrage. C. E. Murphy. il Eng & Contr 52:528 N 5 '19

Denatured alcohol. *See* Alcohol, Denatured

Dendro-chemistry. *See* Forest products

Dendrograph

Dendrograph—an instrument that keeps tabs on tree growth. W. A. Murrill. il Sci Am 122:595 My 29 '20

Denitration

Recovery of waste nitrating acids. C. Marx. diags Chem Age 29:251-5 J1 '21

Denmark

See also Labor and laboring classes—Denmark; Wages—Denmark

Economic conditions

Danish industrial situation. Engineering 111: 621-2 My 20 '21

Densimeter

Continuous densimeter for boilers. diags Engineer 131:157-8 F 11 '21

Density. *See* Specific gravity

Dental metallurgy

Contractions and expansions of amalgams with time. A. W. Gray. Phys R 18:108-13 Ag '21

Investigation of dental amalgams. Sci Am M 3:79 Ja '21

Investigation of the physical properties of dental materials. W. H. Souder and C. G. Peters. il diags U S Bur Stand Tech Pa 157:1-40 '20

Manual on dental metallurgy. E. A. Smith. 4th ed. 285p J. & A. Churchill, London '20

Rust-proof steel in dentistry. Sci Am 122:355 Ap 3 '20

Dental porcelain. *See* Porcelain, Dental

Dental rubber. *See* Rubber, Dental

Dental service, Industrial

Dental clinic in the factory. C. U. Kerr. Eng & Ind Management 5:105-6 Ja 27 '21

How the factory dentist earns his salary. E. F. Bowers. Factory 25:219 J1 15 '20

Industrial dental dispensaries. S. DeHart. il Am Mach 53:1085-6 D 9 '20

McDowell county, coal mining being almost sole industry, provides free dentistry. Coal Age 18:743-4 O 7 '20

Dentistry

See also Dental metallurgy; Dental service, Industrial; Porcelain, Dental; Rubber, Dental

Dentists

Breaking down the ethical bar to advertising. S. C. Lambert. Ptr Ink 111:35-6 Je 24 '20

Denver, Colorado**Water supply**

Operation of Denver water plant under city control. Eng N 84:869-70 Ap 29 '20

Rehabilitation requirements of the Denver water-works. Eng N 86:859 My 19 '21

- Denver & Rio Grande railroad**
Terminal built for special operating conditions. il diags map plans Ry Age 68:1025-30 Mr 26 '20
- Denver and Salt Lake railroad**
D. and S. L. presents difficult operating problem. il map Ry R 69:357-61 S 17 '21
- Denver, Boulder & Western railroad**
Peculiar position of the Denver, Boulder & Western. J. B. Day. il Ry Age 70:1080-2 My 6 '21
- Deoxidizers**
Method of deoxidizing high-nickel steel. C. B. Callomon. Foundry 49:590-1 Ag 1 '21
New deoxidizers for steel manufacture. J. R. Cain. Chem & Met Eng 23:879-82 N 3 '20
- Department stores**
Analysis of department store occupations for juniors. (Part-time educ. ser. no. 3) 48p Univ. of California, Berkeley '20
How manufacturers sell new departments to the retailer. J: A. Murphy. Ptr Ink M 3: 31-2+ N '21
Is the distributing power of the department store still increasing? W: L. Day. Ptr Ink 114:81-2+ Mr 3 '21
Mandel brothers' store building, Chicago, Illinois; plans. Am Arch 118:236-7 Ag 25 '20
Mr Selfridge of Oxford street; an American merchant in London. T: H. Uzzell. Nation's Business 8:21-2 D '20
Positions of responsibility in department stores and other retail selling organizations. M. H. Tolman. 126p Bureau of vocational information, New York '21
See also Mail order business; Notion departments
- Accounting**
- Retail organization and accounting control. P. I. Carthage. 349p Appleton '20
Retail profits, turnover and net worth. L. Minster. 48p U. P. C. book co. '21
- Advertising**
- Prestige brings department store concrete results. Ptr Ink 114:99-100 Mr 10 '21
Selling a city through a department store. C. L. Armstrong. Ptr Ink 111:25-6 Je 3 '20
- Lighting**
- Department store illumination. J. Daniels. Illum Eng Soc 15:709-15 no 9 '20; Same. Elec R 78:251-3 F 12 '21; Discussion. Illum Eng Soc 15:715-22 no 9 '20
Illumination and fixtures for department stores. A. L. Powell. il Elec R 79:381-4, 427-30 S 10-17 '21
- Management**
- Report on staff administration at Harrods limited. 46 l. Retail research association, New York '20
You can't sell against that competition. L. Miller. System 39:676-8+ My '21
- Toilet rooms**
- Questionnaire shows that stores need more toilet conveniences. il Dom Eng 95:19-20 Ap 2 '21
- Depletion**
Depreciation and depletion in relation to invested capital. W: B. Gower. J Account 28: 353-68 N '19
- Deportation**
Deportation of aliens for membership in unlawful organizations. Monthly Labor R 11: 818-25 O '20
See also Martens, Ludwig C. A. K.
- Depreciation**
Actuarial problem. J: Jirgal. W Soc E J 24: 15-20 Ja 5 '20; Same cond. Elec Ry J 54: 799-800 O 25 '19; Excerpt. Eng & Contr 53:564-5 My 19 '20
Applying depreciation equitably. D. C. Lowles. Iron Tr R 65:1510-11 D 4 '19
Basis of estimating allowance for depreciation. W: G. Raymond. Eng N 85:178-9 Jl 22 '20
Depreciation. C. A. Porter. Iron Age 108: 1088-9 O 27 '21
- Depreciation an element of cost. B. Daniels. Inland Ptr 67:203-4 My '21
Depreciation and depletion in relation to invested capital. W: B. Gower. J Account 28: 353-68 N '19
Depreciation and obsolescence. H. B. Fer-nald. Eng & Min J 111:53-4 Ja 8 '21
Depreciation, appreciation and productive capacity. W. A. Paton. J Account 30:1-11 Jl '20
Depreciation as a deduction for income-tax purposes. F: Schwertner. Coal Age 20:420-1 S 15 '21
Depreciation policy and true cost. J. H. Jackson. J Account 29:452-5 Je '20
Depreciation rates; evidence before the British royal commission on income tax. J Account 30:190-7 S '20
Depreciation reserve fund. W. Fish. Elec Ry J 55:239-47 Ja 31 '20
Depreciation reserves and rising prices. E. S. Rastall. J Account 29:123-6 F '20
Effect of machine depreciation upon cost of dye making. L. W. Alwyn-Schmidt. Color Tr J 6:103-6 Ap '20
Effects of increased use upon machine depreciation. L. W. Alwyn-Schmidt. Ind Management 59:313-14 Ap '20
Getting more out of existing plant. L. W. Alwyn-Schmidt. Am Gas Eng J 112:177-9 Mr 6 '20
Ice plant depreciation. G: E. Wells. A S R E J 6:369-71 Mr '20
Machine depreciation described. G. E. Dombhart. Iron Tr R 67:1815-16 D 30 '20
Method for the depreciation of machinery. H. C. Marris. Eng & Ind Management 5: 426 Ap 14 '21
Power plant accounts; considerations in buying equipment—meaning of depreciation. W. A. Miller. Power 54:680-4 N 1 '21
Railway valuation; cost of reproduction less depreciation. F. Rhea. Ry R 67:809-13 N 27 '20
Reconciling depreciation and appraised values of industrial equipment. L. G. Hawkins. Ind Management 60:207-9 S '20
Renewal costs and business profits in relation to rising prices. J: Bauer. J Account 28:413-19 D '19
Replacement insurance. E. Kurtz. Administration 2:41-69 Jl '21
Some problems in depreciation. J. H. Jackson. J Account 31:81-102 F '21
Study of depreciation as it relates to production. Blast F & Steel Pl 9:664 N '21
What is your plant worth? C: W. McKay. Factory 24:639-40, 800-2, 1526-8 Mr 1-15, My 15 '20
See also Valuation
- Depth bombs.** *See* Bombs, Depth
- Derailments.** *See* Railroads—Accidents
- Derails**
Derailers for railway sidings. il Engineer 131: 576 My 27 '21
Derails and the stop-and-proceed rule. C. C. Anthony. Ry Age 71:814-15 O 29 '21
Derails; are they good or bad? A. H. Rudd. Ry Age 71:112-13 Jl 16 '21
Portable derail for an emergency train stop. il Ry R 68:298-9 F 19 '21
- Derricks.** *See* Cranes, derricks, etc.
- Derwent river**
Reclamation of Derwent Valley river lands, England. diags map Engineer 130:470-3 N 12 '20
- Deschutes river**
Power and irrigation report on Deschutes river. Eng N 87:501+ S 22 '21; Elec W 78: 581 S 17 '21
- Deseret, Fort**
Odd construction preserves old Utah fort. J. C. Alter. Pop Mech 34:188 Ag '20
- Desert flora**
Desert vegetation and boron. K. F. Keller-man. Sci Am M 3:77-8 Ja '21
- Desert roads.** *See* Roads, Desert

Deserts

Desert prospecting. L. A. Palmer. *il Eng & Min J* 110:850-3 O 30 '20

Desert prospector's guide. L. A. Palmer. *il Eng & Min J* 109:338-42 Ja 31 '20

See also Death Valley, California; Salton sea region, California

Design

Design and production. *Soc Auto Eng J* 9: 169 S '21

Design in the industrial arts; where do the museums stand. R. F. Bach. *Arch & Bldg* 52:65-6 Jl '20

Dynamic symmetry and the Greek vase, by J. Hambidge; criticism of review in *The Nation*. W. H. Goodyear; G. A. Eisen. *Am Arch* 118:669, 673-4, 701-2 N 24-D 1 '20

Dynamic symmetry; the rediscovery of the basic principles of Greek art. *il diags Sci Am M* 4:23-8 Jl '21

Good workmanship the true craftsmanship. *Am Arch* 119:9-10 Ja 5 '21

Greek design; with discussion. J. Hambidge. *diags Am Inst Arch J* 8:288-95 Ag '20

Hambidge theory of symmetry and proportion in Greek architecture as relating to architectural design. J. A. Kane. *diags Am Arch* 120:261-5 O 12 '21; Discussion. 120: 316-17 O 26 '21

Photo-elasticity for engineers; the use of photo-elastic methods in the design of the elements of machines and structures. E. G. Coker. *diags Gen Elec R* 24:222-6 Mr '21

Symmetry and proportion in Greek art. J. Hambidge. *diags Am Arch* 116:597-605 N 12 '19

They have discovered America's richest source of design. R. Dickinson. *il diags Ptr Ink M* 2:13-16+ F '21

See also Airplanes—Design; Architecture, Domestic—Designs and plans; Automobiles—Design; Bridge design; Concrete construction—Design; Locomotives—Design; Machine tools—Design; Machinery—Design; Pattern making; Printing—Design; Textile design

Pattern cutting

Machine cuts multiple patterns of any design. *il Pop Mech* 36:188-9 Ag '21

Design, Decorative

Design and tradition. A. Fenn. 376p Chapman and Hall, Ltd., London '20

Design value of decorative motifs. A. F. Saunders. *il Metal Ind n s* 15:15-16, 390-1, 513-14; 16:163-5, 349-51, 504-6; 17:10-12, 214-16; 18:176-7 Ja, S, D '17, Ap, Ag, N '18, Ja, My '19, Ap '20

See also Decoration and ornament; Textile design

Design, Textile. *See* Textile design

Desks

Card recording desks. *il Eng & Ind Management* 5:189 F 10 '21

Systematizing the heating contractor's desk. *il Heat & Ven* 17:50-1 N '20

Des Moines, Iowa**Rapid transit**

City without a street car. P. H. Gadsden. *Nation's Business* 9:28 O '21

Des Moines car service. *il Elec Ry J* 58: 237-8, 283-8, 372-3, 411-12, 749, 793-4 Ag 13-20, S 3-10, O 22-29 '21

Des Moines franchise presented. *Elec Ry J* 58:709 O 15 '21

Streets

Motor trucks and our pavements. M. L. Patzig. *Munic Eng* 58:161-3 Ap '20

Water supply

Subterranean infiltration galleries for a water supply. A. T. Luce. *diags Engineer* 129:537 My 21 '20

Suction well settlement curtails Des Moines water supply. *diag plan Eng N* 84:223-4 Ja 29 '20

Des Moines City railway

Automatic substations at Des Moines. F. C. Chambers. *il maps Elec Ry J* 55:738-44 Ap 10 '20

Destroyers. *See* Torpedo boat destroyers

Desulfurization methods. *See* Sulfur

Detecting men by their heat radiation. *Sci Am* 122:327 Mr 27 '20

Detectives

Detective in modern industry. W. J. Burns. *Am Ind* 22:7-9 S '21

Scientific methods of the Paris police. J. Boyer. *il Sci Am M* 4:169-74 Ag '21

Detectors

Embedded temperature detectors in large generators. F. D. Newbury and C. J. Fecheimer. *diags Elec J* 17:410-18 S '20

Is a trolley car coming? G. Gaulois. *il diag Sci Am* 122:547 My 15 '20

Detectors, Ground

Ground detectors for direct-current and alternating-current circuits. F. Gillooly. *diags Power* 51:508-9 Mr 30 '20

Static discharger and ground detector made with small stock transformers. C. E. Harger. *diag Elec W* 75:900 Ap 17 '20

Detectors, Submarine. *See* Submarine detectors

Deterding, H. W. A.

Mr Deterding and the S. O. G. T. Bye. *por Nation's Business* 8:13-14 Jl '20

Detonators, Electric

Detonating dynamite. J. B. Stoneking. *Min & Sci P* 120:278 F 21 '20

Study of electric detonators. C. T. Long and H. L. Pascoe. *il diags Min & Sci P* 120:902-4 Je 19 '20

Le tir électrique dans les houillères; amorces, explosifs et détonateurs. *diags Génie Civil* 76:97-101 Ja 24 '20

Detours. *See* Roads—Detours

Detroit, Michigan

Making an American city; how the problems of the melting pot are met in the typical case of Detroit. E. M. Rush. *il Sci Am* 122:450 Ap 24 '20

Bridges

Detroit-Windsor bridge may be built. *il Can Eng* 39:184-5 Jl 22 '20

Eight-cable suspension bridge of 1803 ft. span for Detroit. *il diags Eng N* 87:524-6 S 29 '21

New design for Belle Isle bridge to be prepared. *Eng N* 86:190, 273-4, 351-2, 442 Ja 27, F 10, 24, Mr 10 '21

Redesign of Belle Isle bridge to reduce cost. H. H. Esselstyn and others. *il diags plan Eng N* 86:452-5 Mr 17 '21; Discussion. 86: 734-5 Ap 28 '21

Work on Detroit river bridge to begin in 1922. *il diag Ry Age* 71:343-4 Ag 20 '21

Economic conditions

Better industrial situation in Detroit. *Iron Age* 106:1479-80 D 2 '20

Libraries

Detroit public library. *il Am Arch* 120:228a-h, 229-35 S 28 '21; *Arch & Bldg* 53:79, pl 150-4 O '21

Mosaics in the frontal colonnade of the Detroit public library. W. F. Paris. *il Arch Rec* 49:300-9 Ap '21

Rapid transit

City and railway battle it out. *Elec Ry J* 55: 535 Mr 13 '20

Detroit muddles along. E. Hungerford. *il maps Elec Ry J* 56:162-7 Jl 24 '20

Detroit's motor bus system. *il diag Elec Ry J* 57:765-6 Ap 23 '21

Elevated road urged. *Elec Ry J* 58:562 O 1 '21

Municipal ownership approved in Detroit. *Elec Ry J* 55:767 Ap 10 '20

Railway makes counter franchise bid. *Elec Ry J* 55:615 Mr 20 '20

Railway will contest Detroit election. *Elec Ry J* 55:823-4 Ap 17 '20

See also Detroit United railway

Detroit, Michigan—Continued

Sewerage

How concrete is being used in Detroit's big sewer program. D. F. Jennings. *il diags maps Concrete* 19:130-9 O '21

Streets

Cross-city thoroughfare to relieve Detroit traffic problem. plans *Eng N* 84:1116-17 Je 3 '20

Detroit's new traffic-control system. C. E. Planck. *il Pop Mech* 35:836 Je '21

Water supply

Detroit's new 350-million gallon filtration plant. T. A. Leisen. *diags Eng N* 84:1194-6 Je 17 '20

Detroit, Toledo & Ironton railroad

Case of the D., T. & I. *il Nation's Business* 9:9-10 N '21

Converting a railway into a factory. S. Thompson. *Ry R* 69:16-17 JI 2 '21

Ford and the railroads. *Ry R* 69:307 S 3 '21

Ford has not wrought miracle with D., T. & I. *Ry Age* 71:405-8 Ag 27 '21

Mr Ford's railroad miracle. *Ry Age* 71:473-5 S 10 '21

Sad romance of the Detroit, Toledo & Ironton. F. J. Lisman. *map Ry Age* 69:143-5 JI 23 '20

What has Henry Ford done with the D., T. & I.? *map Ry Age* 71:481-6 S 10 '21

Detroit United railway

Highest court denies injunction. *Elec Ry J* 56:1073 N 20 '20

Devarda method. See Nitrogen—Analysis

Devil fish. See Manta; Octopus

De Vinne, Theodore Low, 1828-1914

Sale of the De Vinne library. H: L: Bullen. *por Inland Ptr* 64:693-4 Mr '20

Devitrification. See Glass—Devitrification

Devonshire house

Devonshire house. *Am Arch* 117:458-9 Ap 14 '20

Dewatering machine

Wahl dewatering machine illustrated. *il Eng & Min J* 111:291 F 5 '21

Dewey decimal classification. See Classification, Dewey decimal

Dextrine

Manufacture of dextrine in Japan. *Chem & Met Eng* 24:608 Ap 6 '21

Plant colloids; some cellulose dextrins. M. Samec and J. Matula. *Chem Soc J* 120 pt 1: 397-400 Je '21

Dextrine paste. See Paste

Dextrose

Historical aspects of the manufacture of high-purity crystalline anhydrous dextrose. E. G. Porst. *Chem Age* 29:213-14 Je '21

United States export trade in corn sirup and corn sugar. *Chem & Met Eng* 24:485 Mr 16 '21

See also Glucose

Diagnosis

See also Wireless apparatus—Diagnostic use

Dialkylaminomethyl alkyl ethers

Research on pseudo-bases; dialkylaminomethyl alkyl ethers and sulphides. C: M. McLeod and G. M. Robinson. *Chem Soc J* 119:1470-6 S '21

Diamond drilling. See Drilling and boring (earth and rocks)

Diamond drills. See Rock drills

Diamond dust

Recovery of diamond powder from waste paste. R: G. Berger. *Chem & Met Eng* 24: 208 F 2 '21; Excerpt. *Sci Am M* 3:374 Ap '21

Diamond fiber

Diamond fiber for rubber working equipment. *il India Rubber W* 62:510 My '20

National advertising to find unknown users. E: A. Muschamp. *Ptr Ink* 113:138+ D 9 '20

Diamonds

Caisson alluvial diamond recovery. *Eng & Min J* 108:763 N 8 '19

Compressibility of diamond. L. H. Adams. *Sci Am M* 3:369-70 Ap '21

Diamond industry. *Min & Sci P* 123:544 O 15 '21

Diamond mining in Africa. *Min & Sci P* 120: 939 Je 26 '20

Diamonds in Arkansas. S: W. Reyburn and S. H. Zimmerman. *flow sheet il Eng & Min J* 109:938-6 Ap 24 '20

Diamonds; large number of localities in which they have been found. S. H. Ball. *il diags map Eng & Min J* 109:1202-9 My 29 '20

High-level diamond deposits of Brazil. A. M. Pontie. *Min & Sci P* 122:397-8 Mr 19 '21

Occurrence of diamonds. *Eng & Min J* 111: 507 Mr 19 '21

Our diamond industry. H. A. Mount. *il Sci Am* 123:614+ D 18 '20

South African diamond mines prosperous in 1919. *Eng & Min J* 110:902 N 6 '20

South African diamond mining in 1920. *Eng & Min J* 112:131 JI 23 '21

Diamonds, Industrial

Selection and use of diamonds for truing abrasive wheels. C. C. Hill. *Am Mach* 54: 789 My 5 '21

Sells diamond tools, but advertises service. W. Blood. *Ptr Ink* 114:117-18 Mr 31 '21

Setting diamonds. A. D. Hallet. *Am Mach* 54:272 F 17 '21

Setting diamonds for truing grinding wheels. E. E. Henry. *diag Am Mach* 53:1092 D 9 '20

Wheel-truing diamonds and their settings. E. Good. *diags Mach* 26:1038-9 JI '20

Diarsinic acids

Aromatische diarsinsäuren und deren reduktionsprodukte. H. Lieb. *Deutsche Chem Gesell Ber* 54:1511-19 JI '21

Diastase

Amylases of the cereal grains—rye. J. L. Baker and H: F. E. Hulton. *Chem Soc J* 119:805-9 Je '21

Further study of the process of purifying pancreatic amylase. H. C. Sherman, I. D. Garard and V. K. LaMer. *Am Chem Soc J* 42:1900-7 S '20

Method for evaluating diastase products for textile work. E. W. Adams. *Color Tr J* 7: 170 D '20

Method of testing the amylolytic action of the diastase of *aspergillus oryzae*. S. A. Waksman. *Am Chem Soc J* 42:293-9 F '20

New technical method for the estimation of the saccharogenic power of diastatic preparations. K. Oshima. *J Ind & Eng Chem* 12:991-3 O '20

Properties of a specially prepared enzymic extract, polyzime, comparing its starch liquefying power with malt diastase. J. Takamine, jr., and K. Oshima. *Am Chem Soc J* 42:1261-5 Je '20

Volumetric method for the determination of diastatic capacity. J. T. Flohil. *J Ind & Eng Chem* 12:677 JI '20

See also Enzymes

Diatomaceous earth

Diatomaceous earth. N. Goodwin. *Chem & Met Eng* 23:1158-9 D 15 '20

Diatomaceous or infusorial earth. W. C. Phalen. *Chem & Met Eng* 22:981-2 My 26 '20

Infusorial earth industry. *Chem & Met Eng* 22:947 My 19 '20

Infusorial earth market possibilities. *Eng & Min J* 110:68 JI 10 '20

Vegetable manufacturer of decorated glass. W: M. Butterfield. *il Sci Am* 122:116+ Ja 31 '20

See also Tripoli

Bibliography

Bibliography of diatomaceous earth and list of patents. N. Goodwin. *Chem & Met Eng* 23:1159-60 D 15 '20

- Diatoms**
 Dependence of the fishes on the diatoms; abstract. A. Mann. *Sci Am M* 4:83-4 J1 '21
 Vegetable manufacturer of decorated glass. W: M. Butterfield. *il Sci Am* 122:116+ Ja 31 '20
 What do you know about diatoms? H. P. Little. *Sci Am M* 4:77-8 J1 '21
- Diazo compounds**
 Aliphatic diazo-compounds; abstract. H. Staudinger, A. Gaule and J. Siegwart. *Chem Soc J* 120 pt 1:323-7 My '21
 Aromatische acylamine als azokomponenten. W. König and K. Köhler. *Deutsche Chem Gesell Ber* 54:981-7 My '21
 Contribution to the estimation of H-acid. H: R. Lee. *J Ind & Eng Chem* 13:1049-51 N '21
 Diazo-derivatives of 4'-amino-1-phenyl-5-methylbenzothiazole (dehydrothio-*p*-toluidine). G. T. Morgan and D. Webster. *Chem Soc J* 119:1070-7 J1 '21
 Ketens and aliphatic diazo-compounds; abstract. H. Staudinger and T. Reber. *Chem Soc J* 120 pt 1:245-8 Ap '21
 Relations between azoxy-derivatives and diazo-compounds; abstract. A. Angeli. *Chem Soc J* 120 pt 1:364-5 My '21
 Study of the possible asymmetry of the aliphatic diazo compounds. C. S. Marvel and W. A. Noyes. *Am Chem Soc J* 42:2259-78 N '20
- Diazoamino compounds**
 Aromatic arsenic compounds; diazo-amino compounds of arsanilic acid and its derivatives. W. A. Jacobs and M. Heidelberger. *Am Chem Soc J* 43:1632-45 J1 '21
- Diazometric analysis**
 Diazometric determination of phenol, and of certain of its homologs. R. M. Chapin. *J Ind & Eng Chem* 12:568-70 Je '20
- Diazonium compounds**
 Action of diazonium salts on benzene- and *p*-toluenesulphonyl derivatives of acetic acid, ethyl acetate, acetonitrile, and acetamide; abstract. J. Tröger and A. Berndt. *Chem Soc J* 120 pt 1:743-6 O '21
 Non-aromatic diazonium salts; the diazoreaction in the isooxazole series. G. T. Morgan and H: Burgess. *Chem Soc J* 119:1546-9 O '21
 Non-aromatic diazonium salts; 3:5-dimethylisooxazole-4-diazonium salts and their azo-derivatives. G. T. Morgan and H: Burgess. *Chem Soc J* 119:697-703 My '21
 Über china-alkaloide; umwandlungen der diazoniumverbindungen des amino-5-cupreins und des amino-5-hydrocupreins und deren methyl- und äthyläther. G. Giemsa and J. Halberkann. *Deutsche Chem Gesell Ber* 54:1167-89 Je '21; Abstract. *Chem Soc J* 120 pt 1:581-3 Ag '21
- Dibenzal-acetone**
 Addition reactions of phosphorus halides; the reaction with dibenzal-acetone and cinnamylidene-acetophenone. J. B. Conant, A. H. Bump and H. S. Holt. *Am Chem Soc J* 43:1677-84 J1 '21
- Dibenzothianthrenediquinone**
 Das dibenzothianthren-dichinon. K. Brass and L. Köhler. *Deutsche Chem Gesell Ber* 54:594-7 Ap '21
- Dibromoadipic acids**
 Studies on the configuration of $\alpha\alpha'$ -di-bromodibasic acids; the dibromoadipic acids. W: H: Perkin, jr. and E. Robinson. *Chem Soc J* 119:1392-1408 S '21
- Diceratheres**. See Rhinoceroses, Fossil
- Dichloro-acetic acid**
 Preparation of dichloro-acetic acid from chloral. G: W. Pucher. *Am Chem Soc J* 42: 2251-9 N '20
- Dichlorobenzene**
 Some derivatives of *p*-dichlorobenzene. J. H. Crowell and C: Raiford. *Am Chem Soc J* 42: 145-52 Ja '20
- Dichlorodilethyl disulfide**
 $\beta\beta'$ -dichlorodiethyl disulphide. G: M. Bennett. *Chem Soc J* 119:418-25 Ap '21
- Dichlorodiethylsulfide**. See Mustard gas
- Dichloronaphthoquinone**
 Untersuchungen über 2,3-dichlor- α -naphthochinon. F. Ullmann and M. Ettisch. *Deutsche Chem Gesell Ber* 54:259-72 F '21
- Dichloro-phenylphosphine**. See Phosphenyl chloride
- Dichlorosuccinic acid**
 Stereochemical studies; stereochemistry of dichlorosuccinic acid. B. Holmberg. *Chem Soc J* 120 pt 1:539-40 Ag '21
- Dickens, Charles**
 Dickens' haunts to be pulled down. *Am Arch* 118:603 N 10 '20
- Dictionaries**
 Curios found in dictionaries. F. H. Teall. *Inland Ptr* 66:494 Ja '21
- Dicyandiamide**
 Action of sulfuric acid on dicyandiamide. T. L. Davis. *diag Am Chem Soc J* 43:669-72 Mr '21
 Determination of dicyandiamide and of urea in fertilizers. E. Johnson. *J Ind & Eng Chem* 13:533-5 Je '21
 Dicyandiamide: a rapid, direct method for its determination in cyanamid and mixed fertilizers. R. N. Harger. *il J Ind & Eng Chem* 12:1107-11 N '20
- Dicyanin**
 Aura made visible with dicyanin screens. *Sci Am* 125:180 S 10 '21
- Dicyanin A**
 Synthesis of photosensitizing dyes, dicyanine A. L: A. Mikeska, H. L. Haller and E. Q. Adams. *Am Chem Soc J* 42:2392-4 N '20
- Dicyandiamide**. See Dicyandiamide
- Didot family**
 Didot dynasty of printers. F. T. Singleton and H: L: Bullen. *Inland Ptr* 68:57-61 O '21
- Die blocks**
 Die block requirements. W. C. Peterson. *Iron Tr R* 67:517-19 Ag 19 '20
 Hardening hammer die blocks. R. B. Kerr. *Ry Mech Eng* 95:252-3 Ap '21; Same. *Am Mach* 54:652-3 Ap 14 '21
 Rules for handling die-blocks. *Mach* 27:114 O '20
 Standardization of die blocks. C. B. Porter. *il Iron Age* 106:75-6 J1 8 '20; Same. *Iron Tr R* 67:38-9 J1 1 '20
 Steel for die blocks. *Automotive Ind* 43:269 Ag 5 '20
- Die casting**
 Application of inserts to die castings. M. Stern. *diags Am Mach* 54:284-6 F 17 '21
 Automotive development largely responsible for die-casting growth. *Automotive Ind* 44: 814-17 Ap 14 '21
 Bronze die castings. H. R. Corse and C: Pack. *il Metal Ind* 19:13-14 Ja '21
 Die casting. A. G. Hopking. *Engineer* 132:281-2, 309-11 S 16-23 '21
 Die-casting; a treatise on the development of die-casting machines, the commercial application of the process, and the alloys used for die-castings. 108p Industrial press, New York '21
 Die-casting methods and metals. M. H. Potter. *Foundry* 49:303-6, 342-4, 404-6 Ap 15-My 15 '21
 Die castings. C: Pack. *Mech Eng* 42:434-5 Ag '20; Same. *Am Mach* 53:564b-d S 16 '20; Same. *Mach* 27:282-3 N '20; Same abr. *Metal Ind* 18:410-11 S '20; Same cond. *Iron Tr R* 66:1621 Je 3 '20; Abstract. *Foundry* 48: 695 S 1 '20
 Manufacture and use of die-cast engine bearings. H. G. Skinner. *il diags Automotive Ind* 42:1160-2 My 20 '20
 Notes on aluminum die-castings. F. A. Livermore. *Chem & Met Eng* 25:664 O 5 '21
- Die sinking machines**
 Billings & Spencer die-sinking machine. *il diags Mach* 27:843-4 My '21

Die sinking machines—Continued

- Die sinking and metal patternmaking by automatic machine. J. F. Keller. *il Mech Eng* 43:584-88+ S '21
- Die-sinking machine, constructed by Bryant Symons & co. *il diags Engineering* 112:341-2 S 2 '21
- Keller automatic die sinking machine. *il Am Mach* 55:389-90 S 8 '21; *Automotive Ind* 45:570-1 S 22 '21
- Keller automatic die-sinking machine. S. A. Hand. *il Am Mach* 53:158-60 J1 22 '20
- Pratt & Whitney die-sinking machines. *il Mach* 28:162 O '21
- Diehl process.** See Slag
- Dielectric constants**
- Dielectric constant of gases at low temperatures. *Engineering* 109:534 Ap 23 '20
- Dielectric constant of selenium oxychloride. J. E. Wildish. *diag Am Chem Soc J* 42:2607-9 D '20
- Dielectric constants of electrolytic solutions. R. T. Lattey. *diags Philos Mag* 6th ser 41:829-48 Je '21
- Dielectric constants of typical aliphatic and aromatic hydrocarbons, cyclohexane, cyclohexanone, and cyclohexanol. T. W. Richards and J. W. Shipley. *diag Am Chem Soc J* 41:2002-12 D '19
- Dielectrics**
- Dielectric phenomena in high voltage engineering. F. W. Peek. 281p McGraw-Hill '20
- Expression of dielectric losses in cables. W. A. Del Mar. *diags Am Inst E E J* 39:55-6 Ja '20
- Measuring of high-frequency losses of glass and other dielectrics. E. Schott. *Elec W* 78:936 N 5 '21
- Surface creepage and high-voltage insulation. T. Nishi. *diags Am Inst E E J* 39:949-59 N '20
- See also Insulation (electric); Mica
- Dies**
- Adjustable trimming and shaving dies. F. A. Stanley. *il diags plans Am Mach* 52:177-80 Ja 22 '20
- Aluminium and its alloys in engineering; design of dies. J. G. A. Rhodin. *Engineer* 131:635-6 Je 17 '21
- Average life of punches and dies. J. S. Watts. *charts Int Marine Eng* 25:458-9 My '20
- Blanking, drawing and piercing a varnish can top in one operation. S. A. McDonald. *diags Am Mach* 55:29-30 J1 7 '21
- Bulldozer dies. W. B. Gilbert. *diags Am Mach* 52:1010 My 6 '20
- Cold swaging. F. R. Daniels. *il Mach* 27:1018-21 J1 '21
- Combined trimming and shaving dies. F. A. Stanley. *il diags plans Am Mach* 52:297-9 F 5 '20
- Compound blanking, forming and piercing die for tractor wheel spoke cover. F. H. Le-Jeune. *diags Mach* 27:441-2 Ja '21
- Cover curling die. S. A. McDonald. *diags Am Mach* 55:481-2 S 22 '21
- Curling die construction. J. Bingham. *diags Mach* 27:651-2 Mr '21
- Design and making of drop-forging dies. *il diags Mach* 27:1141-4; 28:33-6, 123-4 Ag-O '21
- Design of shaving tools. H. F. Pusep. *diags Am Mach* 55:624-6, 686-9 O 20-27 '21
- Designing dies for safety. W. H. Webster. *diags Mach* 26:362 D '19
- Details of shaving dies. F. A. Stanley. *il Am Mach* 51:929-31 N 27 '19
- Diamond dies for wire drawing. C. W. Busick. *il diags Am Mach* 55:703-5 N 3 '21
- Die for curling right-angle stove trimmings. J. Bingham. *diag Mach* 27:440 Ja '21
- Die for curling stove rings. J. Bingham. *diags Mach* 27:375-6 D '20
- Die for drawing flanged conical rings. J. Bingham. *diags Mach* 27:276-7 N '20
- Die sense. E. Remacle. *Am Mach* 53:664 O 7 '20
- Dies for automobile muffler housings. J. Bingham. *diags Mach* 26:396-7 Ja '20
- Dies for automobile oil filler cup. J. Bingham. *diags Mach* 26:495-7 F '20
- Dies for automobile rear axle housings. J. Bingham. *diags Mach* 26:1067-8 J1 '20

- Dies for automobile service brake covers. J. Bingham. *diags Mach* 27:140-1 O '20
- Dies for automobile wheel hub. J. Bingham. *diags Mach* 26:603-4 Mr '20
- Dies for brass curtain pole knobs. J. Bingham. *diags Mach* 27:171-2 O '20
- Dies for double-flanged shell. J. Bingham. *il diags Mach* 26:964-6 Je '20
- Dies for drawing a differential gear case. J. Bingham. *diags Mach* 26:1171-2 Ag '20
- Dies for drawing a universal joint cover. J. Bingham. *diags Mach* 26:764-5 Ap '20
- Dies for drawing an air pump part. J. Bingham. *diags Mach* 26:454-6 Ja '20
- Dies for electric light shades. *il diags Mach* 27:759-60 Ap '21
- Dies for electrical terminals and connectors. J. A. Honegger. *diags plan Mach* 27:626-9 Mr '21
- Dies for flanges and bearing races. J. Bingham. *diags Mach* 27:225 N '20
- Dies for Ford automobile hub plates. C. J. Hueber. *diags Mach* 27:524 F '21
- Dies for forming a flanged cover. S. A. McDonald. *diags Am Mach* 55:403 S 8 '21
- Dies for forming staples. H. W. Davis. *Mach* 26:978 Je '20
- Dies for hemispherical, conical and other flanged shells. J. Bingham. *diags Mach* 27:546-8 F '21
- Dies for producing a conical part; operations in manufacturing a difficult shell. N. T. Thurston. *il diags plan Mach* 27:772-5 Ap '21
- Dies for producing a valve-spring washer. W. A. Flumerfelt. *diags Am Mach* 52:1196 Je 3 '20
- Dies for seamless water pails. J. Bingham. *diags Mach* 26:1118-20 Ag '20
- Dies for shaping a motorcycle part. J. Bingham. *diags Mach* 26:808-9 My '20
- Dies for shaping an automobile body panel. J. Bingham. *diags Mach* 27:25 S '20
- Dies for swaging small wire. *diags Mach* 27:971 Je '21
- Dies used in the manufacture of door knobs. J. Bingham. *diags Mach* 27:68 S '20
- Drawing a deep shell of irregular shape; principal details of dies used. C. Ruiz. *diags Mach* 27:160-2 O '20
- Drawing and swaging dies for a hub. H. F. Pusep. *diags Am Mach* 54:152-3 Ja 27 '21
- Drawing dies for manufacturing a carburetor bowl. N. T. Thurston. *il diags Mach* 28:218-21 N '21
- Drawing operations on seamless kettles. F. R. Daniels. *il diags Mach* 27:433-7 Ja '21
- Economical press work in small lots. F. H. Colvin. *diags Am Mach* 53:761-2 O 21 '20
- Follow-die for eight-spoke wheel. H. W. House. *diags plans Mach* 27:790-1 Ap '21
- Hawkes die- and templet-making machine. *il Am Mach* 54:1100 Je 23 '21
- Henry & Wright dieing machine. *il Am Mach* 55:526-7 S 29 '21
- Hinged piercing die. J. Bingham. *diags plan Mach* 26:885 My '20
- Ingenious die designed to form the leaves of hinges. R. H. Kasper. *diags Am Mach* 52:1330 Je 17 '20
- Instructions to toolmakers on diemaking. M. J. Zimmer. *Am Mach* 52:277-8 F 5 '20
- Large gang punch and die. H. Johnson. *il diags Am Mach* 53:994 N 25 '20
- Machining operations on Reed pipe dies. J. H. Vincent. *il Am Mach* 52:29-31 Ja 1 '20
- Making blanking dies. J. F. Thornton. *diags Mach* 28:65-6 S '21
- Making brass forgings; methods developed by the Mueller metals co., Port Huron, Mich. E. K. Hammond. *il diags Mach* 27:309-14 D '20
- Making diamond wire-drawing dies. E. K. Hammond. *il diags Mach* 26:264-6 N '19; *Abstract. Sci Am M* 1:177-8 F '20
- Making dies for forming automobile parts. R. Dale. *diags Iron Age* 108:1127-9 N 3 '21
- Making the Coventry self-opening diehead. *il Am Mach* 55:678-81 O 27 '21
- Methods of making cold header dies. H. W. Armstrong. *diags Am Mach* 53:227 J1 29 '20

Dies—Continued

- Power punches and dies. diags Ry Mech Eng 95:49-50 Ja '21
- Press tools for a typewriter part. F. A. Stanley. il diags plan Am Mach 54:597-9 Ap 7 '21
- Press tools for caterpillar parts. F. A. Stanley. il diags Am Mach 53:987-8 N 25 '20
- Press work in an electric motor plant; General electric co., Lynn, Mass. F. R. Daniels. il diags plan Mach 27:264-9, 340-4 N-D '20
- Press work on the Bailey ball thrust bearing. J. V. Hunter. il Am Mach 53:456-8 S 2 '20
- Prolonging life of dies. H. R. Reinhardt. Mach 27:518 F '21
- Punch and die for blanking and forming metal caps. diag Mach 27:560 F '21
- Relation of power presses and dies to the automobile industry. H: J. Hinde. diag Engineering 112:523 O 7 '21
- Shell forming die. J. Bingham. diags Mach 27:784 Ap '21
- Special railroad machine-forging tools. J. V. Hunter. il Am Mach 54:67-8 Ja 13 '21
- Steel stamps, embossing dies, stencils. E. Sheldon. il Am Mach 53:789-94 O 28 '20
- Swaging machine and toolroom methods of making the dies. W. E. Thompson. diags Am Mach 52:275-7 F 5 '20
- Training 300 apprentice die-makers with one instructor. N. G. Shidle. diags Automotive Ind 43:472-5 S 2 '20
- Unusual bending and forming dies. F. A. Stanley. il diag Am Mach 52:1127-8 My 27 '20
- Using blanked plates for trimmer dies. H. W. Armstrong. diags Am Mach 52:1359-60 Je 24 '20
- Using compound slide in jig and die making. il Mach 27:630-1 Mr '21
- Wiring and flanging die with expanding punch. J. Bingham. diag Mach 27:887-8 My '21
- See also Die blocks; Die casting; Forging; Punching machinery
- Diesel engines**
- American Diesel and surface ignition engines. P. L. Scott. Sibley J 33:90-2 S '19
- Application of liquid fuel to heavy oil engines; abstract. A. J. Wilson. Engineering 109:19-20 Ja 2 '20
- Appraising the Diesel engine plant. A. F. Brewer. il chart Ind Management 62:172-6 S '21
- Automotrices pétroéo-électriques à moteur Diesel des chemins de fer suédois. il diags plan Génie Civil 77:305-9 O 16 '20; Translation (Diesel engine in railroad service). Ry Mech Eng 95:156-9 Mr '21; Abstract. Engineer 130:511 N 19 '20
- Busch-Sulzer bros. Diesel engine co. M. Rotter. Power 51:199-200 F 3 '20
- Busch-Sulzer two-cycle Diesel engine. il diags Power 52:46-9 Jl 13 '20
- Checking the alignment of Diesel engine shafts. G: E. Windeler. Sci Am S 88:365 D 20 '19
- Details of Diesel-engine design for use on motor vehicles; abstract. E. Frey. Mech Eng 42:355-6 Je '20
- Diesel airplane engine German production. H. F. Blanchard. il Pop Mech 35:411-12 Mr '21
- Diesel-driven flour mill. P. Keller. il Power 53:166-8 F 1 '21
- Diesel-electric motor cars; abstract. L. Pahin. Elec W 77:1381-2 Je 11 '21
- Diesel engine and automobiles. C: Day. diags Sci Am M 1:135-8 F '20; Abstract. Power 52:838 N 23 '20
- Diesel engine and the indicator. diags Power 52:544-5 O 5 '20
- Diesel engine and the surface-ignition engine. P. L. Scott. Sibley J 33:79-80 Jl '19
- Diesel engine ashore. Sci Am 125:85 Jl 30 '21
- Diesel engine efficiency. G. H. Kimball. Power 52:755 N 9 '20
- Diesel engine operation. R. S. Malone. Power Pl Eng 25:318-19 Mr 15 '21
- Diesel engine practice. A. H. Pritchard. il Power Pl Eng 25:901-3 S 15 '21
- Diesel engined flour mill. Power 52:326 Ag 31 '20
- Diesel-engined municipal light plant. il Power 52:615-16 O 19 '20
- Diesel engines. A. H. Goldingham. 2d ed., rev. and enl. 206p Spon '21
- Diesel engines chosen for 2,500-kva. standby plant. H. I. Steffa. Elec W 77:883 Ap 16 '21
- Diesel engines economical in a central station. Soc Auto Eng J 6:195-6 Mr '20
- Diesel engines for small central stations (Hiawatha, Kan.). il Power 53:852-4 My 24 '21
- Diesel engines for South America. il diags Engineer 130:210 Ag 27 '20
- Diesel engines in a modern flour mill. il diag Power 52:808-10 N 23 '20
- Diesel engines in cement mills. il Power 52:655-6 O 26 '20
- Diesel engines under high altitude conditions. T. M. Robie. Eng & Min J 109:1269 Je 5 '20
- Diesel engines used as standby to hydro plants in Europe. E. B. Pollister. Elec W 77:95 Ja 8 '21
- Eliminating Diesel piston fractures. G: Grow. diags Power 52:1028 D 28 '20
- Engineer and noise. Engineering 109:797 Je 11 '20
- Excessive Diesel piston clearance. diags Power 52:257 Ag 17 '20
- German Diesel airplane engine. il Aviation 9:287-8 N 15 '20
- Ignition failures in Diesel engines. L: R. Ford. Power 54:67-8 Jl 12 '21
- Indicating the Diesel engine. J. A. Walland. diags Power 53:884-5 My 31 '21
- Innovations in Diesel engine construction. il Marine Eng 26:700-1 S '21
- Internal-combustion engines; ignition problems in semi-Diesel and Diesel oil engines. C: E. Lucke. diags Power 54:479-83 S 27 '21
- Junkers engine. P. L. Scott. diags Sibley J 33:99-100 D '19
- Knocks in Diesel engines. L: R. Ford. Power 54:327-8 Ag 30 '21
- Largest stationary Diesel engine in the United States; made by the Nordberg manufacturing co. il diags Power 53:498-501 Mr 29 '21
- Loss of compression in Diesel engines—causes and remedies. L: R. Ford. diags Power 53:928-30 Je 7 '21
- Low power costs in a small flour mill. F. E. Jones. Power 54:329 Ag 30 '21
- Le moteur Diesel à deux temps Busch-Sulzer. diag Génie Civil 78:15 Ja 1 '21
- Near-Diesel engine for the airplane. H. F. Blanchard. il Sci Am 124:65+ Ja 22 '21
- New Diesel engine brought out by Bethlehem steel corporation. Mach 27:168 O '20
- Nouveau type de commande d'admission d'air dans les moteurs semi-Diesel Ansaldo. diag Génie Civil 78:160 F 12 '21
- Nozzle design for Diesel engines—influence of air pressure and engine speed. J. A. Wallard. diags Power 53:469-71 Mr 22 '21
- Oil-burning engines for central-station operation. C. H. Reeder. il Elec R 77:77-80 Jl 17 '20
- Oil engines. L. H. Morrison. Power 53:17-18 Ja 4 '21
- Oil situation—the effect on the oil-engine industry. E. T. Adams. Power 52:694-5 N 2 '20
- Operating Diesel engines. G: J. Trosper. diag Power 51:933 Je 8 '20
- Operation of Diesel air compressors. L: R. Ford. diags Power 54:222-3 Ag 9 '21
- Phelps Dodge installing two 2,000-B.hp. Diesel oil engines at Moctezuma plant, at Nacozari. C: Legrand. il Eng & Min J 111:801-2 My 7 '21
- Pressure injection and the air injection oil engines. H. Shultz. Power 52:940-1 D 14 '20
- Problems and probable field of the oil engine. P. Rieppel. Mech Eng 43:197-8 Mr '21; Same. Sci Am M 3:281-2 Mr '21
- Proper selection of fuel for the oil engine. A. F. Brewer. Power 52:972-4 D 21 '20
- Solid injection oil engine. Power 51:1036-7 Je 29 '20
- Solid-injection oil engine. E. J. Kates. il diags Power 52:1008-10 D 28 '20

Diesel engines—Continued

- Standard fuel-oil vertical two-stroke-cycle Diesel engine. *il* diags Power 53:656-8 Ap 26 '21
- Suggested changes for Diesel engines. G: J. Troster. Power 51:858 My 25 '20
- Surcharging Diesel engines. C. Ruegg. *il* diags Power 51:712-14 My 4 '20
- Théorie succincte, description, conduite et entretien du moteur Diesel. Y. M. Le Gallou and F. Bounhoure. 206p Y. M. Le Gallou, Dunod, Paris '21
- Thermodynamic cycles in relation to internal combustion engines. W: J. Walker. diags Engineer 130:666-9 D 31 '20; Same. Engineering 110:847-50 D 24 '20; Abstract. Mech Eng 43:408-9 Je '21; Discussion. Engineer 130:640-1, 655-6 D 24-31 '20; Engineering 110:827-9 D 24 '20
- Twin piston Diesel engine designed for use in aircraft. *il* diag Automotive Ind 43:718-19 O 7 '20
- Wear of Diesel engine parts. G. Porter. diag Power 53:408 Mr 8 '21
- What and how of super-Diesel engines. F. W. Wagenhals. *il* Plumber 95:11-12+ Ja 14 '21
- With the Diesel engine in India. P. P. Talaty. diags Power 53:1016-17 Je 21 '21
- Worthington solid-injection Diesel. *il* diags Power 54:675-7 N 1 '21
- See also* Cammellaird-Fullagar engine

Bearings

- Adjusting crankpin bearings on a vertical Diesel engine. L: R. Ford. diags Power 53:626-7 Ap 19 '21
- See also* Diesel engines, Marine—Bearings

Cost

- Installation costs of Diesel engines. S. N. Clark. Elec W 75:1095 My 8 '20

Cost of operation

- Diesel central-station costs. Power 52:669-70 O 26 '20
- Steam-turbine and Diesel operating costs. Power 52:787 N 16 '20

Lubrication

- Approved methods of Diesel-engine lubrication. R. C. DeMary. Elec R 76:188-90 Ja 31 '20
- Lubricating oils suitable for use in Diesel engine air compressors. Eng & Ind Management 5:550 My 12 '21
- Lubrication of Diesel and semi-Diesel engines. E. G. Warne. Power Pl Eng 25:462-3 My 1 '21
- Lubrication of prime movers. C: H. Bromley. Power 54:657-8 O 25 '21
- Recovery of lubricating oil. A. J. Wilson. Power 53:603 Ap 12 '21

Manufacture

- Building Diesel engines on the Pacific coast. F. A. Stanley. *il* Am Mach 55:41-3 Jl 14 '21
- Casting and machining oil-engine pistons, piston rings and cylinders. S: Rosswell. diags Am Mach 54:137-40 Ja 27 '21
- Diesel engine castings. *il* diags Engineering 109:177-9, 355-6 F 6, Mr 12 '20
- Irons for Diesel engine castings. F. J. Cook. *il* diags Foundry 48:635-7 Ag 15 '20

Repair

- Overhauling a Diesel engine. G. H. Grow. diag Power 52:849 N 30 '20
- Overhauling an oil engine. G. Grow. diags Power 54:375-7 S 6 '21
- Repairing the frame of a Diesel engine. *il* Engineering 111:786 Je 24 '21

Statistics

- Diesel-engine industry. L. H. Morrison. *il* map Power 53:336-40 Mr 1 '21; Abstract. Elec W 77:949 Ap 23 '21

Temperature

- Piston temperatures. W. Riehm. Automotive Ind 45:660 O 6 '21

Testing

- Détermination d'un critère de fatigue générale des moteurs à combustion interne. Dumanois. Génie Civil 78:63-4 Ja 15 '21
- Test results of thirty-day run by Diesel engines. Elec W 78:522 S 10 '21
- Testing Diesel engines in the Sulzer works. *il* Engineer 131:674 Je 24 '21

Valves

- Setting valves of Busch-Sulzer type A Diesel engines. C. V. Clegg. diags Power 53:217-18 F 8 '21
- Setting valves on Allis-Chalmers Diesel. P. Keller. diags Power 54:263-4 Ag 16 '21
- Timing Diesel engine valves. diags Power 53:102-4 Ja 18 '21
- Timing Diesel engine valves. D. P. Peel. diag Engineer 129:559 My 28 '20

Diesel engines (semi-Diesel)

- Anderson semi-Diesel oil engine. *il* Power 52:705-6 N 2 '20
- Behavior of semi-Diesel engines; explanation of the causes of preignition. diags Power 52:858-60 N 30 '20
- Bessemer O.D. semi-Diesel engine. *il* Power 52:293-4 Ag 24 '20
- Causes of pounding in four-stroke-cycle semi-Diesel engines. D. L. Fagnan. diags Power 54:291 Ag 23 '21
- French semi-Diesel competition. W. F. Bradley. Automotive Ind 44:1273 Je 16 '21
- Large Primmm semi-Diesel engine. *il* Power 52:363-4 S 7 '20
- Peculiar case of trouble with a semi-Diesel engine. *il* diag Power Pl Eng 25:733-4 Jl 15 '21
- Pounding in semi-Diesel oil engines. Power 52:516, 676 S 28, O 26 '20
- Semi-Diesel engines in small central stations. W. S. Barnes. *il* Power 54:96-7 Jl 19 '21
- Two-stroke cycle semi-Diesel oil engine manufactured by Consolidated pneumatic tool co. *il* Engineering 110:376, 378 S 17 '20
- Vickers-Petters semi-Diesel marine oil engine. *il* diags Engineering 109:246, 248, pl 12 F 20 '20

Diesel engines, Marine.

- Busch-Sulzer Diesel engines. C. H. Peabody. *il* diags Int Marine Eng 25:752-6 S '20
- Commercial motor boats and the Diesel engine. G. C. Davison. *il* Soc Auto Eng J 8:46 50 Ja '21
- Cooling of cylinders and pistons of marine Diesel engines. L: R. Ford. diags Power 53:426-9 Mr 15 '21
- Diesel electric propulsion. J. B. Bassett. Marine Eng 26:631-3 Ag '21
- Diesel engine construction in Europe. Int Marine Eng 25:187-8 Mr '20
- Diesel engine crankshafts. J. Hecking. diags Marine Eng 26:147-53 F '21
- Diesel engine electric propulsion for merchant ships. W. H. Wildie. diag plan Gen Elec R 24:146-9 F '21
- Diesel-engined auxiliary schooners; details of propelling and auxiliary machinery installed in Italian sailing vessel for auxiliary power. C. E. Spinnler. *il* diags plan Int Marine Eng 25:402-5 My '20
- Double-acting marine Diesel engine. Engineer 129:352-3 Ap 2 '20
- Doxford Diesel engine. *il* Engineering 110:838, 845-6 D 24 '20
- Engines of H. M. monitor Marshal Ney. diags Engineer 129:358-9 Ap 2 '20
- First motor ship with double-acting two-stroke engines; abstracts. R. Dreves. *il* diag Engineer 132:191-2 Ag 19 '21; Mech Eng 43:472-4 Jl '21
- Fuel for Diesel engines. C. H. Peabody. Marine Eng 25:915-17 N '20
- Fuel oil in Diesel engines. C. J. Hawkes. diag Engineering 110:749-52, 786-8 D 3-10 '20; Abstracts. Mech Eng 43:42-4 Ja '21; Power 53:240-1, 286 F 8-15 '21; J Fr Inst 191:567-8 Ap '21
- Geared marine Diesel engines. Engineering 111:418 Ap 8 '21

Diesel engines, Marine—Continued

- General trend of Diesel marine machinery. Engineering 109:617-18 My 7 '20; Abstract. Sci Am M 2:91 Jl '20
- Germany to build high powered Diesels. il Marine Eng 26:545-7 Jl '21
- Goldberg double-acting two-cycle marine Diesel engine. diag Mech Eng 43:47-8 Ja '21; Same. Sci Am M 3:92 Ja '21
- How to prevent torsional vibration in the crankshaft. P. M. Heldt. diag Automotive Ind 42:26-8 Ja 1 '20
- Internal combustion engines in marine service. C: E: Lucke. J Fr Inst 192:11-45, 203-32 Jl-Ag '21
- Marine Diesel engine discussed by S. A. E. Automotive Ind 42:356-7 Ja 29 '20
- Marine heavy-oil engine installation practice and development possibilities. H. C. Verhey. diags Soc Auto Eng J 6:344-51; Discussion. 351-60 My '20
- Modern marine oil engines. il diag plan Engineer 131:633-4, 644; 132:2-3, 14, 55-7, 68, 109-11, 120, 136-7, 174-6 Je 17, Jl 1, 15, 29-Ag 12 '21
- Les moteurs Diesel et semi-Diesel marins, système Renault. C: Dantin. il diags Génie Civil 79:221-5 S 10 '21
- Motor ship Asia for the East Asiatic company. il Engineering 109:12-14, pl 1 Ja 2 '20
- Motorship building in Europe. il plans Int Marine Eng 25:664-6; 26:468-70, 847-8 Ag '20, Je, N '21
- Motorship Yngaren. il Marine Eng 26:628-9 Ag '21
- Neptune marine Diesel engine. diags Engineer 128:520-2 N 21 '19
- New British Diesel engine. diags Int Marine Eng 25:29-32 Ja '20; Abstract. Mech Eng 42:174-5 Mr '20
- New developments in Diesel engine construction in the United Kingdom. Int Marine Eng 24:813 D '19
- New Sulzer Diesel engine. A. P. Chalkley. il Marine Eng 26:845-6 N '21
- 130-B.h.p. Bolnes marine oil engine; two cycle, hot-bulb type. il diags Engineering 111:70-2 Ja 21 '21; Abstract. Power Pl Eng 25:317-18 Mr 15 '21
- Operating a large marine Diesel plant. E. N. Percy. Int Marine Eng 25:111-13 F '20
- Present position of the marine Diesel engine. J. Richardson. il Engineering 110:589-92 O 29 '20; Excerpts. Power 53:524 Mr 29 '21
- Recent progress in large Diesel engines for the mercantile marine. J. Richardson. Engineering 112:168; Discussion. 143-4 Jl 22 '21
- Relative power and space occupied by various types of Diesel engines. C. J. Hawkes. Marine Eng 25:836 O '20
- Renault high-speed Diesel marine engines. diags Engineer 132:406-7 O 14 '21
- Review of motorship and marine Diesel engine building in Europe. Int Marine Eng 25:323-6 Ap '20
- Review of motorship and marine Diesel engine building in Europe, 1920. il Marine Eng 26:49-54 Ja '21
- Running and maintenance of the marine Diesel engine. J: Lamb. 231p C. Griffin & co., London '20
- Setting valves on marine Diesel engines. L: R. Ford. diags Power 53:66-8 Ja 11 '21
- Standardized Diesel engines. H. R. Setz. il diags Marine Eng 26:222-8, 324-8, 391-2, 471-6, 548-52 Mr-Jl '21
- Tendencies in marine oil engine practice. Engineering 111:427-8 Ap 8 '21
- Torsional vibration and critical speeds in crankshafts. J. F. Fox. il diags Soc Auto Eng J 7:413-17+; Discussion. 424-31 N '20
- Two versus four cycle Diesel engines. il Marine Eng 26:321-3 Ap '21
- Vickers-Petters semi-Diesel marine oil engine. il diags Engineering 109:246, 248, pl 12 F '20 '20
- Werkspoor-Diesel engines for the Salerno. il diags Engineer 129:446-8, 450 Ap 30 '20

Worthington marine Diesel oil engine. il diags Int Marine Eng 25:672-86 Ag '20; Power 52:506-9 S 28 '20

See also Cammellaird-Fullagar engine

Bearings

Adjustment of crosshead-pin bearings and main bearings of marine Diesel engines. L: R. Ford. diags Power 53:546-7 Ap 5 '21

Lubrication

Lubrication of marine Diesel engines. L: R. Ford. il diag Power 53:142-4 Ja 25 '21

Lubrication of marine Diesel engines. L: R. Ford. il diags Marine Eng 26:623-7 Ag '21

Manufacture

Building Diesel marine engines for merchant vessels. F. B. Jacobs. il diags Marine R 50:640-7; 51:220-8 D '20, My '21

Testing

Some experimental work in connection with Diesel engines. C. J. Hawkes. il diags Engineering 110:127-31, pl 16 Jl 23 '20; Abstract. Engineer 130:93-5 Jl 23 '20; Abstract. Power 52:854 N 30 '20; Excerpt. Marine Eng 25:917-21 N '20; Discussion. Engineering 110:101-2 Jl 23 '20; Engineer 130:90-1 Jl 23 '20

Test of Diesel engine. Marine R 50:572 O '20

Diesel engines, Submarine

Details of Diesel-engine clutches used in German submarines. M. C. Bowman. diags Mech Eng 43:278-9 Ap '21

Diesel engine of the German submarine U-117; with discussion. H. C. Gibson. il Soc Auto Eng J 7:15-18 Jl '20

German submarine Diesel engine. H. C. Gibson. il Soc Auto Eng J 8:410-15 My '21

German submarine Diesel engines. Engineering 109:613-14 My 7 '20

Diet

Tin dinner pail again? Am Mach 53:778 O 21 '20

See also Milk; Nutrition

Differential equations

Elementary treatise on differential equations and their applications. H: T: H. Piaggio. 216p G. Bell and sons, ltd., London '20

Method of analysis suitable for the differential equations of mathematical physics. W. L. Cowley. diag Philos Mag 6th ser 41:584-607 Ap '21

Diffraction

Difference in meaning of diffraction and diffusion. J. D. Ballard. diags Elec R 76:998-9 Je 12 '20

On the scattering of rays in X-ray diffraction. S. J. Plimpton. diags Philos Mag 6th ser 42:302-4 S '21

Diffusion

Diffusion of solid copper in liquid aluminum. R. J. Anderson. il Chem & Met Eng 23:575-7 S 22 '20

See also Colloids

Diffusion (optics)

Difference in meaning of diffraction and diffusion. J. D. Ballard. diags Elec R 76:998-9 Je 12 '20

Diffusing power of pigments. W. K. Lewis and F. P. Baker. J Ind & Eng Chem 12:890-1 S '20; Abstract. Sci Am M 2:369 D '20

Digesters

Development of digester linings. A. F. Richter. Paper 27:97+ N 10 '20

Digesters and rag boilers. J. Willis. il Paper 27:50-1 N 10 '20

Digestion

Utilization of kid, rabbit, horse, and seal meats as food. A. D. Holmes and H. J. Deuel, jr. J Ind & Eng Chem 12:975-7 O '20

Digitalis

New fields of phytochemical research opened up by the cultivation of medicinal plants on an economic scale. E: Kremers. J Ind & Eng Chem 12:1019 O '20

- Digitalis**—*Continued*
Some of the important constituents of digitalis. W: J. McGill. Am Chem Soc J 42:1893-1900 S '20
- Digitoxin**
Chemistry and pharmacology of digitoxin and its decomposition products; abstract. M. Cloetta. Chem Soc J 120 pt 1:39-41 Ja '21
- Dihydrocupreine**
Über die einwirkung von brom auf dihydrochinin und dihydro-cuprein. R: Weller. Deutsche Chem Gesell Ber 54:230-8 F '21; Abstract (Action of bromine on dihydroquinine and dihydrocupreine). Chem Soc J 120 pt 1:265-7 Ap '21
- Dihydrodesoxyquinidine**
Syntheses in the cinchona series; dihydrodesoxy-quinine and dihydro-desoxy-quinidine and their derivatives. M. Heidelberger and W. A. Jacobs. Am Chem Soc J 42:1489-1502 Jl '20
- Dihydrodesoxyquinine**
Syntheses in the cinchona series; dihydrodesoxy-quinine and dihydro-desoxy-quinidine and their derivatives. M. Heidelberger and W. A. Jacobs. Am Chem Soc J 42:1489-1502 Jl '20
- Dihydronaphthalene**
Über benzopolymethylen-verbindungen; über bromhaltige alicyclische substitutionsprodukte des tetrahydronaphthalins (tetralins) und über Δ^1 -dihydro-naphthalin (Δ^1 -dialin). J. v. Braun and G. Kirschbaum. Deutsche Chem Gesell Ber 54:597-618 Ap '21
Über bildungsweisen von Δ^1 -dihydro-naphthalin; über Δ^1 -dihydro-naphthalin. F. Straus and L. Lemmel. Deutsche Chem Gesell Ber 54:25-40 Ja '21; Abstract (Dihydronaphthalene; modes of formation of Δ^1 -dihydronaphthalene). Chem Soc J 120 pt 1:170-1 Mr '21
Überführung von Δ^1 -dihydro-naphthalin in alicyclische substitutionsprodukte des tetrahydronaphthalins. F. Straus and A. Rohrbacher. Deutsche Chem Gesell Ber 54:40-69 Ja '21; Abstract (Dihydronaphthalene; conversion of Δ^1 -dihydronaphthalene into alicyclic substitution products of tetrahydronaphthalene). Chem Soc J 120 pt 1:171-4 Mr '21
- Dihydrophenanthrene**
9:10-dihydrophenanthrene. H. Henstock. Chem Soc J 119:1461-3 S '21
- Dihydroquinine**
Über die einwirkung von brom auf dihydrochinin und dihydro-cuprein. R: Weller. Deutsche Chem Gesell Ber 54:230-8 F '21; Abstract (Action of bromine on dihydroquinine and dihydrocupreine). Chem Soc J 120 pt 1:265-7 Ap '21
- Dihydrothebaine**
Über dihydro-thebain, dihydro-thebainon und dihydro-thebainol (nach versuchen gemeinsam mit den HHrn. F. F. Nord, J. Reichert und P. Stukart). A. Skita. Deutsche Chem Gesell Ber 54:1560-4 Jl '21
- Dihydrothebainol**
Über dihydro-thebain, dihydro-thebainon und dihydro-thebainol (nach versuchen gemeinsam mit den HHrn. F. F. Nord, J. Reichert und P. Stukart). A. Skita. Deutsche Chem Gesell Ber 54:1560-4 Jl '21
- Dihydrothebainone**
Über die reduktion des dihydro-thebainons. E. Speyer and S. Siebert. Deutsche Chem Gesell Ber 54:1519-31 Jl '21; Abstract. Chem Soc J 120 pt 1:685-6 S '21
Über dihydro-thebain, dihydro-thebainon und dihydro-thebainol (nach versuchen gemeinsam mit den HHrn. F. F. Nord, J. Reichert und P. Stukart). A. Skita. Deutsche Chem Gesell Ber 54:1560-4 Jl '21
- Dihydroxymethylanthraquinone**
Synthesis of 1:6-dihydroxy-2-methylanthraquinone. J: L. Simonsen and M. G. Rau. Chem Soc J 119:1339-48 Ag '21
- Dihydroxynaphthaldehydes**
Dihydroxynaphthaldehydes. G. T. Morgan and D. C. Vining. Chem Soc J 119:177-87 F '21
- Dihydroxynaphthalene**
Über 1,8-dioxy-naphthalin. G. Heller and H. Kretzschmann. Deutsche Chem Gesell Ber 54:1098-1107 My '21
- Di-iodoacetylene**
Positive halogen in organic compounds; iodine in di-iodoacetylene and chloro-iodoethylene. L. B. Howell and W: A. Noyes. Am Chem Soc J 42:991-1010 My '20
- Diiododithymol**. See Aristol
- Dikes, Concrete**
Concrete dikes used in oyster culture. C. Gaines. il Pop Mech 34:704-5 N '20
- Dikes (engineering)**
Geometrical form of rivers; new light on the design of spur dikes. diags Sci Am M 1: 446-7 My '20
Les travaux d'assèchement du Zuiderzée (Hollande). A. Bijls. diag map plans Génie Civil 79:269-71 S 24 '21
- Dilatometer**
New interferential dilatometer. I. G. Priest. plan U S Bur Stand Sci Pa 365:669-78 '20
Stretched wire apparatus for measuring thermal expansions. A. W. Gray. il diags Chem & Met Eng 21:667-71 N 26 '19; Same. Sci Am M 1:457-60 My '20
- Dilution, Heat of**
Heats of dilution and the specific heats of dilute solutions of nitric acid and of hydroxides and chlorides and nitrates of lithium, sodium, potassium, and cesium. T. W. Richards and A. W. Rowe. Am Chem Soc J 43: 770-96 Ap '21
Study of the heats of dilution of certain aqueous salt solutions. A. E. Stearn and G. M. Smith. Am Chem Soc J 42:18-32 Ja '20
Study of the heats of dilution of solutions of barium chloride and barium-sodium chloride mixture. G. M. Smith, A. E. Stearn and R. F. Schneider. Am Chem Soc J 42: 32-6 Ja '20
- Diman, George H., 1845-**
Sketch. por Power 51:383-4 Mr 9 '20
- Dimethylamino-hydroxydistyryl ketone**
Reactivity of doubly-conjugated unsaturated ketones; 4'-dimethylamino-2-hydroxydistyryl ketone. I. M. Heilbron and J. S. Buck. Chem Soc J 119:1500-15 O '21
Reactivity of doubly-conjugated unsaturated ketones; the action of hydroxylamine, semicarbazide, and phenylhydrazine on 4'-dimethylamino-2-hydroxydistyryl ketone and its methyl ether. I. M. Heilbron and J. S. Buck. Chem Soc J 119:1515-20 O '21
- Dimethylaminophenol**
Condensation of *m*-dimethylaminophenol with benzaldehyde. Sri Krishna and F. G. Pope. Chem Soc J 119:286-9 Mr '21
- Dimethylantraquinones**
Ortho-dimethylantraquinones and their derivatives. A. Fairbourne. Chem Soc J 119: 1573-82 O '21
- Dimethylchroman**
Über 2,2-dimethyl-chroman. L. Claisen. Deutsche Chem Gesell Ber 54:200-3 F '21
- Dimethylcyclohexane**
1:1-dimethylcyclohexane from methylheptenone. A. W: Crossley and N. Renouf. Chem Soc J 119:271-5 Mr '21
- Dimethyl-propyl-carbinol**
Dimethyl-propyl-carbinol and some of its derivatives. A. Deschamps. Am Chem Soc J 42:2670-2 D '20
- Dimethylpyrone**
Über den reaktionsmechanismus der Skraup-Priglingerschen dimethyl-pyron-synthese. E. Philippi and R. Saka. Deutsche Chem Gesell Ber 54:1089-91 My '21
- Dimethylsulphate**
Precautions in the use of dimethylsulphate. M. Mueller. Chem & Met Eng 23:833 O 27 '20
- Dimethyltelluronium dihaloids**
Organic derivatives of tellurium; crystallographic and pharmacological comparison of the α - and β -dimethyltelluronium dihaloids. I. E. Knaggs and R: H: Vernon. Chem Soc J 119:105-8 Ja '21

Dimethyltelluronium di-iodide

Organic derivatives of tellurium; action of ammonia and the alkalis upon α -dimethyltelluronium di-iodide. R: H: Vernon. Chem Soc J 119:687-97 My '21

Dining cars

Dining car department an advertising asset. H. Ferry. Ry Age 71:152-3 Jl 23 '21
Dining cars as an advertisement. J. G. Condon. Ptr Ink 113:17-20 N 25 '20
London-Leeds dining-car train. Engineering 112:570 O 21 '21
Midland railway new dining cars. il Engineer 132:144, 146 Ag 5 '21
New Great Northern dining car train. il diags plan Engineer 132:424-6, 428 O 21 '21
Seat tickets in dining cars. Ry Age 67:874 O 31 '19

Dining rooms

Decorating and furnishing the low-cost house; the dining room. il Bldg Age 42:27-9+ Mr; 41-4 Ap '20
Lighting requirements in modern dining room. F. W. Mathieu. il Elec R 78:771-2 My 14 '21
Lighting the home; the dining room. M. Luckiesh. il Bldg Age 42:33-6 N '20

Dinitro-benzaldehyde

Derivatives of 2,4-dinitro-benzaldehyde. A. Lowy and T. B. Downey. Am Chem Soc J 43:346-8 F '21
Some derivatives of 2,4-dinitro-benzaldehyde. A. Lowy and B. B. Wescott. Am Chem Soc J 42:849-56 Ap '20

Dinitrobenzene

Additive compounds of *m*-dinitrobenzene. D. D. Karvé and J. J. Sudborough. Chem Soc J 120 pt 1:657-9 S '21

Dinitrochlorophenylhydrazine

Über 2,4-dinitro-5-chlor-phenylhydrazin und 2,4-dinitro-1,5-dihydrazino-benzol. W. Borsche. Deutsche Chem Gesell Ber 54:669-84 Ap '21

Dinitrodiphenic acid

Second form of 6:6'-dinitrodiphenic acid, and its conversion into new cyclic systems. J. Kenner and W. V. Stubbings. Chem Soc J 119:593-602 My '21

Dinitrophenol

Dinitrophenol; patent. diag Chem & Met Eng 24:402 Mr 2 '21

Dinitrotoluene

Influence of nitro-groups on the reactivity of substituents in the benzene nucleus; the partial reduction of the dinitrotoluenes by stannous chloride and hydrochloric acid. H. Burton and J. Kenner. Chem Soc J 119: 1047-53 Jl '21

Dinitrotolylhydrazines

Dinitrotolylhydrazines. O. L. Brady and J. H. Bowman. Chem Soc J 119:894-900 Je '21

Dinosauria

Cretaceous armored dinosaur, nodosaurus textilis Marsh. R: S. Lull. bibliog il diags Am J Sci 5th ser 1:97-126 F '21
New horned dinosaur from Canada; the Sty-racosaurus Albertensis with a six-foot skull bristling with horns. C: W. Gilmore. il Sci Am M 3:7-8 Ja '21
Our prehistoric inhabitants. C. M. Lewis. il Sci Am 125:151 Ag 27 '21

Dip chart

Combination dip-chart and protractor. W. E. Gaby. diag plan Min & Sci P 123:201 Ag 6 '21

Dip needle surveying. See Magnetic surveying

Dipeptides

Über die kondensation einiger dipeptid-anhydride mit benzaldehyd. T. Sasaki and T. Hashimoto. Deutsche Chem Gesell Ber 54: 168-71 Ja '21

Diphenyl ketene

Benzilic acid rearrangement; the non-addition of hydrogen peroxide to diphenyl ketene. B. H. Nicolet and J. J. Pelc. Am Chem Soc J 43:935-7 Ap '21

Diphenylamine

Melting point of diphenylamine. H. Rogers, W. C. Holmes and W. L. Lindsay. J Ind & Eng Chem 13:314-16 Ap '21
Some observations on the color changes of the diphenylamine reaction. E. M. Harvey. Am Chem Soc J 42:1245-7 Je '20

Diphenylchloroacetyl chloride

Action of magnesium phenyl haloids on diphenylchloroacetyl chloride; constitution of triphenylvinyl alcohol. A. McKenzie and J: S. W. Boyle. Chem Soc J 119:1131-40 Jl '21

Diphenyl-hydroxy-naphthyl carbinol

Tautomerism in the triaryl carbinol series; diphenyl-4-hydroxy-1-naphthyl carbinol and diphenyl-2-hydroxy-1-naphthyl carbinol. M. Gomberg and F. W. Sullivan, jr. Am Chem Soc J 42:1864-70 S '20

Diphenylpropionic acid

Preparation of para-diphenyl-propionic acid; and new reactions of diphenyl and its derivatives. C. L. Knowles. Am Chem Soc J 43: 896-8 Ap '21

Diphtheria

Make all New York children immune to diphtheria. Pop Mech 35:700 My '21

Dipping vats, Concrete

Cattle dipping vat of concrete. il Concrete 16: 235 My '20; Pop Mech 34:552 O '20

Diquinolylmethane

Über im pyridinkern verknüpfte di- und tri-chinolyl-methane; di-chinolyl-2-methan und die synthese des pseudo-isocyanins und des chinolinrots. G. Scheibe. Deutsche Chem Gesell Ber 54:786-95 Ap '21

Dirca palustris

Dirca palustris; a morphological study. diags T. Holm. Am J Sci 2:177-82 S '21

Direct current motors. See Electric motors, Direct current

Direct mail advertising association

Increasing sales in slack times, convention slogan of Direct advertisers. Ptr Ink 117: 105-6+ N 3 '21

Direction finding apparatus

Coil aerial; its use as a direction finder. L. T. Wilson. diags Wireless Age 7:18-20 Ap '20
Direction and position finding. H. J. Round. diags Engineering 109:108-12, 161-4 Ja 23-30 '20; Same. Inst E E J 58:224-47 Mr '20; Abstract. Electrician 84:317-19 Mr 19 '20; Discussion. Inst E E J 58:247-57 Mr '20
Direction finder. diags plan Wireless Age 7: 24-5 S '20

Direction-finding wireless. J. J. Bennett. il diags Engineering 112:333-5 S 2 '21

Errors of direction-finders. E. Bellini. diags Electrician 86:220-2 F 18 '21; Same. Sci Am M 3:451-3 My '21

Guide ships and planes by radio pathfinder. il Pop Mech 33:8-9 Ja '20

Radio fog signal and radio direction finder system. Elec W 78:434-5 Ag 27 '21

Reception of wireless waves on a shielded frame aerial. A. A. C. Swinton. Elec R (Lond) 89:356 S 9 '21

Submarine signalling. H. V. Hayes. il diag Engineer 129:491-3 My 14 '20

Systems of direction finding by wireless. J. J. Bennett. diags Electrician 87:134-6 Jl 29 '21

Theory and practical attainments in the design and use of radio-direction finding apparatus using closed coil antennas. A. S. Blatterman. J Fr Inst 190:421 S '20

Variation in direction of propagation of long electromagnetic waves. A. H. Taylor. diags U S Bur Stand Sci Pa 353:419-33 '19; Excerpts. Soc Auto Eng J 6:221 Ap '20

See also Compass; Range finding; Wireless telegraph in aviation

Directories

See also American society of heating and ventilating engineers—Directories; Mailing lists; Mining engineers—Directories

Disabled

Duration of wage earners' disabilities. B. Emmet. Monthly Labor R 10:4-15 Mr '20
How age and occupation affect frequency and duration of disabilities. W. W. Adams. Coal Age 17:1256-8 Je 17 '20

Rehabilitation

Cripples in industry. H. N. Wolfen. Min & Met 172:13-14 Ap '21
Education. E. E. Bach. Min & Met 172:16-17 Ap '21
\$500,000,000 human scrap heap. D. M. Holman. Am Ind 21:9-11 S '20
Industrial rehabilitation in Oregon. W. T. Kirk. Monthly Labor R 11:625-32 O '20
Industrial rehabilitation of disabled women. Monthly Labor R 11:1211-12 D '20
Industrial training of disabled men in the United Kingdom. Int Labour R 2:247-60 My '21
Legislation as to rehabilitation of injured workers. L. D. Clark. Monthly Labor R 10:1032-6 Ap '20
Making mining engineers from disabled soldiers. W. A. Clark. Il Eng & Min J 111:706-8 Ap 23 '21
Minnesota plan for the reeducation and placement of cripples. O. M. Sullivan. Monthly Labor R 10:184-9 Ja '20
Putting the ex-consumptive back on the job; abstract. J Ind Hygiene 2:sup186-8 Ja '21
Salvaging humanity a social necessity; abstract. J. P. Munroe. J Ind Hygiene 3:175-6 N '21
Training of disabled men in France. Int Labour R 4:131-44 O '21
Veterans become gas fitters. R. T. Fisher. Il Gas Age 47:309-10 Ap 11 '21
Vocational training for injured workers. Eng & Min J 110:557 S 18 '20

Disabled, Occupations for

Finding employment for disabled civilians in the United States. G. R. Stein. Monthly Labor R 10:977-84 Ap '20

See also Blind

Disarmament

Chemical disarmament. V. Lefebure. Chem & Met Eng 24:5-7 Ja 5 '21
Commission on armaments of the League of nations makes its report on disarmament. Comm & Fin Chr 113:1435-6 O 1 '21
Danger of breakdown unless armament costs are cut. G. W. Norris. Comm & Fin Chr 113:703 Ag 13 '21
Disarmament. Comm & Fin Chr 112:1338-9 Ap 2 '21
Disarmament. W: E. Borah. Il Nation's Business 9:7-8 S '21; Excerpts. Am Mach 55:328f Ag 25 '21
Disarmament in its relation to the naval policy and the naval building program of the United States. A. J. H. Pollen. 34p American association for international conciliation, New York '21
Disarmament of the British navy. Sci Am 124:122 F 12 '21
Japan names the basic principles for the limitation of naval armaments. Comm & Fin Chr 113:1214-15 S 17 '21
League of nations' committee to prepare program for disarmament. Comm & Fin Chr 113:1855 sec 1 O 29 '21
Limiting armaments of the world; statesmen, financiers, industrial leaders and editors discuss what disarmament means to industry. Am Ind 22:7-21, 26-30 N '21
Lloyd George tells imperial conference Britain is ready to discuss proposals for disarmament. Comm & Fin Chr 112:2714-15 Je 25 '21
Lloyd George's speech in Commons on disarmament conference—Premier Briand commends President Harding's action. Comm & Fin Chr 113:258-9 Jl 16 '21
President Harding invites principal allied powers to conference on disarmament and Far eastern problems. Comm & Fin Chr 113:257-8 Jl 16 '21
President Harding looks for success of disarmament movement. Comm & Fin Chr 113:691-2 Ag 13 '21

Race of armaments against America would be fatal mistake. J. C. Smuts. Comm & Fin Chr 112:2713-14 Je 25 '21
Text of invitations to allies and China for disarmament conference. Comm & Fin Chr 113:700-1 Ag 13 '21
World hunger for disarmament. Sci Am 124:22 Ja 8 '21
Would not have United States be first to disarm. J: W. Weeks. Comm & Fin Chr 112:2597 Je 18 '21
See also Conference on the limitation of armaments, Washington, D.C., 1921

Bibliography

Disarmament and cost of armament and war; list of references prepared in the library of the Carnegie endowment for international peace. Advocate of Peace p 198-9 My '21

Discount

Amortizing discount on instalment contracts. J Account 29:470-8 Je '20
Are discount rates due for a further drop? R. Bean. Annalist 18:268+ S 19 '21
Argues against lowering of rediscount rates. A. Reynolds. Comm & Fin Chr 112:1925 My 7 '21
Discount rates of the Federal reserve banks in effect January 29, 1920. Comm & Fin Chr 110:399-400 Ja 31 '20
Gold and rediscount policy of federal reserve banks. A. B. Hepburn and B. M. Anderson, jr. Comm & Fin Chr 113:349-54 Jl 23 '21; Excerpts. Annalist 17:758+ Jl 18 '21
Lowering of federal reserve rates. A. W. Mellon and D. R. Crissinger. Comm & Fin Chr 113:1002-3 S 3 '21
Lowering of rediscount rate. W. P. G. Harding. Comm & Fin Chr 113:1520 O 8 '21
Money and discount rates here and abroad. Comm & Fin Chr 113:1103 S 10 '21
National a prerequisite to international money rate harmony. Annalist 17:421-2 Ap 11 '21
Neglected commercial discounts. J. H. Jackson. J Account 30:321-8 N '20
Recommendations by Governor Harding respecting Federal reserve bank discount policy. Comm & Fin Chr 113:1832-3 sec 1 O 29 '21
Reduction in rediscount rates by all the Federal reserve banks. Comm & Fin Chr 113:1936 N 5 '21
Regulation of bond discount. R. D. Armstrong. J Account 30:18-35 Jl '20
Some current valuation accounts; cash discounts and discounts on promissory notes. W. A. Paton. J Account 29:335-50 My '20
See also Acceptances

Diseases

See Diphtheria; Influenza; Malaria; Tuberculosis; Typhoid fever; Yellow fever

Diseases, Industrial

Le cancer de la vessie chez les ouvriers travaillant dans les fabriques d'aniline; abstract. Génie Civil 78:426 My 14 '21
Causes of skin sores and boils among metal workers; abstract. J Ind Hygiene 2:sup215-17 Ap '21
Composite industrial poisons: a review. W: H. Rand. Monthly Labor R 10:480-501 F '20
Cost of occupational diseases under workmen's compensation acts in the United States. C. Hookstadt. Monthly Labor R 11:402-7 F '21
How to treat skin affections of employees. W. C. Allen. Ind Management 61:180-1 Mr 1 '21
Industrial dermatoses to be investigated by National safety council. Monthly Labor R 10:510-12 F '20
Industrial disease and immunity; abstract. K. Goadby. J Ind Hygiene 3:sup121-3 O '21
Industrial diseases; abstract T. M. Legge. J Ind Hygiene 3:sup1-2 My '21
Occupational diseases. S. Miall. Chem & Met Eng 24:955 Je 1 '21; Same. Sci Am M 4:255 S '21

Diseases, Industrial —Continued

- Occupational diseases and their compensation with special reference to anthrax and miners' lung diseases. F: L. Hoffman. 45p Prudential insurance co. of America, Newark, N.J. '20
- Occupational diseases in chemical industries. F: Dannerth. *il Ind Management* 62:145-7 S '21
- Occupational diseases in Germany. *Int Labour R* 1:397-422 Mr '21
- Oil folliculitis. C. G. Page and L. D. Bushnell. *J Ind Hygiene* 3:62-74; Bibliography. 74-5 Je '21
- Preventable death in cotton manufacturing industry. A. R. Perry. *U S Bur Labor Statistics Bul* 251:1-534 '19
- Report of the committee on occupational diseases in the chemical trades. *J Ind & Eng Chem* 12:439-40 My '20
- Report of the committee on occupational diseases in the chemical trades. *J Ind & Eng Chem* 13:568-9 Je '21
- War and industrial diseases. L. Teleky. *Int Labour R* 3:51-77 Jl '21
- See also Anthrax; Bladder tumors; Lead poisoning; Lungs—Dust diseases; Miners—Diseases and hygiene; Miners' nystagmus; Poisons; Poisons, Industrial; Printers—Diseases and hygiene*

Dishwashing machines

- Dishwashing machine as a germ-killer. *Textile World* 60:1791+ S 24 '21
- Dishwashing-machine buyer proves its efficiency. *Pop Mech* 35:504 Ap '21
- Dishwashing machine for hotel and restaurant use. *il Elec R* 79:139 Jl 23 '21
- Dishwashing machines and their sales possibilities. C: H. Bay. *Elec R* 77:634-6 O 23 '20
- Glass and dish washer. *il Textile World* 56:2939 N 15 '19
- New dishwasher made in two styles. *il Elec R* 79:329 Ag 27 '21

Disinfection and disinfectants

- Banishing germs with a silver spoon. J. H. Bechhold. *Sci Am M* 3:324 Ap '21
- Disinfection by hot air. *Sci Am M* 1:211 Mr '20
- Sack steam disinfectors. *il Engineer* 131:331 Mr 25 '21
- Standardization of disinfectants. A. L. Walters. *J Fr Inst* 190:594 O '20
- See also Antiseptics; Cresol; Hydrocyanic acid*

Disk bearings

- NKA disk bearing. *diags Automotive Ind* 44:996 My 12 '21
- Self-aligning disk bearings. A. Gradenwitz. *il diags Am Mach* 52:947 Ap 29 '20

Disks

- Finding the radius of a small disk. V. E. Ayre. *diag Mach* 26:1176 Ag '20

Dispersion

- Dispersion of light by potassium vapour. M. Baxter. *Philos Mag* 6th ser 42:289-302, pl 11 S '21

Dissociation

- Bivalent nitrogen derivative of carbazole. G. E. K. Branch and J. F. Smith. *Am Chem Soc J* 42:2405-13 N '20
- Dissociation of hydrogen and nitrogen by electron impacts. A. L. Hughes. *diag Philos Mag* 6th ser 41:778-98 My '21
- Dissociation pressures of iron nitrides. A. A. Noyes and L. B. Smith. *diag Am Chem Soc J* 43:475-81 Mr '21
- Electrolytic dissociation of cyanamide and some of its salts in aqueous solutions. N. Kameyama. *Am Electrochem Soc Trans* v 40 (preprint 25):327-34 S '21
- Explanation of an apparent anomaly outstanding in the results of measurement of dissociation pressures. A. W. C. Menzies. *Am Chem Soc J* 42:1951-6 O '20
- Heat of dissociation of iron pyrites. H. Kamura. *Chem & Met Eng* 24:437 Mr 9 '21
- Ionic dissociation theory; interesting experiments for the amateur chemist. A. T. Fellows. *diags Sci Am M* 3:140-1 F '21

- Relations entre les réactions métallurgiques et les lois physico-chimiques. L. Guillet. *Génie Civil* 78:126-30 F 5 '21
- System copper:cupric oxide:oxygen. H. S. Roberts and F. H. Smyth. *Am Chem Soc J* 43:1061-79 My '21

See also Hydrolysis

Distillation

- Distillation et rectification. L. Gay. *diags Chimie & Ind* 3:157-66; 4:177-88, 735-48 F, Ag, D '20
- Distillation of shale-oil. J. A. Bishop. *Min & Sci P* 120:371-5 Mr 13 '20
- Electric heater for the coal-tar naphtha distillation test. J. B. Hill and R. B. Chillas. *diag J Ind & Eng Chem* 12:280-1 Mr '20
- Heat balance of a distillation plant for the recovery of fatty acids from cottonseed foots. J. Alsberg. *diag J Ind & Eng Chem* 12:490-3 My '20
- Operation of fatty acid distillation plants. O. H. Wurster. *diag Chem & Met Eng* 25:651-6 O 5 '21
- Proposed A.S.T.M. distillation test for gasoline, kerosene methods. *diag Nat Pet N* 13:33+ Je 17 '21
- Les rectificateurs discontinus d'alcool. E. Chenard. *Chimie & Ind* 5:27-8 Ja '21
- Separation of miscible liquids by distillation. A. F. Dufton. *diags Philos Mag* 6th ser 41:633-46 Ap '21
- Some comparisons of steam and fire distillations of gasoline. P. A. Moore. *Nat Pet N* 13:77+ F 16 '21
- Vapor composition of alcohol-water mixtures. W. K. Lewis. *J Ind & Eng Chem* 12:496-9 My '20
- Whitaker-Pritchard process of destructive distillation. T. W. Pritchard. *Chem & Met Eng* 23:664-6 O 6 '20; Same. *Gas Age* 46:261-2 O 11 '20
- See also Alcohol; Coal distillation; Coal tar; Lignite; Petroleum refining; Wood distillation*

Distillation apparatus

- Ammonia and benzene column stills. A. Thau. *diags Chem & Met Eng* 23:1203-7 D 22 '20
- Clandestine stills and camouflaged tipple overtaken by the nemesis of the new law. *il Pop Mech* 33:60-1 Ja '20
- Comparative study of fractionating still-heads. N. P. Moore. *diags J Phys Chem* 25:273-303 Ap '21
- Constant-temperature still head for light-oil fractionation. F: M. Washburn. *diag U S Bur Stand Tech Pa* 140:1-12 '19; Same. *J Ind & Eng Chem* 12:73-7 Ja '20
- Distillation apparatus. P. Gross and A. H. Wright. *diags J Ind & Eng Chem* 13:701-3 Ag '21
- Distilling column for ammonia; patent. *diag Chem & Met Eng* 24:851-2 My 11 '21
- Distilling hydrocarbons, alcohol, etc.; patent. *diag Chem & Met Eng* 24:796 My 4 '21
- Genii distiller. *il diag Electrician* 87:210-12 Ag 12 '21
- New type of benzene still in European operation. A. Thau. *diags Chem & Met Eng* 24:1013-17 Je 8 '21

Distilled water. *See Water, Distilled*

Distribution. *See Jobbers; Mail order business; Marketing; Retail trade*

Distribution of gas. *See Gas distribution*

Distribution of water. *See Water distribution*

District heating association, National. *See National district heating association*

District of Columbia

Sanitary affairs

- Thirty years' engineering service for District of Columbia. A. E. Phillips. *Eng N* 87:284 Ag 18 '21

Ditches. *See Drainage*

Dithiocarbazinic acid

- Dithiocarbazinic acid. S. M. Losanitch. *Chem Soc J* 119:763-5 Je '21

Dithioketones

Formation and properties of dithioketones (R₂C:S:S) and dithio-ethers (R₂S:S). K. G. Naik. *Chem Soc J* 119:379-85, 1231-42 Ap, Ag '21

Dividing

Dividing a disk into equal parts. K. Manrodt. *diags Mach* 26:434 Ja '20

Hollow-spindle dividing head. W. C. Steuart. *il diags Am Mach* 52:982 My 6 '20

Making a dividing head. J. V. Romig. *diags Pop Mech* 35:130-1 Ja '21

Multiple-spindle dividing head. *il Iron Age* 105:1504 My 27 '20

Diving

Diver from a biological point of view. A. Thooris. *Sci Am* 125:280 O 15 '21

Diving, Submarine

Deep sea suits and diving records. *il Sci Am* 122:46 Ja 10 '20

Diver in rigid suit breaks record for depth. *il Pop Mech* 33:165 F '20

Raid on Davy Jones. J. W. Evans. *Nation's Business* 8:22-3+ Ja '20

Divining rod

Divining rod. *Eng & Min J* 110:555 S 18 '20

Divining rod. *Min & Sci P* 121:863-4 D 18 '20

Divining rod. W. Pryce. *diags Min & Sci P* 121:733-6 N 20 '20

Divining rod made respectable; modern mineral location that proceeds along the lines of Medieval magic. E. F. Cone. *Sci Am* 125:219 S 24 '21

New process for locating mineral deposits. H. A. Holz. *Iron Age* 106:1549 D 9 '20

Doane, Samuel Everett, 1870-

Portrait. *Elec W* 76:816 O 23 '20

Dobrowolsky, Michael von Dolivo-

Sketch. C. Hering. *Elec W* 75:604-5 Mr 13 '20

Dock labor. See Longshoremen**Docks**

Dock problems. *Engineering* 109:829-30 Je 18 '20

Ipswich dock extensions. *diag plan Engineer* 129:114 Ja 30 '20

Port of London; opening of new Albert dock extension. *il (supp) diags plan Engineer* 132:29-30, 40 Jl 8 '21

Power distribution for docks. E. Pragst. *il Gen Elec R* 24:346-51 Ap '21

Progress in dock and harbour works. *Engineer* 131:59-60 Ja 21 '21

Report on the maintenance of timber docks. *Ry Age* 69:761-2 O 29 '20

Royal Albert dock extension (South). *il diags Engineering* 112:2-7, 16, pl 1-4 Jl 1 '21

St Louis municipal docks. F. C. Perkins. *il Sci Am* 121:609+ D 20 '19

To what dimensions should docks be constructed to provide for future requirements. C. R. S. Kirkpatrick. *Engineering* 112:31; Discussion. 21-3, 38-40 Jl 1-8 '21

See also Bulkheads; Dry docks; Harbors; Ore docks; Terminals; Wharves

Lighting

Lighting of piers and docks. H. E. Mahan. *il diags Gen Elec R* 24:381-6 Ap '21

Dodge, Horace E., 1868-1920

History of career. *por Automotive Ind* 43:1237+ D 16 '20

Dodge brothers

Dodge brothers' modern power plant. T. Wilson. *il diags plan Power* 53:841-9 My 24 '21

Dodge brothers' new power plant at Detroit. *il diag Iron Age* 107:1391-4 My 26 '21

Dogs' cemeteries

Dog's acre beautiful, Hartsdale canine cemetery. *il Sci Am* 125:153 Ag 27 '21

Doherty, H. L., and company

The pulse of the organization. L. F. Fuld. 188p H. L. Doherty & co., New York '20

Thrill encouragement by employers. L. F. Fuld. *Ind Management* 62:287-9 N '21

D'Olier, Franklin, 1877-

National commander D'Olier of American legion. *por Textile World* 57:963+ F 7 '20

Dolomite

Bethlehem steel company develops new dolomite quarry. E. C. Kreutzberg. *il Iron Tr* R 66:409-13 F 5 '20

Converting dolomite into magnesite. D. Eyoub. *Eng & Min J* 112:619 O 15 '21

Experiments in dead-burning dolomite and magnesite. H. G. Schurecht. *diags Am Cer Soc J* 4:127-51 F '21

Experiments in the use of dolomite refractories. *Eng & Min J* 111:586 Ap 2 '21

Separation of lime from dolomite. H. G. Schurecht. *Am Cer Soc J* 4:558-69 Jl '21

Domes

Artistic lighting of a large interior. J. R. Cravath. *il diags Elec W* 75:939-41 Ap 24 '20

Failure of steel truss support wrecks concrete dome. E. R. Bowen. *il diags Eng N* 86:294-6 F 17 '21; Discussion. 86:479 Mr 17 '21

Domestic appliances

Breaking the buyer's strike by improving the product. J. A. Murphy. *il Ptr Ink M* 3:23-5+ Jl '21

Consumer viewpoint, covering vital phases of manufacturing and selling household devices. M. Maddocks. 29p Good house-keeping institute, New York '20

Efficient management in the home; proper planning necessary to obtain maximum service from labor-saving devices. *il Bldg Age* 42:56-8 Je '20

Servantless house. S. Baxter. *Arch Rec* 49:189-92 F '21

See also Cooking utensils; Dishwashing machines; Electric apparatus and appliances; Domestic; Electric cooking; Gas appliances; Ironing machines; Washing machines

Advertising

Better results—the new appeal in household appliance copy. S. C. Lambert. *Ptr Ink* 115:89-90+ Ap 14 '21

Which sex buys your product? C. P. Russell. *Ptr Ink M* 3:38+ O '21

Manufacture

Manufacture of household appliances. J. V. Hunter. *il Am Mach* 52:1173-4, 1300-2, 1349-52 Je 3, 17-24 '20

Domestic architecture. *See* Architecture, Domestic

Domestic engineering

See Drainage, House; Heating; Plumbing; Sanitary engineering; Ventilation

Domestic finance

Scale for standardization of families according to size. *Monthly Labor R* 13:547-9 S '21

See also Budget, Household

Domestic service. See Servants**Dominion land surveyors' association**

14th annual meeting, Ottawa, Feb. 2. *Can Eng* 40:200-1 F 10 '21

Report of Topographical surveys committee. *Can Eng* 40:463-4 My 12 '21

Donnelly, Charles, 1869-

Will succeed J. M. Hannaford as president of Northern Pacific. *por Ry Age* 69:612-13 O 8 '20

Door closers. See Burglar traps**Door knobs**

Dies used in the manufacture of door knobs. J. Bingham. *diags Mach* 27:68 S '20

Doors

De Waters safety latch. *il diags Power* 50:803 D 16 '19

Door of a Dutch farm house, North Paterson, N.J. *il Am Arch* 119:42-a Ja 12 '21

Doorway without a door. *Am Arch* 118:364-5 S 15 '20

Proper way to hang a door. *Bldg Age* 42:42 S '20

Something new in electric door openers. *il Sci Am* 124:89 Ja 29 '21

See also Doorways

Doors, Revolving

Revolving door, its characteristics, design and installation. il diags plans Am Arch 118: 327-31, 355-9 S 8-15 '20

Doorways

Architectural monograph devoted to a comparative study of a group of early American doorways. R. F. Whitehead. 16p White pine bureau, Saint Paul '21

Detail of doorway, Old Town Hall, Hartford, Conn. il Am Arch 118:642-642a N 17 '20

Detail of main entrance, house of Wharton Poor, Flushing, L.I. Am Arch 117:188e F 11 '20

Doorway in house of Sherman L. Depew, Bloomfield Hills, Detroit, Mich.; view. Am Arch 120:188i S 14 '21

Doorway of a house on Washington Square North, New York. il Am Arch 118:212-212a, 215-16 Ag 18 '20

Early American colonial doorways. M. H. Northend. il Bldg Age 42:22-4 S '20

Early architecture of Pennsylvania. A. L. Kocher. il diags plans Arch Rec 49:232-48, 310-30 Mr-Apr '21

English architectural decoration; carved overdoors, chimneypieces. A. E. Bullock. il diags Arch Rec 47:268-82 Mr '20

English architectural decoration; doorways and fanlights. A. E. Bullock. il diags Arch Rec 46:569-82 D '19

Porches and doorways. il diags Bldg Age 42: 19-23 O '20

Dope. See Airplane fabrics**Dormitories, Employees'**

Overcoming the too-far-from-the-plant handicap in hiring; busses to bring workers from nearby towns, a dormitory for girls, and timely advertising. J. J. Phoenix. il Factory 25:696-8 S 1 '20

Dorr, John Van Nostrand

Leaders in metallurgical practice. por Eng & Min J 109:832 Ap 10 '20

Dorr apparatus

Dorr systems of sewage and trade waste treatment. R. H. Eagles. il diags Boston Soc C E J 7:245-62 N '20; Same cond. Pub Works 50:52-6 Ja 15 '21; Discussion. Boston Soc C E J 7:262-8 N '20

Sewage treatment experiments at Grand Rapids with special reference to Dorr sewage clarifier. M. P. Adams. il Munic Eng 60:60-6 F '21; Same. Eng & Contr 55: 226-8 Mr 9 '21

Dorr bowl classifier

Dorr bowl-classifier. H: Hanson. il Min & Sci P 120:905-6 Je 19 '20

Dorr laboratory

Novel laboratory for industrial research. il Chem & Met Eng 23:496-8 S 8 '20

Dorr ore washer

Dorr ore washing device. il Eng & Min J 111:43-4 Ja 1 '21

New machine for concentrating Minnesota wash ores. E: W. Davis. il diags Minn U Sch Mines Bul 6:1-32 '19

Dorr thickener

Slush breaker and mine-water problems. J: Griffin. il diag plan Coal Age 17:349-53 F 19 '20

Thickeners and decanting appliances. H: Hanson. il Eng & Min J 109:853-6 Ap 10 '20

Double-decking of streets. See Streets—Double-decking**Doughnuts**

New design of machine for cooking doughnuts. il Pop Mech 36:587 O '21

Advertising

Even doughnut holes, this man finds, can be advertised. Ptr Ink 112:53-6 Ag 19 '20

See also Square donut baking company

Douglas fir

Application of the perforating process in the preservative treatment of wood with especial reference to Douglas fir. E. M. Blake. Boston Soc C E J 7:99-126 Ap '20

Data on preservative treatments prove that increased service fully justifies cost. E. M. Blake. Am Lumberman 2346:62-3 My 1 '20

Douglas fir as a structural timber. Can Eng 39:317 S 9 '20

Douglas fir as a structural timber. C. J. Hogue. il Boston Soc C E J 7:145-56 Ap '20

Effect of kiln drying on the strength of airplane woods. U S Nat Advisory Com for Aeronautics 1919:507-14 '20

Grades of lumber in Douglas fir log. il Eng & Contr 56:65 Jl 20 '21

Inclined-bearing tests on Douglas fir and white pine. T: R. Simpson. diags Eng N 85: 654-5 S 30 '20

Relative durability of Douglas fir ties. Eng N 84:976 My 13 '20

Sugar from the Douglas fir. il Sci Am 122: 165+ F 14 '20

Specifications

Tentative specifications for structural Douglas fir. il diag Am Soc T M Pro v 20 pt 1: 704-15 '20

Douglas shoe company

Everybody has had a fling at Douglas shoe advertising. W. L. Larned. Ptr Ink 113: 149-50+ N 4 '20

Dovetailing

Simple method of milling dovetail grooves. D. A. Hampson. il diags Mach 27:273-4 N '20

Dow metal. See Magnesium alloys**Draft**

Air draft required for fuel oil. R. Sibley and C. H. Delany. J Elec 45:378-9 O 15 '20

Artificial versus natural draft in down-draft periodic kilns. A. Staudt. Am Cer Soc J 3: 915; Discussion. 915-17 N '20

Chimney draught troubles. E: Ingham. Elec R (Lond) 88:265-6 Mr 4 '21

Draft; air supply and methods of draft control. diags Power Pl Eng 25:33-6 Ja 1 '21

Draft and CO₂ influence on evaporation. J. T. Beard, jr. diag Power 53:775-7 My 17 '21

Draft and its production and measurements. T. Croft. diags Power 53:1008-13 Je 21 '21

Draft-combustion and boiler stacks. F. J. Denk. Blast F & Steel Pl 8:575-7, 631-2+ O-N '20

Elements of efficient combustion. N. P. Winchell, jr. il diag Paper 26:17-19 Ag 11; 18-22 Ag 18 '20

Forced vs. induced draft. W. F. Schaphorst. Power Pl Eng 24:929-30 O 1 '20

Modern power plant management; natural and mechanical draft. R. June. il diags Blast F & Steel Pl 8:686-9 D '20; Same cond. Textile World 58:3197+ N 6 '20

See also Chimneys; Combustion; Dampers; Firing; Mechanical draft; Ventilation

Draft, Mechanical. See Mechanical draft**Draft gages**

Bailey multi-pointer draft gage. il Power 54: 686 N 1 '21

Draft gears

Gould friction draft gear of high capacity. diag Ry Age 68:1784 Je 14 '20

Impact and its relation to damage claims. J. A. Pilcher. Ry Age 71:77-9 Jl 9 '21

Stanforge draft gear. diag Ry Age 68:1786 Je 14 '20; Ry R 66:1014 Je 12 '20

Suggestions for improving draft gear maintenance. L. T. Canfield. diags Ry Mech Eng 93:656 N '19

Westinghouse type N friction draft gear. diag Ry Age 68:1785 Je 14 '20

Testing

Draft gear tests of the railroad administration. Ry Mech Eng 95:173-6, 229-32, 301-4 435-40, 497-501 Mr-May, Jl-Ag '21

Draft gear tests, U.S.R.A.—origin, nature and scope. Ry R 67:383-6, 425-9, 461-4, 506-10, 582-4 S 11, O 2, 16 '20

Report of draft gear tests, United States Railroad administration, Inspection and test section. 281p Simmons-Boardman pub. co., New York '21

Draft tubes

- Draft tubes—how they operate and why. *il* diags Power 54:600-4 O 18 '21
 Hydro-electric practice—draft tubes. C. Voetsch. *il* diags Power 54:164-7 Ag 2 '21
See also Hydraucones

Drafting boards and tables

- Drawings reduced or enlarged by straight-edge and revolving boards. G: H. Gilchrist. *diag* Eng N 84:377 F 19 '20

Drafting room practice

- Bucking the system. A. A. Boyd. *Am Mach* 51:1084 D 25 '19
 Drafting room notes. J: S. Watts. *diags* *Am Mach* 55:17 J1 7 '21
 Drafting-room progress records. A. A. Dowd. *Mach* 27:154-5 O '20
 Drawing office and its relationship to the works. E. A. Allcut. *Eng & Ind Management* 6:293-5 S 15 '21
 Drawing room practice. F. A. Stanley. 253p McGraw-Hill '21
 Economy in cutting drawing paper. W: H. Kellogg. *diags* *Am Mach* 55:279 Ag 18 '21; Same. *Eng & Contr* 56:314-15 S 28 '21
 Follow-up system for the drafting-room; recording daily progress of work. J: A. Honegger. *Mach* 27:317-20 D '20
 Fundamental principles of good sketching. S. C. Swanson. *diags* Power P1 *Eng* 24: 993-5 O 15 '20
 Graphical method for finding accurate center distances. R. Jantsch. *diags* *Am Mach* 52: 441-2 F 26 '20
 How to check a drawing. S. V. Becker. *Eng* N 85:1171 D 16 '20
 How to draw plumbing plans. R. J. Gordon. *diags* *Dom Eng* 90:97-8+ Ja 10 '20
 How to train drafting apprentices. S. E. Ferry. *Ind Management* 61:95-7 F 1 '21
 How we pruned our drafting methods. W. F. Rohr. *il* *Factory* 25:1045-8 O 1 '20
 Indexing and filing industrial drawings. L. H. Park. *Iron Age* 107:1447-9 Je 2 '21; Same. *Eng & Contr* 55:609-11 Je 22 '21
 Indicating and recording changes on drawings. F. R. Daniels. *diags* *Mach* 26:605-8 Mr '20
 Industrial drafting room management. F. D. Hartford. *Ind Management* 58:271-2 O '19; Same. *Eng & Contr* 53:491-2 Ap 28 '20
 Keeping track of drawing room work. J. E. Bushnell. *Ind Management* 59:360 My '20
 Manufacturing tool designs; how a Connecticut plant handles a drafting room problem. *Factory* 25:1219 O 15 '20
 Method of indexing drawings. M. Kurth. *Am Mach* 53:1022 D 2 '20
 Printing press as an aid to the drafting room. F. H. Pfefferle. *diags* *Am Mach* 52:661-3 Mr 25 '20
 Reorganization of a French drafting department; how standard practice improved and increased output. L. F. Libgotte. *diags* *Ind Management* 61:9-10 Ja 1 '21
 Wall drafting machine. *il* *Mach* 27:348 D '20
 Why the blueprint? F. Richards. *diags* *Am Mach* 52:871-2 Ap 22 '20
See also Drawing instruments; Machinery—Design; Tracing cloth

Drafting rooms

- Kingston coal co.'s drafting room and map-filing vault. *il* plan *Coal Age* 18:11-12 J1 1 '20

Equipment

- Combined map roller and case. J: W. N. Bell. *diags* *Eng & Min J* 111:794 My 7 '21
See also Drawings, Rack for

Lighting

- Lighting drafting-rooms by electricity. *Min & Sci P* 121:217 Ag 7 '20
 Lighting of office buildings and drafting rooms. A. L. Powell. *il* *Sibley J* 34:81-5+ Je '20

Draftsmen

- Architects and draughtsmen. *Am Inst Arch J* 9:19-21 Ja '21

- Debate on the relations of the architect to client, draftsman and builder. *Am Arch* 117: 681-7 Je 2 '20

- How to train drafting apprentices. S. E. Ferry. *Ind Management* 61:95-7 F 1 '21

- How to win a competition. G: B. Cummings. *Am Inst Arch J* 8:87-8 F '20; Same. *Eng & Contr* 53:220-1 F 25 '20

- Studies in co-operation and draughting room management. G: B. Cummings. *Am Inst Arch J* 8:195-6 My '20; Same. *Eng & Contr* 53:595-6 My 26 '20

Draftsmen's unions

- Bolshevik or Mammon? F: L. Ackerman. *Am Inst Arch J* 8:40-1 Ja '20
 Draftsmen and the architect. *Am Inst Arch J* 9:183-4 My '21
 New attempt by labor to organize architectural draftsmen. *Am Arch* 119:36-9 Ja 12 '21
 Progress of the draughtsmen's union idea, with particular reference to the situation in New York city. G: B. Cummings. *Am Inst Arch J* 8:158-60 Ap '20

- Drag links. *See* Automobiles—Steering gear

Drain tile

- Alkali and concrete pipe. *Concrete* 19:81 Ag '21
 Determination of Kutter's coefficient for 30 in. concrete tile. *Eng & Contr* 55:147-8 F 9 '21
 Inspection of drain tile for U.S. reclamation service. W. L. Drager. *diag* *Eng & Contr* 53:667 Je 9 '20
 Methods of building tile drains in quicksand. A. R. McGinness. *Eng & Contr* 54: 474-5 N 10 '20
 Run-off from underdrained land and action of tile drains on ground water level. H. M. Lynde. *Eng & Contr* 55:229-31 Mr 9 '21
 Second-hand drain tile resold. *Concrete* 19: 116 S '21
 Suggestions on the design of tile drainage systems. J. W. Dappert. *Munic Eng* 61: 94-9 S '21

Manufacture

- Factory of Quality products co., Medford, Minn. *il* plan *Concrete* 18:188 Ap '21

Prices

- Contract prices for tile drains. *Eng & Contr* 56:40 J1 13 '21
 Current prices of common building brick drain tile and hollow building tile. *Brick & Clay Rec* 59:585 O 18 '21

Specifications

- Report of committee C-6 on drain tile. *Am Soc T M Pro v* 20 pt 1:268-70, 817-18 '20

Drainage

- Borrow pit for levee forms drainage canal. P. N. Entemann. *Eng* N 85:465 S 2 '20
 Coefficient of roughness for drainage ditches. *Eng* N 85:840 O 28 '20
 Contractor's side in drainage work. C. D. Walter. *Eng & Contr* 56:355-6 O 12 '21
 Correction of foundation troubles. C. E. Smith. *il* *Engineering* 110:226-8 Ag 13 '20; Excerpt. *Eng & Contr* 53:716 Je 23 '20
 Determination of Kutter's roughness in a drainage ditch. R. Bosard. *il* *Eng* N 83:921-2 N 27 '19
 Digging a ditch with dynamite. G. G. Means. *Pub Works* 49:440 N 6 '20
 Ditch design and prevention of silt deposit; abstracts. Q. C. Ayres. *Eng & Contr* 55:142 F 9 '21; *Eng* N 86:647-8 Ap 14 '21
 Drainage as a malaria control measure. A. Bresth. *Eng & Contr* 55:362 Ap 13 '21
 Drainage canal at East St Louis. *Eng* N 87:56 J1 14 '21
 Drainage engineering. D. W. Murphy. 178p McGraw-Hill '20
 Drainage for sidewalks. C. McGrale. *il* *diag* *Concrete* 18:157-9 Ap '21
 Drainage of Exhibition park, Toronto. R. B. Evans. *il* plan *Can Eng* 38:401 Ap 22 '20
 Drainage problem from the viewpoint of the investor and investment dealer. E: Bower. *Eng & Contr* 52:685-6 D 10 '19

Drainage—Continued

- Drilling wells to drain land. W. F. Wilcox. *il* Pop Mech 36:250-1 Ag '21
- Effect of drainage ditches on flood flows. Eng & Contr 52:565 N 12 '19
- Flow of water in drain tile. D. L. Yarnell and S. M. Woodward. *il* U S Agric Bul 854:1-50 '20; Abstract. Eng N 86:902 My 26 '21
- Flow of water in dredged drainage ditches. C. E. Ramser. *il* U S Agric Bul 832:1-60 '20
- Land drainage; how it affects architecture and landscape architecture. F. W. Ives. map Arch Forum 35:55-8 Ag '21
- New diagrams for drainage work. J. C. D. Taylor. diags Can Eng 39:383-4 S 30 '20
- New river planned for flood protection and drainage along Mississippi. map Eng N 87:481-2 S 22 '21
- Relation of engineering to drainage. S. H. M'Crory. Eng & Contr 54:573-4 D 8 '20; Same. Can Eng 40:310 Mr 17 '21
- Run-off from underdrained land and action of tile drains on ground water level. H. M. Lynde. Eng & Contr 55:229-31 Mr 9 '21
- Side slopes of drainage ditches in unstable soil. *il* diags Eng N 87:227-8 Ag 11 '21
- Studies of maintenance work on drainage ditches. H. M. Lynde. *il* Eng N 84:713-15 Ap 8 '20
- Sub-soil as a factor in drainage design. G. R. B. Elliott. Eng & Contr 56:358-9 O 12 '21
- Suggestions on the design of tile drainage systems. J. W. Dappert. Munic Eng 61:94-9, 172-5 S, N '21
- Tile drainage a factor in the control of rivers. H. L. Frost. Eng N 85:399-400 Ag 26 '20
- Timber clearing in drainage districts. L. A. Jones. Eng N 84:616 Mr 25 '20
- Underdrainage for preventing alkali action on Winnipeg aqueduct. diag Eng & Contr 56:267 S 14 '21
- Use of poison in maintenance work on drainage canals. O. C. Kulicka. Eng N 87:322-3 Ag 25 '21
- See also* Drain tile; Irrigation; Marshes; Mine drainage; Reclamation of land; Roads—Drainage; Sewerage

Cost

- Data for estimating cost of tile drains. Eng & Contr 56:124 Ag 10 '21
- Studies of maintenance work on drainage ditches. H. M. Lynde. Eng N 84:714-15 Ap 8 '20

Arizona

- Drainage results and proposals on the Salt river project. Eng N 84:921 My 6 '20

Buenos Aires

- Drainage problems in the province of Buenos Aires. Engineer 130:669 D 31 '20

England

- Land drainage in England from the engineering point of view. C. H. J. Clayton. Eng & Contr 53:758-61 Je 30 '20

Florida

- Ground water control on drainage project in Florida. F. Teichman. diag Eng N 87:406-7 S 8 '21
- Results of run-off experiments with muck soil; abstracts. F. C. Elliott. diag Eng & Contr 55:363-5 Ap 13 '21; Eng N 87:157-8 Jl 28 '21

Idaho

- Tile drainage of irrigated land for seepage relief at Twin Falls. R. M. Adams. Eng N 84:961 My 13 '20

Illinois

- Land drainage situation in Illinois. F. W. DeWolf and G. W. Pickels. Eng & Contr 54:565-6 D 8 '20

Iowa

- 12 million acres made productive by drainage. W. J. Schlick. Brick & Clay Rec 58:985-8 Je 14 '21

Louisiana

- Unwatering the lock site of New Orleans harbor canal. G. R. Goethals. diag plan Eng N 84:940-3 My 13 '20

Minnesota

- Drainage works maintenance in Minnesota. E. V. Willard. Eng N 84:54 Ja 1 '20
- Minnesota swamp land reclaimed for farm use. M. H. Dappert. *il* plan Eng N 87:552-4 O 6 '21

Montana

- Methods of building tile drains in quicksand. A. R. M'Ginness. Eng & Contr 54:474-5 N 10 '20

Netherlands

See also Zuider Zee

Ontario

- Report of O.L.S. drainage committee. W. G. McGeorge. Can Eng 40:304+ Mr 17 '21

United States

- Reclaiming the no-man's-land of America. B. Hall. *il* Sci Am 122:183+ F 21 '20
- Tile drain maintenance and repair on U.S. R. S. projects; abstracts. C. M. Jump and A. R. McGinness. Eng N 85:1146-8 D 9 '20; Eng & Contr 54:560-2 D 8 '20

Wisconsin

- How Wisconsin university assists owners and engineers in land drainage. F. R. Jones. Eng N 84:897 My 6 '20

Drainage, House

- Basis for standards for adoption of plumbing codes. W. C. Groeniger. plan Dom Eng 95:621-3 Je 25 '21
- Draining an isolated house in Scotland. J. Y. Dunlop. *il* diags plans Dom Eng 96:472-3 S 10 '21
- Drainage problems in large buildings. F. R. C. Boyd. Arch Forum 31:211-14 D '19
- English ideas in drain piping. J. Y. Dunlop. *il* diags Metal Work 94:231-3 Ag 20 '20
- Epoch in the evolution of the house drainage system. F. K. Chew. Metal Work 92:430-1 O 10 '19
- More and better sanitary laws, ordinances, rules and supervision essential today. A. Bateman. diags plan Dom Eng 93:611-13 D 25 '20
- New plumbing ordinance for the township of North Bergen, N.J. Dom Eng 94:235-6+, 347-9 Ja 29, F 12 '21
- Preliminary report on the proposed uniform plumbing code for Massachusetts. Dom Eng 92:231-2+, 389-90+ Jl 31, Ag 21 '20
- Sinks for domestic purposes in Great Britain. J. Y. Dunlop. *il* diags Dom Eng 93:404-6 N 27 '20
- Unsealed cellar drains. A. R. McGonegal. Metal Work 93:607+ My 14 '20

See also Plumbing; Sinks

Drainage laws

- Drainage laws of the state of Minnesota. 209p Minnesota Attorney General's office, St Paul

Drapery**Advertising**

- When dealers want the credit for making your goods; Orinoka mills work out way to retain identity. D. MacLean. Ptr Ink 116:107-8+ Ag 4 '21

Draughtsmen. See Draftsmen**Drawbacks**

- Regulation upheld for computing drawback due exporters. Chem & Met Eng 22:1164 Je 23 '20

Drawbridges

- Gasoline motors for bridge motive power. *il* Ry R 68:471 Mr 19 '21
- Old railroad bridge over Thames river converted into highway toll bridge by Connecticut state highway department. *il* Good Roads n s 20:91-2 Ag 25 '20
- Pontoon drawbridge and temporary girder swing-span. diags plans Eng N 85:271-3 Ag 5 '20

Drawbridges—Continued

- Renewing lower chords of a highway draw span under traffic. *il* diags plan Pub Works 49:275-6 S 25 '20
- Short method for swing bridge calculations. C: A. Ellis. diags Eng N 86:981-3 Je 9 '21
- Swingbridge accident of a new kind; repair of damage. *il* diags Eng N 84:829-30 Ap 22 '20
- See also* Bridges, Bascule; Bridges, Lift
- Drawing.** *See* Drafting room practice; Drawings; Mechanical drawing; Pen drawing
- Drawing, Architectural.** *See* Architectural drawing
- Drawing, Mechanical.** *See* Mechanical drawing
- Drawing frames**
- Drawing sliver for good yarns. H. D. Martin. Textile World 58:1681+ S 11 '20
- Drawing instruments**
- Lightening the draftsman's load; labor saving devices. E. S. Van Brunt. *il* Sci Am 125A: 44-5 N '21
- Some useful drawing implements. diags Engineer 130:670 D 31 '20; Same. Eng & Contr 55:298 Mr 30 '21
- Turner protractograph. *il* Am Mach 55:119-20 Jl 21 '21
- Drawing room practice.** *See* Drafting room practice
- Drawings**
- How a blind man makes drawings. W: D. Forbes. *diag* Am Mach 55:284-5 Ag 18 '21
- Techniques of advertising illustration; marvels of the dry-brush and crayon. W. L. Larned. *il* Ptg Art 37:213-21 My '21
- Drawings, Rack for**
- Handy drying rack for small drafting room. H. Jay. diags Am Mach 52:848 Ap 15 '20
- Rack for rolled drawings. M. C. Ross. diags Coal Age 17:258-9 F 5 '20
- Dreams**
- Psychology of the dreamer. Y. Delage. Sci Am M 2:314-17 D '20
- Dredges**
- Clam-shell dredges of large size on the Sacramento. *il* Eng N 86:978-81 Je 9 '21
- Clyde-built dredger Gunga. Engineer 132:75 Jl 15 '21; Engineering 112:151 Jl 22 '21
- Cost of pipe line dredging in open Gulf of Mexico. T. E. L. Lipsey. *il* plan Eng & Contr 54:63-5 Jl 21 '20
- Dredge digs narrow canal. *il* Eng N 86:827 My 12 '21
- Dredges of other days. R. L. Zimpel. *il* Sci Am 122:155+ F 14 '20
- Dredging pump of novel construction. W. J. White. *il* diags Mech Eng 42:1-7+ Ja '20
- Grab dredging plant for the Fen district. *il* diags plans Engineering 109:572-4 Ap 30 '20
- Hopper dredger with discharging conveyor and cranes. *il* *diag* plan Engineer 130:176-7 Ag 20 '20
- Larger ships, deeper harbors, better dredges. A. W. Robinson. Can Eng 39:423-6+ O 14 '20; Same *abr.* Eng & Contr 54:496-8 N 17 '20; Discussion. Can Eng 39:574-5, 600-1, 613-14, 630; 40:109-11, 135-6, 147, 222+, 283-4, 307-9 D 2-23 '20, Ja 6-20, F 17, Mr 10-17 '21; Eng & Contr 55:69-70 Ja 19 '21
- Practical economics of dredge pump design. E. J. Dent. diags Eng N 87:529-30 S 29 '21
- Rope mat reinforcement for rubber dredge sleeves. J. H. Polhemus. *il* diags Eng & Contr 55:399 Ap 20 '21
- Special impellers for pumps in dredging stumpy ground. W. J. White. *il* diags Eng N 85:166-70 Jl 22 '20
- Tests of dredge pump operation for hydraulic fill. I. E. Houk. diags Eng N 86:1034-7 Je 16 '21
- Underwater plow opens shipping channels. P. F. Spitzfaden. *il* Pop Mech 36:199-200 Ag '21
- See also* Excavating machinery

Repair

- Repairing a gold dredge bull gear. C. M. Romanowitz. *il* *diag* Eng & Min J 111:1030-1 Je 18 '21

Transportation

- Moving a dredge on sledges. J. G. Rivers. *il* Eng & Min J 109:1355 Je 19 '20
- Transporting dredging parts by barge and truck. *il* Eng & Min J 110:115 Jl 17 '20
- Dredging**
- Data on shallow dredging. F. P. Williams. *diag* Eng & Contr 55:402 Ap 20 '21
- Dredging engineering. F. L. Simon. 182p McGraw-Hill '20
- Dredging pump of novel construction. W. J. White. *il* diags Mech Eng 42:1-7+ Ja '20
- Economical loading of sea going dredges. G. S. Phelps. Eng & Contr 54:578-9 D 15 '20; Excerpts. Eng N 86:30-1 Ja 6 '21
- Effect of worn runners on dredge pump efficiency. I. E. Houk. *diag* Eng N 86:169-70 Ja 27 '21
- Hydraulic dredge output. C: E. Fowler. Eng & Contr 55:486 My 18 '21
- Hydraulicking equipment and operations on dam construction, Lockington, O. *il* plan Eng & Contr 54:386-7 O 20 '20
- Hydraulicking methods for a million yard fill. *il* diags plans Eng N 85:792-4 O 21 '20
- Immense dredging project of Newark Bay. *il* Pop Mech 36:580-1 O '21
- Improved design for dredge pump sump for hydraulic fill construction. H. S. R. McCurdy. *il* diags Eng & Contr 54:57-9 Jl 21 '20
- Measuring velocity of discharge from hydraulic dredge pipes. P. J. McAuliffe. *il* diags Eng N 85:62-4 Jl 8 '20; Abstract. Eng & Contr 54:396 O 20 '20
- Method of assembling and handling floating pipe lines in dredging Columbia river. R. E. Hickson. *il* plans Eng & Contr 55:391-3 Ap 20 '21
- Siamese dredging record. A. W. Robinson. Eng N 86:1133 Je 30 '21
- Velocity tests in hydraulic dredge pipe. I. E. Houk. diags plan Eng N 86:18-19 Ja 6 '21
- See also* Dredges; Excavation; Gold dredging

Cost

- Cost of dredging in Mississippi river. Eng & Contr 54:74 Jl 21 '20
- Cost of pipe line dredging in open Gulf of Mexico. T. E. L. Lipsey. *il* plan Eng & Contr 54:63-5 Jl 21 '20

Dress goods

- Influences on dress goods market. Textile World 59:1013+ F 5 '21
- Popular classes of dress goods. Textile World 59:3299+ My 14 '21

Dress industries of America, Associated. *See* Associated dress industries of America**Dressler tunnel kiln.** *See* Kilns**Dried food.** *See* Drying (food); Vegetables, Dried**Dried vegetables.** *See* Drying (fruit and vegetables); Vegetables, Dried**Drift**

See also Eskar

Drill steel. *See* Tool steel**Drilling and boring**

- Methods in drilling slate, marble, and glass. C. V. Radley. diags Pop Mech 33:770-3 My '20

Drilling and boring (earth and rocks)

- Advantages of portable over stationary compressors in anthracite rockwork. F. H. Wagner. *il* Coal Age 19:668-9 Ap 14 '21
- Air drill is easily portable and can be operated by one man. *il* Coal Age 19:452 Mr 10 '21
- Applying the blueprint round. C: H. Waters. diags Eng & Min J 109:392-4 F 7 '20
- Boring in Palestine. P. H. Mangin. *il* map Inst Pet Tech J 7:57-74; Discussion. 74-82 Ap '21
- Churn drilling of disseminated copper deposits. E. R. Rice. *il* Eng & Min J 111: 1058-64; 112:11-18 Je 25-Jl 2 '21
- Compressed air in excavating for building foundations. T: A. Baldwin. Eng & Contr 53:286 Mr 17 '20

Drilling and boring (earth and rocks)—Cont.

- Determination of attitude of concealed bedded formations by diamond drilling. W. J. Mead. *il diags Econ Geol* 16:37-47 Ja '21
- Diamond drilling as a means of intensive development. P. S. Couldrey and E. H. S. Sampson. *il Eng & Min J* 110:608-10 S 25 '20
- Drill to lighten work of boring coal, slate and shale. *il Coal Age* 18:541-2 S 9 '20
- Earth auger attached to motor truck speeds hole digging. M. Garlinger. *il Eng N* 86:655 Ap 14 '21
- Earth-boring machine. *il Sci Am* 124:453+ Je 4 '21; *J Elec* 47:353 N 1 '21
- Earth-boring machine for setting poles. *il Eng & Contr* 56:279 S 21 '21
- Improved wedge for deflecting diamond-drills. C. E. Wuensch. *diags Min & Sci P* 120:945-6 Je 26 '20
- Labor and time saved by driving shot holes by power drills. R. S. Marshall. *il Coal Age* 19:787-8 My 5 '21
- Labor-saving machine for boring holes for line construction. *il Ry Age* 69:494 S 17 '20
- Looking ahead with the diamond drill. R. E. Evans. *diag Coal Age* 19:705-7 Ap 21 '21
- Methods of making foundation borings for dam sites. H. W. Mead. *il Eng & Contr* 53:667-8 Je 9 '20
- Old air drill cuts pavements for Los Angeles water-works. C. W. Geiger. *il Eng N* 85:1083 D 2 '20
- Oriental well-drilling rig. E. W. Lane. *il Eng N* 87:682 O 27 '21
- Le procédé de forage à injection d'eau; abstract. C. Finaton. *Génie Civil* 78:467 My 28 '21
- Removal of reefs in the Rio Guadiana. J. S. Owens. *il Engineer* 130:201-2 Ag 27 '20
- Review of drilling. G. J. Young. *Eng & Min J* 112:340-1, 379-80, 420, 461-2, 538-9 Ag 27-S 17, O 1 '21
- Standardized crosscut rounds. H. Drullard. *il diags Eng & Min J* 109:27-31 Ja 3 '20
- Thrust boring in earth. *il diags Engineer* 129:369-71, 376 Ap 9 '20; *Abstracts. Eng & Contr* 53:745-7 Je 30 '20; *Sci Am M* 2:93-4 Jl '20; *Mech Eng* 42:412 Jl '20
- See also Petroleum—Well boring; Rock drills; Shaft sinking

Cost

See also Petroleum—Well boring—Cost

Terminology

- Rock classification from the oil-driller's standpoint. A. Knapp. *Min & Met* 158:(sec 26) 1-6 F '20; Same. *Nat Pet N* 12:71-2 F 18 '20; *Excerpts. Eng & Min J* 109:514-16 F 21 '20

Drilling and boring (metal working, etc.)

- Bench drilling stand makes fast work possible with little effort. *il Coal Age* 18:1238 D 16 '20
- Boring a gas engine cylinder. R. McHenry. *il Am Mach* 55:483 S 22 '21
- Boring and milling transmission housings. F. H. Colvin. *il Am Mach* 52:513-14 Mr 4 '20
- Boring attachment used on an automatic cutting machine. S. H. Carbis. *il diags Am Mach* 55:70-1 Jl 14 '21
- Boring cored holes. H. W. Johnson. *diag Am Mach* 52:738-9 Ap 1 '20
- Continuous production drilling; practice of Baker Bros., Toledo, Ohio. *il diags Mach* 27:131-4 O '20
- Drilling angular holes in tire mold. J. Bainter. *il Am Mach* 53:779 O 21 '20
- Drilling records made at Atlantic City. *Ry Mech Eng* 94:486 Jl '20
- High-speed drilling. *Mach* 26:1169 Ag '20
- Locating work for accurate boring on milling machines. J. Bolkovac. *il diag Mach* 27:373-4 D '20
- Long holes drilled axially parallel. *diag Pop Mech* 36:299 Ag '21
- Manufacture of household appliances. J. V. Hunter. *il Am Mach* 52:1300-2 Je 17 '20
- Multiple drilling in a British automobile works. *il plans Automobile Eng* 11:248-50 Jl '21

- Some experiences in deep-hole drilling. C. J. Starr. *diags Am Mach* 53:1023-6 D 2 '20
- Standard times for jobs on gang drills. H. Newell. *Ind Management* 59:219-21 Mr '20
- Unusual boring job. C. F. George. *diags Mach* 27:786-7 Ap '21
- Unusual methods of securing extreme accuracy. A. L. De Leeuw. *il diags Am Mach* 52:595-9, 937-41, 1049-53 Mr 18, Ap 29, My 13 '20

Drilling and boring machinery

- Attachment for drilling machine. G. F. Bahr. *diag Mach* 27:33 S '20
- Automatic drill-releasing device for barrel drills. J. Finlay. *diags Am Mach* 52:1083 My 20 '20
- Avey automatic drilling machine. *il Mach* 26:569-70 F '20; *Am Mach* 52:316-17 F 5 '20
- Barnes drill co. designs 3-spindle drill with sliding head. *il Iron Tr R* 66:643+ F 26 '20
- Barnes drilling machine with sliding jigs and positive stops for rapid production. *il Mach* 27:40 S '20
- Barnes self-oiling all geared gang drill. *il Ry Mech Eng* 95:406-7 Je '21
- Betts car wheel boring machine. *il Am Mach* 55:362 S 1 '21; *Ry Mech Eng* 95:653 O '21
- Boring machine for crankshaft bearings. E. Gardner. *il Pop Mech* 33:610-12 Ap '20
- Bulard 44-in. maxi-mill. *il diags Ry Mech Eng* 94:412-13 Je '20
- Carlton heavy-duty ball bearing radial drilling machine. J. V. Hunter. *il Am Mach* 54:908-11 My 26 '21
- Carlton radial drilling machine. *il Mach* 27:980-2 Je '21; *Iron Age* 107:1454 Je 2 '21; *Ry Mech Eng* 95:386-7 Je '21
- Centralised control radial drilling machine. *il Engineer* 129:303 Mr 19 '20
- Changes in Detroit semi-automatic five-spindle drilling machine. *il Am Mach* 53:1205 D 23 '20; *Iron Age* 106:1555 D 9 '20; *Iron Tr R* 67:1685 D 16 '20
- Cincinnati boring mills. *il Mach* 26:564-5 F '20; *Iron Age* 105:400 F 5 '20; *Am Mach* 52:582 Mr 11 '20
- Colburn drill presses with electric control. *il Iron Age* 105:1236 Ap 29 '20; *Am Mach* 52:967-8 Ap 29 '20; *Iron Tr R* 66:1274 Ap 29 '20; *Mach* 26:877-8 My '20; *Ry Mech Eng* 94:305 My '20
- Colburn railroad boring mill. *diags Mach* 27:1072-3 Jl '21; *Iron Age* 108:70 Jl 14 '21; *Ry Mech Eng* 95:462-3 Jl '21
- Crank-handle drilling fixture. *diags Mach* 26:382+ D '19
- Crankcase boring fixture with adjustable supports. I. B. Rich. *il diags Am Mach* 53:357 Ag 19 '20
- Cylinder boring, reaming and grinding. F. D. Jones. 110p *Industrial press*, New York '21
- Dauber-Kratsch Wisconsin gang. *il Am Mach* 52:806 Ap 8 '20
- Defiance inverted-spindle drilling machine. J. V. Hunter. *il Am Mach* 54:633-4 Ap 14 '21
- Defiance multiple-spindle drilling and tapping machines. J. V. Hunter. *il Am Mach* 54:1046-9 Je 16 '21
- Designing a special drilling machine. F. E. Johnson. *diags plans Mach* 26:946-52 Je '20
- Edlund sensitive drilling machines. *il Iron Age* 107:628 Mr 10 '21
- Edwin Harrington crankshaft drilling machine. *il Mach* 26:566-7 F '20
- Foote-Burt combination Ford and Fordson cylinder re boring machine. *il Am Mach* 55:568 O 6 '21
- Foote-Burt company's continuous drilling and turning machines. J. V. Hunter. *il Am Mach* 52:165-9 Ja 22 '20
- Foote-Burt way drilling machines. J. V. Hunter. *il diag Am Mach* 52:217-21 Ja 29 '20
- Foote-Burt way drilling machines. J. V. Hunter. *il diag Am Mach* 52:485-7 Mr 4 '20; *Abstract. Mech Eng* 42:237 Ap '20
- Four-cylinder pneumatic drill. *il diags Engineering* 111:253 Mr 4 '21
- Fox multiple drilling machine. *il Mach* 27:990 Je '21

Drilling and boring machinery—Continued

Fox multiple spindle drilling and tapping machine. il Iron Age 106:1732 D 30 '20
 Giddings & Lewis horizontal boring machines. il Iron Age 107:325 F 3 '21
 Heavy-duty boring machine; machining headstock and tailstock castings for ninety-inch driving wheel lathes. il diags Mach 27:259-60 N '20
 Heavy multiple-head drilling machines. il Engineering 111:714, 716 Je 10 '21
 Helix angle of twist drills. B. W. Benedict. il diags Am Mach 53:1175-8 D 23 '20; Abstract. Mech Eng 43:126-7 F '21
 Hoosier drilling machine. il Mach 26:993-4 Je '20; Ry Mech Eng 94:548 Ag '20
 Horizontal boring machines for manufacturing. F. H. Colvin. il diags Am Mach 53:368-70 Ag 19 '20
 Improvised boring mill. il Am Mach 54:1006-7 Je 9 '21
 Ingersoll-Rand close quarter drill. il Ry Mech Eng 94:413-14 Je '20
 Jones no. 3 horizontal boring and drilling machine. il Iron Age 107:1235 My 12 '21
 Kingsbury automatic drilling machine. il diags Mach 27:385-7 D '20; Iron Age 106:1407 N 25 '20
 Langelier automatic machine for drilling lock cylinders. il Iron Age 107:975 Ap 14 '21
 Langelier match plate drilling machine. il Mach 27:995+ Je '21
 Lubrication system for universal boring machine. il Mach 27:88 S '20
 Machine for boring line bearings. J. V. Hunter. il Am Mach 53:162-3 JI 22 '20
 Machine for drilling gear-shift bodies. J. V. Hunter. il Am Mach 53:412 Ag 26 '20
 Machine for multiple drilling and tapping. il Automotive Ind 44:611 Mr 17 '21
 Machines for multiple drilling operations on small parts. il diags Mach 27:690-1 Mr '21
 Making a drill live up to its reputation. H. Wills. il Ry Mech Eng 95:249-50 Ap '21
 Metal cutting tools. A. L. DeLeeuw. diags Am Mach 54:276-80, 360-4, 418-20, 452-5 F 17, Mr 3-17 '21
 Milwaukee horizontal drilling machine. il Mach 26:575 F '20; Am Mach 52:318-19 F 5 '20; Iron Age 105:399 F 5 '20
 Minster no. 12 drilling machine. il Mach 26:994-5 Je '20; Ry Mech Eng 94:611 S '20
 Moline duplex drilling machine. J. V. Hunter. il Am Mach 53:147-9 JI 22 '20
 Morris radial drill. il Ry Mech Eng 94:49-50 Ja '20
 Multiple drilling in automobile plants. il Mach 26:958-63 Je '20
 Multiple-spindle drilling device. A. Ferber. il Am Mach 52:725 Ap 1 '20
 Natco inverted drilling machine. il Mach 26:1187 Ag '20
 New taper-turning head for vertical boring mills. diags Engineer 130:485 N 12 '20
 New 22-in. upright drill by the Production machine tool co. il Iron Age 106:1135 O 28 '20
 Niles-Bement-Pond right-line radial drilling machine. il Am Mach 53:40-1 JI 1 '20; Iron Age 106:8-10 JI 1 '20; Mach 26:1085-8 JI '20; Ry Mech Eng 94:487-9 JI '20; Iron Tr R 67:383-4 Ag 5 '20; Engineering 110:600-1 N 5 '20
 Nut facing fixture for Edlund drilling machine. il Mach 27:816 Ap '21; Iron Age 107:911 Ap 7 '21
 Pawling & Harnischfeger horizontal boring, drilling and milling machines. il Iron Tr R 69:756 S 22 '21; Iron Age 108:729 S 22 '21; Ry Mech Eng 95:657-8 O '21
 Pearson precision spacing and boring machine. il Mach 26:565-6 F '20
 Pecorp high-speed sensitive drilling machines. il Am Mach 54:389 Mr 3 '21
 Pneumatically operated clamps for drilling machines. J. V. Hunter. il Am Mach 54:180-1 F 3 '21
 Powers duplicate-drilling machine. il Mach 27:984 Je '21
 Pulaski vertical boring and turning mills. il Iron Age 107:782 Mr 24 '21
 Radbore square-hole drill. il diags Mach 26:576 F '20; Elec Ry J 55:607 Mr 20 '20; Automotive Ind 42:958 Ap 22 '20

Radbore square hole drilling attachment. il diags Engineering 111:43-4, 46 Ja 14 '21
 Radial drilling machines. il Engineering 110:301-4 S 3 '20
 Recent machine tool developments. J. Horner. diags Engineering 110:169-72; 111:66-9, 382-4; 112:33-6, pl 4-5 Ag 6 '20, Ja 21, Ap 1, JI 8 '21
 Rockford heavy-duty horizontal boring machine. il Am Mach 53:1197-8 D 23 '20
 Ryerson-Conradson radial drilling machine. il Mach 26:774-5 Ap '20; Am Mach 52:749-50 Ap 1 '20; Iron Age 105:891 Mr 25 '20; Ry Mech Eng 94:240-1 Ap '20
 Sellers 35-foot boring mill. il Am Mach 54:1138-9 Je 30 '21; Mach 27:1065-6 JI '21
 Sibley sliding head drilling machine. il Ry Mech Eng 94:173-4 Mr '20
 Silver improved 20-in. drill. il Iron Age 106:773 S 23 '20
 Some experiences in deep-hole drilling. C. J. Starr. diags Am Mach 53:1023-6 D 2 '20
 Special horizontal spindle drilling machine for crank shafts. E. Harrington. il Iron Age 105:601 F 26 '20
 Special machine for drilling and tapping spoke nipples. il Iron Age 108:338 Ag 11 '21
 Special types of drilling machines. F. E. Johnson. diags Mach 26:511-13 F '20
 Supplement to Frederick W. Taylor's On the art of cutting metals. C. G. Barth. il diags Ind Management 60:365-72 N '20
 Tap drill sizes. E. C. Peck and T. F. Githens. diags Am Mach 55:194-6 Ag 4 '21
 Teaching the proper use and care of the twist drill by means of motion pictures. J. V. Hunter. il Am Mach 53:11-13 JI 1 '20
 Tool for drilling a spherical hole. P. Rouquet. diags Mach 26:457-8 Ja '20
 Tools for boring and turning locomotive tires. F. H. Colvin. diags Am Mach 55:218-20 Ag 11 '21
 21-in. heavy duty upright drill press. il Iron Age 107:1164 My 5 '21
 Twist-drill point sharpening and thinning machine. il Engineer 130:237 S 3 '20
 Twist drill sharpening and thinning machine. il plan Engineer 131:674-5 Je 24 '21
 Two horizontal boring machines designed by the Moline machinery co. il Iron Age 105:680 Mr 4 '20
 Use and abuse of twist drills. H. Wills. il diags Iron Age 106:461-3 Ag 19 '20
 Vertical turret machine and its work. F. R. Daniels. il diags Mach 26:398-403 Ja '20
 Webster & Bennett duplex boring and turning mills. il Mach 27:1067-8 JI '21; Iron Age 108:84 JI 14 '21
 See also Boring-bars; Broaches; Jigs; Locating machines; Machine tools; Reamers

Manufacture

Machining car-wheel borer frames. il diag Mach 27:456-7 Ja '21
 Making forged high-speed twist drills. J. V. Hunter. il Am Mach 52:719-22 Ap 1 '20
Drilling and boring machinery, Portable
 Application and maintenance of portable electric drills. il Elec R 78:714-16 Ap 30 '21
 Cylinders rebored by portable appliance. il Pop Mech 34:63 JI '20
 Desoutter pneumatic hand drill. il Ry Mech Eng 94:556-7 Ag '20
 How portable electric drills may best be used and cared for. E. L. Connell. il Coal Age 19:818-21 My 5 '21
 Maintenance of portable electric drills. E. L. Connell. Elec Ry J 57:544 Mr 19 '21
 Obtaining good performance from electric drills. E. L. Connell. Elec W 77:1001 Ap 30 '21
 Operating and maintaining portable electric drills. E. L. Connell. Elec W 77:1109 My 14 '21
 Portable drilling machine is adjustable to work. il Pop Mech 36:535 O '21
 Portable electric reboring machinery. C. W. Geiger. il Am Mach 53:325 Ag 12 '20
 Post designed to permit portable electric drill to be used as a drill press. il Coal Age 19:497 Mr 17 '21

Drills. See Drilling and boring machinery

Drinker, Henry Sturgis

Honorary membership in the American institute of mining and metallurgical engineers. *por Min & Met* 170:14 F '21

Drinking fountains

Cost of icing drinking fountains. *Eng & Contr* 55:372 Ap 13 '21

Drinking fountains and the opportunity they bring. D. H. Bowlzer. *il Dom Eng* 90:61 Ja 10 '20

Final report of the committee on sanitary drinking fountains of the Iowa section of the American water works association. *bibliog Am Water Works Assn J* 7:33-40 Ja '20

Installation of drinking fountains. *diags Dom Eng* 93:105-6 O 16 '20

North pole sanitary drinking fountains. *Ry Mech Eng* 94:549-50 Ag '20; Same. *Ry Age* 69:1173-4 D 31 '20

Driveways

Automobile and the private estate. T. S. Rogers. *diags Arch Forum* 32:113-16, 253-4+; 33:23-5, 69-72 Mr, Je-Ag '20

How to estimate driveways, terraces and seeding. L. S. Keir. *il diags Bldg Age* 43:34-5 S '21

Park roads and private estate driveways. J. B. Elliott. *il Good Roads n s* 20:165-6 O 6 '20

Driving boxes. See Locomotives—Driving boxes

Drop forge association, American. See American drop forge association

Drops

Bubbles, drops and grains. W. D. Bancroft. *Sci Am M* 1:366-9 Ap '20

Drug manufacturers' association, American. See American drug manufacturers' association

Drug trade

American drug manufacturers' association, 10th annual meeting, New York. *Oil Paint & Drug Rep* 99:26-7+ sec 1 Ap 18 '21

American method of expansion in foreign trade. *Ptr Ink* 112:169-70+ Ag 5 '20

Building public appreciation for the retail dealer. J. W. Johnson. *Ptr Ink* 117:3-4+ O 20 '21

Creating toilet preparations to sell big drug line. E. T. Tandy. *Ptr Ink* 115:33-4+ My 26 '21

Crude botanical drug industry. 69p U.S. Tariff commission '20

Drug chain concentrates prescription business in centrally located stores. *Ptr Ink* 111:125+ Je 3 '20

47th annual convention of the N.W.D.A., Atlantic City, Sept. 26-29. *Oil Paint & Drug Rep* 100:3+ O 4 '21

How we keep our sales volume growing. L. K. Liggett. *il System* 39:355-9+ Mr '21

Motor drug stores serve rural trade. *il Good Roads n s* 21:197-8 Ap 6 '21

New Rockefeller and Whelan drug chains worry manufacturers. *Ptr Ink* 110:65-6 Ja 8 '20

Le perfectionnement des employés de la droguerie. E. Perrot. *Chimie & Ind* 5:85-7 Ja '21

Report of special committee of N.W.D.A. on merchandising instruction for retail druggists. *Oil Paint & Drug Rep* 100:36 O 4 '21

See also Drugs—Prices; Liggett drug stores; also American druggists syndicate

Accounting

Report of special committee of N.W.D.A. on universal accounting. *Oil Paint & Drug Rep* 100:27-9 O 4 '21

Advertising

Advertising to physicians—a consumer market for medicinal agents. H. B. Mason. *Ptr Ink* 112:73-4+ Jl 22 '20

San-tox selects trade-mark which permits constant addition to line. *Ptr Ink* 111:41-4 My 27 '20

Drugs

Drugs in commerce; their source, preparation for the market, and description. J: Humphrey. 116p Pitman

New fields by phytochemical research opened up by the cultivation of medicinal plants on an economic scale. E: Kremers. *J Ind & Eng Chem* 12:1018-20 O '20

Popular names of crude drugs. A. Viehovever. *J Fr Inst* 190:734-5 N '20

See also Chemistry, Medical and pharmaceutical; Drug trade; Narcotics; Pharmacy

Analysis

Analysis of drugs and medicines. H: C. Fuller. 1072p Wiley '20

Microanalysis of powdered vegetable drugs. A. Schneider. 2d ed. 548p P. Blakiston's son & co., Philadelphia '21

Studies in synthetic drug analysis; estimation of salicylates and phenol. W. O. Emery. *J Ind & Eng Chem* 13:538-9 Je '21

Laws and legislation

American drug manufacturers' association, 10th annual meeting, New York. *Oil Paint & Drug Rep* 99:26-7+ sec 1 Ap 18 '21

Narcotic law rules modified. *Oil Paint & Drug Rep* 100:24 sec 1 Ag 8 '21

Report of the committee of N.W.D.A. on legislation. *Oil Paint & Drug Rep* 100:37-40 O 4 '21

Standard pharmaceuticals held free from war revenue sales tax. *Oil Paint & Drug Rep* 99:27 sec 1 Ap 25 '21

Manufacture

Art of the apothecary; its ancient origin and modern development in France. J. Boyer. *il Sci Am M* 1:159-64 F '20

Prices

Drug markets. See weekly numbers of Oil paint and drug reporter

Standards

Report of committee of N.W.D.A. on quality of medicinal products. *Oil Paint & Drug Rep* 100:31-3 O 4 '21

Dry cells. See Electric batteries

Dry docks

Canadian government dry dock being built at Esquimalt. J. B. Hunter. *diag Eng N* 86:670 Ap 21 '21

Commonwealth dry dock at Boston. *il Int Marine Eng* 25:433-6 My '20

Design new type of dock. *il Marine R* 50:669 D '20

Details of construction of large drydock at Boston. H. R. Simonds. *il diag Marine R* 50:571-2 O '20

Electric motors and control for dry docks. L. F. Adams. *il Gen Elec R* 24:237-9 Mr '21

Federal shipyard takes up ship repairing. *il diags Marine Eng* 26:834-7 N '21

Floating dry dock for testing submarines; abstracts. von Klitzing. *diags Engineering* 111:242-4 F 25 '21; *Marine Eng* 26:440-1 Je '21; (Le dock flottant de la marine allemande, pour l'épreuve des sous-marins à la pression hydraulique). *Génie Civil* 78:44 Ja 8 '21

Gas-engine-driven pumping plant at the Tilbury docks. *il diags Engineering* 110:532-4 O 22 '20

Lake system of dry docks. J: Lake. *Int Marine Eng* 25:147 F '20

Morse dry dock and repair plant. *il Int Marine Eng* 24:781-92 D '19

Motors for operating floating dry docks. W: H. Easton. *il Marine Eng* 25:794-7 O '20

Neat problem in hydraulics. J. F. Springer. *il Sci Am* 123:198+ Ag 28 '20

New docking facilities at San Francisco plant of Bethlehem shipbuilding corporation. *Int Marine Eng* 25:751 S '20

New dry dock at Gothenburg. *diag Marine Eng* 26:445 Je '21

New drydock has lifting capacity of 12,500 tons. *Pop Mech* 35:850-1 Je '21

Dry docks—Continued

- New floating dry dock at Pensacola. il diags plan Marine Eng 26:329-31 Ap '21
- New floating dry dock built at Mobile. il diags map plan Int Marine Eng 25:214-18 Mr '20
- New graving docks at Portsmouth, Va. H. S. Taft. il Int Marine Eng 25:647-50 Ag '20
- New York harbor dry dock corporation's plant. diag plan Pub Works 50:141-3, 163-5 F 12-19 '21
- Pearl harbor dry dock pump well large precast unit. R. W. Gaylord. il diags plan Eng N 83:861-4 N 13 '19
- Pensacola to have large drydock. il Marine R 50:90-1 F '20
- Pumping plant of new Hunter's Point drydock. C. W. Geiger. il diags plans Power Pl Eng 25:151-6 F 1 '21
- Railway dry docks at the Moore shipyard. il diags plans Marine Eng 26:758-61 O '21
- Sectional floating drydock made continuous by interlocks. il diags plans Eng N 85:109-11 Jl 15 '20
- 6,000-ton floating dry dock at Sparrow's Point. il Marine Eng 26:603-4 Ag '21
- Sixty-year-old floating dry dock. P. H. Macneil. il diags plan Int Marine Eng 25:178-80 Mr '20
- Soft ground complicates dry-dock construction. C. A. Lee. il diags plans Eng N 84:748-52 Ap 15 '20
- Structural design of caisson gates for dry docks. E. E. Halmos. diag Eng N 84:89-91 Ja 8 '20
- Winnisimmet ship repair plant. E. P. B. Rankin. il Int Marine Eng 25:594-6 Jl '20
- Wooden dry dock in six sections. il Sci Am 122:308 Mr 20 '20
- Wooden sectional floating dry docks. C. E. Petersen. Int Marine Eng 25:211-12 Mr '20
- World's dry docking record. il Int Marine Eng 25:176-7 Mr '20

See also Ship railroads

Dry farming

- Aridity as an asset in agriculture. Sci Am 123:607 D 18 '20

Dry goods

- More care in buying instead of don't buy now. Ptr Ink 110:80, 85-8 Ja 1 '20
- See also Department stores; Dress goods; Hosiery; Knit goods; Textile fabrics; Underwear*

Directories

- Directory of retailers; dry goods department stores. Ben Wiener co., New York '21

Prices

- Retail prices of dry goods in the United States. Published in April, July, October, and December issues of Monthly labor review

Dry kilns. See Kilns**Dry rot**

- Decay of timber in return air courses. D. Harrington. il diag Eng & Min J 112:565-9 O 8 '21
- Lumber trade loses good customers—who is to blame? R. J. Blair. il Am Lumberman 2339: 60-1 Mr 13 '20
- Timber floor rapidly destroyed by dry rot. W. F. Smith. il Eng N 86:390 Mr 3 '21
- What is dry rot? Eng & Contr 53:706 Je 23 '20; Same. Sci Am 123:573 D 4 '20

Drying

- Application of gas to drying. H. M. Crawford. il diags Am Gas Assn Commercial sec v 2:218-27 '20
- Contribution to the theory of drying. E. Hoehn. Mech Eng 42:169-71 Mr '20
- Drying as an air conditioning problem. A. W. Lissauer. Am Soc Heat & V E J 27:365-74 My '21; Discussion. 27:594-7 Jl '21
- Drying by electrically-superheated steam. J. Karrer. Engineering 110:821-2 D 17 '20
- Drying fine concentrates. Eng & Min J 111: 909 My 28 '21

- Drying out a generator, switchboard and motors after a flood. K. A. Reed. il diag Power 51:250-1 F 17 '20
- Evaporating and drying symposium. diags plan Chem & Met Eng 25:588-90 S 28 '21
- Factors involved in drying operations. E. A. Alliot. Chem & Met Eng 21:620-3 N 12 '19
- Grosvenor process for hardening siccative coatings held invention. W. Gustin. Chem & Met Eng 24:1018 Je 8 '21
- How electrical apparatus was restored after being deeply submerged. E. J. Gealy. il Coal Age 18:540-1 S 9 '20
- Information about drying room for tailor shop. diags Dom Eng 95:265-6 My 7 '21
- Rate of drying of solid materials. W. K. Lewis. J Ind & Eng Chem 13:427-32 My '21; Abstract. Chem & Met Eng 24:827 My 11 '21
- Spray process of drying. R. S. Fleming. J Ind & Eng Chem 13:447-9 My '21
- Variable speed motor in finishing. W. B. Lewis. diags Textile World 60:681+ Jl 30 '21; Same cond. Mech Eng 43:590-1 S '21
- See also Coal drying; Dehydration; Drying apparatus; Electric motors—Drying; Lumber drying; Paper drying; Sand drying*

Drying (food)

- Commercial dehydration. J. E. Whitley. il diag Am Soc Heat & V E J 26:341-52 Ap '20; Discussion. 26:567-8 Jl '20
- Dehydrating foods, fruits, vegetables, fish and meats. A. L. Andrea. 206p The Cornhill company, Boston '20
- Dehydration. R. H. McKee. Am Soc Heat & V E J 26:155-9 Mr '20
- Fish, fruit, and vegetables dried by heated air in conveying apparatus. il Pop Mech 36:422-3 S '21
- New method of dehydrating food. J Fr Inst 189:120-1 Ja '20

Drying (fruit and vegetables)

- Dehydrating costs reduced by new machine. il Pop Mech 35:259 F '21
- Drying of fruits and vegetables. R. Powers. Am Soc Heat & V E J 27:511-15 Jl '21; Discussion. 27:515-18, 713-14 Jl, O '21
- Fish, fruit, and vegetables dried by heated air in conveying apparatus. il Pop Mech 36:422-3 S '21
- Methods of preparing vegetables for dehydration. P. F. Nichols and C. R. Gross. il Chem Age 29:139-41 Ap '21
- Present status of fruit and vegetable dehydration. W. V. Cruess. il Chem & Met Eng 24:781-5 My 4 '21
- Progress in the dehydration industry. C. E. Mangels. Am Soc Heat & V E J 26:149-54 Mr '20

See also Potato drying

Drying apparatus

- Artificial versus natural means of drying paint and varnish. R. E. Lippert. il diags Soc Auto Eng J 9:335-40; Discussion. 340-3 N '21
- Chronological survey of drying and dryers. J. E. Bolling. diags Am Soc Heat & V E J 27:715-38 O '21
- Compartment dryer. W. H. Carrier and A. E. Stacy, jr. diags plans J Ind & Eng Chem 13:438-47 My '21
- Details of a drying cabinet used in drying argole. il Sheet Metal Worker 12:261 My 13 '21
- Direct heat rotary drying apparatus. R. G. Merz. J Ind & Eng Chem 13:449-52 My '21
- Drier unit patented by John E. Alexander. diag Paper 26:29 Jl 21 '20
- Dryers and kilns for industrial processes. C. L. Hubbard. diags Dom Eng 90:173-5, 272-4 Ja 24-F 7 '20
- Drying machinery used in dyestuff manufacture. J. F. Springer. il diags Color Tr J 8:43-7, 132-5; 9:17-19 F, Ap, Jl '21
- Forced steam circulation and closed loop boiler feeding system for paper mills. diags Dom Eng 89:637-8 D 27 '19; Same. Heat & Ven 17:59-61 F '20; Same. Paper 26:24-5 Mr 17 '20; Abstract. Power 51:266 F 17 '20
- Gas fired drying apparatus. J. F. Springer. Gas Age 47:318-21 Ap 25 '21

Drying apparatus—Continued

- Material in drying machine turns in heated drum. *il Pop Mech* 33:40 Ja '20
- Ozone in the chemical industries. C. H. Jones. *diags Chem & Met Eng* 22:807-8 Ap 27 '20
- Paper dryers. F. C. Farnsworth. *diags Paper* 26:301-2 Ap 21 '20
- Portable electric drier for drying-kiln samples. *diag Elec R* 78:770 My 14 '21
- Regulation of reducing valves to obtain uniform drying. *diags Paper* 26:13-14 Je 9 '20
- Successful operation of waste heat dryer. J. H. Kruson. *Brick & Clay Rec* 59:266-8 Ag 23 '21
- Theory of atmospheric evaporation—with special reference to compartment dryers. W. H. Carrier. *chart J Ind & Eng Chem* 13:432-8 My '21
- Tunnel dryers. G. B. Ridley. *J Ind & Eng Chem* 13:453-60 My '21
- Vacuum drying. C. O. Lavett and D. J. Van-Marle. *il diags J Ind & Eng Chem* 13:600-5 Jl '21
- See also* Centrifugal machines; Dehydration, Electric; Evaporators; Kilns; Paper drying; Sand drying

Textiles

- Drying woolen and worsted fabrics. E. H. Hinckley. *diags Textile World* 58:2991+ O 30 '20
- Hydraulic testing of drying cylinders. *Eng & Ind Management* 6:328-9 S 22 '21
- Hydro-extraction and drying of textiles. J. F. Springer. *il diags Color Tr J* 7:51-5, 92-7, 111-15 Ag-O '20
- Hydro-extractor of large capacity. *il Textile World* 60:1223 Ag 27 '21
- Knit cloth dryer. *il Textile World* 57:1263 F 7 '20

Drying oils. *See* Linseed oil

Drying rooms, Foundry. *See* Foundries—Drying rooms

Dubuque, Iowa

Rapid transit

- City council of Dubuque will consider new franchise. *Elec Ry J* 58:661 O 8 '21
- Whole city walks to work. *Elec Ry J* 55:824 Ap 17 '20

Ductility

- Ductility testing machines. T. Y. Olsen. *il Am Soc T M Pro v* 20 pt 2:398-403; Discussion. 404-7 '20

Ducts. *See* Air pipes

Dulcin

- Determining the degree of sweetness in artificial sweeteners. R. Pauli. *Sci Am M* 3: 174 F '21

Dumbwaiters

- How dumbwaiters should be installed. *diag plans Bldg Age* 43:34 Jl '21

Dummies (printing)

- Rough layout. J. G. Holman. *Inland Ptr* 64: 589-91 F '20
- Status of the dummy. A. E. Price. *Inland Ptr* 68:45-6 O '21

Dump cars

- Air-dump cars carry to storage pile small coal for which Old Ben coal corporation has no market. *il Coal Age* 20:609-10 O 13 '21
- Dump cars and dump wagons as aids in coal stripping. *il Coal Age* 17:912-13 My 6 '20
- Economic disposal of waste material by dump cars. H. L. Beach. *Eng & Contr* 53:194 F 18 '20
- Fifty-ton side-dump cars lighten labor at mines but might have wider use. *il Coal Age* 19:816-18 My 5 '21
- Highway constructors supply cars to railroads for hauling stone. *il Ry Age* 70:335-6 F 4 '21
- Large dump cars for use in the absolute-removal system of stripping overburden from coal. *il Coal Age* 19:1117-18 Je 23 '21
- One way to save cars. *il Ry Age* 69:807-8 N 5 '20
- Road gravel hauled 170 miles by rail in side dump cars. *il Eng & Contr* 55:18 Ja 5 '21

Solid-car crossover dump which clamps on wheels; loaded car returns empty to original position. *il diag plan Coal Age* 20:137-9 Jl 28 '21

Solid cars at strip pit combine stability, strength and dumpability. D. J. Baker. *il Coal Age* 18:623-8 S 23 '20

Wellman-Seaver-Morgan company railway car-dumper. *il Min & Sci P* 120:473 Mr 27 '20

Dump fires

Fighting a dump fire with gunite and carbon dioxide. A. F. Brosky. *Coal Age* 20:256-7 Ag 18 '21

Dumping (commercial policy)

- Anti-dumping amendment. *Aviation* 10:654-5 My 23 '21
- Anti-dumping bill. *Textile World* 57:2803+ Ap 17 '20
- British tariff vs. protection problem not solved. *Am Ind* 20:37-8 Ap '20
- German views on dumping. *Engineer* 131:292 Mr 18 '21
- Large subsidies by German government. L. W. Moffett. *Iron Age* 107:1243-4 My 12 '21
- N.A.D.A. strongly protests dumping. *Automotive Ind* 44:775+ Ap 7 '21
- Our neighbor's surplus. *Nation's Business* 8: 27 F '20
- To prevent dumping. *Nation's Business* 9: 18-19 Jl '21

Dumping appliances

- Babcock and Wilcox's rotary tippler with coal truck. G. F. Zimmer. *il diags Eng & Ind Management* 5:366-8 Mr 24 '21
- Big spoil dump to cover 200 acres maximum depth of 60 feet; Queenstown-Chippawa canal. *il Eng N* 84:42-3 Ja 1 '20
- Bucket-dumping device for use on an incline. J. B. Harper. *il diags Eng & Min J* 110:867 O 30 '20
- Car dumpers for quick unloading at grain elevator. *il diag Eng N* 86:508-9 Mr 24 '21
- Cars without end gates can now be used on self-dumping cages. A. M. Simpson. *il diags Coal Age* 18:283-5 Ag 5 '20
- Dumping boiler fuel into coal bunkers. E. H. Weitzel. *diags Coal Age* 17:51 Ja 8 '20
- Electrically operated grain car unloaders. R. T. Kintzing. *il Elec J* 18:301-4 Jl '21
- Linn mine-car dump is largest in the world. R. W. Mayer. *il Coal Age* 17:1085-8 My 27 '20
- Method of dumping mine rock by a self-tripping and self-closing bucket traveling on a ropeway. *diags Coal Age* 19:1116-17 Je 23 '21
- Method of dumping rock lightens labor and meets labor shortage. D. C. Ashmead. *il Coal Age* 18:230-2 Jl 29 '20
- Refuse-stacking car, making pile sixty feet wide, much reduces labor of dumping and track shifting. A. F. Brosky. *il diag Coal Age* 20:591-3 O 13 '21
- Rock larries build their own dumps and provide economical disposal. D. C. Ashmead. *il diags Coal Age* 19:813-14 My 5 '21
- Rollsright car tipple. *il diag Eng & Ind Management* 6:333-4 S 22 '21
- Rollsright car tipple. A. G. Reese. *il Min & Sci P* 122:895 Je 25 '21
- Rotary car dump that operates solely by gravity. *il Coal Age* 19:1074-6 Je 16 '21
- Rotary mine-car dumpers. S. Smillie. *il Coal Age* 17:260-3 F 5 '20
- Skip dumping at different levels in inclined shafts. G. J. Young. *il Eng & Min J* 111: 312 F 12 '21
- Truck bodies for New York highway construction. *il diags Concrete* 18:254 My '21
- Woodward automatic ore-dumping apparatus. *il Eng & Min J* 109:562 F 28 '20
- See also* Dump cars

Dunlap, John R., 1857-

Portrait. *Ind Management* 61:278 Ap 1 '21

Dunlop tire and rubber goods company, Toronto

Extension to Dunlop tire co.'s plant. *il diags plans Can Eng* 40:259-63 Mr 3 '21

Dunn, Gano, 1870-

Portrait. *Elec W* 76:1056 N 27 '20

- Dunning, N. Max**
Work of N. Max Dunning. il plans Am Arch 119:111-16, 122a-g, 176a-f F 2, 16 '21
- Duplication of cube.** See Cube, Duplication of
- Du Pont de Nemours, E. I., and company**
E. I. Du Pont de Nemours & company, inc.; annual report, 1919. Comm & Fin Chr 110: 984-6 Mr 6 '20
Main holdings of E. I. du Pont de Nemours & co.; chart. Automotive Ind 44:196 Ja 27 '21
- Duquesne light company**
Abstract of statement on the listing of its six per cent first mortgage and collateral trust thirty-year bonds. Comm & Fin Chr 112: 662-4 F 12 '21
Power station of the Duquesne light company. J. M. Graves. il diags plan Elec J 18:193-210 My '21
Transmission ring of the Duquesne light company. E. C. Stone. il diags map plan Elec J 18:211-19 My '21
- Duralumin**
Duralumin. E. Unger and E. Schmidt. diags Aerial Age 11:772-4 Ag 16 '20; Same. Aviation 9:49-52 Ag 15 '20; Same. Am Mach 53:803-6 O 28 '20; Same. Soc Auto Eng J 7: 359-62 O '20; Same, without tables. Mach 27:337 D '20
Duralumin for gears. R. W. Daniels. Iron Age 108:1020-1 O 20 '21
Duralumin: its properties and commercial possibilities; abstracts. W. B. Stout. Aerial Age 14:105-6 O 10 '21; Automotive Ind 45: 659-60 O 6 '21; Aviation 11:455-6 O 17 '21
Hardness of certain aluminum alloys. R. E. Search. il Metal Ind 18:403-5 S '20
Heat treatment of duralumin. P. D. Merica, R. G. Waltenberg and H. Scott. il diags U S Bur Stand Sci Pa 347:271-316 '19
New alloy for railway use. Elec Ry J 55:821 Ap 17 '20
Ship interference theory of the hardening of metals. Z. Jeffries and R. S. Archer. il diags Chem & Met Eng 24:1060-4 Je 15 '21
- Durango, Mexico**
Mineral resources of Durango. M. Rangel and A. Terrones. il map Eng & Min J 112:168-74 Jl 30 '21
- Duraplates**
Duraplate—a new printing plate process. S. H. Horgan. Inland Ptr 65:744 S '20
- Durham hosiery mills, inc., Durham, North Carolina**
Annual report. Comm & Fin Chr 110:1542 Ap 10 '20
Durham hosiery mills' new building completed. il Textile World 60:1497 S 10 '21
- Duriron**
Batting average of 999.9 made in war, continued in peace. il Plumber 94:459-61 O 22 '20
- Dust**
Comparative tests of air dustiness with the dust counter, konimeter and sugar tube. S. H. Katz and L. J. Trostel. il chart diags Am Soc Heat & V E J 27:519-27; Discussion. 527-8 Jl '21
Dust determinations in air and gases. E. R. Knowles. il diags Am Soc Heat & V E 25:101-32 '19
Dust of the upper air; abstract. J. W. Redway. Sci Am M 4:176 Ag '21
Efficiency of the Palmer apparatus for determining dust in air. S. H. Katz, E. S. Longfellow and A. C. Fieldner. il diags Am Soc Heat & V E J 26:687-700 N '20; Excerpt. Heat & Ven 18:53 Je '21
Efficiency of the sugar-tube method for determining dust in air. A. C. Fieldner, S. H. Katz and E. S. Longfellow. il diag Am Soc Heat & V E J 27:119-23 Mr '21
Estimation of toxic water soluble dust with the Palmer apparatus. M. S. Iszard. bibliog J Ind Hygiene 2:344-7 Ja '21
Further studies in methods of dust determination. E. V. Hill and O. W. Armspach. il Am Soc Heat & V E 25:289-302; Discussion. 302-4 '19
Incandescent lamps used in dust-laden atmosphere. D. J. Price and H. R. Brown. diags Elec R 79:165-6 Jl 30 '21
Industrial tuberculosis and the control of the factory dust problem. C.-E. A. Winslow and L. Greenburg. bibliog J Ind Hygiene 2:333-43, 378-95 Ja-F '21
Lighting for dusty places. C. L. Dows, E. B. Fox and W. P. Blackwell. Elec W 77:191-2 Ja 22 '21; Discussion. T. H. Arnold. 77: 768 Ap 2 '21
Method for determining the finer dust particles in air. A. L. Meyer. bibliog diags J Ind Hygiene 3:51-6 Je '21
Practical hygienic efficiency of the Palmer apparatus for determining dust in air. H. F. Smyth and M. Iszard. bibliog J Ind Hygiene 3:159-67 S '21
Recent experiments in the control of air dustiness; abstract. O. M. Spencer. J Ind Hygiene 3:sup50-2 Jl '21
Study of pulmonary silicosis. E. L. Middleton. bibliog J Ind Hygiene 2:433-49 Mr '21
Theory of dust action. O. W. Armspach. chart Am Soc Heat & V E J 26:819-29 D '20; Abstract. Mech Eng 43:130-1 F '21; Discussion. Am Soc Heat & V E J 27:224-7 Mr '21
Thermal filters. W. D. Bancroft. J Phys Chem 24:421-36 Je '20
See also Coal dust; Dust removal; Flue dust; Mine dust; Street cleaning
- Dust collectors.** See Dust removal
- Dust explosions**
Causes and occurrence of dust explosions. Iron Age 108:240-1 Jl 28 '21
Disastrous explosion of aluminum dust. D. J. Price. il diags plans Chem & Met Eng 23: 915-19 N 10 '20
Dust—an industrial criminal. C. L. Alsberg. Nation's Business 8:44 D '20
Dust explosion at large Chicago grain elevator. il plan Eng N 86:560-2 Mr 31 '21; Ry R 68:494-5 Mr 26 '21; Ry Age 70:847-8 Ap 1 '21; Pop Mech 35:662-3 My '21; Concrete 18:217-18 My '21; Engineer 131:624 Je 10 '21
Dust explosions. R. B. Chandler. il Can Eng 38:107-8 Ja 1 '20
Dust explosions. D. J. Price. W Soc E J 26:sup99-104 My '21
Dust explosions; cause, effect and prevention. D. J. Price. il Eng N 86:634-6 Ap 14 '21
Dust explosions—precautions for prevention. Chem Age 29:289-90 Jl '21
Engineering problems in dust explosion prevention. D. J. Price. il Chem & Met Eng 24:29-32 Ja 5 '21; Same. Sci Am M 3:239-42 Mr '21
Explosion of hard rubber dust. D. J. Price and H. R. Brown. il diags Chem & Met Eng 24:737-40 Ap 27 '21; Excerpt. Sci Am M 4: 66 Jl '21; Excerpts. India Rubber W 64: 805-6 Ag '21
Explosions causées par les poussières de sucre. Génie Civil 78:71 Ja 15 '21
Havoc wrought by dust explosions. il Am Mach 54:624f Ap 7 '21
Prevention of dust explosions. H. R. Brown. il Am Ind 21:27-9 Ja '21
Relation of plant design to dust explosions. D. J. Price and H. H. Brown. il Can Eng 40:247-51 F 24 '21
Some electrical causes of dust explosions. D. J. Price. il diags Elec R 78:179-81 Ja 29 '21; Same. J Elec 46:240-2 Mr 1 '21
Some methods of prevention of dust explosions. D. J. Price. il diag Chem & Met Eng 24:473-5 Mr 16 '21
Use of inert gas for the prevention of explosions. E. F. White. il diag Chem & Met Eng 25:513-15 S 14 '21
See also Aluminum dust; Coal dust
- Dust figures**
Mode of formation of dust figures on walls and ceilings. C. B. Bazzoni. J Fr Inst 189: 499-506 Ap '20

Dust removal

Advantages of an effective dust removal system. *il Elec R* 79:711 N 5 '21

Anordnung und bemessung von entstaubungsanlagen für gussputzereien. W. Kaempfer. *diags Stahl & Eisen* 41:110-13 Ja 27 '21

Blower connection for sand paper machine. *diags Metal Work* 93:323-5 Mr 12 '20

Dividends from collecting dust. *il Factory* 26:608-12 Mr 1 '21

Dust collector capacity insufficient. *diags Metal Work* 94:319 S 3 '20

Dust removal equipment. R. Grierson. *Elec R (Lond)* 89:340 S 9 '21

Dust removal system. *diag plan Sheet Metal Worker* 12:263-4 My 13 '21

Exhaust systems for removal of dust and fumes from workrooms. *diags Power Pl Eng* 25:724-5 Jl 15 '21

Laying the dust with fog; the nebulizer—device for artificially producing mist. D. McClure. *il diags Sci Am M* 3:419-20 My '21

Pneumatic systems for removal of dust. F. C. Allen, jr. *Safety Eng* 41:226-8 My '21

Points on designing blow pipe systems. *il diags plans Sheet Metal Worker* 12:567-9 S 16 '21

Producer gas dust arrester. W. H. Spear. *diags Gas Age* 47:187-9 Mr 10 '21

Sly dust arrester for filtering purposes. *Elec R* 79:290 Ag 20 '21

Standards for measuring the efficiency of exhaust systems in polishing shops. C. E. A. Winslow, L. Greenburg and H. C. Angermeyer. *diags Am Soc Heat & V E J* 26:supXX-XL S '20

See also Pneumatic conveying; Vacuum cleaning

Dusting machines. *See* Spraying and dusting

Dutch architecture. *See* Architecture, Dutch

Dutch East Indies

American capital for the Dutch East Indies. *Am Ind* 20:31-2 Jl '20

See also Mines and mineral resources—Dutch East Indies; Rubber industry—Dutch East Indies

Commerce

Dutch East Indian standpoint. *Am Ind* 21:33 D '20

Duxbak

Building a national business out of a local need; Duxbak togs. E. T. Tandy. *Ptr Ink* 116:61-2+ Ag 4 '21

Duxbury, Massachusetts**Alden house**

Alden house at Duxbury. S. Baxter. *il plan Arch Rec* 49:398-407 My '21

Dwarfs

New points about pigmies. *Sci Am M* 4:207 S '21

Dwellings. *See* Architecture, Domestic; Bungalows; Concrete houses; Cottages; Housing problem; Housing projects

Dwight, Arthur Smith, 1864-

Metallurgical engineers of note. *por Eng & Min J* 112:178 Jl 30 '21

Dyckman house, New York

Dyckman house, New York. *il Am Arch* 118:534-a O 27 '20

Dye analysis

Analysis of catechu and gambier. R. Sansone. *Color Tr J* 6:78-9 Mr '20

Detection and estimation of yellow AB and yellow OB in mixtures. W. E. Mathewson. *J Ind & Eng Chem* 12:883-7 S '20

Determination of insoluble matter in basic dyestuffs. C. P. Harris. *diag plan Color Tr J* 9:158-9 O '21

Determination of the constitution of coloured substances from their absorption spectra; abstract. F. Kehrmann and M. Sandoz. *Chem Soc J* 120 pt 1:276-9 Ap '21

Estimation of aniline in commercial anilines. J. W. Sanderson and W. J. Jones. *Color Tr J* 6:100 Mr '20

Dye bases

Dye bases and dyewoods. *See* weekly numbers of Oil paint and drug reporter

Dye factories

Art and the dyestuff factory. J. M. Matthews. *il Color Tr J* 8:36-7 F '21

Hygienic control of the anilin dye industry in Europe. A. Hamilton. *Monthly Labor R* 9:1665-85 D '19; Abstract. *J Ind & Eng Chem* 12:393 Ap '20

New plant of Atlantic dyestuff company. *plan Chem Age* 29:172 My '21

Accidents

Dangers in the dyestuff industry. L. C. Cone. *Chem & Met Eng* 22:33-5 Ja 7 '20

Equipment

Drying machinery used in dyestuff manufacture. J. F. Springer. *il diags Color Tr J* 8:43-7. 132-5; 9:17-19 F, Ap, Jl '21

Grinding and mixing apparatus in dyestuff manufacture. *il Color Tr J* 7:136-42; 8:4-8, 97-101; 9:103-5 N '20, Ja, Mr, S '21

Safety devices and measures

Industrial poisoning in making coal-tar dyes and dye intermediates. A. Hamilton. *U S Bur Labor Statistics Bul* 280:1-87 '21

Prevention of fires and explosions in coal-tar chemical works. N. Richardson. *Chem & Met Eng* 23:273-4 Ag 18 '20; Same. *Textile World* 58:1311+ Ag 28 '20; Same. *Color Tr J* 7:97-9 S '20

Dye houses

Coast dye plant grows; Jenkins-Wright co., Los Angeles, Cal. *il Textile World* 57:3299 My 1 '20

Construction at Mercury mills. ltd., Hamilton, Ontario. *il Textile World* 59:2109+ Mr 26 '21

Dye house methods; suggestions regarding equipment, layout and control of work. *Textile World* 57:3785 My 22 '20

Organization and construction of dyehouses. A. W. Benoit. *il diag Textile World* 58:4287+ D 25 '20; Same cond. *Mech Eng* 42:673-4+ D '20

Two large dye houses revamped. *il Textile World* 59:1133+ F 5 '21

Dye industry

Can the gas industry manufacture an over supply of by-products? L. W. Alwyn-Schmidt. *Am Gas Eng J* 112:1-3 Ja 3 '20

Chemical disarmament. V. Lefebure. *Chem & Met Eng* 24:5-7 Ja 5 '21

Coal-tar products' protection. *Gas Age* 45:67-8 Ja 26 '20

Dye bases and dyewoods. *See* weekly numbers of Oil paint and drug reporter

Dye developments; abstract. C. H. Herty. *Sci Am M* 1:89 Ja '20

Dye industry lacks business knowledge. *Chem & Met Eng* 25:434 Ag 31 '21

Fashions, textiles and dyes. L. W. Alwyn-Schmidt. *Color Tr J* 9:1-3 Jl '21

Future world market in dyestuffs. *Color Tr J* 6:77-8 Mr '20

Production costs in the dye industry. *Chem & Met Eng* 22:488 Mr 17 '20

Some problems of the dye industry. C. K. Simon. *Chem Age* 29:221-3 Je '21

Textiles and dye-making industry. C. H. Clark. *Textile World* 59:2887+ Ap 30 '21

Threat of next war lies in the dye situation. R. Mountsier. *Annalist* 17:109+ Ja 17 '21

World disarmament and the master key industry. 52p American dyes institute, New York '21

See also Coal-tar colors—Prices; Coal-tar products; Dye factories

Accounting

Effect of machine depreciation upon cost of dye making. L. W. Alwyn-Schmidt. *Color Tr J* 6:103-6 Ap '20

Bibliography

List of references on dyestuffs; chemistry, manufacture, trade. H. H. B. Meyer. 186p (15c) '19 Library of Congress, Washington, D.C.

Dye Industry—Continued

Exhibitions

Dyestuff industry at the sixth national exposition of chemical industries. *il Color Tr J* 7:103-9 O '20

Laws and regulations

- Another substitute dye bill proposed by Senator Moses. *Textile World* 57:2142 Mr 20 '20
- Bill extending dye embargo in emergency tariff act. *Comm & Fin Chr* 113:689 Ag 13 '21
- British prohibit synthetic dyes. *Oil Paint & Drug Rep* 99:27+ sec 1 Ap 11 '21
- Developments in dyestuff legislation. *Textile World* 59:956 F 5 '21
- Dye embargo and petroleum duty have first places in tariff bill. *Oil Paint & Drug Rep* 100:25+ sec 1 Jl 11 '21
- English dyestuff bill passed. *Textile World* 58:4282 D 25 '20
- House passes Longworth dye bill. *Chem & Met Eng* 21:614 N 12 '19
- Moses dye amendments discussed. *Textile World* 57:2666 Ap 10 '20
- Sodium nitrite importation put under war trade board license. *Oil Paint & Drug Rep* 99:26 sec 1 Ap 25 '21
- Suggestion for license control for dyestuff importations. *Color Tr J* 8:178-80 My '21
- Text of dry control title of Emergency tariff bill. *Chem & Met Eng* 24:985 Je 1 '21
- Treasury department takes over control of imports of dyestuffs. *Oil Paint & Drug Rep* 99:23 sec 1 Je 6 '21
- Why dyestuff imports should be licensed. *G. D. McDonald. Color Tr J* 9:87-93 S '21
- See also Tariff—United States—Dyes

Service

Technical sales service to the dye user. *C. H. Stone. il Chem Age* 29:351-2 S '21

China

- Developing the Chinese dyestuff business. *L. W. Alwyn-Schmidt. Color Tr J* 6:35-8 F '20
- Dyes for China. *Sci Am* 125:212 S 17 '21
- Foreign trade in dyes and dyestuffs. *Color Tr J* 6:24-5 Ja '20

Germany

- Germany's dyes output in 1920. *Oil Paint & Drug Rep* 100:24 sec 1 Ag 8 '21
- Recent production of German dyes. *Color Tr J* 7:189 D '20
- Report of E. S. Chapin, Paris representative of the Textile alliance, inc. *Color Tr J* 7:126-8 O '20; Same. *Textile World* 58:2512+ O 9 '20; Same. *J Ind & Eng Chem* 12:1130-2 N '20; Abstract. *Sci Am M* 3:83 Ja '21

Great Britain

- British prohibit synthetic dyes. *Oil Paint & Drug Rep* 99:27+ sec 1 Ap 11 '21
- English dyestuff bill passed. *Textile World* 58:4282 D 25 '20
- L'industrie anglaise des matières colorantes. *A. Ranc et J. Boisseau. Génie Civil* 77:49-51 Jl 17 '20
- Progress in British dyestuff industry. *F. M. Rowe. Color Tr J* 7:55-6 Ag '20

India

Alizarine dyes in South India. *Chem & Met Eng* 23:144 Jl 28 '20

Japan

- Imports of dyestuffs into Kobe and Osaka. *Color Tr J* 6:25-6 Ja '20
- Japanese dyestuff industry. *Color Tr J* 5:179 D '19

Java

Batik industry in Java. *Color Tr J* 6:170-1 Je '20

Russia

Dyestuff manufacture in Russia. *L. Diserens. Color Tr J* 9:108 S '21

United States

- Advancements made in wool and silk dyes. *J. Monnet. Textile World* 59:957 F 5 '21
- American chemical society dye division meeting, Rochester. *Textile World* 59:3050-1 My 7 '21; *Chem & Met Eng* 24:831-3 My 11 '21
- American coal-tar chemistry industry in 1919. *Chem Age* 29:5-9 Ja '21
- American dyestuff industry. *E. C. Bertolet. Textile World* 58:661+ Jl 31 '20
- Bearing of a synthetic dye industry upon our national welfare. *M. T. Bogert. J Fr Inst* 191:445-72 Ap '21; Excerpts. *Chem Age* 29:97-9 Mr '21
- Broader aspects of dyestuff manufacture. *diag Textile World* 58:2507+ O 9 '20
- Census of dyes and coal-tar chemicals, 1918. (Tariff information ser. 11) 103p '19 U.S. Tariff commission, Washington, D.C.; Excerpts. *Gas Age* 45:6-13 Ja 10 '20
- Coal tar, a peace-time weapon. *E. E. Slosson. Nation's Business* 9:30-1 Mr '21
- Coal tar dye industry report. *O. F. Schuette. Gas Age* 46:315 O 25 '20
- Comments on dye development. *C. G. Derick. Chem & Met Eng* 24:88-9 Ja 12 '21
- Consumer's viewpoint on dye development in 1919. *Textile World* 57:1043 F 7 '20
- Dye decision should rest with consumer. *R. Lansing. Textile World* 56:3510+ D 27 '19
- Dye exports essential to upkeep of American foreign trade. *L. W. Alwyn-Schmidt. Color Tr J* 6:69-72 Mr '20
- Dye industry needs protection. *Textile World* 59:959+ F 5 '21
- Dye output increases 40 per cent. *Textile World* 60:455 Jl 16 '21
- Dyes and coal-tar chemicals in 1919. *Chem & Met Eng* 24:180 Ja 26 '21
- Dyes for which licenses were granted during March, 1921. *Oil Paint & Drug Rep* 99:27 Ap 11 '21
- Dyestuff industry and the adjustment of prices. *Color Tr J* 8:73-5 Mr '21
- Dyestuff industry in relation to national economics. *L. W. Alwyn-Schmidt. Color Tr J* 7:167-70 D '20
- Dyestuff situation in America. *O. E. Schuette. Gas Age* 45:230-2 Mr 10 '20
- Economic energy of the American dyestuff industry. *L. W. Alwyn-Schmidt. Color Tr J* 8:115-17 Ap '21
- Efficient production essential to the continuation of dyestuff exports. *L. W. Alwyn-Schmidt. Color Tr J* 8:199-201 Je '21
- European conditions affecting the American dyestuff situation. *L. W. Alwyn-Schmidt. Color Tr J* 8:33-6 F '21
- Financial prospects of the dyestuff industry. *L. W. Alwyn-Schmidt. Color Tr J* 9:148-50 O '21
- Forces influencing our exports in dyes. *Color Tr J* 7:133-5 N '20
- Foundations for dyestuff industry. *T. H. Norton. Textile World* 57:4246+ Je 5 '20
- From the Senate gallery. *J Ind & Eng Chem* 12:522-4 Je '20
- German dyes should arrive by January 1. *C. H. Herty. Textile World* 56:2405+ O 25 '19
- Getting the public interested in the problems of the dyestuff industry. *L. W. Alwyn-Schmidt. Color Tr J* 7:1-4 Jl '20
- Immediate future of the dyestuff industry. *L. W. Alwyn-Schmidt. Color Tr J* 7:73-5 S '20
- Importance of dye industry from standpoint of national defense. *Comm & Fin Chr* 112:1100-1 Mr 19 '21
- Imports of dyes by classes, 1920. *Oil Paint & Drug Rep* 99:75 sec 1 My 16 '21
- L'industrie des matières colorantes artificielles aux États-Unis. *A. Ranc and J. Boisseau. Génie Civil* 77:435-7 N 27 '20
- L'industrie des matières colorantes aux États-Unis. *P. Salles. il Chimie & Ind* 5:341-9 Mr '21
- International policies of the American dyestuff industry. *L. W. Alwyn-Schmidt. Color Tr J* 8:1-3 Ja '21
- Is an export trade necessary to the dyestuff industry. *J. M. Matthews. Color Tr J* 9:125-9 O '21

Dye industry—United States—Continued

- Is there an American dye monopoly? F: E. Breithut. maps Chem & Met Eng 25:594-5 S 28 '21
- Key industries at any cost! J. H. Choate, jr. Nation's Business 9:19 Je '21
- Licenses granted for importation of dyestuffs. Color Tr J 8:155-6, 239-40 Ap, Je '21 (copy may be procured from American dyes institute, 320 Broadway, New York)
- Making the American dyestuff industry an export industry. L. W. Alwyn-Schmidt. Color Tr J 5:149-52 D '19
- National foreign policies important for development of American dyestuff industry. L. W. Alwyn-Schmidt. Color Tr J 6:159-62 Je '20
- Pays tribute to American dyes. J: Macadam. Textile World 60:2290-1 O 22 '21
- Present status of the domestic coal-tar products industry. C. R. DeLong. Chem Age 29:423-5 O '21; Same. Oil Paint & Drug Rep 100:xxiii+ S 12 '21; Same. Color Tr J 9:164-6 O '21
- Progress in the dyestuff industry. J. M. Matthews. Color Tr J 6:1-4 Ja '20
- Progress of the American coal-tar chemical industry during 1919. G. Jones. Color Tr J 7:124-6 O '20; Same. J Ind & Eng Chem 12:959-61 O '20
- Prospects for coal tar chemicals; census of dyes and coal tar chemicals for 1919. Gas Age 47:85-7 F 10 '21
- Real function of the Textile alliance, inc. Textile World 57:4673+ Je 26 '20
- Status of vat dye imports. Textile World 57:3078c Ap 24 '20
- Steady progress noted in dyestuff manufacture in 1920. Textile World 59:955 F 5 '21
- Truth about the dye industry. H. G. McKerrow. Sci Am 124:408+ My 21 '21
- U.S. at mercy of German chemists. J. H. Choate, jr. Oil Paint & Drug Rep 99:26 sec 1 Mr 14 '21
- United States foreign trade for 1919 and 1920 in finished coal-tar colors and indigo. Color Tr J 7:196-8 D '20
- Untinged truths of the dye situation. J: W. Harrington. Annalist 18:101 Ag 1 '21
- Vital facts about the American dye industry. H. G. McKerrow. Textile World 60:671+ Jl 30 '21
- Washington center of dye interest in 1919. Textile World 57:1047-8 F 7 '20
- Year 1919 in dyestuffs. Textile World 57:1049-55 F 7 '20
- See also* Dye industry—Laws and regulations; Dye purchasing; Dye research; Tariff—United States—Dyes

Dye patents

- Acridine dyes; patent. Chem & Met Eng 23:1131 D 8 '20
- Brown vat dyestuffs. Color Tr J 6:59-60 F '20
- Chemical foundation dye patents. S. A. Tucker. Textile World 57:3781+ My 22 '20
- Compilation of American dye patents in abstract form. J. A. Ambler. Chem & Met Eng 24:636 Ap 13 '21
- Dyes derived from beta-oxynaphthoic acid and from J-acid, with reference to the chemical foundation patents. A. W. Joyce. J Ind & Eng Chem 13:946-8 O '21
- Improved sulphur dyes from waste sulphite liquor. Chem & Met Eng 22:138 Ja 21 '20
- List of U.S. patents for 1920. Color Tr J 8:92-3 Mr '21
- Manufacture of diazo dye. Color Tr J 8:154 Ap '21
- Method of dyeing; patent. diags Color Tr J 9:74-5 Ag '21
- New azo mordant dyes. diag Color Tr J 9:167-8 O '21
- Photosensitizing dyestuff; abstract. E. Q. Adams and H. L. Holler. Color Tr J 9:63 Ag '21
- Preparation of an azo dye. Color Tr J 9:20 Jl '21
- Preparation of dyes of the Magenta type. Color Tr J 8:59 F '21
- Preparations of vegetable dyestuffs. diag Color Tr J 6:59 F '20

- Process for making blue dyestuffs. Color Tr J 6:33 Ja '20
- Process for making direct black dyestuffs. Color Tr J 6:33 Ja '20
- Production of a diazo dye. Color Tr J 8:218-19 Je '21
- Sulfuretted dyes; patents. Chem & Met Eng 23:989; 24:37 N 17 '20, Ja 5 '21
- Yellow-brown vat dyes. Color Tr J 6:32-3 Ja '20

See also Dyeing machines

Dye purchasing

- Straight colors and mixtures. L. G. Hayes. Color Tr J 8:233-4 Je '21

Dye research

- Dye research. R. E. Rose. J Ind & Eng Chem 12:805 Ag '20

Dye testing

- Colorimetric evaluation of dyestuffs. H. B. Gordon. diag Color Tr J 6:61-3 F '20
- Holder for samples during exposure. H. B. Gordon. il Textile World 57:3781 My 22 '20
- Need of standard fastness tests. W. F. Edwards. chart Textile World 56:3515+ D 27 '19
- Testing the fastness of dyed colors to light. H. B. Gordon. Color Tr J 8:54-9 F '21
- Use of the tint photometer in the evaluation of dyestuffs and pigments. H. B. Gordon. Color Tr J 7:175-80 D '20

Dye waste

- Preventing dye waste pollution of streams. Pub Works 48:250-1 Mr 27 '20
- Prevention of stream pollution by dye and intermediate wastes. E. J. Casselman. Color Tr J 7:43-7, 75-8 Ag-S '20

Dye workers

- Discussion of the etiology of so-called aniline tumors of the bladder. A. Hamilton. bibliog J Ind Hygiene 3:16-28 My '21
- Observations and investigations on the anaphylactic bronchial asthma from paraphenylenediamine dyes. C. Gerdon. J Ind Hygiene 3:sup4-6 My '21

Dyeing machines

- Application of sulphur dyes. E. Cagliostro. il Color Tr J 7:18-23 Jl '20
- Beam dyeing machine for yarn; patent. diag Color Tr J 6:32 Ja '20
- Circulatory dyeing machines; patent. diag Color Tr J 6:58 F '20
- Dyeing machine for cops; patent. diag Color Tr J 7:195 D '20
- Dyeing machine for raw stock; patent. diag Color Tr J 8:32 Ja '21
- Hank dyeing machines. Color Tr J 6:132-3 Ap '20
- Raw stock dyeing machine which makes process nearly continuous. diag Textile World 59:1525 F 26 '21
- Skein dyeing machine; patents. Color Tr J 8:31, 195-6 Ja, My '21
- Top dyeing equipment. diags Textile World 60:989 Ag 13 '21
- Warp dyeing machine; patent. diag Color Tr J 9:113 S '21
- Wool dyeing machine. il Textile World 58:4299 D 25 '20

Dyes and dyeing

- Action of methylene-blue and certain other dyes on living and dead yeast. C: G. Fraser. J Phys Chem 24:741-8 D '20
- Alizarine dyeing. W: Scott. Color Tr J 7:38-42 Ag '20
- Anilides of β -oxynaphthoic acid. E. R. Brunskill. J Ind & Eng Chem 13:309 Ap '21
- Application of dyestuffs to textiles, paper, leather and other materials. J. M. Matthews. 768p Wiley '20
- Aromatic arsenic compounds; azo dyes derived from arsanilic acid. W. A. Jacobs and M. Heidelberger. Am Chem Soc J 43:1646-54 Jl '21
- Bearing of a synthetic dye industry upon our national welfare. M. T. Bogert. J Fr Inst 191:445-72 Ap '21; Same abr. Gas Age 48:16-17, 50-3 Jl 11-25 '21; Excerpts. Chem Age 29:97-9 Mr '21
- Chemical and physical properties of dyestuffs. J. Traube and F. Koehler. Sci Am M 1:408-11 My '20

Dyes and dyeing—Continued

- Chinese dyes. Color Tr J 6:67 F '20
 Derivatives of *m*-xylene. S. A. Pearman. Chem Soc J 119:717-21 My '21
 Development of dyeing and printing. E. W. Pierce. Textile World 57:1635, 1637+, 2291 F 28, Mr 27 '20
 Dye division of the American chemical society holds successful meeting in New York. Textile World 60:1624-5+ S 17 '21
 Dyeing in the batik style. B. De Puyster. il diags Color Tr J 8:128-31, 162-6, 207-11; 9:25-31, 49-53 Ap-Ag '21
 Dyers' materials. P. Heermann. 159p 2d English ed., rev. and enl. Scott. Greenwood & son, London '19
 Dyes derived from phenanthraquinone. E. R. Watson and S. Dutt. Chem Soc J 119:1211-21 Ag '21
 Dyes from gas works. Am Gas Eng J 113: 113 Ag 7 '20
 Effect of iron in the lime boil. E. R. Darling. Textile World 60:1215+ Ag 27 '21
 Fast colors and fugitive colors. J. Monnet. Textile World 57:4685+ Je 26 '20
 Fastness of dyeings to storing. O. R. Flynn. Textile World 60:2435+ O 29 '21
 Fastness properties of the principal red dyes. B. De Puyster. Color Tr J 8:106-14 Mr '21
 Fastness to rubbing and perspiration. Textile World 56:3199+ N 29 '19
 Fixation of basic dyes on tannin by steaming. A. Steigler. Color Tr J 8:89 Mr '21
 Fundamental processes of dye chemistry. H. E. Fierz-David. 240p J. & A. Churchill, London '21
 Gentian violet—its selective bactericidal action. M. L. Crossley. Am Chem Soc J 41: 2083-90 D '19
 Glove cleaning and dyeing. O. S. Bagger. Sci Am M 4:276-7 S '21
 Influence of moisture on shade. J. Rouffin. Textile World 59:2113+ Mr 26 '21
 Isocyanine dyes from lepidine and its homologs. E. Q. Adams and H. L. Haller. Am Chem Soc J 42:2389-91 N '20
 Key index for dyestuff intermediates. W. N. Watson, A. R. Willis and R. N. Shreve. Color Tr J 8:189-93, 234-9; 9:35-9, 79-84, 118-22 My-S '21
 Making dyes fast to chlorine. J. Brandt. Color Tr J 8:50 F '21
 Manufacture of lake colors; abstract. J. B. Shaw. Color Tr J 7:159 N '20
 Manufacture of the rhodamines. R. Sansone. diags Color Tr J 8:84-8, 181-5 Mr, My '21
 Modern dyestuffs industry. H. E. Fierz. Chem Age 29:411-13 O '21
 Molecules and man. R. E. Rose. Sci Am M 2: 275-6 N '20
 New Swiss dyestuffs. Color Tr J 9:102+ S '21
 Newport announces two more vat dyes. Color Tr J 7:181 D '20
 Non-aromatic intermediates in dyestuff manufacture. J. T. Hewitt. Color Tr J 6:79-82 Mr '20
 Potash and soda salts in dyeing and printing; abstract. O. Piequet. Color Tr J 9: 62-3 Ag '21
 Problems investigated at the Color laboratory, Bureau of chemistry. H. D. Gibbs. il Chem & Met Eng 22:405-7 Mr 3 '20
 Processes for dyeing of hosiery. Textile World 58:1685+ S 11 '20
 Progress and tendencies in dyeing. E. C. Bertolet. Textile World 59:4169+ Je 25 '21
 Pyrazolone dyes. A. Meyer. Color Tr J 6:89-90 Mr '20
 Quality of American dyestuffs. R. S. Lunt. Textile World 57:1281+ F 7 '20
 Researches on co-ordination and residual affinity; the constitution of simple and complex cobaltic quinoneoxime lakes. G. T. Morgan and J. D. M. Smith. Chem Soc J 119:704-16 My '21
 Syntheses in the cinchona series; aminoazo and hydroxyazo dyes derived from certain 5-amino cinchona alkaloids and their quinoline analogs. W. A. Jacobs and M. Heidelberg. Am Chem Soc J 42:2278-86 N '20

Technology of garment dyeing and cleaning. J. Loeb. il Color Tr J 7:119-23, 152-7, 184-9; 8:18-21, 60-2, 81-3, 124-7, 167-9, 223-5; 9:9-12, 54-7, 152-3 O '20-Ag, O '21

Text-book of dye chemistry. G. C. T. von Georgievics and E. Grandmougin. 560p Scott, Greenwood & son, London '20

Use of organic dyestuffs for lake manufacture. B. De Puyster. Color Tr J 4:98-100, 150-3; 5:51-4, 175-8; 6:43-6; 7:28-31 Ap, Je, Ag, D '19, F, JI '20

Water in relation to dyeing. J. MacGregor. Color Tr J 9:43-8 Ag '21

See also Aminophenol; Aniline; Aniline black; Auxochromes; Batik; Bleaching; Blue; Catechin; Coal-tar colors; Coal-tar products; Coloring matter; Cutch; Dicyanin; Dye analysis; Dye factories; Dye industry; Dye testing and other headings beginning Dye; Dyeing machines; Dyewood; Gambier; Hair—Dyeing and bleaching; Indigo; Indigo carmine; Malachite green; Naphthol yellow S; Nigrosine; Paranitraniline red; Phenylenediamine; Turkey red oil; Ultramarine blue

Analysis

See Dye analysis

Bibliography

General review and bibliography of dyeing. P. E. King. Color Tr J 5:164-9; 6:18-23 D '19-Ja '20

List of references on dyestuffs; chemistry, manufacture, trade. H. H. B. Meyer. 186p (15c) '19 Library of Congress, Washington, D.C.

Cotton

Antimony mordants; use of calcium tartrate compounds in cotton dyehouses. E. R. Darling. Textile World 59:2111+ Mr 26 '21

Application of sulphur dyes. E. Cagliostro. il diags Color Tr J 6:120-4, 148-53, 163-8; 7: 18-23, 143-6, 171-3 Ap-JI, N-D '20

Autogyp process of dyeing. Textile World 57: 2159 Mr 20 '20

Bleaching of colored cotton goods. J. M. Matthews. Color Tr J 8:157-61 My '21

Continuous dyeing of cotton goods. M. M. Rivelis. Textile World 59:4173+ Je 25 '21

Dyeing and finishing cotton corduroys. L. J. Matos. Textile World 59:3537+ My 28 '21

Dyeing cotton duck. Textile World 58:3370 N 13 '20

Dyeing of cotton and silk hosiery. L. G. Hayes. Color Tr J 6:129-30 Ap '20

Dyeing of para red; abstract. M. P. Montavon. Color Tr J 7:158 N '20

Identification and properties of direct cotton blue dyes. L. G. Hayes. Color Tr J 8:185-8 My '21

Identification and properties of direct cotton orange and brown dyes. L. G. Hayes. Color Tr J 8:142-4 Ap '21

Identification and properties of direct cotton yellow. L. G. Hayes. Color Tr J 7:86-91 S '20

Tartar emetic in the dye house. E. R. Darling. Textile World 58:3641 N 27 '20

Technology of garment dyeing and cleaning. J. Loeb. Color Tr J 9:54-5 Ag '21

Treatment with diazotized paranitraniline. Textile World 58:1315 Ag 28 '20

Fur

Fur dyeing machine; patent. diags Color Tr J 7:194 D '20

History

Les matières colorantes artificielles et les teinturiers lyonnais. P. Sisley. Chimie & Ind 5:469-70 Ap '21

Jute

Bleaching and dyeing of jute. E. Duhem. Color Tr J 9:134-5 O '21

Preparation and dyeing of jute. Textile World 56:2930+ N 15 '19

Leather

Dyeing and finishing of suede leather; abstract. J. W. Lamb. Color Tr J 9:151 O '21

Dyes and dyeing—Leather—Continued

Dyeing and tanning of leather. J: Helfrich. il Color Tr J 5:134-7; 6:11-14, 125-8; 7:24-7, 83-5 N '19, Ja, Ap, Jl, S '20

Linen

Dyeing and finishing dress linens. D. Wiltern. Textile World 60:2439+ O 29 '21

Dyeing linen fabrics. Textile World 58:1315 Ag 28 '20

Dyeing of linen; abstract. E. Greenhalgh. Color Tr J 9:33-4 Jl '21

Paper

Coloring of paper. O: Kress. Paper 25:17-23 Ja 7; 17-20 Ja 14; 21-3 Ja 21 '20; Excerpts. Color Tr J 7:160-3, 191-3 N-D '20

Dyeing and tinting of paper. Paper 29:21 S 28 '21

Dyeing of paper pulp for use in paper yarn fabrics. Color Tr J 6:88 Mr '20

Dyeing of straw pulp; abstract. C. J. West. Paper 28:23-4 Je 22 '21

Dyestuffs and their relation to the paper industry. K. W. King. Paper 28:16-18 Je 22 '21

Ostwald's color theory in paper tinting. diags Paper 26:11-12 Ap 14 '20

Use of china clay in tinted papers. Paper 27:22+ S 22 '20

Bibliography

Dyeing of pulp and paper. C. J. West, comp. Paper Trade Journal 72:46+ My 12 '21

Patents

See Dye patents

Rubber

See also Antimony sulfide

Silk

Dyeing of cotton and silk hosiery. L: G. Hayes. Color Tr J 6:129-30 Ap '20

Dyeing silk, mixed silk fabrics and artificial silks. A. Ganswindt. 220p Scott, Greenwood & son, London '21

Standards

Standardization of dyestuff intermediates. E. Fileman. Color Tr J 8:153 Ap '21

Straw

Dyeing of straw and hemp. L: G. Hayes. Color Tr J 8:28-9 Ja '21

Terminology

Nomenclature of dyestuffs. J. M. Matthews. Color Tr J 6:29-31 Ja '20

Testing

See Dye testing

Tinsel

Dyeing tinsel mixed goods. Textile World 57:4691 Je 26 '20

Wool

Color blending and shade mixing; different systems employed for treating worsted. diag Textile World 59:3301 My 14 '21

Dyeing of aniline black on wool or mixed fabrics. M. Prud'homme. Color Tr J 6:183 Je '20

Dyeing of wool hats; abstract. A. Winter. Color Tr J 8:175-6 My '21

Dyeing of worsted piece goods. L: J. Matos. Textile World 58:2069+ S 25 '20

Use of glue in wool dyeing; abstract. L. Rinoldi. Color Tr J 7:158 N '20

Zero water in wool dyeing. il Textile World 60:685+ Jl 30 '21

Dyes and dyeing, Photographic

Kryptocyanines; a new series of photosensitizing dyes. E. Q. Adams and H. L. Haller. Am Chem Soc J 42:2661-3 D '20

Tetramethyl-quinolines. L. A. Mikeska and E. Q. Adams. Am Chem Soc J 42:2394-6 N '20

See also Dicyanin A; Lepidine

Dyes institute, American. See American dyes institute

Dyestuffs. See Dye industry; Dyes and dyeing

Dyewood

Dyewoods in demand. Sci Am 124:69 Ja 22 '21

Dynamic symmetry. See Design

Dynamics

Collision dynamics. G. Greenhill. diag Engineering 109:565-7, 604-5, 669-70, 710-11 Ap 30-May 7, 21-28 '20

Elementary dynamics. J. W. Landon. 246p University press, Cambridge, England '20

Laws of high-speed punching. T. J. Tresidder. Engineer 130:126-7 Ag 6 '20; Abstract. Sci Am M 2:186-7 O '20

Les mesures graphiques des actions dynamiques périodiques au moyen du dynamètre. L. Schlüssel. diags Génie Civil 76:154-7 F 7 '20

See also Aerodynamics; Force and energy; Hydrodynamics; Matter; Quantum theory

Dynamite

Economic method of thawing dynamite. D. Lay. plans Eng & Min J 110:106-7 Jl 17 '20; Same. Eng & Contr 54:264-5 S 15 '20

Rubber in the manufacture of dynamite. il India Rubber W 63:114-15 N '20

Use of dynamite in blast furnaces. diags Min & Met 167:49-50 N '20

See also Blasting

Advertising

Unusual angle yields good basis for dynamite campaign. M. Hussobee. Ptr Ink 113:117-19 N 4 '20

Dynamobile

Ludlum dynamobile. il Power 52:661 O 26 '20; Min & Met 167:49 N '20; Min & Sci P 121:681 N 6 '20; Power Pl Eng 25:100 Ja 1 '21; Coal Age 19:400-1 Mr 3 '21

Dynamometer

Aircraft dynamometer hub. diags Engineering 110:260-2 Ag 20 '20

British traction dynamometer. diags Automotive Ind 44:268 F 10 '21

Dynamometrical comparator. E. Velander. il diags Am Inst E E J 39:680-6 Jl '20

Electric dynamometer test of the Pierce Arrow engine. K. Parker. il diags Am Inst E E J 39:819-21 S '20

Froude hydraulic dynamometer. C. H. Peabody. il diags Marine Eng 26:244-5+ Mr '21

Hydraulic absorption dynamometer. Power Pl Eng 25:540-1 My 15 '21

Milling cutter dynamometer on a shaping machine. il diags Engineer 132:405 O 14 '21

National physical laboratory traction dynamometer for agricultural tractors. J. H. Hyde. il diags Engineering 110:693-4 N 26 '20

Poliakoff milling machine dynamometer. il Am Mach 55:114 Jl 21 '21; Mach 27:1156 Ag '21

Recording traction dynamometer and its method of use. il Automotive Ind 42:898-9 Ap 15 '20

Variable speed fan dynamometer. K. D. Wood. diag Aerial Age 12:491-2 Ja 17 '21; Same cond. Automotive Ind 44:650-1 Mr 24 '21

Dynamometer cars

Railway dynamometer cars. il diags plan Engineer 129:530, 534-7 My 21 '20

Swiss dynamometer car. Elec Ry J 56:453 S 4 '20

Swiss dynamometer car. J. S. G. Primrose. il diags Engineering 109:871-4 Je 25 '20

Wagon-dynamomètre suisse. J. S. G. Primrose. Génie Civil 77:467-8 D 4 '20

Dynamos. See Electric generators

Dynamotors

New arc-welding dynamotor. il Coal Age 16:751 N 6 '19

Dyscrasite

Occurrence of dyscrasite in Australia. G. Smith. Am J Sci 49:278-80 Ap '20

E

- Earnshaw knitting company**
How a business was built up on a piece of tape. C. L. Benjamin. *Ptr Ink* 114:138+ Ja 27 '21
- Earth**
Age of the earth. *Engineering* 112:498-9 O 7 '21
Balloons, helium gas, and the age of the earth. H. P. Little. *Sci Am M* 4:177-8 Ag '21
Distribution of land and water. H. F. Reid. *il Sci Am M* 4:13 Jl '21
Earth's rigidity is proved to be a myth. *Pop Mech* 35:678 My '21
Electrical conditions of the earth and atmosphere. A. E. Baines. *Sci Am S* 88:290-1 N 15 '19
How the study of radioactivity gives us a yard-stick to use on the years. H: N. Russell. *diag Sci Am* 124:452+ Je 4 '21
Inside of the earth. *Eng & Min J* 109:813 Ap 3 '20
Is the earth expanding or contracting? H. W. Hixon. *diags Sci Am M* 2:7-10 Jl '20; Discussion. 2:288; 3:189-90 N '20, F '21
Our apple. *Sci Am M* 1:387 My '20
Researches at high temperatures and pressures; investigation into the internal conditions of the earth. C: A. Parsons. *diags Sci Am M* 1:432-8 My '20; Abstract. *Engineering* 109:150-1 Ja 30 '20
Rigidity of the earth; measuring tides in a 500-foot pipe by means of interferometers. *il diag Sci Am M* 2:300-1 D '20
Weighing the earth. *il Sci Am* 122:59 Ja 17 '20
See also Atmosphere; Earth temperature; Earthquakes; Geochemistry; Geodynamics; Geology; Geophysics; Gravity; Isostasy; Magnetism, Terrestrial; Meteorology; Mines and mineral resources; Ocean; Ore deposits; Paleoclimatology; Volcanoes; Water, Underground
- Earth as building material.** *See* Pisé
- Earth currents.** *See* Stray currents
- Earth movements.** *See* Landslides; Subsidences (earth movements)
- Earth pressure**
Distribution of soil pressure as related to foundations. D. E. Moran. *diags Eng N* 86:366-70 Mr 3 '21; Discussion. C: Terzaghi. 87:77-8 Jl 14 '21
Earth and rock pressures. H. G. Moulton. *il diags Min & Met* 158:(sec 13) 1-25 F '20
Earth-pressure curves by Coulomb's formula. A. W. Bedell. *Eng N* 86:392 Mr 3 '21
Effect of practical factors on earth-pressure theory. G: Paaswell. *diag Eng N* 86:382-3 Ap 21 '21
Experiments on the horizontal pressure of sand. P. M. Crosthwaite. *Engineering* 109: 253-4 F '20 '20; Same. *Eng & Contr* 53:352 Mr 31 '20
Is the dam safe? *Sci Am* 123:238 S 4 '20
Large apparatus for tests of lateral earth pressures. G. M. Braune and J. Feld. *il diags Eng N* 87:314-16 Ag 25 '21
Measuring internal pressures in hydraulic-fill cores. *il diags Pub Works* 48:553-5 Je 26 '20; Same. *Can Eng* 39:207-8 Jl 29 '20; Same abr. *Eng & Contr* 53:674-5 Je 16 '20
Measuring upward pressure under a masonry dam. E. W. Lane and E. L. Chandler. *il diags plans Eng N* 84:1014-16 My 20 '20; Abstract. *Eng & Contr* 54:237-8 S 8 '20
Old earth-pressure theories and new test results. C: Terzaghi. *diags plan Eng N* 85: 632-7 S 30 '20
Study of pressures in hydraulic dam cores. *il diags plans Eng N* 83:1040-4 D 25 '19
See also Dams; Retaining walls
- Earth shrinkage.** *See* Embankments
- Earth slides.** *See* Landslides

Earth temperature

- Geothermal data of the United States including many original determinations of underground temperature. N. H. Darton. map U S Geol S Bul 701:1-97 '20
Our deepest wells. R. G. Skerrett. *il Sci Am* 122:214+ F 28 '20

Earthing. *See* Electric distribution—Grounding

Earthquakes

- Analysis of earthquakes in Panama. R. Z. Kirkpatrick. *Sci Am M* 2:363-4 D '20
Annual and diurnal periodicity of earthquakes in Japan. C: Davison. *Philos Mag* 6th ser 41:998-16 Je '21
California earthquakes during 1919; abstract. A. H. Palmer. *Sci Am M* 2:82 Jl '20
Rossi-forel scale of earthquake intensities. *Sci Am M* 4:254 S '21

Earthquakes and building

- Observations on the Southern California earthquake. W. H. Boughton. *il Am Arch* 118:157-60 Ag 4 '20
Self-supporting chimneys to withstand earthquake. C. R. Weymouth. *diags Mech Eng* 42:157-60+ Mr '20; Same. *Engineering* 110: 224-6 Ag 13 '20

Earths, Rare

- Concentration of the erbium earths. P. H. M.-P. Brinton and C. James. *Am Chem Soc J* 43:1397-1401 Jl '21
Die magnetisierbarkeit der seltenen erden. E. Wedekind. *Deutsche Chem Gesell Ber* 54: 253-8 F '21
Precipitation of some of the rare earths by creams of insoluble oxides and carbonates, based on the principle of hydrolysis. A. C. Neish and J. W. Burns. *diag Can Chem & Met* 5:69-74 Mr '21
Rare-earth minerals. W. T. Schaller. U S Geol S Min Res of U S 1919, pt 2:28-31; Bibliography. 31-2 '20
Rates of hydrolysis of the rare earth carbonates and the serial order of the rare earth elements. P. H. M.-P. Brinton and C. James. *Am Chem Soc J* 43:1446-51 Jl '21
See also Cerium; Samarium; Zircon

Earthwork

- Big spoil dump to cover 200 acres maximum depth of 60 feet; Queenstown-Chippawa canal. *il Eng N* 84:42-3 Ja 1 '20
Bigelow Boulevard slide at Pittsburgh. M. R. Scharff. *il map Eng N* 85:1076-80 D 2 '20
Earthwork and its cost, a handbook of earth excavation. H. P. Gillette. 1346p 3d ed. McGraw-Hill '20
See also Dams; Dikes (engineering); Dredging; Drilling and boring (earth and rocks); Earth pressure; Embankments; Excavation; Filling; Foundations; Grading (earthwork); Hydraulic filling; Landslides; Railroads—Earthwork; Retaining walls; Tunnels and tunneling

Cost

- Gravity track distribution reduces cost of earth fill. D. G. Coombs. *diags Eng N* 85: 1249-50 D 23 '20

Shrinkage

See Embankments

Tables, calculations, etc.

- Allowance for excess of cut over fill in earthwork. W. B. Walraven. *Eng & Contr* 54:153-4 Ag 18 '20; Discussion. F. W. Howard. 54:385 O 20 '20
Computing cross-section areas by the method of co-ordinates. J. A. MacDonald. *diags Eng N* 85:152 Jl 22 '20; Discussion. B. A. Wakefield. 85:571 S 16 '20
Diagram for final adjustment of grade line location. S. E. Redd. *Eng N* 87:517-18 S 29 '21
L'intégraphe Predhumeau-Secrétan pour les calculs de terrassements. Predhumeau. *il diags Génie Civil* 76:121-4 Ja 31 '20
Method of calculating end area by coordinates. D. Ulrich. *Eng & Contr* 54:154 Ag 18 '20
Method of estimating excavation and finished grading. L. S. Keir. *Bldg Age* 43:54-5+ Je '21

- Earthwork**—Tables, calculations, etc.—*Cont.*
 New method for adjusting earth excavation and determining haul. J. W. Ball and C. R. Shore. diags plans Eng & Contr 52:530-3 N 5 '19; Same. Can Eng 39:297-9 S 2 '20
 Pyramid and solids. A. S. Hovey. 64p Naegle printing co., Helena, Mont. '20
 Rapid method of applying prismoidal correction in computing earthwork volumes. J. G. MacGregor. diags Eng & Contr 53:177 F 18 '20
 Time saving method of computing cross sections. G. T. McNabb. diags Eng & Contr 54:4-5 JI 7 '20; Discussion. B. P. Rosecrans. 54:153 Ag 18 '20
- East Chicago, Indiana**
 Water supply
 Tuning up the East Chicago filters. H. E. Jordan. Eng N 86:520 Mr 24 '21
- East Indies.** See Rubber industry—Dutch East Indies
- East Orange, New Jersey**
 Railroads
 Lackawanna elevated tracks through East Orange. il diags Ry Age 71:281-4 Ag 13 '21
- Eastern Massachusetts street railway, Boston**
 More fares cut by Eastern Massachusetts company. Elec Ry J 57:1057 Je 4 '21
 \$1,370,585 gain in income in 9 months. Elec Ry J 58:841 N 5 '21
 Report for the first eighteen months of public control, ended Nov. 30, 1920. Elec Ry J 57:329-30 F 12 '21
 Strike averted. Elec Ry J 57:869 My 7 '21
 Wages reduced by East Mass. arbitration board. Elec Ry J 57:963 My 21 '21
- Eastern supply association**
 Annual meeting. Metal Work 92:471-4 O 17 '19
 Midwinter meeting. New York, Feb. 9. Dom Eng 94:405-8 F 19 '21
- Eastman kodak company**
 Cooperation of education and industry. Chem Age 29:170-1 My '21
 Eastman kodak company and the Sherman antitrust act. Chem Age 29:49 F '21
 Eastman school of professional photography. S. C. Lambert. Ptr Ink 112:165-6+ S 16 '20
 Kodak park works. il Chem & Met Eng 24: 838-40 My 11 '21
 What has happened to industrial co-operative plans? R. Dickinson. Ptr Ink M 3:69 Je '21
- Easton, Stanley A.**
 Mining engineers of note. por Eng & Min J 112:503 S 24 '21
- Eaves trough.** See Gutters (roof)
- Ebullioscope**
 Ebullioscope and the cryoscope. Sci Am M 3:36 Ja '21
- Eclipses, Solar**
 Observe effects of eclipse on radio signals. Elec R 79:156 JI 30 '21
- Economic conditions**
 Early years of the twentieth century from the viewpoint of the twenty-fifth. Am Inst Arch J 9:287-9 S '21
 Economic statesmanship; the great industrial and financial problems arising from the war. J. E. Barker. 624p 2d ed. J. Murray, London '20
 Financing for industrial stability. F. C. Schwedtmann. Ind Management 59:320-2 Ap '20
 Introduction to the survey of the world's trade. S. C. Mason. Am Ind 21:7-8 Ap; 13 My '21
 Maladjustments in the industrial world. W. Drew. Iron Age 108:867-8 O 6 '21
 Next six months. F. A. Vanderlip. Nation's Business 8:11-12 Mr '20
 Readjustment after the war—past and prospective. A. D. Noyes. Comm & Fin Chr 113:95-8 sec 2 O 29 '21

- Wages, profits, and social ethics. R. B. Brinsmade. Min & Sci P 121:151-4 JI 31 '20
 What is to be done about the high cost of small production? W. R. Hotchkiss. Ptr Ink 110:3-4+ Mr 4 '20

See also Business conditions; Economic policy; Geography, Commercial; Natural resources; also subdivision Economic conditions under names of countries, e.g. France—Economic conditions, United States—Economic conditions

Economic geologists, Society of. See Society of economic geologists

Economic policy

Economic imperialism. L. Woolf. 111p Swarthmore press ltd., London; Harcourt, Brace & Howe, New York '20

Enlightened self-interest most effective surety of peace. J. H. Hammond. Annalist 17:302 Mr 7 '21

See also Commercial policy; Dumping (commercial policy); Free trade and protection; Municipal ownership; Tariff

Economics

Course in study of economics. A. T. Simonds. Iron Tr R 69:1015 O 20 '21

Distribution of wealth. G. E. Roberts. Eng & Contr 53:611-13 My 26 '20

Economic civics. R. O. Hughes. 331p Allyn and Bacon, Boston, New York '21

Economics in relation to costing. W. H. Grainger. Eng & Ind Management 5:345-7 Mr 24 '21

Every-day economics. D. C. Seitz. Administration 1:433-6 Ap '21

Fear of the few by the many—social fallacies. Comm & Fin Chr 110:1794-6 My 1 '20

Liberalism and industry; towards a better social order. R. Muir. 208p Houghton '21

Modern economic tendencies. S. A. Reeve. 871p Dutton '21

Our economic organization. L. C. Marshall and L. S. Lyon. 503p Macmillan '21

Principles of economics. F. W. Taussig. 3d ed., rev. v. 1 Macmillan '21

Principles of economics. F. M. Taylor. 8th ed. 577p Ronald Press '21

Principles of industrial philosophy. W. N. Polakov. Mech Eng 43:249-52; Discussion. 253-4 Ap '21

Principles of national economy. T. N. Carver. 773p Ginn '21

Risk, uncertainty and profit. F. H. Knight. 381p Houghton '21

Ten-minute talks with workers, from the Times (London) Trade supplement. 208p Doubleday '20

What books on economics shall I read? Eng & Contr 54:223-4 S 8 '20

What is economics? C. C. Williams. Eng & Contr 53:447-8 Ap 21 '20

See also Agriculture—Economic aspects; Banks and banking; Business; Capital; Commerce; Communication and traffic; Competition; Consumption (economics); Cooperation; Cost; Cost of living; Credit; Debts, Public; Depreciation; Economic conditions; Economic policy; Finance; Food supply; Free trade and protection; Government ownership; Government regulation of industry; Housing problem; Income; Index numbers (economics); Individualism; Industrial relations; Industry; Interest; Labor and capital; Labor and laboring classes; Manufactures; Mercantile system; Money; Panics; Prices; Production; Profit; Profit sharing; Profiteering; Rent; Saving; Socialism; Speculation; Strikes; Tariff; Taxation; Trade unions; Transportation; Trusts, Industrial; Wages; Wealth

History

Development of economics, 1750-1900. O. F. Boucke. 348p [bibliog. p. 329-42] Macmillan '21

Economizers. See Fuel economizers

Ecuador

See also Aeronautics, Commercial—Ecuador; Motor truck industry and trade—Ecuador; Roads—Ecuador

Eddy currents

Eddy current losses and temperatures of stator coils. S. L. Henderson. diags Elec J 17:418-22 S '20

Eddy currents in stator windings. H. W. Taylor. diags Inst E E J 58:279-98; Discussion. 298-300 Ap '20

Measurement of relative eddy current losses in stranded cables. J. A. Cook. il Am Inst E E J 40:93-5 F '21

Theory of magneto-mechanical systems as applied to telephone receivers and similar structures. R. L. Wegel. diags Am Inst E E J 40:791-802 O '21

Tooth frequency losses in rotating machines. T: Spooner. Am Inst E E J 40:751-6 S '21

See also Iron losses; Stray currents

Edge act. See Federal reserve act

Edgeworth, Pennsylvania

Architecture

Views and plans of some houses at Edgeworth. Arch Forum 32:pl 69-75 My '20

Edinburgh, Scotland

Rapid transit

Change to buses progressing rapidly in Edinburgh. il map Elec Ry J 56:1110-11 N 27 '20

Electrification at Edinburgh; gasoline motor buses and electric railway cars replace cable operation. R. S. Pilcher. il Elec Ry J 58:12-14 Jl 2 '21

Edison, Thomas Alva, 1847-

Edison and the incandescent lamp. C: L. Clarke. por Gen Elec R 22:1066-8 D '19

Edison at thirty years. por Elec W 77:371-2 F 12 '21

Edison's achievements due to study and hard work. B. C. Forbes. Eng & Contr 54:146-7 Ag 11 '20

Edison's views on life and death; interview regarding his attempt to communicate with the next world. A. C. Lescarbours. Sci Am 123:446+ O 30 '20

Inventive accomplishments of Thomas A. Edison during the war. L. N. Scott. Eng & Contr 54:283-5 S 22 '20

Pioneers in management science. pors il Ind Management 60:4-7 sec 2 O '20

Romance of invention. C. H. Claudy. por Sci Am 124:230+ Mr 19 '21

73 years young. Elec R 76:237-8 F 7 '20

Edison electric illuminating company, Boston, Massachusetts

Edison electric illuminating co. Am Arch 117:653, pl 646a-d My 26 '20

Welfare bureau. H. W. Moses. il N E L A Bul 7:831-4 N '20

Edison medal

W. L. Emmet receives Edison medal at 1919 annual meeting of A.I.E.E. Gen Elec R 23:2-3 Ja '20; Elec W 75:1277-8 My 29 '20; Power 51:901-2 Je 1 '20

Edison questionnaire

Edison questionnaire. D. D. Barber. Sci Am 124:429 My 28 '21

Mr Edison and education. Comm & Fin Chr 112:2130-1 My 21 '21

What do you know; the Edison questionnaire. Sci Am 125A:16-17 N '21

Edison school of salesmanship

Electrical salesmanship by mail for retail dealers; large electric appliance manufacturer successfully launches Edison school of salesmanship. J. B. Mannion. Elec R 78:803-5 My 21 '21

Editorial convention, National. See National editorial convention

Editorials

Why do publications preach pessimism? Ptr Ink 114:121-2 Ja 20 '21

Education

For whom is education? Am Mach 54:828-9 My 12 '21

General education and the engineering profession. H. E. Miles. Mech Eng 43:517-20+ Ag '21

Industry and the university. A. Currie. Paper 27:9-10+ F 9 '21

Protection against ignorance. C: W. Eliot. Nation's Business 9:9-10 F '21

Psychology and education. Engineering 111:674-5 Je 3 '21

Some homely ideals of education. M. E. Cooley. Eng Educ 7:14-24 S '21

See also Apprentices; Architectural education; Business education; Classical education; Colleges and universities; Corporation schools; Education of women; Education of workers; Engineering education; Evening and continuation schools; Illiteracy; Industrial education; Labor colleges; Libraries; Manual training; Mental discipline; Mining schools and education; Professional education; Scholarships and fellowships; Teaching; Technical education; Trade schools; Vocational education; also subdivision Study and teaching under various subjects

Japan

Engineering in Japan. C: F. Mason. Eng & Min J 111:12 Ja 1 '21

United States

Schools' call on business. Nation's Business 9:42+ Je '21

South's special interest in education. P. P. Claxton. Textile World 57:3992+ My 29 '20

Education, Classical. See Classical education

Education of women

Industrial opportunities and training for women and girls. B. M. Nienburg. U. S. Women's Bur Bul 13:1-48 '20

Education of workers

Adult working-class education in Great Britain and the United States; a study of recent developments. C: P. Sweeney. U S Bur Labor Statistics Bul 271:1-101 '20

Educational work of the International ladies' garment workers' union. F. M. Cohn. Monthly Labor R 13:667-8 S '21

Reading list of books on social and labor problems for workers' classes. F. Anderson and R. Anderson. Library Journal 46:741-7 S 15 '21

Workers' education; American and foreign experiments. A. Gleason. 87p Bureau of industrial research, New York '21

Workers' education in Italy. Int Labour R 3:205-15 Jl '21

See also Labor colleges

Educational measurements. See Ability tests

Eel river project. See Hydroelectric plants—California

Effects (physics). See Physics

Efficiency, Industrial

Analyzing present increase in individual labor efficiency. H. Tipper. Automotive Ind 44:32-3 Ja 6 '21

British view of American efficiency. E. J. P. Benn. Gas Age 48:253-4 S 3 '21

Doing more work with fewer men. B. S. Pearsall. il Factory 27:339-41 S '21

Fatigue and industrial efficiency. W. N. Polakov. Ind Management 58:448-52 D '19

High cost of things that happen unexpectedly. S. J. Williams. il Factory 25:1043-5 O 1 '20

How are we to appraise the value of innovations? G: H. Brown. Inland Ptr 67:623-4 Ag '21

Human and industrial efficiency. H. Chellew. 170p Putnam '20

Human factor in industry. C. H. Northcott. Ind Management 62:292-7 N '21

Human machine and its efficiency. Eng & Contr 54:314-15 S 29 '20

Human motor; or The scientific foundations of labour and industry. J. Amar. 470p Dutton '20

Importance of human wastes in industry. H. Tipper. Automotive Ind 44:1222-3 Je 9 '21

Increased production. E. Lipson. (The world of to-day (111)) 71p H. Milford, Oxford univ. press, London, New York '21

Industrial control. F. M. Lawson. 129p Pitman '20

Industrial efficiency promoted through welfare work; Edison electric illuminating co. H. W. Moses. il Elec R 78:73-4 Ja 8 '21

Efficiency, Industrial—Continued

- Industrial leadership and executive ability. E: D. Jones. 275p Engineering magazine co., New York '20
- Introduction to the psychological problems of industry. F. Watts. 240p G. Allen & Unwin, London '21
- Labor efficiency under lessened demand for labor. Comm & Fin Chr 111:2269 D 11 '20
- Lectures on industrial administration. B. Muscio. 276p Pitman '20
- Making work fascinating as the first step toward reduction of waste. W. N. Polakov. il Mech Eng 43:731-4+ N '21
- Mind and work, the psychological factors in industry and commerce. C: S: Myers. 203p University of London press, London '20
- Now I get twice as much done. il plan System 40:294-6+ S '21
- Output study of users and non-users of tobacco in a strenuous physical occupation. J. P. Baumberger, E. E. Perry and E. G. Martin. J Ind Hygiene 3:1-10 My '21
- Physical work and the human machine. H: Briggs. Eng & Ind Management 6:323-6 S 22 '21
- Prime cause of inefficiency in industrial organizations. F. B. Gilbreth and L. M. Gilbreth. Sci Am M 1:40-1 Ja '20
- Psychology of industry. J. Drever. 148p [bibliog. p. 133-5] Dutton
- Standards as business habits. A. M. Simons. Ind Management 61:105 F 1 '21
- Strength tests in industry. E. G. Martin. 34p U.S. Public health service, Washington, D.C. '20
- Variations in working efficiency throughout the day. Eng & Ind Management 5:435 Ap 14 '21
- Waste and inefficiency in the industries. Chem & Met Eng 25:433-48 Ag 31 '21
- Way to greater production. H. S. Trecartin and others. 252p A. W. Shaw co., Chicago; New York '20
- Die wirtschaftliche betriebsführung. M. Langer. Stahl & Eisen 41:641-4; Discussion. 644-6 My 12 '21
- See also* Ability tests; Business management; Employment management; Executive ability; Executives; Factory management; Factory sanitation; Fatigue; Foundry management; Industrial management; Motion study; Office management; Planning; Power plants—Management; Routing systems; Time study; *also* Society of industrial engineers

Bibliography

- Bibliography of industrial efficiency and factory management. H. G. T. Cannons. 167p G. Routledge & sons, London; Dutton, New York '20
- List of references on scientific management as the basis of efficiency, with special reference to the government service. H. H. B. Meyer. 22p U.S. Govt. print. off., Washington '20

Efficiency exhibition, Olympia

- Efficiency exhibition at Olympia. Engineering 111:176, 192 F 11-18 '21; Elec R (Lond) 88: 198-9, 232-3 F 18-25 '21; Electrician 86:231-2 F 18 '21; Eng & Ind Management 5:212, 245-7 F 17-24 '21

Egg trade

- British Columbia poultrymen try experiment in distribution. Ptr Ink 110:149-50+ Ja 15 '20

Eggs

- Facts about Chinese eggs. Sci Am 123:155 Ag 14 '20
- Relation between weight and sex in eggs. M. Tevis. Sci Am M 1:41 Ja '20
- Some observations on eggs. J: T. Bartlett. Sci Am 123:85+ Jl 24 '20
- White yolks of eggs. Sci Am 124:393 My 14 '21
- White yolks of eggs. L. S. Palmer. Sci Am 125:65 Jl 23 '21

Preservation

- Preservation of eggs, including a bibliography of the subject. H. I. Jones and R. DuBois. J Ind & Eng Chem 12:751-4 Ag '20;

- Abstract. Sci Am M 2:277 N '20; Bibliography. J Ind & Eng Chem 12:754-7 Ag '20
- Sterilizing eggs for storage. Sci Am 125:167 S 3 '21

Storage

- Temperature and humidity in storage of eggs and candy. O. T. Lay. Sci Am M 3:424 My '21

Testing

- Chemical and bacteriological tests of eggs. Sci Am M 3:15 Ja '21

Transportation

- When Humpty-Dumpty travels. H. A. Mount. il Sci Am 124:265+ Ap 2 '21

Eggs, Frozen

- Examination of frozen egg products and interpretation of results. H. W. Redfield. U S Agric Bul 846:1-96 '20

Eggs, Hatching

- Male chicks from large eggs. Sci Am 124: 365 My 7 '21
- Turning over the eggs. il Sci Am 124:213 Mr 12 '21

- Eglin, William Charles Lawson, 1870- Portrait. Elec W 76:1152 D 11 '20

Egypt

- Egypt. Engineering 110:677-8 N 19 '20
- See also* Agriculture—Egypt; Irrigation—Egypt; Machine tool industry—Egypt; Water supply—Egypt

Antiquities

- Egyptian life four thousand years ago; how the famous Noah's ark in the world came to the Metropolitan museum of art. A. Lansing and H. E. Winlock. il Sci Am M 3:487-91 Je '21
- Looking backward four thousand years; the story of a digger's luck that opened an Egyptian wonder house. A. A. Hopkins. il Sci Am 124:366 My 7 '21
- See also* Tell El-Amarna

Economic conditions

- Market conditions in Greece and Egypt. Elec R (Lond) 89:64 Jl 8 '21
- See also* Labor and laboring classes—Egypt

Eight-hour day. See Hours of labor**Einstein theory**

- Alternative to Einstein; how Dr Poor would save Newton's law and the classical time and space concepts. Sci Am 124:468+ Je 11 '21
- Anti-Einstein campaign. Sci Am 124:382 My 14 '21
- Checking up Einstein; the proposed repetition of the Michelson-Morley experiment in search of evidence of ether drift. M. A. Henry. il diag Sci Am 122:646+ Je 12 '20
- Development and present position of the theory of relativity. A. Einstein. Electrician 86:756-7 Je 17 '21
- Einstein contest. G. S. Walker. Sci Am 124: 387 My 14 '21
- Einstein contest and the readers. Sci Am 124:349 Ap 30 '21
- Einstein displacement of solar lines. L. Grebe and A. Bachem. Am J Sci 50:394 N '20
- Einstein spectral line effect. H. J. Priestley. Philos Mag 6th ser 41:747-9 My '21
- Einstein theories; a physical and astronomical review of their contents and the evidence pro and con. W: H. Pickering. Sci Am M 3:292-5 Ap '21
- Einstein's finite universe. Sci Am 124:202 Mr 12 '21
- Einstein's principle of relativity and its bearing upon physics. J. S. Ames. J Fr Inst 191: 1-21 Ja '21
- Einstein's relativity theory of gravitation. E. Cunningham. Sci Am M 1:116-19 F '20
- Einstein's theories of relativity and gravitation. J. M. Bird, ed. 345p Scientific American pub. co., New York '21
- Einstein's theories will remain popular mystery. il Pop Mech 33:372 Mr '20
- Einstein's theory of relativity. H. P. Gillette. Eng & Contr 55:272-3 Mr 23 '21

Einstein theory—Continued

- Einstein's theory of the universe; the hypersphere—a universe unbounded but of finite volume. L. P. Eisenhart. *Sci Am M* 4:7-8 JI '21
- Foundations of Einstein's theory of gravitation. E. Freundlich. 60p The University press, Cambridge [Macmillan] '20
- From Newton to Einstein. B. Harrow. 2d ed. 116p Van Nostrand '20
- Gravitational field of a particle on Einstein's theory. F. W. Hill and G. B. Jeffery. *Philos Mag* 6th ser 41:823-6 My '21
- Introductory statement of the place occupied by relativity as a phase of human thought. F. E. Law and others. *diag Sci Am* 124:186-7+ Mr 5 '21
- Nature of things; Einstein's theory of relativity. J. Q. Stewart. *Sci Am* 122:10+ Ja 3 '20
- New concepts of the past century. *Sci Am* 123:276+ S 18 '20
- New concepts of time and space; what Einstein has done to these fundamental notions. M. Francis. *diag Sci Am* 124:146-7+ F 19 '21
- Newton-Einstein planetary orbit. G. Greenhill. *Philos Mag* 6th ser 41:143-8 Ja '21
- Une nouvelle figure du monde. L. Fabre. 242p Payot & co., Paris '21
- Observatory in Germany to test Einstein theory. *il Pop Mech* 36:643 N '21
- Planetary motions and the Einstein theories; a possible alternative to the relativity doctrines that would save the Newtonian law. C. L. Poor. *Sci Am M* 3:484-6 Je '21
- Principle of relativity—a statement of what it is all about, in ideas of one syllable. H. Elliot. *Sci Am* 124:226+ Mr 19 '21
- Quest of the absolute; an essay on modern developments in theoretical physics. F. D. Murnaghan. *Sci Am M* 3:196-8 Mr '21
- Relativity. F. W. Lanchester. *diags Engineering* 111:477-9, 514-16 Ap 22-29 '21
- Relativity and a rotating disk; an application of Einstein's theory that has caused much misunderstanding. L. Page. *Sci Am* 124:247+ Mr 26 '21
- Relativity; the winning essay for the Eugene Higgins five thousand dollar prize. L. Bolton. *Sci Am* 124:106-7 F 5 '21
- Stellar photograph evidence for Einstein's theory; abstract. B. H. Crookes. *Sci Am M* 4:383 O '21
- That parallel postulate; the dividing line between Euclidean and non-Euclidean geometry. *Sci Am* 123:565+ D 4 '20
- Time—the fourth dimension of space. A. H. Halloran. *J Elec* 44:267-9 Mr 15 '20

Bibliography

- What has been said about Einstein. *Sci Am* 123:200+ Ag 28 '20

Ejectors

- Value of the ejector. C. J. Mason. *Int Marine Eng* 25:228 Mr '20

Elastance

- Electrostatic transformers and coupling coefficients. F. C. Blake. *diags Am Inst E E* J 40:23-9 Ja '21

Elastic fabrics

- Elastic and non-elastic narrow fabrics. S. Brown. *il diags Textile World* 60:979+, 1507+, 2173+ Ag 13, S 10, O 15 '21 (to be cont)
- Manufacture of elastic fabrics. *il India Rubber W* 61:286-8 F '20

Elastic limit

- Elastic limit. W. E. Dalby. *diags Engineering* 112:81 JI 8 '21; Same. *Automotive Ind* 45:367-8 Ag 25 '21; Abstract. *Engineer* 132:60 JI 15 '21; Abstract. *Chem & Met Eng* 25:623 S 28 '21; Discussion. *Engineering* 112:55-6 JI 8 '21
- Elastic properties of bronze castings. G. F. Comstock. *il Chem & Met Eng* 22:1113-18 Je 16 '20
- Improved elastic limit recorder. C. H. Marshall. *il Am Soc T M Pro v* 20 pt 2:361-5 '20
- Recoverance. R. G. Guthrie. *Chem & Met Eng* 23:671-2 O 6 '20

- Strain-energy function and the elastic limit. B. P. Haigh. *il diags Engineering* 109:158-60 Ja 30 '20

- Stress results within the elastic limit; abstracts. R. G. Guthrie. *il Iron Age* 106:649-51 S 9 '20; *Iron Tr R* 67:843-5 S 23 '20; *Soc Auto Eng J* 8:65-8 Ja '21

Elasticity

- Cornu's method of determining the elastic constants of glass. H. T. Jessop. *diags Philos Mag* 6th ser 42:551-68, pl 18-19 O '21
- Determination of values of Young's modulus and Poisson's ratio by the method of flexures. H. Carrington. *diags Philos Mag* 6th ser 41:206-10 F '21
- Elastic properties of gelatin jellies. S. E. Sheppard and S. S. Sweet. *Am Chem Soc J* 43:539-47 Mr '21
- Elasticity. A. Mallock. *diags Engineering* 111:701-2 Je 10 '21
- Moduli of rigidity for spruce. H. Carrington. *Philos Mag* 6th ser 41:848-60 Je '21
- Modulus of elasticity of concrete. chart *Eng & Contr* 53:483-5 Ap 28 '20
- Some aspects of the stress-strain curve. W. B. Wiegand. *India Rubber W* 63:18-21 O '20
- Temperature coefficient of the modulus of longitudinal elasticity of steel. H. M. Daudourian. *Philos Mag* 6th ser 42:442-8 S '21
- Théorie de l'élasticité; résistance des matériaux. H. P. M. Bouasse. 563p Delagrave, Paris '20
- See also* Deformations (mechanics); Elastic limit; Flexure; Hysteresis; Strains and stresses; Strength of materials; Vibration

Elbows, Pipe. *See* Pipe elbows

Electric absorbers

- High frequency absorbers. G. Faccioli and H. G. Brinton. *Gen Elec R* 24:444-54, 656-68 My, JI '21

Electric apparatus and appliances

- Developments in the electrical industry during 1919. J. Liston. *il diags plan Gen Elec R* 23:4-56 Ja '20
- High frequency apparatus, design, construction and practical application. 2d ed. T. S. Curtis. 269p Henley '20
- New physical phenomenon; utilizing the electrical attraction between a conductor and a semi-conductor. *il diags Sci Am M* 3:339-40 Ap '21
- Notes on the installation and maintenance of electrical apparatus. W. Cross. *Inst E E* J 58:15-18 D '19
- Practice in use of electrical apparatus. *il Elec W* 77:1314-16 Je 4 '21
- Present status of electrical apparatus. *il diags Elec W* 75:1243-4, 1261-4 My 29 '20
- Progress of the use of electricity in the industrial and domestic field. P. H. Adams. *Am Inst E E J* 40:118-19 F '21
- Rating and reliability of electrical apparatus increasing. M. M. Samuels. *Elec W* 77:23+ Ja 1 '21
- Some developments in the electrical industry during 1920. J. Liston. *il diags Gen Elec R* 24:4-49 Ja '21; Excerpts. *Elec R* 78:123-8 Ja 22 '21
- Tariffs on electrical goods provided in new bill. *Elec Ry J* 58:77-8 JI 9 '21
- Voltage wave analysis with indicating instruments. L. F. Curtis. *Wash U Eng Exp Sta Bul* 8:1-26 Je '20
- See also* Armatures; Audion; Automobiles—Electric equipment; Balancer sets; Burglar alarms; Commutators; Condensers (electricity); Electric batteries; Electric circuit breakers; Electric controllers; Electric current converters; Electric current rectifiers; Electric equipment; Electric fans; Electric furnaces; Electric fuses; Electric generators; Electric industries; Electric instruments; Electric irons; Electric lamps; Electric machinery; Electric meters; Electric motor generators; Electric motors; Electric precipitation; Electric protective apparatus; Electric railroads—Equipment and supplies; Electric shops; Electric shovels; Electric signals; Electric stand-

Electric apparatus and appliances—Continued
 ards; Electric switches; Electric toys; Electric transformers; Electricity in mining; Electricity on the farm; Electromagnets; Fire alarms; Galvanometers; Gas and oil engines—Ignition; Induction coils; Plumbing shops—Electric appliance departments; Relays; Rheostats; Rotary converters; Ships—Electric equipment; Spark plugs; Storage batteries; Switchboards; Synchroscope; Washing machines, Electric; *also* Westinghouse electric and manufacturing company

Exhibitions

British industries fair. *il Elec R (Lond) 88:230-2, 287-9 F 25-Mr 4 '21*
 Shipping and engineering exhibition at Olympia. *il diag Engineer 132:262-4, 266, 290-2, 294, 316-18, 320, 339-42, 370-1, 396-8 S 9-O 14 '21; Elec R (Lond) 89:368-71, 420-2, 432-4 S 16-30 '21; Electrician 87:359-61, 382-5 S 16-23 '21*

Manufacture

Annual manufacturers' number of the Electrician. *86:605-40 My 20 '21*
 Costing. R. Townsend. *Electrician 84:491-5, 540-3 Ap 30, My 14 '20*
 Status of electrical manufacture in the West. *il J Elec 46:230-3 Mr 1 '21*

Merchandizing

Advertising makes merchant of electrical manufacturer. *Ptr Ink 112:161+ S 9 '20*
 Better ways of selling outlets and appliances. J. W. Collins. *Elec R 79:561-2 O 8 '21*
 Complete plan for merchandising electrical goods properly. *il Elec W 76:534-5 S 11 '20*
 Electrical sales engineering. K. P. Royce. *Sibley J 35:28-9 F '21*
 Electrical salesmanship by mail for retail dealers; large electric appliance manufacturer successfully launches Edison school of salesmanship. J. B. Mannion. *Elec R 78:803-5 My 21 '21*
 How to choose an appliance for a sales campaign. *J Elec 46:125 F 1 '21*
 Merchandising electrical appliances by the central station. W. T. Reace. *Elec J 17:229-31 My '20*
 Methods of merchandising motors and equipments. J. A. Clark. *Elec R 77:841-4 N 27 '20*
 No profiteering in electric manufactures. H. L. Garbutt. *J Elec 46:139 F 1 '21*
 Principles of a profit-making appliance business. T. W. Simpson. *J Elec 45:28-30 Jl 1 '20*
See also Electric apparatus and appliances, Domestic—Merchandizing; Electric light fixtures—Merchandizing; Electric shops

Patents

Patents expiring in 1920; tabulation. *Electrician 84:17-18 Ja 2 '20*

Prices

Jobbers' purchaser compiles prices on electrical materials for 1914-1921. *Elec W 77:794 Ap 2 '21*

Repair

Repair defects before they mature. W. G. Schmauder. *il Elec W 78:62-3 Jl 9 '21*

Statistics

Electrical machinery and apparatus; Census bureau's summary for the industry, 1919. *Sibley J 35:128 S '21*
 Estimated value of electrical products manufactured in 1920. *Elec R 78:14 Ja 1 '21*
 Statistics on 1920 production of electrical equipment and supplies. *Elec W 77:44 Ja 1 '21*

Testing

Testing and approval of electrical appliances in Ontario. W. P. Dobson. *Elec R (Lond) 88:565-6 Ap 29 '21*
Electric apparatus and appliances, Domestic
 Annual revenue per kilowatt of demand for various electric appliances. *Elec W 75:907 Ap 17 '20*

Design of electric cooking and heating appliances; some requirements for domestic purposes. W. A. Gillott. *il Electrician 86:418-19 Ap 8 '21*

Electric apartment exhibited in New York city by Real estate company. *il N E L A Bul 8:203-4 Ap '21*

Electrical equipment of artisan dwellings. L. Milne. *Inst E E J 58:464-7; Discussion. 476-90 Je '20*

Electricity in mud houses of the Southwest. H. S. Bradley. *il plan J Elec 46:75-6 Ja 15 '21*

Foolproofedness as a domestic asset. D. Selby. *Electrician 86:429-30 Ap 8 '21*

Forecasting great developments in electricity. C. D. Wagoner. *il Elec R 78:457-60 Mr 19 '21*

Ideal electric kitchen. M. G. Howell. *Elec R (Lond) 89:462 O 7 '21*

New heating and cooking apparatus. *il diag Electrician 85:365-71, 424, 500 S 24, O 8, 29 '20*

Research, co-operation and electric domestic appliances. *il Electrician 87:462-3 O 7 '21*

San Francisco's electrical home. plans *J Elec 44:560-1 Je 1 '20*

Some obstacles to the domestic use of electricity and how they must be avoided. L. B. Atkinson. *Electrician 85:350-1 S 24 '20*

See also Electric irons; Electric stoves; Electric toasters; Electricity in the home

Merchandizing

Appliance sales increased by unusual merchandising campaign. *J Elec 47:198 S 1 '21*

Child interest a factor in making appliance sales. K. Maddock. *il Elec R 79:459-60 S 24 '21*

Dealers! why not cash in on those magazine approvals? K. Maddock. *il Elec R 79:663-4 O 29 '21*

Detroit company's policy on sales of merchandise. A. H. Touscany. *Elec W 74:955-6 N 15 '19*

Discussing sales of electrical goods to women. K. Maddock. *il Elec R 79:117-18 Jl 23 '21*

Dishwashing machines and their sales possibilities. C. H. Bay. *Elec R 77:634-6 O 23 '20*

Electrical peddlery; an untried method of selling. *Electrician 85:743-4 D 24 '20*

Fundamental rules in sale of electrical appliances. I. Steele. *Elec R 79:326-7 Ag 27 '21*

How to put on an electrical home campaign. *il J Elec 45:157-71 Ag 15 '20*

Marketing washers and vacuum cleaners in the home. E. L. Bennett. *il Elec R 77:631-3 O 23 '20*

Sales developments in electrical appliance field due to shortage of household servants, rather than scientific merchandising. *Elec R 77:637-8 O 23 '20*

Selling electrical appliances in a small community; central-station company's experience. H. K. Stein. *Elec R 77:815-16 N 20 '20*

Stimulating appliance business with specialties. L. Collins. *il Elec R 79:299-302 Ag 27 '21*

Ten commandments for selling electrical appliances. *Elec R 75:1032-3 D 20 '19*

Test of salesmanship. H. R. Taunton. *Elec R (Lond) 89:397-8 S 23 '21*

Value of appliance solicitors. A. W. Childs. *J Elec 44:380-2 Ap 15 '20*

Wholesale opportunity for retail electrical dealer; equipment of apartment houses with complete line of labor-saving household appliances. K. Maddock. *il Elec R 78:643-6 Ap 23 '21*

See also Electric shops; Washing machines, Electric

Statistics

Analysis of 1919 electric heating and cooking apparatus. *Elec W 75:1027 My 1 '20*

Exports of heating and cooking apparatus grow in 1920. *Elec W 77:1132 My 14 '21*

Electric arc

Arc images in chemical analysis. W. R. Mott. *Am Electrochem Soc Trans v 37 (preprint 11):121-60 Ap '20*

Electric arc—Continued

- Arc rupture in magnetic blow-out switches. O. H. Eschholz. *il diags Elec W* 78:461-4 S 3 '21
- Color and spectral composition of certain high-intensity searchlight arcs. I. G. Priest and others. *il diags U S Bur Stand Tech Pa* 168:1-14 '20
- Current-density in the crater of the carbon arc. N. A. Allen. *Illum Engr* 14:19 Ja '21
- Luminescence of certain oxides sublimed in the electric arc. E. L. Nichols and D. T. Wilber. *diags Phys R* 17:707-17 Je '21
- Some improvements in the Poulsen arc. P. O. Pedersen. *il diags Electrician* 86:684-6, 714-16 Je 3-10 '21
- Some recent developments of high-current arcs, with special reference to searchlights. J. P. Yorke. *diags plan Inst E E J* 58:651-61 Ag '20; *Abstract. Electrician* 85:708-9 D 17 '20
- Theoretical study of nitrogen fixation by the electric arc. C: P. Steinmetz. *Chem & Met Eng* 22:299-304, 353-7, 411-16, 455-62 F 18-Mr 10 '20
- See also Electric lamps, Arc*
- Electric arc welding.** *See Electric welding, Arc*
- Electric automobiles.** *See Electric vehicles*
- Electric balance**
- Submarine detection in an alternating magnetic field; electric balance in the detecting circuit. J. B. Whitehead and L. O. Gron-dahl. *diags Am Inst E E J* 39:386-91 Ap '20
- Electric batteries**
- Abnormal behavior of a Weston standard cell. M. G. Mellon. *Chem & Met Eng* 24:166 Ja 26 '21
- La dépolarisation des piles par l'oxygène de l'air; la pile Féry. *Génie Civil* 77:179-80 Ag 28 '20
- Electrical characteristics and testing of dry cells. *il diags U S Bur Stand Circ* 79:1-44 '19; Same. *Gen Elec R* 22:1011-29 D '19
- Fowler's battery rules. *Electrician* 84:174, 225-6, 298 F 13, 27, Mr 12 '20
- French scientist invents everlasting battery. *il Pop Mech* 35:683 My '21
- Further studies on a lead standard cell. M. G. Mellon and W. E. Henderson. *Am Chem Soc J* 42:676-89 Ap '20
- Homemade dry-battery cells. R. R. Henderson. *il Pop Mech* 33:146 Ja '20
- Maximum possible efficiency of galvanic bat-teries. *Stevens Ind* 38:127-31 Ap '21
- New electric battery. *diag Sci Am M* 3:163 F '21
- New form of standard cell. C. J. Rodman and T. Spooner. *bibliog il diags Am Electro-chem Soc Trans v* 38 (preprint 8):49-63 O '20; Same cond. *Elec J* 18:65-9 F '21
- New primary battery—an air depolarizer. *Sci Am M* 1:565 Je '20
- New primary electric cell. *J Fr Inst* 190:732 N '20
- Oxygen from the air as a depolarisant; ab-stract. *Elec W* 76:745 O 9 '20
- Problem course in electricity: electric bat-teries. H. H. Bliss. *J Elec* 46:397-8, 451 Ap 15-My 1 '21
- Regeneration of manganese-dioxide elec-trodes. *Engineering* 112:342-3 S '21
- Relation of voltage of dry cells to hydrogen-ation concentration. H. D. Holler and L. M. Ritchie. *diag U S Bur Stand Sci Pa* 364:659-68 '20; Same. *Am Electrochem Soc Trans v* 37 (preprint 21):339-48 Ap '20
- Renovation of Leclanché porous pots: ab-stracts. W. J. Thorrowgood. *Electrician* 85:230 Ag 27 '20; *Sci Am M* 2:182 O '20
- Reproducible liquid junction potentials: the flowing junction. A. B. Lamb and A. T. Lar-son. *diags Am Chem Soc J* 42:229-37 F '20
- Reviving exhausted dry batteries. *Elec R (Lond)* 88:541-2 Ap 29 '21
- Thermo-electromotive force in electric cells. H: S. Carhart. 134p Van Nostrand '20
- See also Concentration cells; Electrolytic cells; Selenium cells; Storage batteries*

Failures

- Two common failures of the Clark standard cell. E. C. McKelvy and M. P. Shoemaker. *il diags U S Bur Stand Sci Pa* 390:409-20 '20

Testing

- Automatic apparatus for intermittent test-ing. G. W. Vinal and L. M. Ritchie. *il diag U S Bur Stand Tech Pa* 171:3-7 '20

Electric buses

- Storage-battery buses used by Brazilian tramways. *Elec W* 76:624 S 25 '20
- See also Trackless trolley*

Electric cable reels

- Wayne self-winding cable reel. *il diag Elec R (Lond)* 89:550 O 21 '21; *Engineering* 112:550 O 14 '21

Electric cables

- Allowable working stresses in high-voltage electric cables. C: W. Davis and D. M. Simons. *Elec J* 17:292-8 Jl '20
- Another 33 000 V cable. *il Electrician* 87:24 Jl 1 '21
- Automatic cable protective gear; Ferranti-Hawkins system. *il diags Elec R (Lond)* 88:563-5 Ap 29 '21
- Cable exterior being of rubber, not braid, greatly extends life of conductor. *Coal Age* 20:601 O 13 '21
- Capacity of lead-sheathed three-phase ca-bles; abstract. R. Bouzon. *diags Elec W* 75:279 Ja 31 '20
- Cause of cracking of rubber insulation on ig-nition cables. *il Automotive Ind* 44:799 Ap 14 '21
- Connecting overhead circuits to underground cables. A. A. Meyer. *il Elec W* 77:1151-2 My 21 '21
- Current-carrying capacity of lead-covered cables. R. W. Atkinson. *chart Am Inst E E J* 39:831-9 S '20
- Data on paper-insulated lead-jacketed cables. *Elec W* 75:78-9 Ja 10 '20
- Distribution of electricity. W. B. Woodhouse. *Inst E E J* 59:85-93 Ja '21; *Abstracts. Elec R (Lond)* 87:710-11 D 3 '20; *Electrician* 85:652-3 D 3 '20; *Discussion. Inst E E J* 59:108-31, 258-74 Ja-F '21; *Elec R (Lond)* 87:711-12, 766-7, 775-7, 858-60; 88:90-2, 190-1 D 3-17, 31 '20, Ja 21, F 11 '21; *Electrician* 85:655-6, 712-13; 86:54, 129-30 D 3, 17 '20, Ja 7, 28 '21
- Economic aspects of extra-high-tension dis-tribution by underground cable. R. O. Kapp. *diags Inst E E J* 59:94-107 Ja '21; *Abstracts. Elec R (Lond)* 87:793-5 D 17 '20; *Electrician* 85:653-4 D 3 '20; *Discus-sion. Inst E E J* 59:108-31, 248-57 Ja-F '21; *Elec R (Lond)* 87:711-12, 775-7; 88:90-2, 123-4 D 3, 17 '20, Ja 21-28 '21; *Electrician* 85:655-6, 690-1, 717; 86:129-30 D 3-17 '20, Ja 28 '21
- Electrical cable industry in England. *Elec R (Lond)* 88:810-11 Je 24 '21
- Electrical characteristics of transmission conductors with steel cores. H. B. Dwight. *diag Elec J* 18:9-10 Ja '21
- Expression of dielectric losses in cables. W: A. Del Mar. *diags Am Inst E E J* 39:55-6 Ja '20
- Increasing cable rating has received consid-erable attention. W: A. Del Mar. *il Elec W* 77:33-4 Ja 1 '21
- Industrial underground cables; factors af-fecting reliability and heat dissipation. W. B. DeMuth. *il diag Power Pl Eng* 25:758-9 Ag 1 '21
- Locating faults on underground cables. W. R. Bullard. *il diags Elec W* 76:1057-60 N 27 '20
- Maximum allowable working voltages in cables. C: W. Davis and D. M. Simons. *diags Am Inst E E J* 40:12-22 Ja '21
- Measurement of relative eddy current losses in stranded cables. J. A. Cook. *il Am Inst E E J* 40:93-5 F '21
- Methods of handling heavy mine cable in-stallations. T. H. Arnold. *Elec W* 77:887-8 Ap 16 '21
- Nash fish invention. *il Electrician* 86:564 My 6 '21

Electric cables—Continued

- Power distribution over aerial cables. F. A. Westbrook. *il Elec W* 77:1411-14 *Je* 18 '21
- Pulling in lead-covered underground cables. *Elec R* 78:554-6 *Ap* 2 '21
- Resistance and inductance of a three-phase cable. H. L. Curtis. *Phys R* 18:156-7 *Ag* '21
- Secure dead-ending for heavy cables at building entrance. *il Elec W* 78:931 *N* 5 '21
- Selection and installation of mine cables. *diags Elec W* 77:325 *F* 5 '21
- Some distribution cable experiences. T. H. Arnold. *diags Power* 52:1021-2 *D* 28 '20
- Super cables at Birmingham. *il Electrician* 86:464-5 *Ap* 15 '21
- Telephone cables for use in power schemes. *Elec R (Lond)* 88:469-70 *Ap* 15 '21
- Transmission and distribution committee. *Am Inst E E J* 40:692-7 *Ag* '21
- See also* Cables, Submarine; Electric conduits; Electric distribution; Electric lines; Electric wire and wiring; Insulation (electric); Telephone lines

Joints

- Clamp eliminates soldering on splices and dead-ends. W. H. Williams. *il diag Elec W* 77:488 *F* 26 '21
- Making and finishing joints in high-tension cables. *il Elec R* 77:1013-14 *D* 25 '20
- Material used in splicing cables. *Elec Ry J* 55:1004-5 *My* 15 '20
- Protecting cable splices in soft ground. F. D. Weber. *diags Elec W* 75:551 *Mr* 6 '20
- Splicing of paper-insulated, lead-covered cables for electric power service. E. B. Meyer. *N E L A Bul* 8:72-4 *F* '21
- Strength of cable splice made by hammer exceeds that of cable. *diags Coal Age* 20:597 *O* 13 '21

Manufacture

- Cost system for electric cables by F. B. Benke. *Review. Administration* 2:558-60 *O* '21
- Recent tendencies in cable manufacture. H. Savage. *diags Electrician* 85:10-12 *Jl* 2 '20

Standards

- British standard specification for watertight glands for electric cables. 12p *Pub.* for the Association by C. Lockwood & son, London '20
- Insulated cable. *Soc Auto Eng J* 9:57-9 *Jl* '21; Same. *India Rubber W* 64:829-30 *Ag* '21; Discussion. *Soc Auto Eng J* 9:59-60 *Jl* '21

Temperature

- Effect of heat on impregnated paper from cable insulation. W. S. Clark. *diags Am Inst E E J* 40:113-14 *F* '21
- Effect of heat on paper insulation. H. W. Fisher and R. W. Atkinson. *il Am Inst E E J* 40:183-91 *Mr* '21
- Effect of temperature on high-voltage underground cables. R. H. Lang. *Elec W* 78:571 *S* 17 '21
- Electrical characteristics of transmission circuits; heating limits for cables. W. Nesbit. *diags Elec J* 17:575-82 *D* '20
- Heating of cables. P. Dunsheath. *Electrician* 87:318-20 *S* 9 '21
- Heating of underground cables. A. L. Freret. *diag Sci Am S* 88:325 *N* 29 '19
- Maximum safe operating temperature of low-voltage paper-insulated cables. W. A. Del Mar. *diags Am Inst E E J* 40:131-4 *F* '21
- Permissible operating temperatures of impregnated paper insulation in which the dielectric stress is low. L. L. Elden. *Am Inst E E J* 40:145-8 *F* '21
- Permissible operating temperatures of impregnated paper insulation in which the dielectric stress is low. D. W. Roper. *Am Inst E E J* 40:201-2 *Mr* '21; Abstract. *Elec W* 77:480-1 *F* 26 '21
- Permissible operating temperatures of impregnated paper insulation in which dielectric stress is low. P. Torchio. *Am Inst E E J* 40:96-104 *F* '21; Excerpt. *Elec R* 78:556 *Ap* 2 '21; Abstract. *Elec W* 77:413-15 *F* 19 '21

Relative temperatures of square and round conductors. T. S. Taylor. *diags Elec W* 75:540 *Mr* 6 '20

Report on work at Liverpool university on vulcanized bitumen cables laid solid in stoneware troughing. E. W. Marchant. *diags Inst E E J* 59:201-13 *F* '21; Abstracts. *Elec R (Lond)* 88:27 *Ja* 7 '21; *Electrician* 85:739-40 *D* 24 '20; Discussion. *Inst E E J* 59:213-38 *F* '21; *Elec R (Lond)* 88:28-9, 365-6 *Ja* 7, *Mr* 18 '21; *Electrician* 85:741-3; 86:129-30 *D* 24 '20, *Ja* 28 '21

Report on work at Newcastle-upon-Tyne on E.H.P. paper-insulated cables laid direct in the ground at different depths. E. Fawssett. *diag Inst E E J* 59:199-201 *F* '21; Abstract. *Elec R (Lond)* 88:26 *Ja* 7 '21; Discussion. *Inst E E J* 59:213-38 *F* '21; *Elec R (Lond)* 88:28-9, 365-6 *Ja* 7, *Mr* 18 '21; *Electrician* 85:741-3; 86:129-30 *D* 24 '20, *Ja* 28 '21

Report on work at the National physical laboratory on paper-insulated cables laid under various conditions. S. W. Melsom and V. Cockburn. *Inst E E J* 59:183-99 *F* '21; Abstract. *Electrician* 85:738-9 *D* 24 '20; Discussion. *Inst E E J* 59:213-38 *F* '21; *Electrician* 85:741-3; 86:129-30 *D* 24 '20, *Ja* 28 '21

Safe cable temperatures; abstracts of papers at A.I.E.E. meeting. *Elec W* 77:479-82 *F* 26 '21; *Elec Ry J* 57:401-3 *F* 26 '21

Safe operating temperatures for underground cables. W. A. Del Mar. *Elec R* 79:697-8 *N* 5 '21

See also Electric conduits

Testing

Cable testing in mines. E. A. Guthrie. *diags Inst E E J* 57:sup328-32 '19

L'essai des câbles électriques à haute tension et la localisation de leurs défauts. *Génie Civil* 76:187-9 *F* 14 '20

Failure of the lead sheathing of telegraph cables. L. Archbutt. *il Engineering* 111:418-19; Discussion. 430-2 *Ap* 8 '21

Improved practice make cable-fault location more certain. J. F. Beedle. *il diag Elec W* 78:673 *O* 1 '21

Locating cable trouble with sensitive voltmeter. J. B. Dillon. *diag Power Pl Eng* 25:375-6 *Ap* 1 '21

Research on the heating of buried cables. *Inst E E J* 59:181-213 *F* '21; Abstract. *Electrician* 85:738-40; Discussion. 741-3 *D* 24 '20

Electric cells. *See* Electric batteries; Electrolytic cells; Storage batteries

Electric circuit breakers

Arc rupture in magnetic blow-out switches. O. H. Eschholz. *il diags Elec W* 78:461-4 *S* 3 '21

Circuit-breaker for single or multiple operation. *il Elec R* 79:69 *Jl* 9 '21

Circuit breaker that not only protects the motor but affords safety to the operator also. *il Coal Age* 20:213-15 *Ag* 11 '21

Circuit breakers. M. Frankel. *diag Sibley J* 35:126-8 *S* '21

Circuit breakers and switches. H. R. Woodrow. *Am Inst E E J* 40:689 *Ag* '21

Circuit breakers of large capacity. *il Elec R (Lond)* 89:517-18 *O* 14 '21

Circuit breakers—principle of operation. V. H. Todd. *il diags Power* 52:536-8 *O* 5 '20

Control room circuit breaker equipment of the U.S.S. Tennessee. E. K. Read. *il diags Elec J* 18:258-62 *Je* '21

Convenient circuit-breaker calibrating outfit. H. J. Krombach. *il diag Elec Ry J* 56:133-4 *Jl* 17 '20

Draw-out oil circuit-breakers for switchboards. *il Elec R* 79:526 *O* 1 '21

Ediswan circuit breaker. *il Electrician* 86:695 *Je* 3 '21

High-speed circuit breakers; air-break type. G. G. Grissinger. *il diags Elec J* 18:69-70 *F* '21

Increasing oil-circuit-breaker capacities. C. J. Hejda. *il Elec W* 76:67-8 *Jl* 10 '20

Les interrupteurs à rupture instantanée de la General electric co. *diags Génie Civil* 77:412-14 *N* 20 '20

Inverted contact circuit breakers. H. G. MacDonald. *il diag Elec J* 17:78-9 *F* '20

Electric circuit breakers—Continued

- Line and generator switching at Niagara Falls. S. Q. Hayes. *il Elec R* 78:203-7 F 5 '21
- Maintenance of carbon circuit breakers. W. M. Austin. *il diags Power* 52:574-7 O 12 '20
- Mammoth oil circuit breaker built for Great Western power co. *il Power Pl Eng* 25:346 Mr 15 '21
- Measurement of the magnetic blow-out forces in circuit breakers. A. C. Bartlett. *diags Electrician* 86:48 Ja 7 '21
- New type of high-speed circuit breaker. J. F. Tritle. *il diags Gen Elec R* 23:286-91 Ap '20; Same cond. *Elec R* 76:565-7 Ap 3 '20
- Oil circuit breaker arrangements and switching schemes for steel mills. G. P. Wilson. *diags Elec J* 17:402-10 S '20
- Oil-circuit-breaker development important. B. G. Jamieson. *Elec W* 75:135 Ja 17 '20
- Oil-switch limitations; abstracts of papers at A.I.E.E. meeting. *Elec W* 77:477-9 F 26 '21
- Present-day practise limitations of oil circuit breakers; report of A.I.E.E. committee on oil circuit breakers and switches. H. R. Woodrow. *Am Inst E E J* 40:198-200 Mr '21
- Protection of electric equipment in coal-mining service. B. F. Grimm. *il diag map Coal Age* 20:253-6 Ag 18 '21
- Recent developments in oil circuit breakers. J. W. Upp. *il Gen Elec R* 22:858-64 N '19
- Recently developed high voltage oil circuit breakers. *il Power Pl Eng* 24:818 Ag 15 '20
- Reduces losses in output and eliminates fires from overloads and shorts; installation of automatic circuit breakers. D. J. Baker. *diags plan Coal Age* 19:657-60 Ap 14 '21
- Remodeling switch gears for power systems. S. Q. Hayes. *diags Power Pl Eng* 25:126-31, 221-5, 320-4, 419-22, 515-19 Ja 15, F 15, Mr 15, Ap 15, My 15 '21
- Removable unit type circuit breaker. *Elec Ry J* 58:207 Ag 6 '21
- Selecting oil circuit breakers. H. L. Wallau. *Elec W* 77:252-3 Ja 29 '21
- Selection of oil circuit breakers. W. A. Coates. *il Electrician* 85:17-20 Jl 2 '20
- Selection of oil circuit-breakers. H. A. Travers. *il Elec R* 77:1-3 Jl 3 '20
- Switching and protection of transmission circuits. S. Q. Hayes. *il Elec J* 17:183-8 My '20
- Totally-enclosed oil-break circuit breakers. *il Eng & Ind Management* 6:133 Ag 4 '21

Testing

- High-current tests on high-tension switchgear. P. Torchio. *il diags Am Inst E E J* 40:120-31 F '21; Abstract. *Power* 53:526 Mr 29 '21
- Electric circuits**
- Audion oscillator. R. A. Heising. *diags Am Inst E E J* 39:365-76, 471-84 Ap-My '20
- Checking four-wire two-phase switchboard wattmeters. H. C. Yeaton. *diags Power* 52:292-3 Ag 24 '20
- Electrical characteristics of transmission circuits. W. Nesbit. *chart diags Elec J* 16:279-87, 314-26, 385-96, 485-9, 515-19; 17:21-4, 66-77, 104-18, 146-56, 257-63, 350-3, 527-32, 575-82 Jl-S, N '19-Ap, Je, Ag, N-D '20
- Graphical calculation of interconnected a. c. circuits. A. S. McAllister. *diags Elec W* 77:1359-63 Je 11 '21
- Hydraulic analogy of an electric circuit. *diags Power* 54:565-6 O 11 '21
- Inherent regulation of continuous current circuits. A. L. Ellis and B. W. St Clair. *Am Inst E E J* 39:135-42 F '20; Abstract. *Elec W* 75:490 F 28 '20
- Mechanical analogs. G. R. Schuck. *diags J Elec* 45:334-5, 431-2 O 1, N 1 '20
- Problem course in electricity. H. H. Bliss. *diags J Elec* 45:78-9, 183-4 Jl 15, Ag 15 '20
- Switchboard meter connections for alternating current circuits. J. C. Group. *diags Elec J* 17:25-30, 61-5, 99-103, 131-5, 219-22, 251-3, 281-4, 536-8, 567-71 Ja-Jl, N-D '20
- Switchboard-meter connections—simple alternating-current circuits. E. A. Reinman. *il diags Power* 53:576-8 Ap 12 '21

Theory and calculation of variable electrical systems. J. R. Carson. *Phys R* 17:116-34 F '21

Theory of the oscillations in three coupled electric circuits. L. C. Jackson. *Philos Mag* 6th ser 42:35-46 Jl '21

Types of circuits employed in street lighting. C. H. Shepherd. *il diags plans Elec R* 79:388-91 S 10 '21

See also Electric conductors; Electric current rectifiers; Electric distribution; Electric lines; Electric transmission; Short circuits

Electric cleaning. *See* Metal cleaning

Electric clocks. *See* Clocks, Electric

Electric codes. *See* Electric engineering—Laws and regulations; National electrical code; National electrical safety code

Electric condensers. *See* Condensers (electricity)

Electric conductivity

Allotropic varieties of oxides. *Chem & Met Eng* 25:120 Jl 20 '21

Conductivity and frequency. E. D. Eastman. *diags Am Chem Soc J* 42:1648-55 Ag '20

Conductivity and viscosity of solutions in dimethylamine, trimethylamine, ethylamine, diethylamine, triethylamine, and propylamine. H. M. Elsey. *diags Am Chem Soc J* 42:2454-76 D '20

Conductivity of flames containing salt vapors. A. B. Bryan. *diags Phys R* 18:275-91 O '21

Conductivity of insulating materials near the breakdown voltage. J. E. Shrader. *diag Phys R* 17:502-7 Ap '21

Electric super-conducting state of metals. H. K. Onnes. *Engineering* 110:826-7 D 24 '20

Electrical conductivity of some dielectrics. H. H. Poole. *diags Philos Mag* 6th ser 42:488-501 O '21

Extrapolation of conductivity data to zero concentration. E. W. Washburn; C. A. Kraus. *diags Am Chem Soc J* 42:1077-91 Je '20

Further light on the theory of the conductivity of solutions. G. Clinton. 15p *Chemical pub. co.* '21

New physical phenomenon; utilizing the electrical attraction between a conductor and a semi-conductor. *il diags Sci Am M* 3:339-40 Ap '21

Positive and negative photoelectrical properties of molybdenite and several other substances. W. W. Coblenz. *diags U S Bur Stand Sci Pa* 398:595-639 '20

Reactivity and conductance of benzene solutions. H. P. Cady and E. J. Baldwin. *Am Chem Soc J* 43:646-51 Mr '21

Recent progress in thermo-electricity; abstracts. C. Benedicks. *diags Engineer* 129:617-18 Je 18 '20; *Engineering* 109:831-2 Je 18 '20; *Sci Am M* 3:182-3 F '21

Solutions of metals in non-metallic solvents; the conductance of the alkali metals in liquid ammonia. C. A. Kraus. *diag Am Chem Soc J* 43:749-70 Ap '21

Studies in conductivity; the behavior of mixtures of two salts containing a common ion in anhydrous formic acid solution. H. I. Schlesinger and F. H. Reed. *Am Chem Soc J* 41:1921-34 D '19

Studies in conductivity; transference numbers of the formates of sodium, potassium and calcium in anhydrous formic acid. H. I. Schlesinger and E. N. Bunting. *Am Chem Soc J* 41:1934-45 D '19

Studies of wheat flour grades; electrical conductivity of water extracts. C. H. Bailey and F. A. Collatz. *J Ind & Eng Chem* 13:319-21 Ap '21

Study of underground electrical prospecting. C. Schlumberger. *diags Eng & Min J* 111:782-8, 818-23 My 7-14 '21

Super-conductivity in metals; experiments in electric conductivity at low temperatures by Kamerlingh-Onnes. C. A. Crommelin. *Sci Am M* 4:166-8 Ag '21

Vacuum and heat treatment of insulating materials. J. E. Shrader. *diags Elec J* 17:157-60 Ap '20

Electric conductivity—Continued

Variation of metallic conductivity with electrostatic charge. H: A. Perkins. Phys R 18: 131-3 Ag '21

See also Dielectrics; Electric conductors; Electric resistance; Electrolytes—Conductivity; Hall effect

Electric conductors

Fuse protection for branch conductors. H: C. Horstmann and V: H. Tousley. diag Elec W 75:266-8 Ja 31 '20

Heat losses in the conductors of alternating-current machines. W. V. Lyon. diags Am Inst E E J 40:398-410 My '21

Resistance and constancy of aluminum contacts; abstract. R. Richter. Elec W 76: 888 O 30 '20

Skin effect in large stranded conductors at low frequencies. W. I. Middleton and E. W. Davis. diags Am Inst E E J 40:757-63 S '21

Supporting open-work conductors on I-beams. L. A. Barth. diags Power Pl Eng 25:469-70 My 1 '21

Use of aluminum conductors for transmission lines; abstract. Elec W 76:791 O 16 '20

Use of several conductors in one conduit reduces current capacity. H: C. Horstmann and V: H. Tousley. Elec W 77:1099-1100 My 14 '21

See also Busbars; Electric cables; Electric distribution; Electric transmission; Electric wire and wiring; Insulation (electric)

Electric conduits

Clearing installed electric conduit by concussion. E. G. Cheuvreux, jr. diag Power 54:268-9 Ag 16 '21; Same. Power Pl Eng 25:374-5 Ap 1 '21

Concrete conduit for track wires: New York Central railroad. B. A. Lundy. diags Eng N 83:1055 D 25 '19

Conduit mania; a plea for a return to wood casing. Electrician 86:692-3 Je 3 '21

Conduit return underground series system; street lighting. N. B. Hinson. il J Elec 46:67-8 Ja 15 '21; Same cond. Elec W 77: 206 Ja 22 '21

Construction of conduit tunnels under bodies of water. Elec R 78:541-2 Ap 2 '21

Construction of industrial electrical distribution systems. V. E. Johnson. il diags Power Pl Eng 25:754-7 Ag 1 '21

Continuing power service while moving cables. il Pop Mech 36:538 O '21

Gaining more speed in the laying of conduit. T. C. Ruhling. il Elec W 75:999 My 1 '20

Hazards involved in construction of underground conduit. H. W. Lueck. Elec R 77: 855 N 27 '20

Hydraulic shocks in power-station conduits; abstract. Elec W 75:908 Ap 17 '20

Installation of metal conduit. W. A. Hefner. il Power 53:109-10 Ja 18 '21

Iron plates used to provide support for conduit on brick walls. L. E. Wood. diags Elec W 75:904 Ap 17 '20

Knockdown conduit work in substation construction. G. C. Heckman and E. R. Stauffacher. il Elec W 76:24 Jl 3 '20

Laying telephone cable tubes by thrust-boring. diags Engineer 131:432 Ap 22 '21; Same. Eng & Contr 55:645-6 Je 29 '21

New conduit bodies expected to simplify exposed wiring. il Elec W 76:307 Ag 7 '20

Number of wires in conduit limited by heating. Elec W 75:1097 My 8 '20

Overheating of iron conduit containing three-phase conductors. diags Power 54:113 Jl 19 '21

Pipe pusher cuts cost of under-pavement cable conduits. C. A. Frankinhoff. Eng N 84:489 Mr 4 '20

Rigid and flexible conduit is used together. il Elec R 76:1075 Je 26 '20

Simplifying power-station wiring for control circuits. F. N. Bechoff. diag Elec W 75: 1310-11 Je 5 '20

Sizes of conduit for the installation of wires and cables. Elec R 76:287 F 14 '20

Supporting conduit risers. L. O. Rollins. diags Power Pl Eng 25:325-6 Mr 15 '21

Temperature of cable ducts reduced by blower in manhole. W. E. Richards. il Elec W 77:487 F 26 '21

Thermal conductivity of underground ducts. W. S. Wilder. diags Elec W 75:14-17 Ja 3 '20

Use of several conductors in one conduit reduces current capacity. H: C. Horstmann and V: H. Tousley. Elec W 77:1099-1100 My 14 '21

See also Electric cables; Electric conductors; Electric distribution; Electric wire and wiring

Failures

Street explosions in electric conduits. Eng N 87:645 O 20 '21

Standards

Conduit bodies standardized by manufacturers. il Elec R 77:207-8 Ag 7 '20

Electric contact. *See* Electric distribution

Electric contractors

Building a name in contractor-dealer business. B. F. D. Allen. Elec R 79:315-17 Ag 27 '21

Central stations and the wiring and retail business. H. R. Ellis. Elec R 78:310-12 F 19 '21

Contractor-dealers must retain hold on merchandising. il Elec R 78:489-93 Mr 26 '21

Contractor's future. L. G. Hawkins. Elec R (Lond) 89:365-6 S 16 '21; Discussion. 89:431, 497-8 S 30, O 14 '21

Does a contractor buy or sell a wiring job? J. W. Collins. Elec R 79:249-50 Ag 13 '21

Electrical contracting 500 B.C.; burlesque of cut-throat contracting. L. R. Ardouin. J Elec 44:251-5 Mr 15 '20

Electrical contractor-dealer versus the non-electrical dealer. W. E. Robertson. Elec W 78:237 Jl 30 '21

Electrical contractors classed by their practice. Elec R 79:483-4 S 24 '21

Financial side of electric retailing a subject no contractor-dealer can afford to neglect. G: J. Kirkgasser. Elec R 77:658-9 O 23 '20

How one contractor-dealer built his business. W: B. Eastwood. il Elec R 78:999-1001 Je 25 '21

How to finance time payment business. S. A. Dennis. plans Dom Eng 90:219-22 Ja 31 '20

Lighting opportunities open to contractor-dealers. Elec R 77:921-2 D 11 '20

Making electrical contracting more profitable. A. L. Swanson. Elec R 78:169-71 Ja 29 '21

Organizing a model contractor-dealer business. P. C. Burrell. il Elec R 78:335-8 F 26 '21

Problem of financing electrical contractor-dealers. A. E. Martin. Elec R 79:119-24 Jl 23 '21

Profitable fields in every locality still awaiting development by electrical contractors. G: J. Kirkgasser. Elec R 76:702-3 Ap 24 '20

Schools a potential market for electrical contractor. F. Bruce. il Elec R 78:807-10 My 21 '21

Wiring for so much per outlet. J. W. Collins. Elec R 76:521-2 Mr 27 '20

Word to the contractor. L. G. Hawkins. il Electrician 87:446-7 O 7 '21

See also Electric shops; *also* California state association of electrical contractors and dealers

Accounting

Cost records of motor repair shop used to classify expenses. J. B. Tufts. Elec W 76: 1175 D 11 '20

How do you keep track of your wiring jobs and stock? Elec R 77:321-3 Ag 28 '20

Keeping accounts in electrical contracting. Elec R 78:657-8 Ap 23 '21

Keeping records for the contracting job. J Elec 44:216-17 Mr 1 '20

Method of keeping bills of material. R. L. Kirk. Elec W 78:610-12 S 24 '21

Two-book accounting system for contractor-dealer. Elec R 77:838-40 N 27 '20

See also Electric contractors—Estimates

Electric contractors—Continued

Estimates

Estimating the cost in electrical contracting business. W. J. Templeman. Elec R 78:172-4 Ja 29 '21

Electric control

- Automatic control of chemical reactions. P. E. Edelman. Chem Age 29:65-6 F '21
- Automatic speed control for sectional paper machine drive. S. A. Staeger. il plan Elec J 18:78-82 Mr '21; Same abr. Elec W 77:603-4 Mr 12 '21
- Cleveland electrical speed control for automats. il Ry Mech Eng 94:808-9 D '20
- Control equipment for the propelling machinery of the U.S.S. Tennessee. M. Cornelius. il diags Elec J 18:263-70 Je '21
- Derby electric release. il Textile World 58:3875 D 4 '20
- Electrical operation of gate-valves. P. P. Dean. Eng Soc W Pa 35:483-93 Ja '20; Same. Elec R 76:641-4 Ap 17 '20; Discussion. Eng Soc W Pa 35:494-504 Ja '20
- Hold-down magnet control for vertical plate shears. S. L. Guthorn. diags Elec W 76:1071-2 N 27 '20
- Home-made remote control for a small water power. F. D. Elwell. diag Elec W 75:1005-6 My 1 '20
- Regulating the power required by grinders. J. R. Stanton. il Paper 27:178 N 10 '20
- Selsyn system of position indication for locks, water gates, dry docks, signaling between control room and engine room, etc. E. M. Hewlett. il diags Gen Elec R 24:210-18 Mr '21
- Submarine detection in an alternating magnetic field; regulation for constant speed. J. B. Whitehead and L. O. Grondahl. diags Am Inst E E J 39:383-4 Ap '20
- Using electrically operated valves at Buffalo, N.Y. and Cambridge, Mass. il Munic Eng 61:105-7 S '21; Same. Pub Works 51:189-91 S 3 '21; Same abr. Eng & Contr 56:263 S 14 '21
- See also Electric controllers; Electric motors—Control; Electric motors, Alternating current—Control; Electric motors, Induction—Control; Electric railroads—Control; Electric switches; Voltage regulation; Wireless control
- Electric controllers**
- Automatic controller operates blooming-mill lift tables successfully. D. W. Blakeslee. il Elec W 77:377-8 F 12 '21
- Controllers for alternating current. il Power 53:431-2 Mr 15 '21
- Direct-current crane controllers. H. D. James. il diags Elec J 17:380-5 S '20
- D. C. switchgear and contactor control for marine use. A. S. Horne. il diags Electrician 87:139-42 Jl 29 '21
- Drum-contactor controller that reduces frequency of repair. il Coal Age 18:902 O 28 '20
- Electric controllers for mine hoists. W. C. Goodwin. il diags Elec J 17:119-22 Mr '20
- Electric hoist with electrolytic controller. M. Meredith. Elec W 75:1203 My 22 '20
- Emergency automatic controller. B. A. Briggs. diags Power 51:143 Ja 27 '20
- Important features of control apparatus. H. D. James. il diags Power 53:877-80 My 31 '21
- Industrial motor control. C. W. Starker. il diag Am Mach 52:279-82, 337-41, 453-5 F 5-12, 26 '20
- Liquid resistance controllers. G. Fox. il diags Power Pl Eng 25:962-4 O 1 '21
- Motor-control equipment and its application. G. J. Kirkgasser and E. W. Seeger. il Elec R 77:835-7, 883-5, 917-20, 962-4, 999-1002; 78:29-31, 63-5, 99-102, 345-8, 505-8, 653-6 N 27 '20-Ja 15, F 26, Mr 26, Ap 23 '21
- New line of controllers for high-speed printing presses. il Elec R 79:69 Jl 9 '21
- New type of clapper type controllers for light mill, crane and hoist control service. il Iron Tr R 67:1484 N 25 '20; Iron Age 106:1388 N 25 '20

Recent developments in control devices. il diags Electrician 87:453-4 O 7 '21

Temperature of controllers. H. D. James. il Power 53:1005-6 Je 21 '21

Westinghouse type S contactor controller. il Am Mach 53:787 O 21 '20

See also Electric motors—Control; Rheostats

Safety devices and measures

- Motor-control equipment—protective features. H. D. James. il Power 54:169-71 Ag 2 '21
- Safety standards for industrial control equipment. Power Pl Eng 25:702 Jl 15 '21
- Electric converters. See Electric current converters; Rotary converters
- Electric conveyors. See Telpherage
- Electric cooking**
- Data on electrically operated cafeteria in Louisville. il Elec W 75:615 Mr 13 '20
- Development of the heating and cooking load. R. Hardie. il Electrician 85:351-3 S 24 '20
- Domestic electricity from another point of view. H. T. Smith. Electrician 85:357-8 S 24 '20
- Electric bake ovens a desirable central-station load. G. W. Cole. il Elec W 76:1078-9 N 27 '20
- Electric cooking at Debenhams, Eng. il Electrician 85:209-10 Ag 20 '20
- Electric cooking from the electric man's standpoint. Gas Age 44:564-6 D 15 '19
- Electric cooking school, Salt Lake City. il J Elec 45:230 S 1 '20
- Electric heating and cooking. Sci Am M 1:377 Ap '20
- Electric kitchen installation for public dining rooms. K. Ehrgott. il Elec R 79:461-3 S 24 '21
- Electrically-baked bread. Sci Am M 1:473 My '20
- Essentials of electric cooking apparatus. Electrician 86:218-19 F 18 '21
- See also Electric stoves

Cost

- Electricity loses cooking test to gas. C. W. Pierson. il Gas Age 45:53-5 Ja 10 '20
- Electric cranes. See Cranes, derricks, etc.—Electric equipment
- Electric current converters**
- Developments in conversion apparatus for Edison systems. T. F. Barton and T. T. Hambleton. il diags Am Inst E E J 40:233-43 Mr '21; Abstract. Power 53:486-7 Mr 22 '21
- Large converter. P. Hartig. Elec W 77:216 Ja 22 '21
- Pebbles motor converters. il Electrician 86:557-8 My 6 '21
- See also Frequency changers; Rotary converters
- Electric current rectifiers**
- Brown-Boveri mercury arc rectifier for large outputs. R. L. Morrison. il diags Elec R (Lond) 88:217-19, 251-4 F 18-25 '21
- High-power mercury-arc rectifiers. Giroz. Elec W 77:722 Mr 26 '21
- Mechanical rectifiers; abstract. A. Soulier. diag Elec W 76:248 Jl 31 '20
- Mercury arc rectifiers for large outputs; abstracts. diags Electrician 84:10-13 Ja 2 '20; Sci Am M 1:279 Mr '20; Elec W 75:1364 Je 12 '20
- New type of synchronous vibration rectifier; abstract. L. Schüler. Elec W 78:80 Jl 9 '21
- Self-exciting mercury-arc rectifier. Sci Am 123:517 N 20 '20
- Some recent arc rectifier installations. il Electrician 87:489-90 O 14 '21; Same. Elec R (Lond) 89:492-3 O 14 '21
- Steel-clad rectifier merits attention. J. H. Milliken. il Elec W 78:863-5 O 29 '21
- Wave form obtained from the aluminum rectifier. N. H. Williams and J. M. Cork. diags Elec W 74:937-8 N 15 '19
- Cost**
- Life of rectifier tubes used with series arc lamps. F. B. Lewis. Elec W 75:216 Ja 24 '20

Electric currents

Current interruption without arc; abstract. Elec W 76:1080 N 27 '20

Direct current in by-product plants. E. P. Winters. Blast F & Steel Pl 9:547-9 S '21

Effect of an electric current on the photoelectric effect. A. G. Shenstone. diag Philos Mag 6th ser 41:916-21 Je '21; Discussion. F. Horton. 42:279-80 Ag '21

Mechanical analogs, G. R. Schuck. diags J Elec 45:226-7 S 1 '20

New method of producing high-tension direct current. M. Schenkel. diag Electrician 85:84 Jl 16 '20

Propagation of periodic currents over non-uniform lines. J. R. Carson. Electrician 86:272-3 Mr 4 '21

See also Eddy currents; Electric circuits; Electric conductivity; Electric conductors; Electric distribution; Electric measurement; Electric meters; Electric switches; Electric testing; Electric transformers; Electric transmission; Electric waves; Electromotive force; Short circuits; Stray currents

Electric currents, Alternating

Alternating current in by-product plants. W. V. Dunn. Blast F & Steel Pl 9:545-7 S '21

Alternating currents. C. E. Magnusson. 2d ed. 559p McGraw-Hill '21

Audio-frequency vacuum-tube generator. J. A. Eyster. il diags Am Inst E E J 39: 888-9 O '20

Bridge methods for alternating-current measurements. D. I. Cone. bibliog diags Am Inst E E J 39:640-7 Jl '20; Abstract. J Elec 45:10 Jl 1 '20

Experiments with 110-volt alternating current. J. D. Adams. 242p Modern publishing company, New York '20

Influence of transformer connections on third harmonic voltages and currents. S. Stigant. diag Elec R (Lond) 88:300-2, 359-61, 393-4 Mr 11-25 '21

Integration method of deriving the alternating-current resistance and inductance of conductors. H. L. Curtis. diag U S Bur Stand Sci Pa 374:93-124 '20

Measurement of electrolytic resistance using alternating currents. H. F. Haworth. diags Electrician 85:443-5 O 15 '20

Mechanical analogs in alternating currents. G. R. Schuck. diags J Elec 45:180-1, 226-7, 283-4, 334-5 Ag 15-O 1 '20

Problems of interrupted and fluctuating currents in radiography. C. E. S. Phillips. Inst E E J 58:727-9; Discussion. 732-46 Ag '20

Third harmonics in three-phase systems. D. I. Cone. diags Elec W 75:780-1 Ap 3 '20

Treatment of harmonics in alternating current theory by means of a harmonic algebra. A. Press. diags Univ of Cal Pub in Engineering v 2, no 5:139-204 '19

Use of alternating currents for submarine cable transmission. F. E. Pernot. il diags J Fr Inst 190:323-71 S '20

L'utilisation des courants alternatifs industriels dans les bureaux télégraphiques. diags Génie Civil 76:102-4 Ja 24 '20

Voltage and current harmonics caused by corona. F. W. Peek, jr. il diags Am Inst E E J 40:455-61 Je '21

See also Electric generators, Alternating current; Electric motors, Alternating current

Electric cutting

Castings cut economically by electric arc process. Elec W 77:545 Mr 5 '21

Electric dealers. *See* Electric industries; Electric shops

Electric dehydration. *See* Dehydration, Electric

Electric detonators. *See* Detonators, Electric

Electric discharges

Chemical action of the electric discharge; abstract. G. Poma. Chem Soc J 120 pt 2:570-2 O '21

Disappearance of gas in the electric discharge. N. R. Campbell. Philos Mag 6th ser 41:685-706; 42:227-46 My, Ag '21

Electric discharge in hydrogen. D. N. Mallik. Philos Mag 6th ser 41:304-7 F '21

Experiments with perforated electrodes on the nature of the discharge in gases at low pressures. Am J Sci 49:301 Ap '20

Fixation of atmospheric nitrogen by the silent electric discharge process. C. F. Harding and K. B. McEachron. il diags Am Inst E E J 39:405-15 Ap '20

Flashover of insulators for 220-kv. lines. H. J. Ryan, H. H. Henline and F. F. Evenson. il diag Elec W 78:561-5 S 17 '21

Generator for making lightning; apparatus to give more definite knowledge concerning lightning phenomena. J. L. R. Hayden and N. A. Lougee. il diag Gen Elec R 24:946-8 N '21

Luminosity of mercury vapor distilled from the arc in vacuo. N. H. Ricker. diags Phys R 17:195-226 F '21

See also Corona (electricity); Electric precipitation; Electric sparks; Ionization; Oscillations; X rays

Electric distribution

Alabama power company's system, its development and operation. J. M. Oliver, B. Nikiforoff and C. B. McManus. il diag map plan Gen Elec R 22:980-95 N '19

Automatic protection of large electrical power distribution schemes. diags Electrician 85:178-81 Ag 13 '20

Banking electricity for universal use; making use of water storage and transmission lines for providing power at low costs. R. A. Fessenden. Sci Am 124:348+ Ap 30 '21

Changing over the distribution system of Sioux City. C. E. Schutt. il diags Elec R 76:135-8 Ja 24 '20

Constant-potential series systems for street lighting. C. P. Steinmetz. Am Inst E E J 39:245-8 Mr '20; Same. Elec R 76:105-8 Ja 17 '20

Construction of industrial electrical distribution systems. V. E. Johnson. diags plan Power Pl Eng 25:856-9, 957-61 S 1, O 1 '21

Design of industrial electrical distribution systems. V. E. Johnson. diags Power Pl Eng 25:563-6, 658-61, 754-7 Je 1, Jl 1, Ag 1 '21

Determination of line-loss expense. P. O. Reyneau and H. P. Seelye. Elec W 78:771-3 O 15 '21

La disposition rationnelle et l'entretien des contacts électriques. diags Génie Civil 77: 57-8 Jl 17 '20

Distribution of electricity. W. B. Woodhouse. Inst E E J 59:85-93 Ja '21; Abstracts. Elec R (Lond) 87:710-11 D 3 '20; Electrician 85:652-3 D 3 '20; Discussion. Inst E E J 59:108-31, 258-74 Ja-F '21; Elec R (Lond) 87:711-12, 766-7, 775-7, 858-60; 88: 90-2, 190-1 D 3-17, 31 '20, Ja 21, F 11 '21; Electrician 85:655-6, 712-13; 86:54, 108, 129-30 D 3, 17 '20, Ja 7, 21-28 '21

Distribution of ground currents. R. Rüdenberg. Elec W 78:784 O 15 '21

Distribution problems of central-station companies. Elec R 77:968-70 D 18 '20

Distribution problems of interurban railways. J. S. Hagan. Elec Ry J 55:603-6 Mr 20 '20

Distribution systems need more expert attention. S. B. Hood. diags Elec W 77:1244-5 My 28 '21

Economic aspects of extra-high-tension distribution by underground cable. R. O. Kapp. diags Inst E E J 59:94-107 Ja '21; Abstracts. Elec R (Lond) 87:793-5 D 17 '20; Electrician 85:653-4 D 3 '20; Discussion. Inst E E J 59:108-31, 248-57 Ja-F '21; Elec R (Lond) 87:711-12, 775-7; 88:90-2, 123-4 D 3, 17 '20, Ja 21-28 '21; Electrician 85:655-6, 690-1, 717; 86:129-30 D 3-17 '20, Ja 28 '21

Economic limits of distribution from coal-fired stations. W. B. Woodhouse. Engineering 112:128 Jl 15 '21; Same cond. Elec R (Lond) 89:97 Jl 15 '21; Abstract. Electrician 87:43-4 Jl 8 '21; Discussion. Engineering 112:117-18 Jl 15 '21; Elec R (Lond) 89: 98-9 Jl 15 '21

Economical division of load on several lines. L. W. Thoms. Elec W 75:777-8 Ap 3 '20

Economics of electrical distribution. P. O. Reyneau and H. P. Seelye. diags Elec W 77:79-81, 146-8, 703-6 Ja 8-15, Mr 26 '21

Electric distribution—Continued

- Economy study of secondary distribution. P. O. Reyneau and H. P. Seelye. *Am Inst E E J* 39:861-74 O '20
- Effect of ranges on distribution layouts. H. P. Seelye. *Elec W* 75:595-6 Mr 13 '20
- 80-mile central station bus. C. S. Cook. *Elec J* 18:166-7 My '21
- Electrical distribution system for modern concrete factory. C. P. Trueax. *il diags plan Elec R* 78:209-13 F 5 '21
- Electrical side of housing schemes; overhead distribution as an economical factor in their development. G. V. Twiss and S. G. Leech. *il diags Electrician* 86:424-6 Ap 8 '21
- Fundamentals of distribution. *Electrician* 85:644 D 3 '20
- Low-voltage overhead distribution. B. Welbourn. *Engineering* 112:87-8 J1 8 '21; Abstracts. *Electrician* 87:44 J1 8 '21; *Elec R* (Lond) 89:97-8 J1 15 '21; Discussion. *Engineering* 112:117-18 J1 15 '21; *Electrician* 87:44-5 J1 8 '21; *Elec R* (Lond) 89:98-9 J1 15 '21
- Method of distributing power for industrial plants. D. E. Hayner. *diag plan Elec W* 77:1489-90 Je 25 '21
- Multiple systems of distribution for street lighting. W. Harrison. *il diags plan Am Inst E E J* 39:7-12 Ja '20; Same cond. *Elec R* 76:102-5 Ja 17 '20; Same cond. *Electrician* 85:324-6 S 17 '20
- New England power company. E. A. Dillard and H. R. Wilson. *chart diags map Gen Elec R* 22:974-9 N '19
- Numerous advantages possessed by secondary networks. T. H. Rice. *Elec W* 77:769-70 Ap 2 '21
- Power distribution over aerial cables. F. A. Westbrook. *il Elec W* 77:1411-14 Je 18 '21
- Scheme to determine whether distribution secondaries are overloaded. *diag Elec W* 77:542-3 Mr 5 '21
- Series system of street lighting distribution. W. P. Hurley. *il diags Am Inst E E J* 39:1-6 Ja '20; Same cond. *Elec R* 76:100-2 Ja 17 '20; Same cond. *Electrician* 85:326-7 S 17 '20
- Serving rural distribution from high-tension lines. *il Elec W* 77:875-6 Ap 16 '21
- Short-circuit currents in networks. W. R. Woodward. *il diags Elec W* 75:715-18 Mr 27 '20
- Standardization being applied to distribution. H. B. Gear. *il Elec W* 75:141-3 Ja 17 '20
- Standardizing the distribution voltages in Switzerland. A. Grünhut. *diags Elec W* 77:643-4 Mr 19 '21
- Street lighting distribution systems. E. B. Meyer. *il diags Gen Elec R* 24:724-8 Ag '21
- Three-phase power from single-phase transformer connections. J. B. Gibbs. *diags Power* 51:672-4 Ap 27 '20
- Three-wire railway distribution in Wilmington. A. P. Way. *chart diags maps Elec Ry J* 58:307-11 Ag 27 '21
- Tracing the unaccounted for losses in distribution systems. G. T. Bogard. *Elec W* 77:1248-9 My 28 '21
- Transmission and distribution of electricity in textile mills and works. W. T. Reynolds. *Electrician* 84:268-70 Mr 5 '20
- Underground distributing systems. E. A. Reinman. *il diags plan Power Pl Eng* 25:810-13 Ag 15 '21
- Underground electric distribution systems. A. L. Freret. *il diags plans Power Pl Eng* 24:1177-9 D 15 '20
- Variation in costs as affecting distribution design. P. O. Reyneau and H. P. Seelye. *Elec W* 78:365-7 Ag 20 '21
- See also* Balancer sets; Boosters; Bus-bars; Electric cables; Electric conductors; Electric conduits; Electric current rectifiers; Electric fuses; Electric lines; Electric plants; Electric plants—Interconnection; Electric power; Electric substations; Electric transformers; Electric transmission; Electric wire and wiring; Rotary converters; Street lighting; Switchboards; Voltage regulation

Alternating current

- Alternating-current network protector. H. C. Stewart. *il diag Gen Elec R* 23:427-8 My '20
- Alternating-current series street lighting circuits. H. E. Butler. *il diags Gen Elec R* 24:763-9 Ag '21
- Automatic protective devices for alternating-current systems. A. E. McColl. *diags Inst E E J* 58:525-43; Discussion. 543-54 J1 '20; Abstract. *Electrician* 84:565-8 My 21 '20
- Changing system from two to three phase. G. H. Hagar. *il diags Elec W* 75:1414-16 Je 19 '20
- Copper economies in primary distribution. S. B. Hood. *diag Elec W* 78:120-1 J1 16 '21
- Correction of power-factor on distribution systems. H. C. Croy. *Elec R* 79:577-80 O 15 '21
- Design and maintenance of distribution systems. R. H. Rice. *Elec R* 78:57-62 Ja 8 '21
- Design of distributing networks. C. A. Gillin. *Electrician* 85:32-3; Discussion. 33-4 J1 2 '20
- Device for the rapid determination of the current distribution on the line side of a three-phase interconnected-star static balancer operating on a four-wire system. S. A. Stigant. *diags Inst E E J* 57:sup201-8 '19
- Distributing three-phase and two-phase energy over same lines. J. K. Himes. *diags Elec W* 75:1486 Je 26 '20
- Electrical distribution for modern engine terminals. *diags plans Ry R* 66:919-24; 67:314 Je 5, Ag 28 '20
- Flexible distribution system proves economical. *diag Elec W* 75:1143 My 15 '20
- High-voltage distribution lines for rural service. E. L. Fischer. *diag map Elec R* 79:653-6 O 29 '21
- How three-phase transformers operate. J. B. Gibbs. *diags Power* 51:1002-3 Je 22 '20
- Influence of transformer connections on third harmonic voltages and currents. S. A. Stigant. *diag Elec R* (Lond) 88:300-2, 359-61, 393-4 Mr 11-25 '21
- Making industrial distribution flexible; General motors corporation. *il diags Elec W* 76:1108-11 D 4 '20
- Modernizing distribution. T. H. Rice. *Elec W* 78:159-60 J1 23 '21
- New distribution system for city of Seattle. J. D. Ross. *Elec W* 75:64-7 Ja 10 '20
- New plan of distribution. G. H. Smith. *il chart J Elec* 45:282-3 S 15 '20
- New system of three-phase-two-phase transformation; abstract. K. Sachs. *diag Elec W* 75:1324 Je 5 '20
- Phase transformation with autotransformers; three-phase to two-phase three-wire. E. P. Wimmer. *diags Elec J* 18:15-16 Ja '21
- Power distribution in industrial plants. K. M. Raynor. *Power* 54:577 O 11 '21
- Power factor correction on distribution systems. D. M. Jones. *Am Inst E E J* 39:648-57 J1 '20
- Protecting industrial distribution lines. R. B. Gerhardt. *il diags Elec W* 76:176-8 J1 24 '20
- Protection of alternating-current circuits and apparatus. E. T. Norris. *diags Inst E E J* 58:750-5 Ag '20
- Radiation from transmission lines. J. R. Carson. *Am Inst E E J* 40:789-90 O '21
- Reactive power and unbalanced circuits. W. V. Lyon. *diag Elec W* 75:1417-20 Je 19 '20
- Saving money and time at engine terminals. H. L. Cornelison. *il diag Ry Age* 69:483-4 S 17 '20
- Single-phase load on a three-phase power system. J. B. Gibbs. *diags Power* 51:552-3 Ap 6 '20
- Standardization of high voltage in Switzerland; abstract. Wyssling. *Elec W* 77:1497-8 Je 25 '21
- Three-phase supply to Scott-connected transformer banks under various conditions of two-phase loading. G. W. Stubbings. *diags Elec R* (Lond) 89:76-8 J1 15 '21
- Transformer-loss eliminator. R. W. Harvey. *diag Power* 51:973 Je 15 '20

Electric distribution—Alternating current—Cont.
 Unbalanced three-phase circuits. W. V. Lyon. diags Elec W 75:1304-8 Je 5 '20
 Voltage regulation of distributing feeders. F. Hershey. Electrician 84:165-7 F 13 '20

Cost

Economic comparison of three-wire and two-wire distribution. W. A. Darter. Elec W 78:73 J1 9 '21
 Industrial distribution methods compared. F. Morgan. diags Elec W 77:245-6 Ja 29 '21

Direct current

Electrical distribution at nitrate plant no. 1. C. D. Gray and E. Hagenlocher. il diags plan Elec W 76:113-15 J1 17 '20
 Statical methods of calculating the potential relationships and fault resistances of direct current networks. G. W. Stubbings. diags Electrician 85:586-7 N 19 '20

Grounding

Earthing: report of the earthing sub-committee of the wiring rules committee. G. S. Ram and others. Inst E E J 58:468-75 Je '20; Abstract. Electrician 84:376-7 Ap 2 '20; Excerpt. Sci Am M 1:565 Je '20; Discussion. Inst E E J 58:476-90 Je '20; Abstract. Electrician 84:375-6 Ap 2 '20
 Experiences with ungrounded secondaries. V. Des Roches. Elec W 78:569-70 S 17 '21
 Ground wire should have low resistance and reactance. T. H. Rice. Elec W 77:883 Ap 16 '21
 Grounded neutral. Power 51:734 My 4 '20
 Grounding and polarization as protecting measures. W. J. Canada. diags Elec R 76:351-4, 391-4 F 28-Mr 6 '20
 Grounding of alternating-current secondaries. W. J. Canada. Elec R 77:853-5 N 27 '20
 Grounding practices of central stations. Elec W 75:166 Ja 17 '20
 Grounding specifications for distributing circuits. L. V. Sutton. Elec W 75:22 Ja 3 '20
 Grounding the neutral for D. C. system. W. H. Price. Blast F & Steel Pl 8:152-3 F '20
 Grounding the neutral of generating and transmission systems. H. R. Woodrow. diags Am Inst E E Pro 38:745-9 Je '19; Abstract. Electrician 84:350-1 Mr 26 '20
 Grounding the secondaries of electric lighting transformers to water pipes. L. A. Hazeltine. Am Water Works Assn J 7:761-3 S '20
 Inductive grounding in systems with unsymmetrical capacity distribution. Jonas. Elec W 77:837 Ap 9 '21
 Low resistance in ground connections of circuits. Elec R 76:699 Ap 24 '20
 Method of grounding deserves serious consideration. Elec W 77:318-19, 1105 F 5, My 14 '21
 Protective grounding of non-current-carrying parts. Elec R 76:838 My 15 '20
 Resistance of earth between stations. L. J. Moore. Elec W 77:1255-6 My 28 '21
 Rules for protective grounding of live parts. diags Elec R 76:911-12 My 29 '20
 Rules to prevent accident when grounding equipment. A. Bauhan. Elec W 78:521-2 S 10 '21
 Statutory earthing: some criticisms. S. Lees. diags Elec R (Lond) 88:100-1, 153-4 Ja 28-F 4 '21; Discussion. 88:171 F 11 '21

Grounds and faults

Arcing grounds on high-tension lines. W. D. A. Peaslee. il diags Elec W 76:424-7 Ag 28 '20
 Exploring coil outfit locates grounds on distribution circuits. W. C. Heston. il diag Elec W 76:834 O 23 '20
 Ground detecting devices; their theory of operation, construction and use. V. H. Todd. il diags Power Pl Eng 25:994-7 O 15 '21
 Ground detectors for direct-current and alternating-current circuits. F. Gillooly. diags Power 51:508-9 Mr 30 '20
 Locating faults on underground cables. W. R. Bullard. il diags Elec W 76:1057-60 N 27 '20

Locating grounds with portable transformer. F. Gillooly. diag Elec W 75:215 Ja 24 '20
 Loop test for high resistance faults. H. V. Higgitt. diag Electrician 86:96-7 Ja 21 '21
 Method of locating ground on a distribution system. diags Elec W 75:21 Ja 3 '20
 Protection against earths. A. Roth. Electrician 87:101-3 J1 22 '21
 Special relay permits use of high resistance in neutral grounds. A. W. Copley. diags Elec W 76:834-5 O 23 '20
 Testing on a grounded circuit. E. C. Parham. diags Power 51:593-4 Ap 13 '20
 Tests for grounds on interior wiring installation. J. V. Shannon. diags Power Pl Eng 24:1075 N 15 '20

Losses

See Electric losses

Records

System for keeping primary line records up to date. J. H. Mitchell. map Elec W 76:1074 N 27 '20

Electric doublet theory. See Molecular attraction

Electric driving

Alternating current in by-product plants, by W. V. Dunn; Direct current in by-product plants, by E. P. Winters. Blast F & Steel Pl 9:545-9 S '21
 Application of induction motors. F. Jeffrey. diags Power 52:651-4 O 26 '20
 Applications of electrical power on modern gas undertakings. H. C. Widlake. diags Inst E E J 58:704-18 Ag '20; Abstract. Electrician 86:77-9 Ja 14 '21
 Cisaille hydro-électrique de 1 200 tonnes. diags Génie Civil 77:53-5 J1 17 '20
 Discussion of the merits of the group drive and the individual electric drive. R. F. Jones. Sibley J 35:87-9 My '21
 Dual drive units. I. S. Forde. il Elec J 18:48-50 F '21
 Electric drive for small automatic self-dumping skip hoists. R. H. McLain and C. B. Connely. Gen Elec R 24:530-5 Je '21; Same. Blast F & Steel Pl 9:617-20 O '21
 Electric drive for small rock crusher and pulverizer. A. G. Drury. Elec W 78:176 J1 23 '21
 Electric drive for station auxiliaries. E. E. George. Elec W 75:1365-6 Je 12 '20
 Electric logging equipment adopted by Snoqualmie company. il Elec W 77:265 Ja 29 '21
 Electric motor drive for traveling cranes. G. Fox. Blast F & Steel Pl 9:413-16, 485-8 J1-Ag '21; Correction. 9:540 S '21
 Electric operation for Fresno raisin packing plant. il J Elec 45:469-71 N 15 '20
 Electric power in the oil fields. W. G. Lane. il J Elec 46:10-17 Ja 1 '21; Excerpts. Elec W 77:155-6, 323-4 Ja 15, F 5 '21
 Electric power in the oil fields as a central station load. W. G. Taylor. il Gen Elec R 23:616-29 J1 '20
 Electrical construction features of raisin plant. W. A. Scott. il Elec R 78:543-5 Ap 2 '21
 Electrical service aids a leading western food industry. il J Elec 47:146-7 Ag 15 '21
 Electrically driven drop-hammer battery for China. il chart diags Engineer 132:246-7 S 2 '21
 Electrically manufactured food product; shredded wheat. il J Elec 45:263-5 S 15 '20
 Electricity in the development of oil lands. R. A. Balzari, O. A. Kommers and F. V. Boller. il J Elec 44:373-7 Ap 15 '20
 Electricity in the lumber industry. E. F. Whitney and W. C. Heston. il J Elec 46:114-16 F 1 '21
 Electricity in the sugar beet industry. il J Elec 46:122-4 F 1 '21
 Electrification of the works and collieries of the Ebbw Vale steel, iron and coal company, limited. W. Dixon. diags plans Engineering 110:419-21 S 24 '20; Same. Engineer 130:299-300 S 24 '20; Abstract. Iron Age 106:927 O 7 '20
 Electrified cement industry aids western construction. L. W. Chapman. il J Elec 47:7-10 J1 1 '21

Electric driving—Continued

- Factors to investigate before installing motor drives. Elec W 77:211 Ja 22 '21
- Facts concerning auxiliary drives. G. Fox. Blast F & Steel Pl 8:549-50 O '20
- Grab and its manipulation by electricity. diags Eng & Ind Management 5:473-7 Ap 21 '21
- Individual electric drive. F. Nasmith. il Electrician 86:157-9 F 4 '21
- Induction and synchronous motors for industrial applications. C. W. Drake. Power 51:822-3 My 18 '20
- Interesting applications of electricity to the handling of materials. il Electrician 84:422-3 Ap 16 '20
- Japan buys more electric mill apparatus. Iron Tr R 66:283 Ja 22 '20
- Making waste power pay the bill. J. H. Moss. il Factory 26:1412-14 Je 15 '21
- Mechanical problems in auxiliary motor drives. F. S. Root. plans Elec W 78:625-6 S 24 '21
- Motor drive for drop hammers. il Iron Age 107:1746 Je 30 '21; Same. Elec R 79:354-5 S 3 '21; Same abr. Elec W 78:124-5 Jl 16 '21
- Motor drive for fans and blowers. G. Fox. il Power 53:664-6 Ap 26 '21
- Motor drive in the woodworking industry. F. H. Penney and E. L. Bamforth. il Gen Elec R 24:554-7 Je '21
- Motor drives for air compressors. G. Fox. il Power 53:778-9 My 17 '21
- Power and fuel used by machine shops and foundries in Superpower Zone. H. Goodwin, jr. Am Mach 55:664-5 O 27 '21
- Power consumption of machines; summary of records from several plants. H. E. Collins. Sibley J 35:32-4 F '21
- Power requirements of machines in bindery. R. E. Peters. Elec W 75:440-1 F 21 '20
- Reducing mechanical difficulties with motor-driven applications. R. Pruger and L. A. Deesz. il diags Elec J 18:408-13 S '21
- Susquehanna installs electric slope hoist and at a shaft replaces steam by electric drive. L. W. Le Grand. il Coal Age 19:941-4 My 26 '21
- Use of central station power by industrial plants. B. Wiley. Elec J 18:164 My '21
- Use of electric drive in rock-crushing plants. W. D. Myers. Elec R 76:485-6 Mr 20 '20
- Use of electricity in special industries in the West. il diags map J Elec 46:612-24 Je 15 '21

See also Electric motors; Electric power; Electric shovels; Electricity in lumbering; Electricity in mining; Electricity in petroleum industry; Machine tools—Electric driving; Mine hoisting, Electric; Pumping machinery, Electric; Ship propulsion, Electric; Steel works—Electric equipment

Box factories

- Electrically driven machines in modern box factory. W. A. Scott. il Elec R 79:588-9 O 15 '21

Flour mills

- Electric drive for flour and grist mills. W. T. Edgell, jr. il diags Gen Elec R 24:542-6 Je '21
- Motor drive in a Washington flour mill. il Elec R 76:564 Ap 3 '20

Ice plants

- Electric power for ice plant drive. C. R. Neeson. A S R E J 6:109-10; Discussion. 110-13 S '19

Metallurgical plants

- Analysis of motor load in 400-ton cyaniding plant. F. Krug. Elec W 78:471-2 S 3 '21
- Electrical equipment of the mill. B. B. Beckett. Eng & Min J 109:849-52 Ap 10 '20

Paper mills

- Advances in the electrical manufacture of paper. il J Elec 46:128-9 F 1 '21
- Application of electricity to paper mills. E. E. Fuller. diags Electrician 86:171-4, 194-5 F 4-11 '21
- Central-station power for making tissue paper. Elec R 75:1027 D 20 '19

- Electric drive and paper making. Electrician 86:192-3 F 11 '21

- Electric drive in a paper mill. il Paper 26:15 Ag 25 '20

- Electric drive in paper mills. E. Tanner and C. F. Papworth. il diags Electrician 84:344-8 Mr 26 '20

- Electric driving in the paper mill on heat-economy lines. A. B. Mallinson. Inst E E J 59:538-53 My '21; Abstract. Electrician 86:746-9 Je 17 '21; Abstract. Sci Am M 4:283 S '21; Discussion. Inst E E J 59:553-63 My '21; Electrician 86:749-50 Je 17 '21

- Electric motors for pulp and paper machinery drives. W. H. Easton. il Power 51:584-8 Ap 13 '20

- Electric power in the manufacture of sulphite paper pulp. R. L. Gregory. il Elec R 76:55-9 Ja 10 '20

- Electric, steam and water-power drive in a paper mill. il Elec R 76:345-7 F 28 '20

- Fifty-ton sulphite paper mill requires 1,500 hp. in motors. H. E. Stafford. Elec W 77:265-8 Ja 29 '21

- New form of sectional drive for paper machines. W. W. Cronkhite, W. L. Merrill and H. W. Rogers. il diags Gen Elec R 24:68-72 Ja '21

- Paper machine drives. W. W. Cronkhite. Paper 28:21-2 Je 29 '21

- Recent developments in the field of paper machine drives. H. W. Rogers. il Paper 28:22-6 My 11 '21

- Sectional and individual motor drive. S. A. Staeger. diags Paper 27:74-7+ N 10 '20

- Sectionalized driving equipment for paper mills. il Elec R 77:1022-3 D 25 '20; Same. Paper 27:24-5 D 22 '20

- Value of central station service in the paper industry. J. W. Wattles. N E L A Bul 8:294-6 My '21

Rolling mills

- Adjustable-speed motor equipment rolling mills. F. Jeffrey. il diags Power 51:408-12 Mr 16 '20

- Application of power in steel mill specially considered at 14th annual convention of Association of iron and steel electrical engineers, New York. il Elec W 76:673-6 O 2 '20; Elec R 77:531-4 O 2 '20

- Cost of rolling steel in blooming mills. G. E. Stoltz. Iron Age 108:998-9; Discussion. 999-1000 O 20 '21

- Development of the steel industry during the war in Germany. H. Hermanns. diags Blast F & Steel Pl 9:202-5 Mr '21

- Direct current compared with three-phase current for driving steel works plant. C. A. Ablett. Engineering 109:664-6 My 14 '20; Abstracts. Engineer 129:521 My 21 '20; Electrician 84:549 My 14 '20; Power Pl Eng 24:704-5 Jl 15 '20; Discussion. Engineering 109:643-4 My 14 '20; Engineer 129:521-2 My 21 '20

- Economics of roll trains. A. Dyckerhoff. diags Iron Tr R 68:279-82 Ja 27 '21

- Electric drive for rolling mill for lead sheets. il Engineering 109:215, 218 F 13 '20

- Electric drive of rolling mills. W. E. Taylor and C. E. Raeburn. Electrician 85:524-8 N 5 '20

- Electric drives for band mills; abstracts. A. W. Mohrman. Blast F & Steel Pl 8:394 Jl '20; Iron Tr R 67:104-5 Jl 8 '20

- Electric reversing mill considered from the standpoint of tonnage. K. A. Pauly. Gen Elec R 23:886-92 N '20; Excerpts. Blast F & Steel Pl 8:541-4 O '20

- Electric rolling mill drive equipment. J. D. Wright. diags Blast F & Steel Pl 8:245-8 Ap '20; Same. Iron Tr R 66:913-14 Mr 25 '20; Abstract. Power 51:115 Ja 20 '20

- Electrical development in steel mills. R. B. Gerhardt. Iron Age 108:1135-6 N 3 '21

- Electrical rolling mills at Templeborough. il (supp) diags Engineer 128:586-8 D 12 '19

- Electrically driven reversing rolling mills. W. Sykes. il Iron Age 104:1332-3 D 25 '19

- Electrically driven sheet mills. O. Needham. il diags Blast F & Steel Pl 9:90-1 Ja '21

- Electrically driven steel reversing mills. F. Jeffrey. il chart diags Power 51:1030-3 Je 29 '20

Electric driving—Rolling mills—Continued

- Electrically-driven tin plate mills; a comparison of Welsh and American practice. W. E. Taylor. *il Electrician* 85:592-5 N 19 '20
- Electricity in a large modern steel plant. R. B. Gerhardt. *Blast F & Steel Pl* 8:295-8, 458-61 My, Ag '20; Abstracts. *Power* 51:445 Mr 16 '20; *Iron Age* 105:1657-60 Je 10 '20
- Factors which determine the selection of motors for main roll drive. G. E. Stoltz. *il diags Eng Soc W Pa* 36:492-507; Discussion. 508-17 O '20
- Features of electric drive in a blooming mill. B. M. Jones. *il Elec R* 77:431-4 S 18 '20
- First reversing mill drive in this country. W. S. Hall. *il Elec J* 18:400-1 S '21
- 44-inch reversing blooming mill engine replaced by electric motor. B. M. Jones. *il Blast F & Steel Pl* 9:164-6+ F '21; Same. *Iron Tr R* 68:491-3 F 17 '21; Same. *Elec R* 78:729-32 My 7 '21; Same. *Power Pl Eng* 25:721-4 J1 15 '21; Excerpts. *Elec W* 77:715-16 Mr 26 '21; Excerpts. *Iron Age* 107:1386-7 My 26 '21
- Iron and steel men discuss development in electric main-roll drive. *Elec W* 78:683-4 O 1 '21
- Large blooming mill motor drive completed for Tata iron and steel co., Jamshedpur, India. *il Blast F & Steel Pl* 9:316-17 My '21; *Iron Tr R* 68:1112-13 Ap 21 '21; *Iron Age* 107:1618 Je 16 '21
- Largest rolling mill in the world. *il diags Electrician* 84:519-21, 545-8 My 7-14 '20
- Motor drive for rolling mill on Pacific coast. *Elec R* 79:698 N 5 '21
- Motor driven plate mills. F. D. Egan. *il diags Elec J* 18:414-19 S '21
- Motor drives featured on rolls and runout table. *il Iron Age* 108:946-7 O 13 '21
- Power drives for rolling mills. W. O. Rogers. *il Power* 52:90-3, 171-6 J1 20, Ag 3 '20
- Rolling mill drives. L. Rothera. *il Electrician* 85:514-17 N 5 '20
- Selection of alternating current motors for mill work. J. Conzelman. *Blast F & Steel Pl* 8:664-9 D '20
- Sheet and tin mills. A. B. Holcomb. *Iron Age* 106:1665 D 23 '20
- Some methods of obtaining adjustable speed with electrically driven rolling mills. K. A. Pauly. *il diags Eng Soc W Pa* 37:158-78 Ap '21; Same. *Gen Elec R* 24:422-32 My '21; Abstract. *Sci Am M* 4:87 J1 '21; Discussion. *Eng Soc W Pa* 37:179-88 Ap '21
- Substations for reversing mill motors. G. P. Wilson. *il diags plan Elec J* 18:389-95 S '21
- Variable speed rolling mill drives; relative advantages of direct and alternating current. W. E. Swale. *diags Electrician* 85:522-3 N 5 '20

Rubber factories

- Application of electric power to the rubber industry. *Am Inst E E J* 40:35-47 Ja '21
- Electric drive in a tire and tube plant. H. F. Barton. *il India Rubber W* 62:642 J1 '20
- Electric motors for driving rubber-mill machinery. W. H. Easton. *il Power* 52:331-3 Ag 31 '20
- Electrical equipment used in Ohio rubber plants. H. C. Stephens. *Elec W* 75:956-7 Ap 24 '20
- Electricity in a California rubber factory. P. C. Jones. *il diag J Elec* 46:69-71 Ja 15 '21

Sawmills

- Application of electrical energy in lumber mills. W. A. Scott. *il Elec R* 79:685-8 N 5 '21
- Changing a sawmill to electric drive. *il J Elec* 43:495 D 1 '19
- Electrical drives for lumber mills. J. A. Franklin. *il Power* 51:536-40 Ap 6 '20
- Electrical equipment of an Oregon lumber mill. *Elec R* 76:733-4 My 1 '20
- Electrically driven saw mills. A. E. Hall. *il Mech Eng* 43:95-7 F '21

Shipyards

- Electric motors for shipyard machinery. W. Harrison, J. Goldsborough and W. H. Easton. *il Int Marine Eng* 25:469-75 Je '20

- Motors for operating floating dry docks. W. H. Easton. *il Marine Eng* 25:794-7 O '20

Textile mills

- Central station and the textile mill. F. S. Root. *il Elec J* 18:487-9 N '21
- Considerations in the application of electricity to textile mills. J. T. Randles. *il Electrician* 86:153-6 F 4 '21
- Continental practice in the electrical driving of textile factories. W. D. Fox. *Electrician* 86:165-8 F 4 '21; Excerpts. *Elec W* 77:718 Mr 26 '21
- Cotton gin shows energy consumption of 16.5 kw.-hr. per bale. *Elec W* 77:324 F 5 '21
- Development of electric supply to textile mills. W. Browning. *Electrician* 84:263-5 Mr 5 '20
- Electric drives on tentering machines. C. T. Guilford. *il diags Textile World* 60:1631+ S 17 '21
- Electric power supply of southern textile mills. J. E. Sirrine. *il map Mech Eng* 42:161-3+ Mr '20
- Electric service at Naumkeag cotton mills. *il Elec W* 74:933-6 N 15 '19
- Electrical driving of cotton spinning mills. V. Mallalieu. *Electrician* 84:275-6 Mr 5 '20
- Electrical power in the textile industry. F. H. Rudd. *Electrician* 86:174-6 F 4 '21
- Electricity supply in Dundee textile mills. C. Lamb. *Electrician* 84:270-2 Mr 5 '20
- Electro-textile progress. *Electrician* 86:148-9 F 4 '21
- Fuel saving in bleaching, dyeing and finishing. L. Loeb. *il diags plan Textile World* 59:1103-5+ F 5 '21
- Individual gear drive for heavy looms. G. F. Sills. *il diags Electrician* 86:150-3 F 4 '21; Abstract. *Mech Eng* 43:335 My '21
- Individual motor drive for spinning and twister frames. G. Wrigley. *il Elec J* 18:501-3 N '21
- Modern methods of driving machines in jute manufacture. T. Woodhouse and P. Kilgour. *il Electrician* 86:159-65 F 4 '21
- Modernized plant of Prudential worsted co. J. B. Parks. *il Elec J* 18:489-90 N '21
- Motors are attached directly to textile machines. *il Elec R* 77:713 N 6 '20
- Motors for full fashioned knitting. C. T. Guilford. *il Textile World* 59:3269+ My 14 '21
- Power applications to cotton-finishing plants. L. Loeb. *il Mech Eng* 43:5-8 Ja '21; Abstract. *Power* 53:405-7 Mr 8 '21
- Silk-mill production aided by applying variable-speed drive to twistors. *il Elec W* 77:886 Ap 16 '21
- Silk throwing and electric drive. C. T. Guilford. *il diags Elec J* 18:512-15 N '21
- Textile mill equipment—its advance and systems. C. S. Ickringill. *il Electrician* 84:254-9 Mr 5 '20
- Transmission and distribution of electricity in textile mills and works. W. T. Reynolds. *Electrician* 84:268-70 Mr 5 '20
- Value of central station service in the cotton industry. F. E. Sawyer and H. E. Duren. *N E L A Bul* 8:586-90 O '21
- Variable speed motor in finishing. W. B. Lewis. *il Textile World* 60:77+, 681+ J1 2, 30 '21; Same cond. *Mech Eng* 43:589-92 S '21; Excerpts. *Power* 54:272-3 Ag 16 '21
- Electric dryers. See Drying apparatus
- Electric elevators. See Elevators, Electric
- Electric engineering
American electricians' handbook. T. Croft. 2d ed. 823p McGraw-Hill '21
Course in electrical engineering. C. L. Dawes. 496p McGraw-Hill '20
Developments in the electrical industry during 1919. J. Liston. *il diags plan Gen Elec R* 23:4-56 Ja '20; Abstract. *Elec Ry J* 55:394-5 F 21 '20
Discussions at 14th annual convention of Association of iron and steel electrical engineers, New York. *il Elec W* 76:673-6 O 2 '20; *Elec R* 77:531-4 O 2 '20
Electrical construction developments in South America. *Elec R* 78:65-7 Ja 8 '21
Electrical engineering in 1919. *Engineer* 129:8-10 Ja 2 '20

Electric engineering —Continued

- Electrical engineering in 1920. Engineer 131: 18-20 Ja 7 '21
- Electrical power industry for 1920 in retrospect. F. A. Annett. Power 53:16-17 Ja 4 '21
- Elementary electrical engineering. R. P. Clarkson. 187p Van Nostrand '20
- Elements of direct current electrical engineering. H. F. Trewman and G. E. Condliffe. 219p Pitman '21
- Engineering developments of 1920-21. Elec W 77:17-46 Ja 1 '21
- Engineering electricity. R. G. Hudson. 190p Wiley '20
- Fundamental principles of electric and magnetic circuits. F. A. Fish. 194p McGraw-Hill '20
- Progress in electric engineering during the war; abstract. E. Rosenberg. Sci Am M 2: 184-5 O '20
- Rudiments of electrical engineering. P. Kemp. 255p Macmillan '20
- Seventy-five years of applied electricity. il Sci Am 123:331-3+ O 2 '20
- Some developments in the electrical industry during 1920. J. Liston. il diags Gen Elec R 24:4-49 Ja '21; Excerpts. Elec R 78:123-8 Ja 22 '21
- South Midland centre: addresses before the various sections of the I.E.E. F. Forrest and others. Inst E E J 59:21-9+ D '20
- Succeeding in electrical engineering. R. F. Yates. Sci Am 122:389+ Ap 10 '20
- Summary of 1920 developments in the electrical industry. A. A. Gray. il Elec R 78: 1-12 Ja 1 '21
- Text-book of electrical engineering; tr. from the German of Dr Adolf Thomälen, by G. W. O. Howe. 5th ed. 482p E. Arnold, London '20
- Whittaker's electrical engineer's pocketbook. R. E. Neale. 4th ed. 671p Pitman '20

See also Armatures; Commutation (electricity); Commutators; Electric apparatus and appliances; Electric contractors; Electric distribution; Electric driving; Electric generators; Electric heating; Electric lighting; Electric lines; Electric machinery; Electric measurement; Electric meters; Electric motors; Electric plants; Electric railroads; Electric transmission; Electric wire and wiring; Electricity; Electricity in mining; Electricity on the farm; Hydroelectric plants; Railroads—Electrification; Ship propulsion, Electric; Telegraph; Telephone; Wireless telegraph; *also* the subdivision Electric equipment under various subjects, e.g. Automobiles—Electric equipment, Foundries—Electric equipment, Railroads—Electric equipment, Ships—Electric equipment, Steel works—Electric equipment

Bibliography

Condensed references to some of the more important articles in the technical press, as selected by the G-E main library. See Library section of monthly numbers of General electric review

Examinations

Associate membership examination papers. Inst E E J 59:sup38-9 Jl '21

History

Electrical science and industry; past progress and future developments. L. B. Atkinson. Inst E E J 59:1-20 D '20; Abstracts. Electrician 85:616-19 N 26 '20; Engineer 130:536-7 N 26 '20; Engineering 110: 709-10 N 26 '20

Fragment of history. Electrician 85:175 Ag 13 '20

Laws and regulations

Conditions techniques imposées aux distributions d'énergie électrique, en application de la loi du 18 juin 1906. diags Génie Civil 79: 353-4 O 22 '21

History of electrical regulation in Oregon. J Elec 46:249-50 Mr 1 '21

Portland rearranges electric installation code. Elec R 78:188 Ja 29 '21

Safety code administration. R. L. Eltringham. Elec W 77:317 F 5 '21

Safety devices and measures

Accident prevention; its importance in industry. N E L A Bul 7:903-4 D '20

Accidents avoided through knowledge and obeying rules. W. Greenwood. Elec W 78: 675-6 O 1 '21

Care in construction and maintenance of overhead lines. A. B. Gates. Elec Ry J 58:655-6 O 8 '21

City electrical department interprets rules. Elec R 76:1075-6 Je 26 '20

Comments on electrical construction practice. Elec R 78:189 Ja 29 '21

Hazards and safety in electricity. Elec R 78: 704-5 Ap 30 '21

Indoor substations. E. F. Bracken. il N E L A Bul 7:418-20 Jl '20; Same abr. Elec Ry J 56:75-6 Jl 10 '20

Inspectors discuss electrical fire and life hazards. Elec R 76:194-6 Ja 31 '20

Protect workmen by inclosing switches. A. Waldschmidt. il Elec W 75:729-31 Mr 27 '20

Result of the work of Electrical safety conference during the past two years. Safety Eng 41:118-21 Mr '21

Safe method of tapping live high-tension lines. R. L. Dodd. diags Elec W 75:609 Mr 13 '20

Safety features on high voltage transmission lines. C. O. von Dannenberg. Safety Eng 42:15-17 Jl '21

Safety for electrical equipment. W. D. Keefer. il Power Pl Eng 25:814-18 Ag 15 '21

Safety in relation to electrical appliances. D. Pierce. Safety Eng 41:206-12 My '21; Same. Elec R 78:819-22 My 21 '21

Safety rules aid electrical department at industrial plant. Elec W 78:325-7 Ag 13 '21

Working safely on live high-tension lines. H. J. Burton. N E L A Bul 7:516-20 Ag '20

See also Electric protective apparatus; Electricity; Linemen's equipment; National electric safety code; National electrical code

Study and teaching

Electrical engineering students increase. Elec W 77:141-2 Ja 15 '21

New co-operative course in electrical engineering. W. H. Timbie. Gen Elec R 23:784-90 S '20; Abstract. Sci Am M 2:183-4 O '20

Tables, calculations, etc.

Calculating characteristics of synchronous machines. J. H. Kuhlman. charts Elec R 79:342-6 S 3 '21

Calculation: inductance, capacity and resistance in series and in parallel. diags Gen Elec R 23:552-3 Je '20

Calculation of synchronizing power. E. S. Henningsen. diags Gen Elec R 24:951-6 N '21

Chart shows turbines to use for different loads on plant. S. N. Clark. Elec W 76: 127-8 Jl 17 '20

Charts show tension and sag for transmission lines. Elec W 76:529-30 S 11 '20

Charts to solve power-factor correction problems. A. Rudin. charts diags Elec W 77: 101-2 Ja 8 '21

Circle diagram of polyphase induction motors. J. K. Kostko. diags Am Inst E E J 40:326-32 Ap '21

Computing power-factor problems by graphic methods. T. Schou. diags Elec R 78:860-6 My 28 '21

Connecting three-phase induction motors. A. C. Roe. diags (supp) Elec W 76:170-1 Jl 24 '20

Determining corona voltages for actual lines. F. W. Peek, jr. il Elec W 76:1258-9 D 25 '20

Dynamo output formulae. J. K. Catterson-Smith. Electrician 84:138 F 6 '20

Economic voltage of long transmission lines. H. H. Plumb. diags Am Inst E E J 39: 377-81 Ap '20

Economy study of secondary distribution. P. O. Reyneau and H. P. Seelye. Am Inst E E J 39:861-74 O '20

Electric engineering—Tables, calculations, etc.
—Continued

- Electrical calculations of long-distance high-voltage transmission lines. A. McKinstry. diags Inst E E J 57:sup92-117 '19
- Electrical characteristics of transmission circuits. W. Nesbit. chart diags Elec J 16: 279-87, 314-26, 385-96, 485-9, 515-19; 17:21-4, 66-77, 104-18, 146-56, 257-63, 350-3, 527-32, 575-82 J1-S, N '19-Ap, Je, Ag, N-D '20
- Electrostatic transformers and coupling coefficients. F. C. Blake. diags Am Inst E E J 40:23-9 Ja '21
- Essential design data for choosing synchronous machines. T. Schou. diags Elec W 77:1033-7 My 7 '21
- Formula for calculating alternating-current voltage drop. C. E. Warsaw. Elec W 77: 263 Ja 29 '21
- Graphical calculation of interconnected a. c. circuits. A. S. McAllister. diags Elec W 77: 1359-63 Je 11 '21
- How to calculate a new winding for an induction-motor stator core. A. M. Dudley. diags Power 52:13-18 J1 6 '20
- How to measure average power factor with reactive-component meters. diags Elec W 77:1491-2 Je 25 '21
- Induction motor nomogram; a movable diagram for reading all performance characteristics of any three-phase induction motor. R. G. Warner. diags Am Inst E E J 40:808-14 O '21
- Localisation of high-resistance breaks in submarine cables. A. Poulsen. diags Electrician 84:312-15 Mr 19 '20
- Long-distance transmission of electric energy. L. E. Imlay. diags Am Inst E E J 40:507-16 Je '21
- Low power factor; its causes, effects, measurement and remedies. C. W. Bates. N E L A Bul 8:520-31 S '21
- Magnetic force in disconnecting switches. H. B. Dwight. Electrician 87:290-1 S 2 '21
- Mathematical analysis of the mechanical forces acting on switches and busbars. L. B. W. Jolley. diags Electrician 85:646-7, 676-7 D 3-10 '20
- Maximum allowable working voltages in cables. C. W. Davis and D. M. Simons. diags Am Inst E E J 40:12-22 Ja '21
- Mean error of an electricity meter. G. W. Stubbings. Inst E E J 59:335-8 Mr '21
- New short-circuit calculating table. W. W. Lewis. il diag Gen Elec R 23:669-71 Ag '20
- New viewpoint on induction motor diagram. R. G. Warner. diags Elec W 77:980-1 Ap 30 '21
- Permissible operating temperatures of impregnated paper insulation in which dielectric stress is low. P. Torchio. Am Inst E E J 40:96-104 F '21; Abstract. Elec W 77:413-15 F 19 '21
- Power control and stability of electric generating stations. C. P. Steinmetz. diags Gen Elec R 23:688-701, 756-68 Ag-S '20
- Practical method for calculating operating characteristics of magnet coils. C. R. Underhill. Elec W 78:872-5 O 29 '21
- Problem course in electricity. H. H. Bliss. diags J Elec 45:78-9, 119-20; 46:81-3, 252-5 J1 15-Ag 1 '20, Ja 15, Mr 1 '21
- Proof of the formula for determining the self-induction of a coil using the $\sqrt{-1}$ function. H. F. Trewman. diags Electrician 85: 622-3 N 26 '20
- Propagation of periodic currents over non-uniform lines. J. R. Carson. Electrician 86:272-3 Mr 4 '21
- Quick line calculation without charts or tables. A. Burt. Elec W 78:417-19 Ag 27 '21
- Reconnecting two-phase induction motors. A. C. Roe. diags (supp) Elec W 76:683-4 O 2 '20
- Regulation and inductive effects in single-phase railway circuits. A. W. Copley. diags Elec J 17:326-38 Ag '20
- Regulation of synchronous generators. A. G. Warren. diags Electrician 86:581-3, 654-6 My 13, 27 '21
- Some corona loss tests. W. W. Lewis. diags Gen Elec R 23:419-26 My '20

- Some transmission line tests. W. W. Lewis. diags Am Inst E E J 40:492-506 Je '21
- Sparking voltages between spherical electrodes. A. Russell. Inst E E J 57:sup223-30 '19
- Statical methods of calculating the potential relationships and fault resistances of direct current networks. G. W. Stubbings. diags Electrician 85:586-7 N 19 '20
- Step-by-step integration of curve areas of phase significance. C. L. Clarke. diags Gen Elec R 23:917-27 N '20
- Stresses in suspended wires and cables. F. E. Austin. diags Elec R 77:4-7, 203-6 J1 3, Ag 7 '20
- Studies in lightning protection on 4000-volt circuits. D. W. Roper. diags maps Am Inst E E J 39:960-75 N '20; Same cond. Gen Elec R 23:985-98; Discussion. C. P. Steinmetz and others. 23:998-1004 D '20
- Theory of the three-phase variable speed shunt commutator motor. J. L. D. Ridsdale. Electrician 86:448-50, 478-81, 515-17, 546-8 Ap 15-My 6 '21
- Transformers for interconnecting high-voltage transmission systems for feeding synchronous condensers from a tertiary winding. J. F. Peters and M. E. Skinner. diags Am Inst E E J 40:483-9 Je '21
- Transmission line circuit constants and resonance. R. D. Evans and H. K. Sels. diags Elec J 18:306-9 J1 '21
- Transmission of electric waves along wires; a vector method involving only elementary mathematics. A. G. Warren. diags Inst E E J 59:330-4 Mr '21
- Treatment of harmonics in alternating current theory by means of a harmonic algebra. A. Press. diags Univ of Cal Pub in Engineering v 2, no 5:139-204 '19
- Unit voltage duties in long suspension insulators. H. J. Ryan and H. H. Henline. diags Am Inst E E J 39:631-6 J1 '20; Abstract. J Elec 45:9 J1 1 '20
- Use of the tangent chart for solving transmission line problems. R. S. Brown. diags Am Inst E E J 40:854-64 N '21
- Voltage and current harmonics caused by corona. F. W. Peek, jr. il diags Am Inst E E J 40:455-61 Je '21

See also Electric lighting—Tables, calculations, etc.; Electric measurement; Electric wire and wiring—Tables, calculations, etc.; Electricity—Tables, calculations, etc.

Terminology

- Motor-control equipment and its application; controller engineering nomenclature. G. J. Kirkgasser and E. W. Seeger. il Elec R 77:835-7 N 27 '20

See also Electric symbols

Electric engineering societies

- Some early electrical societies. J. E. Kingsbury. Electrician 86:580 My 13 '21

Electric equipment

- Application of power to modern industry. il Elec W 76:165-7 J1 24 '20
- Automatic substation equipment for industrial plants. R. J. Wensley. il Elec R 77: 789-93 N 20 '20; Abstract. Power 52:760-1 N 9 '20
- Choice of electrical equipment for gold and silver mining. B. B. Beckett. J Elec 44: 440-2 My 1 '20
- Electrical equipment of artisan dwellings. L. Milne. Inst E E J 58:464-7; Discussion. 476-90 Je '20
- Electrical equipment of Fowey harbour; handling china clay by modern methods. il diags plan Electrician 85:269-75 S 3 '20
- Electricity in food distribution. C. M. Heintz. il J Elec 44:54-5 Ja 15 '20
- Electrifying Yosemite valley. N. S. Gallison. il J Elec 46:432-5 My 1 '21
- Manufacturing fun at Idora Park, Oakland, California. il J Elec 45:178-80 Ag 15 '20
- Number of spare parts for electrical equipment to keep in stock in industrial plant. F. Krug. Elec W 77:1169-70 My 21 '21
- Raising chickens electrically. M. S. Barnes. il J Elec 45:176-7 Ag 15 '20; Same. Elec R (Lond) 89:316 S 2 '21

Electric equipment—Continued

Use of electricity in the rebuilding of Pullman cars; Richmond plant of Pullman company. F. E. Beck. *il J Elec* 46:329-30 Ap 1 '21

See also Automobiles—Electric equipment; Camps—Electric equipment; Electric apparatus and appliances; Electric distribution; Electric driving; Electric lighting; Electric power; Electric railroads—Equipment; Electric transmission; Electricity in freight handling; Electricity in mining; Electricity on the farm; Foundries—Electric equipment; Gravel plants—Electric equipment; Hotels—Electric equipment; Paper mills—Electric equipment; Railroads—Electric equipment; Railroads—Shops—Electric equipment; Rolling mills—Electric equipment; Sawmills; Ships—Electric equipment; Shipyards—Electric equipment; Steel works—Electric equipment; Terminals—Electric equipment; *also* General electric company

Cost

See also Electric plants (central stations)—Costs

Drying

Drying out a generator, switchboard and motors after a flood. K. A. Reed. *il diag Power* 51:250-1 F 17 '20

Electrical aspects of the Pueblo floods. A. L. Jones. *il Gen Elec R* 24:846-52 O '21

How electrical apparatus was restored after being deeply submerged. E. J. Gealy. *il Coal Age* 18:540-1 S 9 '20

Electric fabric

Electrically heated aviator's clothing. *il Aerial Age* 10:458-9 Ja 5 '20

Electric fans

Adapting 25-cycle desk fan to 60 cycles. *diags Power* 54:613-14 O 18 '21

Bailey junior variable-speed fan with fixed-speed motor. *il Elec R* 79:365 S 3 '21

Central Maine power company goes after fan business. *Elec W* 78:78 JI 9 '21

De luxe electric fans designed for decorative schemes. *Elec R* 76:913 My 29 '20

Electric fan business from the manufacturers' viewpoint. *Elec R* 77:846 N 27 '20

Electric fan exports in first half of year. *Elec W* 75:101-2 Ja 10 '20

Electric fan proves its universal usefulness. *Elec R* 76:679-82 Ap 24 '20

Fan manufacturers optimistic over prospects for 1921. *Elec W* 76:756 O 9 '20

Freezor fan manufacture. *il Electrician* 87:298-9 S 2 '21

Industrial uses of the electric fan. C. B. Merrick. *il J Elec* 46:184-5 F 15 '21

Machining electric fan spindles. *il diags Electrician* 87:492-3 O 14 '21

Making a pressed-steel base for an electric fan. H. Jay. *il diags Am Mach* 53:361-2 Ag 19 '20

Advertising

Bases big drive on new uses rather than low prices. E. T. Tandy. *Ptr Ink* 116:17-20+ JI 28 '21

Electric fans, Ventilating

Contractor sales possibilities of ventilating fans. G. C. Breidert. *il Elec R* 79:455-8 S 24 '21

Developing a market for electric ventilating units. W. B. Eastwood. *il Elec R* 79:609-12 O 22 '21

New principle applied to electric fan and exhaustor. *il Elec R* 79:332 Ag 27 '21

Electric fittings

Blocs en porcelaine, système Mars, pour petit appareillage électrique. G. Espitalier. *Génie Civil* 79:315 O 8 '21

Dies for electrical terminals and connectors. J. A. Honegger. *diags plan Mach* 27:626-9 Mr '21

Ediswan junction boxes. *il diag Elec R* (Lond) 88:134-5 F 4 '21

Figuring diameter of three-surface tangent plug. F. W. Shaw. *diag Am Mach* 53:683-4 O 7 '20

Interim report of wiring committee recommending the use of separable plugs as preferable to the use of solid or swivel plugs. N E L A Bul 8:87 F '21

New link disconnecting boxes. *il diags Elec R* (Lond) 88:437-8 Ap 8 '21

Octagon outlet box for use in concrete buildings. *il Elec R* 78:443-4 Mr 12 '21

Possibilities of the convenience outlet campaign. G. Young. *J Elec* 46:33-5 Ja 1 '21

Progress in standardization of plugs and receptacles. W. D. Yates. *Elec R* 77:1003-4 D 25 '20

Side outlets fastened in concrete forms with wire or screw. L. L. Afton. *diags Elec W* 75:442 F 21 '20

See also Electric apparatus and appliances; Electric conduits; Electric light fixtures

Electric flashlights

Discuss development of flashlight battery. *Elec R* 79:670-1 O 29 '21

Dynamo flashlight gives glow for thirty seconds. *il Pop Mech* 35:886 Je '21

Tubular flashlights designed for outdoor use. *Elec R* 78:752 My 7 '21

Electric flatirons. *See* Electric irons

Electric furnaces

Ajax-Northrup electric furnace. D. Willcox. *il diags Metal Ind* 18:213-16 My '20

Baily electric resistance furnace for heating sheets previous to stamping and forming. *il Iron Age* 108:255 Ag 4 '21; Same. *Elec R* 79:213 Ag 6 '21; Same cond. *Am Mach* 55:242-3 Ag 11 '21

Comparison of electric furnace practice with fuel-fired furnace practice. N. K. B. Patch. *Am Electrochem Soc Trans v* 40 (preprint 22):287-90 S '21

Economical electrical furnace operation through preheating charges; new type developed by Industrial electric furnace co. *il Elec R* 76:145-6 Ja 24 '20; *Iron Tr R* 66:292 Ja 22 '20

Electric furnace. H. Moissan. 313p The Chemical publishing company, Easton, Pa. '20

Electric furnace. J. N. Pring. 485p [bibliog. p. 457-82] Longmans '21

Electric furnace association meeting, Boston, April 7. *Elec R* 76:660-1 Ap 17 '20

Electric furnace developments during 1919. Blast F & Steel Pl 8:45-6 Ja '20; Same cond. *Sci Am M* 1:377-8 Ap '20

Electric furnace discussion at a joint meeting of the Institution of electrical engineers and the Iron and steel institute, 8 May, 1919. *diag Inst E E J* 57:sup276-305 '19

Electric furnace in operation; rolling cylinder type of Greene arc furnace. *il J Elec* 43:560 D 15 '19

Electric furnace industry has wide scope. F. Hodson. *Elec R* 77:167-8 JI 31 '20

Electric furnace progress. *Metal Ind* 18:65-7, 116-17 F-Mr '20

Electric furnace progress in 1921. E. T. Moore. *Iron Age* 108:723-4 S 22 '21

Electric furnace usage fast increasing. *Elec W* 77:77-9 Ja 8 '21

Electric furnaces in California. W. M. Shepard. *J Elec* 44:358-60 Ap 15 '20

Electric melting furnace; symposium of articles on early history and development into various commercial types. *il diags Am Inst E E J* 39:1034-43 D '20; Abstract. *Mech Eng* 43:123-5 F '21

Electric resistance furnaces. E. P. Barfield. *Elec R* (Lond) 89:364 S 16 '21

Electric torch for industrial uses. *il Pop Mech* 36:228 Ag '21

Electric vs. combustion furnaces for low temperatures. F. W. Brooke and G. P. Mills. *Chem & Met Eng* 23:1008-10 N 24 '20

Electrodynamic forces in electric furnaces. C. Hering. *diags Am Electrochem Soc Trans v* 39 (preprint 19):201-11 Ap '21

Experiments on the possible influence of potential difference on the radiation of the tube resistance furnace. A. S. King. 11p 20 pls Carnegie institution of Washington '21 [Reprinted from the *Astrophysical journal*, vols. 52 and 53, 1920 and 1921]

Electric furnaces—Continued

- Induction furnace. diag. Chem & Met Eng 22:282 F 11 '20
- Jewelers' furnace found satisfactory. F. C. Taylor. Elec W 75:273-4 Ja 31 '20
- New type of electric furnace. A. Sahlin. diags Inst E E J 57:sup265-7 '19
- Operating details of electric furnaces; excerpt from a report of the Electric furnace committee of the A.I.S.E.E. E: T. Moore. il diags Chem & Met Eng 24:171-6 Ja 26 '21; Same abr. Blast F & Steel Pl 8:556-8 O '20
- Phenomena observed in electric furnace arcs. J. Kelleher. diags Am Electrochem Soc Trans v 38 (preprint 11):81-6 O '20; Abstract. Chem & Met Eng 23:721-2 O 13 '20
- Portable electric furnace used in stamping plant. il Pop Mech 36:695 N '21
- Recent developments of the electric furnace in Great Britain; abstracts. D. F. Campbell. Electrician 85:161 Ag 6 '20; Iron Age 106:384-5 Ag 12 '20
- Recent progress in high frequency inductive heating. E. F. Northrup. il diags Am Electrochem Soc Trans v 39 (preprint 18):179-200 Ap '21; Same abr. Chem & Met Eng 24:1097-1100 Je 22 '21; Same abr. Foundry 49:573-5 Jl 15 '21
- Rennerfelt electric reverberatory furnace. H. A. De Fries. diags Chem & Met Eng 22:280-1 F 11 '20
- Resistance and reactance of electric furnace leads. diags Elec R 77:157-9 Jl 31 '20
- Resistance type electric furnace for sheet heating. il Chem & Met Eng 25:567-8 S 21 '21
- Secondary conductors for electric furnaces. E: T. Moore. il diags Elec J 17:422-7 S '20
- Slag cement manufacture in electric furnaces. Engineering 112:103-4 Jl 15 '21; Same cond. Sci Am M 4:282 S '21
- Square deal for the electric furnace. H. G. Weidenthal. Chem & Met Eng 21:779-80 D 24 '19
- Temperature uniformity in an electric furnace. J: B. Ferguson. diags Chem & Met Eng 20:283-8 Mr 15 '19; Same. Sci Am S 88:342-4 D 6 '19
- Training men for electric furnace work; abstracts. A. Smith. Iron Tr R 66:1272-3 Ap 29 '20; Elec W 75:1001-2 My 1 '20; Foundry 48:344 My 1 '20
- Volta three-phase electric furnace. il diag Metal Ind 19:191-2 My '21
- Weeks electric furnace. S. H. Ourbacker. il Am Inst E E J 39:1039-41 D '20
- Wild-Barfield electric furnace. L. W. Wild. il diag Chem & Met Eng 23:699-700 O 6 '20
- Wild Barfield electric furnaces. il Electrician 85:212-13 Ag 20 '20

See also Electrometallurgy

Bibliography

- Electric furnace as applied to metallurgy; a reading list, 1900-1919. C. J. West. 92p '20
- Arthur D. Little, Inc., Cambridge, Mass. [Reprinted from the Transactions of the American Electrochemical Society v. 37, 1920]

Control

- Automatic control of arc furnace electrodes. J. A. Seede. il charts Am Inst E E J 39:593-7 Je '20
- Automatic regulation of electric arc furnaces. il diags Elec R 77:243-7 Ag 14 '20
- Automatic regulation of electric arc furnaces. G. Y. Allen. il diags Elec J 17:397-402 S '20
- Control in annealing. G: P. Mills. Iron Age 107:692 Mr 17 '21
- Electric furnace regulator saves time and current. il Pop Mech 35:842 Je '21
- Furnace regulator system; patent. diag Chem & Met Eng 22:138-9 Ja 21 '20
- Regulation of electric furnaces. C. B. Gibson. Elec J 17:361 S '20
- Regulation of electric steel arc furnaces using movable electrodes. W. G. Mylius. il diags Am Electrochem Soc Trans v 39 (preprint 20):213-25 Ap '21; Excerpt. Electrician 87:516 O 21 '21

- Step-induction regulator for electric furnace voltage control. il diag Chem & Met Eng 23:393-4 S 1 '20; Same abr. Min & Sci P 121:507-8 O 2 '20
- Step induction regulator for electric furnaces. P. B. Short. il diag Am Electrochem Soc Trans v 37 (preprint 3):35-42 Ap '20; Same. Elec R 76:607-9 Ap 10 '20; Abstract. Elec W 76:527 S 11 '20
- Westinghouse electric arc furnace regulator. Mach 27:195-6 O '20; Iron Age 106:1129 O 28 '20; Iron Tr R 67:1067 O 14 '20; Chem & Met Eng 23:939 N 10 '20

Cooling

- Device cools port holes of electric furnaces. Iron Tr R 66:1413 My 13 '20; Same. Foundry 48:581-2 Jl 15 '20

Cost of operation

- Comparing costs of steel making. E. H. Ballard. Foundry 48:697-8 S 1 '20; Same cond. Blast F & Steel Pl 8:62 Ja '20
- Comparisons of melting costs by Ohio steel castings company. il Foundry 49:315-18 Ap 15 '21; Same. Iron Tr R 69:167-70 Jl 21 '21
- Cost of melting non-ferrous metals; disadvantages of electric furnace. Metal Ind 19:166 Ap '21; Discussion. 19:240-1, 358-9 Je, S '21
- Electric furnace costs better oil-heating figures for hardening tools. Elec W 78:276 Ag 6 '21
- Electric furnace possibilities in the Western iron industry. R. C. Gosrow. J Elec 47:265-6 O 1 '21
- Electric melting in an oil furnace. W: J. Reardon. diags Metal Ind 18:207-10 My '20
- Melting of some non-ferrous metals and their alloys in electric furnace. E. F. Collins. il charts diags Chem & Met Eng 21:673-9 N 26 '19
- Relative thermal economy of electric and fuel-fired furnaces; cost tables. E. F. Collins. il Gen Elec R 23:768-73 S '20

Electrodes

- Decreasing electrode consumption in electric furnace. Elec W 77:776 Ap 2 '21
- Economizer reduces heat dissipation. F. Hodson. il diag Iron Tr R 68:1180-1 Ap 28 '21
- Electric practice in making ferroalloys. W. A. Darrah. Iron Age 105:1019-21 Ap 8 '20
- Electricity plays important part in Connecticut steel foundry. il diags Iron Tr R 66:846-9 Mr 18 '20
- Electrode; patent. diags Chem & Met Eng 22:138 Ja 21 '20
- Electrode that bakes itself. A. R. Surface. diag Sci Am 122:705+ Je 26 '20
- Electrodes for iron and steel furnaces. C. H. Vom Baur. Iron Age 105:1653-4 Je 10 '20
- Graphite versus amorphous carbon electrodes for electric furnaces. L. C. Judson. Elec W 75:842-3 Ap 10 '20
- Heat losses through electrodes in electric furnaces; abstracts. F. Hodson. il diag Iron Age 106:1262-3 N 11 '20; Elec R 77:726-8 N 6 '20
- Heat losses through electrodes of a six-ton Heroult furnace. M. R. Wolfe and V. de Wysocki. diag Am Electrochem Soc Trans v 38 (preprint 9):65-7 O '20; Same. Iron Age 106:1130 O 28 '20; Same. Elec R 77:806-7 N 20 '20; Same. Iron Tr R 67:1679-80 D 16 '20; Same (Les pertes d'énergie dues au refroidissement des prises de courant sur les électrodes des fours électriques). Génie Civil 78:41 Ja 8 '21
- How to join furnace electrodes. E. J. Vorburgh. Elec W 77:886-7 Ap 16 '21
- Manufacture of carbon electrodes for electric furnace purposes. W. L. Morrison. Chem & Met Eng 22:741-4 Ap 21 '20
- Reducing the electrode costs of electric furnaces. il Sci Am 124:289 Ap 9 '21
- Selection of electrodes for furnace operation. il Elec R 77:166-7 Jl 31 '20
- Söderberg electrode; first American installation. J. W. Richards. il Am Electrochem Soc Trans v 38 (preprint 2):17-24 O '20; Excerpts. Chem & Met Eng 23:721 O 13 '20

Electric furnaces—Electrodes —Continued

Söderberg self-baking continuous electrode. J. W. Richards. il diag Am Electrochem Soc Trans v 37 (preprint 1):1-15 Ap '20; Excerpts. Iron Age 105:1171-3 Ap 22 '20; Abstracts. Génie Civil 77:417-18 N 20 '20; Iron Tr R 67:1606 D 9 '20; Elec W 77:102 Ja 8 '21

Experiments

See Electric furnaces, Experimental

History

History of the electric furnace. J. W. Richards. Am Inst E E J 39:1034-6 D '20

Patents

Electric blast furnace; patent. diag Chem & Met Eng 22:1085 Je 9 '20
Electric resistance furnace; patent. diag Chem & Met Eng 22:1085 Je 9 '20
Polyphase electric furnace; patent. diag Chem & Met Eng 22:184-5 Ja 28 '20

Performance

Electric furnace operating data; Racine steel castings co. C. H. Reeder. il Elec R 77:153-6 Jl 31 '20
Electric furnace operating experiences. L. J. Barton. diags Iron Age 108:581-4 S 8 '21
Electric melting shows economy. il Foundry 47:845-50 D 1 '19
Melting in a Detroit electric furnace. il Metal Ind 18:211-12 My '20
Performance of electric furnaces. Engineering 110:742; 111:266 D 3 '20, Mr 4 '21
Silicomanganese furnace production record. diag plan Chem & Met Eng 21:752 D 24 '19
Some practical data on operating electric brass furnaces. il charts Elec R 76:215-18 F 7 '20

Power

Current unbalance in furnace leads reduced with reactors. R. H. N. Lockyer. il diags Elec W 77:433-4 F 19 '21
Direct current used for furnace. C. Reed. il Foundry 48:775 O 1 '20
Electric-arc melting furnace and the Central station electric company. A. C. Smith. Am Electrochem Soc Trans v 37 (preprint 43):701-9 Ap '20; Abstract. Elec W 75:1379-80 Je 12 '20
Electric furnace and central-station rates. Elec W 75:1147-8 My 15 '20
Electric furnace and the central station. H. L. Hess. Am Electrochem Soc Trans v 37 (preprint 14):207-20 Ap '20
Electric furnace as a central station load. R. D. Evans. diags Elec J 17:373-9 S '20
Electric furnace load advantageous. F. C. Hard. Elec W 75:500-1 F 28 '20
Electric furnace power from the standpoint of the central station. E. A. Wilcox. Am Electrochem Soc Trans v 37 (preprint 38):589-609 Ap '20; Same cond. Blast F & Steel Pl 8:48-51 Ja '20
Electric heaters for heat treating furnaces. H. O. Swoboda. il diags Blast F & Steel Pl 8:564-8 O '20
Electric melting furnace as a central station load. H. A. Winne. il Gen Elec R 24:510-14 Je '21
Internal actions and the performance of electric furnaces. W. K. Booth. diags Sci Am S 88:347 D 13 '19
Low-tension conductors for electric furnaces. diags Elec R 76:267-9 F 14 '20
Manufacture of electric ferroalloys. C. B. Gibson. Iron Age 105:1102-3 Ap 15 '20; Excerpts (tables). Elec W 76:195 Jl 24 '20
Power problems from the stand-point of the furnace operator. W. G. Berlin. Am Electrochem Soc Trans v 37 (preprint 25):367-76 Ap '20; Same cond. Elec R 76:825-8 My 15 '20; Abstract. Elec W 75:1013 My 1 '20
Reactors for electric furnace circuits. H. A. Winne. il diags Am Inst E E J 39:589-92 Je '20
Use of central station power in electric furnaces. R. M. Keeney. N E L A Bul 7:753-8 O '20; Abstract. Elec W 75:1250 My 29 '20; Abstract. J Elec 45:571 D 15 '20
Value of central station service in industrial heating processes. H. W. Derry. il N E L A Bul 8:476-81 Ag '21

Refractories

Acid or basic furnace lining. F. W. Brooke. Foundry 49:429-30 Je 1 '21; Same. Min & Met 174:49 Je '21
Choice of electric furnace refractories. Elec W 78:260 Ag 6 '21
Electric furnace refractories. A. F. Greaves-Walker. Chem & Met Eng 23:933-6 N 10 '20; Discussion. 23:1148, 1196-7 D 15-22 '20
Refractories for bottom connected electric furnaces. F. W. Brooke. Iron Age 106:1316 N 18 '20
Refractories for electric furnaces. Am Cer Soc J 4:71 Ja '21
Refractories for electric furnaces. R. M. Howe. Foundry 48:911-13 N 15 '20; Same. Iron Tr R 67:1541-3 D 2 '20; Same. Chem & Met Eng 23:1215-18 D 22 '20; Abstract. Blast F & Steel Pl 9:494 Ag '21
Refractories for electric furnaces; symposium. Chem & Met Eng 23:769-70 O 20 '20
Refractories have long life in rotating furnace. Elec R 77:998 D 25 '20
Securing long lived furnace linings. C. H. Booth. Iron Tr R 67:1745 D 23 '20
Symposium on non-ferrous electrometallurgy; refractories for electric furnaces. Chem & Met Eng 25:688-9 O 12 '21

Safety devices and measures

Safeguarding electric furnace operation. il Elec R 77:160-2 Jl 31 '20

Statistics

Electric furnaces in the United Kingdom, 1918. R. G. Mercer. Inst E E J 57:sup254-64 '19
Review of the electric furnace industry. il Elec W 75:144, 161-3 Ja 17 '20

Testing

Foundry test of rotating furnace. Chem & Met Eng 22:136-7 Ja 21 '20
Resistance type electric furnace tested for steel melting. il Chem & Met Eng 25:667 O 5 '21
Test shows little variation of metal in electric furnace. il Elec R 79:169 Jl 30 '21

Transformers

Interlacing furnace transformer busbars. C. B. Gibson. il diags plan Elec W 75:991-3 My 1 '20
Transformer equipment for electric furnaces. C. B. Gibson. il Elec R 77:163-6 Jl 31 '20
Transformers for electric furnaces. J. L. Thompson. diags Inst E E J 58:201-13 Mr '20; Same cond. Engineer 129:147-8 F 6 '20; Abstract. Elec W 75:617 Mr 13 '20; Abstract. Electrician 84:115-17, 144-5 Ja 30-F 6 '20; Discussion. Inst E E J 58:214-23, 301-7, 603-13 Mr-Apr, Jl '20; Electrician 84:145-6 F 6 '20
Electric furnaces, Brass melting
Ajax-Wyatt electric furnace. G. H. Clamer. il diags Am Inst E E J 39:1042-3 D '20
Ajax-Wyatt electric furnace. J. B. C. Ker-shaw. diags Engineer 132:139-40 Ag 5 '21
Booth electric rotating furnace. C. H. Booth. il diag Chem & Met Eng 21:636-8 N 12 '19
Booth rotating electric furnace. C. H. Booth. il diag Metal Ind 18:456-9 O '20; Same cond. Iron Age 106:1463-4 D 2 '20
Developments in brass melting. A. A. Kenyon. diags Iron Age 105:818-19, 880-3 Mr 18-25 '20
Economies of melting brass electrically. il diag Elec W 76:1253-5 D 25 '20
Electric brass furnace reduces foundry costs. il Elec W 74:1107-9 D 20 '19
Electric brass furnace shows small metal loss. diags Elec W 77:1322-3 Je 4 '21
Electric furnace has proved value. C. H. Booth. il diag Foundry 48:994-7+ D 15 '20
Electrical melting of alloys. H. W. Gillett. Foundry 48:177-80, 229-31+, 275-81, 319-23, 362-6, 400-6, 445-53+, 486-91, 531-9, 571-4, 612-14, 656-8, 693-5 Mr 1-S 1 '20
Electricity for brass making in the Northwest. W. C. Heston. il J Elec 45:522 D 1 '20

Electric furnaces, Brass melting—Continued

- Evolution of the electric brass furnace. H. M. St John. *Am Electrochem Soc Trans* v 37 (preprint 12):161-75 Ap '20; Same cond. *Iron Age* 105:1223-4 Ap 29 '20
- Induction electrical furnace. G. H. Clamer. *il diags J Fr Inst* 190:473-507 O '20; Same. *Brass W* 16:337-41; 17:3-7, 36-8 D '20-F '21
- Later type furnace. C. H. Booth. *diags Foundry* 48:466 Je 15 '20
- Melting brass electrically. R. F. Yates. *il Sci Am* 122:221+ F 28 '20
- Melting non-ferrous metals and their alloys in the electric furnace. H. M. St John. *Chem & Met Eng* 22:148-9 Ja 28 '20
- Melting of some non-ferrous metals and their alloys in electric furnace. E. F. Collins. *il charts diags Chem & Met Eng* 21:673-9 N 26 '19
- Nature and explanation of the motor effect in the Ajax-Wyatt furnace. E. F. Northrup. *diags J Fr Inst* 190:817-34 D '20
- Operating data on an electric brass furnace. *Elec W* 75:11 Ja 3 '20
- Operating records of brass furnace pouring directly into molds. J. F. Brusster. *Elec W* 77:49-50 Ja 1 '21
- Revolving electric furnace has points of advantage. *il Pop Mech* 33:251 F '20
- Seven centuries of brass making; using the electric furnace. O. A. Kenyon. *il diag Am Mach* 53:939-44 N 18 '20
- Weeks' electric rotating furnace as applied to the brass foundry industry. F. J. Ryan. *il diags Metal Ind* 17:519-21 D '19
- See also* Electric furnaces, Non-ferrous melting

Electric furnaces, Enameling

- Electric heat raises enameling output; new vitreous enameling furnace. J. W. Carpenter. *il Elec W* 77:873-5 Ap 16 '21
- Electric vitreous enamel furnace. *il Chem & Met Eng* 25:206 Ag 3 '21
- When electricity fires the enamel ware. C. W. Mehling and J. W. Carpenter. *il Sci Am* 125:204 S 17 '21

Electric furnaces, Experimental

- Electric furnace for experimental use; hand-fed carbon-arc furnace utilizes scrap. *il Elec W* 75:265 Ja 31 '20
- Electric furnace for experimental work. F. A. J. FitzGerald and G. C. Moyer. *diags plan Chem & Met Eng* 21:769-70 D 24 '19
- Electric furnace laboratory of the Bureau of mines. C. D. Grier. *il diags Chem & Met Eng* 21:574-6 O 29 '19
- Electric muffle furnaces for laboratory use. H. C. Kremers. *diags J Ind & Eng Chem* 13:561 Je '21
- Laboratory high-temperature coke-resistance electric furnace. W. F. Munn. *Chem & Met Eng* 23:345 Ag 25 '20
- New alternating current electric furnace installation in the department of electrochemistry, University of Toronto. A. E. R. Westman. *il Can Chem & Met* 5:224-5 Ag '21

Electric furnaces, Foundry

- Electric furnace design is changed. *il Foundry* 48:124 F 1 '20
- Electric furnaces as melting mediums. E. F. Cone. *Iron Age* 106:1059 O 21 '20
- See also* Electric furnaces, Brass melting; Electric furnaces, Iron founding; Electric furnaces, Non-ferrous melting

Electric furnaces, Heat treating

- Automatic heat-treating furnaces. G. L. Lacher. *il diag Iron Age* 107:1754-5 Je 30 '21
- Design electric annealing furnace. C. E. Chaney. *diags Foundry* 49:720-3 S 15 '21
- Electric furnace for spring tempering. *il Automotive Ind* 43:1019 N 18 '20
- Electric furnace gives excellent results in bluing metal. H. W. Derry. *Elec W* 78:779 O 15 '21
- Electric furnace heat treatment. E. F. Collins. *Iron Age* 108:266-7; Discussion. H. F. Wood. 267-8 Ag 4 '21
- Electric furnace installation for heat treatment of ball bearing races. *il plan Blast F & Steel Pl* 8:115-17 Ja '20

- Electric furnaces and heat treatment. E. F. Cone. *il Iron Age* 108:643-8 S 15 '21
- Electric furnaces for hardening gears. *il Iron Age* 106:394 Ag 12 '20
- Electric heat-treating of automobile gears. G. H. Gibson. *plan Elec W* 75:1375-6 Je 12 '20
- Electricity applied to annealing. G. P. Mills. *Foundry* 49:366-8 My 1 '21; Excerpts. *Blast F & Steel Pl* 9:330-1 My '21
- Electricity's latest contribution to the modern art of heat treatment. A. M. Clark. *il Sci Am* 122:337+ Mr 27 '20
- Gallaudet electric heat-treating furnace. *il Aviation* 11:457-8 O 17 '21
- General Electric muffle furnace. *il Mach* 26:679-80 Mr '20; *Foundry* 48:206 Mr 1 '20
- General Electric small semi-cylindrical heat-treating furnace. *il Elec R* 79:602 O 15 '21; *Am Mach* 55:407 S 8 '21; *Iron Tr R* 69:1086 O 27 '21
- Heat treating plant at Nash motor works, Kenosha, Wis.; refining and carbonizing furnaces. *il diags plan Iron Age* 107:895-8 Ap 7 '21
- Heat treating springs electrically. *il Iron Tr R* 67:714-15 S 9 '20
- Heat treating steel electrically. E. F. Collins. *il diag Iron Tr R* 66:780-3 Mr 11 '20
- Heat treating steel electrically. E. F. Collins. *il diag Iron Tr R* 67:990-4 O 7 '20; Same. *Foundry* 48:826-30 O 15 '20
- High temperature electric heat-treating furnace. G. H. Holden. *il diags Sci Am M* 1:440-4 My '20
- Hump method for heat treating steel. *il diags plan Blast F & Steel Pl* 8:181-5 Mr '20; Same cond. *Elec R* 76:437-40 Mr 13 '20; Same cond. *Automotive Ind* 42:812-15 Ap 1 '20; Abstracts. *Iron Tr R* 66:630-1 F 26 '20; *Iron Age* 105:754-5 Mr 11 '20; *Ry Mech Eng* 94:297-8 My '20
- Metallic resistor electric furnaces for heat treating operations. E. F. Collins. *il chart diags Gen Elec R* 23:433-41 My '20
- Modern tool room heat treating plant. *Ry Mech Eng* 94:389-91 Je '20
- Power scarcity a factor in electric heat treatment discussed at meeting of Association of iron and steel electrical engineers. *Power* 52:801 N 16 '20
- Rotary furnace for automobile parts. A. D. Dauch. *il Iron Age* 108:666-7 S 15 '21; Same. *Elec W* 78:565-6 S 17 '21
- Small heat-treating furnace with new elements and control. *Elec W* 78:626 S 24 '21
- Electric furnaces, Iron founding**
- American malleable cast iron; electric furnace melting. H. A. Schwartz. *il Iron Tr R* 68:1792-7 Je 30 '21
- Castings from the electric furnace. R. C. Gosrow. *Foundry* 47:858-62 D 1 '19; Same. *Iron Tr R* 65:1706-10 D 25 '19
- Electric furnace as an adjunct to the cupola. G. K. Elliott. *Am Mach* 51:1012-14 D 11 '19; Abstract. *Foundry* 47:687 O 1 '19; Same. *Iron Tr R* 65:891-2 O 2 '19; Abstract. *Iron Age* 105:1017 Ap 8 '20
- Electric furnace gray iron. J. L. Cawthon, jr. *il Elec J* 18:396-400 S '21
- Electric furnace possibilities in the Western iron industry. R. C. Gosrow. *J Elec* 47:265-6 O 1 '21
- Electric-furnace practice at Treadwell. W. E. Cahill. *il Min & Sci P* 122:535-7 Ap 16 '21; Excerpt. *Iron Age* 107:1604 Je 16 '21
- Electric furnaces in the iron foundry. R. Moldenke. *Iron Age* 107:437-9 F 17 '21; Same. *Foundry* 49:216-18 Mr 15 '21; Excerpts. *Min & Met* 170:32 F '21; Same. *Sci Am M* 3:283-4 Mr '21
- Makes pig iron in novel furnace. H. L. Hatt. *il Iron Tr R* 68:149-51 Ja 13 '21; Same. *Foundry* 49:30-2 Ja 1 '21
- Manufacture of synthetic cast iron in the electric furnace. W. L. Morrison. *il Elec W* 75:1490 Je 26 '20
- Melting cast iron scrap. *il Iron Age* 107:1686-7 Je 23 '21
- Rolling type electric furnaces. *il Foundry* 48:198-9 Mr 1 '20
- Sulphur problem in cast iron. G. K. Elliott. *Foundry* 48:978-9 D 15 '20; Same abr. *Iron Age* 106:919-20 O 7 '20

- Electric furnaces, Iron founding—*Continued*
 Sulphur reduced in acid lined furnace. Foundry 49:390 My 15 '21
 Superheats in the electric furnace. G: K. Elliott. Foundry 49:714-19 S 15 '21; Same. Iron Tr R 69:1007-11 O 20 '21
 Swedish electric pig iron furnace. J. Herlenius. il diag Chem & Met Eng 24:108-12 Ja 19 '21
 Synthetic electric furnace cast iron. C: A. Keller. il Am Electrochem Soc Trans v 37 (preprint 2):17-34 Ap '20; Abstract. Iron Age 105:337-8 Ja 29 '20
- Electric furnaces, Metallurgical
 Abstracts of papers read before the American electrochemical society. Chem & Met Eng 24:817-18 My 11 '21; Iron Age 107:1121-2 Ap 28 '21
 Abundant power favors electrometallurgical industries in Washington. C: D. Grier. Iron Tr R 66:1755-7 Je 17 '20
 American electrochemical society discusses electric furnaces at Boston meeting. Chem & Met Eng 22:730-4 Ap 21 '20; Elec R 76:657-60 Ap 17 '20; Elec W 75:917-19 Ap 17 '20; Iron Age 105:1105-6 Ap 15 '20; Iron Tr R 66:1118-19 Ap 15 '20; Foundry 48:343-4 My 1 '20
 American electro-chemical society discusses electric furnaces at Cleveland meeting. Iron Age 106:903-5 O 7 '20
 Application of electrical energy to the melting of metals. H. A. Greaves. diags Inst E E J 57:sup250-3 '19
 Booth-Hall electric furnace. W. K. Booth. diags Inst E E J 57:sup247-9 '19
 Electric furnace for production of ferromanganese. E. S. Bardwell. J Elec 46:120-2 F 1 '21
 Electric-furnace purification of zirkite. J. G. Thompson. Am Electrochem Soc Trans v 40 (preprint 23):291-300 S '21
 Electric furnace smelting of Montana manganese ores. E. S. Bardwell. Am Electrochem Soc Trans v 38(preprint 14):137-52 O '20; Same. Chem & Met Eng 22:681-5 Ap 14 '20; Same. Iron Age 106:973-6 O 14 '20
 Electric furnaces in metallurgy; abstract. diag Elec W 75:224-5 Ja 24 '20
 Electric practice in making ferroalloys. W. A. Darrah. Iron Age 105:1170 Ap 22 '20
 Electric reduction of iron ores; comparative costs for the commercial production of electric pig iron in the shaft and pit types of electric furnaces. H. A. De Fries. Chem & Met Eng 25:193-4 Ag 3 '21
 Electric resistance furnace of large capacity for zinc ores. C: H. Fulton. il diags Min & Met 153:2159-95 S '19; Same. Chem & Met Eng 22:73-9, 130-5 Ja 14-21 '20; Discussion. Min & Met 157:(sec 12)14-15 Ja '20
 Four Collins pour la fusion des métaux et alliages volatils par l'électricité. diags Génie Civil 76:75-6 Ja 17 '20
 Fours électriques Schneider, système Greaves-Etchells. il diags Génie Civil 78:158-9 F 12 '21
 Greaves-Etchells furnace. F. W. Brooke. il diags Am Inst E E J 39:1036-8 D '20
 Melting furnace operates on motor circuit. il Iron Tr R 67:997 O 7 '20; Same cond. Foundry 48:929-30 N 15 '20
 Present status of the electric furnace in the American metal industries. R. M. Keeney. Chem & Met Eng 23:980-4 N 17 '20
 Present status of the electric furnace in western states. L. W. Chapman. il J Elec 46:639-40 Je 15 '21
 Problems in electric-furnace smelting. F. Holmgren. diags Chem & Met Eng 22:165-72 Ja 28 '20; Same. Elec W 75:196-9, 425-8 Ja 24, F 21 '20
 Radiant resistor furnace. F. A. J. FitzGerald. diags Chem & Met Eng 21:737-9 D 10 '19
 Russ electric furnace. E. F. Russ. Sci Am M 4:89 Jl '21
 Ueber die metallurgie des elektrochofens. R. Durrer. Stahl & Eisen 41:753-7 Je 2 '21
 Von Schlegell repelling-arc electric furnaces. il Elec R 77:741-2 N 6 '20
 Von Schlegell repelling arc furnace. E. F. Cone. il diags Iron Age 106:1556-7 D 9 '20; Same. Sci Am 125:229 O 1 '21
- Electric furnaces, Non-ferrous melting
 Constitution of gas atmospheres in aluminum-alloy melting furnaces. R. J. Anderson and J. H. Capps. il diags Chem & Met Eng 25:59-60 Jl 13 '21; Discussion. H. M. St. John. 25:452 S 7 '21
 Electric furnace melting of nickel silver. F. C. Thompson. Am Electrochem Soc Trans v 40 (preprint 18):259-62 S '21; Same. Brass W 17:287-8 O '21
 Electric furnaces for non-ferrous alloys. H. W. Gillett. Am Electrochem Soc Trans v 39 (preprint 24):277-95 Ap '21; Same. Foundry 49:468-74 Je 15 '21; Abstract. Electrician 87:295-6 S 2 '21; Excerpt (Table). Metal Ind 19:242 Je '21
 Electric furnaces for non-ferrous metals. J: B. C. Kershaw. il Engineer 131:44, 48-50 Ja 14 '21
 Electric furnaces for silver, gold and metals of low melting point. J. Herlenius. il Chem & Met Eng 25:454-8 S 7 '21
 Electric melting in non-ferrous industry, 1920. E. F. Cone. Iron Age 105:655-6 Mr 4 '20
 Electric melting in non-ferrous industry, 1921. E. F. Cone. Iron Age 107:770-2 Mr 24 '21
 H & H electric reverberatory furnace for non-ferrous industry. il Iron Age 107:772-3 Mr 24 '21
 Influence of the electric furnace on the metallurgy of non-ferrous metals. H. M. St John. Am Electrochem Soc Trans v 40 (preprint 3):55-75 S '21
 Melting in a Rennerfelt electric furnace. H. D. Coleman. Metal Ind 18:406-7 S '20
 Muffled arc electric furnace for non-ferrous metals. il diags Iron Age 107:985-6 Ap 14 '21; Correction. 107:1047 Ap 21 '21; Chem & Met Eng 24:793 My 4 '21; Elec R 78:713-14 Ap 30 '21; Iron Tr R 68:1115 Ap 21 '21; Foundry 49:363-4 My 1 '21; Metal Ind 19:149-50 Ap '21; Brass W 17:175-6 Je '21; Discussion. Metal Ind 19:241-2, 283-4, 321-2 Je-Ag '21
 Non-ferrous furnaces becoming very attractive. E. L. Crosby. Elec W 77:35+ Ja 1 '21
 Recent developments in electric furnaces of the muffled arc type. H. A. Winne. il Am Electrochem Soc Trans v 40 (preprint 19):263-72 S '21
 Resistance type electric furnace in the melting of brass and other non-ferrous metals. T. F. Baily. Am Electrochem Soc Trans v 40 (preprint 20):273-9 S '21
 San Francisco mint adopts electric furnace for melting copper and nickel. Min & Sci P 121:865 D 18 '20
 Symposium on non-ferrous electrometallurgy. Chem & Met Eng 25:687-9 O 12 '21
 See also Electric furnaces, Brass melting
- Electric furnaces, Steel making
 Advantages and disadvantages of electric steel furnaces; direct-arc type of furnaces favored for refining purposes. Elec W 75:497-8 F 28 '20
 Developments in electric iron and steel furnaces. J. Bibby. diags Inst E E J 57:sup 231-46 '19; Excerpts. Engineer 127:513-15 My 23 '19; Abstracts. Elec W 74:84, 712-13 Jl 12, S 27 '19; Iron Age 105:329-30 Ja 29 '20
 Electric furnace and electric steel. Blast F & Steel Pl 8:135-7 F '20
 Electric furnace for high-speed steel; the Newkirk type. il Iron Age 107:691-2 Mr 17 '21
 Electric furnaces for making steel. A. Stansfield. il diags Blast F & Steel Pl 9:189-93, 263-6, 324-7, 381-5, 424-5, 488-9, 550-2 Mr-S '21
 Electric furnaces for steel foundries. W. E. Moore. il diags plan Elec J 16:360-6 S '19; Same cond. Elec R 75:1012-15 D 20 '19; Foundry 47:892-4 D 15 '19; Iron Tr R 65:1581-2 D 11 '19; Mech Eng 41:874-6 N '19
 Electric furnaces in the United Kingdom, 1918. R. G. Mercer. Inst E E J 57:sup254-64 '19
 Electrically heated soaking pits in the steel industry. T. F. Baily. diags Chem & Met Eng 21:624-7 N 12 '19

Electric furnaces, Steel making —Continued

- Electricity shop's sole heat source; steel foundry utilizes current for annealing castings and baking molds and cores as well as for melting. H. E. Diller. *il Foundry* 49:87-91 F 1 '21
- Features of electric tool steel practice. W. J. Green and S. S. Green. *Iron Age* 108:1061-4 O 27 '21
- First heat from naval electric furnace at government ordnance plant at South Charleston. *il Iron Age* 107:617-18 Mr 10 '21
- Fortschritte in der elektrostahlindustrie. B. Neumann. *il diags Stahl & Eisen* 41:83-7, 116-22 Ja 20-27 '21
- Government armor plate factory; naval ordnance plant, South Charleston, W. Va., compared with 1897 project. S. G. Koon. *il plans Iron Age* 107:1365-71 My 26 '21
- High-frequency induction steel-furnace. E. F. Northrup. *il diags Chem & Met Eng* 24:309-11 F 16 '21; Excerpt. *Elec R (Lond)* 89:305 S 2 '21
- Improved Greaves-Etchells electric furnace installation. E. T. Moore. *il diags Chem & Met Eng* 23:825-32 O 27 '20
- Large electric steel-melting furnaces. V. Stobie. *diags Inst E E J* 57:sup268-76 '19; Excerpts. *Sci Am M* 1:66-8 Ja '20
- Largest electric steel furnaces. J. A. Seede. *il Gen Elec R* 24:833-8 S '21
- Making steel in four hours. *Factory* 26:780+ Mr 15 '21
- Manufacture of high speed steel in the electric furnace. R. C. McKenna. *Am Electrochem Soc Trans v* 37 (preprint 31):417-23 Ap '20
- Moore automatic fuel-saving device for electric steel furnaces. *il Iron Age* 108:328 Ag 11 '21
- Moore rapid "lectromelt" furnace. R. D. Thomas. *il Am Inst E E J* 39:1038-9 D '20
- New type of induction electric furnace. *diags Iron Age* 108:344-6 Ag 11 '21; Abstract. *Elec W* 78:629-30 S 24 '21
- Operating records of electric furnaces refining high-grade steels. M. H. Schmid. *Elec W* 77:605 Mr 12 '21; Discussion. F. von Schlegel. 77:880 Ap 16 '21
- Position of the electric furnace in iron and steel metallurgy. L. B. Lindemuth. *Am Electrochem Soc Trans v* 37 (preprint 39):611-27 Ap '20; Abstract. *Foundry* 48:352 My 1 '20
- Present position and prospects of electric steel in Great Britain. W. S. Gifford. *il Electrician* 85:528-9 N 5 '20
- United States naval ordnance plant. W. J. Priestley. *il Blast F & Steel Pl* 9:254-9 Ap '21
- Electric fuses**
- Calibrated service fuses employed as meter shunts for test. W. S. Wilder. *diags Elec W* 75:1428 Je 19 '20
- Considerations involving fusing of regulator control. H. R. Clarke. *Elec R* 76:244 F 7 '20
- Economical operating limits of the refillable fuse. P. C. Jones. *Power* 54:105-6 J1 19 '21
- Explosion fuse for 110,000-volt tests. C. H. Armstrong. *diags Elec W* 78:928 N 5 '21
- Federal Electric multiphase renewable fuse. *il diags Brass W* 17:178 Je '21; *Power Pl Eng* 25:740 J1 15 '21; *Power* 54:20 J1 5 '21
- Fuse protection for branch conductors. H. C. Horstmann and V. H. Tousley. *diags Elec W* 75:266-8 Ja 31 '20
- Fuse versus automatic switch for motor protection. *Coal Age* 19:950-1 My 26 '21
- Fuses for sub-stations. *Elec R (Lond)* 88:468-9 Ap 15 '21
- History of the renewable-fuse industry. F. T. Bangs. *Elec R* 76:22-5 Ja 3 '20
- Inclosure of fuses and switches growing in favor. *Elec W* 77:900-1 Ap 16 '21
- Instructions for fusing 44,000-volt transformers. P. P. Ashworth. *Elec W* 77:261-2 Ja 29 '21
- Knife switches and fuses for ship installations. *il Electrician* 87:209-10 Ag 12 '21
- Mysterious fuse failures. M. A. Walker. *Power* 54:611 O 18 '21
- New switch-fuses. *Elec R (Lond)* 89:65 J1 8 '21

- Pointers on electric fuses. H. W. Wakeman. *diags Power* 54:690 N 1 '21
- Proper design of cut-outs and fuses to prevent practice of bridging. G. Welman. *Elec W* 78:371 Ag 20 '21
- Refilling inclosed fuses. *Elec W* 77:829 Ap 9 '21; Discussion. 77:992-3, 1485; 78:72 Ap 30, Je 25, J1 9 '21
- Selection of fuses a matter of considerable importance. *il Elec R* 77:459 S 18 '20
- Short-circuit tests determine fuse performance. *Elec R* 78:189 Ja 29 '21
- Size of fuses to use for distribution transformers. C. A. Wegman. *diags Elec W* 77:486 F 26 '21
- Some elements in the design of large fuses. *diags Elec R (Lond)* 89:40-1 J1 8 '21

Cost

- Cost of fuses for service entrances. W. Baum. *Elec W* 75:897 Ap 17 '20
- Electric generators**
- Choosing economical size of generator for power plant. A. B. Clark. *Elec W* 77:881 Ap 16 '21
- Common electric generator troubles. F. A. Sweet. *Blast F & Steel Pl* 9:495-7 Ag '21
- Distribution of heat in windings and core of generators. *diags Elec W* 76:433 Ag 28 '20
- Dynamo output formulae. J. K. Catterson-Smith. *Electrician* 84:138 F 6 '20
- Electric generator troubles; how they may be detected and overcome. *Power Pl Eng* 24:1131-3 D 1 '20
- Gasoline-engine driven generator sets. *il Min & Sci P* 120:361 Mr 6 '20
- Generating units driven by oil-burning engines. *il Elec R* 77:821-2 N 20 '20
- Generator requirements for crane motors. H. H. Vernon. *Gen Elec R* 24:491 Je '21
- Internal heating of generator coils. B. A. Behrend. *Elec J* 17:362 S '20
- Menace of vibration. E. V. Amy. *Sci Am M* 1:337-8 Ap '20
- Principles of electrical design. A. Still. 2d ed. 365p McGraw-Hill '21
- Probable limits of electric generators and superpower plants for Germany. W. Reichel. *Mech Eng* 43:739 N '21
- Problem course in electricity; electric generators. H. H. Bliss. *diags J Elec* 46:136-8 F 1 '21
- Problem course in electricity; generator losses. H. H. Bliss. *J Elec* 46:252-5 Mr 1 '21
- Problem course in electricity; losses, drops and reactions. H. H. Bliss. *diags J Elec* 46:301-4 Mr 15 '21
- Relationship between efficiency and working costs of small motors and generators. E. G. Kennard. *Elec R (Lond)* 88:771-3, 827-30 Je 17-24 '21
- 300-watt petrol-driven electric generator. *il diags Engineering* 111:584-5 My 13 '21
- Troubles caused by shaft currents in generator. J. Dixon. *diags Elec W* 75:1487 Je 26 '20
- Turbine operation for the average plant. W. A. Darter. *Power Pl Eng* 25:458-9 My 1 '21
- Turbo-generator operates five years with only a few stops. *chart Power Pl Eng* 25:1029 O 15 '21; Same. *Sci Am* 125:258 O 8 '21
- When Prof. Rowland discovered the dynamo. *Elec R* 78:916-17 Je 4 '21
- See also* Armatures; Commutation; Electric apparatus; Electric machinery; Electric motor generators; Electric plants; Hydroelectric plants
- Control**
- Switch and control equipment at Niagara Falls. S. Q. Hayes. *il Elec R* 78:47-53 Ja 8 '21
- Theory and practice of regulating the generator output. J. T. Fitzsimmons. *diags Automotive Ind* 42:1356-8 Je 10 '20
- Third brush regulation in automobile generators. T. R. Knowles. *diags Automotive Ind* 42:1300-1+ Je 10 '20
- Cooling**
- Air washer and cooler for generators. A. M. Bacon. *Power Pl Eng* 24:406 Ap 1 '20

Electric generators—Cooling—Continued

Construction of alternating-current generators. S. L. Henderson. *il Elec R* 77:362-4 S 4 '20

Investigation of water-air radiators for cooling generators and motors. H. G. Reist and E. H. Freiburghouse. *il diags Gen Elec R* 23:91-8 F '20

Steam turbine generator ventilation. G. Monson. *diags Gen Elec R* 23:99-105 F '20; Same *abr. Power Pl Eng* 24:477-80 My 1 '20

Temperatures in large alternating-current generators. W. J. Foster. *diags Gen Elec R* 23:560-5 J1 '20; Abstract. *Am Inst E E J* 39:547-8 Je '20

Turbine-driven versus engine-driven alternators. S. H. Mortensen. *diags plan Power* 51:469-71 Mr 23 '20

Ventilation and temperature problems in large turbogenerators. B. G. Lamme. *diags Elec J* 17:312-16, 345-9 J1-Ag '20; Abstract. *Am Inst E E J* 39:548-9 Je '20

Failures

Dirt plus static as cause of turbo-generator fires. D. D. Higgins. *Power* 54:206-7 Ag 9 '21

See also Electric generators, Alternating current—Failures

Foundations

Steel foundations for 30,000-kilowatt horizontal turbo-generators at Detroit Edison co. J. R. James. *il diags plan Power* 52:646-9 O 26 '20

Parallel operation

Conditions to be met in paralleling interpole generators. J. Dixon. *Elec W* 75:1429 Je 19 '20

Governor adjustment for efficient parallel operation. F. Oppenheimer. *il Elec W* 76:239-40 J1 31 '20

Protection

Locking device on a turbo-generator fire-extinguishing system. W. G. Spencer. *diags Power* 54:328 Ag 30 '21

Water-spray system for turbo-generator fire protection. F. T. Leilich. *il diags Elec W* 76:385-6 Ag 21 '20

Temperature

Generator operating temperatures. S. H. Mortensen. *il diags Power* 54:319-20 Ag 30 '21

See also Generators, Alternating current—Temperature

Testing

Measurement of air passing through turbo-generators. *diag Engineer* 131:550-1 My 20 '21

Testing of continuous current machines. C. F. Smith. 102p Pitman '21

Electric generators, Alternating current

Alternating-current generators for ship propulsion. E. H. Freiburghouse. *il diag Gen Elec R* 24:137-40 F '21

Alternator for two-phase or three-phase tests. E. C. Soares. *diags Elec W* 75:1489 Je 26 '20

Behavior of alternating-current generators when charging a transmission line. W. O. Morse. *Gen Elec R* 23:109-12 F '20

Belted alternating-current generators. A. L. Hadley. *il Gen Elec R* 23:171-6 F '20

Changing 33-cycle apparatus to operate on 60-cycle circuits. D. W. Proebstel and E. H. LeTourneau. *il diags Am Inst E E J* 39:238-43 Mr '20

Concrete parts for generators. C. M. Hackett. *diags plan Gen Elec R* 22:843-5 N '19; Same. *Can Eng* 38:178-9 Ja 29 '20; Same. *Power Pl Eng* 24:239-40 F 15 '20; Same *cond. Elec R* 76:142-3 Ja 24 '20

Construction of alternating-current generators. S. L. Henderson. *il Elec R* 77:362-4, 517-22 S 4, O 2 '20

Designs of large vertical alternating-current waterwheel-driven generators. M. C. Olson. *il diag Gen Elec R* 22:833-9 N '19

Development on radio generators for the army and navy. F. I. Hiss. *il Am Inst E E J* 39:1049-51 D '20

Early days in alternator design. W. J. Foster. *il diags Gen Elec R* 23:80-90 F '20

Electrical study course—synchronizing alternating-current generators. *diags Power* 50:699-701 N 11 '19

Experience of an erecting engineer—pressing alternator's rotor on shaft. K. A. Reed. *il Power* 50:768-70 N 25 '19

Factors determining generator design; water-wheel driven generators in the new 100,000-hp. extension of the Niagara Falls company. F. D. Newbury; R. B. Williamson; W. J. Foster. *il diags Elec W* 76:779-83 O 16 '20

Field leakage in synchronous machines. T. Schou. *diags Elec R* 77:281-4 Ag 21 '20

Flux distribution in the core of a turbo alternator. C. J. Fechheimer. *diags Am Inst E E J* 39:669-73 J1 '20

General electric company builds giant generator. *il J Elec* 46:416 Ap 15 '21; Same. *Elec R* 78:989 Je 18 '21

Generators for wireless telegraphy. K. Schmidt. *Elec W* 77:1383 Je 11 '21; Same. *Sci Am M* 4:103 Ag '21

How power factor affects the voltage regulation of an alternator. Q. Graham. *Power* 51:379-81 Mr 9 '20

Importance of short-circuit ratio in synchronous machines. T. Schou. *diags Elec R* 76:1015-18 Je 19 '20

Induction generator plants. C. M. Ripley. *il diags plan Gen Elec R* 22:963-9 N '19

Inserting magnetic slot bridges to improve operation of a.-c. machines. J. Dixon. *Elec W* 76:579 S 18 '20

Large a.-c. generators. H. G. Reist; F. D. Newbury. *Am Inst E E J* 39:311-13 Mr '20

Large horizontal alternating-current water-wheel-driven generators and synchronous condensers. M. C. Olson. *il diag Gen Elec R* 23:147-52 F '20

Large horizontal waterwheel driven generator. *il Power Pl Eng* 25:688-9 J1 1 '21

Large turboalternator built in foreign factory. B. Schapira. *il Elec R* 77:15-17 J1 3 '20

Largest generator built; Goldenberg plant in Germany will use 60,000-kva., 7,000-volt. 1,000-r.p.m. generator. *diag Elec W* 78:513 S 10 '21

Limitations in design of turbo-generator units. *Elec W* 74:1056-9 D 13 '19

Main generators of the U.S.S. Tennessee. R. E. Gilman. *il Elec J* 18:284-8 Je '21

Mechanical construction of water wheel driven alternators. E. Mattman. *il diags Elec J* 18:25-8 Ja '21; Same. *Power Pl Eng* 25:569-72 Je 1 '21

Mechanical design of large turbo-generators. M. A. Savage. *il diag Gen Elec R* 23:105-8 F '20

Multiple operation of alternating-current generators. E. H. Thompson. *Power* 54:108 J1 19 '21

New alternating-current generator with asymmetric wave. M. Breslauer. *Elec W* 78:835 O 22 '21

1,750 k.v.a. slow-speed alternator. *il diags Engineering* 110:440-2, 444 O 1 '20

Present tendencies in turbo-alternator design. J. Shepherd. *il diags Electrician* 85:6-10 J1 2 '20

Recent development in turbo-alternators. F. D. Newbury. *Elec W* 75:132 Ja 17 '20

Regulation of synchronous generators. A. C. Warren. *diags Electrician* 86:581-3, 654-6 My 13, 27 '21

Remotely controlled hydroelectric synchronous generators. C. H. Tallant. *il diag J Elec* 44:432-3 My 1 '20

Short-circuit current of induction motors and generators. R. E. Doherty and E. T. Williamson. *il diags Am Inst E E J* 40:1-11 Ja '21

Short pitch windings. *Electrician* 85:493 O 29 '20

Sine wave testing sets. E. J. Burnham. *il diags Gen Elec R* 23:177-80 F '20

Situation regarding large turbo-generators. L. Bell. *Elec W* 75:129-30 Ja 17 '20

Electric generators, Alternating current—Cont.

- Some mechanical features of synchronous machines. A. P. Wood. il diag Gen Elec R 23:130-5 F '20
- Spring thrust bearings and cooling coils on the large vertical generators at Cedars Rapids power station. T. W. Gordon. il Gen Elec R 22:840-2 N '19
- Stabilizing large generating systems. charts Elec W 76:5-8 J1 3 '20; Discussion. 76:62-3 J1 10 '20
- Status of the synchronous generator. il Gen Elec R 23:78-9 F '20
- Study of dynamo electric machinery. O. H. Henschel. il diag Power Pl Eng 24:137-9, 185-7, 282-4, 381-3, 473-6 Ja 15-F 1, Mr 1, Ap 1, My 1 '20
- Switch and control equipment at Niagara Falls. S. Q. Hayes. il Elec R 78:47-53 Ja 8 '21
- 32,500-kva. waterwheel generator. R. B. Williamson. il diags Elec W 74:456-8 Ag 30 '19; Same. Electrician 84:323-5 Mr 19 '20
- Troubles from vibration in turbo-alternators. E. V. Amy. diags Elec W 74:1003-5 N 29 '19
- Turbine-driven versus engine-driven alternators. S. H. Mortensen. il diags Power 51:330-3, 425-7, 469-71 Mr 2, 16-23 '20
- Turbogenerators and condensers for modern power plants. A. H. Ganshird and R. E. Carothers. il Elec R 79:419-21 S 17 '21
- Unbalanced magnetic effect overcome by change of connections. J. Dixon. diag Elec W 76:1024 N 20 '20
- Unique design of waterwheel-driven alternator. A. E. Glass. diags Gen Elec R 23:166-70 F '20
- Vector diagram for salient-pole alternators. E. B. Shand. diags Elec J 18:59-60 F '21
- Vertical-shaft waterwheel-driven alternators—brakes, ventilation and excitors. S. H. Mortensen. il diag Power 51:953-4 Je 15 '20
- Vertical-shaft waterwheel-driven alternators—mechanical features. S. H. Mortensen. il Power 51:698-700 My 4 '20

Bearings

- Bearings and lubrication for vertical shaft alternators. T. W. Gordon. il diags Gen Elec R 23:162-6 F '20

Failures

- A.I.E.E. electrical machinery session. diags Elec W 76:58-60 J1 10 '20
- Breakdown of turbo-alternator plant at Glasgow. Engineering 111:198 F 18 '21; Same. Elec R (Lond) 88:259-60 F 25 '21; Same. Electrician 86:253 F 25 '21; Same. Engineer 131:217-18 F 25 '21
- Classification of large turbo-generator failures. P. Torchio. Power 52:76 J1 13 '20; Same. Power Pl Eng 24:845-6 S 1 '20; Discussion. Power 52:76-7 J1 13 '20
- Failures of turbo-generators and suggestions for improvements. J. Shepherd. diags Inst E E J 58:125-41 F '20; Same [without app. of patents]. Engineering 109:43-6, 95-8 Ja 9-16 '20; Excerpts. Power Pl Eng 24:384-8 Ap 1 '20; Abstracts. Electrician 84:61-3, 87-8 Ja 16-23 '20; Engineer 129:88-9 Ja 23 '20; Elec R 76:200-1 Ja 31 '20; Discussion. Inst E E J 58:142-52, 265-78 F, Ap '20; Electrician 84:120, 292-3 Ja 30, Mr 12 '20
- Record of large turbogenerator armature breakdowns. F. D. Newbury. Elec Ry J 56:224 J1 31 '20; Same. Elec J 17:353-4 Ag '20; Same. Elec R 77:287-8 Ag 21 '20; Same. Power 52:235 Ag 10 '20

Lubrication

- Bearings and lubrication for vertical shaft alternators. T. W. Gordon. il diags Gen Elec R 23:162-6 F '20
- Vertical-shaft waterwheel-driven alternators—lubricating system and rotor. S. H. Mortensen. il diag Power 51:837-9 My 25 '20

Parallel operation

- Calculation of synchronizing power. E. S. Henningsen. diags Gen Elec R 24:951-6 N '21

- Electrical study course—alternators in parallel. diags Power 50:657-9 O 28 '19
- How two alternating-current motors were controlled in parallel. J. Grant. diags Power 51:1006-7 Je 22 '20
- Hunting and parallel operation of synchronous machines. V. Karapetoff. diags Sibley J 34:3-8 Mr '20
- Operating alternators in parallel belted from the same shaft. Power 52:68, 345-7 J1 13, Ag 31 '20
- Operating two similar alternators having opposite polarity in parallel. B. A. Briggs. diags Power 51:810-11 My 18 '20
- Operation of synchronous motor-generator frequency changers. M. W. Smith. il diags Power 52:610-12 O 19 '20
- Oscillating frequency of two dissimilar synchronous machines. R. E. Doherty. diags Gen Elec R 23:125-9 F '20
- Parallel operation of gas engine driven generators. A. W. Copley. il Elec J 17:385-6 S '20
- Paralleling two alternators when they rotate in opposite directions. B. A. Briggs. diags Power 51:886-8 Je 1 '20
- Power control and stability of electric generating stations. C. P. Steinmetz. diags Gen Elec R 23:688-701, 756-68 Ag-S '20

Repair

- Repairing large alternating-current generators. N. L. Rea. il Power 54:400-3, 475-7 S 13, 27 '21
- Repairing winding and laminations of 20,000-kva., 11-kv. generator. A. J. Long. Elec W 78:322-3 Ag 13 '21

Tables, calculations, etc.

- Magnetomotive force calculations for cylindrical-field alternators under steady short-circuit conditions. A. E. Clayton. diags Inst E E J 57:sup66-84 '19

Temperature

- Eddy current losses and temperatures of stator coils. S. L. Henderson. diags Elec J 17:418-22 S '20
- Embedded temperature detectors in large generators. F. D. Newbury and C. J. Fecheimer. diags Elec J 17:410-18 S '20
- Heat losses in the conductors of alternating-current machines. W. V. Lyon. diags Am Inst E E J 40:398-410 My '21
- Temperature indicators for alternators. S. L. Henderson. il diags Power Pl Eng 24:188-91 F 1 '20
- Temperature limits of large alternators. G. A. Juhlin. diags Inst E E J 59:281-93 Mr '21; Abstracts. Elec R (Lond) 88:154-6, 185-6 F 4-11 '21; Electrician 86:126-9 Ja 28 '21; Engineer 131:130 F 4 '21; Discussion. Inst E E J 59:293-318 Mr '21; Elec R (Lond) 88:186-7, 291-3, 331, 362-3 F 11, Mr 4-18 '21; Electrician 86:195-7, 276-7 F 11, Mr 4 '21; Engineer 131:130-1 F 4 '21
- Temperatures in large alternating-current generators. W. J. Foster. diags Gen Elec R 23:560-5 J1 '20; Abstract. Am Inst E E J 39:547-8 Je '20

Testing

- Measurement of load on large water-wheel driven alternators. C. W. Leonard. Power 53:136-8 Ja 25 '21
- Measurement of losses and efficiency by temperature rise of ventilating air. W. F. Dawson. il diags Gen Elec R 23:153-61 F '20
- Phase-rotation and synchronizing tests for a new alternator. A. H. Sweetnam. diags Elec W 78:877-8 O 29 '21
- Precautions to be observed in testing generators for grounds. H. D. Matthews. diags Power 54:335-6 Ag 30 '21
- Putting an alternating-current generator in service. F. Gillooly. diags Power 50:606-9 O 21 '19
- Short-circuit tests on a 10,000-kv-a. turbine alternator. E. S. Henningsen. il diags Gen Elec R 23:214-21 Mr '20
- Testing a four-thousand kilowatt generator for ground. L. R. Gray. diags Power 53:774 My 17 '21

Electric generators, Direct current

- Application of d-c. generators to exciter service. C. A. Boddie and F. L. Moon. *Am Inst E E J* 39:560-1 Je '20
- Dodge electric generating apparatus. *il Mach* 27:399 D '20
- Electroplating generator with link-belt drive. *il Elec R* 78:323 F 19 '21
- General Electric arc-welding generator sets. *il Am Mach* 55:114-15 Jl 21 '21
- Generation of direct current and third brush regulation. *diags Motor Age* 37:48-50 Mr 25 '20
- High-speed direct-current generator and turbo-blower power plant of the International nickel company of Canada, ltd. H. W. Spooner and F. A. Annett. *il diags Power* 52:768-75 N 16 '20
- Light weight engine generator set for marine auxiliary service. *il Marine Eng* 26:686 S '21
- New type of arc-welding generator. S. R. Bergman. *il diags Gen Elec R* 23:442-6 My '20
- Small generating sets for marine service. *il Power Pl Eng* 25:231-2 F 15 '21
- See also Interpoles*

Parallel operation

- Adjusting direct-current generators for parallel operation. E. H. Thompson. *diag Power* 54:510-12 O 4 '21
- Arrangement for paralleling dissimilar direct-current generators. J. Dixon. *diags Elec W* 75:734-5 Mr 27 '20
- Compound generators and their adjustment for multiple operation. E. H. Thompson. *diags Power* 54:323-4 Ag 30 '21
- Parallel operation of compound generators. A. M. Bennett. *diags Power* 53:459-62 Mr 22 '21; *Discussion*. 54:33-4, 267-8, 301-2 Jl 5, Ag 16-23 '21
- Paralleling three-wire direct-current generators. R. H. N. Lockyer. *diag Elec W* 78:777 O 15 '21
- Problems in parallel operation of compound generators. E. H. Thompson. *diags Power* 54:444-6 S 20 '21
- Troubles and their remedies in multiple operation of direct-current generators. E. H. Thompson. *diags Power* 53:694-6 My 3 '21
- Voltage characteristics of direct-current generators and their bearing on parallel operation. E. H. Thompson. *diags Power* 54:287-90 Ag 23 '21
- Electric generators, Synchronous.** *See* **Electric generators, Alternating current**
- Electric guns.** *See* **Guns, Electric**

Electric heaters

- Application and use of immersion electric heaters. J. M. Strait. *il diags Elec R* 79:161-3 Jl 30 '21
- Coal heaters electrically equipped for intermittent use in spring and fall. *diag Elec Ry J* 55:566 Mr 20 '20
- Durability of electric heaters for gasoline distillation. W. A. Jacobs and E. W. Dean. *Chem & Met Eng* 23:343-4 Ag 25 '20; *Same abr.* *Elec R* 77:80 Jl 17 '20
- Electric heater for the coal-tar naphtha distillation test. J. B. Hill and R. B. Chillas. *diag J Ind & Eng Chem* 12:280-1 Mr '20
- Electric heaters for gasoline distillation. *Elec R* 77:80 Jl 17 '20
- Electric heaters for heat treating furnaces. H. O. Swoboda. *il diags Blast F & Steel Pl* 8:564-8 O '20
- Electric range, water and air heaters; their value to the central station. F. C. Piatt. *J Elec* 46:563-6 Je 1 '21
- Properties of resistor materials used for heating purposes. H. O. Swoboda. *Elec W* 77:944-5 Ap 23 '21
- Variable electric heater for three-wire circuit. E. A. Crane. *diag Pop Mech* 34:608 O '20
- See also* **Electric furnaces; Electric heating; Electric ovens; Electric stoves; Electric water heaters**

Electric heating

- Le chauffage électrique au congrès de l'habitation tenu à Lyon, en mars 1921. *Génie Civil* 78:311-12 Ap 9 '21
- Le chauffage électrique de l'école communale de Baden (Suisse). *diag Génie Civil* 76:48-9 Ja 10 '20
- Le chauffage électrique et les avantages de son développement en France. *diags Génie Civil* 78:148-51 F 12 '21
- Colec system of central and radiant heating. H. H. Berry. *Electrician* 86:419-20 Ap 8 '21
- Communal electric heating system, Bergen, Norway. *Elec W* 76:1170 D 11 '20
- Development of the heating and cooking load. R. Hardie. *il Electrician* 85:351-3 S 24 '20
- Electric heating. T. D. MacMullen. *J Elec* 45:424-5 N 1 '20
- Electric heating and cooking. *Sci Am M* 1:377 Ap '20
- Electric heating by heat accumulation. P. Beuttner. *Elec R (Lond)* 89:243 Ag 19 '21
- Electric heating declared impracticable by Canadian authority. C. A. Magrath. *Elec W* 76:927 N 6 '20
- Electric heating in the city of London. A. F. Harrison. *Electrician* 85:25-6 Jl 2 '20
- Electric heating of textile mills. W. S. Scott. *J Elec* 46:284 Mr 15 '21
- Energy storage and utilization of idle electric power for heating purposes; abstract. W. Dahlgren. *Elec W* 75:909 Ap 17 '20
- Gas and electric heat. A. Herz. *Gas Age* 45:374-5 Ap 26 '20
- Gas versus electricity. D. M. Watson. *Engineer* 132:379-80 O 7 '21
- Heating an office by electricity. V. H. Todd. *Power Pl Eng* 24:158-9 Ja 15 '20
- Heating and ventilating; electrical heating and factors determining selection of system. C. W. Kimball. *Arch Forum* 32:175-6 Ap '20
- House heating by electricity. *Pub Works* 48:122 F 21 '20
- House heating by electricity in Tacoma, Wash. *Elec W* 75:1494 Je 26 '20
- Idaho commission's decision on electric heating of houses and buildings. G. E. Erb. *N E L A Bul* 7:11-13 Ja '20
- Place of thermostatic control in connection with electric heating. G. Wilkinson. *Electrician* 86:422-3 Ap 8 '21
- See also* **Electric furnaces; Electric heaters; Electric stoves; Electric water heaters; Incubators, Electric**

Cost

- Comparaison du chauffage au gaz et à l'électricité. A. Grebel. *Génie Civil* 79:249-52 S 17 '21
- Electric heating, Industrial**
- Amount of power required in heating processes. *J Elec* 47:313-14 O 15 '21
- Application of electric heat to vitreous enameling. L. E. Barringer. *il Am Cer Soc J* 4 pt 1:461-7 Je '21
- Cement testing steamer heated by electricity. H. H. George. *il diag Eng N* 85:33-4 Jl 1 '20
- Chauffage électrique avec accumulation de chaleur de la filature de Langnau-sur-Albis (Suisse). *Génie Civil* 78:88 Ja 22 '21
- Current tendencies in electric heat treating. E. F. Collins. *il Elec W* 75:145-6 Ja 17 '20
- Developments in the electrical industry during 1919. J. Liston. *il Gen Elec R* 23:38-40 Ja '20
- Drying fine concentrates. *Eng & Min J* 111:909 My 28 '21
- Electric heat in the typewriter industry. A. M. Clark. *Elec R* 75:620 O 11 '19; *Excerpt.* *Elec W* 75:135 Ja 17 '20
- Electric heating in ceramics. W. S. Scott. *Chem & Met Eng* 24:400 Mr 2 '21
- Electric wire hardening and tempering plant. *il diags Engineering* 111:76, 78 Ja 21 '21
- Electrically-heated boilers and heat storage. *diags Engineering* 109:170, 172 F 6 '20

Electric heating, Industrial—Continued

- Electrically heated glass annealing lehr. E. F. Collins. diags Am Cer Soc J 4:335-49 My '21; Abstract. Chem & Met Eng 25:119 J1 20 '21; Same. Elec R 79:204-5 Ag 6 '21
- Electricity generation. J. E. Sayers. Electrician 85:624 N 26 '20
- Electricity in its application to the process arts. C: A. Winder. Elec R 78:806 My 21 '21
- Heating pattern plates. J: M. Strait. il Iron Age 105:274 Ja 22 '20; Same. Mach 26:520 F '20
- Heating rivets without fire; Berwick electric rivet heater. E. Sheldon. il Am Mach 53:701-6 O 14 '20
- Heating rotor spiders by induction. R. W. Wieseman. il diags Gen Elec R 24:938-45 N '21
- How electric heat is used in industry. C. A. Winder. Elec R 76:151-2 Ja 24 '20
- How much electric current for heating? Sci Am 124:92 Ja 29 '21
- Industrial applications of local heating with the pyrotip. E. A. Wagner. il Gen Elec R 24:628-31 J1 '21; Excerpts. Chem & Met Eng 25:251 Ag 10 '21
- Industrial electric heating. W. S. Scott. il diags Am Soc Heat & V E J 26:431-40 My '20
- Industrial electric heating. W. S. Scott. il Elec J 17:188-92 My '20
- Industrial electrical heating. A. E. Holloway and H. L. Garbutt. J Elec 46:486-8, 517-19 My 15 '21
- Industrial heating and the central station. E. H. Horstkotte. il Gen Elec R 24:579-82 Je '21
- Industrial heating display in Chicago. A. F. Allsop. Elec W 75:1434 Je 19 '20
- Industrial heating offers field for contractor-dealers. W. S. Scott. il Elec R 78:499-503 Mr 26 '21; Same cond. Elec W 77:307-10 F 5 '21
- Making lenses in America. il Sci Am 125:258 O 8 '21
- Portable electric rivet-heater. il diags Mach 27:1038 J1 '21
- Recent developments of electrically-heated Revel boilers in Switzerland; abstracts. E. G. Constam-Gull. il diags Engineering 110:563-5 O 29 '20; Can Eng 39:231-4 Ag 12 '20; Génie Civil 77:193-5 S 4 '20; Power 52:596-8 O 12 '20; Electrician 85:624-5 N 26 '20
- Réchauffeur d'air électrique, à accumulation, de la filature d'Aarau (Suisse). il diag plan Génie Civil 78:376-7 Ap 30 '21
- Requirements for industrial heating. H. Fulwider. il Elec W 78:167-9 J1 23 '21
- Tests conducted of electrically heated core ovens. il Iron Age 105:193-5 Ja 15 '20
- 22 ways electric heat can cut your costs. A. L. Allsop. il Factory 25:691-4 S 1 '20
- Uniform high temperature throughout a large volume. E. F. Northrup. diag J Ind & Eng Chem 13:639 J1 '21
- Utilizing electric current for treating of wooden poles. F. C. Adsett. Can Eng 39:215 Ag 5 '20
- Value of central station service in industrial heating processes. H. W. Derry. il N E L A Bul 8:427-30, 476-81 J1-Ag '21
- See also* Boilers—Electric heating; Electric furnaces; Electric heaters; Electric ovens; Electric water heaters; Electric welding; Foundries—Electric equipment

Cost

- Baking steel wire in ovens. il Iron Age 105:1169-70 Ap 22 '20; Same. Blast F & Steel Pl 8:291-3 My '20; Same. Iron Tr R 66:1340-1 My 6 '20; Same. Elec W 76:193-4 J1 24 '20; Same. Chem & Met Eng 23:295 Ag 18 '20
- See also* Electric furnaces—Cost of operation
- Electric hoisting. *See* Hoisting machinery; Mine hoisting, Electric
- Electric homes. *See* Electric apparatus and appliances, Domestic

Electric ignition

- Effect of shunted resistance, or plug leakage, on the sparking performance of an electrical ignition system. G. E. Bairsto. Inst E E J 58:507-22 Je '20; Abstract. Electrician 85:683-5 D 10 '20
- Electric lighter on the bench for gasoline torches. A. H. Hayes. diags Pop Mech 33:447 Mr '20
- Gaseous ignition by hot wires. Am Gas Eng J 113:42 J1 17 '20
- Phenomena of the ignition of gaseous mixtures by induction coil sparks. J: D: Morgan and R: V. Wheeler. diags Chem Soc J 119:239-51 Mr '21
- Underlying principles of electrical ignition. B: F. Bailey. diags Soc Auto Eng J 8:570-5; Discussion. 575-6+ Je '21
- See also* Airplane engines—Ignition; Automobile engines—Ignition; Gas and oil engines—Ignition; Spark gaps

Testing

- Neon filled tubes for ignition circuit tests. il Automotive Ind 45:603 S 29 '21

Electric Industries

- Basic industry. A. E. Wishon. J Elec 45:471-3 N 15 '20
- Better salesmanship will create more appliance trade. T. Casey. il Elec R 79:113-16 J1 23 '21
- Bread and butter business for the active electrical dealer. M. T. Dolman. J Elec 47:150 Ag 15 '21
- Business hints for the dealer. Elec R 77:937-8; 78:275-6 D 11 '20, F 12 '21
- Coming year should stabilize merchandising. W: L. Goodwin. Elec R 78:15-16 Ja 1 '21
- Comparison of British and American business methods. A. Sullivan. Electrician 87:441-2 O 7 '21
- Condition of jobber's business. Elec W 77:14-15 Ja 1 '21
- Contractor-dealer co-operation with utilities. M. Dellplain. Elec R 77:995-8 D 25 '20
- Contractor-dealers must retain hold on merchandising. il Elec R 78:489-93 Mr 26 '21
- Convention report of electrical merchandise division; buying, stock and cost of selling. N E L A Bul 7:449-52 J1 '20
- Co-operating with architect and builder. G. Young. il plan J Elec 44:157-60 F 15 '20
- Cooperation with architects and builders. H. F. Jackson. J Elec 44:561-2 Je 1 '20
- Dealer's place in economics of electrical industry. A. I. Clifford. Elec R 79:307-8 Ag 27 '21
- Developing sales by the use of hire-purchase agreements. E. R. Morton. Electrician 87:448 O 7 '21
- EMF electrical year book. F. H. Bernhard, ed. 843p Electrical trade pub. co., Chicago '21
- Financial side of electric retailing a subject no contractor-dealer can afford to neglect. G: J. Kirkgasser. Elec R 77:658-9 O 23 '20
- Financing a retail business. J Elec 43:553-5 D 15 '19
- Future of the industry. A. A. Gray. Elec R 78:11-12 Ja 1 '21
- Greatest development in electrical history. M. R. Bump. Elec J 17:175-6 My '20
- Handling the time payment sale on a cash basis. E. F. Whitehead. J Elec 47:238 S 15 '21
- How manufacturers can increase jobber stock turnover. W. B. Pierce. Elec R 77:643-4 O 23 '20
- How to finance time payment business. S. A. Dennis. charts Metal Work 92:460-3, 494-5 O 17-24 '19
- How to operate a store during the reconstruction period. E. J. Hested. Elec R 78:22 Ja 1 '21
- How, when and where to sell convenience outlets. W. F. Price. J Elec 47:156 Ag 15 '21
- Importance of merchandising to electrical industry. M. C. Turpin. Elec R 77:1005-8 D 25 '20

Electric Industries—Continued

- Jobber's salesman becomes good business builder through interchange of trade hints and ideas. G: J. Kirkgasser. Elec R 76:914-15 My 29 '20
- Many possibilities shown in western manufacturer's agency. M. Loewenthal. il J Elec 47:307-8 O 15 '21
- Meeting the demand for retail sales people. G. E. Arbogast and F. E. Boyd. J Elec 46:512-13 My 15 '21
- Merchandising in the electrical industry. H. C. Hopkins. J Elec 46:351-2 Ap 1 '21
- New Orleans company makes merchandising department profitable. W. E. Clement. Elec W 76:886 O 30 '20
- New status of the jobber in the distribution scheme. J Elec 47:343-4 N 1 '21
- Northwestern division, N.E.L.A., voices co-operation. Elec R 77:455-7 S 18 '20
- Organisation of the electrical industry. C. H. Wordingham. Electrician 84:468-70 Ap 30 '20
- Packing lighting glassware for the contractor-dealer. F. B. Rae, jr. Elec R 78:494 Mr 26 '21
- Place of the electrical industry in the West. J Elec 46:600-3 Je 15 '21
- Progress in electrical industry shown at convention of National electric light association. Elec R 76:849-50 My 22 '20
- Repair service plan for dealers inaugurated by Westinghouse company. il Elec R 77:856-7 N 27 '20
- Report of the committee on cooperation in the electric industry. N E L A Bul 7:678-81; Discussion. 681-3 O '20
- Review of the electric furnace industry. il Elec W 75:144, 161-3 Ja 17 '20
- Stimulation of dealer salesmanship by the jobber. J. A. Duncan and T. A. Brooke. il Elec R 78:1003-5 Je 25 '21
- Student salesmen's school conducted in Cleveland. Elec R 78:94 Ja 15 '21
- What the Goodwin plan is accomplishing. O. H. Caldwell. Elec W 75:155-7, 211-12 Ja 17-24 '20
- What trade journals mean to the electrical industry. Elec R 77:938-9 D 11 '20
- Work of the electrical jobbers in 1920. C. C. Hillis. J Elec 45:579-80 D 15 '20
- World's power field receptive for American equipment. L. W. Alwyn-Schmidt. Power Pl Eng 25:845-7 S 1 '21

See also Electric apparatus and appliances; Electric contractors; Electric engineering; Electric heating; Electric meters; Electric plants; Electric plants (central stations); Electric power; Electric shops; Electric toys; Electric utilities; Electric welding; Electricity in mining; Electrochemical industries; Electrochemistry; Electrometallurgy; Electroplating; Farm lighting plants; Washing machines, Electric; *also* Council on industrial relations for the electrical construction industry in the United States and Canada, General electric company, Westinghouse electric and manufacturing company

Accounting

- Analysis of overhead, or cost of doing business. Elec R 77:1016-17 D 25 '20
- Central station merchandising costs. Elec W 75:961 Ap 24 '20
- How to increase the rate of turnover in merchandise. J Elec 47:351-2 N 1 '21
- How to install an accounting system in an electric industry. J Elec 46:391 Ap 15 '21
- Standard accounting plan that insures more profit. V. G. Fullman. Elec R 79:311-12 Ag 27 '21; Same. J Elec 47:218-19 S 15 '21
- Standard accounting system. P. B. Kelly. J Elec 46:234-7 Mr 1 '21
- Two-book accounting system for contractor-dealer. Elec R 77:838-40 N 27 '20
- Uniform system of accounts for electrical corporations. Rev. ed. 117p M. B. Brown printing & binding co., New York '21
- University course in practical cost accounting. P. B. Kelly. J Elec 46:294-6, 348-50, 448-50; 47:271-3 Mr 15-Ap 1, My 1, O 1 '21
- See also* Electric contractors—Accounting

Advertising

- Advertising. H. W. Angus. J Elec 45:126-7, 185-7, 218-19, 273-4, 332-4, 382-3 Ag 1-S 15, O 1-15 '20
- Advertising a retail store. F. E. Fehlman. J Elec 43:547-8 D 15 '19
- Advertising appropriations for central stations. Elec W 75:960-1 Ap 24 '20
- Advertising by the electrical dealer. J. Lightbody. J Elec 46:558 Je 1 '21
- Advertising essential to success in retailing appliances. E: S. Dunham. Elec R 77:475-7 S 25 '20
- Advertising of facts and figures by central stations. C. A. Tupper. Elec R 78:855-8 My 28 '21
- Advertising of illumination with constructive ideas. Elec R 78:930 Je 11 '21
- Advertising service for smaller electric shops. G. A. Powers, jr. Elec R 79:313-14 Ag 27 '21
- Advertising the electrical home. H. C. Hopkins. il J Elec 45:160-1 Ag 15 '20
- Advertising to women by the departmental method. C. P. Russell. Ptr Ink 111:17-18 My 27 '20
- Base advertising appropriation on ratio of sales. il Elec R 77:936 D 11 '20
- Better salesmanship, rather than cut-price inducements now necessary to sell appliances. J. E. Bullard. Elec R 78:671-2 Ap 23 '21
- Building up present and future electrical trade through methods of appeal to the young people. W. B. Stoddard. il Elec R 76:916-17 My 29 '20
- Business hints for the dealer. il Elec R 78:110-11 Ja 15 '21
- California electrical co-operative campaign. plan Elec R 76:894-6 My 29 '20
- Central-station companies launch good-will campaign. P. L. Thomson. Elec R 78:297-300 F 19 '21
- Convenience outlet—its progress and future. G. Young and A. E. Rowe. J Elec 46:513-16 My 15 '21
- Co-operative advertising in the electrical industry. O. C. Small. Ptr Ink 116:85-6+ S 15 '21
- Co-operative good-will advertising movement supplemented by motion picture film "Back of the button." G: F. Oxley. N E L A Bul 8:513-16 S '21
- Do it electrically, Santa Claus! il J Elec 43:498 D 1 '19
- Effective cooperation being received in N.E.L.A. good-will campaign. G: F. Oxley. N E L A Bul 8:139-42 Mr '21
- Electric home planned by Denver co-operative league. Elec R 79:469-70 S 24 '21
- Electric light companies appeal to public in big campaign. M. Hussobee. Ptr Ink 114:10+ F 10 '21
- Electrical advertising. S. M. Hills. il Electrician 87:443-6 O 7 '21
- Electrical co-operative advertising campaign. il J Elec 44:167-8 F 15 '20
- Electrical dealers of Northwest use modern methods in appliance merchandising business. W. B. Stoddard. il Elec R 77:1017-19 D 25 '20
- Electrical home idea promotes electric service in California. il Elec W 76:436-7 Ag 28 '20
- Electrical homes opened in intermountain district. il J Elec 47:316 O 15 '21
- Electricity at Utah state fair. il J Elec 43:549-50 D 15 '19
- Every farmer his own advertising man. G. A. Nichols. Ptr Ink 111:61-2+ Je 3 '20
- Good will advertising campaign of Montana power company. J Elec 46:238-9 Mr 1 '21
- Good will advertising for central-station industry. Elec R 77:689-90 O 30 '20
- How 3,000 southern homes were wired. L. J. Wilhoite. Elec W 77:645-8, 820-4 Mr 19, Ap 9 '21
- How to get over convenience outlet campaign to consumer. E. T. Millham. J Elec 46:400-1 Ap 15 '21
- How to put on an advisory committee meeting. R. M. Alvord. J Elec 46:389-90 Ap 15 '21

Electric industries—Advertising—Continued

- How to put on an electrical home campaign. *il J Elec* 45:157-60 Ag 15 '20
- How to start an electrical cooperative campaign. R. L. Eltringham. *J Elec* 46:386-8 Ap 15 '21
- Increased publicity for vacuum cleaners after holidays. *il Elec R* 76:161-2 Ja 24 '20
- Inside advertising aids retail electrical goods sales. J. L. Mahon. *il Elec R* 78:515-17 Mr 26 '21
- Lamp selling contest. *J Elec* 43:552 D 15 '19
- Lighting art service supplied by contractor-dealers. *Elec R* 77:775 N 13 '20
- Look, Mr Dealer, what we're going to do! W. H. Heath. *Ptr Ink* 113:105-6+ N 4 '20
- Marketing washers and vacuum cleaners in the home. E. L. Bennett. *il Elec R* 77:631-3 O 23 '20
- Merchandising plan for selling electrical wiring; advance report of Wiring committee of the N.E.L.A. *il diag plans Elec R* 78:331-4 F 26 '21; Excerpts. *Elec W* 77:608-9 Mr 12 '21
- National good-will campaign of the N. E. L. A. G. F. Oxley. *N E L A Bul* 8:67-80, 204-7 F, Ap '21
- National trade extension bureau prepares Christmas window display. *il Dom Eng* 89:472-4 D 6 '19
- Newspaper advertisements and window displays that sell autumn electrical necessities. W. B. Stoddard. *il Elec R* 77:659-61 O 23 '20
- Origin and development of California electrical homes. W. F. Price. *il J Elec* 47:11-13 Jl 1 '21
- Outline for an electrical home campaign. O. H. Caldwell. *J Elec* 46:574 Je 1 '21
- Possibilities of the convenience outlet campaign. G. Young. *J Elec* 46:33-5 Ja 1 '21
- Progressive plan of California electrical campaign. *Elec R* 78:27-8 Ja 1 '21
- Publicity campaign for the electrical industry. *Elec R* 77:653-4 O 23 '20
- Publicity—the solution of the biggest problem of the electric light and power industry. G. F. Oxley. *N E L A Bul* 7:576-8 S '20
- Publicity through motion pictures. *il J Elec* 43:551-2 D 15 '19
- Report of Advertising and publicity service bureau. *N E L A Bul* 7:544-6 Ag '20
- Selling an idea. J. W. Beauchamp. *Electrician* 84:480-2 Ap 30 '20
- Selling the electrical idea to self and the public. W. C. Campbell. *Elec R* 78:1016-19 Je 25 '21
- Specialised selling; manufacturer, wholesaler, retailer and sales. W. F. Harkness. *Electrician* 87:449 O 7 '21
- Spread of the cooperative idea. *J Elec* 45:215-16 S 1 '20
- Square D co. announces constructive advertising policy. A. MacLachlan. *Elec R* 78:181-2 Ja 29 '21
- Study pure science, urges General Electric. *Ptr Ink* 113:125-6+ N 25 '20
- Suggestions on how to put on a convenience outlet campaign. *il J Elec* 46:390 Ap 15 '21
- Ten thousand pages of electrical advertising. M. E. Hixson. *J Elec* 43:568-9 D 15 '19
- Use of seasonal advertising. *J Elec* 45:272 S 15 '20
- Value of jobber's personality in appliance advertising. F. B. Rae, jr. *Elec R* 78:811-13 My 21 '21
- Where British electrical show windows fail. E. A. Dench. *Electrician* 85:356 S 24 '20
- Year's work for cooperation by the California electrical cooperative campaign. L. H. Newbert. *il J Elec* 45:577-8, 581 D 15 '20

Bibliography

- Advertising practices in the electrical industry. *Ptr Ink* 114:95-6 F 3 '21

Dictionaries

- EMF electrical year book. F. H. Bernhard, ed. 843p Electrical trade pub. co., Chicago '21

Exhibitions

- Electrical exhibits at pageant of progress show. W. B. Eastwood. *Elec R* 79:152-6 Jl 30 '21
- Electricity at the orange show. W. B. Stoddard. *il J Elec* 44:261-2 Mr 15 '20
- Ideal home exhibition at Olympia. *il Electrician* 84:170-1, 198-9 F 13-20 '20

Laws and regulations

- Japanese law governing electrical operation. C. B. Hawley. *Elec W* 78:173 Jl 23 '21
- Local regulating ordinances and the electrical industry. *Elec R* 78:693-4 Ap 30 '21
- Vicious ordinance for sale of electrical devices in Chicago; its national significance. *Elec R* 78:580-2 Ap 9 '21; Discussion. 78:703-4 Ap 30 '21
- See also* Electric engineering—Laws and regulations

Statistics

- Census of electrical industries: 1917; central electric light and power stations with summary of the electrical industries. 184p '20 U.S. Bureau of the Census, Washington, D.C.
- Electrical exports for July half a million ahead of last year. *Elec W* 76:659-60 S 25 '20
- Electrical material production for 1919, 1914 and 1909. *Elec W* 78:191 Jl 23 '21
- Growth of electrical industries. *Elec W* 76:1214-15 D 18 '20
- Motor exports greater in 1920 than in 1919. *Elec W* 77:1074 My 7 '21
- Review of electrical business in 1920. T. C. Martin. *Elec W* 77:304 F 5 '21

Terminology

- EMF electrical year book. F. H. Bernhard, ed. 843p Electrical trade pub. co., Chicago '21

Austria

- Status of Austrian electrical industry. I. Seidener and A. Gruenhut. *Elec W* 76:1069-70 N 27 '20
- See also* Electric plants (central stations)—Austria

California

- Contractor-dealers of El Camino Real. *il J Elec* 44:413-20 My 1 '20
- Cooperation in the electrical industry. *J Elec* 44:564-5 Je 1 '20
- Electrical co-operative campaign in California. *Elec W* 75:389-90 F 14 '20
- Industrial load in California. map *Elec W* 76:428-30 Ag 28 '20; Excerpts. *J Elec* 45:231-2 S 1 '20; Abstract. *Power* 52:481 S 21 '20
- Notable progress in California's electrical campaign. *il plans Elec R* 77:123-5 Jl 24 '20
- Year's work for cooperation by the California electrical cooperative campaign. L. H. Newbert. *il J Elec* 45:577-8, 581 D 15 '20
- See also* Electric plants (central stations)—California; Electricity supply—California; Hydroelectric plants—California; *also* California state association of electrical contractors and dealers

Canada

- New opportunity for British firms in the Canadian electrical market. *Elec R (Lond)* 89:63 Jl 8 '21
- See also* Electric plants (central stations)—Canada; Hydroelectric plants—Canada

China

- China as field for electrical development. *Elec R* 78:542 Ap 2 '21
- See also* Electric plants (central stations)—China

Cuba

- Cuba as a market for electric lighting fixtures. *Elec R* 77:642 O 23 '20

Electric Industries —Continued

Europe

European market will grow with power development. F. L. Driver. Elec W 77:389 F 12 '21

Far East

Exporting electrical equipment to Pacific countries. il Elec R 77:53-5 J1 10 '20
Trade pitfalls and possibilities in the Orient. F. K. Pinckney. Elec W 77:400 F 12 '21

Germany

Germany hopes to regain world electrical trade. H. Henrich. Elec W 76:549 S 11 '20
See also Electric plants (central stations)—Germany; Electricity supply—Germany; Hydroelectric plants—Germany

Great Britain

Competition for each and co-operation for all. J. W. Beauchamp. Electrician 85:348-9 S 24 '20
Developing electrically in England. Elec W 75:19-20 Ja 3 '20
Electrical equipment of artisans' dwellings. J. Cleary. Electrician 84:418-19 Ap 16 '20
English electrical industry; an Austrian engineer's criticisms. E. Rosenberg. Electrician 86:690-2 Je 3 '21
Function of Whitley councils in the electricity supply industry. J. W. Thomas. Elec R (Lond) 88:372-4 Mr 25 '21
National industrial council for the electricity supply industry. T. W. Cole. Elec R (Lond) 88:103-4 Ja 28 '21
Path of prosperity. H. E. Goody. Electrician 85:354-5 S 24 '20
Position of the metal filament lamp and fittings industry at the present time. Illum Engr 12:319-22 N '19
Some steps to a reconstructed industry. A. H. Dykes. Electrician 87:434-5 O 7 '21
See also Electric plants (central stations)—Great Britain; Electricity supply—Great Britain; Hydroelectric plants—England

Italy

Italian electrical industries show rapid and continuing growth. H. L. Geissel. Elec W 77:428 F 19 '21
See also Electric plants (central stations)—Italy; Hydroelectric plants—Italy

Japan

Electric undertakings in Japan. Power 51:40-1 Ja 6 '20
Electrical imports and exports of Japan. Elec R (Lond) 88:569-70 Ap 29 '21
Japanese hydro-electric and electrical manufacturing works. R. Torikai. Elec R (Lond) 88:568-9 Ap 29 '21
Thirty million Japanese enjoy electric service. Elec W 78:410-11 Ag 27 '21

Norway

Electrical conditions in Norway. Elec R (Lond) 89:28 J1 1 '21
See also Hydroelectric plants—Norway

Pacific coast

Motor market on the Pacific coast. J Elec 46:110-11 F 1 '21

Russia

Electrical industry in Russia during the last five years; abstracts. N. O. Lifschitz. Electrician 85:425 O 8 '20; Sci Am M 2:279-80 N '20
Telling the self interest story in soviet Russia. J Elec 46:332-3 Ap 1 '21

South Africa

Electrical goods in British South Africa. R. A. Lundquist. U S Bur For & Dom Com 205:1-117 '20
See also Electricity supply—South Africa

South America

Electrical goods in Argentina, Uruguay, and Brazil. P. S. Smith. il U S Bur For & Dom Com 184:1-133 '19

Electrical possibilities in South America; opportunities for water-power development. V. L. Havens. il Elec W 76:729-30 O 9 '20

Spain

Electrical enterprise in Spain. P. F. Martin. Elec R (Lond) 89:579-80 O 28 '21
Electrical goods in Spain. P. S. Smith. map U S Bur For & Dom Com 197:1-178 '20
Electrical industry of Spain. Sci Am M 2:371-2 D '20
See also Electricity supply—Spain; Hydroelectric plants—Spain

Switzerland

Notes on electricity in Switzerland. R. B. Matthews. Elec R (Lond) 88:734 Je 3 '21
See also Hydroelectric plants—Switzerland

United States

Big spring construction program outlined by utilities in every part of the country. C. A. Tupper. il Elec R 78:373-83 Mr 5 '21
Developments in the electrical industry during 1919. J. Liston. il diags plan Gen Elec R 23:4-56 Ja '20
Electric service in the American home. diags map Elec W 75:1133-7 My 15 '20
Electrical business has turned the corner. Elec W 78:507-8 S 10 '21
Electrical conditions of 1919 and 1920. T. C. Martin. Elec W 75:125-6 Ja 17 '20
Electrical importance of the various states. maps Elec W 77:650-1 Mr 19 '21
Electrical manufacturing plant capacity. Elec W 75:379-80 F 14 '20
Electrical manufacturing tendencies in the United States of America. A. M. Randolph. Electrician 86:615-18 My 20 '21
Encouraging outlook for construction. il Elec W 78:722-6 O 8 '21
Estimated value of electrical and related manufactures in 1919. Elec R 76:9 Ja 3 '20
Importance of the electrical industry in the foreign trade of the United States. M. A. Oudin. map Gen Elec R 23:752-5 S '20; Same. Elec R 77:352-4 S 4 '20
Jobbers' 1919 sales \$300,000,000. Elec W 75:158-60 Ja 17 '20
Jobbers see steady improvement ahead. Elec W 78:718-19 O 8 '21
Merchandising's greatest season—1919-1920. E. A. Edkins. Elec W 75:122-3 Ja 17 '20
Personal observations in the industry. A. W. Berresford. Am Inst E E J 40:555-60 J1 '21
Plain facts about the business outlook for electrical men. E. E. Whitehorne. Elec W 78:713-15 O 8 '21
Review of developments in the electrical industry in 1919. A. A. Gray. Elec R 76:1-8 Ja 3 '20
Trend of prices of electrical materials. H. Ehrlich. Elec R 76:26-7 Ja 3 '20
See also Electric plants (central stations)—United States; Electricity supply—United States; Hydroelectric plants—United States

Western states

Basic role of electricity in western growth. il map (supp) J Elec 46:597-8 Je 15 '21
Electrical importance of the southwestern states. T. H. Arnold. Elec W 77:1048 My 7 '21
Electrical supply jobbing business in the West. il J Elec 44:424-6 My 1 '20
See also Electric plants (central stations)—Western states

Electric inspection

Inspection placed on scheduled basis; system employed by the Syracuse lighting co. Elec W 77:1043-5 My 7 '21
Inspection system which keeps 1,200 motors running. H. E. Wood. Elec W 76:884 O 30 '20
Periodic inspection saves company \$6,000 per year. Elec W 75:735 Mr 27 '20
Re-inspection of old electrical construction work. B. W. Clark. Elec R 78:221-2 F 5 '21
Relay tests and inspection. R. Bailey. diags Elec W 77:809-12 Ap 9 '21

Electric Inspection—Continued

- Repair defects before they mature. W. G. Schmauder. *il Elec W* 78:62-3 J1 9 '21
 State inspection of wiring for Oregon. *J Elec* 47:349 N 1 '21
 Systematic inspection and maintenance. *il Elec W* 76:179-81 J1 24 '20
 Western association of electrical inspectors discuss their problems and code changes at 15th annual convention, St Louis. *Elec R* 76:239-41 F 7 '20

See also Electric apparatus and appliances—Testing; Electric lines—Inspection; Electric motors—Inspection; Electric plants (central stations)—Inspection; National electrical safety code

Electric instruments

- Annual Physical society and Optical society exhibition. *il diags Electrician* 84:63-5, 92-3, 117-19, 146-7 Ja 16-F 6 '20
 Annual report of the A.I.E.E. committee on instruments and measurements. *Am Inst E E J* 39:745-7 Ag '20
 Electrical instruments for use on board ship. A. F. Harris. *il diag Electrician* 85:259-63 S 3 '20
 Electrical resistance and instruments based on the temperature-variation of resistance. *Sci Am M* 4:371-2 O '21
 Ground detecting devices; their theory of operation, construction and use. V. H. Todd. *il diags Power Pl Eng* 25:994-7 O 15 '21
 Instruments for indicating and recording speed at a distance. *il Electrician* 87:459 O 7 '21
 Measurement of frequency and speed; some Everett-Edgumbe instruments. *il diags Elec R (Lond)* 88:491-3 Ap 15 '21
 Multipliers for use with portable voltmeters and wattmeters. H. C. Yeaton. *diags Power* 52:395 S 7 '20
 New instrument for measuring frequency and other quantities. R. C. Clinker. *il diags Electrician* 87:172-3 Ag 5 '21
 Power indicating and limiting apparatus for the Chicago, Milwaukee & St Paul railroad. B. H. Smith. *il diags Elec J* 17:42-6 F '20
 Precision galvanometric instrument for measuring thermoelectric e.m.f.s. T. R. Harrison and P. D. Foote. *il diags Am Inst E E J* 39:165-76 F '20
 Repairing electrical switchboard instruments. V. H. Todd. *il diags Power* 53:1044-7 Je 28 '21
 Sensitive measuring apparatus. J. B. Moran. *diags Mach* 28:36-7 S '21
 Special electric instruments for electric driven ships. A. H. Mittag. *il diags Gen Elec R* 24:195-7 F '21; Same cond. *Elec R (Lond)* 88:496-7 Ap 15 '21; Abstract. *Engineer* 131:625-6 Je 10 '21
 Super-scale measuring instruments; some Everett, Edgumbe designs. *il diags Elec R (Lond)* 89:139-40 J1 29 '21

See also Electric apparatus and appliances; Electric measurement; Electric meters; Electric testing; Electrotherapeutics—Apparatus and appliances

Manufacture

- Modern electrical instrument manufacture; features of the work of Nalder brothers & Thompson. *il Electrician* 85:710-12 D 17 '20

Electric Insulation. See Insulation (electric)**Electric Irons**

- Demonstration of appliances aids merchandising. *il Elec R* 76:1051-4 Je 26 '20

See also Ironing machines

Testing

- Comparative tests to be made on electric flatirons. R. S. Hale. *N E L A Bul* 8:240-1 Ap '21
 Electric flatirons to be given thorough tests. *Elec R* 78:551-2 Ap 2 '21

Electric laboratories

- High voltage research equipment; oscillator. H. J. Ryan. *J Elec* 45:560-1 D 15 '20
 Laboratory service for a modern public utility. O. A. Knopp. *il Elec R* 78:465-8 Mr 19 '21

Electric lamps

- Anti-break lamp economiser. *il diags Elec R (Lond)* 88:293 Mr 4 '21
 Breakage offsets saving on lamps operated below rating. H. Nixon. *Elec W* 75:733 Mr 27 '20
 Change and development in sign lighting. E. B. Fox. *il Elec W* 78:121 J1 16 '21
 Development in the Sheringham daylight. *il diag Illum Engr* 14:12-13 Ja '21
 Electric lamp industry. G. A. Percival. 112p Pitman '20
 Electric lighting of railroad signals. L. C. Porter and F. S. Stallknecht. *il diags Illum Eng Soc* 15:223-42 no 4 '20
 Exhibit of pointolite lamps. *il diags Illum Engr* 12:324-7 N '19
 Intermediate plug keeps afterglow in lamps. *il diag Pop Mech* 35:758 My '21
 Records of lamp service in a large park system. C. H. Shepherd. *Elec R* 75:1016-18 D 20 '19
 Report of the Illuminating engineering society committee on progress. *Illum Eng Soc* 15:433-48 no 7 '20
 Selected lamps for flood-lighting. H. E. Butler. chart *Elec W* 78:473-4 S 3 '21
 Selecting the right lamp for the commercial lighting fixture. W. H. Rademacher. *il J Elec* 47:60-2 J1 15 '21
 Sheringham daylight. L. C. Martin. *diag Illum Engr* 12:323 N '19
 Silent guide automatic route indicator. *il diags Engineer* 129:408-9 Ap 16 '20
See also Automobiles—Lighting; Detectors, Ground; Electric lanterns; Electric light fixtures; Electric lighting; Locomotive headlights; Moore lamps; Safety lamps, Electric; Searchlights

Standards

- Standardization of operating voltages again urged by N. E. L. A. lamp committee. F. W. Smith. chart *N E L A Bul* 7:917-19 D '20

Testing

- Instantaneous photometer for testing signaling lamps. *il diags plan Engineering* 111:104-5 Ja 28 '21
 Neat and inexpensive test set for a repair bench. A. C. Roe. *il diags Elec W* 78:880 O 29 '21
 Using Ohm's law to integrate. M. D. Cooper. *diags Gen Elec R* 24:838-40 S '21
 Whitened cube as a precision integrating photometer. H. Buckley. *diags Inst E E J* 59:143-52 Ja '21

Electric lamps, Arc

- Enclosed carbon arc lamps vs. novalux Mazda units. H. E. Butler. *il diags Gen Elec R* 23:534-49 Je '20
 First arc lamp in San Francisco. F. E. Smith. *il J Elec* 44:610-11 Je 15 '20
 Lampe à arc rotatif, système Garbarini. *diag Génie Civil* 77:137-8 Ag 14 '20; Abstract (Rotating arc lamps of Garbarini type). *Sci Am M* 2:183 O '20
 Low-voltage arc lamp. L. B. Robbins. *diag Pop Mech* 36:306-7 Ag '21
 Luminous arc lamp. R. B. Hussey. *il Gen Elec R* 24:729-33 Ag '21
 Une nouvelle lampe automatique à arc rotatif pour projections. E. Marcotte. *Génie Civil* 78:241-2 Mr 12 '21
 Some recent developments of high-current arcs, with special reference to searchlights. J. P. Yorke. *diags plan Inst E E J* 58:651-61 Ag '20; Abstract. *Electrician* 85:708-9 D 17 '20
 Something new in arc lamps. *Sci Am* 123:517 N 20 '20

See also Electric lamps, Cadmium vapor; Electric lamps, Mercury vapor

Electric lamps, Cadmium vapor

- New cadmium-vapor arc lamp. F. Bates. *diags U S Bur Stand Sci Pa* 371:45-50 '20; Same. *Sci Am M* 2:40-1 J1 '20

Electric lamps, Floor

- Pleasing proportions of direct and diffused light from a floor lamp. J. R. Cravath. *il plan Illum Eng Soc* 15:631-42 no 9 '20; Ab-

Electric lamps, Floor—Continued

stract. Elec R 77:564 O 9 '20; Discussion.
Illum Eng Soc 15:643-4 no 9 '20

See also Electric lamps, Portable

Electric lamps, Incandescent

Automatic cutout for incandescent street lighting. il Elec R 78:594 Ap 9 '21

British standard specification for watertight fittings for incandescent electric lamps. 33p British engineering standards association, London '20

Chemical loafer, and how it was put to work; rôle of argon in the latest incandescent lamps. E. W. Davidson. il Sci Am 123:58 Jl 17 '20

Color temperature of high efficiency lamps. W. E. Forsythe. J Fr Inst 192:109-10 Jl '21; Same cond. Phys R 18:147-8 Ag '21

Distribution of light and spherical reduction factors of electric incandescent lamps. M. Igari. Illum Engr 13:278 O '20

Edison and the incandescent lamp. C. L. Clarke. Gen Elec R 22:1066-8 D '19

Efficiency of incandescent lamps is to be expressed in lumens per watt. N E L A Bul 8:300-1 My '21

Electric lamp from inside. C. C. Patterson. Electrician 86:297 Mr 11 '21

Flashing speeds of incandescent signal lamps. A. G. Worthing. diag J Fr Inst 191:231-57 F '21

Incandescent lamps used in dust-laden atmosphere. D. J. Price and H. R. Brown. diags Elec R 79:165-6 Jl 30 '21

Lighting for dusty places. C. L. Dows, E. B. Fox and W. P. Blackwell. Elec W 77:191-2 Ja 22 '21; Discussion. T. H. Arnold. 77:768 Ap 2 '21

115-volt lamps on 230-volt circuits in industrial plants. D. W. Blakeslee. Elec W 75:1491 Je 26 '20

Position of the metal filament lamp and fittings industry at the present time; report of the committee on progress. Illum Engr 12:319-22 N '19

Position of the metal filament lamp and fittings industry at the present time; report of the committee on progress. Illum Engr 14:10; Discussion. 15-16 Ja '21

Street-lighting arc lamps changed over to incandescent type. M. H. Hummel. Elec W 78:222-3 Jl 30 '21

See also Electric lamps, Tungsten; Safety lamps, Electric

Manufacture

Incandescent lamps; progress in their manufacture. A. Walton. il Textile World 58:3205+ N 6 '20

Intricate machine winds electric-lamp filaments. il Pop Mech 36:686 N '21

Manufacture of incandescent electric lamps. Electrician 84:501 Ap 30 '20

Manufacture of incandescent lamps. C. W. Starker. il diags Am Mach 51:1027-31; 52:15-19 D 18 '19, Ja 1 '20; Abstract (La fabrication des lampes à incandescence du type 1 watt aux Etats-Unis). Génie Civil 77:280 O 2 '20

Modern methods of manufacturing electric lamps; Willesden works of Pope's electric lamp co. il Electrician 85:686-7 D 10 '20

Osram-G. E. C. lamp works. il Elec R (Lond) 88:376 Mr 25 '21

Electric lamps, Mercury vapor

Les applications du quartz fondu; la construction de lampes à arc de mercure en quartz. G. Berlemont. Génie Civil 78:139-40 F 5 '21

Cooper Hewitt mercury vapor lamp. L. J. Buttolph. il diags Gen Elec R 23:741-51, 858-66 S-O '20

Cooper Hewitt quartz lamp and ultra-violet light. L. J. Buttolph. bibliog il diags Gen Elec R 23:909-16 N '20

Industrial lighting with mercury vapor lamps. E. L. Elliott. il Elec R 79:399-402 S 10 '21

Mercury-vapor lamp for alternating current. Elec W 76:1065 N 27 '20

Electric lamps, Neon

Development of low-voltage Neon lamps. Illum Engr 13:228 Ag '20

Interesting electrical nightlamp. Sci Am 125:91 Ag 6 '21

Neon lamps for low voltage circuits. J. S. Dow. Illum Engr 14:14 Ja '21

Use of the Pintsch glim lamp for switch circuits; abstract. Elec W 77:1061 My 7 '21

Electric lamps, Pocket

Magnet-type pocket lamp. il Power 51:381 Mr 9 '20

Electric lamps, Portable

Lighting of the living room. M. Luckiesh. il Elec R 76:603-6 Ap 10 '20

Portable lighting furniture. M. Luckiesh. diags Elec R 77:50-2 Jl 10 '20

Portable storage battery lamp for very damp locations. diag Elec W 76:693 O 2 '20

See also Electric lamps, Floor

Electric lamps, Tungsten

Artificial daylight for merchandising and industry. G. H. Stickney. bibliog il Gen Elec R 23:527-33 Je '20

Better light for microscopy. H. E. Howe. il Sci Am 122:223+ F 28 '20

Bowl-enameled lamp. N E L A Bul 8:55-6 Ja '21

Bowl-enameled Mazda C lamp; new development in illumination. W. Harrison. il Gen Elec R 23:1005-8 D '20

Distinctive features of white Mazda lamps. Elec R 77:559-61 O 9 '20

Enclosed carbon arc lamps vs. novalux Mazda units. H. E. Butler. il diags Gen Elec R 23:534-49 Je '20

Errors from paint and window in photometric sphere. F. E. Cady. Elec W 77:368 F 12 '21

High-temperature phenomena of tungsten filaments. C. J. Smithells. Engineering 112:102 Jl 15 '21

Improving the Mazda automobile headlight lamp. L. C. Porter. il chart diags Gen Elec R 23:67-71 Ja '20; Same. Sci Am M 1:344-6 Ap '20

Japanese specification for tungsten incandescent electric lamps. Illum Engr 12:283-5 O '19

Lighting of show windows and show cases. A. L. Powell. il diags Elec R 76:595-602 Ap 10 '20

Magazine film cutout; the safety valve of the a-c. series street-lighting system. H. E. Butler. il Gen Elec R 24:752-4 Ag '21

Mazda lamps for street lighting. G. H. Stickney. diags Gen Elec R 24:734-9 Ag '21

Mazda lamps, their theory and characteristics. H. Schroeder. diags Sibley J 34:109-16 Ag '20

Pulsating thermionic discharges in evacuated tungsten lamps. A. G. Worthing. J Fr Inst 191:837-8 Je '21

Renewing tungsten lamps. F. B. Howe. il Pop Mech 35:561-2 Ap '21

Romance of tungsten. G. Gaulois. il Sci Am 123:130+ Ag 7 '20

Short tungsten filament as a source of light and electrons. C. Stead. diag Inst E E J 58:107-17 Ja '20

Total emissive powers and resistivities of tungsten at incandescence. A. G. Worthing and W. E. Forsythe. Phys R 18:144-7 Ag '21

White Mazda lamp. E. A. Anderson. il diags Gen Elec R 23:711-14 Ag '20; Abstract. Illum Engr 13:230 Ag '20

See also Automobiles—Lighting

Patents

Court holds Langmuir's patent for incandescent lamp valid. W. Gustin. Chem & Met Eng 24:303-4 F 16 '21

Gas-filled tungsten lamp patent sustained. Sci Am 123:141+ Ag 7 '20

Electric lanterns

Electric lantern shows red or white light as desired. il Pop Mech 36:46 Jl '21

Electric leakage

Effect of shunted resistance, or plug leakage, on the sparking performance of an electrical ignition system. G. E. Bairsto. Inst E E J 58:507-22 Je '20; Abstract. Electrician 85:683-5 D 10 '20

Electric leakage—Continued

- Field leakage in synchronous machines. T. Schou. diags Elec R 77:281-4 Ag 21 '20
 Surface leakage as a factor in insulator design. T. M. Feder. diags Am Inst E E J 39:803-6 S '20
 Zig-zag leakage. L. H. A. Carr. diags Electrician 87:76-7 Jl 15 '21

See also Electric losses

Electric light and power association, Northwest. *See* Northwest electric light and power association

Electric light carbons

- Carbon arcs for searchlights. C. C. Paterson and others. diags Inst E E J 58:83-97 Ja '20; Abstracts. Illum Engr 12:335-7 D '19; Elec W 75:446 F 21 '20; Elec R 76:433 Mr 13 '20; Sci Am M 1:565 Je '20; Discussion. Inst E E J 58:97-106 Ja '20

Electric light fixtures

- Artificial lights and their fixtures in Japan. M. Uchisaka. il Illum Eng Soc 15:257-67 no 4 '20
 Central station methods for securing high lighting standards in old homes. O. R. Hogue, J. J. Kirk and E. D. Tillson. il Illum Eng Soc 15:693-703 no 9 '20
 Central station methods for securing high lighting standards in old stores. O. R. Hogue, J. J. Kirk and E. D. Tillson. il diags plans Illum Eng Soc 15:704-8 no 9 '20; Same. Elec R 77:912-14 D 11 '20; Discussion. Illum Eng Soc 15:715-22 no 9 '20
 Co-operation between architects and fixture men. Elec R 78:769-70 My 14 '21
 Criticisms of electric fittings. Electrician 85:357 S 24 '20
 Design and construction of large lighting fixtures. il Elec R 77:749-51 N 13 '20
 Educating architects to better home lighting. C. G. Everson. il Elec R 78:649-51 Ap 23 '21
 Glass an adaptable element in lighting equipment. F. J. Blaschke. il Elec R 79:49-50 Jl 9 '21
 How packing affects distribution of lighting fixtures. F. B. Rae, jr. il Elec R 76:61-2 Ja 10 '20
 Illumination and fixtures for department stores. A. L. Powell. il Elec R 79:381-4, 427-30 S 10-17 '21
 Indirect ceiling fixtures provide even illumination for library. il diag Elec W 77:929 Ap 23 '21
 Interiors illuminated without ceiling fixtures. diags plans Elec W 75:551-2 Mr 6 '20
 Largest indirect lighting fixture ever built. il Elec R 79:67-8 Jl 9 '21
 Lighting effects vs. lighting fixtures. M. Luckiesh. il diag Elec R 76:517-20 Mr 27 '20
 Lighting equipment and fixtures for banking houses. H. K. Firth. il Elec R 77:909-11 D 11 '20
 Lighting fixture standardization an immediate possibility. Elec W 77:1074-5 My 7 '21
 Lighting of the living room. M. Luckiesh. il Elec R 76:675-8 Ap 24 '20
 Lighting of various rooms of the household. M. Luckiesh. il Elec R 76:758-60 My 8 '20
 Lighting the home. M. Luckiesh. il plans Bldg Age 42:55-8 My '20
 Maintenance of electric lighting equipment on the Lincoln Park system. C. H. Shepherd. Illum Eng Soc 15:314-20 no 5 '20
 Maintenance of interior lighting systems. A. L. Powell. Elec R 76:263-6 F 14 '20
 New development in indirect lighting. il diag Elec R 78:594-5 Ap 9 '21
 Novelties in lighting. M. Luckiesh. diags J Elec 45:421-3 N 1 '20
 Period lighting fixture designs appeal to esthetic taste. il Elec R 78:258-60 F 12 '21
 Practical designs essential to fixture industry. V. D. Green. Elec R 78:765-7 My 14 '21
 Selecting the right lamp for the commercial lighting fixture. W. H. Rademacher. il J Elec 47:60-2 Jl 15 '21
 Semi-indirect light totally inclosed. il Pop Mech 36:248 Ag '21

- Service on rental fixtures by Commonwealth Edison company. F. A. Kaup. il Illum Eng Soc 15:303-5; Discussion. 302-7 no 5 '20
 Standardization and co-operation in the fixture trade. V. D. Green. Elec R 77:915-16 D 11 '20
 Stimulation of design. W. R. McCoy. Elec R 78:425-30 Mr 12 '21
 What is tendency in lighting-fixture design? V. D. Green. Elec R 78:590-1 Ap 9 '21
 What the illuminating engineer can do for the fixture manufacturer. W. R. McCoy. Illum Eng Soc 15:243-50; Discussion. 250-6 no 4 '20

See also Street lighting fixtures

Cleaning

- Determining economical interval for cleaning lighting fixtures. Elec W 76:1122 D 4 '20
 How often should lighting fixtures be cleaned? D. W. Blakeslee. Elec W 77:941 Ap 23 '21

Exhibitions

- Lighting fixture industry ready for Buffalo convention. il plan Elec R 78:95-8 Ja 15 '21

Manufacture

- Cost analysis of manufacture of lighting fixtures. Elec R 77:925-6 D 11 '20
 Dies for electric light shades. il diags Mach 27:759-60 Ap '21

Merchandizing

- Beatie plan for marketing lighting fixtures. Elec R 79:395-6 S 10 '21
 Classification of customers according to purchases; developing a policy in the lighting-fixture industry. C. E. Verhunce. Elec R 78:764 My 14 '21
 Cuba as a market for electric lighting fixtures. Elec R 77:642 O 23 '20
 Decorative home lighting offers lucrative field. F. H. Miller. il Elec R 78:91-4 Ja 15 '21
 Lighting fixture market to light dawn of new era. W. B. Eastwood. il Elec R 78:243-5 F 12 '21
 Lighting fixtures displayed under natural conditions. E. R. Gillet. il Elec R 79:239-41 Ag 13 '21
 Shadow box helps sell electric lighting fixtures. il Elec R 76:891-3 My 29 '20

Terminology

- Wanted, a better name than fixture. R. Trautschold. Elec W 77:937 Ap 23 '21; Same. J Elec 46:460 My 1 '21; Same. Elec R 78:768 My 14 '21

Electric light fixtures, Portable

- Connections for portable lighting equipment. il Elec R 77:943-4 D 11 '20
 Elexit devices ready for dealers before new year. B. Tousley. il Elec R 79:228-30 Ag 13 '21
 Installation of Elexit requires no special fittings. B. Tousley. diags Elec R 79:617-18 O 22 '21
 Making furniture of fixtures. diags J Elec 45:396 O 15 '20
 New idea in lighting fixtures. il Bldg Age 43:33 F '21; Same. Am Arch 119:50 Ja 12 '21
 New installation method makes lights movable. il Pop Mech 34:525 O '20
 Removable fixture. O. H. Caldwell; M. Luckiesh; W. R. McCoy; W. J. Shore. Illum Eng Soc 16:23-37; Discussion. 37-46 no 2 '21
 Removable lighting fixtures for residence use. il Elec R 79:45-8 Jl 9 '21
 Removable lighting fixtures for residences. V. D. Green. Elec R 77:766-7 N 13 '20
 When a lighting fixture is not a fixture. G. Gaulois. il Sci Am 123:573 D 4 '20

Electric lighting

- Advantages of various light intensities in combination with color. B. Irwin. Elec R 79:176 Jl 30 '21
 Advertising of illumination with constructive ideas. Elec R 78:930 Je 11 '21
 Annual report of the A.I.E.E. lighting and illumination committee. Am Inst E E J 39:761-4 Ag '20

Electric lighting—Continued

- Artistic lighting of a large interior. J. R. Cravath. *il diags Elec W 75:939-41 Ap 24 '20*
- Aspects of domestic lighting. J. S. Dow. *il Electrician 86:412-16 Ap 8 '21*
- Campaign to improve standards of lighting. J. Lightbody. *J Elec 46:347 Ap 1 '21*
- Central station experience in the improvement of factory lighting. J. B. Wilson. *Illum Eng Soc 15:582-7 no 8 '20*; Same. *Elec R 77:773-4 N 13 '20*; Discussion. *Illum Eng Soc 15:587-90 no 8 '20*
- Constant potential series lighting. C. P. Steinmetz. *Am Inst E E J 39:245-8 Mr '20*; Abstract. *Sci Am M 1:566-7 Je '20*
- Demonstrating effective lighting. *il diag plan Elec W 76:865-8 O 30 '20*
- Designing direct and indirect illumination; practical method of determining illumination and scheme of calculating foot-candle. M. M. Samuels and C. O. von Dannenberg. *diags Elec W 76:721-4 O 9 '20*
- Development of electric light and power. J. R. Cravath. *W Soc E J 24:489-90 O '19*
- Developments in artificial illumination. C. D. Wagoner. *il Elec R 77:549-52 O 9 '20*
- Domestic electric service among the people of foreign countries. *Elec W 75:484-5 F 28 '20*
- Edison system of electric lighting. J. W. Lieb. *Stevens Ind 37:215-31 Jl '20*
- Electrical distribution for modern engine terminals. *diags plans Ry R 66:919-24; 67:314 Je 5, Ag 28 '20*
- Electrical equipment of the Naval and military club. *diags Electrician 84:295-6 Mr 12 '20*
- Electrical system for a small town. C. A. Rosse. *plan Power Pl Eng 24:1038 N 1 '20*
- Gaseous conduction light from low-voltage circuits. D. M. Moore. *il diags Am Inst E E J 39:733-42 Ag '20*; Same. *Gen Elec R 23:577-88 Jl '20*; Abstracts. *Illum Engr 13:225-7 Ag '20*; *Génie Civil 78:275-6 Mr 26 '21*
- How to wire the home for electric light, and how to install the Fairbanks-Morse home light plant. 36p Fairbanks, Morse & co., Chicago '21
- Illumination of outdoor sports. R. E. Harrington. *il diags plans Elec R 78:85-90 Ja 15 '21*
- Illumination requirements for indoor sports. J. H. Kurlander. *il diags Elec R 79:39-43 Jl 9 '21*
- Light and health. N. B. Harman. *Electrician 86:416-17 Ap 8 '21*
- Light and power installation at pageant of progress. R. W. Ashley. *il Elec R 79:149-51 Jl 30 '21*
- Lighting and the householder. M. Luckiesh. *Elec R 76:429-31 Mr 13 '20*
- Lighting and the householder. M. Luckiesh. *il diags plan N E L A Bul 7:759-76 O '20*
- Lighting drafting-rooms by electricity. *Min & Sci P 121:217 Ag 7 '20*
- Lighting effects vs. lighting fixtures. M. Luckiesh. *il diag Elec R 76:517-20 Mr 27 '20*
- Lighting of office building and drafting rooms. A. L. Powell. *il Sibley J 34:81-5+ Je '20*
- Lighting of piers and docks. H. E. Mahan. *il diags Gen Elec R 24:381-6 Ap '21*
- Lighting of show windows and show cases. A. L. Powell. *il diags Elec R 76:595-602 Ap 10 '20*
- Lighting of the living room. M. Luckiesh. *il Elec R 76:603-6, 675-8 Ap 10, 24 '20*
- Lighting of various rooms of the household. M. Luckiesh. *il Elec R 76:758-60 My 8 '20*
- Lighting the home. M. Luckiesh. *il plans Bldg Age 43:59-62 Ap '21*
- New lighting sales developments. W. E. Underwood. *Elec R 73:434-6 Mr 13 '20*
- Novelties in lighting. M. Luckiesh. *diags J Elec 45:421-3 N 1 '20*
- Original arc-light machine is still in existence. C. D. Wagoner. *il Elec R 76:983-4 Je 12 '20*
- Principles of scientific illumination. C. E. Webb. *diags Inst E E J 58:756-61 Ag '20*
- Problems of theory and practice in modern lighting; extracts from reports and papers presented before convention of Illuminating engineering society. *il Elec R 79:546-51 O 8 '21*
- Real meaning of productive illumination intensities. D. H. Tuck. *il Elec W 76:684-5 O 2 '20*
- Relation of electric lighting to safety. A. B. Oday. *il Elec R 76:764-6 My 8 '20*
- Report on illumination of snow windows. *il N E L A Bul 7:860-4 N '20*
- Restrictions on non-essential lighting issued in California. *J Elec 45:293 S 15 '20*
- Seeing is believing. L. C. Kent. *il plan J Elec 45:57-60 Jl 15 '20*
- Significant developments in illumination during 1920. P. S. Millar. *Elec W 77:82-5 Ja 8 '21*
- Some developments in the electrical industry during 1919. J. Liston. *il diags Gen Elec R 23:48-56 Ja '20*
- Système d'éclairage électrique des trains, des ateliers de construction d'Oerlikon. *diag Génie Civil 76:160-1 F 7 '20*
- Tendencies of electric lighting. H. T. Harrison. *Electrician 87:436-7 O 7 '21*
- See also* Armories—Lighting; Art galleries and museums—Lighting; Automobiles—Lighting; Canneries—Lighting; Car lighting; Daylight, Artificial; Department stores—Lighting; Electric lamps; Electric light fixtures; Electric meters; Electric plants; Electric signs; Electric wire and wiring; Electricity on the farm; Factories—Lighting; Farm lighting plants; Glare; Laundries—Lighting; Lighting; Locomotive headlights; Moving picture studios—Lighting; Office buildings—Lighting; Photometry; Power plants—Lighting; Public buildings—Lighting; Schoolhouses—Lighting; Searchlights; Stage lighting; Street lighting; Tennis courts—Lighting; Textile mills—Lighting; Theaters—Lighting; *also* International commission of illumination

Cost

- Analysis of incandescent lighting costs for a year. *Elec W 75:424 F 21 '20*
- Cost of good lighting only 1.41 per cent of labor cost. *Elec W 76:388 Ag 21 '20*
- Cost of serving small customers with lighting. B. Tufts. *Elec W 75:443 F 21 '20*
- Cost problems in the lighting of public parks. C. H. Shepherd. *il diag Elec R 77:389-94 S 11 '20*
- Installation costs, and the development of new fields for electric lighting. J. W. Beauchamp. *Elec R (Lond) 89:525 O 21 '21*

Rates

See Electric rates

Tables, calculations, etc.

- Charts and data for industrial lighting designs. P. A. Powers. *diags Elec R 79:231-4 Ag 13 '21*
- Design of lighting secondaries. L. C. Peterman. *chart Elec W 78:731 O 8 '21*
- Diagrams to assist in illumination calculations. C. W. Kinney. *diags Elec W 77:489-90 F 26 '21*
- Relation of lighting feeders to watts per square foot. V. Tousley. *Elec W 76:686-7 O 2 '20*
- Using Ohm's law to integrate. M. D. Cooper. *diags Gen Elec R 24:838-40 S '21*
- Electric lighting plants. *See* Electric lighting sets; Electric plants; Farm lighting plants
- Electric lighting sets
- British house lighting sets and sales problems. M. W. Bourdon. *il Automotive Ind 43:1109-12 D 2 '20*
- See also* Farm lighting plants

Electric lines

- Application of mild and alloy steels to high-tension suspension lines. L. R. O'Neill. *Am Inst E E J 39:637-40 Jl '20*
- Approximate ratings of three-phase lines. *Elec W 75:1138 My 15 '20*
- Building a world's record transmission line in the West. R. Sibley. *il J Elec 47:301-3 O 15 '21*
- Charts show tension and sag for transmission lines. *Elec W 76:529-30 S 11 '20*
- Connecting overhead circuits to underground cables. A. A. Meyer. *il Elec W 77:1151-2 My 21 '21*

Electric lines —Continued

- Criticism of the regulations for overhead lines. W. Fennell. Elec R (Lond) 88:438-9 Ap 8 '21
- Dead-ends on towers changed to suspension on live 110-kv. line. diags Elec W 75:1140 My 15 '20
- Details of transmission systems of North America at and above 44,000 volts; tabulation. Elec W 75:supp My 8 '20
- Determining size of wire and the length of span. D. F. Parrott. diag Elec W 76:928 N 6 '20
- Developing the electrical possibilities in Arkansas. il diags map Elec W 75:1265-7 My 29 '20
- Distribution and wiring as applied to town planning. G. C. Burnand. Electrician 86:428-9 Ap 8 '21
- Economy of 250-ft. spans for rural lines. Elec W 78:174-5 Jl 23 '21
- Effect of high costs on transmission and distribution. E. B. Meyer. Elec W 77:25-7 Ja 1 '21
- Electric power supply of southern textile mills. J. E. Serrine. il map Mech Eng 42:161-3+ Mr '20
- Electric service for rural customers. C. W. Drake. N E L A Bul 8:591-4 O '21; Same. Elec R 79:657-9 O 29 '21
- Electrical characteristics of the suspension insulator. F. W. Peek, jr. il diags Am Inst E E J 39:623-30 Jl '20
- Electricity (supply) act, 1919—overhead lines and wayleaves. W. Fennell. Elec R (Lond) 88:336-7 Mr 18 '21
- French transmission line for 110 kv. M. A. Henriod. il map Elec W 77:982-5 Ap 30 '21
- Fundamentals and economics of electric transmission. A. Still. Elec R 77:714-16 N 6 '20
- Ground wire on transmission lines. W. A. Hillebrand. Elec W 75:436 F 21 '20
- Handling the long spans on western transmission lines. il J Elec 47:98-102 Ag 1 '21
- How X-ray and radio service problems in electric industry have been solved. C. H. Mueller. Elec W 78:370-1 Ag 20 '21
- Insulation of high-voltage transmission systems. A. Still. il Elec R 78:54-6 Ja 8 '21
- Interesting additions to the longest transmission system; Southern Sierras power company. C. O. Poole. il J Elec 45:476-8 N 15 '20
- Linking three southern watersheds. maps Elec W 75:1081-7 My 8 '20
- Minimizing capital investment in line construction in Cape Cod district of Massachusetts. E. Carpenter. il plan Elec W 77:1249-50 My 28 '21
- New record in high tension transmission. J: A. Koontz. il J Elec 46:58-9 Ja 15 '21
- New transmission line construction in 1920. H. A. Barre. J Elec 45:566-7 D 15 '20
- New transmission line in Idaho. C. O. Crane. il map J Elec 46:63-4 Ja 15 '21
- 150,000-volt transmission line of the Knoxville power company. T. Varney. il diags Am Inst E E J 39:563-70 Je '20
- 110,000-volt transmission line from Switzerland to France; abstract. P. Meyer. Elec W 76:249 Jl 31 '20
- 110,000-volt wood pole transmission line. L. J. Moore. J Elec 45:517-18+ D 1 '20
- Overhead cable crossing; largest electric transmission span in the world, at Three Rivers, Quebec. J. F. Springer. il Sci Am 122:594+ My 29 '20
- Overhead line considered as a mechanical structure; calculating mechanical stresses in transmission lines. A. Still. il diags Elec R 77:589-95 O 16 '20
- Radio serves western power companies. il Elec W 78:266-8 Ag 6 '21
- Running a long span wire over rough water. F. Luckel. Elec W 78:778 O 15 '21
- 600,000-hp. line delivers Niagara power. J. A. Johnson. il diag map Elec W 76:875-7 O 30 '20
- Stresses in suspended wires and cables. F. E. Austin. diags Elec R 77:4-7, 203-6 Jl 3, Ag 7 '20

- Stringing suspension-insulator lines in rough country. M. J. Idail. Elec W 77:812-14 Ap 9 '21
- Stringing wires and cables along right of way. C. Omen. il Pop Mech 36:775 N '21
- Substations and switchgear for overhead systems. A. Still. il diag Elec R 77:355-61 S 4 '20
- Systems of electric transmission. A. Still. il diags Elec R 77:193-8 Ag 7 '20
- Tabulation of sags for stringing conductors. Elec W 75:327 F 7 '20
- Tie line application for induction feeder regulators. C. R. Gilchrist. il diag Elec J 17:518-20 N '20
- Transmission line insulation in America. F. W. Peek, jr. il diags Elec W 76:1061-4, 1105-7, 1258-9 N 27-D 4, 25 '20
- Transmission ring of the Duquesne light company. E. C. Stone. il diags map plan Elec J 18:211-19 My '21
- Transmission system of the West Penn power company. G. S. Humphrey. il diag maps Elec J 18:169-75 My '21
- Transmitting electric current to small Kansas towns. F. H. Frauens, jr. Munic Eng 59:125 O '20
- Trunk line and interconnected electric transmission systems of the western states; map. Elec W 75:supp My 8 '20
- Trunk transmission lines. C. E. Magnusson. maps J Elec 45:519-21 D 1 '20
- Underground systems. Elec W 75:1246-7 My 29 '20

See also Electric cables; Electric conduits; Electric fuses; Electric plants—Interconnection; Electric protective apparatus; Electric railroads; Electric service, Rural; Electric substations; Electric transmission; Electric utilities; Electric wire and wiring; Electrolytic corrosion; Hydroelectric plants; Poles; Telegraph lines; Telephone lines

Cost of construction

- Cost estimate for 66-kv. spur line \$6,630 per mile. C. R. Oliver. Elec W 77:431 F 19 '21
- Cost of rural line construction in Ohio. Elec W 76:838 O 23 '20
- Cost of 2,300-volt single-phase extensions. Elec W 77:600 Mr 12 '21
- Data on costs and losses of Canadian transmission lines. Elec R 75:1029 D 20 '19
- Data on the cost of constructing transmission lines. Elec W 75:548 Mr 6 '20
- Estimated cost of hydro-electric and transmission construction. Elec W 78:123 Jl 16 '21
- Feeder voltage regulators to reduce cost of line construction. E. F. Gehrken. Elec W 78:929 N 5 '21
- Interconnecting small cities in south central Indiana. il diags plan Elec W 76:321-4 Ag 14 '20
- Itemized cost of 33,000-volt line and substation. Elec W 75:1005 My 1 '20
- Proposed state hydro electric development in South Dakota and detailed estimates of cost. D. W. Mead and C. V. Seastone. Eng & Contr 53:652-4 Je 9 '20
- Transmission-line reconstruction problems. P. O. Reyneau and H. P. Seelye. Elec W 74:1152-3; 75:7-9 D 27 '19-Ja 3 '20
- Trend of prices of pole-line materials in last 7 years. Elec W 77:963 Ap 23 '21
- Unusual construction greatly reduces poleline costs. M. T. Crawford. il diags Elec W 77:1373-4 Je 11 '21

Inductive interference

- Auxiliary transformer reduces inductive interference. L. J. Moore. diag Elec W 77:257-8 Ja 29 '21
- Experiences in correcting telephone interference. H. S. Phelps. Elec W 75:833-4 Ap 10 '20
- Inductive interference case settled. N E L A Bul 8:497-9 Ag '21
- Inductive interference—Homer, Illinois, case. W. J. Canada. N E L A Bul 8:176-81 Mr '21

- Electric lines—Inductive interference—Cont.**
 Inductive interference—its nature and interest to us. W. J. Canada. N E L A Bul 8:628-32 O '21
 Inductive interference on electrified steam railways. A. W. Copley. Ry R 66:307 F '21
 Interference with communication circuits. L. Truxa. Electrician 87:515 O 21 '21
 N. E. L. A. convention addresses. I. E. Moulthrop. N E L A Bul 7:372-6 Je '20
 New York commission opinion in Hammond case. N E L A Bul 8:564-5 S '21
 Overhead transmission problems being solved. Elec R 78:973-6 Je 18 '21
 Plans of cooperation in meeting inductive interference problems. N E L A Bul 7:400-3, 505-7 JI-Ag '20
 Problem of inductive interference. J. A. Lighthipe. Elec W 76:75 JI 10 '20
 Progress in local inductive interference situation. N E L A Bul 7:840-1 N '20
 Public necessity the controlling factor in Homer case. Elec W 78:117-18 JI 16 '21
 Recent advances in telephone art affect inductive interference problem. W. N. Furthman. N E L A Bul 8:247-8 Ap '21
 Regulation and inductive effects in single-phase railway circuits. A. W. Copley. diags Elec J 17:326-38 Ag '20
 Report submitted by the inductive-interference committee of the American railway association. Elec R 78:767-9 O 15 '21
 Some notes on inductive interference. N E L A Bul 8:62 Ja '21
 Telephone interests and N. E. L. A. to cooperate in solving inductive interference problems. R. H. Ballard. N E L A Bul 8:392-3 JI '21

Inspection

- Floodlights make high-tension bus inspection easier. il Elec W 78:322 Ag 13 '21
 Inspecting high-tension transmission lines by aeroplane. W. R. Power. il N E L A Bul 8:467-8 Ag '21

Location

- Engineer and the right-of-way. C. R. Harte. diag plans Elec Ry J 55:1301-4 Je 26 '20

Losses

See Electric losses

Maintenance and repair

- Cable ducts lowered 12 ft. without service interruption. S. B. Hood. il Elec W 77:542 Mr 5 '21
 Changing insulators on live lines. il diags Elec W 74:992-4 N 29 '19
 Construction and repair work on high-voltage lines. M. D. Douglas and H. B. Bush. il Elec R 79:501-4 O 1 '21
 Design and maintenance of distribution systems. R. H. Rice. Elec R 78:57-62 Ja 8 '21
 Eternal vigilance in maintenance work important. F. H. Bates. Elec W 77:1363-4 Je 11 '21
 Maintenance of service on long power lines. A. Still. il diag Elec R 78:536-41 Ap 2 '21
 Melting sleet from high tension lines. N. B. Higgins. diag Elec W 75:216 Ja 24 '20
 Overhead systems; committee report. Elec W 75:1245-6 My 29 '20; Elec R 76:864-6 My 22 '20
 Protecting lines against over-voltage surges. A. Still. il Elec R 78:733-6 My 7 '21
 Reducing transmission-line interruptions. F. I. Bowler. il Elec W 76:913-16 N 6 '20
 Signal maintenance and overhead kinks. il diags Elec Ry J 55:578-80 Mr 20 '20
 See also Electric engineering—Safety devices and measures; Electric railroads—Maintenance and repair; Linemen's equipment

Poles and towers

- Callender Kay pole. il Elec R (Lond) 88:188 F 11 '21
 Card records for distribution poles. T. H. Rice. Elec W 77:939 Ap 23 '21

- Concrete track ties and electric poles in China. D. F. McLeod. diags Eng N 85:554-5 S 16 '20
 Distribution systems need more expert attention. S. B. Hood. diags Elec W 77:1244-5 My 28 '21
 Doherty's patent raising tackle in use on the construction of towers for the hydro-electric works near Bombay. il Eng & Contr 55:316 Mr 30 '21
 Four-pole wooden tower used to turn transmission lines. il Elec R 76:1040-1 Je 19 '20
 Interesting pole construction that turns transmission line. il Sci Am 123:503 N 13 '20
 Joint pole-line construction in Chicago. H. B. Gear. Elec R 78:156-7 Ja 22 '21; Correction. 78:732 My 7 '21
 Joint pole use is discussed in N.E.L.A. statement. Elec R 77:254 Ag 14 '20
 Machine reduces cost of hole digging and pole setting 25 per cent. P. O. Reyneau. il Elec W 76:931 N 6 '20
 110-kv. transmission line on wood poles. L. J. Moore. il map Elec W 78:612-15 S 24 '21
 Overhead kinks from Cleveland. il diags Elec Ry J 58:687-8 O 15 '21
 Planning, designing and erecting transmission lines. A. Still. il diag Elec R 77:509-13 O 2 '20
 Pole shifting is not as simple as it looks. G. H. McKelway. Elec Ry J 56:978-9 N 6 '20
 Pole-top construction used by mining company. diag Elec W 75:539 Mr 6 '20
 Preservative treatment of poles in Indiana. R. V. Achatz. Eng N 85:1230 D 23 '20
 Single wood poles for use for 100,000-volt line. L. J. Moore. diag Elec W 75:953-4 Ap 24 '20
 Steel transmission line towers. E. L. Gemmill. il diags Elec R 76:385-90, 555-60, 645-51, 719-23, 943-7 Mr 6, Ap 3, 17, My 1, Je 5 '20
 Supporting structures for transmission lines. A. Still. il Elec R 77:443-7 S 18 '20
 Tests on full-size high-voltage transmission towers. E. F. Kriegsman. il diags Eng N 87:350-1 S 1 '21
 Transmission towers. il diags 89p '20 Blaw-Knox Co., Pittsburgh, Pa.
 Transporting electric current; modern transmission lines and the manner of their construction. J. F. Springer. il Sci Am 125:84+ JI 30 '21
 Treating cross-arms with old transformer oil. L. C. Peterman. Elec W 76:1172 D 11 '20
 Why steel towers are needed in electrical transmission. G. E. Honn. il diag J Elec 46:285-7 Mr 15 '21
 Wind pressures and the design of radio and high transmission towers. S. P. Wing. il plan Electrician 87:6-10 JI 1 '21
 Wood-pole structure for incoming and outgoing circuits. A. L. Johnson. il Elec W 77:151, 207 Ja 15-22 '21
 Wood-pole structures for 110,000-volt transmission lines. J. A. Sirnit. il diags Elec W 78:59-62 JI 9 '21
 Wooden towers for marshy ground. G. E. Haggas. il diag Elec W 78:24 JI 2 '21

Specifications

- Tentative specifications for joint-pole lines. diag Elec W 75:789-90 Ap 3 '20

Testing

- Results of line tests conducted at 220,000 volts. Elec W 78:12-13 JI 2 '21
 Some transmission line tests. W. W. Lewis. diags Am Inst E E J 40:492-506 Je '21
 Transmission line troubles quickly located. F. C. Stanford. diags Elec W 75:899-900 Ap 17 '20

Electric locomotives

- Advantages of steam and electric locomotives. J. E. Muhlfeld. Ry R 67:653-9 O 30 '20; Excerpts. Ry Age 69:739-42 O 29 '20; Excerpts. Am Inst E E J 39:1044-5 D '20; Excerpts. Mech Eng 42:680-4 D '20; Abstract. Eng N 85:853-4 O 28 '20; Abstract. Ry Mech Eng 94:757-9 D '20

Electric locomotives —Continued

- Advantages of the modern electric locomotive. A. H. Armstrong. *Gen Elec R* 23:878-85 N '20; Same. *Ry R* 67:661-5 O 30 '20; Excerpts. *Elec Ry J* 56:871-4 O 23 '20; *Elec W* 76:878-80 O 30 '20; *Eng N* 85:855-6 O 28 '20; *Ry Age* 69:742-4 O 29 '20; *Am Inst E E J* 39:1046 D '20; *Mech Eng* 42:685-7 D '20; *Ry Mech Eng* 94:759-61 D '20
- A.E.R.A. discusses heavy electric traction. *il diags Ry Age* 69:651-4 O 15 '20
- Application of the electric locomotive to main-line traction on railways. H. E. O'Brien. *diags Inst E E J* 58:858-69 S '20; *Abstract. Electrician* 86:102-3 Ja 21 '21; *Abstract. Elec R (Lond)* 88:395-6 Mr 25 '21; *Discussion. Inst E E J* 59:339-42 Mr '21; *Elec R (Lond)* 88:397-8 Mr 25 '21
- Axle-generator regenerating system. R. E. Ferris. *diag Elec J* 17:46-8 F '20
- B.T.H. electric shunting locomotives. *il Elec R (Lond)* 89:27-8 Jl 1 '21
- Baldwin-Westinghouse Chicago, Milwaukee & St Paul electric locomotives. N. W. Storer. *il diags Am Inst E E J* 39:331-41 Ap '20; Excerpts. *Ry R* 66:596-600 Ap 10 '20; Abstracts. *Ry Age* 68:1054-6 Mr 26 '20; *Elec Ry J* 55:510-13 Mr 13 '20
- Baldwin-Westinghouse 3,000-volt direct current freight locomotive for Paulista railway. *il Elec Ry J* 57:859 My 7 '21
- Characteristics of the electric locomotive. N. W. Storer. *J Fr Inst* 192:453-68 O '21; Same cond. *Ry R* 69:169-73 Ag 6 '21; *Abstract. Elec Ry J* 57:860 My 7 '21
- Citröen gear for electric locomotives. *il diags Engineering* 109:712-14 My 28 '20
- Combination storage battery and trolley locomotive. *il Elec Ry J* 57:494 Mr 12 '21
- Economical and constructive viewpoints for large electric locomotives; abstracts. A. Laternser. *Elec W* 77:838 Ap 9 '21; *Elec Ry J* 57:857 My 7 '21
- Economics of location as affected by introduction of electric locomotives. *Elec Ry J* 57:633-4 Ap 2 '21
- Economics of railway location as affected by the introduction of electric locomotives. E. H. McHenry. *Eng & Contr* 53:576 My 19 '20
- Electric goods locomotives for the Swiss federal railways. *il diags (supp) Engineer* 130:112, 115-18 Jl 30 '20
- Electric locomotives for the Austrian state railways. A. Palme. *diags Elec Ry J* 57:644-5 Ap 2 '21
- Electric locomotives in switching service. O. Wortman. *il Ry R* 66:913-14 Je 5 '20
- Electric locomotives of the Gotthard and the Burgdorf-Thun railways; abstract. *Elec W* 76:696-7 O 2 '20
- Electric locomotives that are still larger and more powerful. W. H. Easton. *il Sci Am* 122:243 Mr 6 '20
- Electric traction in Switzerland. *il diags map Electrician* 87:321-6, 348-52 S 9-16 '21
- Electric vs. steam—a tug of war. *il Sci Am* 121:552 D 6 '19
- Electrification of the Central Limones, Cuba. O. Wortman. *il diags map Elec J* 17:477-80 O '20
- Electrification of the Coast and Cascade divisions of the C., M. & St P. Ry. E. S. Johnson. *il diags Gen Elec R* 23:263-71 Ap '20
- Features of the new Westinghouse electric passenger locomotives. *il Elec R* 76:612 Ap 10 '20; *Power Pl Eng* 24:498 My 1 '20
- 45-ton freight locomotive built in Indiana shop. *il Elec Ry J* 55:397-8 F 21 '20
- Freight locomotive for New York municipal railway. *Elec Ry J* 58:141-2 Jl 23 '21
- Gearless electric locomotive. *il diag Sci Am M* 1:57-60 Ja '20
- Importance of simplicity in locomotive design. A. F. Batchelder. *il Gen Elec R* 23:340-1 Ap '20
- Les locomotives électriques à courant continu type Westinghouse, du Chicago, Milwaukee and Saint-Paul railroad. *diags Génie Civil* 78:58 Ja 15 '21
- Les locomotives électriques à marchandises des chemins de fer fédéraux suisses construites par les Ateliers d'Oerlikon. *il diag Génie Civil* 78:1-3 Ja 1 '21
- Les locomotives électriques du chemin de fer du Gothard (Suisse); locomotives monophasées de la Société Brown, Boveri et C^{ie}. *il diags plan (supp) Génie Civil* 76:265-8 Mr 13 '20
- Les locomotives électriques du chemin de fer du Gothard (Suisse); locomotives monophasées des ateliers de construction d'Oerlikon. *il diags Génie Civil* 76:1-9 Ja 3 '20
- Locomotives for Swiss electrifications; abstract. *Elec W* 76:1224-5 D 18 '20
- Locomotives, steam vs. electric. C. H. Quinn. *Ry R* 67:696-8 N 6 '20; Same cond. *Elec Ry J* 56:929-30 O 30 '20
- Main driving motors for the Chicago, Milwaukee & St Paul passenger locomotives. G. F. Smith. *il diags Elec J* 17:284-7 Jl '20
- Mechanical advantages of electric locomotives compared with steam; abstracts. V. L. Raven. *Electrician* 87:47-8 Jl 8 '21; *Engineering* 112:164-5 Jl 22 '21; *Engineer* 132:87-8 Jl 22 '21; *Elec R (Lond)* 89:194 Ag 5 '21; *Eng & Ind Management* 6:240 S 1 '21; *Discussion; Electrician* 87:48-9 Jl 8 '21; *Engineering* 112:138-9 Jl 22 '21; *Elec R (Lond)* 89:194-5 Ag 5 '21
- Mechanical characteristics of high-speed, high-power locomotives. A. W. Gibbs. *il diags J Fr Inst* 192:469-95 O '21; Same. *Ry Age* 71:987-9, 1057-60 N 19-26 '21
- Monarch of the rails. *il Sibley J* 34:22+ F '20
- New electric locomotives for the C.M. & St P. *il diags plan Ry Mech Eng* 94:259-64 My '20
- New electric passenger locomotives in operation on the C. M. & St P. railway. W. H. Munn. *il W Soc E J* 26:26-9 Ja '21
- New locomotive for Monongahela Valley traction company. *il Elec Ry J* 57:901 My 14 '21
- New locomotives in service on Pacific electric railway. *il Elec Ry J* 57:727 Ap 16 '21
- New Metropolitan electric locomotive. *Elec Ry J* 58:694 O 15 '21
- New passenger locomotives for St Paul's Rocky mountain division. *il diag Elec Ry J* 55:36-8 Ja 3 '20; *Ry Age* 68:233-6 Ja 16 '20
- New passenger locomotives for the Chicago, Milwaukee & St Paul railroad. N. W. Storer. *il Elec J* 17:84-5 Mr '20
- New 60-ton electric locomotive for Tidewater Southern. *il Ry Age* 71:290 Ag 13 '21
- 180 ton New Haven electric locomotives. F. W. Carter. *il Ry Age* 68:1563-5 Je 4 '20
- One-piece cast steel frames for electric locomotives. *il Ry Mech Eng* 94:141 Mr '20
- Operating company builds switching locomotive. *il Elec Ry J* 58:246 Ag 13 '21
- Passenger locomotives for Chicago, Milwaukee & St Paul railway. A. F. Batchelder and S. T. Dodd. *il diags Am Inst E E J* 39:342-5 Ap '20; Same. *Gen Elec R* 23:272-7 Ap '20; Same cond. *Elec Ry J* 55:508-10 Mr 13 '20; Same cond. *Ry Age* 68:1051-4 Mr 26 '20
- Paulista railway and the Westinghouse locomotives. S. B. Cooper. *il diag map Elec Ry J* 57:1075-9 Je 11 '21; Abstracts. *Ry Age* 71:721-2 O 15 '21; *Ry R* 69:507-9 O 15 '21
- Possible developments of electric main-line locomotives; abstracts. E. Seefehlner. *diag Elec W* 78:479 S 3 '21
- Powerful three-phase locomotive. *il diags Electrician* 85:204-6 Ag 20 '20
- Relative advantages of modern steam and electric locomotives. A. W. Gibbs. *Elec Ry J* 56:1019-21 N 13 '20; Excerpts. *Ry Age* 69:919-20 N 26 '20; Excerpts. *Ry Mech Eng* 94:763-4 D '20
- Relative advantages of steam and electric locomotives. F. H. Shepard. *Elec R* 77:671-3 O 30 '20; Same. *Elec Ry J* 56:870-1 O 23 '20; Same. *Ry R* 67:692-3 N 6 '20; Same. *Mech Eng* 42:684-5 D '20; Same abr. *Ry Age* 69:744-6 O 29 '20; Same cond. *Ry Mech Eng* 94:761-2 D '20; Excerpts. *Eng N* 85:854-5 O 28 '20; Excerpts. *Am Inst E E J* 39:1045-6 D '20; *Discussion. Ry R* 67:693-6 N 6 '20; Same. *Elec Ry J* 56:926-8 O 30 '20
- Relative merits of steam and electric traction. *Ry Mech Eng* 94:757-64 D '20; Abstract. *Engineer* 130:610 D 17 '20

Electric locomotives—Continued

- Results of twelve years of electric operation on the Grand Trunk. R. L. Hermann. Ry Age 69:603-4 O 8 '20
- Review of recent large electric locomotives. A. Latenser. diags Electrician 86:584-6 My 13 '21
- Selecting electric haulage equipment. R. H. Bacon. il Elec W 75:831-3 Ap 10 '20
- Single-phase express locomotives for the Swiss federal railways. Elec Ry J 58:825 N 5 '21
- Small single-phase locomotive for use at Mare Island. il Elec Ry J 57:858-9 My 7 '21
- Some developments in the electrical industry during 1920. J. Liston. il diags Gen Elec R 24:9-13 Ja '21
- Swiss electric locomotive progress. il Elec Ry J 57:724-7 Ap 16 '21
- Swiss federal railways buys new electric locomotives. il Elec Ry J 56:256-60 Ag 7 '20
- Three-phase electric locomotive for the Italian State railways. il diags Engineering 110:469-71, pl 59-62 O 8 '20
- 3000-volt direct-current passenger locomotive for the Chicago, Milwaukee & St Paul railway. W. D. Bearce. il diag Gen Elec R 22:1004-7 D '19
- Train handling with electric locomotives. W. S. H. Hamilton. il Ry Age 70:227-31, 323-6 Ja 21, F 4 '21
- Les vitesses critiques des transmissions par bielles, dans les locomotives électriques. Génie Civil 77:490 D 11 '20
- See also* Canal boats—Electric traction; Electric tractors; Locomotives, Mine; Railroads—Electrification

Control

- Auxiliary and lighting control equipment of the Chicago, Milwaukee & St Paul locomotives. J. A. Clarke, jr. il diags Elec J 17:244-8 Je '20
- Brake equipment for Paulista railway. Elec Ry J 58:828 N 5 '21
- Control equipment of the new locomotives for the C., M. & St P. Rwy. F. E. Case. il diags Gen Elec R 23:278-85 Ap '20
- Electrical equipment and control of the Chicago, Milwaukee & St Paul locomotives. P. L. Mardis. il diags Elec J 17:235-44 Je '20
- Regenerative braking with single-phase commutator motors. diag Elec Ry J 54:910 N 15 '19
- Remotely controlled electric locomotives in the by-product coke industry. H. H. Johnston. il diags Elec J 17:49-51 F '20

Equipment and supplies

- Auxiliary rotating apparatus for the Chicago, Milwaukee & St Paul locomotives. R. E. Ferris. il Elec J 17:128-30 Ap '20
- Layout of apparatus in the cab of the Chicago, Milwaukee & St Paul locomotives. C. C. Whittaker. il diag Elec J 17:249-50 Je '20
- See also* Electric locomotives—Slip arresters

Repair

- Logical unit for comparing repair costs of electric locomotives and cars. H. Pattison. Elec J 17:475-7 O '20
- Maintenance on the B., A. & P. F. W. Beltinger. il Elec Ry J 57:217-19 Ja 29 '21

Slip arresters

- Slip arrester for heavy electric locomotives. C. C. Whittaker. il diags Elec J 17:446-7 O '20

Testing

- Exhibition tests of 3000-volt direct-current passenger locomotive. il Gen Elec R 22:1008-10 D '19
- Electric locomotives, Industrial
- Changes in electric locomotives to meet demands for heavier duty. G. Bright. il Coal Age 19:51-6 Ja 13 '21

- Changes in electric mine-locomotive design during past quarter century to meet present-day needs. N. D. Nevin. il Coal Age 19:1157-60 Je 30 '21

- Electric locomotives for industrial purposes. Sci Am M 1:379 Ap '20

- Electric trucks and industrial locomotives. il diags Engineer 131:234-6, 262-3, 266, 290-2, 294, 318-19, 374-6, 402-3, 424-6, 456-8 Mr 4-25, Ap 8-29 '21

- Electrification of the steel plant railroad. R. B. Gerhardt. Blast F & Steel Pl 9:613-17 O '21

- Industrial electric locomotives. il Engineer 131:666-7 Je 24 '21

- Industrial type electric locomotives in steel mill operations. H. H. Johnston. il Elec J 17:392-6 S '20

- Maintenance of trolley-type mine locomotive. F. Krug. il Elec W 78:925-6 N 5 '21

- Mechanical and engineering considerations determining the selection of an electric locomotive. H. H. Johnston. il Coal Age 20:679-81 O 27 '21

- New type of gathering locomotive. J. Liston. il Gen Elec R 23:446-50 My '20; Same. Coal Age 17:895-8 My 6 '20

- Use of electric locomotives in coal mines. il Elec R 77:603-4 O 16 '20

Electric locomotives, Storage battery

- Battery locomotives. J. Dalziel. Electrician 87:46-7 Jl 8 '21; Elec R (Lond) 89:129 Jl 22 '21; Engineering 112:170 Jl 22 '21; Engineer 132:87 Jl 22 '21; Discussion. Electrician 87:47 Jl 8 '21; Elec R (Lond) 89:129-30 Jl 22 '21; Engineering 112:147-8 Jl 22 '21
- Battery on trolley-type locomotive speeds tunneling. R. C. Starr. il diags Elec W 78:424-5 Ag 27 '21
- Calculating battery sizes for locomotives. J. H. Tracy. il Elec W 77:1417-19 Je 18 '21
- Care of storage-battery locomotives. H. D. Smith. Coal Age 17:264-8 F 5 '20
- Designing the storage-battery locomotive to meet conflicting needs. C. W. Smith. il Coal Age 19:795-7 My 5 '21
- Kingston plant designs its locomotives to suit its needs and charges them all in a single station. D. C. Ashmead. il Coal Age 19:989-90 Je 2 '21
- Preliminary investigations of storage battery locomotives; specifications, laboratory tests, permissible schedule. L. C. Ilsley and H. B. Brunot. il diags U S Bur Mines Tech Pa 264:1-33 '20
- Selecting electric locomotives for metal mines. T. H. Arnold. il Elec W 77:209-11 Ja 22 '21
- Storage battery locomotives in Hetch Hetchy tunnels. P. J. Ost. il J Elec 44:164-6 F 15 '20
- Storage-battery locomotives in mine work. J. Appleton. il Coal Age 16:744-50 N 6 '19
- Storage-battery locomotives reduce cost of gathering cars in anthracite field. K. A. Meyer. Coal Age 19:667 Ap 14 '21
- Successive stages in the development of the storage-battery locomotive. J. Appleton. il Coal Age 17:935-6 My 6 '20
- See also* Motor cars (railroad)—Storage battery

Electric losses

- Data on transmission and distribution losses. Elec W 75:494 F 28 '20
- Determination of line-loss expense. P. O. Reyneau and H. P. Seelye. Elec W 78:771-3 O 15 '21
- Determining losses in transmission lines. O. Gaarden. diags Elec W 75:536-9 Mr 6 '20
- Distribution losses which may be eliminated. T. H. Rice. Elec W 77:654-5 Mr 19 '21
- Economy of substituting copper for iron wire; investigation of losses in iron and steel conductors. H. S. Rush. Elec W 78:515-17 S 10 '21
- Stray losses in 60-cycle synchronous booster converters; determination by input-output tests. F. T. Hague. il Elec J 18:292-6 Jl '21
- Tracing the unaccounted for losses in distribution systems. G. T. Bogard. Elec W 77:1248-9 My 28 '21

Electric losses—Continued

Variation in costs as affecting distribution design. P. O. Reyneau and H. P. Seelye. Elec W 78:365-7 Ag 20 '21

See also Electric leakage; Electric machinery—Losses; Electric radiation

Electric machinery

Design and construction of electrical apparatus. A. J. Newman. Electrician 85:596 N 19 '20

Development of electrical apparatus in 1920; tendency towards larger units. A. A. Gray. il Elec R 78:3-6 Ja 1 '21

Diagnosing of troubles in electrical machines. M. Walker. 450p Longmans '21

Electric machinery for all handling—an opportunity. Z. W. Carter. il N E L A Bul 7:458-72 Jl '20

Electrical machinery. F. A. Annett. 431p McGraw-Hill '21

Electrical machinery. O. H. Henschel. 312p Power plant engineering, Chicago '20

Importance of efficiency in electrical machinery. M. Walker. Electrician 86:609-11 My 20 '21

Large electric units. S. P. Smith. diags Engineering 112:399-404 S 16 '21; Same (without diags). Electrician 87:378-80 S 23 '21; Abstract. Elec R (Lond) 89:450-1 S 30 '21

Oscillators on electrical machinery. C. Lynn. diags Power 52:887-9 D 7 '20

Some developments in the electrical industry during 1920. J. Liston. il diags Gen Elec R 24:4-49 Ja '21; Excerpts. Elec R 78:123-8 Ja 22 '21

Some effects of vibration on electrical machinery. K. Rankin. Power Pl Eng 25:861-2 S 1 '21

Westinghouse 1920 engineering accomplishments. H. W. Cope. il Elec R 78:23-6 Ja 1 '21

See also Brushes (electric machinery); Commutators; Electric apparatus and appliances; Electric controllers; Electric current converters; Electric driving; Electric engineering; Electric generators; Electric locomotives; Electric motor generators; Electric motors; Electric plants; Electric protective apparatus; Electric shovels; Electric tractors; Electric transformers; Electricity in mining; Electricity in petroleum industry; Electricity on the farm; Elevators, Electric; Farm lighting plants; Hydroelectric plants; Pumping machinery, Electric; Rotary converters; Ship propulsion, Electric; Tabulating machines, Electric; Washing machines, Electric

Drawing

Text book on machine drawing for electrical engineers, forming an introductory treatise on the construction of electrical machinery and apparatus. E. Blythe. 81p University press, Cambridge; Macmillan '20

Exhibitions

Shipbuilding, engineering and electrical exhibition at Glasgow. il diags Engineer 130:504-6, 538-41 N 19-26 '20; Engineering 110:634-7, 678-81, 696-700, 729-33, 761-5, 774 N 12-D 10 '20

6th international printing, stationery, and allied trades exhibition. il Engineer 131:521-3 My 13 '21; Elec R (Lond) 88:610-11 My 13 '21

Losses

Core and incremental losses in rotating machinery. L. H. A. Carr. Electrician 84:562-4 My 21 '20

Eddy currents in stator windings. H. W. Taylor. diags Inst E E J 58:279-98; Discussion. 298-300 Ap '20

Measurement of losses and efficiency by temperature rise of ventilating air. W. F. Dawson. il diags Gen Elec R 23:153-61 F '20

Method for separating no-load losses in electrical machinery. C. J. Fechheimer. Am Inst E E J 39:162-4 F '20; Abstract. Elec W 75:489-90 F 28 '20

Tooth frequency losses in rotating machines. T. Spooner. Am Inst E E J 40:751-6 S '21

Records

Records that facilitate replacements and repairs. Elec W 75:275 Ja 31 '20

Safety devices and measures

Good construction provides for features of safety. Elec R 78:668 Ap 23 '21

Standards

Standardization rules for electrical machinery; discussion. Inst E E J 58:597-602 Jl '20
Standards of the American institute of electrical engineers. rev. 172p American institute of electrical engineers, New York '21

Temperature

A.I.E.E. electrical machinery session. diags Elec W 76:58-60 Jl 10 '20

Longitudinal and transverse heat flow in slot-wound armature coils. C. J. Fechheimer. Am Inst E E J 40:244-8, 332-40, 421-30 Mr-My '21

Reducing temperature of laminated cores. T. S. Taylor. diags Elec W 76:1159-62 D 11 '20

Some practical experience with embedded temperature detectors. F. D. Newbury and C. J. Fechheimer. Am Inst E E J 39:549-50 Je '20

See also Electric generators, Alternating current—Temperature; Electric motors—Temperature

Testing

Testing of electrical machinery. H. E. Mellor. Electrician 86:612-15 My 20 '21

Ventilation

New way to ventilate electric units. il Marine R 51:341-2 Jl '21

Weight

Data for estimating weights of synchronous machines. T. Schou. diags Elec W 77:1160-1 My 21 '21

Electric machines

Condenser machine, a new electrostatic generator; abstract. Elec W 76:984-5 N 13 '20

Modern high-speed influence machines. V. E. Johnson. 278p Spon '21

Electric measurement

Accuracy of commercial electrical measurements. H. B. Brooks. Am Inst E E J 39:117-18 F '20; Abstract. Elec W 75:491 F 28 '20

Acoustical galvanometer for the measurement of small alternating currents. F. R. Watson and L. B. Ham. diags Phys R 18:178-84 S '21

Bridge methods for alternating-current measurements. D. I. Cone. bibliog diags Am Inst E E J 39:640-7 Jl '20; Abstract. J Elec 45:10 Jl 1 '20

Calibrated service fuses employed as meter shunts for test. W. S. Wilder. diag Elec W 75:1428 Je 19 '20

Comparison of small capacities by a beat note method. P. Thomas. Elec J 18:349-50 Ag '21

Corona voltmeter and the electric strength of air; a natural secondary standard of voltage. J. B. Whitehead and T. Isshiki. il diags Am Inst E E J 39:441-4, 511-26 My '20

Correction for the primary resistance in the circle diagram. V. Karapetoff. diag Sibley J 35:42+ Mr '21

Current-carrying capacity of lead-covered cables. R. W. Atkinson. chart Am Inst E E J 39:831-9 S '20

Current determined by voltage drop in 1 ft. of cable. Elec W 76:691 O 2 '20

Device for the rapid determination of the current distribution on the line side of a three-phase interconnected-star static balancer operating on a four-wire system. S. A. Stigant. diags Inst E E J 57:sup201-8 '19

Devices for measuring turns of coils. S. C. Hoare. il diags Gen Elec R 24:869-72 O '21

Dynamometrical comparator. E. Velander. il diags Am Inst E E J 39:680-6 Jl '20

Electric measurement—Continued

- Effective inductance, effective resistance, and self-capacity of magneto windings. N. W. McLachlan. diags Philos Mag 6th ser 41:33-80 Ja '21
- Electric oscillations in straight wires and solenoids; abstracts. J. S. Townsend and J. H. Morrell. diags Inst E E J 59:771-5 JI '21; Philos Mag 6th ser 42:265-78 Ag '21; Discussion. Inst E E J 59:775-9 JI '21
- Electric strength of air under continuous potentials and as influenced by temperature. J. B. Whitehead and F. W. Lee. bibliog il diags Am Inst E E J 40:373-87 My '21
- Electromechanical device for rapid schedule harmonic analysis of complex waves. F. S. Dellenbaugh, jr. bibliog il diags Am Inst E E J 40:135-44 F '21
- Establishing simple basis for rates. R. H. Wolford. diags Elec W 76:382-3 Ag 21 '20
- Explanation and measurement of reactive factor. V. H. Todd. il diags Power 51:620-1 Ap 20 '20
- Frequency-bridge; an apparatus for accurate determination of frequency, by means of a null method. E. Velandier. diags Am Inst E E J 40:835-9 N '21
- High-frequency resistance of wires and coils. G. W. O. Howe. diags Inst E E J 58:152-162; Discussion. 162-70 F '20
- Interesting metering problem. V. H. Todd. diag Power 50:151-2; 51:390-1 JI 22 '19, Mr 9 '20
- Measurement of earth currents. B. McCollum. il diags Elec Ry J 58:809-13 N 5 '21
- Measurement of power at low factors. H. Cotton. diags Electrician 86:544-5 My 6 '21
- Measuring potential distribution around insulators. A. P. Strom. diags Elec W 78:774 O 15 '21
- Metering of wattless energy; abstract. R. Kopp. Elec W 76:1127 D 4 '20
- Method for determining the fundamental and the harmonics of an alternating current; abstract. L. Lombardi. Elec W 77:554 Mr 5 '21
- Method for separating no-load losses in electrical machinery. C. J. Fechheimer. Am Inst E E J 39:162-4 F '20
- Method of measuring the self-inductance of small loops. F. B. Pidduck. diag Philos Mag 6th ser 42:220-7 Ag '21
- Methods of metering combined power and lighting loads. M. F. Smalley. diags Elec W 76:480 S 4 '20
- Multiple-unit shunts for the measurement of very heavy currents. M. B. Field. diags Inst E E J 58:661-7; Appendix. A. E. Moore. 667-9 Ag '20; Abstract. Electrician 87:208 Ag 12 '21; Discussion. A. E. Moore. Inst E E J 59:152-4 Ja '21
- Multipliers for use with portable voltmeters and wattmeters. H. C. Yeaton. diags Power 52:395 S 7 '20; Discussion. 52:594 O 12 '20
- Nature of earth-current, and a new method of measuring the resistance of the ground. S. Sano. diags Sibley J 33:36-9+ S '19
- New conductivity cell. F. E. Rice. diag J Ind & Eng Chem 12:1202 D '20
- New current balance for calibration work. O. A. Knopp. il diags Elec W 75:993-6 My 1 '20
- New method of measuring heavy direct current. diag Sci Am M 1:472 My '20
- Oscillograms and their tests. A. E. Kennelly. R. N. Hunter and A. A. Prior. il diags Am Inst E E J 39:143-5 F '20
- Reactive volt-ampere indicators. H. C. Yeaton. diags Elec W 75:1476-9 Je 26 '20
- Regulation of frequency for measurement purposes. B. H. Smith. il diags Am Inst E E J 40:115-18 F '21
- Shop method for low-voltage measurement. V. M. Arana. diag Elec W 77:997-8 Ap 30 '21
- Short-circuit currents in networks. W. R. Woodward. il diags Elec W 75:715-18 Mr 27 '20
- Sparking voltages between spherical electrodes. A. Russell. Inst E E J 57:sup223-30 '19; Discussion. F. W. Peek, jr. Elec W 77:1427; 78:469-70 Je 18, S 3 '21
- Switchboard meter connections for alternating-current circuits. J. C. Group. diags Elec J 17:219-22, 281-4, 355-6 My, JI-Ag '20
- Triode amplifications and detector sensitivity. A. Press. diags Electrician 84:35-6 Ja 9 '20
- Universal inductance and capacity testing bridge. C. V. Drysdale. il diags Electrician 84:80-2, 108-9 Ja 23-30 '20
- Voltage distribution on high-tension insulators; abstract. A. Schwaiger. diag Elec W 76:1272 D 25 '20
- Y-box resistors and their uses. H. C. Yeaton. diags Power 52:429 S 14 '20
- See also Electric engineering—Tables, calculations, etc.; Electric meters; Electric radiation; Electric resistance; Electric testing; Electric waves; Electrometer; Galvanometers; Inductance; Magnetic measurements; Thermocouples
- Electric merchandizing.** See Electric apparatus and appliances—Merchandizing; Electric industries; Electric shops
- Electric meters**
- Alternating current instruments; discussion of the theory, construction, and application of voltmeters, ammeters and watthour meters. V. H. Todd. il diags Power Pl Eng 25:370-4 Ap 1 '21
- Alternating current meters; frequency meters, synchronoscopes and power factor indicators. V. H. Todd. il diags Power Pl Eng 25:464-9 My 1 '21
- Bristol recording electrical instruments. il Elec R 76:44-6 Ja 3 '20
- Defects in electricity meters. W. Lawson. Inst E E J 58:747-9; Discussion. 749-50 Ag '20
- Domestic tariffs and the question of cheap metering. Elec R (Lond) 88:506-7 Ap 22 '21
- Electric battery vehicle meter. G. J. Duckett. diags Electrician 86:514-15 Ap 29 '21
- Electricity meters versus current limiters. E. H. Miller. il diag Electrician 87:16-17 JI 1 '21
- Esterline graphic demand meter recording kv-A. il Elec R 79:31 JI 2 '21
- Explanation and measurement of maximum demand. V. H. Todd. il diags Power 50:695-7 N 11 '19
- Functions of a public utility's meter department. R. M. Freeman. Elec R 78:475-6 Mr 19 '21
- Graphic kilovolt-ampere demand meter. il Power 53:896 My 31 '21
- Graphic meter records—a necessity. E. G. Ralston. diags Elec W 78:315-18 Ag 13 '21
- How far to carry industrial metering. W. B. Todd. diags Elec W 77:469-70 F 26 '21
- Induction meter. E. Biffi. Elec W 75:855 Ap 10 '20
- Interesting metering problem. V. H. Todd. diags Power 50:151-2; 51:390-1 JI 22 '19, Mr 9 '20
- Kva. demand found by two synchronized demand meters. S. A. Fletcher. il Elec W 78:927 N 5 '21
- Maximum demand meters. V. H. Todd. il diags Power Pl Eng 25:615-19 Je 15 '21
- Mean error of an electricity meter. G. W. Stubbings. Inst E E J 59:335-8 Mr '21; Discussion. 59:755-6 JI '21
- Measurement of maximum demand and the determination of load factor. P. A. Borden. il charts diag Am Inst E E J 39:875-87 O '20
- Meter installation which permits easy check on connections. A. R. Thomas. diag Elec W 77:487-8 F 26 '21
- Meter policy that has reduced complaints. S. B. Hood. Elec W 78:271 Ag 6 '21
- Meter records can be simplified. E. Howell and C. L. Rose. map Elec W 76:1256-8 D 25 '20
- Metering combined power and lighting load. diag Elec R 77:860-1 N 27 '20
- Meters and measurements; abstracts of papers at A.I.E.E. meeting. diag Elec W 77:483 F 26 '21
- Meters for various voltages and loads. D. C. Hoffmann. diags Power Pl Eng 25:862 S 1 '21

Electric meters—Continued

Outdoor meter installation for suburban customers. S. E. Evans. diag Elec W 77:994 Ap 30 '21

Problem course in electricity. H. H. Bliss. diags J Elec 45:119-20 Ag 1 '20

Recording meters in steel-mill equipment testing. R. N. Vining. charts Elec W 77:886-8 D 4 '20

Regular meter inspection as money saver. A. L. Johnston. diags Elec W 77:1424-5 Je 18 '21

Rules for installation of meters and motor equipment. Elec W 76:1266 D 25 '20

Selection of demand meters. W. S. Wilder. Elec W 77:877-9 Ap 16 '21

Service meters troubles. W. A. Darter. diags Power Pl Eng 24:334 Mr 15 '20

Simplifying electric meter maintenance. J. C. Langdell. il Elec W 77:249-52 Ja 29 '21

Standard equipment used for outdoor metering sets. C. E. Young. diags Elec W 77:882-3 Ap 16 '21

Uniform service and meter wiring. L. C. Peterman. il diags Elec W 77:359-62 F 12 '21

Use of single-phase meters on three-phase power service. S. C. Henton. diag Elec W 77:712 Mr 26 '21

Westinghouse new thermal demand meter. diag Iron Tr R 66:1002 Ap 1 '20; Elec R 76:547, Mr 27 '20; Elec Ry J 55:817, Ap 17 '20; Blast F & Steel Pl 8:315 My '20

See also Ammeters; Ampere-hour meters; Electric measurement; Electric railroads—Meters; Electric testing; Frequency meters; Millivoltmeter; Ohmmeter; Potentiometers; Voltmeters; Watt-hour meters; Wattmeters

Study and teaching

Meterman's school held at Purdue university. N E L A Bul 8:312 My '21

Metermen's short course in Iowa well attended. N E L A Bul 8:183-4 Mr '21

Testing

Gearing constants of electricity meters. G. W. Stubbings. Elec R (Lond) 88:6-7 Ja 7 '21

How meter installation tests may be reduced. R. A. Keller. Elec W 75:601 Mr 14 '20

Importance of meter testing to central stations. F. J. Murmann. Elec R 77:736 N 6 '20

Meter block which speeds testing. D. A. McNulty. il diags Elec W 76:639-40 S 25 '20

New current balance for calibration work. O. A. Knopp. il diags Elec W 75:993-6 My 1 '20

Outfit for speedy testing of meters. B. R. Payne. diag Elec W 77:47-8 Ja 1 '21

Phase-shifting device for meter testing. diag Elec R (Lond) 89:494-6 O 14 '21

Pilot lamps denote failure of potential on high-tension meters. S. C. Henton. diag Elec W 76:289 Ag 7 '20

Testing of electricity meters. R. M. Moberly. Elec R (Lond) 89:331-3 S 9 '21

See also Watt-hour meters—Testing

Electric mine hoisting. *See* Mine hoisting, Electric

Electric motor generators

Cutler-Hammer automatic control panel for motor-generator sets. il Iron Age 105:1012 Ap 8 '20; Iron Tr R 66:1075 Ap 8 '20; Min & Sci P 121:110 Jl 17 '20

Developments in conversion apparatus for Edison systems. T. F. Barton and T. T. Hambleton. il diags Am Inst E E J 40:233-43 Mr '21; Abstract. Power 53:486-7 Mr 22 '21

Motor-generator sets. G. H. Tappan. il Gen Elec R 23:140-3 F '20

Motor-generators rebuilt from Corliss-engine units. W. N. Smith. il diags Power 54:88-91 Jl 19 '21

Portable electrical equipment for motion picture photography. J. A. White. il Elec J 18:71-3 F '21

60-cycle converting apparatus; comparison between the synchronous converter and the motor-generator. J. L. Burnham. il diags Gen Elec R 23:392-8 My '20

3000 volt motor-generator sets for the Chicago, Milwaukee & St Paul railroad. D: Hall. il Elec J 17:12-15 Ja '20

See also Electric current converters; Frequency changers; Rotary converters

Repair

Railway motor-generators in Winnipeg rebuilt. W. N. Smith. il diags Elec Ry J 58:91-4 Jl 16 '21

Starting

Starting 6,600-volt motor-generator without compensator. H. Y. Blodgett. diags Elec W 78:879-80 O 29 '21

Electric motors

Analysis of 1919 electric motor exports. Elec W 75:867-8 Ap 10 '20

Balance of high-speed electric dynamos and motors. H. D. Wheeler. il diags Electrician 87:136-8 Jl 29 '21

Blown fuses and hot motors caused by over-motoring. Elec W 75:554 Mr 6 '20

Calculating proper size of motor for irregular loads. D. W. Blakeslee. Elec W 75:791 Ap 3 '20

Care of shop motors. C. E. Clewell. il diag Am Mach 51:877-80 N 13 '19

Efficiency of adjustable speed motors. R. W. Owens. Elec J 18:11-14 Ja '21; Same. Power Pl Eng 25:908-12 S 15 '21

Electric elevator machinery—motor operation. M. A. Myers. il plans Power 51:920-1 Je 8 '20

Electric motors for conveyor drive. G. Fox. il Power 53:837-40 My 24 '21

Electric motors for driving refrigeration plants—their types, characteristics and selection. W. H. Motz. il Power 54:208-11 Ag 9 '21

Electric motors for driving rubber-mill machinery. W: H. Easton. il Power 52:331-3 Ag 31 '20

Electric motors for merchant ship auxiliaries. W. E. Thau and W: H. Easton. il Marine Eng 26:613-16 Ag '21

Electric motors for pulp and paper machinery drives. W: H. Easton. il Power 51:584-8 Ap 13 '20

Electric motors for shipyard machinery. W: Harrison, J. Goldsborough and W: H. Easton. il Int Marine Eng 25:469-75 Je '20

Electric motors for steel plants. il Iron Age 106:195 Jl 22 '20

Electrical drives for lumber mills. J. A. Franklin. il Power 51:536-40 Ap 6 '20

Electrical equipment of the mill. B. B. Beckett. Eng & Min J 109:849-52 Ap 10 '20

Electrical features of motor installations. G. Fox. diag Power Pl Eng 25:168-72 F 1 '21

Factors which determine the selection of motors for main roll drive. G. E. Stoltz. il diags Eng Soc W Pa 36:492-507; Discussion. 508-17 O '20

General Electric develops motors for steel mill operation. Iron Tr R 67:113+ Jl 8 '20

Halving a motor's voltage in a difficult case. E. R. Debnan. diag Elec W 77:1110 My 14 '21

Handling practical problems in the operation of motors. H. H. Bliss. diags J Elec 47:75-6 Jl 15 '21

High-voltage motors installed on a floating dock. il Elec R 77:323 Ag 28 '20

Insulation for steel mill motors. J. L. Rylander. il Elec J 18:405-8 S '21

Measurement of energy used in impulse machines. C. O. Rhys. Mech Eng 43:489 Jl '21

Mechanical design of electric motors. C. W. Starker. diags Elec W 75:942-4 Ap 24 '20

Mechanical features of motor installations. G. Fox. il charts diags Power Pl Eng 25:271-5 Mr 1 '21

Motor market on the Pacific coast. J Elec 46:110-11 F 1 '21

Motor requirements for meeting unusual service conditions. J. E. Housley. Elec W 77:1112-13 My 14 '21

Electric motors —Continued

- Motors for driving ventilating fans. W: H. Easton. *il* Power 51:759-61 My 11 '20
- Motors for textile finishing plants. W. B. Lewis. *Elec J* 18:504-7 N '21
- Relationship between efficiency and working costs of small motors and generators. E. G. Kennard. *Elec R (Lond)* 88:771-3, 827-30 Je 17-24 '21
- Small motors, transformers, electromagnets. H. M. Stoller, F. E. Austin and E. W. Seeger. 320p American technical soc., Chicago '20
- Smallest motor in the world exhibited at foundry convention. *Mach* 27:170 O '20
- Speeding up the motors. J. R. Rogers. *Factory* 27:654+ N '21
- Steinmetz develops new vehicle motor system. P. M. Heldt. *il* *diag* *Automotive Ind* 42:458-9 F 12 '20
- Study of dynamo electric machinery. O. H. Henschel. *il* *diags* *Power Pl Eng* 24:653-6 J1 1 '20

See also Armatures; Automobiles—Electric equipment; Electric controllers; Electric driving; Electric locomotives; Electric machinery; Electric motor generators; Electric motors, Alternating current; Electric motors, Direct current; Electric motors, Induction; Electric motors, Railway; Electric motors, Synchronous; Electric power; Electric transformers; Electricity in mining; Electricity in petroleum industry; Pumping machinery, Electric; Rotors

Bearings

- Ball bearings for electric motors. W. F. Higgs. *Electrician* 86:797 Je 24 '21
- Checking armature and axle bearing wear. J: S. Dean. *Elec J* 17:588-9 D '20
- Substituting ball bearings for brass-lined ones reduces motor repairs. J. C. Kendall. *diag* *Elec W* 75:957 Ap 24 '20
- Use of ball bearings in electric motors. *Elec R (Lond)* 88:89 Ja 21 '21
- See also* Electric motors, Railway—Bearings

Care

- Care and maintenance of electrical equipment. E. S. Baxter. *Power* 53:1017-18 Je 21 '21
- Inspection and care of electric motors. H. M. Phillips. *Power* 53:341-4 Mr 1 '21

Control

- Adjustable speed motors and control in finishing plants. C. W. Babcock. *il* *Elec J* 18:509-11 N '21
- Automatic control for motors driving pumps and compressors. B. W. Jones. *il* *diags* *Power* 51:498-502 Mr 30 '20
- Control equipment for auxiliaries in the merchant marine. A. R. Sanborn. *il* *Gen* *Elec R* 24:156-61 F '21
- Control of crane motors by Bergmann system; abstract. E. Blau. *Elec W* 77:893 Ap 16 '21
- Current limit acceleration for electric motors. H. D. James. *il* *diags* *Elec J* 17:51-4 F '20
- Cutler-Hammer automatic motor controller. *il* *Mach* 26:879 My '20; *Coal Age* 17:911 My 6 '20
- Drum controller for locomotive motors. *il* *J* *Elec* 43:529 D 1 '19
- Electrically driven hoists. F. Jeffery. *il* *charts* *Power* 51:286-90 F 24 '20
- Industrial motor control. C. W. Starker. *il* *diags* *Am Mach* 52:195-8, 279-82, 337-41, 453-5 Ja 22, F 5-12, 26 '20
- Motor and dynamo control. W. W. S. Ibbetson. 487p Spon '21
- Motor-control equipment and its application. G. J. Kirkgasser and E. W. Seeger. *il* *Elec R* 77:835-7, 883-5, 917-20, 962-4, 999-1002; 78:29-31, 63-5, 99-102, 175-8, 345-8, 505-8, 653-6, 1011-15 N 27 '20-Ja 15, 29, F 26, Mr 26, Ap 23, Je 25 '21
- Motor-control equipment—protective features. H. D. James. *il* *Power* 54:169-71 Ag 2 '21

- Motor-control equipment used in elevator service. G. J. Kirkgasser and E. W. Seeger. *il* *diags* *Elec R* 79:465-8, 619-22 S 24, O 22 '21

- Pneumatic remote control for motors. W. B. Bennett. *diags* *Pop Mech* 35:605 Ap '21

- Selection of remote control for machine tools. W. B. Atchinson. *il* *Elec W* 78:224-5 J1 30 '21

- Speed control of motor drives by frequency generators. W. H. Artz. *il* *Elec R* 79:505-8 O 1 '21

- Switch requirements for electric-motor control. E. P. Slack. *diags* *Power* 54:55-6 J1 12 '21

- Testing brake for 100-hp. motors. F. W. Gay. *il* *diag* *Elec W* 75:792-3 Ap 3 '20

- Types of contactors and relays for motor control. G. J. Kirkgasser and E. W. Seeger. *il* *diags* *Elec R* 79:273-8 Ag 20 '21

See also Electric motors, Alternating current—Control; Electric motors, Direct current—Control; Electric motors, Induction—Control

Drying

- Drying out motors and generators. A. Ancil. *diags* *Elec W* 77:606 Mr 12 '21
- Preparing equipment for resumption of business. R. F. Stokes. *diags* *Elec W* 78:616-18 S 24 '21

Fractional horsepower

- Electric phonograph motor. *il* *Elec R (Lond)* 88:508-9 Ap 22 '21
- Fractional-horse-power motors for many services. *il* *Elec R* 78:751-2 My 7 '21
- Induction disc phonograph motor. C. I. Hall. *il* *Gen* *Elec R* 24:218-21 Mr '21; *Abstract. Sci Am M* 4:282 S '21
- New type of phonograph motor recently developed. *il* *diag* *Elec R* 78:521-2 Mr 26 '21
- Something new in phonograph motors. *il* *diag* *Sci Am* 124:394 My 14 '21
- Speed of small motors determined by rotating-disk comparison. W. H. Farr. *diag* *Elec W* 77:1057 My 7 '21
- Twin R fractional-horsepower motors. *il* *Elec R* 78:115 Ja 15 '21

Inspection

- Close inspection insures good motor service. L. N. Burhoe. *Elec W* 77:773-4 Ap 2 '21
- Inspection and care of electric motors. H. M. Phillips. *Power* 53:341-4 Mr 1 '21
- Regular motor inspection cuts lost machine-hours 80 per cent. *Elec W* 78:574-5 S 17 '21
- System for inspecting motors and equipment. H. S. Rich. *Elec W* 78:573-4 S 17 '21

Lubrication

- Lubrication of electric motors. W. F. Osborne. *Power* 51:378-9 Mr 9 '20

Manufacture

- Casting steel motor frames for our electric-drive battleships. *il* *Sci Am* 124:69 Ja 22 '21
- Messrs. Higgs bros.' motor works. *il* *Elec R (Lond)* 88:131-3 F 4 '21; *Electrician* 86:251-2 F 25 '21
- Method used in construction of steel-mill motors. *il* *Elec R* 77:206 Ag 7 '20
- Press work in an electric motor plant; General electric co., Lynn, Mass. F. R. Daniels. *il* *diags* *plan* *Mach* 27:264-9, 340-4 N-D '20
- Pressing stator plates into motor casings, and rotor plates on squirrel cage rotors on a single-acting hydraulic press. J. Blakey and J. Shankley. *diags* *Eng & Ind Management* 6:86-7 J1 28 '21
- Small electric motors and their manufacture. *il* *diags* *Engineer* 129:328, 329 Mr 26 '20

Mounting

- Lining up a motor for shafting or machine drive. K. A. Reed. *diags* *Power* 52:459-61 S 21 '20
- Mounting motors on back-geared machines. S. Howard. *diags* *Elec W* 75:330 F 7 '20
- Mounting motors to afford convenience. J. S. Thomas. *il* *Elec W* 77:594-7 Mr 12 '21

Electric motors—Mounting—Continued

- Preparing a motor base to suit needs of machines of various sizes. M. M. Gable. diags Coal Age 18:396 Ag 19 '20
- Starters and motors mounted overhead on concrete ceiling. F. W. McGraw. il Elec W 78:324 Ag 13 '21

Protection

- Automatic protection of motors. A. Walton. Textile World 57:382+ Ja 17 '20
- Automatic protection of small motors. G. E. Armstrong. J Elec 44:360 Ap 15 '20; Same abr. Eng & Contr 53:649 Je 9 '20
- Cutouts for motor protection. E. P. Slack. diags Power 54:260-1 Ag 16 '21
- Galvanized-iron covers for protecting motors. W. B. Smith. diags Elec W 75:80 Ja 10 '20
- Method of protecting motor windings against acid fumes. W. B. Todd. il Elec W 76:190-1 Jl 24 '20
- Overload protection of motors. E. P. Slack. diags Power 54:132-3 Jl 26 '21
- Proper housing and ventilating of steel-mill motors. O. Needham. il Elec W 76:1219 D 18 '20
- Protection for motors required by 1920 code. Elec R 77:1015 D 25 '20
- Protection of motor windings. G. Fox. diags Power 52:942 D 14 '20

Rating

- Advantages of 50-deg. and 40-deg. motors. L. H. Rittenhouse. Elec W 76:125 Jl 17 '20
- Basis for standardizing electrical apparatus. E. E. George. Elec W 77:372 F 12 '21
- Central stations and the rating of motors. J. Hood. J Elec 44:361-3 Ap 15 '20; Discussion. C. E. Johnson. 44:554-6 Je 1 '20
- Considerations in motor applications. P. C. Jones. diag Power 53:548-50 Ap 5 '21
- 50-degree motor. H. M. Gassman. Elec W 75:493 F 28 '20
- Fifty degree rise method of motor rating. J. M. Hipple. Elec J 17:203-5 My '20
- Maximum-rated or 50-degree motor. A. C. Bunker. Elec W 75:73-5 Ja 10 '20
- Rating of electrical machinery. F. B. Crocker. Elec W 77:977-80 Ap 30 '21
- Rating of motors for intermittent work; abstract. Elec W 76:583 S 18 '20
- Study of ratings makes possible reduction in number of motor sizes. C. W. Starker. Elec W 77:774-5 Ap 2 '21

Records

- Motor records in industrial plants. P. C. Jones. Power 53:226-8 F 8 '21

Repair

- Cost records of motor repair shop used to classify expenses. J. B. Tufts. Elec W 76:1175 D 11 '20
- Order system for coil-winding shop. A. C. Roe. diags Elec W 78:65-70 Jl 9 '21
- Piece work reduces cost of motor repairs. Elec W 75:375-6 F 14 '20
- Selecting varnish and applying it to motors and coils. J. C. Dolph. Elec W 78:375-7 Ag 20 '21
- Threaded-in chain winding replaced by formed coils. C. A. Johnson. diags Elec W 77:1323-4 Je 4 '21
- Trouble shooting in gold and silver mining. B. B. Beckett. il J Elec 45:375-7 O 15 '20
- Welding loose end rings on squirrel-cage rotors. E. R. Debman. il Elec W 77:999-1000 Ap 30 '21

See also Armatures—Repair; Electric motors, Induction—Repair; Electric motors, Railway—Repair

Standards

- Motor features requiring standardization. C. W. Starker. diags Elec W 76:919-21 N 6 '20

Starting

- Analytical determination of the steps in the starter of a series motor. S. P. Smith. diags Inst E E J 58:645-50 Ag '20; Abstract. Electrician 86:247-8 F 25 '21

- Motor drive takes less power for starting with chain than with belt. H. E. Stafford. Elec W 76:25-6 Jl 3 '20

See also Electric motor generators—Starting; Electric motors, Induction—Starting; Electric motors, Synchronous—Starting

Starting devices

- Automatic control for motors driving pumps and compressors. B. W. Jones. il diags Power 51:498-502 Mr 30 '20
- Central station regulations for use of starting compensators. V. Tallman. Elec W 76:196 Jl 24 '20
- Home-made emergency motor starters. J. Dixon. diags Elec W 75:1008 My 1 '20
- Motor-starting apparatus. il diags Engineering 112:99-102 Jl 15 '21
- New motor starter embodies many interesting features. il Power Pl Eng 24:1075-6 N 15 '20
- Starters for individual drives on twisters. J. W. Easter. Textile World 59:3817+ Je 4 '21
- Westinghouse small motor starter. il Am Mach 55:576-7 O 6 '21

See also Electric motors, Alternating current—Starting devices; Electric motors, Direct current—Starting devices; Electric motors, Induction—Starting devices; Electric motors, Synchronous—Starting devices

Temperature

- Allowable temperature rise for motors. H. M. Phillips. Power 53:62-5 Ja 11 '21; Discussion. 53:517, 558-9 Mr 29-Ap 5 '21
- Temperature rise with short-time loads. R. E. Hellmund. Elec W 77:707-9 Mr 26 '21

Testing

- Board for making quick connections when testing motors. A. H. Platt. diag Elec W 78:178 Jl 23 '21
- Convenient home-made switchboard for testing motors. M. Haman. il diag Elec W 76:1076 N 27 '20
- Data sheet employed for testing industrial motors. W. A. Harris. Elec W 75:218 Ja 24 '20
- Easily made test boards for repair shop. C. A. Johnson. diags Elec W 75:1010 My 1 '20
- Generator and switchboard arrangements to give 220 volts to 2,300 volts. A. R. McDonald. diags Elec W 76:26-7 Jl 3 '20
- Keeping steel-mill motors in service. O. Needham. il Elec W 76:237-9 Jl 31 '20
- Method of obtaining various test voltages. E. E. George. diag Elec W 75:217 Ja 24 '20
- Portable-testing outfit used in power survey. R. F. McNett. il diags Elec W 75:24-5 Ja 3 '20
- Recording meters in steel-mill equipment testing. R. N. Vining. charts Elec R 77:886-8 D 4 '20
- Testing motors for electrical input. diags Elec R 77:817 N 20 '20
- Testing of continuous current machines. C. F. Smith. 102p Pitman '21
- See also* subdivision Testing under particular kinds of motors, e.g. Electric motors, Induction—Testing

Ventilation

- Ventilation of large motor room of the Tata iron & steel company, Jamshedpur, India. C. B. Huston. Gen Elec R 24:639-41 Jl '21
- Electric motors, Alternating current**
- Adjustable varying speed alternating-current commutator motors. R. A. Jones. il diags Gen Elec R 24:921-34 N '21
- Alternating current and the planer. T. Berna. il Am Mach 53:728-9 O 14 '20
- Alternating-current commutator motor. B. G. Lamme. diags Am Inst E E J 39:249-66 Mr '20
- Alternating-current motors for high-speed elevators. J. J. Matson. Gen Elec R 24:518-21 Je '21

Electric motors, Alternating current—*Continued*
 Automatic, polyphase, brush-shifting motor-driven draft fan installation at Springdale station, West Penn power co. R. A. Jones. il diags Gen Elec R 24:803-9 S '21
 Changing speed of squirrel-cage motor without changing horsepower. A. C. Roe. Elec W 76:1220-1 D 18 '20
 Electric motors and control for dry docks. L. F. Adams. il Gen Elec R 24:237-9 Mr '21
 Factors in selecting alternating-current motors. Elec R 77:318-20 Ag 28 '20
 Forty-cycle motors operated on 60 cycles to utilize old equipment. C. W. Leonard. Elec W 76:741 O 9 '20
 Frequency problem in the steel industry. B. G. Lamme. Am Inst E E J 40:294-300 Ap '21; Same. Elec R 78:603-8 Ap 16 '21; Same. Iron Tr R 69:92-5+ J1 14 '21; Same abr. Elec W 77:921-3 Ap 23 '21; Same cond. Power Pl Eng 25:520-1 My 15 '21
 Laminated steel wedges to close up slots in three-phase motors; abstract. M. J. Ilg. diags Elec W 78:478 S 3 '21
 Motor arranged for either 440 volts or 220 volts. C. A. Johnson. diags Elec W 76:1269 D 25 '20
 New method of winding a.c. motors. A. Zarky. il J Elec 46:346 Ap 1 '21
 Overheating of improperly connected series alternating-current motor. A. C. Roe. diag Elec W 77:432-3 F 19 '21
 Reconnecting a two-phase motor for three-phase operation. C. A. Johnson. Elec W 76:532 S 11 '20
 Reconnecting three-phase, 220-volt motor for 440 volts. E. C. Soares. diags Elec W 78:523-4 S 10 '21
 Rewinding a two-phase motor for three-phase operation. A. C. Roe. Elec W 76:883-4 O 30 '20
 Selection of alternating current motors for mill work. J. Conzelman. Blast F & Steel Pl 8:664-9 D '20
 Selection of polyphase motors. B. F. Bailey. Elec W 78:17-19 J1 2 '21
 Simplifying the winding of small motors. il Sci Am 124:434 My 28 '21
 Single-field Cascade machine. L. J. Hunt. diags Electrician 84:420-1 Ap 16 '20
 Single-phase commutator-motors developed by Siemens-Schuckert; abstract. M. Schenkel. Elec W 75:1206 My 22 '20
 Study of dynamo electric machinery. O. H. Henschel. diags Power Pl Eng 24:746-50, 938-40 Ag 1, O 1 '20
 Theory of the three-phase variable speed shunt commutator motor. J. L. D. Ridsdale. diags Electrician 86:448-50, 478-81, 515-17, 546-8 Ap 15-My 6 '21
 Two 500-hp. alternating-current motors divide hoist load equally. F. C. Stanford. diag Elec W 76:27 J1 3 '20
 Unique ventilation scheme for polyphase motors. il Elec W 77:879 Ap 16 '21
 Variable speed motors in heavy industries. S. P. Smith. il Electrician 86:521-2 Ap 29 '21; Abstract. Elec R (Lond) 88:600 My 6 '21
 Variable speed polyphase motor. Elec Ry J 58:733 O 22 '21
See also Electric motors, Induction; Electric motors, Synchronous

Control

Alternating current motors and control equipment. G. J. Kirkgasser and E. W. Seeger. il Elec R 78:175-8, 345-8, 505-8, 653-6, 1011-15 Ja 29, F 26, Mr 26, Ap 23, Je 25 '21
 Control of the secondaries of the main propulsion motors of the U.S.S. Tennessee. W. C. Goodwin. il diags Elec J 18:278-9 Je '21
 Controllers for alternating current. il Power 53:431-2 Mr 15 '21
 Controls for a.c. elevator motors. il Am Arch 119:434-5 Ap 6 '21
 Industrial motor control. C. W. Starker. il diags Am Mach 52:337-41, 453-5 F 12, 26 '20
See also Electric motors, Induction—Control

Starting

Starting characteristics of synchronous motors. E. B. Shand. Elec J 18:309-13 J1 '21
 Starting conditions of synchronous machines. A. Hay and F. N. Mowdawalla. diags Am Inst E E J 39:34-44 Ja '20
 Starting synchronous motors under load. E. E. George. Elec W 77:198-9 Ja 22 '21
 Synchronous motor starting torque characteristics. O. E. Shirley. Gen Elec R 24:873-6 O '21
See also Electric motors, Induction—Starting

Starting devices

Automatic starter for squirrel cage motors. il Marine Eng 26:775 O '21
 Autotransformer motor starters. H. D. James and R. E. DeCamp. il diags Elec J 17:30-5 Ja '20
 Auto-transformers for motor starting. T. Schou. Elec W 76:473-5 S 4 '20; Discussion. V. S. Foster. 76:977 N 13 '20
 Harvey steadfast switch. il Am Mach 52:1164 My 27 '20

Testing

Two-wattmeter method of testing three-phase motor. diag Elec R 77:298-9 Ag 21 '20
 Electric motors, Direct current
 Changing a 220-volt direct-current motor for operation on 110 volts. C. A. Johnson. Elec W 75:1145 My 15 '20
 Changing the voltage of a direct-current motor. C. A. Johnson. diags Elec W 74:1014-16 N 29 '19
 Diagram to simplify connecting commutator of series motor. J. S. Dean. diags Elec W 78:573 S 17 '21
 Direct-current motors for crane and hoist work. F. L. Moon. il Elec J 17:532-5 N '20
 Direct-current motors for driving centrifugal pumps. N. Wilkinson. il Power 50:796-7 D 16 '19
 Direct-current motors—interpole machines. B. A. Briggs. il diags Power 52:938-40 D 14 '20
 Effect of voltage variations on the characteristics of direct-current motors. S. Hancock. Elec J 17:572-4 D '20
 Effects of voltage fluctuations on direct-current motors. H. H. Phillips. diags Power 54:255-7 Ag 16 '21
 How a direct-current motor motes. H. H. Startzman. il diags Coal Age 18:340-2 Ag 12 '20
 Operation of direct-current machinery with compensating windings. H. M. Phillips. il diags Power 53:620-4 Ap 19 '21
 Power drives for rolling mills. W. O. Rogers. il diag Power 52:171-6 Ag 3 '20
 Reconnecting 220-volt compound motor for 110 volts. C. A. Johnson. Elec W 76:643 S 25 '20
 Study of dynamo electric machinery. O. H. Henschel. diags Power Pl Eng 24:568-72 Je 1 '20
 Treatment of direct-current motors for mining conditions. T. H. Arnold. il Power 52:582-3 O 12 '20; Discussion. 53:38, 480, 519 Ja 4, Mr 22-29 '21
 Two cases of instability of direct-current machines; abstract. J. Kelen. Elec W 76:791 O 16 '20
 Types of direct-current motors—series, shunt and compound. B. A. Briggs. diags Power 52:128-9 J1 27 '20
 Voltage relations in direct-current machines. R. E. Ferris. diags Elec J 18:32-6 Ja '21
See also Interpoles

Control

Control of direct-current motors in ventilation service. W. H. Easton. Power 52:970-1 D 21 '20
 Direct-current motors and control equipment. G. J. Kirkgasser and E. W. Seeger. il diags Elec R 77:883-5, 917-20, 962-4, 999-1002; 78:29-31, 63-5, 99-102 D 4 '20-Ja 15 '21

Electric motors, Direct current—Control—Cont.

- Direct-current motors kept in synchronism in paper mill. *il Elec W 77:546-7 Mr 5 '21*
 Speed control of direct-current motors in ventilation service. W: H. Easton. *Power 52:970-1 D 21 '20*
 Voltage-drop control for d.-c. motors. *il Elec R 79:367-8 S 3 '21*

Repair

- Rebuilding old motors. J. Dixon. *diags Elec W 75:783-4 Ap 3 '20*

Starting

- Investigating failure of direct-current motors to start. E. C. Parham. *diags Power 51:628-30 Ap 20 '20*

Starting devices

- Cutler-Hammer inclosed faceplate starter for small direct-current motors. *il Am Mach 52:527-8 Mr 4 '20; Blast F & Steel Pl 8:221 Mr '20; Mach 26:677-8 Mr '20*
 Inductive starter for direct-current railway motors. A. Givélet. *diag Elec W 78:578-9 S 17 '21*

Testing

- Practical method of testing unloaded series motors. *diags Elec R 77:1014-15 D 25 '20*

Electric motors, Induction

- Application of induction motors. F. Jeffrey. *diags Power 52:651-4, 736-9, 812-14 O 26, N 9, 23 '20*
 Applying motors to oil-well pumping. W. G. Taylor. *il Elec W 75:17-18 Ja 3 '20*
 Armature winding and induction motor diagrams. C. Sylvester. *diags Elec R (Lond) 89:366-7 S 16 '21*
 Automatic protection of motors. A. Walton. *Textile World 57:382+ Ja 17 '20*
 Changing the speed of an induction motor. C. A. Johnson. *diags Elec W 75:81 Ja 10 '20*
 Changing voltage of induction-motor winding. J. Gintz, jr. *diags Elec R 79:15-16 Jl 2 '21*
 Characteristics of the multispeed induction motor. F. Creedy. *Electrician 86:378-9 Ap 1 '21*
 Circle diagram for closed slots. H. K. Whitehorn. *diags Electrician 87:346-7 S 16 '21*
 Circle diagram of polyphase induction motors. J. K. Kostko. *diags Am Inst E E J 40:326-32 Ap '21*
 Connecting induction motors. A. M. Dudley. 252p McGraw-Hill '21
 Connecting three-phase induction motors. A. C. Roe. *diags (supp) Elec W 76:170-1 Jl 24 '20*
 Correction of power-factor with industrial motors. C. W. Drake. *Elec R 76:767-9 My 8 '20; Same. Power 51:822-3 My 18 '20*
 Crawling of induction motors. L. H. A. Carr. *diags Electrician 85:440-1 O 15 '20; Discussion. 85:747-8; 86:57-8, 80 D 24 '20, Ja 7-14 '21*
 Data on motor operation. *Power 53:116, 322, 863 Ja 18, F 22, My 24 '21*
 Design of induction motors for textile service. O. C. Schoenfeld. *il Elec J 18:494-500 N '21*
 Determination of equivalent resistance and copper losses in a three-phase stator. A. Nash. *Elec R (Lond) 88:576-7 My 6 '21*
 Determining rotation of a repulsion-induction motor. A. Hervey. *Elec W 77:153-4 Ja 15 '21*
 Dimensions and output. L. E. Widmark. *diag Am Inst E E J 40:665-7 Ag '21*
 Economy resulting from the use of variable speed induction motors for driving centrifugal pumps. M. L. Enger and W. J. Putnam. *Am Water Works Assn J 7:536-41 Jl '20; Same. Eng & Contr 53:545-6 My 12 '20; Same. Munic Eng 59:69-70+ Ag '20; Same. Eng N 85:1126-7 D 9 '20*
 Effects of voltage and frequency changes on induction-motor operation. F. Jeffrey. *Power 52:381-2 S 7 '20*
 Electric and magnetic operations of induction machines. J. Gintz. *il Elec R 76:1060-2 Je 26 '20*
 Equivalence of the two theories of the single phase induction motor. V. Karapetoff. *diags Am Inst E E J 40:640-1 Ag '21*

- Graphical calculation of interconnected a. c. circuits. A. S. McAllister. *diags Elec W 77:1359-63 Je 11 '21*

- Halving voltage on a wave-wound induction motor. A. C. Roe. *diags Elec W 77:717 Mr 26 '21*

- How an induction motor motes and why. H. H. Startzman. *il diags Coal Age 19:903-6 My 19 '21*

- How to calculate a new winding for an induction-motor stator core. A. M. Dudley. *diags Power 52:13-18 Jl 6 '20*

- Improving power factor conditions with induction motors. R. G. Warner and A. E. Knowlton. *diags Elec W 76:1021-3 N 20 '20*

- Increasing speed and horsepower of a slip-ring induction motor. A. C. Roe. *diags Elec W 77:99-100 Ja 8 '21*

- Induction motor and other alternating-current motors. B. A. Behrend. 2d ed., rev. and enl. 272p McGraw-Hill '21

- Induction motor core losses. P. L. Alger and R. Eksbergian. *bibliog diags Am Inst E E J 39:906-20 O '20*

- Induction motor with double-cage rotor; abstract. *diag Elec W 78:31 Jl 2 '21*

- Induction motor with reversed ventilation path. *Elec R 79:140-1 Jl 23 '21*

- Induction motors for ship propulsion. A. D. Badgley. *il diag Gen Elec R 24:143-5 F '21*

- Induction motors on unbalanced voltages. J. Slepian. *diags Elec W 75:313-15 F 7 '20*

- Induction motors operating at 18,000 r.p.m. *il Power 52:144 Jl 27 '20*

- Locating faults in induction motors. A. M. Dudley. *diags Power 51:299-300, 325-7, 453-8 F 24-Mr 2, 23 '20*

- Multispeed induction motors for power-station auxiliaries. *Electrician 86:798-9 Je 24 '21*

- On the design of split phase motors. E. A. Binney. *diags Electrician 86:322-5 Mr 18 '21*

- Phase and voltage change of an induction motor. C. A. Johnson. *Elec W 75:328 F 7 '20*

- Phase compensation; with special reference to polyphase motors. V. A. Fynn. *diags Am Inst E E J 40:48-64 Ja '21*

- Physical conceptions of induction motor operation. J. Lebovici. *diags Am Inst E E J 40:851-3 N '21*

- Propelling motors for electric drive. *il Marine Eng 25:822-3 O '20*

- Reconnecting induction motors—reconnecting problems. A. M. Dudley. *diags Power 51:55-8 Ja 13 '20*

- Reconnecting two-phase induction motors. A. C. Roe. *diags (supp) Elec W 76:683-4 O 2 '20*

- Requirements for induction motor service. *Elec W 75:12-13 Ja 3 '20*

- Running 42-cycle induction motors from 25-cycle supply. *Elec W 75:786 Ap 3 '20*

- Short-circuit current of induction motors and generators. R. E. Doherty and E. T. Williamson. *il diags Am Inst E E J 40:1-11 Ja '21*

- Single-phase induction motor windings. J. Gintz. *diags Elec R 77:126-7 Jl 24 '20*

- Some developments in multi-speed Cascade induction motors. F. Creedy. *diags Inst E E J 59:511-32; Discussion. 532-7 My '21*

- Squirrel cage and wound rotor induction motors. *il diags Engineering 111:755-6 Je 17 '21*

- Stator windings and connections for three-phase motors. J. Gintz. *il diags Elec R 77:639-40 O 23 '20*

- Stator windings and connections for two-phase motors. J. Gintz. *il diags Elec R 77:481-3 S 25 '20*

- Story of the induction motor. B. G. Lamme. *Electrician 87:179-81, 206-7 Ag 5-12 '21*

- Study of dynamo electric machinery; theory of the induction motor. O. H. Henschel. *il diags Power Pl Eng 24:842-5 S 1 '20*

- Tooth frequency losses in rotating machines. T. Spooner. *Am Inst E E J 40:751-6 S '21*

- Variable speed induction motor sets. C. W. Kincaid. *il diags Elec J 18:385-9 S '21*

Electric motors, Induction —Continued

Control

Adjustable-speed motor equipment rolling mills. F. Jeffery. il diags Power 51:408-12 Mr 16 '20

Change in controller connections improves operation. M. Phillips. diag Power 54:190 Ag 2 '21

Liquid type vs. magnetic contactor type control. A. J. Nicht, jr. Eng & Min J 111:292 F 5 '21

Panel for the control of motor-generator sets from a remote point. il Coal Age 19:626 Ap 7 '21

Phase compensation; with special reference to polyphase motors. V. A. Fynn. diags Am Inst E E J 40:48-64 Ja '21

Les réglages de vitesse des moteurs asynchrones de laminoirs. diags Génie Civil 77:538-9 D 25 '20

Theory of speed and power factor control of large induction motors by neutralized polyphase alternating current commutator machines. J. I. Hull. il diags Am Inst E E J 39:458-70 My '20; Same. Gen Elec R 23:630-44 Jl '20

History

Story of the induction motor. B. G. Lamme. il diags Am Inst E E J 40:203-23 Mr '21

Performance

Induction motor nomogram; a moveable diagram for reading all performance characteristics of any three-phase induction motor. R. G. Warner. diags Am Inst E E J 40:808-14 O '21

New viewpoint on induction motor diagram. R. G. Warner. diags Elec W 77:980-1 Ap 30 '21

Repair

Cost of reinsulating induction motor windings. J. A. Knutsen. Elec W 76:164 Jl 24 '20

Remedies for troubles of induction motors. H. E. Stafford. Elec W 78:881 O 29 '21

Rewinding a motor with odd coil groupings. C. A. Johnson. Elec W 76:25 Jl 3 '20

Rewinding 220-volt induction motor for 110 volts. C. A. Johnson. diag Elec W 75:736 Mr 27 '20

Starting

Low voltage seriously reduces starting torque of an induction motor. C. M. Roscoe. Coal Age 20:15 Jl 7 '21

Motor with short-circuited slip rings will not start. R. H. N. Lockyer. Elec W 77:268 Ja 29 '21

Starting devices

Automatic compensator for starting induction motors. il Power 51:335 Mr 2 '20

Cutler-Hammer auto-transformer starter. il Am Mach 54:478-9 Mr 17 '21; Elec R 78:322-3 F 19 '21; Blast F & Steel Pl 9:233 Mr '21; Elec W 77:706 Mr 26 '21; Iron Age 107:704 Mr 17 '21; Ry Mech Eng 95:261-2 Ap '21

Cutler-Hammer automatic starter for motors used for driving mine fans. il Coal Age 18:490 S 2 '20

Cutler-Hammer self-starter for slip-ring motors. il Am Mach 52:805 Ap 8 '20

General Electric automatic starter for induction motors. il Am Mach 53:89 Jl 8 '20; Foundry 48:581 Jl 15 '20

General Electric low voltage panel for starting induction motors. il Power 52:328 Ag 31 '20

Manual starters for small squirrel-cage induction motors. C. K. Applegarth and H. D. James. il Elec J 16:532-6 D '19

Starter that guards squirrel-cage motor against destructive continuous overload. il Coal Age 20:682 O 27 '21

Starting an induction motor without a compensator. J. W. Murry. diags Elec W 78:732-3 O 8 '21

Starting of asynchronous motors by means of tertiary eddy currents; abstract. R. Rudenberg. diag Elec W 75:30 Ja 3 '20

Testing

Locating faults in induction motors. A. M. Dudley. diags Power 51:453-8 Mr 23 '20

Stroboscopic slip determination. M. M. Bries. il diags Elec J 17:165-7 Ap '20

Ventilation

Ventilation of induction motors. F. Jeffrey. il diags Elec W 74:988-91 N 29 '19

Electric motors, Railway

Effect of short-time overloads on railway motor armatures. J. K. Stotz. Elec J 17:473-4 O '20

Field winding diagrams for railway motors. J. S. Dean. diags Elec J 17:272, 358, 428 Je, Ag-S '20

Gears and pinions for electric railway service; rules adopted at American gear manufacturers' association in Boston. Mach 26:553-4 F '20

Helical gear. W. H. Phillips and G. H. F. Holy. il Elec Ry J 58:22-3 Jl 2 '21

Improvements in the design and construction of railway motors. E. D. Priest. il diags Gen Elec R 23:335-9 Ap '20

Main driving motors for the Chicago, Milwaukee & St Paul passenger locomotives. G. F. Smith. il diags Elec J 17:284-7 Jl '20

Practical points on maintaining railway motors. J. S. Dean. il diags Ry R 68:910-13 Je 11 '21

Selection of motors for service conditions. F. E. Wynne. Elec J 17:434-5 O '20

Side wear of carbon brushes on ventilated railway motors. J. S. Dean. il diags Elec J 18:470-3 O '21

Some mechanical causes of flashing on railway motors. J. K. Stotz. Elec J 18:481-2 O '21

Some points on dipping and baking of railway motors. J. M. Labberton. Elec J 17:491 O '20

Transformer action of tapped field railway motors. C. W. Squier. diags Elec Ry J 55:383-5 F 21 '20

Use and abuse of electric motors. J. M. Hipple. Elec J 18:462-3 O '21

Bearings

Expanding railway motor bearings. H. J. Krombach. il diags Elec Ry J 57:958-9 My 21 '21

Maintaining ball bearings on safety car motors. H. E. Krouse. Elec Ry J 57:559 Mr 19 '21

Failures

Storms increase motor failures. Elec Ry J 55:801-2 Ap 17 '20

Repair

Approved methods of babbitting railway motors. J. S. Dean. il Ry R 69:8-9 Jl 2 '21

Field winding diagram prevents mistakes. J. S. Dean. diags Elec W 78:674 O 1 '21

Maintaining electric railway motors. J. S. Dean. il Elec Ry J 55:793-5, 990-2 Ap 17, My 15 '20

Maintenance work on electric railway motors. J. S. Dean. diags Elec Ry J 57:540-3 Mr 19 '21

Making a modern 33-hp. tramway motor out of an old 20-hp. motor. J. V. Balslev. Elec W 78:784-5 O 15 '21

Multiple-unit car maintenance on electrified steam railroads. il Elec Ry J 55:1130-4 Je 5 '20

Putting pinions on railway motor shafts. J. S. Dean. Ry R 69:91-2 Jl 16 '21

Reboring motor shells with home-made equipment. N. E. Drexler. il Elec Ry J 55:429 F 28 '20

Repairing loose housings on split frame motors. J. S. Dean. il Elec J 17:36-7 Ja '20

Starting

Inductive starter for direct-current railway motors. A. Givélet. diag Elec W 78:578-9 S 17 '21

Testing

Testing motors after repair. il diag Elec Ry J 55:1003-4 My 15 '20

Testing railway motor detail parts. J. S. Dean. il Elec Ry J 58:427-32 S 17 '21

Electric motors, Synchronous

- Bracing coil ends prevents grounding to core. A. C. Roe. *il diags Elec W* 78:325 Ag 13 '21
- Calculating characteristics of synchronous machines. J. H. Kuhlman. *charts Elec R* 79:342-6 S 3 '21
- Correcting synchronous-motor V-curves. J. R. Collins. *Elec W* 75:894-5 Ap 17 '20
- Correction of power-factor with industrial motors. C. W. Drake. *Elec R* 76:767-9 My 8 '20; Same. *Power* 51:822-3 My 18 '20
- Cost of low power factor. W. Brown. *il diags Power* 51:24-6 Ja 6 '20
- Data for estimating weights of synchronous machines. T. Schou. *diags Elec W* 77:1160-1 My 21 '21
- Earnings increased by use of synchronous motor. *Elec R* 76:412 Mr 6 '20
- Electric characteristics of transmission circuits; synchronous motors and condensers for power-factor improvement. W. Nesbit. *diags J Elec* 18:365-73 Ag '21
- Essential design data for choosing synchronous machines. T. Schou. *diags Elec W* 77:1033-7 My 7 '21
- Flywheel effect for synchronous motors connected to reciprocating compressors. R. E. Doherty. *il diags A S R E J* 6:159-77 N '19; Same *abr. Gen Elec R* 23:653-61 Ag '20; *Abstract. Mech Eng* 42:410-11 Jl '20
- How to remedy some synchronous motor troubles. J. Dixon. *Elec W* 76:81 Jl 10 '20
- Hunting and parallel operation of synchronous machines. V. Karapetoff. *diags Sibley J* 34:3-8 Mr '20
- Ideal synchronous motors of improved construction. *il Elec R* 78:992 Je 18 '21
- Importance of short-circuit ratio in synchronous machines. T. Schou. *diags Elec R* 76:1015-18 Je 19 '20
- Keeping in step; comparing speed of synchronous generator with exact time by small motor installed in clock. R. Howard. *il Sci Am* 123:473 N 6 '20
- Large installation of synchronous motors in cold-storage plants. *il Elec R* 76:301-4 F 21 '20
- Magnetic clutches on synchronous motors for steel-mill drives. *Power* 52:562 O 5 '20
- Magnetic clutches used with synchronous motors. *Elec R* 79:16 Jl 2 '21
- Magnetomotive-force diagram of the synchronous motor. E. S. Henningsen. *diags Gen Elec R* 23:122-4 F '20
- Le moteur synchrone d'induction des Ateliers de construction d'Oerlikon (Suisse). *il diags Génie Civil* 79:150-3 Ag 13 '21
- Power-factor adjustments by the use of synchronous motors. R. Beach. *Power* 50:807-9 D 16 '19
- Power factor correction by synchronous motors. V. H. Todd. *diags Power Pl Eng* 24:1174-6 D 15 '20
- Principles and characteristics of synchronous motors. E. B. Shand. *diags Elec J* 18:87-91 Mr '21
- Relation of flywheel effect to hunting in synchronous motors. Q. Graham. *Elec J* 17:18-20 Ja '20
- Self-exciting synchronous motor. J. K. Kostko. *diags Elec W* 75:723-6 Mr 27 '20
- Study of dynamo electric machinery. O. H. Henschel. *il diags Power Pl Eng* 24:746-50 Ag 1 '20
- Synchronous-induction motor. *diag Power* 54:543-4 O 4 '21
- Synchronous induction motors for driving fans and blowers. *il Eng & Ind Management* 6:42 Jl 14 '21
- Synchronous machines with long service record. *il Elec R* 79:88 Jl 16 '21
- Synchronous-motor applications. W. T. Berkshire. *il Power* 51:166-9 F 3 '20
- Synchronous motor reduces refrigerating plant costs. *il Power Pl Eng* 24:310 Mr 1 '20
- Synchronous motors. W. T. Berkshire. *il diags Gen Elec R* 23:112-21 F '20; *Excerpt. Power* 51:850-1 My 25 '20
- Synchronous motors and their industrial application. S. H. Mortensen. *il diags Elec R* 78:613-16, 815-18 Ap 16, My 21 '21

Synchronous motors for driving centrifugal pumps. S. H. Mortensen. *il diags Power* 51:90-3 Ja 20 '20; Discussion. B. S. Stevens. 51:603 Ap 13 '20

Synchronous motors for driving centrifugal pumps. G. G. Rehfield. *Power* 52:108-9 Jl 20 '20

Synchronous motors for ship propulsion. E. S. Henningsen. *il Am Inst E E J* 40:369-73 My '21

Synchronous motors for ship propulsion. E. S. Henningsen. *il diag Gen Elec R* 24:141-3 F '21

Use of synchronous motors in cement plants. W. Brown. *Elec R* 76:270-1 F 14 '20

What happens when a synchronous motor is caused to pull out? F. L. Fairbanks. *Power* 51:274 F 17 '20; Discussion. R. E. Doherty. 51:893-4 Je 1 '20

Starting

Self-starting synchronous motor with a high starting torque. *il Power* 53:930 Je 7 '21

Starting a synchronous motor without starting equipment. F. Krug. *Elec W* 76:482 S 4 '20

Starting characteristics of synchronous motors. E. B. Shand. *Elec J* 18:309-13 Jl '21

Starting conditions of synchronous machines. A. Hay and F. N. Mowdawalla. *diags Am Inst E E J* 39:34-44 Ja '20

Starting synchronous motors under load. E. E. George. *Elec W* 77:198-9 Ja 22 '21

Synchronous motor starting problems. E. E. George. *Elec W* 75:839-41 Ap 10 '20

Synchronous motor starting torque characteristics. O. E. Shirley. *Gen Elec R* 24:873-6 O '21

Starting devices

Maintaining correct average frequency. *il Power* 52:386 S 7 '20

Electric needles

Some novel uses for the tattooing needle. A. Krumm. *il Sci Am* 122:367+ Ap 3 '20

Electric ovens

Armature and field coil bake oven in the shops of the Newport News & Hampton railway, gas & electric company at Hampton, Va. *il Elec Ry J* 55:399-400 F 21 '20

Automatic electric bake oven. J. M. Strait and J. C. Woodson. *il diag Elec J* 18:296-300 Jl '21

Automatic electric enameling oven installed at Forderer cornice works, San Francisco. E. Kramer. *il Elec J* 18:82-3 Mr '21

Core baking in electrically heated ovens. J. L. Jones. *il chart Metal Ind* 18:450-1 O '20; Same. *Iron Age* 106:1385-7 N 25 '20; Same. *Elec R* 78:132-4 Ja 22 '21

Dry substance in molasses, sirups and juices by the Spencer electric oven. G. P. Meade. *J Ind & Eng Chem* 13:924-5 O '21

Electric oven for rapid moisture tests. G. L. Spencer. *J Ind & Eng Chem* 13:70-2 Ja '21

Electric oven reduces cost of baking pencil leads. G. Weaver. *Elec W* 78:514 S 10 '21

Electric ovens bake 11.6 lb. of green cores per kilowatt-hour. *Elec W* 75:1009-10 My 1 '20

Electric vitreous enameling oven. C. W. Mehling and J. W. Carpenter. *Am Cer Soc J* 4:271-6 Ap '21

Electrically heated japanning ovens. C. F. Hirshfeld. *il Metal Ind* 18:128-9 Mr '20

Experience with electric core baking. A. D. Dauch. *il plan Elec W* 76:168-70 Jl 24 '20

Industrial electrical heating. A. E. Holloway and H. L. Garbutt. *J Elec* 46:486-8, 517-19 My 15 '21

Industrial heating offers field for contractor-dealers. W. S. Scott. *il Elec R* 78:499-503 Mr 26 '21

Small oven proves useful. O. A. Norene. *il Elec Ry J* 58:142 Jl 23 '21

Study of the methods and operations of japanning practice. W. A. Darrah. *diags Automotive Ind* 42:714-15 Mr 18 '20; Same. *Soc Auto Eng J* 6:185-6 Mr '20

Varnish-baking oven has easy circulation and temperature control. F. de Muth. *diag Elec W* 75:847-8 Ap 10 '20

Western application of electric oven. J. M. Strait. *il J Elec* 47:349 N 1 '21

Electric plants

- Australian electric railway power plant. il diag map plan Power Pl Eng 24:595-9 Je 15 '20
- Britain's floating electric power station. il diag plans Power Pl Eng 24:192-3 F 1 '20
- Economical generation of electrical power. A. B. Clark. Power 53:354-6 Mr 1 '21
- Economy of stokers and turbo generators. il Blast F & Steel Pl 8:252-5 Ap '20
- Effects of short circuits on power house equipment. E. G. Merrick. il diags Gen Elec R 22:935-41 N '19
- Electrical energy supply for nitrate plant. C. D. Gray and E. Hagenlocher. il diag plan Elec W 74:1052-5 D 13 '19
- Induction generator plants. C. M. Ripley. il diags plan Gen Elec R 22:963-9 N '19
- Inspection tests for electrical equipment. A. S. MacDowell. diags Elec W 76:633-6 S 25 '20
- Meeting power needs of growing factory. F. C. Vogan. il diags Power Pl Eng 25:885-91 S 15 '21
- New Gulbransen-Dickinson plant. il plan Power Pl Eng 25:401-5 Ap 15 '21
- Oliver iron adding new equipment to "G" Pabst power house. il Eng & Min J 109:988 Ap 24 '20
- Power for copper refineries. P. Thomas. Elec W 75:262 Ja 31 '20
- Power house design. J: F. C. Snell. 2d ed. 535p Longmans '21
- Present state of manufacturing electrical energy. J. Frith. Inst E E J 59:42-6 D '20
- Pulverized fuel for peak-load service in railway power plants. O. M. Rau. Power 52:140-1 JI 27 '20
- Railway power plants and their management. Engineer 130:665 D 31 '20
- Villages or group of farms fed from small plant. il Elec R 79:665 O 29 '21
- West bank dock electric generating station. il diags plans Engineer 131:144, 148-50, 152 F 11 '21

See also Boiler plants; Electric power; Electric substations; Farm lighting plants; Hydroelectric plants; Power factor; Power plants; Steam plants

Material on the power plant as a factory problem will be found under Power plants

Automatic operation

See Hydroelectric plants—Automatic operation

Central stations vs. Isolated plants

- Central-station service for an industrial plant. J: H. Mitchell. Elec R 79:213-14 Ag 6 '21
- Centralization and conservation in power supply of central Massachusetts. F. L. Hunt. il diags map plans Gen Elec R 22:947-59 N '19
- Comparative costs of central-station and oil-engine power. Elec W 76:483-4 S 4 '20
- Industrial support for central stations. J: M. McMillin. Elec W 76:677-8 O 2 '20
- Isolated plant development. Power Pl Eng 24:1200-1 D 15 '20
- Power, light and heat in large buildings; economy of purchased electric power in conjunction with low pressure steam. J. A. McHollan. diag Arch Forum 35:141-4 O '21
- Worcester section A.S.M.E. discusses industrial power. R. J. S. Pigott. diag Power 51:113-15 Ja 20 '20

Construction

See Electric plants (central stations)—Construction; Power plants—Construction

Control

Automatic and remote control generating stations. A. G. Darling. diags Gen Elec R 22:846-8 N '19

Costs

- Costs of changing to alternating current. E. J. Tracy, jr. Elec W 75:388-9 F 14 '20
- Effect of higher coal prices on operating costs. Elec W 74:945-6 N 15 '19
- See also Electric plants (central stations)—Costs; Power cost

Excitation equipment

- Application of d-c. generators to exciter service. C. A. Boddie and F. L. Moon. Am Inst E E J 39:560-1 Je '20
- Battery used to get alternator and exciter into service. R. Hofstetter. diag Power 52:551-2 O 5 '20
- Considerations which determine the selection and general design of an exciter system; abstracts. J. T. Barron and A. E. Bauhan. Am Inst E E J 39:556-7 Je '20; Power 52:196 Ag 3 '20
- Excitation systems session. il Elec W 76:60-2 JI 10 '20
- Exciter characteristics cause paralleling and regulator trouble. L. E. Brown. Elec W 78:828-9 O 22 '21
- Exciters and systems of excitation. H. R. Summerhayes. il Gen Elec R 23:566-76 JI '20; Same cond. Power Pl Eng 24:888-90 S 15 '20; Abstract. Am Inst E E J 39:559-60 Je '20
- Factors in excitation systems of large central station steam plants. J. W. Parker and A. A. Meyer. Am Inst E E J 39:558 Je '20
- Generator excitation practise in the hydroelectric plants of the Southern California Edison company. H. H. Cox and H. Michener. Am Inst E E J 39:562 Je '20
- Motor on waterwheel-driven exciter saves power and shutdowns. J. W. Andree. diag Elec W 77:771 Ap 2 '21
- Selection and design of exciter system. diags Elec W 76:234-6 JI 31 '20
- Vertical-shaft waterwheel-driven alternators—brakes, ventilation and exciters. S. H. Mortensen. il diag Power 51:953-4 Je 15 '20

Fire protection

- Insurance rates reduced 38 per cent; putting house in order permits East St Louis & suburban railway to increase protection 95 per cent. il Elec Ry J 57:397-8 F 26 '21

Interconnection

- Advantages and disadvantages of interconnection compared. J: C. Damon. Elec W 78:328-9 Ag 13 '21
- Advantages of superpower system. W. S. Murray. maps Elec W 78:916-21 N 5 '21
- Another opportunity for interconnection. R. B. Mateer. map Elec W 76:1162-4 D 11 '20
- California electric companies plan interconnection. J Elec 46:655 Je 15 '21
- Canada's superpower zone; what Ontario has done in hydroelectric development. R. G. Skerrett. map Sci Am 124:246+ Mr 26 '21
- Central stations lead in showing spirit of progress. S: Insull. map Elec R 78:887-90 Je 4 '21
- Centralization and interconnection of electric power plants. A. L. Mullergren. Munic Eng 59:sup28-9 O '20
- Clydes Mill station of the Clyde Valley power co.; the beginnings of a super station. il map Electrician 86:686-9 Je 3 '21
- Comprehensive water-power development basis for economical operation. L. A. Whitsit. il Elec W 78:312-14 Ag 13 '21
- Conditions that must be watched when interconnecting small plants. H. J. Burton. Elec W 77:1239 My 28 '21
- Conserving capital and natural resources. E. D. Dreyfus. Elec J 18:163-4 My '21
- Co-operation for the central station and isolated plant. Elec W 77:11-12 Ja 1 '21; Discussion. W. B. Lewis. 77:203-4 Ja 22 '21
- Discussion on the super power system for the Northeast Atlantic seaboard; symposium. Am Inst E E J 39:766-77 Ag '20; Abstracts. Elec Ry J 55:435-8 F 28 '20; Elec W 75:486-9 F 28 '20
- Distribution problems of central-station companies. Elec R 77:968-70 D 18 '20
- Economic benefits derived from energy interchange. Elec W 77:1239-40 My 28 '21
- Economic generation of electricity by power zones in Missouri and Kansas. H. H. Kuhn. chart map Elec R 78:683-7 Ap 30 '21

Electric plants—Interconnection—Continued

- Economic value of interconnecting isolated and central stations questionable. H. P. Seelye. Elec W 77:824-5 Ap 9 '21
- Economical supply of electric power for the industries and the railroads of the Northeast Atlantic seaboard. W. S. Murray. map Am Inst E E J 39:219-22, 308-30 Mr '20
- Economies to be expected of superstation. J. A. Stevens. maps Power 51:884 Je 1 '20
- Economy through plant co-ordination. H. Flood, jr. Elec W 77:475 F 26 '21
- Effect of electrical removal of limitations. G. E. Tripp. Elec J 17:174-5 My '20
- Electrification of Holland. map Engineer 129:557 My 28 '20
- Engineering for London superpower scheme approved. Elec W 77:898 Ap 16 '21
- Future power development. J. E. Jackson. Power Pl Eng 25:211-12 F 15 '21
- Heating plan must be considered; byproduct current from steam. I. N. Evans. diags Power 54:137-8 Jl 26 '21
- Improvement of interconnection by liberal co-operation. A. T. Throop. Elec W 77:202-3 Ja 22 '21
- Industrial and central-station plants. W. D. Lewis. Power 52:150 Jl 27 '20
- Interchange of energy in Middle West. map Elec W 75:1087-8 My 8 '20
- Interconnecting industrial and central-station plants. C. G. Weber. chart Power 51:1049-52 Je 29 '20; Same. Elec W 76:173-5 Jl 24 '20; Discussion. S. J. Gates. 76:528 S 11 '20
- Interconnecting small cities in south central Indiana. il diags plan Elec W 76:321-4 Ag 14 '20
- Interconnection affords great benefits in Italy. il Elec W 78:119-20 Jl 16 '21
- Interconnection and bulk supply. Elec W 78:7-8 Jl 2 '21
- Interconnection benefits even the small plants. Elec W 77:16 Ja 1 '21
- Interconnection in New England. maps Elec W 75:1076-81 My 8 '20
- Interconnection in southern Vermont. il diag Elec W 76:9-12, 70-2 Jl 3-10 '20
- Interconnection is successful in eastern Massachusetts. F. C. Sargent. map Elec W 78:216-17 Jl 30 '21
- Interconnection of hydro-electric energy in the Northwest. Power 53:122 Ja 18 '21
- Interconnection of power systems. H. W. Smith. diags Elec J 17:515-18 N '20
- Interconnection power-contract principles. R. S. Hale. il Elec W 77:4-5 Ja 1 '21
- Interconnection will fail unless all interests work together. Elec W 77:729-30 Mr 26 '21
- Joint electricity authorities. Elec R (Lond) 88:140-1, 168-71 F 4-11 '21
- Joint operation of water and steam resources in California. R. A. Gulick. Elec R 79:89-90 Jl 16 '21
- Limitations of interconnection; rupturing capacity of oil switches under short-circuit conditions limits interconnection unless plants are well distributed. E. C. Stone. Elec W 77:990-1 Ap 30 '21
- Linking three Southern watersheds. maps Elec W 75:1081-7 My 8 '20
- Linking-up of the small water powers in Scotland. F. G. Baily. Engineering 112:410 S 16 '21; Same. Elec R (Lond) 89:450 S 30 '21; Same cond. Electrician 87:358 S 16 '21
- Manchester-Salford linking up. il diags Electrician 84:84-6 Ja 23 '20
- Mines versus tidewater as locations for super-power stations. G. S. Rice. Elec W 76:1207 D 18 '20
- New England power company. E. A. Dillard and H. R. Wilson. chart diags map Gen Elec R 22:974-9 N '19
- Operation of large interconnected systems. L. L. Elden. diags Am Inst E E J 40:490-1 Je '21
- Policies for future power development. J. P. Jackson. Mech Eng 43:102-6; Discussion. 106-7+ F '21
- Pooling our power. R. G. Skerrett. il Sci Am 122:618+ Je 5 '20
- Power administration effects economy. F. B. Lewis. map Elec W 78:57-8 Jl 9 '21
- Power development and use in Middle West. C. W. Place. il maps Elec R 79:77-80 Jl 16 '21; Same, with tables. Mech Eng 43:523-5 Ag '21
- Power development in the Southern states. G. K. Miltenberger, L. A. Whitsit and R. W. Lamar. il Elec W 76:769-71 O 16 '20
- Power in big packages. S. G. Roberts. map Sci Am 124:88+ Ja 29 '21
- Problems involved in interconnecting systems. H. A. Barre. il Elec W 75:136-7 Ja 17 '20
- Projet de réorganisation de la production de l'électricité en Belgique. diag map Génie Civil 76:126-8 Ja 31 '20
- Proposed power district in the South. L. A. Whitsit. map Elec W 76:1009-12 N 20 '20
- Proposed super-power survey for Pacific Northwest. Elec R 78:920 Je 4 '21
- Railway electrification in the super-power zone. W. B. Potter. map Gen Elec R 23:246-8 Ap '20; Same. Ry R 66:763-5 My 8 '20
- Superpower and its relation to industry. H. Flood, jr. Am Inst E E J 40:192-7 Mr '21; Same cond. Power 53:267-70 F 15 '21
- Super-power districts; abstracts. W. B. West. map Power Pl Eng 24:1162-3 D 15 '20; Ind Management 60:416-17 D 1 '20
- Super-power stations for central Indiana. F. L. Ray. map Power Pl Eng 25:262-4 Mr 1 '21; Abstract. Power 53:243 F 8 '21
- Superpower system for the Boston-Washington region. Chem & Met Eng 25:889-91 N 9 '21
- Superpower system in its relation to national economy. H. Flood, jr. Power 54:505-6 S 27 '21
- Superpower system—its scope and relation to the United States government. W. S. Murray. N E L A Bul 8:335-41 Je '21
- Superpower transmission; abstract. Tröger. Elec W 77:273 Ja 29 '21
- To link all power in one. J. W. Bishop. map Nation's Business 8:20-1 O '20
- Trunk line and interconnected electric transmission systems of the western states; map. Elec W 75:supp My 8 '20
- Unstable operation of generating stations in parallel. D. D. Higgins. diags Elec W 78:414-16 Ag 27 '21
- Urgent need of super-power developments. C. F. Lacombe. map Elec W 75:1128-31 My 15 '20
- What interconnection has done for Montana. il Elec W 75:1041-50 My 8 '20
- See also* Super-power survey

Load factor

- Analysis of engineering employed in power sales. A. G. Drury. Elec W 75:278 Ja 31 '20
- Connected load versus generator capacity. F. Jeffrey. il diags Power 52:162-5 Ag 3 '20
- Effect of load factor on station costs. P. Junkersfeld. Elec W 77:85-8 Ja 8 '21; Same. Power 53:24-7 Ja 4 '21; Same cond. Mech Eng 43:108-10 F '21
- Good load factor. J. See. Power Pl Eng 25:334 Mr 15 '21
- Load equalization. F. L. Stone and T. W. Kennedy. Gen Elec R 24:501-4 Je '21
- Load factor: its definition and use. H. E. M. Kensit. Can Eng 40:149-51 Ja 20 '21
- Load regulation; planning operating schedules. diags Power Pl Eng 25:78-84 Ja 1 '21
- Measurement of maximum demand and the determination of load factor. P. A. Borden. il charts diag Am Inst E E J 39:875-87 O '20

Maintenance and repair

- Standard maintenance in power plants. A. B. Stitzer. Elec W 75:718-20, 887-9 Mr 27, Ap 17 '20

Rates

See Electric rates

Records

See Electric plants (central stations)—Records; Power plants—Records

Repair shops

- Power plant repair shop. il diags plan Power Pl Eng 24:271-4 Mr 1 '20

Electric plants—Continued**Safety devices and measures**

- Electrical machinery in generating stations. D. D. Higgins. *il N E L A Bul* 7:215-17 Ap '20
- Protection of power-station equipment; National electrical code as applied to power-station equipment. E. F. Slack. *diags Power* 53:920-3 Je 7 '21
- Safety features in high tension generating stations and substations. M. M. Samuels. *Safety Eng* 42:112-15 S '21
- Safety first methods of a big power plant. *il Power* 53:608-13 Ap 19 '21

Ventilation

- Ventilation of large motor room of the Tata iron & steel company, Jamshedpur, India. C. B. Huston. *Gen Elec R* 24:639-41 Jl '21

Electric plants (block plants)

- Load regulation; planning operating schedules. *diags Power Pl Eng* 25:82-4 Ja 1 '21

Electric plants (central stations)

- Advantages of large gas engines for central power stations. W. Crooke. *diags Electrician* 85:547-9 N 5 '20
- Central station power as a factor in effecting economies and in increasing production. G. H. Jones. *W Soc E J* 25:59-65 Ja 20 '20
- Design of a superpower station; steam turbine generating station of 245,000-kw., 300,000-kv-a. capacity, 66,000-volt distribution. H. Goodwin, jr., and A. R. Smith. *diags plans Gen Elec R* 23:399-418 My '20; *Abstract. Mech Eng* 42:456-8 Ag '20
- Developments in power plants and generating stations. A. Still. *il diags Elec R* 77:269-75 Ag 21 '20
- Diesel engines economical in a central station. *Soc Auto Eng J* 6:195-6 Mr '20
- Difficulties of the smaller electricity supply companies. A. N. Rye. *Electrician* 86:788-91 Je 24 '21
- Electric power at Oshkosh, Wis. T. J. Lucas. *il diags plans Power Pl Eng* 24:1155-61, 1186-9 D 15 '20
- Employment of oil as fuel for central stations. H. Thomas and E. H. Peabody. *Elec W* 75:83 Ja 10 '20
- Extensive electrical construction planned for 1920. *Elec R* 76:473-9 Mr 20 '20
- Generating electricity at the mines. *il Sci Am* 122:137+ F 7 '20
- Generation and transmission of electrical energy. A. Still. *Elec R* 77:81-4 Jl 17 '20
- Hartford section of A.S.M.E. discusses the superstation. *Power* 52:681-2 O 26 '20
- How the central station can help to popularize radio and promote customers' good will. O. R. Toman. *Elec W* 77:1484 Je 25 '21
- Modern central stations. C. W. Marshall. 115p Pitman '21
- Modern power station and its development. J. S. Watson. *Electrician* 84:620-1 Je 4 '20
- Modern practice in Westport station design. M. D. Engle. *Elec W* 77:255-6 Ja 29 '21
- New Lakeside pulverized-coal plant, Milwaukee. *il Power* 52:358-60 S 7 '20
- Oil and powdered fuel for central stations. C. H. Delaney. *il Elec W* 75:128-9 Ja 17 '20
- Oil versus coal as fuel for central stations. C. H. Delaney. *Elec W* 74:928-30 N 15 '19
- Oldest central station in the world. F. B. Rae. *il J Elec* 44:519-20+ My 15 '20
- Progress in power stations, 1920-21. *Am Inst E E J* 40:587-91 Jl '21
- Progress in the central-station industry. M. H. Aylesworth. *Elec R* 78:17-18 Ja 1 '21
- Proposed super-power central station. J. A. Stevens. *diag plans supp Power* 51:832-6, 879-84 My 25, Je 1 '20; *Abstract. Mech Eng* 42:453-6 Ag '20
- Pulverized coal in central stations. J. Anderson. *diags Elec W* 75:589-91 Mr 13 '20
- Pulverized coal under central-station boilers. J. Anderson. *il Power* 51:336-9 Mr 2 '20; *Same. Elec Ry J* 55:473-6 Mr 6 '20
- Relative merits of connections employed in high-voltage generating stations. E. Pragst. *diags Gen Elec R* 23:386-91 My '20

Shipping coal by wire; the Springdale undertaking—a great power house at the mine mouth. R. G. Skerrett. *il Sci Am* 124:144+ F 19 '21

Storage-battery practice in central-station service. J. L. Woodbridge. *diags Elec R* 77:674-8 O 30 '20

Super-power plant. P. H. Thomas. *diags Am Inst E E J* 39:323-9 Mr '20

Switching and protection of transmission circuits. S. Q. Hayes. *diags plan Elec J* 17:521-6, 555-62 N-D '20

Unusual efficiencies with oil fuel. J. Pope and F. G. Philo. *il diag Elec W* 76:730-2 O 9 '20

Value of central station service in the shoe industry. A. S. Moore, R. H. Jameson and H. I. Laumann. *N E L A Bul* 8:231-2 Ap '21

Vital necessity for electrical industry's expansion. M. H. Aylesworth. *Elec R* 78:208 F 5 '21

W. G. Duncan coal co. will exchange power, sell current and operate on coal mined in bed below it. A. F. Brosky. *diags plan Coal Age* 20:416-17 S 15 '21

See also Boiler plants; Electric distribution; Electric engineering; Electric lighting; Electric lines; Electric plants—Interconnection; Electric railroads—Power; Electric service, Rural; Electric transmission; Electric utilities; Electric vehicles and the central station; Electricity in mining; Hydroelectric plants; Steam plants

Bibliography

Important articles on power station design and operation that have appeared in American and foreign technical journals. *Am Inst E E J* 40:591-5 Jl '21

Construction

Construction of a modern power generating plant. F. D. Wyatt. *il diag plans Elec R* 77:199-202 Ag 7 '20

Cost of construction

Cost of 2,500-kw. extension of New England central station. *Elec W* 75:1429 Je 19 '20

Cost of maintenance

Analyzing maintenance costs; connection between the cost of steam and electric equipment maintenance. *Elec W* 76:613-16, 739 S 25, O 9 '20

Costs

Apportioning power costs among various classes of consumers. G. E. Quinan. *chart Elec W* 77:1495-6 Je 25 '21

Central-station costs and income. *Elec W* 76:1067-8 N 27 '20

Cost of energy fundamental in design of distribution systems. P. O. Reyneau and H. P. Seelye. *Elec W* 77:703-6 Mr 26 '21

Cost of power supply as influenced by the present economic trend. P. M. Lincoln. *Elec W* 78:230 Jl 30 '21

Data on cost per customer served. *Elec W* 76:247 Jl 31 '20

Diesel central-station costs. *Power* 52:669-70 O 26 '20

Economy of Diesel-engine power-plant operation. *Elec W* 74:1006 N 29 '19

Effect of load factor on station costs. P. Junkersfeld. *Elec W* 77:85-8 Ja 8 '21; *Same. Power* 53:24-7 Ja 4 '21; *Same cond. Mech Eng* 43:108-10 F '21

Electric supply: present conditions and the Hopkinson principles; abstracts. J. R. Blaikie. *Electrician* 86:550 My 6 '21; *Engineer* 131:479; *Discussion.* 479-80 My 6 '21; *Elec R (Lond)* 88:696-7 My 27 '21

Generating costs have increased 100 to 175 per cent since 1914. P. M. Lincoln. *Elec W* 78:457-9 S 3 '21

Generating costs in stations of medium size. M. J. Idail. *Elec W* 78:169-70 Jl 23 '21

Material decrease in operating ratio; survey of systems of electric light and power companies. *Elec W* 78:710-11 O 8 '21

Operating and maintenance expenses materially decrease. *Elec W* 78:465-7 S 3 '21

Electric plants (central stations)—Costs—Cont.

Operating costs of small, medium and super-power plants. H: Flood, jr. Elec W 77:1232-3 My 28 '21

Operating expenses decrease 16 per cent. Elec W 78:658-60 O 1 '21

Production costs in medium-sized central stations. Elec W 78:319 Ag 13 '21

Production costs of Detroit company at Connors Creek station. Elec W 76:1025 N 20 '20

Production costs of Detroit company at Connors Creek station. Elec W 78:928-9 N 5 '21

Recent central-station equipment costs. Elec W 78:272 Ag 6 '21

Recent equipment costs in Massachusetts central stations. Elec W 77:47 Ja 1 '21; Same. Power Pl Eng 25:326 Mr 15 '21

Rising cost of electrical service. Elec W 75:169 Ja 17 '20

Uses and value of classified cost of service data as supplementary evidence in certain types of rate cases. C: B. Cooke, jr. diag N E L A Bul 8:577-85 O '21

See also Electric service, Rural—Cost

Demand

Central stations; industrial-power demand increases. A. A. Gray. il Elec R 78:2-3 Ja 1 '21

Explanation and measurement of maximum demand. V: H. Todd. il diags Power 50:695-7 N 11 '19

Measurement of maximum demand and the determination of load factor. P. A. Borden. il charts diag Am Inst E E J 39:875-87 O '20

Tables for estimating customer's maximum demand. W. W. Arnett, jr. Elec W 77:1172-3 My 21 '21

Employees

Benefit, pension and savings funds in central stations. N E L A Bul 7:935-6 D '20

Electricity supply industry—the employee's view. J. F. Heslop. Electrician 86:795-6 Je 24 '21

Employer's view of conditions in the electricity supply industry. A. W. Walker. Electrician 86:794-5 Je 24 '21

Practical method of rating central station employees. J. E. Shute. Elec W 77:946-8 Ap 23 '21

Equipment

Auxiliary equipment in modern central station. D. D. Higgins. il Elec R 78:305-9 F 19 '21

Auxiliary equipment of a central station power plant. H. W. Smith. diags Power Pl Eng 25:558-60 Je 1 '21

Boilers and auxiliary equipment, Colfax power station. il diags Power 53:686-93 My 3 '21

Calumet station equipment and operating features. il diags Elec R 78:849-51+ My 28 '21

Colfax—a superpower plant at the mouth of a coal mine. il diags plan Elec W 77:753-60, 865-72 Ap 2, 16 '21

Laboratory service for a modern public utility. O. A. Knopp. il Elec R 78:465-8 Mr 19 '21

Mine-mouth super-power station; Colfax power station, Pittsburgh. il diags (supp) map plans Power 53:532-42 Ap 5 '21

New type of switch house prevents bus short circuits; new Calumet plant of Commonwealth Edison company. B. G. Jamieson. diags Elec W 77:761-3 Ap 2 '21

Power plant designed to meet conditions in coal-mining district. W. P. Gavit. il plans Power 54:278-86 Ag 23 '21

Power station of the Duquesne light company. J. M. Graves. il diags plan Elec J 18:193-210 My '21

Switching equipment of modern generating stations. F. G. Hickling. il diags Elec R 77:709-13 N 6 '20

Finance

See Electric plants (central stations)—Costs; Electric utilities—Finance

Inspection

Assuring continuous production. Elec W 77:144-6 Ja 15 '21

Maintenance schedule for 35,000-kva. generating plant. S. B. Flagg. Elec W 77:827-8 Ap 9 '21

Scheduled inspection for power plants. il Elec W 76:922-4 N 6 '20

Layout

Electrical layout of large power systems. R. Treat. diags plan Gen Elec R 22:918-26 N '19

Load

Customer co-operation reduces peak during power shortage. Elec W 76:1223 D 18 '20

Economic value of load diversity. E. S. Hamblen. Elec W 78:110 Jl 16 '21

Electric range, water and air heaters; their value to the central station. F. C. Piatt. J Elec 46:563-6 Je 1 '21

Industrial power loads. il diags Gen Elec R 24:472-596 Je '21

Industrial power loads. D. B. Rushmore and R. F. Emerson. diags Gen Elec R 24:475-8 Je '21

Load equalization as affecting power rates. L. A. Umansky. Gen Elec R 24:505-6 Je '21

Refrigeration load. A. R. Stevenson, jr. Gen Elec R 24:569-71 Je '21

Residence load factor doubled by use of household appliances. Elec W 78:664-7 O 1 '21

See also Electric plants—Load factor

Load dispatching

Authority and duties of the load dispatcher. M. M. Roddey. Elec W 77:430-1 F 19 '21

Load dispatcher—his duties and problems. F. R. George. J Elec 46:560-2 Je 1 '21

Location

Building transmission lines vs. paying freight on coal. H. L. Wallau. Elec W 77:422-3 F 19 '21

Maintenance, Cost of

See Electric plants (central stations)—Cost of maintenance

Maintenance and repair

Maintenance handled in central shop on Georgia railway and power company. G: A. Iler. Elec W 77:1237 My 28 '21

Reestablishing service in a d-c. Edison system after an interruption. R. Bailey. diags Am Inst E E J 40:748-51 S '21

Rehabilitating standby plants. J. W. Andree. il Elec W 76:22-3 Jl 3 '20

Rules to follow during station trouble before consulting dispatcher. H. J. Burton. Elec W 76:1217-18 D 18 '20

Management

Analysis of engineering employed in power sales. A. G. Drury. Elec W 75:278 Ja 31 '20

Capacity and maintenance. C: A. Cahill. Power 52:639-40 O 19 '20

Central-station operation and district heating service. I. L. Kentish-Rankin. Elec R 76:19-21 Ja 3 '20

Central-station operation in tropical America. L. E. Gowling. il Power 52:606-9 O 19 '20

Efficient organization of power plant help. H. A. Wilcox. Power Pl Eng 24:126-8, 174-6 Ja 15-F 1 '20

Handling 50 per cent greater power station load with nine men less. il plan Elec Ry J 55:322-4 F 14 '20

Lamp and repair departments important to service. J: T. Mountain. Elec R 77:694-6 O 30 '20

Maintenance organization for a 35,000-kva. plant. S. B. Flagg. Elec W 77:713 Mr 26 '21

National fuel economy and the government super-power station scheme. D: Brownlie. Electrician 85:20-2 Jl 2 '20

Personnel of the industry. W: C. L. Eglin. chart Elec W 74:998-1001 N 29 '19

Raising economy in prime mover practice. il Elec W 75:1241-2, 1257-60 My 29 '20

Results department increases station efficiency. T. J. Nolan. Elec R 77:621-2 O 16 '20

Electric plants (central stations)—Management
—Continued

Sound central station policies. J. B. McCall. Elec J 17:176-7 My '20

Use of radio by transmission companies. G. A. Iler. il Elec W 75:376-7 F 14 '20

Utilities show increased economy in 1920 power generation. N E L A Bul 8:291 My '21

See also Electric utilities—Management

Power limiting devices

Current limiting reactances. R. H. Kiel. diag Blast F & Steel Pl 8:554-6 O '20

Power control and stability of electric generating stations. C: P. Steinmetz. diags Gen Elec R 23:688-701, 756-68 Ag-S '20; Abstract. Am Inst E E J 39:554-6 Je '20; Abstract. Elec R 77:523-7 O 2 '20

Protection

Protection of power stations. Electrician 84: 151 F 6 '20

Relay protection for large power stations. O. C. Traver. il diags Gen Elec R 22:885-99 N '19

Wireless storm detector for the central station. H. T. Wade. il diags Sci Am M 1:18-21 Ja '20

Records

Checking efficiency of generating plants. J: O. Fuchs. il Elec W 77:530-3 Mr 5 '21

Convenient tabular analysis for executives. Elec W 76:1030 N 20 '20

Daily plant report for medium-sized station. H: B. Bryans. Elec W 74:948 N 15 '19

Graphic method of analyzing interruptions. G. A. Iler. Elec W 78:372 Ag 20 '21

Graphic operating record shows daily plant performance. Elec W 75:901 Ap 17 '20

Graphic record of outages on transmission system. O. B. Reemelin. map Elec W 75: 1316 Je 5 '20

How can the executive keep in touch with plant economy? C. H. Delany. J Elec 47: 267-8 O 1 '21

Operation for maximum output, and operating records. G: H. Bragg. J Elec 46:504-8 My 15 '21

Station records used to improve operation. Elec W 76:785-6 O 16 '20

Regional plants

See Electric plants—Interconnection; Electric power

Statistics

Actual 1921 additions to systems will total \$214,818,000. diags Elec W 78:726-7 O 8 '21

Adverse conditions fail to lower output. Elec W 75:1000-1 My 1 '20

August output reflects slight increase in industrial activity. Elec W 78:923-5 N 5 '21

Canadian electric power station industry. diags Engineer 129:230 F 27 '20

Census of electrical industries: 1917; central electric light and power stations with summary of the electrical industries. 184p '20 U.S. Bureau of the census, Washington, D.C.

Central electric station industry in Canada. diag Can Eng 38:593-6 Je 24 '20; Same. Elec R 77:85-8 Jl 17 '20; Excerpt. W Soc E J 25:sup18-19 My 20 '20; Abstract. Power 51: 1023 Je 22 '20

Central-station business today and twenty years ago in Hartford. Elec W 75:684-5 Mr 20 '20

Central-station capacity increasing fast. Elec W 76:332-4 Ag 14 '20

Central-station expansion in 1920. Elec W 76: 518-20 S 11 '20

Central station in 1925. Elec W 77:8-9 Ja 1 '21

Central-station operating ratio decreasing. Elec W 75:260-1 Ja 31 '20

Central-station operations reflect greater industrial activity during March. Elec W 77:1317-18 Je 4 '21

Daily returns surpass records; central-station returns for November. Elec W 75:322-3 F 7 '20

Daylight saving. P. S. Millar. il Am Inst E E J 39:146-58 F '20

Effect of coal curtailment small; central-station operations through December. Elec W 75:547-8 Mr 6 '20

Electric light and power stations. Pub Works 49:368-9 O 16 '20

Electric power production. Power Pl Eng 25: 98 Ja 1 '21

Electric service in the American home. diags map Elec W 75:1133-7 My 15 '20

Electrical system additions call for \$226,000,000 in 1921. Elec W 77:1223-4 My 23 '21

Generating capacity of large systems. Elec W 75:164 Ja 17 '20

Growth in central-station customers. diags. Elec W 76:161-3 Jl 24 '20

Growth of central stations in the West in 1920. J Elec 45:394 O 15 '20

Improved service to 500 communities; physical features of Middle West utilities company. il maps Elec W 77:1210-19 My 28 '21

Increased industrial depression fails to lower daily output. Elec W 76:1112-13 D 4 '20

Industrial load in the southern states. il map Elec W 77:1473-7 Je 25 '21; Excerpts. Power 53:1056-9 Je 28 '21

Industrial load in the state of New York. il map Elec W 78:207-10 Jl 30 '21; Same cond. Power 54:183-5 Ag 2 '21

Industrial load near equilibrium during April. Elec W 78:20-1 Jl 2 '21

Industrial load reaches low level. Elec W 77: 1046-7 My 7 '21

March returns surpass records. Elec W 75: 1313-14 Je 5 '20

Material decrease in operating ratio; survey of systems of electric light and power companies. Elec W 78:710-11 O 8 '21

Midsummer operations increase. Elec W 76: 687-8 O 2 '20

New England generating plants show decrease in operating ratio. Power 54:634-5 O 25 '21

New year begins with large gains. Elec W 75:785-6 Ap 3 '20

Operating and maintenance expenses materially decrease. Elec W 78:465-7 S 3 '21

Operating expenses decrease 16 per cent. Elec W 78:658-60 O 1 '21

Operating ratio decreasing. Elec W 77:766-7 Ap 2 '21

Outlaw strike curtails power requirements. Elec W 76:17-18 Jl 3 '20

Output decreases while revenue increases; central station returns for 1920. Elec W 77:537-8 Mr 5 '21

Output for 1920 estimated at 46,700,000,000 kw.-hr. Elec W 77:45-6 Ja 1 '21

Output increases despite strikes. Elec W 75: 10-11 Ja 3 '20

Output of nine electric systems in 1920 exceeded 1,000,000,000 kw.-hr. each. Elec W 77: 924-7 Ap 23 '21

Per capita use of electricity, gas and water. Pub Works 51:325 O 22 '21

Phenomenal growth of industrial load. diags Elec W 77:29-41 Ja 1 '21

Power produced and fuel consumed by public utility plants. Coal Age 17:1258 Je 17 '20

Production of electric power and consumption of fuel. Power 51:826 My 18 '20

Production of electric power by public-utility plants. Power 53:906 My 31 '21

Production of electricity by public-utility plants. Power 52:602 O 12 '20

Public utility consumption of coal. Coal Age 17:858 Ap 29 '20

Record output and revenue in spite of industrial depression. Elec W 77:315-16 F 5 '21

Record output during industrial depression. Elec W 76:926-7 N 6 '20

Slight industrial curtailments continue. Elec W 78:269-70 Ag 6 '21

Slightly improved industrial conditions increase output. Elec W 76:469-70 S 4 '20

Statistics on power generation. Elec Ry J 58:205 Ag 6 '21

Substantial increase in revenue. Elec W 74: 1001-2 N 29 '19

Transportation demoralization curtails output. Elec W 76:285-6 Ag 7 '20

Twenty-seven systems each had an output of 400,000,000 kw.-hr. in 1919. Elec W 75:1098-9 My 8 '20

U.S. census of central stations 1917. Elec W 76:476-7 S 4 '20

Electric plants (central stations)—Continued**Valuation**

Appraising the Diesel engine plant. A. F. Brewer. *il chart Ind Management* 62:172-6 S '21

Alabama

Alabama power company's system, its development and operation. J. M. Oliver, B. Niki-foroff and C. B. McManus. *il diag map plan Gen Elec R* 22:980-95 N '19

See also Hydroelectric plants—Alabama

Arizona

Electrical service in a southwestern district. J Elec 44:179 F 15 '20

See also Hydroelectric plants—Arizona

Australia

Newport electric power station of the Melbourne suburban railway system. E. P. Grove. *il diag Power* 50:652-4 O 28 '19

Austria

Lignite mines of Zillingsdorf and the power plant of Ebenfurth for the supply of Vienna. R. Beron. Elec W 78:330, 380 Ag 13-20 '21
Power possibilities of Austria. J. Seidener and A. Gruenhut. Elec W 77:310-11 F 5 '21

Belgium

Projet de réorganisation de la production de l'électricité en Belgique. *diag map Génie Civil* 76:126-8 Ja 31 '20; Summary. Elec W 76:475 S 4 '20

Boston

Extension to L street station, Boston. C. H. Bromley. *il diags Power* 51:124-9 Ja 27 '20

California

Caribou power plant. C. W. Geiger. *il Sci Am* 125:145 Ag 27 '21

Electric extensions in California. P. M. Downing. *map plan J Elec* 44:493-5 My 15 '20

New turbine installation of Pacific gas & electric co. C. W. Geiger. *il plan Power Pl Eng* 24:217-25 F 15 '20

Oakland station of the Pacific gas & electric co. C. W. Geiger. *il Power Pl Eng* 25:1033-9 N 1 '21

Power administration effects economy. F. B. Lewis. *map Elec W* 78:57-8 Jl 9 '21

Public utility development in California. Power 52:1033-4 D 28 '20

Southern California Edison co.'s power system. W. A. Scott. *il Elec R* 76:798-805 My 15 '20

See also Hydroelectric plants—California

Canada

Canada's use of white coal. *chart Power* 52:956 D 14 '20; Same (Chart). Elec R 77:964 D 18 '20

Central electric station industry in Canada. *diag Can Eng* 38:593-6 Je 24 '20; Same. Elec R 77:85-8 Jl 17 '20; Excerpt. W Soc E J 25:sup18-19 My 20 '20; Abstract. Power 51:1023 Je 22 '20

Central station industry of Canada. Engineering 111:719 Je 10 '21

Development of central stations in Canada. Elec R 77:293-4 Ag 21 '20

Survey of Canadian electric stations. Power 53:643 Ap 19 '21

See also Hydroelectric plants—Canada

Chicago

Chicago's new central station. A. D. Bailey. Power 53:700-1 My 3 '21

History of central-station business in Chicago. Elec R 78:848 My 28 '21

Power development in Chicago. *il Elec W* 76:620-2 S 25 '20

Chile

Plants of the Chilean exploration company at Tocopilla and Chuquicamata; abstract. M. Neustatter. Elec W 77:892 Ap 16 '21

See also Hydroelectric plants—Chile

China

Chinese electrical development. Electrician 87:230-1 Ag 19 '21

Connecticut

Eastern Connecticut served by new station. E. T. Phillips. *il diags Elec W* 75:533-5 Mr 6 '20

Cuba

Central-station operation in tropical America. L. E. Gowling. *il Power* 52:606-9 O 19 '20

Czechoslovakia

Electrification program of Czechoslovakia. F. Pietsch. Elec W 78:359-60 Ag 20 '21; Abstract. Sci Am M 4:373 O '21

Edinburgh

New electricity supply station of the Edinburgh corporation. S. B. Donkin. *diags Engineering* 112:422-4, pl 21-4 S 16 '21; Abstract. Elec R (Lond) 89:419 S 23 '21; Abstract. Electrician 87:407 S 30 '21

France

Project for the high-tension distribution of electrical energy throughout France. C. Duval and C. Lavanchy. *map Power* 54:342 Ag 30 '21

See also Hydroelectric plants—France

Germany

Electrical equipment of the super-power station at Golpa; abstract. H. Probst. Elec W 76:1081 N 27 '20

Enormous new electric plant built in Germany. *il Pop Mech* 33:402-3 Mr '20

Peat power plants in Germany. *map Engineer* 131:422-3 Ap 22 '21

See also Hydroelectric plants—Germany

Glasgow

Dalmarnock power station. *il diags Engineering* 111:635-9, 650, 703-7, 736-8, 748, 767-71, pl 34-6, 41-2 My 27, Je 10-24 '21; Abstract. Power 54:392-3 S 6 '21; Discussion. A. Landry. 54:496-7 S 27 '21

Dalmarnock power station; coping with Glasgow's latest electrical needs. *il diags plans Electrician* 85:303-6 S 10 '20

Great Britain

Electrical developments at Bradford. *il plan Electrician* 84:663-8 Je 18 '20

Electrical developments at Salford. *il Electrician* 86:750-1 Je 17 '21

Electricity district in being; recent developments in power supply on the North-East coast. *il map Electrician* 87:258-63, 286-90 Ag 26-S 2 '21

New electricity generating station at Blackburn. *il plans Engineer* 132:416-20 O 21 '21; Electrician 87:536-9 O 28 '21; Elec R (Lond) 89:523-5 O 21 '21

Recent extensions at Sunderland. *il Electrician* 87:414-15 S 30 '21

Illinois

Moline station adds to steam and generating capacity. T. Wilson. *il diags plans Power* 51:208-14 F 10 '20

Preparing to carry a steel-mill load; construction and rearrangement of the Peoria (Ill.) central station company. *il diags Elec W* 75:480-3 F 28 '20

India

See Hydroelectric plants—India

Indiana

Serving Indiana's mining fields; Edwardsport power plant. *il diags plan Power Pl Eng* 24:409-13 Ap 15 '20

Supplying electricity to coal mines. *il diags Elec W* 74:1154-7 D 27 '19

Italy

Interconnection affords great benefits in Italy. *il Elec W* 78:119-20 Jl 16 '21

See also Hydroelectric plants—Italy

Electric plants (central stations)—Continued

Liverpool

United alkali co.'s power station. il diags plan Elec R (Lond) 88:704-7, 761-3 Je 3-10 '21

London

London electricity enquiry. Electrician 85:452-4 O 15 '20

Massachusetts

Centralization and conservation in power supply of central Massachusetts. F. L. Hunt. il diags map plans Gen Elec R 22:947-59 N '19

Middle western states

Improved service to 500 communities; physical features of Middle West utilities company. il maps Elec W 77:1210-19 My 28 '21

Location and distribution of the central-station power of the Middle West. W. L. Abbott. maps Mech Eng 43:443-4+ JI '21; Discussion. Mech Eng 43:470 JI '21

Missouri

New Northeast station at Kansas City. il diags plans Power 52:450-6 S 21 '20

New England

New England generating plants show decrease in operating ratio. Power 54:634-5 O 25 '21

New England power company. E. A. Dillard and H. R. Wilson. chart diags map Gen Elec R 22:974-9 N '19

Survey of New England power situation. C. H. Shaw. Elec W 76:525-7 S 11 '20

New York (city)

Growth of central-station service in New York city. W. H. Whitton. Elec W 74:1018-19, 1119-20 N 29, D 20 '19

New York (state)

Industrial load in the state of New York. il map Elec W 78:207-10 JI 30 '21; Same cond. Power 54:183-5 Ag 2 '21

See also Hydroelectric plants—New York (state)

Northwestern states

Electric power development in the Pacific Northwest. il Elec R 76:806-22 My 15 '20

Electrical construction work in northwestern states. W. A. Scott. Elec R 79:11-12 JI 2 '21

See also Hydroelectric plants—Northwestern states

Ohio

Acme power plant at Toledo. il diags plan Power 54:434-42 S 20 '21

Oregon

New Portland steam plant. E. E. Foote. il diags J Elec 45:12-13 JI 1 '20

Pennsylvania

Boilers and auxiliary equipment, Colfax power station. il diags Power 53:686-93 My 3 '21

Colfax—a superpower plant at the mouth of a coal mine. il diags plan Elec W 77:753-60, 865-72 Ap 2, 16 '21

Colfax power station of the Duquesne light company, Pittsburgh. D. L. Galusha and C. W. E. Clarke. il diags plans Am Inst E E J 40:281-94 Ap '21

Compact reinforced-concrete generating station at Philadelphia; the Delaware station. il diags plan Elec W 77:1145-51 My 21 '21

Delaware power station—the Philadelphia electric company. il diags map plan Power 53:806-17 My 24 '21

Electrical features of Springdale plant of the West Penn power co. G. S. Humphrey. diags map Elec W 76:1115-18, 1165-7 D 4-11 '20

Generating system of the West Penn power company. G. G. Bell. il diags Elec J 18:175-89 My '21

Industrial field of the West Penn power company. G. H. Gadsby. Elec J 18:189-93 My '21

Last word in power houses; some of the remarkable features of the new Delaware station. W. A. McGarry. il Sci Am 125:98+ Ag 6 '21

Mine-mouth super-power station; Colfax power station, Pittsburgh. il diags (supp) map plans Power 53:532-42 Ap 5 '21

Pittsburgh power zone. A. H. McIntire. Elec J 18:165-6 My '21

Power plant designed to meet conditions in coal-mining district. W. P. Gavit. il plans Power 54:278-86 Ag 23 '21

Seward plant of Penn public service corporation; mine-mouth power plant ties into system supplying industries in Johnstown district. il diags map Power Pl Eng 25:937-47 O 1 '21

Springdale power station, West Penn power company. G. G. Bell. il diags plan Power 52:488-96 S 28 '20

Scotland

Clydes Mill station of the Clyde Valley power co.; the beginnings of a super station. il map Electrician 86:686-9 Je 3 '21

Power supply in Dundee. il plans Electrician 87:70-6 JI 15 '21

See also Hydroelectric plants—Scotland

South Africa

Light and power industry in South Africa. R. A. Lundquist. Elec W 78:875 O 29 '21

Southern states

Industrial load in the southern states. il map Elec W 77:1473-7 Je 25 '21; Excerpts. Power 53:1056-9 Je 28 '21

Proposed power district in the South. L. A. Whitsit. map Elec W 76:1009-12 N 20 '20

United States

Central-station developments. A. A. Gray. Elec R 76:2-4 Ja 3 '20

Central-station horsepower in the United States. Power 53:231 F 8 '21

Les centrales thermiques aux États-Unis. F. Drouin. Génie Civil 79:323-6 O 15 '21

Effect of coal situation. Elec W 76:772-5 O 16 '20; Same abr. Coal Age 18:956-8 N 4 '20

See also Electric plants (central stations)—Statistics; Hydroelectric plants—United States

Wales

See also Hydroelectric plants—Wales

West Virginia

Three years operation at Windsor. E. H. McFarland. il diag Gen Elec R 24:572-8 Je '21

Western states

Year's electrical construction work in the West. il J Elec 46:625-32 Je 15 '21

See also Hydroelectric plants—Western states

Wisconsin

Electric power at Oshkosh. T. J. Lucas. il diags plans Power Pl Eng 24:1155-61, 1186-9 D 15 '20

Equipment of electric plant of Oshkosh gas light co. Power Pl Eng 24:1204-5 D 15 '20

Yukon

Electric power—farthest North. A. E. Ransom. il J Elec 44:322-3 Ap 1 '20

Electric plants, Municipal

Conditions governing installation of municipally owned power and lighting plants. C. M. Garland. Munic Eng 60:208+ My '21

Cost of operation of small municipal light and water plant. Eng & Contr 54:29 JI 14 '20

Diesel-engined municipal light plant. il Power 52:615-16 O 19 '20

Inflexibility of power development by municipalities. E. O. Edgerton. Elec W 78:657-8 O 1 '21; Same. J Elec 47:261-2 O 1 '21

Los Angeles plans costly power plant installation. E. F. Scattergood. Elec R 76:436 Mr 13 '20

Electric plants, Municipal—Continued

- Management of municipal water and light plants. J. C. Manning. Eng & Contr 53:278-9 Mr 10 '20
- Municipal co-operation in hydro-electric power. Pub Works 48:100 F 14 '20
- Municipal plant operated by private interests in Alameda, Calif. Am Inst E E J 39:1033 D '20
- Pompton Lakes municipal hydro electric plant. Pub Works 48:216 Mr 20 '20; Same. Power Pl Eng 24:407 Ap 1 '20; Same. Elec R 76:487-8 Mr 20 '20
- Results of municipal ownership. H. J. Gonden. N E L A Bul 7:208-12 Ap '20
- Rocky Mountain town which runs its own plant; Longmont, Colorado. il Sci Am 124:413 My 21 '21
- Seattle building large municipal hydroelectric development. C. F. Uhden. diag map plan Eng N 85:994-6 N 18 '20; Same. J Elec 45:567-8 D 15 '20
- Some engineering and economic features of the municipal electric system of Los Angeles. E. F. Scattergood. Munic Eng 59:216+ D '20
- Electric potential.** See Electromotive force
- Electric power**
- Analyzing unelectrified possibilities in California. J. O. Case. J Elec 44:364-7 Ap 15 '20
- Billion dollar electric program for the West. J Elec 46:608-11 Je 15 '21
- Capturing electricity from the air. T. A. Marchmay. il Sci Am M 3:39-43 Ja '21
- Central station power as a factor in effecting economies and in increasing production. G. H. Jones. W Soc E J 25:59-65 Ja 20 '20
- Development of electric light and power. J. R. Cravath. W Soc E J 24:489-90 O '19
- Direct firing and by-product power production. Iron Age 105:1234-5 Ap 29 '20
- Economical power and measurements interest A.I.E.E. map Elec R 76:363-7 F 28 '20
- Economical power; the strongest agent for maintaining supremacy in world's trade. W. S. Murray. Am Inst E E J 39:27-31 Ja '20; Abstract. Sci Am M 1:180-1 F '20; Discussion. Am Inst E E J 39:31-3 Ja '20
- Economical supply of electric power for the industries and the railroads of the Northeast Atlantic seaboard. W. S. Murray and others. map Am Inst E E J 39:219-22, 308-30 Mr '20; Abstracts. Elec Ry J 55:435-8 F 28 '20; Power 51:440-3 Mr 16 '20
- Electric power taken from the air. N E L A Bul 7:901 D '20
- Electrical power industry for 1920 in retrospect. F. A. Annett. Power 53:16-17 Ja 4 '21
- Electrical study course—power in polyphase systems. diags Power 50:617-18 O 21 '19
- Electricity direct from coal. W. N. Polakov. Ind Management 62:220-2 O '21
- Electrochemical industries; use of electric power. J. A. Seede. il Gen Elec R 24:522-7 Je '21
- Energy produced and fuel used in public utility plants. Elec R 77:299 Ag 21 '20
- Fuel efficiency in power production in different states. R. S. McBride. Power 51:386 Mr 9 '20; Discussion. H. Misostow. 51:735-6 My 4 '20
- Future of California power. H. G. Butler. J Elec 46:641-3 Je 15 '21
- Industrial and domestic power applications—progress of the art during the year 1920. W. C. Yates. Am Inst E E J 40:582-3 Jl '21
- Industries and superpower; abstract. H. Goodwin, jr. Mech Eng 43:336 My '21
- Manpower plus horsepower; the multiplication of American muscle through machines. G. O. Smith. Nation's Business 9:29-30 Jl '21
- Policies for future power development. J. P. Jackson. Mech Eng 43:102-6; Discussion. 106-7+ F '21
- Possible new uses for electric power. W. L. Merrill. Gen Elec R 24:591-2 Je '21
- Power and transmission. H. H. Dewey. Gen Elec R 22:876-80 N '19
- Power demands increasing in the Pacific Northwest. Elec R 76:488-90 Mr 20 '20

Power development in new world and Asia. L. W. Alwyn-Schmidt. Power Pl Eng 24:1113-15 D 1 '20

Power production report of the Geological survey. Elec W 75:288 Ja 31 '20

Power situation in California—1920. H. G. Butler. J Elec 45:558-60 D 15 '20

Production of electric power and consumption of fuel by public utility power plants in the United States for the months of February, March, April, and July, 1919; tabulation. Coal Age 17:313 F 12 '20; Same. Power 51:312 F 24 '20; Same. Power Pl Eng 24:328-9 Mr 15 '20

Production of electric power in the United States. Power 52:961 D 14 '20

Progress of power engineering. L. W. Alwyn-Schmidt. Power Pl Eng 24:268-70, 321-3 Mr 1-15 '20

Regional power development and the low temperature distillation of coal. C. M. Garland. Am Inst E E J 39:455-7 My '20; Same cond. Power 51:824-5 My 18 '20

Study of power development and suggestions for future progress. L. W. W. Morrow. Power 51:922-4 Je 8 '20

Use of electricity in special industries in the West. il diags map J Elec 46:612-24 Je 15 '21

Vision in power development. F. Darlington. Elec W 74:930-2 N 15 '19

World's power field receptive for American equipment. L. W. Alwyn-Schmidt. Power Pl Eng 25:845-7 S 1 '21

See also Electric distribution; Electric driving; Electric furnaces—Power; Electric plants; Electric plants (central stations); Electric railroads—Power; Electric transmission; Electricity supply; Hydro-electric power; Paper mills—Power; Power factor; Rolling mills—Power; Sawmills—Electric equipment; Steel works—Power; Super-power survey; Textile mills—Power

Contracts

See Power contracts

Cost

See Power cost

Rates

See Electric rates

Electric power club

Annual meeting, Chattanooga, Tenn., May 5-8. Elec W 75:1155 My 15 '20

Semi-annual meeting, Hot Springs, Va., Nov. 15-18. Elec R 77:848-9 N 27 '20

Electric precipitation

Adapting electrical cleaning to blast furnace gases; abstracts. N. H. Gellert. Am Gas J 114:465-7, 473-6 My 28 '21; Gas Age 47:367-9 My 10 '21; Iron Age 108:329-34 Ag 11 '21; Iron Tr R 69:102-5 Jl 14 '21

Les appareils de concentration Gaillard et la précipitation électrique des fumées. M. Kaltenbach. il diags Chimie & Ind 5:143-9 F '21

Application of the Cottrell process to the recovery of fume from silver refining operations. W. G. Smith and A. A. Heimrod. il diags plan Chem & Met Eng 21:360-3 S 15 '19; Same. Sci Am S 88:351+ D 13 '19

Cleaning blast furnace gas by electrical precipitation. N. H. Gellert and K. V. Laird. il Am Gas Eng J 112:44-8, 52-3 Ja 17 '20; Abstract. Iron Tr R 66:213-17 Ja 15 '20; Abstract. Blast F & Steel Pl 8:32-5 Ja '20

Cooling and humidifying roaster gases for Cottrell treaters. Eng & Min J 111:823 My 14 '21

Cottrell electrical precipitator installation at plant of the American acid co., Medford, Mass. W. J. Kee and F. H. Viets. il diag plan Chem Age 29:71-4 F '21

Cottrell process in Japan. Ritiro Hirota and Kyoshi Shiga. il diag Min & Sci P 120:223-8 F 14 '20; Same abr. Eng & Min J 108:895-9 D 13 '19; Abstract. Chem & Met Eng 22:276-7 F 11 '20

Cottrell process of electrical precipitation. H. A. Winne. il diags Gen Elec R 24:910-21 N '21

Electric precipitation —Continued

- Cottrell processes of electrical precipitation. il diags Min & Sci P 122:495-9; Bibliography. 499-500 Ap 9 '21
- Cottrell system of dust and fume precipitation; sulphuric acid at the R. N. Cordite factory. il diags Engineering 111:94-7 Ja 28 '21
- Electrical precipitation of cyanide solutions. D. Lay. diags Eng & Min J 110:58-62 Jl 10 '20
- Electrostatic-separation; how suspended particles are removed from gases. H. J. Bush. diags plans Electrician 85:533-5 N 5 '20
- Eliminating waste and nuisance in smoke, fume and gas; with cost data. P. E. Landolt. bibliog il Chem & Met Eng 25:428-32 Ag 31 '21
- L'épuration électrique des fumées et des gaz dans le service des poudres pendant la guerre. A. Delasalle. il diags Chimie & Ind 4:291-316 S '20; Abstract (Electric purification of fumes and gases). Chem & Met Eng 24:33-4 Ja 5 '21
- Flue type of Cottrell treater. A. B. Young. diags Min & Sci P 121:273-6 Ag 21 '20; Abstract. Min & Met 162:31-2 Je '20; Same. Sci Am M 1:570 Je '20
- Making a nuisance pay. J. B. Morrow. Nation's Business 8:46+ Jl '20
- Modern electrical precipitation plant for silver-refinery fumes. il Min & Sci P 120:539-90 Ap 17 '20
- Motion of droplets and particles in the field of the corona discharge. R. C. Tolman and S. Karrer. il diag Chem & Met Eng 22:1203-6 Je 30 '20
- New electrical precipitation treater. M. Shibusawa and Y. Niwa. il diags Am Inst E E J 39:890-903 O '20; Abstract. Sci Am M 2:372-3 D '20
- Novel electrical precipitator. diags Chem & Met Eng 23:1244 D 29 '20
- Precipitation of suspended particles in mills. il Elec R 79:157-60 Jl 30 '21
- Recent applications of the Cottrell processes. R. B. Hesson, P. E. Landolt and A. A. Heimrod. bibliog il diags plans Eng & Min J 112:446-9 S 17 '21
- Recovery of soluble constituents from furnace fumes; patent by Harry V. Welch. diags Chem & Met Eng 25:624 S 28 '21
- Romance of invention. C. H. Claudy. Sci Am 123:8+ Jl 3 '20
- Some features of the Cottrell plant at the Hayden smelter. C. G. Hershey. il diags Elec J 18:304-5 Jl '21
- Successful recovery of potash as a by-product from cement kilns. C. Krarup. il Chem & Met Eng 25:316-20 Ag 24 '21
- Troubles prevented in electric precipitation plant. R. H. N. Lockyer. diag Elec W 77:493 F 26 '21
- Electric propulsion.** See Ship propulsion, Electric
- Electric protective apparatus**
- Alternating-current network protector. H. C. Stewart. il diag Gen Elec R 23:427-8 My '20
- Annual report of the A.I.E.E. Protective devices committee. Am Inst E E J 39:743-5 Ag '20
- Application and operation of relay systems. E. R. Stauffacher and L. J. Moore. diags J Elec 46:497-503 My 15 '21
- Arcing rods shorten time of outages on transmission line. H. H. Hunt. diags Elec W 75:845 Ap 10 '20
- Automatic cable protective gear; Ferranti-Hawkins system. il diags Elec R (Lond) 88:563-5 Ap 29 '21
- Automatic protection of large electrical power distribution schemes. diags Electrician 85:178-81 Ag 13 '20
- Automatic protection of street lighting circuit. J. H. Robertson. diag Elec R 79:29 Jl 2 '21
- Automatic protective devices for alternating-current systems. A. E. McColl. diags Inst E E J 58:525-43 Jl '20; Abstract. Electrician 84:565-8 My 21 '20; Discussion. Inst E E J 58:543-54; 59:242-7 Jl '20, F '21
- Condenser-resistance protective device. J. L. R. Hayden. Gen Elec R 23:774 S '20
- Flashing of 60-cycle synchronous converters and some suggested remedies. M. W. Smith. il Am Inst E E J 39:346-58 Ap '20; Abstract. Elec Ry J 55:517-18 Mr 13 '20
- High-voltage protection and safety of electric plants. W. Petersen. diags Elec W 77:247-8 Ja 29 '21
- Lightning; the effect of lightning voltages on arrester gaps, insulators and bushings on transmission lines. F. W. Peek, jr. diags Gen Elec R 22:900-6 N '19
- Methods of protecting electrical equipments. L. G. Riley. il diags Elec J 17:453-6 O '20
- Nouvel appareil de protection des lignes et appareils électriques contre les surtensions. C. E. Bennett. diags Génie Civil 76:536-7 Je 12 '20
- Protecting lines against over-voltage surges. A. Still. il Elec R 78:733-6 My 7 '21
- Protection against earths. A. Roth. Electrician 87:101-3 Jl 22 '21
- Protection of alternating-current circuits and apparatus. E. T. Norris. diags Inst E E J 58:750-5 Ag '20
- Protection of alternating-current systems without the use of special conductors. K. Edgcumbe. il diags Inst E E J 58:391-407 My '20; Abstract. Engineer 129:200-1 F '20 '20; Abstract. Electrician 84:193-4, 217-19 F 20-27 '20; Discussion. Inst E E J 58:407-16, 614-37 My, Jl '20
- Protection of electric equipment in coal-mining service. B. F. Grimm. il diag map Coal Age 20:253-6, 291-5 Ag 18-25 '21
- Protection of industrial circuits. V. H. Todd. il diags Power Pl Eng 25:715-19 Jl 15 '21
- Protection of transmission lines with condensers. G. Lewis. il diags Elec R 79:691-4, 765-9 N 5, 19 '21
- Régulateur-limiteur d'intensité, système Brown-Boveri. diags Génie Civil 79:235 S 10 '21
- Relay protection on extensive power system. E. R. Stauffacher. Elec R 79:13-14 Jl 2 '21
- Safety cut-out for mine trolley wires at loading chutes. E. D. Gardner. diags plan Elec W 78:25 Jl 2 '21; Same. Min & Met 175:22 Jl '21; Same, without plan. Eng & Min J 112:18 Jl 2 '21
- Safety features in high tension stations. M. M. Samuels. Power Pl Eng 25:859-61 S 1 '21
- Short-circuit protection for direct-current sub-stations. J. J. Linebaugh. il diag Am Inst E E J 39:274-8 Mr '20; Same cond. Elec Ry J 55:515-17 Mr 13 '20
- Substations and switchgear for overhead systems. A. Still. il diag Elec R 77:355-61 S 4 '20
- Switching and protection of transmission circuits. S. Q. Hayes. il Elec J 17:178-88, 263-71, 521-6 My-Je, N '20
- Tendencies in relay protection. R. N. Conwell. Elec W 77:254-5 Ja 29 '21
- See also Choke coils; Electric circuit breakers; Electric distribution—Grounding; Electric fuses; Electric motors—Protection; Electric switches; Lightning arresters; Lightning detectors; Reactors; Relays
- Electric radiation**
- Radiation from transmission lines. J. R. Carson. Am Inst E E J 40:789-90 O '21
- Electric railroads**
- Brief review of world's traction situation; notes based on a study of electric railway literature in all countries. Elec Ry J 55:889-91 My 1 '20
- Developments in the electrical industry during 1919. J. Liston. il diag Gen Elec R 23:12-17 Ja '20
- Economic future of transportation utilities; symposium. W Soc E J 24:1-48 Ja 5 '20
- Electric railway traction. A. G. Everett. Inst E E J 57:sup312-16 '19
- Electric traction and transmission engineering. S. Sheldon and E. Hausmann. 2d ed. 307p Van Nostrand '20
- Essais de trucks automoteurs, pour l'électrification des lignes de la banlieue de Berlin. diag plan Génie Civil 78:299-300 Ap 2 '21
- Industry on road to better days. J. H. Pardee. Elec Ry J 56:748-50 O 16 '20

Electric railroads—Continued

- Mid-year convention of Iowa electric railway association at Omaha. Elec Ry J 56:585-6 S 25 '20
- Novel electric train drive in Berlin. il Elec Ry J 57:858 My 7 '21
- Relation of the electric railway industry to industrial efficiency. H. Hoover. Elec Ry J 58:580-1 O 8 '21
- Report of the A.R.E.A. committee on electricity. Elec Ry J 57:631-3 Ap 2 '21
- Romance of invention. C. H. Claudy. il Sci Am 122:88+ Ja 24 '20
- Round table conference on the electric railway problem. Elec Ry J 56:1014-16 N 13 '20
- Symposium of experience papers. Elec Ry J 56:127-31 Jl 17 '20
- Underlying principles of public service. E. F. Sweet. Elec Ry J 57:171-2 Ja 22 '21
- Will the electric railway industry respond to the vision of its present-day leaders? L. B. Wehle. Elec Ry J 57:259-61 F 5 '21
- See also* Electric locomotives; Electric motors, Railway; Elevated railroads; Interurban railroads; Railroads—Electrification; Street cars; Street railroads; Subways; Third rails; Trackless trolley

Accidents

- Accident prevention discussed by the American electric railway claims association. Elec Ry J 56:908-21 O 30 '20
- Best method of obtaining statements of witnesses whose names are not secured by the trainmen. J. H. Handlon. Elec Ry J 56:1198 D 11 '20
- Conducting accident investigations. R. C. Green. Elec Ry J 58:737-9 O 22 '21
- Hazards of the electric railway field. E. C. Spring. Elec Ry J 55:1257 Je 19 '20
- Symposium on automobile hazards at annual convention of American electric railway claims association. R. Stickle and others. Elec Ry J 56:913-21 O 30 '20
- Twenty-three hurt on Washington, Baltimore & Annapolis electric railroad. il Elec Ry J 57:1007 My 28 '21

See also Street railroads—Accidents

Accounting

- Accounting measures to meet business depression in the industry. E. A. Saliers. Elec Ry J 54:sup37-9 O 11 '19; Same. J Account 29:1-9 Ja '20
- C.E.R.A.A. meets at Ottawa Beach. Elec Ry J 56:168-70 Jl 24 '20
- Construction accounting. W. L. Davis. Elec Ry J 58:703-5 O 15 '21
- Electric railway budget; Boston Elevated finds monthly revision of estimates necessary. E. M. Flint. Elec Ry J 56:1286-7 D 25 '20
- Electric railway cost accounting. J. H. Bowman. Elec Ry J 58:700-3; Discussion. 697 O 15 '21
- Interurban freight service; a classification of operating expense accounts for freight service is suggested. W. K. Zinsmeister. Elec Ry J 56:26-7 Jl 3 '20
- Maintenance cost accounting. E. A. Palmer. il Elec Ry J 57:715-18 Ap 16 '21
- Mechanical department stores accounting. T. Kennedy. Elec Ry J 56:717-20 O 9 '20
- Perpetual inventory as a part of accountants' records. I. A. May. Elec Ry J 58:398-9 S 10 '21
- Recognize the accounting department. I. A. May. Elec Ry J 55:251 Ja 31 '20
- Report of the committee on freight accounting of the American electric railway transportation and traffic association. Elec Ry J 58:651-3 O 8 '21
- Series of questions and tentative answers under the uniform system of accounts for electric railways. Elec Ry J 57:1055, 1099, 1145, 1183; 58:30 Je 4-Jl 2 '21
- Stores accounting as a means to stock regulation. R. A. Weston. charts Elec Ry J 56:779-83 O 16 '20

25th annual convention of the American electric railway accountants' association, Atlantic City. Elec Ry J 58:695-9 O 15 '21

See also Street railroads—Accounting

Advertising

- Railways could profitably undertake joint advertising campaigns. J. C. Schade. Elec Ry J 58:513 S 24 '21
- Soliciting and advertising for freight and passenger traffic. il Elec Ry J 58:505-13 S 24 '21

Automatic operation

- Electric trains without crews; an English automatic railway installed by the London post office. K. E. Stuart. il Sci Am 124:426+ My 28 '21

Brakes

See Air brakes; Braking, Regenerative

Cars

See Cars, Electric railroad; Cars, Subway; Street cars

Claims

- Accident prevention discussed by the American electric railway claims association. Elec Ry J 56:908-21 O 30 '20
- Annual convention of the American electric railway claims association, Atlantic City. Elec Ry J 58:735-7 O 22 '21
- Carelessness and negligence of a driver cannot be imputed to his passenger or guest. A. L. Levinsky. Elec Ry J 56:1197-8 D 11 '20
- Constructive arguments as opposed to destructive contentions in accident adjustments. L. H. Butterworth. Elec Ry J 58:740-2 O 22 '21
- Method of handling accidents and claims. W. E. Robinson. Elec Ry J 58:739 O 22 '21
- Report of freight claim prevention committee of C. E. R. A. Elec Ry J 58:54-6 Jl 9 '21

See also Street railroads—Claims

Coasting

- Coasting recorders give striking results. J. E. Heberle. Elec Ry J 56:179-80 Jl 24 '20
- Efficiency mileometer. C. H. Koehler. Elec Ry J 55:639-40 Mr 27 '20

Construction

- Calculation of track pressure drop and track losses on direct current electric railways. F. F. P. Bisacre. diags Electrician 84:188-9, 214-16 F 20-27 '20
- Constructing the overhead in Detroit. il Elec Ry J 58:159-62 Jl 30 '21
- Electric railway contact systems. P. Dawson. Engineer 130:67-8 Jl 16 '20; Abstract. Electrician 85:58-9 Jl 9 '20; Abstract. Elec Ry J 56:506 S 11 '20
- How to construct and maintain the overhead. K. J. Keith. il Elec Ry J 56:587-8 S 25 '20
- Overhead kinks from Cleveland. il diags Elec Ry J 58:687-8 O 15 '21
- Stresses in portals and similar structures. T. C. Broom. diags Engineer 130:368-9, 393-4, 417-18 O 15-29 '20
- See also* Electric railroads—Track; Railroads—Electrification

Control

- Control for 1200 and 1500-volt car equipments. R. S. Beers and C. J. Axtell. il diags Gen Elec R 23:314-18 Ap '20
- Inspection and maintenance of direct-current car control. A. H. Candee. Elec J 17:492-5 O '20
- Multiple-unit control equipments for the Cleveland interurban railway company. H. R. Meyer. il diags plan Elec J 17:464-9 O '20
- Multiple-unit train operation. S. B. Schenck. il diag Elec J 17:457-60 O '20
- New equipment for the Philadelphia electrification. W. H. Smith. il diags Elec Ry J 55:1207-11 Je 12 '20
- Remote-control sectionalizing switch. H. P. Bell. diag Elec Ry J 55:565-6 Mr 20 '20

Electric railroads—Continued**Cost of maintenance and operation**

- Logical unit for comparing repair costs of electric locomotives and cars. H. Pattison. Elec J 17:475-7 O '20
- Northwestern Pacific's experience with third-rail. C. E. Hatch. il map Ry Age 71:531-2 S 17 '21
- Place of the bus. W. Jackson. il Elec Ry J 55:683-9 Ap 3 '20

Costs

- What are the costs of service to electric railways? H. C. Clark. Eng & Contr 56:376-7 O 19 '21

Crossings

- New type of continuous-rail crossing. il diag Elec Ry J 54:936 N 15 '19
- Renewing railway crossings and special work. C. A. Elliott. diags Elec Ry J 55:370-2 F 21 '20
- Shockless crossing on Pacific Electric. C. A. Elliott. il Elec Ry J 56:361 Ag 21 '20
- See also* Street railroads—Crossings

Employees

- Encourage young engineers to enter railway organizations. H. H. Johnson. Elec J 18:449-50 O '21
- Graduating Mike as a lineman in three months. T. Blech. Elec Ry J 57:593-4 Mr 26 '21
- Labor precedents established by Kansas court of industrial relations. Elec Ry J 56:1299 D 25 '20
- Report of the committee on apprentice systems of the American electric railway engineering association. Elec Ry J 58:625-6; Discussion. 626 O 8 '21
- Selling trainmen their jobs. W. H. Boyce. Elec Ry J 57:221-2 Ja 29 '21
- Training motormen for limited runs on Chicago, North Shore & Milwaukee. Elec Ry J 56:1282 D 25 '20
- Training of electric railway personnel. M. Schreiber. Elec Ry J 56:858-60 O 23 '20; Excerpts. Eng & Contr 54:493-4 N 17 '20
- Training platform men. J. G. Jeffery. Elec Ry J 56:322 Ag 14 '20
- Urgency of observing operating rules. C. E. Thompson. Elec Ry J 56:875-6 O 23 '20
- See also* Electric railroads—Wages; Street railroads—Employees

Equipment and supplies

- Copper, zinc, tin and their alloys; general use by electric railways. N. Litchfield. Elec Ry J 56:1051-4 N 20 '20
- Equipment standards of the A.E.R.E.A. T. A. Chance. Elec Ry J 54:931-2 N 15 '19
- Factors governing the future of railway equipment prices. Elec Ry J 56:1084-5 N 20 '20
- Report of the committee on equipment of the American electric railway engineering association. Elec Ry J 58:640-1; Discussion. 641-2 O 8 '21
- See also* Cars, Electric railroad; Electric motors, Railway; Electric protective apparatus; Electric railroads—Meters; Electric railroads—Scrap material; Electric railroads—Shops; Grade indicator; Pantograph trolley; Street cars

Equipment trust

- Car purchases may be financed through car trusts. S. M. Curwen. Elec Ry J 58:590-1 O 8 '21
- Equipment trust grows in favor. Elec Ry J 55:1047-59 My 22 '20

Fares

- Adjusting fare to length of ride. plan Elec Ry J 57:670-6 Ap 9 '21
- American electric railway association 39th annual convention, Atlantic City, N.J.; report on fares and fare systems. Elec Ry J 56:805-8 O 16 '20
- Communities back fare increase on Kansas City, Clay county & St Joseph railway. Elec Ry J 57:914-15 My 14 '21

- Connecticut company goes to zone plan. il maps Elec Ry J 54:852-7 N 8 '19
- Connecticut zone system revised. Elec Ry J 55:807-11 Ap 17 '20
- Our national fare experiment. L. S. Storrs. diags maps Elec Ry J 57:10-19 Ja 1 '21
- Outsider's observations on the Connecticut zone system. H. C. Eddy. Elec Ry J 54:1035 D 27 '19
- Preparing the public for the zone plan. Elec Ry J 54:1032-4 D 27 '19
- Public service railway's last stand. Elec Ry J 58:458-9 S 17 '21
- Rezoning effective on May 9. Elec Ry J 55:858-9 Ap 24 '20
- Wheeling decision stands. Elec Ry J 58:378 S 3 '21
- Zone plan in New Jersey. H. C. Eddy. Elec Ry J 55:29-32 Ja 3 '20
- Zone system in Connecticut modified. Elec Ry J 55:777 Ap 10 '20

See also Street railroads—Fares

Finance

- Analysis of the electric railway problem; report to the Federal railways commission. D. F. Wilcox. 789p D. F. Wilcox, New York '21
- Ask the car rider. H. V. Bozell. Elec Ry J 57:6-9 Ja 1 '21
- Budget system which produces results on the Rochester & Syracuse railroad. D. E. Crouse. Elec Ry J 57:802-4 Ap 30 '21
- Capital must be attracted to electric railway industry. H. S. Cooper. Elec Ry J 57:413-14 F 26 '21
- Car rider's reply on readjustment of securities. B. C. Cobb. Elec Ry J 57:272-3 F 5 '21
- Course of electric railway earnings in 1919. Comm & Fin Chr 111:16-20 Jl 3 '20
- Course of electric railways earnings in 1920. Comm & Fin Chr 113:124-9 Jl 9 '21
- Electric railway receiverships in 1919. Elec Ry J 55:57-60 Ja 3 '20
- Electric railway receiverships in 1920. Elec Ry J 57:43-6 Ja 1 '21
- Electric railway section of the Commercial & financial chronicle. maps Comm & Fin Chr 112:1-152 sec 2 Ap 30 '21 [issued twice a year on the last Saturday in April and October]
- Electric railways of the country need \$400,000,000. Ry R 67:433 S 18 '20
- Federal commission report. Elec Ry J 56:398-411 Ag 28 '20
- Gross increase 17 per cent in 1920. Elec Ry J 58:147 Jl 23 '21
- History hath its lessons; inside story of the promotion, operation and dismantling of one of those railways built on faith, not judgment. C. J. Finger. il Elec Ry J 54:1036-8 D 27 '19
- How the electric railway's dollar has depreciated. Elec Ry J 54:868 N 8 '19
- Railway credit growing steadily. Elec Ry J 57:746-7 Ap 16 '21
- Railway situation analyzed. R. Robb. Elec Ry J 56:315-16 Ag 14 '20
- Report from a financial standpoint. C. W. Beall. Elec Ry J 57:487-8 Mr 12 '21
- Symposium on electric railway finance. J. F. Fogarty, and others. Elec Ry J 57:297-308 F 12 '21
- See also* Electric railroads—Accounting; Electric railroads—Costs; Electric railroads—Equipment trust; Electric railroads—Fares; Electric utilities—Finance; Electric utilities—Securities; Public utilities—Finance; Street railroads—Finance; *also* Boston Elevated railway

Franchises

See Street railroads—Franchises

Freight

- American electric railway transportation and traffic association 11th annual convention, Atlantic City, N.J.; report of the committee on express and freight traffic. T. H. Stoffel. Elec Ry J 56:820-2 O 16 '20
- Bus and the trolley. H. B. Titcomb. Elec Ry J 57:81-3 Ja 8 '21

Electric railroads—Freight—Continued

C.E.R.A.A. meets at Ottawa Beach; daily versus weekly or monthly freight settlements chief subject of discussion at accountants' convention. Elec Ry J 56:168-70 J1 24 '20

Community freight service; Kansas City railroads builds local freight service. map Elec Ry J 58:242-3 Ag 13 '21

Co-operating with local industries for freight business. il Elec Ry J 56:721 O 9 '20

Developing a freight business on the Indianapolis-Louisville line. il plan Elec Ry J 58:3-5 J1 2 '21

Experiences on the Interstate public service company's lines. L. M. Brown. Elec Ry J 56:127-9 J1 17 '20

Freight and motor truck competition report. Elec Ry J 56:125-6 J1 17 '20

Freight and parcel service in the United Kingdom. Elec Ry J 55:235-8 Ja 31 '20

Freight department has great opportunity to help increase net income; discussion. Elec Ry J 57:640-1 Ap 2 '21

Freight service on electric railways. T. H. Stoffel. il Elec J 18:474-6 O '21

Future of the electric railway. E. G. Lewis. Elec Ry J 56:65-6 J1 10 '20

Handling the freight business. H. C. Stanton. Elec Ry J 54:982-3 D 20 '19

Haul freight the electric way by use of standard freight equipment. E. D. Lynch. Elec J 17:495-7 O '20

Heavy freight service on a single-track, high-speed passenger line. A. B. Cole. il map Elec Ry J 54:866-8 N 8 '19

Interurban express. H. A. Nicholl. Elec Ry J 54:993-5 D 20 '19

Interurban freight service; a classification of operating expense accounts for freight service is suggested. W. K. Zinsmeister. Elec Ry J 56:26-7 J1 3 '20

Motor dispatch line successful. il Elec Ry J 55:1063-4 My 22 '20

Motor trucks and electric road. F. W. Watts. Elec Ry J 56:26-7 J1 3 '20

Motor vehicle—competitor or ally? G. M. Graham. National automobile chamber of commerce, Inc., 366 Madison ave., New York; Same cond. Elec Ry J 56:795-8 O 16 '20; Discussion. T. H. Stoffel. Elec Ry J 56:1161 D 4 '20

Obstacles to electric express. C. J. Laney. Elec Ry J 54:996-7 D 20 '19

Possibilities of electric express service. J. F. Starkey. Elec Ry J 54:995-6 D 20 '19

Possibilities of electric railway express service. C. J. Munton. Elec Ry J 54:992-3 D 20 '19

Possibilities of express business. S. L. Vaughan. Elec Ry J 54:997 D 20 '19

Possibilities of interurban railroads. B. I. Budd. il Elec Ry J 56:637-41 O 2 '20

Report of the committee on freight accounting of the American electric railway transportation and traffic association. Elec Ry J 58:651-3 O 8 '21

Soliciting and advertising for freight and passenger traffic. il Elec Ry J 58:505-13 S 24 '21

Standardizing practices in handling merchandise traffic. B. I. Budd. Elec Ry J 57:396 F 26 '21

Terminal service possibilities of the electric railways. J. R. Bibbins. Elec Ry J 58:591-2 O 8 '21

Transporting other than passengers on interurban lines. B. I. Budd. Elec Ry J 56:771-3 O 16 '20

Trolley freight and motor-truck customers in Massachusetts. il diag map plan Elec Ry J 58:41-7 J1 9 '21

Trolley freight in New England. R. E. Cosgrove. Elec Ry J 55:197-9 Ja 24 '20

Trolley freight service will pay. G. W. Ravert. Elec Ry J 57:79-80 Ja 8 '21

History

Electric traction—a review. F. J. Sprague. J Fr Inst 192:291-326 S '21; Abstract. Elec Ry J 57:997-1000 My 28 '21

Information service

Vancouver solves information and complaint problem. Elec Ry J 56:838-9 O 16 '20

Inspection

See also Car inspection

Libraries

Investigating committees should utilize electric railway libraries. L. A. Armistead. Elec Ry J 55:1314 Je 26 '20

Special libraries in street railway service. D. W. Hyde, jr. Special Lib 11:165-6 S '20

Maintenance and repair

A. c.-d. c. multiple-unit maintenance on the New Haven. il diag map plan Elec Ry J 55:1147-55 Je 5 '20

Arc welding in car equipment maintenance. il Elec Ry J 55:574-7 Mr 20 '20

Atlanta's new emergency truck. il Elec Ry J 58:734 O 22 '21

Compressor overhauling practice in Buffalo. J. W. Hulme. il Elec Ry J 55:608-9 Mr 20 '20

Inspection and maintenance of direct-current car control. A. H. Candee. Elec J 17:492-5 O '20

Inspection and overhauling of city and interurban cars. W. W. Cook. Elec J 16:519-23 D '19

Keeping the overhead system fit. il Elec Ry J 55:591-5 Mr 20 '20

Maintenance of railway equipment. F. W. McCloskey. Elec J 17:469-70 O '20

Maintenance on the B., A. & P. F. W. Beltinger. il Elec Ry J 57:217-19 Ja 29 '21

New tower truck for Detroit. il Elec Ry J 58:680 O 15 '21

Quick rehabilitation after a hurricane. il Elec Ry J 55:199-200 Ja 24 '20

Replacing horses with motors and trucks on the Boston Elevated railway. E. Dana. il map plans Elec Ry J 57:484-6 Mr 12 '21

Shop kinks from Sioux City, Iowa. C. M. Feist. il Elec Ry J 56:589-92 S 25 '20

Systematic inspection of car equipments. Elec J 16:539-40 D '19

Systematic maintenance good investment. J. S. Dean. il Elec Ry J 58:278-82 Ag 20 '21

See also Car lighting; Cars, Electric railroad—Repair; Electric railroads—Cost of maintenance and operation; Electric railroads—Equipment and supplies; Electric railroads—Shops; Electric railroads—Track; Street railroads—Track

Management

Ask the car rider. H. V. Bozell. Elec Ry J 57:6-9 Ja 1 '21

Basing car inspection on energy consumption. L. E. Gould. Elec Ry J 56:267-9 Ag 7 '20

Car rider's reply on readjustment of securities. B. C. Cobb. Elec Ry J 57:272-3 F 5 '21

Cutting down operating expenses on a small interurban road. C. T. Dehore. il Elec Ry J 54:915-18 N 15 '19

Developing an electric railroad; Indianapolis-Louisville interurban. il plans Elec Ry J 57:1026-31 Je 4 '21

Economies in car operation. F. R. Phillips. Elec Ry J 54:1039-42; Discussion. 1042-6 D 27 '19

Electric railway policy. G. Weston. W Soc E J 24:21-42 Ja 5 '20

Electric railway, track and all. M. B. Lambert. Elec Ry J 58:554 O 1 '21

Neglected opportunities in electric railway transportation. J. R. Bibbins. Elec Ry J 55:325-9 F 14 '20

Put business common sense into electric railway managing. P. H. Gadsden. Elec Ry J 58:581-2 O 8 '21

Sell what the public wants. Elec Ry J 56:73-4 J1 10 '20

See also Street railroads—Management

Meters

Efficiency mileometer. C. H. Koehler. Elec Ry J 55:639-40 Mr 27 '20

How meters induce car-energy savings. L. E. Gould. Elec Ry J 55:644-6 Mr 27 '20

Human side of energy saving. R. E. Luellen. Elec Ry J 58:728-9 O 22 '21

Electric railroads—Meters—Continued

Substantial energy saving on Philadelphia rapid transit co. il chart Elec Ry J 57:355-60 F 19 '21

Motor bus auxiliaries

More bus feeders for Pacific electric railway. Elec Ry J 57:1014-15 My 28 '21

Motor bus as a supplement to electric railways. R. G. Smith. Elec Ry J 56:784-6 O 16 '20

Motor buses as railway auxiliaries. il Elec Ry J 56:707-9 O 9 '20

Motor vehicle—competitor or ally? G. M. Graham. National automobile chamber of commerce, Inc., 366 Madison ave., New York; Same cond. Elec Ry J 56:795-8 O 16 '20

Power

Automatic substation, Sacramento Northern railroad. W. H. Evans. il plan J Elec 45:132-7 Ag 1 '20; Same. Gen Elec R 23:894-902 N '20

Cutting energy costs in Seattle. S. E. Goodwin. Elec Ry J 56:1233-5 D 18 '20

Distribution problems of interurban railways. J. S. Hagan. Elec Ry J 55:603-6 Mr 20 '20

Do power-saving devices actually save power? W. Arthur. Elec Ry J 55:649 Mr 27 '20

Economical use of energy for car purposes. D. D. Ewing. Elec Ry J 55:641-3 Mr 27 '20

Efficiency mileometer. C. H. Koehler. Elec Ry J 55:639-40 Mr 27 '20

Electric railway contact systems. P. Dawson. il diags Inst E E J 58:838-49; Discussion. 849-57 S '20

Energy saving. L. E. Gould. Elec Ry J 55:62-3 Ja 3 '20

Follow-up system for power saving. C. V. Wood, jr. il Elec Ry J 58:681-3 O 15 '21

History and comments on the third rail system. Elec Ry J 58:743-4 O 22 '21

How meters induce car-energy savings. L. E. Gould. Elec Ry J 55:644-6 Mr 27 '20

Human side of energy saving. R. E. Luellen. Elec Ry J 58:728-9 O 22 '21

Making the best use of the car equipment. E. H. Scofield. diags Elec Ry J 55:942-6 My 8 '20

Power costs at the point of delivery on interurban electric railways. J. S. Hagan. Elec Ry J 58:409-10 S 10 '21

Power indicating and limiting apparatus for the Chicago, Milwaukee & St Paul railroad. B. H. Smith. il diags Elec J 17:42-6 F '20

Power-limiting and indicating system of the C., M. & St P. Ry. J. J. Linebaugh. il diags Gen Elec R 23:292-306 Ap '20; Excerpts. Elec Ry J 55:759-61 Ap 10 '20; Excerpt. Ry Age 68:1146 Ap 9 '20

Power saved by use of checking devices, Brooklyn (N.Y.) map Elec Ry J 56:1244-6 D 18 '20

Problems of the electric railway. G. Wüthrich. Engineer 130:281-3 S 17 '20

Purchased power for traction. H. L. Kirker. Elec J 17:436-7 O '20

St Paul electrification results. R. Beeuwkes. diags Elec Ry J 56:227-30 Jl 31 '20; Same. Ry Age 69:235-8 Ag 6 '20; Same. Am Inst E E J 39:813-18 S '20; Same. Gen Elec R 23:724-30 S '20; Same cond. J Elec 45:117-18+ Ag 1 '20

Saving electrical energy on the car. L. M. Clark. Elec Ry J 55:647-8 Mr 27 '20

Simple methods of economical operation. C. H. McClintock. il Elec W 77:1481-4 Je 25 '21

Spokane's traction problems are being solved. il map Elec Ry J 56:1090-4 N 27 '20

Substantial energy saving on Philadelphia rapid transit co. il chart Elec Ry J 57:355-60 F 19 '21

Three-wire railway distribution in Wilmington. A. P. Way. chart diags maps Elec Ry J 58:307-11 Ag 27 '21

Traction power obtained at lower cost; Interstate public service company on Indianapolis-Louisville line. il diags Elec Ry J 57:1169-70 Je 25 '21

Voltage surveys give information for varying station voltage. H. Restofski. diags Elec Ry J 54:976 D 20 '19

What happens at the trolley contact? D. D. Ewing. il diag Elec Ry J 56:863-5 O 23 '20

See also Electric railroads—Coasting; Electric substations, Automatic

Power plants

See Electric plants

Public relations

Forward look in public relations. J. W. Colton. Elec Ry J 55:19-23 Ja 3 '20

Next step in publicity work; suggestions on the proposed use of movies. Elec Ry J 56:604-6, 726, 886, 933-4, 971, 1022-3, 1155-7 S 25, O 9, 23-N 13, D 4 '20

Sincerity, service and salesmanship. J. P. Barnes. Elec Ry J 57:450-2; Discussion. 446 Mr 5 '21

Straightforward publicity does bring results. E. B. Fredericks. Elec Ry J 54:928-30 N 15 '19

Symposium on traffic at Toledo meeting of Central electric railway association. Elec Ry J 57:492-4 Mr 12 '21

Purchasing

Correct method of purchasing railway supplies. H. B. Doyle. Elec Ry J 58:604-5 O 8 '21

How purchasing agents can help each other. E. E. Stigall. Elec Ry J 55:47-8 Ja 3 '20

Should traction companies buy from the manufacturer or jobber? Elec Ry J 56:1085 N 20 '20

See also Electric railroads—Equipment trust

Records

Follow-up system for power saving. C. V. Wood, jr. il Elec Ry J 58:681-3 O 15 '21

Keeping the overhead system fit. il Elec Ry J 55:591-5 Mr 20 '20

Making the best use of the car equipment. E. H. Scofield. diags Elec Ry J 55:942-6 My 8 '20

Rolling stock

Design, maintenance and operation of electric rolling stock. Elec Ry J 55:1200-4 Je 12 '20

Equipment trust grows in favor. Elec Ry J 55:1047-59 My 22 '20

New electric motor cars for the Long Island. S. B. Schenck. il Ry Age 68:1964-6 Je 25 '20

New Metropolitan district railway rolling stock. il Elec R (Lond) 88:264-5 Mr 4 '21

New rolling stock ordered in 1920. Elec Ry J 57:37-40 Ja 1 '21

Ohio-Pennsylvania-West Virginia equipment men exchange experience. Elec Ry J 56:119-22 Jl 17 '20

Report of the committee on heavy traction of the American electric railway engineering association. Elec Ry J 58:626-7 O 8 '21

Steel rolling stock for the Metropolitan district railway. il diags Engineering 111:12-14, 37, 102, pl 2-3, 5 Ja 7-14, 28 '21

2,447 new cars and locomotives ordered in 1919. Elec Ry J 55:49-52 Ja 3 '20

See also Cars; Cars, Electric railroad; Cars, Subway; Street cars

Safety devices and measures

Accident prevention. C. B. Scott. Elec Ry J 56:1199-1200 D 11 '20

Arcing on electric trains. Engineer 131:236 Mr 4 '21

Selling trainmen their jobs. W. H. Boyce. Elec Ry J 57:221-2 Ja 29 '21

Should accident prevention standards be adopted? H. G. Winsor. Elec Ry J 56:1198-9 D 11 '20

See also Street railroads—Safety devices and measures

Scrap material

Reclamation shop effects saving of more than \$86,000 in 1919. il diag Elec Ry J 55:585-90 Mr 20 '20

Electric railroads—Scrap material—*Continued*
Salvaging scrap material; Pacific Electric railway. C. A. Elliott. il Elec Ry J 56:1060-1 N 20 '20

Securities

See Street railroads—Securities

Shops

Armature record tags. J: S. Dean. Elec J 18:108 Mr '21
Comments on reducing shop costs. J. M. Bosenbury. Elec Ry J 57:557-8 Mr 19 '21
Cutting out waste in the shop. il diag Elec Ry J 58:193-8 Ag 6 '21
Electric welding for railway shops. Elec Ry J 56:977-8 N 6 '20
Equipment repairs on Long Island railroad. il Elec Ry J 55:1136-46 Je 5 '20
Few Chicago shop economies. il diags Elec Ry J 57:926-9 My 21 '21
Multiple-unit car maintenance on electrified steam railroads. il Elec Ry J 55:1130-4 Je 5 '20
New shops for Boston. il plan Elec Ry J 57:555-6 Mr 19 '21
Pacific Electric opens new shop. C. A. Elliott. il Elec Ry J 55:815-16 Ap 17 '20
Picturing Iowa shop kinks. il Elec Ry J 56:1046-50 N 20 '20
Recent developments at Calgary. il plans Elec Ry J 57:886-91 My 14 '21
Reclamation department of Washington railway & electric company shows large savings. il Elec Ry J 58:98 Jl 16 '21
Reclamation shop effects saving of more than \$86,000 in 1919. il diag Elec Ry J 55:585-90 Mr 20 '20
Rehabilitating an overhauling shop. H. S. Sweet. il plans Elec Ry J 55:567-8 Mr 20 '20
Repair shop facilities and equipment. Elec Ry J 56:976-7 N 6 '20
Repair shops rebuilt in Winnipeg. W. N. Smith. il diags Elec Ry J 58:437-8 S 17 '21
Shop facilities for maintenance of railway equipment. H. A. Leonhauser. plan Elec J 18:464-7 O '21
Shop kinks from Sioux City, Iowa. C. M. Feist. il Elec Ry J 56:589-92 S 25 '20
Shop layouts. Elec Ry J 58:637-9 O 8 '21
Shop notes from Buffalo. il plan Elec Ry J 57:1114-18 Je 18 '21
Shop notes from Deer Lodge, Mont. il Elec Ry J 57:533-5 Mr 19 '21
Shop notes from Michigan City. il Elec Ry J 58:692-3 O 15 '21
Shop notes from Newark, N.Y. il Elec Ry J 58:99-100 Jl 16 '21
Shop notes from Portland railway, light and power co. il Elec Ry J 57:353-4 F 19 '21
Shop notes from Utica. il Elec Ry J 57:1039-40 Je 4 '21
Shop notes from Vancouver. il Elec Ry J 57:275 F 5 '21
Supplying repair parts to shops. W. G. Murrin. map Elec Ry J 56:85-6 Jl 10 '20
Systematic maintenance good investment. J: S. Dean. il Elec Ry J 58:278-82 Ag 20 '21
West Alameda shops of the Southern Pacific company. il J Elec 46:331-2 Ap 1 '21
Wheel pressing made a one-man operation. il Elec Ry J 55:161-2 Ja 17 '20

Signals

Alternating-current track circuiting. L. H. Peter. diags Inst E E J 58:491-506 Je '20; Same cond. Electrician 85:417-19 O 8 '20; Discussion. Inst E E J 58:891 S '20
Combined signal and switch installation. diag Elec Ry J 57:728 Ap 16 '21
Combined signal and telephone box. H. Restofski. il diag Elec Ry J 54:901 N 15 '19
Dual control signals on the Pacific Electric. C. A. Elliott. il diag Elec Ry J 56:321-2 Ag 14 '20
Interurban car stop signal. diags Elec Ry J 56:373-4 Ag 21 '20
Keeping the signals up to the mark. C. P. Nachod. Elec Ry J 55:52 Ja 3 '20
Method of signal maintenance in Chattanooga. Elec Ry J 57:562 Mr 19 '21
Milwaukee company installs signals. il plan Elec Ry J 55:162-3 Ja 17 '20

New signals at Anderson. il diag Elec Ry J 56:135-6 Jl 17 '20
Operating a 14-mile suburban line on a thirty-second headway. il diags Elec Ry J 55:1305-7 Je 26 '20
Oscillating motor crossing flagman. il Elec Ry J 55:816-17 Ap 17 '20
Pacific Electric's automatic flagman. C. A. Elliott. il Elec Ry J 56:280 Ag 7 '20
Signal maintenance and overhead kinks. il diags Elec Ry J 55:578-80 Mr 20 '20
Signaling the approach of cars for connection. H. Restofski. diags Elec Ry J 55:596 Mr 20 '20

See also Subways—Signals

Snow protection and removal

Fighting snow in Winnipeg. il Elec Ry J 57:367 F 19 '21
Fighting snow on an electrified railway. A. C. Carty. Eng & Contr 55:166-7 F 16 '21
Heavy-duty interurban snow plow. M. S. Ferguson. il Elec Ry J 55:338-9 F 14 '20
Snow fighting methods. E. Sears. il Elec J 18:39-40 Ja '21; Same cond. Elec Ry J 57:138 Ja 15 '21
Snow fighting on an interurban; Montreal & Southern Counties railway. il diags plans Elec Ry J 56:1064-5 N 20 '20
See also Snow melters, Electric; Street railroads—Snow protection and removal

Standards

A.E.R.E.A. standard material specifications. T. A. Chance. Elec Ry J 55:111 Ja 10 '20
Present status of standard track spirals. plan Elec Ry J 55:335-8 F 14 '20
Standardization of overhead line. Elec Ry J 56:598 S 25 '20

Statistics

Electric railway section of the Commercial & financial chronicle (issued twice a year). maps Comm & Fin Chr 110:(sec 2) 1-152; 111:(sec 2) 1-152 Ap 24, O 30 '20
Electric railway statistics. Elec Ry J 57:47 Ja 1 '21
Railway census figures issued. Elec Ry J 55:949-52 My 8 '20
Riding habit shows increase. Elec Ry J 56:616-17 S 25 '20
Statistics of the electric railway industry. Elec Ry J 55:55-6 Ja 3 '20
Summary of high-voltage direct-current railways; tabulation. W. D. Bearce. il supp Gen Elec R 23:313 Ap '20
Track extensions and reconstruction in 1919 in the United States and Canada. chart Elec Ry J 55:53-5 Ja 3 '20
Track extensions and reconstruction in 1920 in the United States and Canada. chart Elec Ry J 57:40-2 Ja 1 '21
Twelve large companies compared. Elec Ry J 56:38 Jl 3 '20

Substations

See Electric substations

Switches, frogs, etc.

See Street railroads—Switches, frogs, etc.

Terminals

Freight co-operation at Rochester. L. R. Brown. il diags plans Elec Ry J 57:762-5 Ap 23 '21
Handling Coney Island's crowds. il map plans Elec Ry J 55:186-90 Ja 24 '20
Interurban freight terminal opened. plan Elec Ry J 57:141 Ja 15 '21
Terminal at San Pedro completed. C. A. Elliott. il Elec Ry J 56:1147-8 D 4 '20
\$32,000,000 terminal improvement; electric interurban and steam lines at Los Angeles ordered to start work at once on new Union depot. Elec Ry J 57:868 My 7 '21

Electric railroads—Terminals—Continued

W. B. & A. new terminal in Washington. il Elec Ry J 57:859 My 7 '21

See also Street railroads—Terminals

Testing

Atlanta making electrical survey. il Elec Ry J 58:435-6 S 17 '21

Tickets

How to increase ticket sales. J. H. Crall. Elec Ry J 57:494 Mr 12 '21

Track

A.E.R.A. committee reports on way matters. Elec Ry J 57:634-6 Ap 2 '21

Bonding in special locations. G. H. McKelway. il diags Elec Ry J 56:355-9 Ag 21 '20

Construction and maintenance of grade crossings on Pacific Electric. C. A. Elliott. il Elec Ry J 55:995-8 My 15 '20

Convenient track measuring device. il Elec Ry J 57:186 Ja 22 '21

Field inspection of railway track paving. H. H. George. Elec Ry J 56:1241-4 D 18 '20

Labor-saving devices in the way department. C. H. Clark. Elec Ry J 57:554-5 Mr 19 '21; Same cond. Eng & Contr 55:399 Ap 20 '21

Leakage resistance of street railway roadbeds and its relation to electrolysis of underground structures. E. R. Shepard. il diags U S Bur Stand Tech Pa 127:1-39 '19; Abstract. Eng & Contr 52:695 D 17 '19

Maintaining track under public trustees. F. B. Walker. il Elec Ry J 56:1237-40 D 18 '20

Maintenance of way methods of the Connecticut co. W. R. Dunham. Eng & Contr 53:71-2 Ja 21 '20

Modern methods of prolonging track life. E. A. Hoffman. Elec Ry J 55:1258-60 Je 19 '20; Excerpt. Eng & Contr 54:61 Jl 21 '20

Modern practice in the construction and maintenance of rail joints and bonds in electric railways. E. R. Shepard. il U S Bur Stand Tech Pa 62:1-131 '20

Purchasing track spikes under specifications. H. H. George. diags Elec Ry J 55:147-9 Ja 17 '20

Reclaiming a cast-steel mate. il Elec Ry J 57:861 My 7 '21

Specifications for bolts used in construction. H. H. George. diags Elec Ry J 55:387-9 F 21 '20

Tie rod specifications assist in reducing failures. H. H. George. Elec Ry J 55:655-6 Mr 27 '20

Track labor savers for small railway. A. J. Stratton. il Elec Ry J 57:518-21 Mr 19 '21

22-year-old track in good condition. W. L. Whitlock. il Elec Ry J 57:187 Ja 22 '21

Using the metallic arc for track welding. C. J. Hopkins. diags Elec Ry J 55:253 Ja 31 '20

When we build our tracks. R. C. Cram. Elec Ry J 57:20-2 Ja 1 '21

See also Electric railroads—Switches, frogs, etc.; Pavements—Cutting; Rails; Street railroads—Curves and turnouts; Street railroads—Track

Traffic

Making continual traffic checks. M. J. Feron. Elec Ry J 57:592-3; Discussion. 590 Mr 26 '21

Successful traffic count on the Beaver Valley. Elec Ry J 54:865 N 8 '19

Symposium on traffic at Toledo meeting of Central electric railway association. Elec Ry J 57:492-4 Mr 12 '21

What traffic observations are needed. J. Kappeyne. Elec Ry J 57:1171 Je 25 '21

See also Street railroads—Traffic

Trains

See also Hedwaygraph

Trolley guards

Unusual trolley guard installation. il Elec Ry J 56:874 O 23 '20

Trolley wheels

Steel trolley shortens trolley wheel life. F. H. Miller. Elec Ry J 57:553-4 Mr 19 '21
What happens at the trolley contact? D. D. Ewing. il diag Elec Ry J 56:863-5 O 23 '20

Valuation

Economics and equity in valuation. C. B. Cooke, jr. Elec Ry J 54:911-14 N 15 '19
Method used in New Jersey valuation. Elec Ry J 57:767-70 Ap 23 '21

Railway valuation in Connecticut. A. E. Knowlton. map Elec Ry J 57:947-50, 985-93 My 21-28 '21; Discussion. H. C. Hopson. 58:443-4 S 17 '21

Special franchise valuation. L. R. Brown. Elec Ry J 57:601-3; Discussion. 603 Mr 26 '21

Undepreciated valuations urged. Elec Ry J 55:440-1 F 28 '20

Valuation and accruing depreciation. P. J. Kealy. W Soc E J 24:11-14 Ja 5 '20; Same cond. Elec Ry J 54:530-1 S 13 '19

See also Street railroads—Valuation

Wages

Decision of Kansas court of industrial relations as to wages on interurban railways. Monthly Labor R 10:1412-13 Je '20
Should the electric railway brain workers organize? Elec Ry J 55:504-5 Mr 13 '20

Wages reduced by East Mass. arbitration board. Elec Ry J 57:963 My 21 '21

See also Street railroads—Wages

Wiring

Electric railway contact systems. P. Dawson. il diags Inst E E J 58:838-49 S '20; Excerpt. Elec Ry J 56:1291 D 25 '20; Discussion. Inst E E J 58:849-57 S '20

Method of connecting car wiring to motor leads and ground. diags Elec J 17:168-9 Ap '20

Overhead practice and experience in Atlanta. il Elec Ry J 55:563-5 Mr 20 '20

Renewal of the catenary construction in the Hoosac tunnel. L. C. Winship. il diag Elec J 18:84-7 Mr '21

Australia

Some Australian tramway experiences. P. J. Pringle. Electrician 85:56-7 Jl 9 '20

Austria

Electric traction in Austria. diags map Electrician 87:235-9 Ag 19 '21

Belgium

Belgian light railways being rehabilitated. Elec Ry J 57:1184 Je 25 '21

Brazil

General Electric's contribution to the Paulista electrification. W. D. Bearce. il diags plan Elec Ry J 57:1079-84 Je 11 '21

Paulista railway and the Westinghouse locomotives. S. B. Cooper. il diag map Elec Ry J 57:1075-9 Je 11 '21

British Columbia

British Columbia interconnections. J. Lightbody. il J Elec 44:491-2 My 15 '20

California

California and her tractions. E. Hungerford. il Elec Ry J 56:304-8, 490-3 Ag 14, S 11 '20

Canada

Electric railway section of the Commercial & financial chronicle. maps Comm & Fin Chr 112:1-152 sec 2 Ap 30 '21 [issued twice a year on the last Saturday in April and October]

Electric railways in island possessions and foreign countries. Comm & Fin Chr 110: (sec 2) 138-43 Ap 24 '20

Connecticut

Jitney competition not favored in Connecticut. Elec Ry J 58:74, 113, 151 Jl 9-23 '21

Electric railroads—Connecticut—Continued

Many suggestions for relief of electric railways. Elec Ry J 57:95-6 Ja 8 '21
 Railway valuation in Connecticut. A. E. Knowlton. map Elec Ry J 57:947-50, 985-93 My 21-28 '21

England

Ealing and Shepherd's Bush railway. il diag Electrician 85:154-6 Ag 6 '20

Great Britain

Development of roads and facilities for local passenger transit. J. A. Brodie. Engineering 110:617-20 N 5 '20; Excerpts. Engineer 130:446-8 N 5 '20; Excerpt. Electrician 85:564 N 12 '20
 Freight and parcel service in the United Kingdom. Elec Ry J 55:235-8 Ja 31 '20
 Recent happenings in Great Britain. Elec Ry J 55:715 Ap 3 '20

Illinois

Consolidated statement of the Illinois electric railway companies. Elec Ry J 57:785 Ap 23 '21

Italy

New addition to the Valtellina railway, Lecco to Milan. G. Huldshiner. Elec W 78:230-1 Jl 30 '21

Maryland

Handling shipyard traffic at Sparrows Point, Md. L. H. Palmer. il diags plan Elec Ry J 55:930-5 My 8 '20

Massachusetts

How one railway eliminated jitneys. Elec Ry J 55:230-3 Ja 31 '20
 Trolley freight and motor-truck customers. il diags map plan Elec Ry J 58:41-7 Jl 9 '21

See also Boston Elevated railway

Michigan

Quick rehabilitation after a hurricane. il Elec Ry J 55:199-200 Ja 24 '20

New Jersey

Method used in New Jersey valuation. Elec Ry J 57:767-70 Ap 23 '21

New York

Some Empire United high spots. M. C. Turpin. il map Elec Ry J 56:171-4 Jl 24 '20

Oklahoma

Baby electric railroad is a buster; Northeastern Oklahoma railroad company. il map Elec Ry J 57:842-5 My 7 '21
 New interurban railway in Oklahoma. il map Elec Ry J 56:449-53 S 4 '20

Ontario

Review of present status of Ontario hydro-electric power commission's radial railway projects. Can Eng 38:138-9 Ja 15 '20

Southern states

Random notes about the South. Elec Ry J 55:190-2 Ja 24 '20

United States

Are street railways a real public utility? G. E. Tripp. Elec Ry J 55:25-9 Ja 3 '20
 Census of electrical industries: 1917; electric railways. 177p '20 U.S. Bureau of the census, Washington, D.C.
 Conclusions and recommendations of the Federal electric railway commission. Eng & Contr 55:168 F 16 '21
 Condition of the electric railways. J. H. Pardee. Elec Ry J 55:1297-1300 Je 26 '20
 Electric railway section of the Commercial & financial chronicle. maps Comm & Fin Chr 112:1-152 sec 2 Ap 30 '21 [issued twice a year on the last Saturday in April and October]
 Federal commission and its work. C. Ogburn. Elec Ry J 55:8-10 Ja 3 '20
 Federal commission report. Elec Ry J 56:398-411 Ag 28 '20; Excerpt. Pub Works 49:349-50 O 9 '20

Final report of Pennsylvania association meeting. Elec Ry J 55:1255-7 Je 19 '20
 Future of the electric railway. P. J. Kealy. Elec Ry J 55:745-8 Ap 10 '20
 How an Englishman appraises American railway practice. C. J. Spencer. Elec Ry J 56:426 Ag 28 '20
 How the electric railway enters the life of each state; graphic map. Elec Ry J 56:52 Jl 10 '20
 National chamber of commerce plans nation-wide vote on transit facilities. Elec Ry J 56:1118-19 N 27 '20
 Plight of the electric railways. W. G. Harding. Elec Ry J 55:155-7 Ja 17 '20
 Report of Federal commission which investigated electric railway conditions. Comm & Fin Chr 111:849-50 Ag 28 '20; Excerpts. Ry Age 69:358 Ag 27 '20
 Report of Federal electric railways commission. Monthly Labor R 11:648-52 O '20; Abstract. Ry Age 69:358 Ag 27 '20; Abstract. Comm & Fin Chr 111:849-50 Ag 28 '20
 Report of the Federal electric railways commission to the President, August, 1920. 30p U.S. Federal electric railways commission, Washington '20
 Restoration of financial credit. R. I. Todd. Elec Ry J 57:445-6 Mr 5 '21
 Situation is fundamentally sound. J. H. Pardee. map Elec Ry J 56:53-5 Jl 10 '20
 Transport 11,000,000,000 passengers. J. H. Pardee. Elec Ry J 55:897-9 My 1 '20
 U.S. Chamber of commerce on the street railway problem. Eng & Contr 55:154-7 F 16 '21; Abstract. Elec Ry J 57:214 Ja 29 '21
 What is to be done with our electric railways? Elec Ry J 55:193-4 Ja 24 '20
See also Electric railroads—Statistics

Wisconsin

Regulation of utilities in Wisconsin. il Elec Ry J 58:765-8 O 29 '21

Electric railroads, Industrial

Electrification of the steel plant railroad. R. B. Gerhardt. Blast F & Steel Pl 9:613-17 O '21; Abstract. Eng N 87:652-3 O 20 '21
 Remote control electric haulage in quarry service. plan Eng N 86:956-7 Je 2 '21

See also Electric locomotives, Industrial

Electric railroads and state

Public trusteeship of the Boston elevated railway. E. Dana. Gen Elec R 23:319-25 Ap '20

Electric ranges. See Electric stoves**Electric rates**

Analysis of wholesale electric costs. F. M. Van Deventer. charts Blast F & Steel Pl 9:374-6, 438-41, 529-31 Je-Jl, S '21
 Le chauffage électrique au congrès de l'habitation tenu à Lyon, en mars 1921. Génie Civil 78:311-12 Ap 9 '21
 Cost of extensions to serve rural customers and rules for computing rates. N E L A Bul 8:556-9 S '21
 Disturbances to electric service from X-ray and radio outfits. G. M. Gadsby. Elec W 78:71 Jl 9 '21
 Domestic tariffs and the question of cheap metering. Elec R (Lond) 88:506-7 Ap 22 '21
 Educating the public on necessary cost adjustments. N E L A Bul 8:25 Ja '21
 Electric furnace and central-station rates. Elec W 75:1147-8 My 15 '20
 Electric supply: present conditions and the Hopkinson principles. J. R. Blaikie. Inst E E J 59:701-13 Jl '21; Abstracts. Electrician 86:550 My 6 '21; Engineer 131:479 My 6 '21; Elec R (Lond) 88:696-7 My 27 '21; Discussion. Inst E E J 59:719-39 Jl '21; Engineer 131:479-80 My 6 '21
 Electrical rates. G. P. Watkins. 228p Van Nostrand '21
 Elements of rate-making. W. G. Vincent, jr. Elec R 76:451-2 Mr 13 '20; Excerpts. Elec W 75:502 F 28 '20
 Energy costs to large consumers of power. H. C. Thuerk. Elec W 75:443-4 F 21 '20
 Establishing simple basis for rates. R. H. Wolford. diags Elec W 76:382-3 Ag 21 '20

Electric rates—Continued

- Explaining the differential. R. S. Hale. Elec W 75:614-15 Mr 13 '20
- Flat rates defended in Cape Cod hearing. Elec W 75:27-8 Ja 3 '20
- Great tariff question. Electrician 86:542-3 My 6 '21
- How should power factor be handled? C. J. Russell. Elec W 77:1089+ My 14 '21
- Hydro uniform rate association. Can Eng 38: 429 Ap 29 '20
- Insufficiency of electric rate schedules. Elec W 77:13 Ja 1 '21
- Load equalization as affecting power rates. L. A. Umansky. Gen Elec R 24:505-6 Je '21
- Manager's viewpoint on higher power rates. T. O. Kennedy. Elec W 74:1070-1 D 13 '19
- Method of charging for idle current. C. G. Carrothers. Elec R (Lond) 88:404-5 Ap 1 '21; Discussion. 88:511, 679 Ap 22, My 27 '21
- Method of expressing rates; gas and electric rate structures compared. E. L. Wilder. Gas Age 48:157-9 Ag 13 '21
- Multi-part tariff problem. Electrician 86:589-90 My 13 '21
- Multi-part tariffs. Elec R (Lond) 88:644-5 My 20 '21
- Multi-part tariffs for domestic electricity supply. J. W. Beauchamp. Inst E E J 59:714-18 Jl '21; Abstracts. Electrician 86:549 My 6 '21; Engineer 131:479 My 6 '21; Elec R (Lond) 88:727 Je 3 '21; Discussion. Engineer 131:479-80 My 6 '21; Elec R (Lond) 88: 727-9 Je 3 '21
- Une nouvelle formule de tarification de l'énergie électrique complexe (active et réactive). F. Scoumanne. Génie Civil 78:202 F 26 '21
- Optional flat rate for household service. J. F. Farquhar. Elec W 75:556 Mr 6 '20
- Path of prosperity. H. E. Goody. Electrician 85:354-5 S 24 '20
- Pointers on electric-power rates. G. MacLean. Power 54:185 Ag 2 '21
- Power factor and rates. E. A. Quinn. J Elec 44:372-3 Ap 15 '20
- Power factor in electric power rates. H. W. Meyer. Elec W 78:576-7 S 17 '21
- Power-factor rate that works both ways. M. L. Sindeband. Elec W 77:1369 Je 11 '21
- Power plants get rate increase. C. W. Geiger. diag Power Pl Eng 24:799-802 Ag 15 '20
- Power rates based on power factor of customer's load. F. A. Coffin. N E L A Bul 8: 551-5 S '21
- Principles of rate-making for electric utilities. T. Matthews. Sibley J 35:61-3+, 84-6 Ap-My '21
- Rates for electrical energy and service. F. W. C. Bailey. Eng N 40:803-8 O '21
- Rates should be based on future, not past, cost. Elec W 74:1071-2 D 13 '19
- Rates should meet higher production costs. P. M. Lincoln. diags Elec W 78:607-9 S 24 '21
- Retail rate-making for energy bought at wholesale. E. D. Jackson. Elec W 75:332-3 F 7 '20
- Rural rates should be based on value of service. N. T. Wilcox. Elec W 77:1115-16 My 14 '21
- Should central-station rates be materially increased and at once? Elec W 76:934-5 N 6 '20
- Southern California Edison is allowed rate increase. Elec R 76:690 Ap 24 '20
- Standard meter rates. L. W. Allison. Power 51:183-4, 218-19, 257-9 F 3-17 '20
- Tariffs for domestic electricity service. J. W. Beauchamp. Electrician 85:37-8; Discussion. 38-9 Jl 2 '20
- Unit basis for wholesale and retail rates. N. A. Kemmish. il Elec W 77:424-7 F 19 '21
- Uses and value of classified cost of service data as supplementary evidence in certain types of rate cases. C. B. Cooke, jr. diag N E L A Bul 8:577-85 O '21
- War-time central station rates ordered revised at Orange, Mass. Elec W 75:1211 My 22 '20
- What and why of the coal clause explained to customers. Elec W 77:270-1 Ja 29 '21

What constitutes a desirable power customer. E. C. Stone. Elec W 77:1325-6 Je 4 '21

Wholesale rate making for energy to be sold at retail. Elec W 75:795-6 Ap 3 '20

Wide discussion on tariffs at Institution of electrical engineers. Electrician 86:586-8 My 13 '21

See also Electric welding—Rates; Power contracts; Power cost

Electric refrigerators. See Refrigerators, Electric

Electric research

Research problems in electrical engineering. V. Karapetoff. Elec R 76:1025-6 Je 19 '20; Same (Common sense in the laboratory). Sci Am 122:672 Je 19 '20; Same. Sibley J 34:150-1+ O '20; Abstract. Power Pl Eng 24:750-1 Ag 1 '20

See also Electric laboratories

Electric resistance

Atomic structure of metals in solid solution. A. L. Feild. Chem & Met Eng 21:566-70 O 29 '19

Chart shows apparent resistance of large cables. T. H. Arnold. Elec W 78:28 Jl 2 '21

Checking high-range meggers with low resistances. R. E. Brown. diag Elec W 75:430 F 21 '20

Correction for the primary resistance in the circle diagram. V. Karapetoff. diag Sibley J 35:42+ Mr '21

Determination of equivalent resistance and copper losses in a three-phase stator. A. Nash. Elec R (Lond) 88:576-7 My 6 '21

Effect of temperature on the change of resistance of bismuth in a magnetic field. L. F. Curtiss. diags Phys R 18:255-74 O '21

Einfluss der wärmebehandlung auf den elektrischen widerstand. C. A. Edwards and A. L. Norbury. Stahl & Eisen 41:89-92 Ja 20 '21

Electric resistivity of dilute metallic solid solutions; abstracts. A. L. Norbury. Engineering 110:813 D 17 '20; Elec R (Lond) 88: 70-1 Ja 21 '21

Electrical resistance and instruments based on the temperature-variation of resistance. Sci Am M 4:371-2 O '21

Electrical resistance materials. W. Kennedy. Elec W 78:630 S 24 '21

Electrical resistance of metals. P. W. Bridgman. Phys R 17:161-94 F '21

Electrical resistance of the human body. Pop Mech 35:716-17 My '21

Electrical resistance of various insulating materials at high temperatures. R. K. Honaman and E. L. Fonseca. diags U S Nat Advisory Com for Aeronautics 1919: 91-9 '20

High-frequency resistance of wires and coils. G. W. O. Howe. diags Inst E E J 58:152-162; Discussion. 162-70 F '20

Integration method of deriving the alternating-current resistance and inductance of conductors. H. L. Curtis. diag U S Bur Stand Sci Pa 374:93-124 '20

Leakage resistance of street railway roadbeds and its relation to electrolysis of underground structures. E. R. Shepard. il diags U S Bur Stand Tech Pa 127:1-39 '19

Localisation of high-resistance breaks in submarine cables. A. Poulsen. diags Electrician 84:312-15 Mr 19 '20

Loop test for high resistance faults. H. V. Higgitt. diag Electrician 86:96-7 Ja 21 '21

Measurement of electrolytic resistance using alternating currents. H. F. Haworth. diags Electrician 85:443-5 O 15 '20

Measuring the resistance of transformer grounds. A. H. Ford. il diags Elec W 77: 1106-7 My 14 '21

Methods of measuring resistance of insulators at high temperatures. F. B. Silsbee and R. K. Honaman. diags U S Nat Advisory Com for Aeronautics 1919:79-89 '20; Same. Aerial Age 11:806-9 Ag 23 '20

Negative resistance for atmospheric reduction. M. I. Pupin and E. H. Armstrong. diags Wireless Age 8:22-4+ O '20

Electric resistance—Continued

- Physical properties of thin metallic films; some factors affecting the resistance of spluttered platinum films. L: R. Koller. Phys R 18:221-35 S '21
- Protective resistances for high-tension installations. H. Gewecke. Sci Am M 1:216 Mr '20
- Resistance and inductance of a three-phase cable. H. L. Curtis. Phys R 18:156-7 Ag '21
- Resistance of solutions of copper sulphate in glycerine. A. Gilmour. diags Philos Mag 6th ser 41:544-8 Mr '21
- Skin effect in large stranded conductors at low frequencies. W. I. Middleton and E. W. Davis. diags Am Inst E E J 40:757-63 S '21
- Spectral photoelectric sensitivity of silver sulphide and several other substances. W. W. Coblentz and H. Kahler. diags U S Bur Stand Sci Pa 344:231-49 '19
- Variation of resistance of selenium with temperature. S. Datta. Philos Mag 6th ser 42:463-70 S '21
- See also* Electric conductivity; Insulation (electric); Rheostats

Electric resistors. See Rheostats**Electric service, Rural**

- Better understanding between utilities and farmers. S. W. Hill. Elec R 78:687-8 Ap 30 '21
- Building the agricultural load. il J Elec 45:458-61 N 15 '20
- Central-station service for farm light and power. H. W. Young and F. C. Van Etten. Elec R 76:483-5 Mr 20 '20; Abstract. Sci Am M 1:473 My '20
- Company supplies 2.5-kva. rural transformer installation for \$375. D. O. Vaughn. il Elec W 76:882 O 30 '20
- Connecting 44,000 hp. of rural load. E. P. Smith. il Elec W 78:259-60 Ag 6 '21
- Data on rural line extensions. Elec R 76:561-4 Ap 3 '20
- Demand for rural service based on economic reasons. il Elec W 76:817-19 O 23 '20
- Development of rural electricity supply; Hereford's (England) interesting enterprise. il diag map Electrician 85:472-5 O 22 '20
- Electric company, San Diego, Cal., serves agricultural territory. il Elec R 78:272 F 12 '21
- Electric service for rural customers. C. W. Drake. N E L A Bul 8:591-4 O '21; Same. Elec R 79:657-9 O 29 '21
- Electrical progress in a model colony. S. Bretherton, jr. il J Elec 45:172-3 Ag 15 '20
- Factors governing rural extensions. G. C. Neff. il diags Elec W 76:1205-7 D 18 '20
- Farm line business at a profit to the central station. H. W. Young. il Elec J 17:79-80 F '20
- Features of agreement to build rural lines. Elec W 75:1146 My 15 '20
- Giving service in agricultural districts. il map Elec W 75:1051-9 My 8 '20
- Handling rural business in Ohio. Elec W 76:29-30 J1 3 '20
- Handling rural business in state of Minnesota. H. L. Nichols. Elec W 75:222 Ja 24 '20
- High-voltage distribution lines for rural service. E. L. Fischer. diag map Elec R 79:653-6 O 29 '21
- High-voltage transformers in farm line construction. J. E. Johnson. il Elec R 79:661-2 O 29 '21
- Illinois commission rules for rural service consumers. Elec W 78:517-18 S 10 '21
- Illinois provides for rural utilities. Elec W 78:411-12 Ag 27 '21
- Indiana rules governing rural electric service. Elec W 77:214 Ja 22 '21
- Managing electric service for farmers. A. W. Jones. il Elec W 76:283-4 Ag 7 '20
- Method for making farm lines pay a profit. H. H. Henley. Elec W 75:29 Ja 3 '20
- New form of rural service contract. W. J. Greene. Elec W 78:365-6 O 29 '21
- Ownership of rural lines. Elec W 76:390 Ag 21 '20

- Profitable field in rural service lines. D. L. Gaskill. Elec W 77:1445-6 Je '18 '21
- Rules for rural line extensions meet approval. Elec R 77:295-6 Ag 21 '20
- Rural electricity supply in England. Elec W 77:243 Ja 29 '21
- Rural electrification in Finland. Elec W 77:1070 My 7 '21
- Rural lines owned by farmers. C. S. Kennedy. Elec W 77:1243 My 28 '21
- Rural rates should be based on value of service. N. T. Wilcox. Elec W 77:1115-16 My 14 '21
- Rural service in southern Idaho. T. W. Halliday. diag Elec W 78:107-9 J1 16 '21
- Salient facts concerning service to farming communities. H. W. Young. il Elec R 76:35-6 Ja 3 '20
- Serving dense irrigation load in California. E: N. D'Oyly. Elec W 77:1241-3 My 28 '21
- Serving rural distribution from high-tension lines. il Elec W 77:875-6 Ap 16 '21
- Transmitting electric current to small Kansas towns. F. H. Frauens, jr. Munic Eng 59:125 O '20
- Unprofitable rural business. Elec R 77:1097-8 My 14 '21
- Utilities should maintain, but not invest in, rural lines. Elec W 78:186 J1 23 '21
- Villages or group of farms fed from small plant. il Elec R 79:665 O 29 '21
- Wisconsin conference on agricultural service. C. D. LeCheverell. Elec W 75:83-4 Ja 10 '20
- See also* Electricity on the farm; Farm lighting plants

Cost

- Construction and cost feature of rural lines. G. C. Neff. il Elec R 78:529-35 Ap 2 '21
- Cost of extensions to serve rural customers and rules for computing rates. N E L A Bul 8:556-9 S '21
- Cost of furnishing rural service. D. O. Vaughn. Elec W 75:851-2 Ap 10 '20
- Cost of rural line construction in Ohio. Elec W 76:838 O 23 '20
- Rural and other service costs compared. D. D. Ewing. Elec W 77:649 Mr 19 '21
- Rural service rates must cover all costs. J. O. Kammerman. Elec W 77:189-91 Ja 22 '21
- Suggestions as to transmission costs and rural service. N. T. Wilcox. Elec R 79:9-10 J1 2 '21
- Wrong impression conveyed regarding cost of rural service. G. C. Neff. Elec W 76:1271 D 25 '20

Electric sewing machines. See Sewing machines, Electric**Electric ship propulsion. See Ship propulsion, Electric****Electric ships. See Ship propulsion, Electric****Electric shock**

- Resuscitation from electrical shock. il N E L A Bul 7:821-2 N '20
- Resuscitation from electrical shock by the prone-pressure method. C: B. Scott. Elec W 77:652 Mr 19 '21; Same. N E L A Bul 8:234 Ap '21

Electric shops (repair)

See also Electric railroads—Shops

Records

- Order system for coil-winding shop. A. C. Roe. diags Elec W 78:65-70 J1 9 '21
- Electric shops (retail trade)**
- Advertising. H. Angus. il J Elec 45:332-4 O 1 '20
- Art in the electrical store, Spott electrical company, Oakland, Calif. il J Elec 45:582-3 D 15 '20
- At the sign of the green candle. il plan J Elec 44:214-15 Mr 1 '20
- Business hints for the dealer. Elec R 77:776-7 N 13 '20
- Chicago dealers exchange visits and sales ideas. il Elec R 77:119-22 J1 24 '20
- Conducting a retail electrical store for profit. J. A. Fowler. Elec R 77:641-2 O 23 '20

Electric shops (retail trade)—Continued

- Convention report of Electric shop management division, Merchandise sales bureau. charts N E L A Bul 7:438-48 J1 '20
- Dealers participate in a window trimming contest. il Elec W 79:623-6 O 22 '21
- The desire store. H. B. Rogers. il J Elec 45:420 N 1 '20
- Effect of attractive retail store on public good will. il Elec W 75:388 F 14 '20
- Electric appliance dealer and his future. C. A. Parmelee. il J Elec 45:415-16 N 1 '20
- Establishing a new electric store in a big way in Minneapolis. W: B. Eastwood. il Elec R 77:829-32 N 27 '20
- Helping the dealer who does not sell your goods. R. Cole. Ptr Ink 112:25-7+ Ag 19 '20
- How organization and trade journals assist retail electrical dealers. Elec R 77:575-6 O 9 '20
- How public utility encourages better window displays. il Elec R 79:445-6 S 17 '21
- Making an electrical salesroom attractive to trade. plans Elec R 76:1055-7 Je 26 '20
- Manner of arranging electrical displays on store floor and in window has effect on sales. G: J. Kirkgasser. il Elec R 77:334-6 Ag 28 '20
- Meeting modern merchandising conditions; Herman Andrae electrical co., Milwaukee. W: B. Eastwood. il plans Elec R 77:307-10 Ag 28 '20
- New designs for fixture case and window background. diags Elec W 78:190-1 Ja 29 '21
- New ideas in electrical retailing. H. B. Rogers. il J Elec 46:134 F 1 '21
- Novel arrangement of new Portland electric shop. il Elec R 75:994 D 13 '19
- Organizing a model contractor-dealer business. P. C. Burrell. il Elec R 78:335-8 F 26 '21
- Planning the layout for the small store. plans J Elec 47:114 Ag 1 '21
- Relation of selling expense and discounts to net profits in retailing electrical appliances. A. L. McCarthy. Elec R 76:543-4 Mr 27 '20
- Retailing electrical appliances through chain stores. il Elec R 77:315-17 Ag 28 '20
- Selling violet-ray apparatus in electrical stores. W: B. Eastwood. il Elec R 78:165-8 Ja 29 '21
- Service devices for the electrical shop. il J Elec 44:311-13 Ap 1 '20
- Shadow box helps sell electric lighting fixtures. il Elec R 76:891-3 My 29 '20
- Six business principles that lead to dealers' success. J. E. Bullard. Elec R 76:160-1 Ja 24 '20
- Store location. H. Angus. diags J Elec 44:17-19 Ja 1 '20
- Store that the customer remembers. il J Elec 46:297 Mr 15 '21
- Taking advantage of the holiday season to increase turnover of electrical appliances. W. B. Stoddard. il Elec R 77:857-8 N 27 '20
- Using the stores as a business builder. il J Elec 47:73-4 J1 15 '21
- Wireless apparatus for the electrical dealer. L: Etshokin. J Elec 45:423-4 N 1 '20
- Women's interest necessary to electric shop progress. Elec R 77:858-9 N 27 '20
- See also Electric apparatus and appliances—Merchandizing; Electric industries

Electric shot firing. See Blasting; Blasting—Safety devices and measurers; Detonators, Electric

Electric shovels

- By making boom horizontal, surface type of shovel is adapted to mine work; the Brown electric shovel. D. C. Ashmead. il Coal Age 19:395-6 Mr 3 '21
- Canal building by electricity. il Electrician 86:201-2 F 11 '21
- Electric shovel economical in excavating canal. Elec W 76:932 N 6 '20
- Electric shovel in open-cut mining. C. R. Fisher and H. G. Head. il diags Gen Elec R 23:938-48 D '20
- Electric shovel load characteristics. D. Stoetzel. il Gen Elec R 24:546-9 Je '21

- Electric shovels in construction of power canal. il map Elec R 79:351-3 S 3 '21
- Large electric shovel saves time of two men. P. S. Stevens. Elec W 75:1143-4 My 15 '20
- Open-air mining of coal by electric shovels. G. Orb. il Sci Am 122:567+ My 22 '20
- Operating data on large shovels at Queenston development. L. C. McLure. il Can Eng 38:470 My 13 '20; Same. Eng & Contr 53:575 My 19 '20; Same cond. Iron Age 105:1650 Je 10 '20
- Rotary shovel that clears wide path but delivers to fixed point of discharge. S. H. Hunt. il diag plan Coal Age 19:789-91 My 5 '21; Excerpts. Eng & Contr 55:593 Je 15 '21
- 300-ton electric shovel in open-cut quarrying. C. D. Bradley. Gen Elec R 23:937 D '20

Electric signals

- Adapting signal indicators to power plant use. H. P. Sparkes. il diags Elec W 76:1251-2 D 25 '20
- Audible electric signals in industrial plants, and acoustical engineering. V. Karapetoff. il Am Inst E E J 39:13-19 Ja '20; Excerpts. Int Marine Eng 24:466-8 J1 '19; J Elec 43:66-7 J1 15 '19; Textile World 55:3707+ Je 14 '19; Iron Age 103:1715 Je 26 '19; Elec R 74:946 Je 7 '19; Eng & Min J 108:304 Ag 23 '19; Eng & Contr 52:430-1 O 15 '19; Abstract. Sci Am M 1:182 F '20
- Audible signals in foundries. V. Karapetoff. diags Sibley J 33:101-3 D '19
- Code calling systems in steel plants. V. Karapetoff. diags Iron Age 105:1501-3 My 27 '20
- Convenient shop call system. il Elec Ry J 57:366 F 19 '21
- Deep-mine signal system which permits easy location of troubles. E. W. Fredell. diag Elec W 75:1201-2 My 22 '20
- Designing mine signal systems. R. H. Bacon. diags Eng & Min J 110:361-4 Ag 21 '20; Same cond. Elec W 76:372-5 Ag 21 '20
- Electric signalling at Victoria station. il Electrician 84:371-3 Ap 2 '20
- Electrical signaling method for guiding ships. R. H. Marriott. il J Elec 44:113-15 F 1 '20
- Eliminating the lost call. R. G. Skerrett. il Sci Am 122:164+ F 14 '20
- Engine room telephone signal. L. J. Goodrich. Power Pl Eng 24:945 O 1 '20
- Flashing speeds of incandescent signal lamps. A. G. Worthing. diags J Fr Inst 191:231-57 F '21
- Guiding ships by electric cables. M. Tavis. Sci Am 123:123+ Ag 7 '20
- Intercommunication in industrial plants by means of audible electric signals. V. Karapetoff. Sibley J 33:44-5 My '19
- Note on speed of flashing of incandescent signal lamps. A. G. Worthing. J Fr Inst 189:788-9 Je '20; Same. Am Inst E E J 39:841 S '20
- Pilot lamp indicates operation of house pumps. A. J. Dixon. diag Elec W 77:606 Mr 12 '21
- Selsyn system of position indication for locks, water gates, dry docks, signaling between control room and engine room, etc. E. M. Hewlett. il diags Gen Elec R 24:210-18 Mr '21; Excerpt. Engineer 131:577 My 27 '21
- Signaling and controlling mine hoists from moving cages. C. A. Allen. diags Coal Age 18:894-6 O 28 '20
- Use of alternating currents for submarine cable transmission. F: E. Pernot. il diags J Fr Inst 190:323-71 S '20
- Uses of code calling devices. V. Karapetoff. Textile World 56:3360+ D 13 '19
- See also Electric railroads—Signals; Fire alarms; Light signals; Railroads—Signals

Electric signs

- Change and development in sign lighting. E: B. Fox. il Elec W 78:121 J1 16 '21
- Development of electric sign lighting. E. A. Mills. il Illum Eng Soc 15:363-71 no 6 '20
- Developments in electric sign lighting practice. W. E. Underwood. il Elec R 79:392-4 S 10 '21

Electric signs—Continued

- Electric sign manufacture. R. E. Smith. il J Elec 45:70 J1 15 '20
- Electrical advertising. C. L. Law. il N E L A Bul 7:3, 6-8 Ja '20
- Electricity modernizes the signboard. T. W. Simpson. il J Elec 47:69 J1 15 '21
- Illuminated signs. E. C. Leachman. il plan Illum Engr 14:68-73; Discussion. 73-81 Mr '21
- Light as a selling agent. J. S. Dow. il Electrician 87:438-40 O 7 '21
- New parlagraph sign installed in Cleveland. Elec R 79:563 O 8 '21
- Outline lighting as a business builder. il J Elec 46:77-8 Ja 15 '21
- Problems involved in lighting of signs and billboards. J. M. Shute. il Elec R 79:535-9, 581-5 O 8-15 '21
- Electric smelting.** See Smelting, Electric
- Electric snow melters.** See Snow melters, Electric
- Electric soldering Iron**
- Electric-arc soldering iron. B. A. Briggs. il Power 51:545 Ap 6 '20; Same. Am Mach 52: 853 Ap 15 '20
- Electric sparks**
- Phenomena of the ignition of gaseous mixtures by induction coil sparks. J. D. Morgan and R. V. Wheeler. diags Chem Soc J 119: 239-51 Mr '21
- Sparking voltages between spherical electrodes. A. Russell. Inst E E J 57:sup223-30 '19
- See also Electric arc; Spark gap
- Electric standards**
- Electric units and standards. bibliog U S Bur Stand Circ 60:1-68 '20
- Progress in standardization of plugs and receptacles. W. D. Yates. Elec R 77:1003-4 D 25 '20
- Standardization of working voltages of electrical plant in Germany; abstract. Elec W 75:224 Ja 24 '20
- Standardizing the distribution voltages in Switzerland. A. Grünhut. diags Elec W 77: 643-4 Mr 19 '21
- See also Electric conduits—Standards; Electric machinery—Standards; Electric motors—Standards; Electric wire and wiring—Standards; Switchboards—Standards
- Electric starting.** See Automobiles—Starting devices
- Electric steel.** See Steel metallurgy—Electrometallurgy
- Electric stores.** See Electric shops (retail trade)
- Electric stoves**
- British standard specification for electrically heated cooking range (two sizes). British engineering standards association. 15p C. Lockwood & son, London '20
- Combination range for cooking by electricity and coal. il Elec R 79:635-6 O 22 '21
- Commercial aspects of electric ranges. Elec R 79:222 J1 2 '21
- Crawford electric range with adjustable broiler. il Elec R 79:139 J1 23 '21
- Effect of ranges on distribution layouts. H. P. Seelye. Elec W 75:595-6 Mr 13 '20
- Electric range. il J Elec 43:579 D 15 '19
- Electric range. P. L. Miles. J Elec 43:512 D 1 '19
- Electric range service costs and troubles. R. F. Hotton. Gas Age 44:518-19 D 1 '19
- Electric range, water and air heaters; their value to the central station. F. C. Piatt. J Elec 46:563-6 Je 1 '21
- Lightning oven. il Electrician 87:86-7 J1 15 '21
- Thermal characteristics of electric ovens and hot-plates. E. Griffiths and F. H. Schofield. Inst E E J 59:361-72 Ap '21; Abstracts with discussion. Electrician 86:222-6, 301, 558 F 18, Mr 11, My 6 '21; Elec R (Lond) 88:220-2, 426-7; 89:30 F 18, Ap 1, J1 1 '21; Engineer 131:176-7 F 18 '21; Discussion. Inst E E J 59:383-6, 663-5 Ap, Je '21

Universal electric range with long-life heating elements. il Elec R 78:1027 Je 25 '21

See also Electric ovens

Electric substations

- Architecture and engineering efficiently combined in sub-station at Flushing, Long Island. W. W. Knowles. il diags plans Am Arch 117:195-204 F 11 '20
- Calculating substation short circuits. R. F. Gooding. diags Elec W 75:771-3, 949-51 Ap 3, 24 '20
- Chile exploration company's Tocopilla power plant. P. H. Thomas. il Power 51:492-5 Mr 30 '20
- Clearing house for five stations; Echota substation of Niagara Falls power company. J. A. Johnson. il diags plan Elec W 76:961-5 N 13 '20
- Combination town-lighting and industrial substation. H. W. Young. il Elec R 77:981 D 18 '20
- Combined gas and motor-driven pressure booster station. A. E. Walden. il diags plan Power 51:950-2 Je 15 '20
- Concrete industrial substation at Nashua, N.H. il Elec W 75:139 Ja 17 '20
- Cost and characteristics of new Dayton substation. W. Shuler. diag Elec W 77:374-5 F 12 '21
- Distribution problems of interurban railways. J. S. Hagan. Elec Ry J 55:603-6 Mr 20 '20
- Downtown substation in San Francisco. J. E. Woodbridge. il diag plan Elec Ry J 58:269-74 Ag 20 '21
- Edison electric illuminating co., Boston, Mass. Am Arch 117:653, pl 646a-d My 26 '20
- Electric substation built into base of line tower. il Pop Mech 35:83 Ja '21
- Electrical power supply for the Puget Sound lines of the Chicago, Milwaukee & St Paul railroad. A. W. Copley. il diags maps Elec J 17:3-9 Ja '20
- Energy supply system doubly safeguarded; new substation, Charleston, S.C. il Elec Ry J 55:993-4 My 15 '20
- Features of new substation at Flushing. W. C. Blackwood. il diags Elec W 75:432-5 F 21 '20
- Features of the substation at the Hog Island shipyard. W. B. West. il Am Inst E E J 39:807-8 S '20
- High-voltage service entries. W. H. Millan. Elec W 75:779-80 Ap 3 '20
- Indoor substations. E. F. Bracken. il N E L A Bul 7:418-20 J1 '20; Same abr. Elec Ry J 56:75-6 J1 10 '20
- Industrial plant substations. E. G. Merrick and B. Nikiforoff. il diags Gen Elec R 24: 497-500 Je '21
- Municipal plant replaced by outdoor substation. il Elec R 76:394 Mr 6 '20
- New features in distribution substations. W. H. Millan. il diags Elec W 75:883-6 Ap 17 '20
- New power supply for the St Paul. il map Elec Ry J 55:481-2 Mr 6 '20
- Noiseless feature is effective in a simply constructed substation. il diag plan Elec Ry J 55:506-7 Mr 13 '20
- North substation of Duquesne light company, Pittsburgh. il Elec R 75:1045-7 D 27 '19
- Outdoor step-down substations on ring-feeder systems. H. W. Young. diags Elec R 77:105-6 J1 17 '20
- Outdoor substation built with pipe-work structure. il Elec R 78:321 F 19 '21
- Outdoor substation installation in France. S. H. Abbott. il map Elec R 79:689-90 N 5 '21
- Outdoor substation of unique design. R. E. Anderson. il Elec R 77:621 O 16 '20
- Outdoor substations in connection with coal-mining installations. H. W. Young. il diags Min & Met 153:1883-94 S '19; Same. Coal Age 16:712-16 O 30 '19; Same. Elec R 75: 595-8 O 11 '19; Discussion. Min & Met 157: (sec 12) 28-30 Ja '20
- Portable substation with collapsible construction. F. J. Foote. il Elec Ry J 58:169 J1 30 '21
- Power contracts and substations for industrial loads. E. Pragst and A. G. Darling. Gen Elec R 24:507-10 Je '21

Electric substations—Continued

- Problems of the electric railway. G. Wüthrich. Engineer 130:281-3 S 17 '20
- Rectifier substations developed abroad. J. H. Milliken. il Elec Ry J 58:779-80 O 29 '21
- Reducing noise and vibrations. K. Rankine. Power 51:580 Ap 13 '20
- Simple design for outdoor substation. diags Elec W 75:790 Ap 3 '20
- Simplified low-cost substation. diags Elec W 76:1121 D 4 '20
- Standardized pumping-plant substation for Arizona valley. il Elec W 77:1053 My 7 '21
- Substation at Hog Island shipbuilding yard. W. B. West. il Elec R 77:697-8 O 30 '20
- Substation capacity for heavy duty material handling cranes. W. C. Raube. Gen Elec R 24:492-4 Je '21
- Substation construction in southern California. J. A. Lighthipe. il diags plan Elec W 74:1110-12 D 20 '19
- Substation operation for street railway service. W. T. Bivins. Elec Ry J 55:513-14 Mr 13 '20
- Substations and switchgear for overhead systems. A. Still. il diag Elec R 77:355-61 S 4 '20
- Substations for 110-kv. transmission lines in France. M. A. Henriod. il Elec W 77:1355 Je 11 '21
- Substations for supplying large industries. R. H. Tillman. il diag Elec W 76:231-3 Jl 31 '20
- Supply of electrical energy to large customers. R. H. Tillman. il diags plans Elec R 77:375-8 S 4 '20
- Switching and protection of transmission circuits. S. Q. Hayes. il diags maps Elec J 17:555-62 D '20
- Switching stations of one or more stories; abstract. H. Probst. Elec W 78:478-9 S 3 '21
- Trends in substations and lines. A. Alsaker. Elec W 75:1308 Je 5 '20
- Ventilating an extensive thin-coal mine. D. J. Baker. il Coal Age 18:103-5 Jl 15 '20
- See also Electric distribution; Electric transformers; Electric transmission; Rotary converters

Accidents

- Authoritative report on Tonawanda (N.Y.) substation accident. J. L. Harper. Elec W 76:1023 N 20 '20
- Lightning demolishes substation. il Power Pl Eng 25:1031 O 15 '21

Cost

- Itemized cost of 33,000-volt line and substation. Elec W 75:1005 My 1 '20
- Outdoor substation built at low first cost. il Elec W 75:438 F 21 '20

Equipment

- Automatic disconnecting switch for small substations. il diags Elec W 77:96-7 Ja 8 '21
- Floor hooks facilitate movement of apparatus. W. H. Millan. diags Elec W 77:320 F 5 '21
- Installation of switching equipment for synchronous converter substations. A. J. A. Peterson. diag plan Elec J 18:329-31 Jl '21
- Simplified layout of rotary-converter substation. J. E. Woodbridge. il diag Elec W 78:361-5 Ag 20 '21
- Substation switching equipment of the Chicago, Milwaukee & St Paul railroad. C. M. Moss. il Elec J 17:15-18 Ja '20

Layout

- Electrical layout in new substation; Kansas City railways. S. H. Grauten. il diags plan Elec Ry J 56:1182-5 D 11 '20
- Simplicity in outdoor substation layout. L. J. Moore. il diags plan Elec W 77:1365-8 Je 11 '21
- Simplified layout of rotary-converter substation. J. E. Woodbridge. il diag Elec W 78:361-5 Ag 20 '21
- Standardized layout for outdoor substations. diags plan Elec W 75:21 Ja 3 '20
- Substation layout of Southern Pacific company in Oregon. P. Lebenbaum. il map Elec Ry J 56:1055-7 N 20 '20

Safety devices and measures

- Limiting substation short-circuits. R. F. Gooding. diag Elec W 75:771-3 Ap 3 '20
- Protection against shock in indoor substations. E. F. Bracken. Elec Ry J 56:75-6 Jl 10 '20
- Short-circuit protection for direct-current substations. J. J. Linebaugh. il diag Am Inst E E J 39:274-8 Mr '20; Same cond. Elec Ry J 55:515-17 Mr 13 '20
- Electric substations, Automatic**
- Advantages of automatic railway substations. C. H. Jones. Elec Ry J 57:175-6 Ja 22 '21
- Applying the automatic substation. C. A. Butcher. Elec Ry J 55:654 Mr 27 '20
- Automatic railway substations. F. W. Peters. il diag Am Inst E E J 39:267-74 Mr '20; Excerpts. Elec Ry J 55:518-19 Mr 13 '20
- Automatic substation equipment for industrial plants. R. J. Wensley. il Elec R 77:789-93 N 20 '20; Abstract. Power 52:760-1 N 9 '20
- Automatic substation for light and power service. il Elec R 78:155-6 Ja 22 '21
- Automatic substation from an economic standpoint. Sci Am 122:498 My 1 '20
- Automatic substation in electrolysis mitigation. E. R. Shepard. charts Elec Ry J 57:805-8 Ap 30 '21
- Automatic substation in Switzerland. il diag Elec Ry J 57:681-3 Ap 9 '21
- Automatic substation justifies its use for low load densities. C. M. Gilt. il diags Elec W 78:309-11 Ag 13 '21
- Automatic substation progress. A. C. Butcher. il diags Elec Ry J 58:56-8; Discussion. 58-61 Jl 9 '21
- Automatic substation, Sacramento Northern railroad. W. H. Evans. il plan J Elec 45:132-7 Ag 1 '20; Same. Gen Elec R 23:894-902 N '20
- Automatic substations at Des Moines. F. C. Chambers. il maps Elec Ry J 55:738-44 Ap 10 '20
- Automatic substations discussed at Providence. Elec W 76:799 O 16 '20
- Automatic substations eliminate labor expense. R. J. Wensley. Elec W 75:137-8 Ja 17 '20
- Automatic substations entering electric service field. R. J. Wensley. il Elec W 78:14-15 Jl 2 '21
- Automatic substations for alternating-current railway signal power supply. H. M. Jacobs. il diags Gen Elec R 23:902-8, 949-53 N-D '20
- Automatic substations for heavy city service. R. J. Wensley. diag map plan Am Inst E E J 39:359-64 Ap '20; Abstract. Elec Ry J 55:519-21 Mr 13 '20
- Automatic substations for mining and industrial power loads. M. A. Whiting and C. E. H. von Sothen. Gen Elec R 24:494-6 Je '21
- Automatic substations on the Pacific Electric. il diag Elec Ry J 55:248-50 Ja 31 '20
- Automatic substations save labor, act promptly and insure equipment against roasting. R. J. Wensley. il Coal Age 20:407-9 S 15 '21; Abstract. Min & Met 177:44-5 S '21; Same. Sci Am M 4:285-6 S '21
- Automatics on the New York state railways. C. L. Cadle. il Elec Ry J 54:985-7 D 20 '19
- Brief review of automatic substation experience on the Aurora, Elgin & Chicago R. R. S. E. Johnson. il Gen Elec R 24:610-12 Jl '21
- Checking up on automatic substation. C. H. Jones. il Elec Ry J 57:595-9; Discussion. 592, 600 Mr 26 '21
- Cleveland railway commissions its first automatic substation. il diag map plan Elec Ry J 56:532-6 S 18 '20; Excerpts. Power Pl Eng 24:1205-6 D 15 '20
- Demonstration of application of automatic switching in coal mines. il Elec R 79:354 S 3 '21
- Efficiency and operating tests on the North Shore automatic substations. C. M. Davis. il diag Gen Elec R 24:613-19 Jl '21
- Experience shows economy of automatic operation. Elec W 75:650 Mr 20 '20

Electric substations, Automatic —Continued

- First automatic industrial substation; Packard motor plant. S. G. Leonard. il chart diags Elec W 76:417-20 Ag 28 '20
- Installation and maintenance of automatic substations. Elec J 18:298-90 Je '21
- Kansas City to use automatic substation control. Elec R 78:786-7 My 14 '21; Same. Elec W 77:1126 My 14 '21
- List of the automatic substations recently installed. Elec Ry J 57:176 Ja 22 '21
- Many developments described by the committee on electrical apparatus. diag Elec R 76:866-7 My 22 '20
- Modern devices and control for automatic railway substations. C. M. Davis. il diag Gen Elec R 23:342-54 Ap '20
- Nanty Glo has first coal-mine substation equipped to run without attendant. G. Bright. il Coal Age 19:613-17 Ap 7 '21; Same. Elec W 77:817-19 Ap 9 '21
- New field for automatic substation; equipment found suitable for commercial service. il Power Pl Eng 25:469 My 1 '21
- Operating features of automatic switching equipment. C. Lichtenberg. il Elec R 78:963-6 Je 18 '21
- Outdoor industrial substation designed for continuity of operation and ease of inspection. il Elec W 78:762 O 15 '21
- Rapid adoption of automatic substations. Power 50:851 D 16 '19
- Regulation of street series lamps in practice on Milwaukee's system. F. A. Vaughn. il diag W Soc E J 25:374-403 Jl 20 '20; Same cond. Elec R 77:236-9 Ag 14 '20
- Reliability of the automatic substation. Elec Ry J 57:804 Ap 30 '21
- Report of the committee on the automatic substation of the American electric railway engineering association. Elec Ry J 58:630-1 O 8 '21
- Results of automatic substation operation on the Chicago, North Shore & Milwaukee railroad. C. H. Jones. il diags map Gen Elec R 24:601-10 Jl '21
- Second year of automatic substation operation at Butte. E. J. Nash. Elec Ry J 55:202 Ja 24 '20
- Single phase gives way to the automatic substation on York railways, Hanover, Pa. il diag Elec Ry J 58:543-5 O 1 '21
- Some experiences in the development of automatic substations. R. J. Wensley. il diag Elec Ry J 54:886-9 N 15 '19
- Substation at Cordova mine has operated two years without attendant. il Coal Age 19:861-3 My 12 '21
- Swiss install automatic substation. Elec Ry J 55:703 Ap 3 '20
- What is a truly automatic substation? Coal Age 19:996 Je 2 '21
- Electric switches**
- Air-break colliery switchgear. diag Electrician 87:494 O 14 '21
- Alarm clock used to open oil switch automatically. E. Littlefield. diag Power 51:601 Ap 13 '20
- Arc rupture in magnetic blow-out switches. O. H. Eschholz. il diags Elec W 78:461-4 S 3 '21
- Arrangement of momentary-contact switches. H. L. Bristol. plan Elec R 76:81 Ja 10 '20
- Automatic disconnecting switch for small substations. il diags Elec W 77:96-7 Ja 8 '21
- Birmingham switchgear works. il Engineer 132:238-9, 242 S 2 '21
- Calculation of magnetic force on disconnecting switches. H. B. Dwight. diags Am Inst E E J 39:550-2 Je '20
- Combating fires in transformers and oil switches. C. T. Sinclair. il Elec W 78:357-9 Ag 20 '21
- Cutler-Hammer oil-immersed switch operated by Clapper type magnet. il Iron Age 105:132 Ja 8 '20
- Cutler-Hammer pressure-operated switch. il Am Mach 54:751-2 Ap 28 '21
- Design of contacts for switches and busbars; abstract. W. Höpp. Elec W 76:697 O 2 '20
- Developments in the electrical industry during 1919. J. Liston. il diags plan Gen Elec R 23:40-8 Ja '20
- Device that automatically recloses oil switch after tripping out. J. H. Stockbridge. diag Elec W 75:953 Ap 24 '20
- Effective oil-switch overhauling. F. I. Morgan. il diags Elec W 77:193-6 Ja 22 '21
- Effective street-light switch. D. A. McNulty. il Elec W 77:1050 My 7 '21
- Electric switch and controlling gear. C. C. Garrard. 2d ed. rev. and enl. 654p Benn brothers, London '20
- English oil-break switches for low-voltage circuits. il Elec R 79:191 Ag 6 '21
- 5000-kva., 100,000-volt new-type air-break switch. G. T. Southgate. il diags Elec W 74:407-9 Ag 23 '19; Same. Electrician 84:343 Mr 26 '20
- Forces acting on disconnecting switches. L. B. W. Jolley. Elec W 75:381 F 14 '20
- High tension switchgear, describing the design, construction, and functions of the leading types of switchgear used in the control of high-tension electrical plant. H. E. Poole. 118p Pitman '21
- High voltage switchgear for outdoor work. il Electrician 87:450-1 O 7 '21
- Improvements needed in high-voltage air-break switches. F. Howard. Elec W 76:286-7 Ag 7 '20
- Inclosure of fuses and switches growing in favor. Elec W 77:900-1 Ap 16 '21
- Installing disconnecting switches. F. Gillooly. diags Power 51:150-1 Ja 27 '20
- Knife switches and fuses for ship installations. il Electrician 87:209-10 Ag 12 '21
- Large outdoor switches and transformers. S. Q. Hayes and W. A. Coates. il Electrician 84:190-2 F 20 '20
- Magnetic force in disconnecting switches. H. B. Dwight. Electrician 87:290-1 S 2 '21
- Making tap connections to transmission lines. diags Elec W 74:1066-7 D 13 '19
- Manufacturing modern switchgear. il Electrician 87:294-5 S 2 '21
- Mathematical analysis of the mechanical forces acting on switches and busbars. L. B. W. Jolley. diags Electrician 85:646-7, 676-7 D 3-10 '20
- Mr George Ellison's switchgear works. il Elec R (Lond) 89:300-2 S 2 '21
- New electric switch is built fool-proof. il Pop Mech 36:540 O '21
- New safety switch made by Johns-Manville, inc. il Blast F & Steel Pl 9:409 Je '21
- New thermostatic switch for electric circuit. il diag Elec R 78:676 Ap 23 '21
- New type of switch house prevents bus short circuits; new Calumet plant of Commonwealth Edison company. B. G. Jamieson. diags Elec W 77:761-3 Ap 2 '21
- Oil switches for large electrical supply systems. il diag Engineering 130:220-2 S 3 '20
- Phenomena of switching in oil and the possibilities of standardising the apparatus. P. Charpentier. Electrician 84:668-70 Je 18 '20
- Pressure-operated switch for use with motor-driven pumps and compressors. il Iron Age 107:916 Ap 7 '21; J Elec 46:417 Ap 15 '21
- Protect workmen by inclosing switches. A. Waldschmidt. il Elec W 75:729-31 Mr 27 '20
- Relative merits of connections employed in high-voltage generating stations. E. Pragst. diags Gen Elec R 23:386-91 My '20
- Remote-control sectionalizing switch. H. P. Bell. diag Elec Ry J 55:565-6 Mr 20 '20
- Rules to follow when operating disconnecting switches. A. E. Bauhan. Elec W 78:672-3 O 1 '21
- Some developments in the electrical industry during 1920. J. Liston. il diag Gen Elec R 24:33-40 Ja '21
- Station accidents prevented by use of switch blocks. W. C. Wagner. diags Elec W 75:844-5 Ap 10 '20
- Substation switching equipment of the Chicago, Milwaukee & St Paul railroad. C. M. M. Moss. il Elec J 17:15-18 Ja '20
- Switch requirements for electric-motor control. E. P. Slack. diags Power 54:55-6 Jl 12 '21
- Switchboard meter connections for alternating current circuits. J. C. Group. diags Elec J 17:25-30, 61-5, 99-103 Ja-Mr '20

Electric switches—Continued

- Switching equipment of modern generating stations. F. G. Hickling. il diags Elec R 77:709-13 N 6 '20
- Switching on the world's longest line. il diags plan Elec W 75:421-3 F 21 '20
- Terminal screws and knobs eliminated in new switch. diags Elec W 74:991 N 29 '19
- Time-lag device for electric switches. diag Engineering 111:105-6 Ja 28 '21
- Up-to-date industrial switchgear. il Electrician 87:269-70 Ag 26 '21
- Western Electric flip switch for lighting-circuit switches. il Elec R 78:443 Mr 12 '21

See also Switchboards

Testing

- High-current tests on high-tension switchgear. P. Torchio. il diags Am Inst E E J 40:120-31 F '21; Abstract. Power 53:526 Mr 29 '21
- Operating tests of magnetically operated starting switches. il Aerial Age 13:521+ Ag 8 '21

Electric symbols

- Electrical symbols proposed for international adoption by the International electrotechnical commission. diags Elec W 76:971-2 N 13 '20
- Standard graphic symbols. E: J. Cheney. diags Am Inst E E J 39:95-7 F '20
- Standardizing electrical symbols. diags Elec W 75:489 F 28 '20
- Symbols for electrical machinery and apparatus; abstract. A. Hayet. diags Elec W 76:345 Ag 14 '20

Electric terminology. See Electric symbols

Electric testing

- Automatic apparatus for intermittent testing. G. W. Vinal and L. M. Ritchie. il diag U S Bur Stand Tech Pa 171:3-7 '20
- Current transformer for testing of cables. F. Gilooly. diags Elec W 75:23 Ja 3 '20
- Electrical testing in Omaha. il Elec Ry J 56:1235-6 D 18 '20
- Generator for making lightning; apparatus to give more definite knowledge concerning lightning phenomena. J. L. R. Hayden and N. A. Lougee. il diag Gen Elec R 24:946-8 N '21
- Inspection tests for electrical equipment. A. S. MacDowell. diags Elec W 76:633-6 S 25 '20
- Lamp bank for testing. diags Elec R 76:82-3 Ja 10 '20
- Machine for testing insulators and bus supports. A. Ramsey. il Elec W 76:1024-5 N 20 '20
- Methods used in testing for alternating current. J. Braff. Elec W 75:217-18 Ja 24 '20
- New microphone hummer for electrical tests. il diag Sci Am 122:517+ My 8 '20
- Novel and handy electrical test instrument. C. W. Eisenmann. il Power Pl Eng 24:990-1 O 15 '20
- Polyphase experimental and instrument-testing table. H. P. Sparkes. il diag Elec W 76:380-1 Ag 21 '20
- Simple board for testing small equipment. A. H. Platt. diag Elec W 77:380 F 12 '21
- Sine wave testing sets. E. J. Burnham. il diags Gen Elec R 23:177-80 F '20
- Switchboard arranged for quickly making wide-range of tests. W. H. Farr. il diag Elec W 76:192-3 Jl 24 '20
- Testing low-resistance coils with telephone receiver. J. Dixon. diags Elec W 75:793 Ap 3 '20
- Testing on a grounded circuit. E. C. Parham. diags Power 51:593-4 Ap 13 '20
- Tests of heater cords; report by the Electrical testing laboratories. il N E L A Bul 7:793-802 N '20
- Voltage testing of control equipment. H. R. Meyer. Elec J 17:318 Jl '20

See also Dynamometer; Electric apparatus and appliances—Testing; Electric furnaces—Testing; Electric generators, Alternating current—Testing; Electric inspection; Electric lines—Testing; Electric locomotives—Testing; Electric measurement;

Electric meters; Electric motors—Testing; Electric resistance; Electric transformers—Testing; Insulation (electric)—Testing; Relays—Testing; Watthour meters—Testing

Electric toasters

- How to make an electric toaster. A. H. Scott. diags Pop Mech 36:303-4 Ag '21

Electric toys

- Children's Christmas electrical. il J Elec 45:408-10 N 1 '20

Electric tractors

- Duplex compensating suspension applied to Baker tractors and trucks. il diag Ry Age 70:850 Ap 1 '21; Same. Ry Mech Eng 95:257-8 Ap '21

Industrial tractors serve to move loads economically. Elec W 75:1137 My 15 '20

La manutention mécanique dans les gares. il diags plan Génie Civil 76:571-4 Je 26 '20

Progress in the employment of self-propelled vehicles for industrial purposes. L. Brookman. il Electrician 85:159-60 Ag 6 '20

Tractors lower freight-handling costs. J: Causland. il Elec W 78:819-21 O 22 '21

See also Electric locomotives; Electric trucks; Electric vehicles

Electric transformers

- Abnormal pressure-rise in transformers, and its remedy. R. Torikai. diags Inst E E J 59:740-50 Jl '21
- Abnormal voltage on Y-delta transformer bank due to reversed connection. C. R. Reid. diags Am Inst E E J 40:840-1 N '21
- Air-insulated transformers for very high voltage. W. Hess. Elec W 78:429 Ag 27 '21; Same. Sci Am M 4:371 O '21
- Auxiliary transformer reduces inductive interference. L. J. Moore. diag Elec W 77:257-8 Ja 29 '21
- Bauch quench transformer for arcing grounds. diag Elec W 77:106 Ja 8 '21
- Building first 220,000-volt transformers. C. Jones. il Elec W 77:301-3 F 5 '21; Excerpt. Sci Am M 3:377 Ap '21
- Characteristics of some polyphase transformer connections. L. F. Blume and A. Boyajian. diags Gen Elec R 22:1035-43 D '19
- Choice of instrument transformers. L. Dorfman. Elec J 17:341-2 Ag '20
- Le choix entre les transformateurs monophasés et triphasés, pour le service des branchements de distribution. Génie Civil 77:279-80 O 2 '20
- Circular-coil high-voltage power transformers. C. Jones. il diag Gen Elec R 24:399-404 My '21; Excerpt. Elec R (Lond) 89:31-2 Jl 1 '21
- Complete transformer records. H. Michener. Elec W 78:623 S 24 '21
- Construction of a laboratory transformer. T: W. Benson. diags Wireless Age 7:25-6 F '20
- Current transformer for 10,000 to 40,000 amp; abstract. Elec W 76:1032 N 20 '20
- Current unbalance in furnace leads reduced with reactors. R. H. N. Lockyer. il diags Elec W 77:433-4 F 19 '21
- Design of intervalve transformers: application to low-frequency aperiodic magnifiers. J. K. Catterson-Smith. diags Electrician 85:388-90, 414-16 O 1-8 '20
- Development of magnetic materials. T. D. Yensen. Elec J 18:93-5 Mr '21
- Developments in power plants and generating stations. A. Still. il Elec R 77:274-5 Ag 21 '20
- Efficiency of high-tension transformers as used for X-ray purposes. R. Morton. il diags Inst E E J 58:719-26; Discussion. 732-46 Ag '20
- Electric welding machines—alternating current equipment. L. W. Webb. diags Power 52:501-3 S 28 '20
- Electrical study course—construction and operation of transformers. il diags Power 50:818-19 D 16 '19

Electric transformers—Continued

- Electrical study course—fundamental principle of the transformer. diags Power 50:763-5 N 25 '19
- Electricity in connection with X-ray work. R. Morton; C. E. S. Phillips; R. S. Wright. Electrician 84:289-90 Mr 12 '20
- Emergency connection for cotton mill transformers. diags Elec W 75:23 Ja 3 '20
- Emergency three-phase to two-phase connection. J. B. Gibbs. diags Power 53:32 Ja 4 '21
- Factors in selecting transformers for various services. V. L. Hollister. il Elec R 77:951-4 D 18 '20
- Feeding two-phase plant with single-phase transformers. H. H. Stephens. diag Elec W 75:1428-9 Je 19 '20
- Fundamental principles of polarity, phase rotation, and voltage diagrams of transformers. A. Boyajian. diags Gen Elec R 23:374-85 My '20
- Germans build 60,000-kva. transformers. diags Elec W 78:416-17 Ag 27 '21
- High-tension transformers for X-ray work. R. S. Wright. diags Inst E E J 58:730-2; Discussion. 732-46 Ag '20
- High-voltage transformers in farm line construction. J. E. Johnson. il Elec R 79:661-2 O 29 '21
- Home-made transformer for locating motor troubles. C. A. Johnson. diags Elec W 75:1202 My 22 '20
- How three-phase transformers operate. J. B. Gibbs. diags Power 51:1002-3 Je 22 '20
- How to build small transformers. J. A. Prior. diags Pop Mech 33:314-15 F '20
- How to correct for error in instrument voltage transformers. J. B. Gibbs. diags Power 52:1011-12 D 28 '20
- Influence of transformer connections on third harmonic voltages and currents. S. A. Stigant. diag Elec R (Lond) 88:300-2, 359-61, 393-4 Mr 11-25 '21
- Installation and maintenance of customers' transformers. C. S. Knowles. il diag Elec R 79:695-7 N 5 '21
- Instrument current transformers. J. B. Gibbs. diags Power 53:175-7 F 1 '21
- Interconnected-star method of connecting three-phase transformer windings. S. A. Stigant. diags Elec R (Lond) 89:268-9, 321-2 Ag 26-S 2 '21
- Interlacing furnace transformer busbars. C. B. Gibson. il diags plan Elec W 75:991-3 My 1 '20
- Large outdoor switches and transformers. S. Q. Hayes and W. A. Coates. il Electrician 84:190-2 F 20 '20
- Large power transformers. A. G. Ellis and J. L. Thompson. diags Inst E E J 57:547-71 Ag '19; Discussion. 57:571-91; 58:881-90 Ag '19, S '20
- Largest transformers built for service in Pittsburgh. il Elec R 77:818 N 20 '20
- Losses in transformers. R. O. Kapp. diag Electrician 84:164-5 F 13 '20
- Low-voltage step-down transformer. H. H. Parker. diags Power 53:271-2 F 15 '21
- Materials required for standard outdoor transformer installation. F. L. Lovett. il plan Elec W 77:770-1 Ap 2 '21
- Measuring losses of transformer. L. R. Felder. diag Wireless Age 8:26-7+ My '21
- New method of transformation from two-phase to three-phase and vice-versa; abstract. K. Sachs. diag Sci Am M 2:182-3 O '20
- Numerous advantages possessed by secondary networks. T. H. Rice. Elec W 77:769-70 Ap 2 '21
- Oil-insulated transformers placed in concrete vats. il Pop Mech 36:581 O '21
- Polarity of single-phase transformers. J. B. Gibbs. diags Power 53:501-2 Mr 29 '21
- Power transformers. C. L. Knotts. il Power Pl Eng 25:619-23 Je 15 '21
- Power transformers for extra-high voltage. J. F. Peters. il diags Elec R 79:85-8 Jl 16 '21
- Problems of interrupted and fluctuating currents in radiography. C. E. S. Phillips. Inst E E J 58:727-9; Discussion. 732-46 Ag '20
- Ratio adjuster. A. E. Wing. il diags Gen Elec R 24:867-9 O '21
- Reconnecting transformer for a higher voltage. C. R. Reid. diags Elec W 78:421-2 Ag 27 '21
- Series lighting transformers. T. Whyte. il diags Gen Elec R 24:744-51 Ag '21
- 70800 kv-a transformer bank. M. E. Skinner. il diags Elec J 18:229-33 My '21
- Small transformers for special purposes. il Electrician 87:113 Jl 22 '21
- Some developments in the electrical industry during 1920. J. Liston. il Gen Elec R 24:27-30 Ja '21
- Some recent developments in power transformers. W. S. Moody. il diag Gen Elec R 22:853-7 N '19
- Static discharger and ground detector made with small stock transformers. C. E. Harger. diag Elec W 75:900 Ap 17 '20
- Study of dynamo electric machinery. O. H. Henschel. diags Power Pl Eng 24:381-3, 473-6 Ap 1, My 1 '20
- Subtractive or additive polarity for single-phase units. C. W. Piper. diags Elec W 77:258-60 Ja 29 '21
- Switching and protection of transmission circuits. S. Q. Hayes. il Elec J 17:178-88 My '20
- Tapping power lines causes high voltage to ground. C. A. Aubrey. diags Elec W 75:554-5 Mr 6 '20
- Third harmonics in three-phase systems. D. I. Cone. diags Elec W 75:780-1 Ap 3 '20
- Three-phase power from single-phase transformer connections. J. B. Gibbs. diags Power 51:672-4 Ap 27 '20
- Three-phase supply to Scott-connected transformer banks under various conditions of two-phase loading. G. W. Stubbings. diags Elec R (Lond) 89:76-8 Jl 15 '21
- Transformer connectors which eliminate mistakes. M. M. Samuels. diags Elec W 75:895-7 Ap 17 '20
- Transformer equipment for electric furnaces. C. B. Gibson. il Elec R 77:163-6 Jl 31 '20
- Transformer equipment for the Chicago, Milwaukee & St Paul installation. W. M. Dann. il diag Elec J 17:9-11 Ja '20
- Transformer-vault location, construction and equipment. H. J. Clark. Elec R 78:455-6 Mr 19 '21
- Transformers for electric furnaces. J. L. Thompson. diags Inst E E J 58:201-13 Mr '20; Abstracts. Engineer 129:147-8 F 6 '20; Chem & Met Eng 22:616 Mr 31 '20; Elec W 75:617 Mr 13 '20; Electrician 84:115-17, 144-5 Ja 30-F 6 '20; Discussion. Inst E E J 58:214-23, 301-7, 603-13 Mr-Apr, Jl '20; Electrician 84:145-6 F 6 '20
- Transformers for interconnecting high-voltage transmission systems for feeding synchronous condensers from a tertiary winding. J. F. Peters and M. E. Skinner. diags Am Inst E E J 40:483-9 Je '21
- Transformers for synchronous converters. E. R. Sampson. il Elec J 18:518 N '21
- Transmission line and transformers. R. D. Evans and H. K. Sels. Elec J 18:356-9 Ag '21
- Use of current transformers. Elec R 78:518-19 Mr 26 '21
- Useful transformer connections. G. Harvey. diags Power Pl Eng 25:1060-1 N 1 '21
- Voltage control for large E. H. T. transformer sets. il diags Electrician 87:455 O 7 '21
- Voltage transformers. E. G. Reed. diags Elec J 18:323-9 Jl '21
- Watching transformer service. F. W. Randall. Elec W 78:165-6 Jl 23 '21
- Westinghouse builds giant transformer. il Sibley J 35:13 Ja '21

See also Compensators; Electric current converters; Electric current rectifiers; Electric distribution; Electric motor generators; Electric substations; Electric transmission; Hydroelectric plants; Induction coils; Rotary converters

Electric transformers—Continued**Autotransformers**

- Autotransformer motor starters. H. D. James and R. E. DeCamp. *il* diags Elec J 17:30-5 Ja '20
- Auto-transformers for motor starting. T. Schou. Elec W 76:473-5 S 4 '20; Discussion. V. S. Foster. 76:977 N 13 '20
- Auto-transformers; their action and construction. V. E. Johnson. *il* diags Power Pl Eng 25:226-31 F 15 '21
- Operation of auto-transformers to avoid trouble. R. Treat. Elec W 76:691 O 2 '20
- Phase transformation with autotransformers; three-phase to two-phase three-wire. E. P. Wimmer. diags Elec J 18:15-16 Ja '21

Cooling

- Calculating transformer vault ventilation. W. W. Parker. Elec W 76:334-6 Ag 14 '20
- Cooling of transformer windings after shutdown. V. M. Montsinger. *il* diags Gen Elec R 22:1056-65 D '19
- Down-draft air duct increases transformer vault capacity. diag Elec R 77:32 J1 3 '20
- Experience with transformer cooling methods. G. E. Armstrong. *il* Elec W 75:541-2 Mr 6 '20
- Making access to air ducts more easily accomplished. W. B. Smith. diag Elec R 76:505-6 Mr 20 '20

See also Electric transformers—Oil

Cost

- Transformer cost data. D. D. Ewing. Eng & Contr 55:139-40 F 9 '21

Drying

- Drying transformer insulation and oil before operating. J. Dixon. Elec W 76:78 J1 10 '20
- Experience in drying out large transformers. S. H. Abbott. diag Elec J 18:92-3 Mr '21; Same. Power Pl Eng 25:997-8 O 15 '21

Manufacture

- Steel clad distribution transformers. E. G. Reed. *il* diags Elec J 17:213-18 My '20

Merchandizing

- Analysis of exports of transformers for the year 1919. Elec W 76:260 J1 31 '20
- 1920 transformer exports reach total of \$4,803,158. Elec W 78:441 Ag 27 '21

Mounting

- Convenient transformer mounting in factory testing department. *il* diag Elec W 75:791-2 Ap 3 '20
- Transformer installation that provides clear working space. diags Elec W 76:1120-1 D 4 '20

Oil

- Specifications approved for transformer oil. Elec R 78:207 F 5 '21
- Transformer auxiliary offsets many hazards. *il* Pop Mech 35:748 My '21
- Transformer oil sludge. C. J. Rodman. *il* Am Electrochem Soc Trans v 40 (preprint 7): 105-12 S '21

Parallel operation

- Conditions for successful parallel operation of transformers. J. Dixon. diag Elec W 75:1376 Je 12 '20

Protection

- Combating fires in transformers and oil switches. C. T. Sinclair. *il* Elec W 78:357-9 Ag 20 '21
- Preventing instrument transformer burnouts. *il* Power 53:348 Mr 1 '21
- Primary cut-out for line transformers. G. A. Armstrong. Elec W 75:1315 Je 5 '20
- Protective relays. V. H. Todd. diags Power Pl Eng 24:517-21 My 15 '20

Records

- Sheet holds complete record of power transformer. G. A. Iler. Elec W 78:422 Ag 27 '21

Repair

- Local repairs of transformer coils possible. E. O. Slaybaugh. *il* Elec W 78:73-4 J1 9 '21
- Repairing a shell-type transformer. K. A. Reed. *il* Power 51:723-5 My 4 '20

Tanks

- Oil conservator. W. C. Smith. *il* J Elec 45:434 N 1 '20
- Preventing sludging of oil in transformers. *il* diag Power 51:811-12 My 18 '20
- Transformer tanks of copper-alloy steel. R. V. Bingay. Elec R 79:102 J1 16 '21

Testing

- Measuring the resistance of transformer grounds. A. H. Ford. *il* diags Elec W 77:1106-7 My 14 '21
- New method of testing current transformers. R. S. J. Spilsbury. diags Electrician 86:296-7 Mr 11 '21
- Non-inductive and opposition testing of transformers. diags Elec R 77:737-8 N 6 '20
- Safety-first testing of small transformers. A. Heckman. *il* diags Elec J 17:338-41 Ag '20
- Testing for phase rotation in three-phase circuits. F. A. Kartak. *il* Elec W 77:928-9 Ap 23 '21; Discussion. H. J. Blakeslee. 78:177-8 J1 23 '21
- Testing of instrument transformers. H. M. Crothers. *il* Elec W 75:319-20 F 7 '20
- Testing of instrument transformers. F. A. Kartak. diag Elec W 75:1368-70 Je 12 '20
- Testing polarity of instrument transformers. D. A. McNulty. diags Elec W 77:1372 Je 11 '21
- Watt-hour meter method of testing current transformers for ratio and phase angle. J. R. Craighead and C. T. Weller. *il* diag Gen Elec R 24:642-51 J1 '21

Electric transmission

- Alabama power company's system, its development and operation. J. M. Oliver, B. Nikiforoff, and C. B. McManus. *il* diag map plan Gen Elec R 22:980-95 N '19
- A.I.E.E. technical committee reports. Elec W 76:19 J1 3 '20
- Annual report of the A.I.E.E. committee on transmission and distribution. Am Inst E E J 39:749-52 Ag '20
- Behavior of alternating-current generators when charging a transmission line. W. O. Morse. Gen Elec R 23:109-12 F '20
- Building a world's record transmission line in the West. R. Sibley. *il* J Elec 47:301-3 O 15 '21
- Building transmission lines vs. paying freight on coal. H. L. Wallau. Elec W 77:422-3 F 19 '21
- Control of power-factor on transmission lines. A. Still. diags Elec R 77:955-8 D 18 '20
- Determining losses in transmission lines. O. Gaarden. diags Elec W 75:536-9 Mr 6 '20
- Direct current transmission for electrification. A. Raworth. diag Ry Age 68:179-80 Ja 9 '20
- Distribution problems of central-station companies. Elec R 77:968-70 D 18 '20
- Economic voltage of long transmission lines. H. H. Plumb. diags Am Inst E E J 39:377-81 Ap '20
- Economical power; the strongest agent for maintaining supremacy in world's trade. W. S. Murray. Am Inst E E J 39:27-31 Ja '20; Abstract. Sci Am M 1:180-1 F '20; Discussion. Am Inst E E J 39:31-3 Ja '20
- Economics of 220,000-volt transmission. J. P. Jollyman. J Elec 47:10 J1 1 '21; Same. Elec W 78:122 J1 16 '21
- Effect of high costs on transmission and distribution. E. B. Meyer. Elec W 77:25-7 Ja 1 '21
- Electric power supply for the Puget Sound lines of the Chicago, Milwaukee & St Paul railroad. A. W. Copley. *il* diags maps Elec J 17:3-9 Ja '20
- Electrical calculations of long-distance high-voltage transmission lines. A. McKinstry. diags Inst E E J 57:sup92-117 '19

Electric transmission—Continued

- Electrical characteristics of transmission circuits. W. Nesbit. chart diags Elec J 16: 279-87, 314-26, 385-96, 485-9, 515-19; 17:21-4, 66-77, 104-18, 146-56, 257-63, 350-3, 527-32, 575-82; 18:365-73 JI-S, N '19-Ap, Je, Ag, N-D '20, Ag '21
- Electrical layout of large power systems. R. Treat. diags plan Gen Elec R 22:918-26 N '19
- Electrical transmission vs. coal transportation. H. W. Smith. Elec J 18:402-4 S '21
- Elementary theory of electric power transmission. A. Still. diags Elec R 77:797-801 N 20 '20
- Factors affecting long-distance bulk-power transmission. F. G. Baum. il diag Elec W 77:1468, 1477-80 Je 25 '21
- First principles of the electrical transmission of energy. W. M. Thornton. 116p Pitman '21
- Fundamentals and economics of electric transmission. A. Still. Elec R 77:714-16 N 6 '20
- Future water power development problems of the West. F. G. Baum. il diags J Elec 47:221-3 S 15 '21
- Generate power at one million volts. il Ry R 69:400-1 S 24 '21
- Generation and transmission of electrical energy. A. Still. Elec R 77:81-4 JI 17 '20
- Greater efficiency in power transmission. J. W. Dorsey. Can Eng 39:539-40 N 18 '20
- Half-wave and quarter-wave transmission lines. Sci Am M 3:89 Ja '21
- High-tension direct-current transmission. Elec W 75:1093 My 8 '20
- High-tension transmission systems. A. O. Austin. Am Inst E E J 39:329-30 Mr '20
- High voltage power transmission problems. W. W. Lewis. Gen Elec R 22:927-34 N '19
- Huge induction regulator installation. R. Bailey. il diags plan Elec W 75:1355-8 Je 12 '20; Same. Electrician 87:292-3 S 2 '21
- Hydro-electric service west of Cascades. il Elec W 75:1060-8 My 8 '20
- Limitations of high-voltage transmission. T. A. Worcester. Gen Elec R 22:880-4 N '19
- Long-distance transmission of electric energy. L. E. Imlay. diags Am Inst E E J 40:507-16 Je '21
- Long-distance transmission of electrical energy with special reference to tidal power. T. F. Wall. Engineering 112:587-8 O 21 '21; Excerpts. Elec R (Lond) 89:387-8 S 16 '21; Engineer 132:345 S 30 '21; Electrician 87:408-10 S 30 '21; Discussion. Elec R (Lond) 89:418-19 S 23 '21; Engineering 112:409 S 16 '21
- Longer transmission lines and higher voltages. H. Michener. il J Elec 46:444 My 1 '21
- Maintenance of service on long power lines. A. Still. il diag Elec R 78:536-41 Ap 2 '21
- Man-made lightning. il Sci Am 125:268 O 15 '21
- Man's reproduction of lightning. C. E. Neil. N E L A Bul 8:571-4 O '21
- Modern methods for transmission-line calculation; abstract. Blondel. Elec W 76:1126 D 4 '20
- New record in high tension transmission. J. A. Koontz. il J Elec 46:58-9 Ja 15 '21
- New transmission line construction in 1920. H. A. Barre. J Elec 45:566-7 D 15 '20
- Overhead transmission problems being solved. Elec R 78:973-6 Je 18 '21
- Pacific coast men discuss 220,000-volt transmission problems. Elec W 77:1387 Je 11 '21
- Power and transmission. H. H. Dewey. Gen Elec R 22:876-80 N '19
- Present status of conversion of Big Creek line of Southern California Edison company from 150,000 to 220,000 volts. H. A. Barre. il diags Gen Elec R 24:397-8 My '21; Same. Elec R (Lond) 89:31 JI 1 '21
- Problems in high tension power transmission. W. P. Dobson. il Sibley J 33:74-8 JI '19
- Proposed 220,000-volt transmission line for California; abstract. R. W. Sorenson and others. Sci Am M 2:88 JI '20
- Protecting from abnormal voltages. C. E. Bennett. il diags Elec W 75:365-8 F 14 '20
- Protecting lines against over-voltage surges. A. Still. il Elec R 78:733-6 My 7 '21
- Protection of transmission systems. E. Alm. diags Elec W 76:277-9, 377-80 Ag 7, 21 '20
- Quick line calculation without charts or tables. A. Burt. Elec W 78:417-19 Ag 27 '21
- Serving 6,500-volt load over 66,000-volt line in emergency. A. L. Lofstrand. diags Elec W 76:637-8 S 25 '20
- Stretching the electric transmission line. Sci Am 125:230 O 1 '21
- Switching and protection of transmission circuits. S. Q. Hayes. il Elec J 17:178-88, 263-71, 521-6, 555-62 My-Je, N-D '20
- Synchronous effect of two parallel transmission lines. R. H. Halpenny. Elec W 75:438-9 F 21 '20
- Systems of electric transmission. A. Still. il diags Elec R 77:193-8 Ag 7 '20; Excerpt (Thury system). Sci Am M 3:87-8 Ja '21
- Transformers for interconnecting high-voltage transmission systems for feeding synchronous condensers from a tertiary winding. J. F. Peters and M. E. Skinner. diags Am Inst E E J 40:483-9 Je '21
- Transmission and distribution committee. Am Inst E E J 40:692-7 Ag '21
- Transmission at 220,000 volts in California. H. A. Barre and J. P. Jollyman. Elec W 77:21-3 Ja 1 '21
- Transmission line and transformers. R. D. Evans and H. K. Sels. Elec J 18:356-9 Ag '21
- Transmission line characteristics at 1,000,000 volts ascertained. Elec W 78:583 S 17 '21
- Transmission line circuit constants and resonance. R. D. Evans and H. K. Sels. diags Elec J 18:306-9 JI '21
- Transmission of electric waves along wires; a vector method involving only elementary mathematics. A. G. Warren. diags Inst E E J 59:330-4 Mr '21
- Transmission of electrical energy by wireless. C. H. Roe. diag Wireless Age 8:21 N '20
- Transmission ring of the Duquesne light company. E. C. Stone. il diags map plan Elec J 18:211-19 My '21
- Transmission system of the West Penn power company. G. S. Humphrey. il diag maps Elec J 18:169-75 My '21
- Transmission systems of the near future. A. E. Silver. il Elec W 75:140-1 Ja 17 '20
- Transmission wastes. diags Power Pl Eng 25:85-93 Ja 1 '21
- Transport d'énergie électrique à 110 000 volts entre Gösigen (Suisse) et Pouxieux (Vosges). P. Caufourier. il diags map Génie Civil 77:65-9 JI 24 '20
- Trunk transmission lines. C. E. Magnusson. maps J Elec 45:519-21 D 1 '20
- 220,000-volt transmission progress. J. A. Koontz. il J Elec 46:477-9 My 15 '21
- Unstable operation of generating stations in parallel. D. D. Higgins. diags Elec W 78:414-16 Ag 27 '21
- Use of the tangent chart for solving transmission line problems. R. S. Brown. diags Am Inst E E J 40:854-64 N '21
- Voltage and power factor control of 66,000-volt transmission lines connecting two generating stations. R. Bailey. il diags Am Inst E E J 40:462-9 Je '21
- Voltage control of long-distance transmission lines. A. Still. diags Elec R 77:876-8 D 4 '20
- Voltage regulation and insulation for large power, long distance transmission systems. F. G. Baum. il diags Am Inst E E J 40:643-65 Ag '21; Abstract. Sci Am M 4:281 S '21
- When more voltage means more distance. C. P. Steinmetz. Sci Am 125A:59 N '21
- Why is 220,000-volt transmission necessary? J. P. Jollyman. il J Elec 46:288 Mr 15 '21
- See also* Corona (electricity); Electric cables; Electric conductors; Electric conduits; Electric distribution; Electric driving; Electric lines; Electric losses; Electric plants; Electric plants—Interconnection; Electric power; Electric radiation; Electric switches; Electric wire and wiring; Hydro-electric plants; Voltage regulation
- Electric trucks**
Commercial electric trucks in New York city. Elec W 78:773 O 15 '21

Electric trucks —Continued

- Cotton hauling in Galveston by electric trucks cuts cost. *Textile World* 59:2317 Ap 2 '21
- Delivering flour and bread. *il N E L A Bul* 7:60-1 Ja '20
- Education of user insures electric truck success. S. Cunningham, jr., and L. T. Carpenter. *Elec W* 76:1270-1 D 25 '20
- Electric truck for industrial and street use. P. M. Heldt. *il diags Automotive Ind* 44:692-3+ Mr 31 '21
- Electric truck industry. C. A. Street. *il N E L A Bul* 7:534-5 Ag '20
- Electric truck transportation as developed in Germany. E. Valentin. *il diags Automotive Ind* 43:162-7 JI 22 '20
- Electric trucks gaining favor in Chicago. *il Elec W* 77:1094-5+ My 14 '21
- Electric trucks show superiority over gasoline trucks and horses. *il Elec W* 78:661-3 O 1 '21
- Electric vehicle progress. *il Elec R (Lond)* 88:406-7 Ap 1 '21
- Long-distance trip made by five-ton electric truck. *il Elec R* 77:978-9 D 18 '20
- Methods used in modern electric vehicle service station. *il Elec R* 77:991-4 D 25 '20
- Possibilities of the electric truck from the power company standpoint. A. E. Wishon. *J Elec* 47:298 O 15 '21
- 70-cwt. electric battery tipping wagon. *il diags Engineering* 109:446-7 Ap 2 '20
- Special electric trucking opportunities in western cities. C. K. Chapin. *il J Elec* 47:304-5 O 15 '21
- Steinmetz develops new electric truck. *il Motor Age* 37:34-5 Ap 22 '20
- Steinmetz develops new vehicle motor system. P. M. Heldt. *il diag Automotive Ind* 42:458-9 F 12 '20
- Turn of the tide. C. R. Skinner, jr. *N E L A Bul* 7:751-2 O '20
- Uses and abuses of electric vehicles. H. J. Butler and W. J. Burns. *N E L A Bul* 7:455-7 JI '20

See also Motor trucks

Cost of operation

- Accurate cost records prove superiority of electric vehicles. *Elec W* 78:930 N 5 '21
- Data on storage-battery haulage by railroads. *Elec W* 75:167 Ja 17 '20
- Education of user insures electric truck success. S. Cunningham, jr., and L. T. Carpenter. *Elec W* 76:1270-1 D 25 '20
- Electric trucks show superiority over gasoline trucks and horses. *il Elec W* 78:661-3 O 1 '21

Exhibitions

- Commercial motor exhibition. *il diags Engineer* 130:400-2, 404 O 22 '20; *Engineering* 110:546-9 O 22 '20
- Commercial motor exhibition. *il diags Engineer* 132:432-5, 452-4 O 21-28 '21; *Elec R (Lond)* 89:545-6 O 21 '21

Maintenance

- Pooling electric truck maintenance. *il Factory* 25:1592-3 N 15 '20

Specifications

- Technical specifications of 22 electric motor trucks offered on the 1920 market: tabulation. *Automotive Ind* 42:154-5 Ja 15 '20
- Electric trucks, Industrial**
- Application of power-driven machinery to the horizontal transference of miscellaneous freight. J. A. Jackson. *il Gen Elec R* 24:325-30 Ap '21
- Combination lifting and carrying truck. *il Foundry* 48:123 F 1 '20
- Cowan improved electric self-loading truck. *il Ry Mech Eng* 95:401 Je '21; *Am Mach* 55:157 JI 28 '21; *Elec R* 79:713 N 5 '21
- Electric truck for industrial and street use. P. M. Heldt. *il diags Automotive Ind* 44:692-3+ Mr 31 '21
- Electric trucks and industrial locomotives. *il diags Engineer* 131:234-6, 262-3, 266, 290-2, 294, 318-19, 374-6, 402-3, 424-6, 456-8 Mr 4-25, Ap 8-29 '21

- Electric trucks and tractors in railroad service. F. B. Fink. *Ry R* 66:13-14 Ja 3 '20
- Electric trucks in service in foreign lands. *il Elec R* 79:508 O 1 '21

- Electric trucks prove indispensable in handling baggage. *il Elec W* 77:1040-3 My 7 '21

- Elwell-Parker electric malleable pot truck. *il Am Mach* 53:1203-4 D 23 '20; *Iron Age* 106:1734 D 30 '20; *Iron Tr R* 67:1683-4 D 16 '20; *Foundry* 49:84 Ja 15 '21

- Exhibits of automotive interest at New York electrical show. P. M. Heldt. *il diags Automotive Ind* 43:825-7 O 21 '20

- High-lift elevating platform truck, placed on the market by the Transportation engineering corporation. *il Ry Age* 69:404 S 3 '20

- How electricity helps solve the package freight handling problem. F. T. Smith. *il Int Marine Eng* 25:3-5 Ja '20

- I.T.C. self-loading electric truck. *il Am Mach* 53:1068 D 2 '20

- Industrial electric vehicles and trucks. W. Beaumont. 183p C. Griffin & co., London '20

- Industrial trucks in C.P.R. general store house. *il Ry Age* 68:1160-1 Ap 9 '20

- Lakewood high-lift elevating platform truck. *il Ry Age* 68:502 F 13 '20; *Pop Mech* 33:226-7 F '20

- La manutention mécanique dans les gares. *il diags plan Génie Civil* 76:571-4 Je 26 '20

- Material flows steadily with efficient intraplant trucking. N. G. Shidle. *il plan Automotive Ind* 44:1208-10 Je 9 '21

- Material-handling in Brooklyn army base. *il Textile World* 57:1199+ F 7 '20

- New thought on the handling of bricks; electric trucks. *il Sci Am* 123:569 D 4 '20

- Outsaying the wheelbarrow. *Chem & Met Eng* 25:74 JI 13 '21

- Quayside trucking. G. F. Zimmer. *il Eng & Ind Management* 6:277-81 S 8 '21

- Railodok industrial truck. G. F. Zimmer. *il Eng & Ind Management* 5:305-7 Mr 10 '21

- Self-propelled trucks reduce costs. R. J. Wean. *il Foundry* 48:576-7+ JI 15 '20

- Special 3-wheel truck for warehouse and depot service. *il Elec W* 77:644 Mr 19 '21

- Studies on work of electric trucks versus wheelbarrows. *il Elec R* 79:216 Ag 6 '21

- Super-giant electric truck for docks. *il Electrician* 86:359-60 Mr 25 '21

- Truck that delivers its load. G. Orb. *il Sci Am* 122:335 Mr 27 '20

- Use of electric industrial trucks. *il diag Textile World* 56:2725+, 3151+; 57:3499+ N 1, 29 '19, My 8 '20

- What electric industrial trucks will suit your needs? F. A. Pope. *il diag Factory* 24:1890-4 Je 15 '20

- Working parts of new truck removable as units. *Pop Mech* 34:564-5 O '20

Specifications

- Industrial trucks; tabulation. *Automotive Ind* 42:154-5 Ja 15 '20

Electric units

- Electric units and standards. bibliog U S Bur Stand Circ 60:1-68 '20

See also Kilowatt

Electric utilities

- Arrested development of public utilities. E. N. Hurley. *N E L A Bul* 8:251-5 My '21; Same cond. *Elec W* 77:1037-9 My 7 '21; Excerpts. *J Elec* 46:567-8 Je 1 '21; Abstract. *Elec Ry J* 57:856-7 My 7 '21; Abstract. *Elec R* 78:789 My 14 '21

- Big spring construction program outlined by utilities in every part of the country. C. A. Tupper. *il Elec R* 78:373-83 Mr 5 '21

- Electric public utility outlook. M. J. Insull. *Elec W* 77:3 Ja 1 '21

- Electrical service in the Northwest. G. L. Myers. *J Elec* 44:511-12 My 15 '20

- Encouraging outlook for construction. *il Elec W* 78:722-6 O 8 '21

- Improving status of electrical utilities. A. E. Allen. *N E L A Bul* 8:454-7 Ag '21

- Northwest electric light and power association reports. *J Elec* 45:314-20 O 1 '20

Electric utilities—Continued

- Outlook for the electrical industry. J: B. Fiskens. J Elec 45:307-9 O 1 '20
 Problems that central-station companies are studying. M. R. Bump. Elec W 78:707-8 O 8 '21
 Superpower survey and its effect on public utility operation. W: S. Murray. N E L A Bul 8:80-2 F '21
 28th annual report of the General electric company. Comm & Fin Chr 110:1435-6 Ap 3 '20

See also Electric industries; Electric plants (central stations); Electric rates; Electric service, Rural; *also* names of companies, e.g. General gas and electric company, Northern states power company, Philadelphia electric company, Southern California Edison company, Western electric company

Accounting

- Accounting sessions of N. E. L. A. Elec W 75:1255-6 My 29 '20; Elec R 76:873-4 My 22 '20
 Construction accounting under uniform system. Elec R 79:6-9 Jl 2 '21
 Costing as applied to the electrical industry. A. Clegg. Elec R (Lond) 88:35-7 Ja 14 '21
 History and present status of uniform classification of accounts for public utilities. N E L A Bul 8:304-5 My '21
 Monthly generating station costs. Elec R (Lond) 88:540-1 Ap 29 '21
 N.E.L.A. convention address. R. W. Symes. N E L A Bul 7:361-5 Je '20
 Operating accounting under uniform system. Elec R 79:269-72 Ag 20 '21
 Report of committee on accounting service to member companies and the monthly bulletin. N E L A Bul 7:529-33 Ag '20
 Report of committee on customers' records and billing methods; billing machine. il N E L A Bul 7:726-43; Discussion. 743-6 O '20
 Some important features of construction accounting. C. P. Staal. J Elec 44:377-9 Ap 15 '20
 Utility construction accounting. il Elec W 76:574-5, 868-70 S 18, O 30 '20
 Value of statistics in central-station operations. E. J. Fowler. N E L A Bul 7:144-7 Mr '20

See also Electric industries—Accounting; Electric rates

Advertising

- How one central station put over a publicity campaign; San Joaquin light & power corporation. A. E. Wishon. J Elec 46:26-7 Ja 1 '21
 Power stock preferred—an advertising campaign. R. L. Shurtleff. J Elec 43:540-1 D 15 '19

See also Electric industries—Advertising; Electric utilities—Public relations

Complaints

- Educating customers to proper use of electric service. H. G. Pruett. Elec R 79:600 O 15 '21

Contracts

- New form of rural service contract. W. J. Greene. Elec W 78:865-6 O 29 '21

Costs

See Electric plants (central stations)—Costs

Employees

- Employees may aid in forming of public opinion. J. Lightbody. Elec R 78:627-9 Ap 16 '21
 Man in the company. A. B. Wollaber. J Elec 45:23-4 Jl 1 '20
 Meter readers can create or destroy good will. R. S. Seese. Elec W 77:1252-3 My 28 '21
 Organizing courtesy to build good will. Elec W 77:1157-9 My 21 '21
 Spirit of goodwill in electricity supply. J. W. Thomas. Elec R (Lond) 89:334-6 S 9 '21

Teaching the employee to be the company. J. F. Owens. Elec W 78:367-8 Ag 20 '21

Estimates

- Engineer vs. auditor in cost keeping. Elec Ry J 57:893-4 My 14 '21

Finance

- Automatic financing. R. H. Ballard. Elec W 77:10 Ja 1 '21
 Balance sheet of western power companies. J Elec 45:234-5 S 1 '20
 Capital needs and sources of availability should be predetermined. R. S. Seese. Elec W 78:557-9 S 17 '21
 Central-station financing. H. M. Addinsell. Elec W 76:725-7 O 9 '20
 Central-station income per kilowatt. Elec W 76:1176-7 D 11 '20
 Convention report of committee on insurance. N E L A Bul 7:429-37 Jl '20
 Credit deposits and the rate of interest thereon. Elec W 76:533-4 S 11 '20
 Effect of business conditions on central stations. C. Corey. Elec R 78:19-20 Ja 1 '21
 Effect of prices on economics of the central station. R. S. Hale. Elec R 77:491-2 S 25 '20
 Electric light and power refunding in 1921 to be almost \$100,000,000. Elec W 77:112 Ja 8 '21
 Finance and industry. C. F. Stern. J Elec 46:197-8 F 15 '21
 Financing electric public utilities. W. F. Gehart. Elec W 76:471-2, 516-18 S 4-11 '20
 Financing electrical development in the West. R. H. Ballard. Elec R 78:21-2 Ja 1 '21
 Financing public utilities. J Elec 45:208-10 S 1 '20
 Financing public utilities in the West. A. N. Kemp. J Elec 45:473 N 15 '20
 Financing urgent problem of utilities. W. H. Johnson. N E L A Bul 7:808-9 N '20
 How the Detroit Edison's revenue was spent. Elec W 77:1438 Je 18 '21
 Industrial support for central stations. J: M. McMillin. Elec W 76:677-8 O 2 '20
 Investments that will reduce operating expenses. Elec W 76:644 S 25 '20
 Lighting up a dry town; effect of prohibition on power companies. il J Elec 46:384-5 Ap 15 '21
 Present day commercial problems in electricity supply. E. Cross. Electrician 87:155-7; Discussion. 157 Jl 29 '21
 Questions arising in the consideration of the financial and business aspects of municipal electricity supply. C. W. Charlesworth. Electrician 87:151; Discussion. 151-2 Jl 29 '21
 Reduced operating expense and increased fixed charges. G: A. Neal. Elec R 77:622-3 O 16 '20
 Self-interest a key to utility financing. A. E. Wishon. Elec W 75:997-8 My 1 '20
 Why utilities must engage in a good-will campaign. G: F. Oxley. Elec W 76:694-5 O 2 '20

See also Electric plants (central stations)—Costs; Electric rates; Electric utilities—Accounting; Electric utilities—Securities; *also* Southern California Edison company

Management

- Appliance inspection gets business and good will. Elec W 75:276-7 Ja 31 '20
 Central station and Christmas service. J Elec 45:412-14 N 1 '20
 Central-station merchandising policy. A. S. Nichols. Elec W 77:158 Ja 15 '21
 Central station methods for securing high lighting standards in old homes. O. R. Hogue, J. J. Kirk and E. D. Tillson. il Illum Eng Soc 15:693-703 no 9 '20
 Central stations and merchandising possibilities; abstracts. D. W. Snyder, jr. Elec R 78:517 Mr 26 '21; Elec W 77:835-6 Ap 9 '21
 Central stations and the wiring and retail business. H. R. Ellis. Elec R 78:310-12 F 19 '21
 Centralizing power-plant maintenance; Philadelphia electric co.; organization chart. W. C. L. Eglin and F. C. Ralston. il Elec W 76:609-12 S 25 '20

Electric utilities—Management—Continued

- Commercial statistics and their value to the executive. G. P. Baldwin. maps Gen Elec R 23:648-52 Ag '20
- Complaint prevention. L. A. Coleman. N E L A Bul 7:308-9 My '20
- Contractor-dealer co-operation with utilities. M. Dellplain. Elec R 77:995-8 D 25 '20
- Credits and collections from a public service company's standpoint. W. E. Dorsey. N E L A Bul 7:846-8 N '20
- Data on rural line extensions. Elec R 76:561-4 Ap 3 '20
- Developing industrial lighting. il Elec R 78:573-5 Ap 9 '21
- Display room. S. M. Kennedy. il J Elec 44:8-12 Ja 1 '20
- Electrical merchandising by the central-station company. Elec W 77:1227-9 My 28 '21
- Extensions of electric service to rural customers. D. W. Snyder. Elec R 75:1064-5 D 27 '19
- Farm line business at a profit to the central station. H. W. Young. il Elec J 17:79-80 F '20
- Final bill collections. D: Darlington. N E L A Bul 8:290-1 My '21
- Financing and service discussed by Illinois association, Chicago, Dec. 9. Elec R 77:973-5 D 18 '20
- Free lamp renewals as central-station practice. Elec R 76:450-1 Mr 13 '20
- Functions and organization of the utility commercial department. W. J. Reagan. Elec W 78:179-80 Jl 23 '21
- Functions of a public utility's meter department. R. M. Freeman. Elec R 78:475-6 Mr 19 '21
- Functions of modern sales department of a central-station company. T. I. Jones. Elec W 78:476-7 S 3 '21
- Handling of customers' orders. C: A. Collier. Elec W 75:740-1 Mr 27 '20
- How complaints should be handled. F. F. Kellogg. N E L A Bul 8:235-7 Ap '21; Same. Elec R 78:987-8 Je 18 '21
- Inspection department is important factor in good service. C. B. Merrick. Elec W 76:292-3 Ag 7 '20
- Man in the company. A. B. Wollaber. J Elec 44:619-20; 45:23-4 Je 15-Jl 1 '20
- Meter policy that has reduced complaints. S. B. Hood. Elec W 78:271 Ag 6 '21
- Meter records can be simplified. E. Howell and C: L. Rose. map Elec W 76:1256-8 D 25 '20
- Method for making farm lines pay a profit. H. H. Henley. Elec W 75:29 Ja 3 '20
- Operation of the meter department in scattered territory. E. H. Tyson. Elec W 75:268-9 Ja 31 '20
- Organizing for efficient operation. W. P. Schwabe. Elec W 77:1229-30 My 28 '21
- Prompt attention to trouble calls creates good will. Elec W 77:889-90 Ap 16 '21
- Public utility operations from consumer's viewpoint. G. I. Vincent. Elec R 77:933-5 D 11 '20
- Recommendations for better merchandising by central stations. Elec W 77:271 Ja 29 '21
- Sales co-operation is needed. W. L. Goodwin. Elec Ry J 56:1189-90 D 11 '20
- Service department affords an important contact with public. S. B. Hood. Elec W 78:211-12 Jl 30 '21
- Service on rental fixtures by Commonwealth Edison company. F. A. Kaup. il Illum Eng Soc 15:303-5; Discussion. 305-7 no 5 '20
- Service work for 1919 below pre-war cost. D. W. Roper. il Elec W 76:273-6 Ag 7 '20
- Supply of electrical energy to large customers. R. H. Tillman. il diags plans Elec R 77:375-8 S 4 '20
- Symposium—maintenance of lighting equipment. J. L. Stair and others. Illum Eng Soc 15:291-347 no 5 '20
- System for handling customers' orders with speed and efficiency. C: A. Collier. il diag Elec W 77:437-9 F 19 '21
- Telephone orders—for better service. H. Wright. il N E L A Bul 7:181-6 Ap '20

Unit expenses of Boston company reduced. Elec W 78:412-13 Ag 27 '21

See also Electric plants (central stations)—Management; Electric service, Rural; Electric utilities—Accounting; Electric utilities—Employees

Municipal ownership

See Electric plants, Municipal

Public relations

- Better understanding between utilities and farmers. S. W. Hill. Elec R 78:687-8 Ap 30 '21
- Central-station companies launch good-will campaign. P. L. Thomson. Elec R 78:297-300 F 19 '21
- Central station company as a community asset. A. M. Lynn. Elec J 18:167-8 My '21
- Congenial contacts. S. M. Kennedy. il J Elec 43:544-7 D 15 '19
- Contact with people. H. Powel, jr. N E L A Bul 8:386-9 Jl '21; Excerpts. Elec W 77:1353-4 Je 11 '21
- Dangers of over-complacency. S. M. Kennedy. Elec W 77:535-7 Mr 5 '21
- Greater publicity advocated. J: A. Britton. Elec W 75:1182 My 22 '20
- Manufacturers co-operate to build good will for electric utilities. Elec W 77:550-2 Mr 5 '21
- Michigan convention features public relations. Elec R 77:326-9 Ag 28 '20
- Organizing courtesy to build good will. Elec W 77:1157-9 My 21 '21
- Public utility operations from consumer's viewpoint. G. I. Vincent. Elec R 77:933-5 D 11 '20
- Publicity and the power company. I. W. Alexander. J Elec 43:542-3 D 15 '19
- Relations between management and public of the Middle West utilities company. il Elec W 77:1221-3 My 28 '21
- Seek public confidence. M. J. Insull. Elec R 78:471-2 Mr 19 '21
- Self-interest will aid electrical development. A. E. Wishon. Elec W 74:1060-2 D 13 '19
- Self-interest will solve the problems confronting electrical development. A. E. Wishon. chart Gen Elec R 23:451-4 My '20
- Transforming public opinion. S. M. Kennedy. Elec W 77:1230-1 My 28 '21
- See also Electric utilities—Service

Rates

See Electric rates

Regulation

- Electricity (supply) act. Engineering 109:18-19 Ja 2 '20
- Illinois provides for rural utilities. Elec W 78:411-12 Ag 27 '21
- Rules for rural line extensions meet approval. Elec R 77:295-6 Ag 21 '20

Reports

- What a manager should find in his monthly report. H. A. Gidney. N E L A Bul 7:51-4 Ja '20

Safety measures

- Accident prevention among electric utilities. P. R. Kuhn. N E L A Bul 8:613-16 O '21

Salesmen

- Commercial instinct. S. M. Kennedy. il J Elec 44:429-31 My 1 '20

Securities

- Accounting for customer-ownership sales. W. P. Little. il Elec W 78:822-5 O 22 '21
- Achievements of utility stock selling campaign. A. N. Kemp. Elec R 79:288-9 Ag 20 '21
- Arousing community interest in utility securities. il Elec R 77:735-6 N 6 '20
- Banker's study proves worth of electrical utility securities. Elec W 78:464 S 3 '21
- Bonds must be backed substantially with junior securities. Elec W 78:892 O 29 '21
- Common stock the basis of financing. W. S. Barstow. Elec W 77:305-6 F 5 '21

Electric utilities—Securities—Continued

- Constructive suggestions as to customer ownership of securities. R. H. Ballard. Elec J 18:158-9 My '21
- Customer ownership exceeds \$100,000,000. Elec W 77:88-90 Ja 8 '21
- How to own your own light and power plant. S. W. Green. J Elec 46:402-3 Ap 15 '21
- Light and power securities show stability. Elec W 78:709 O 8 '21
- Relation of securities to value of property. W. S. Barstow. Elec W 77:721 Mr 26 '21
- Stability of electric light and power securities. Elec W 78:171 Jl 23 '21
- Status of electric railway light and power securities. H. M. Addinsell. Elec Ry J 58:831-3 N 5 '21
- Talking points on stock selling. R. I. Caruthers. J Elec 46:442-3 My 1 '21
- Utilities, not engineer-bankers alone, should educate investors on their securities. F. O. March. Elec W 77:1426-7 Je 18 '21

Service

- Greater-service department idea helps to win the public. A. W. Childs. J Elec 47:181-2 S 1 '21
- Service. S. M. Kennedy. N E L A Bul 7:335-43 Je '20; Abstract. Elec W 75:1184-5 My 22 '20
- Service department affords an important contact with public. S. B. Hood. Elec W 78:211-12 Jl 30 '21
- Service division's part in utility's operations. J. W. Johnson. Elec R 79:599 O 15 '21
- What happens to the customer when the power goes off. R. H. Tillman. Elec W 78:407-9 Ag 27 '21

See also Electric service, Rural

Valuation

- Interest charges during construction. P. Golsan. Elec W 76:116-17 Jl 17 '20
- Relation of securities to value of property. W. S. Barstow. Elec W 77:721 Mr 26 '21

Electric vehicles

- Automatic electric shop car. il Am Mach 55:323 Ag 25 '21
- Electric battery vehicle meter. G. J. Duckett. diags Electrician 86:514-15 Ap 29 '21
- Electric car for industrial and commercial purposes. il Elec R 79:712 N 5 '21
- Electric Klein-automobil. il Sci Am 123:551 N 27 '20
- Electric vehicle charging equipments. E. Austin. il diag Automobile Eng 11:22-4 Ja '21
- Electric vehicle hand-book. H. C. Cushing, jr. 350p H. C. Cushing, jr., New York '20
- Electric vehicle progress. il Elec R (Lond) 88:406-7 Ap 1 '21
- Electric vehicle progress at Birmingham; a new battery-charging station. il Elec R (Lond) 88:804-5 Je 24 '21
- Electric vehicles in Latin-America. Engineer 132:101 Jl 22 '21
- Electrical vehicle results; Bootle corporation's experience. il Elec R (Lond) 89:339-40 S 9 '21
- New era dawns for electric vehicle. Elec W 77:1357-8 Je 11 '21
- Novel electric vehicle. il Elec R (Lond) 88:775 Je 17 '21; Same. Electrician 87:59 Jl 8 '21
- Novel electric vehicle motor. diag Engineer 128:619 D 19 '19
- Recent electric vehicle progress. F. Ayton. Electrician 85:15-17 Jl 2 '20
- Report of the transportation engineering committee. N E L A Bul 7:655-9 S '20

See also Electric buses; Electric tractors; Electric trucks; Garages, Electric; Motor cars (railroad)—Storage battery; Storage batteries

Exhibitions

- Electric automobile show of 1921 held in showrooms of New York Edison company. E. W. Roesch. il N E L A Bul 8:148-9 Mr '21
- Exhibits of automotive interest at New York electrical show. P. M. Heldt. il diags Automotive Ind 43:825-7 O 21 '20

- New York holds successful electric vehicle show. Elec W 77:333 F 5 '21
- Olympia and British progress in electric vehicles. R. J. Mitchell. Electrician 85:498-9 O 29 '20

Electric vehicles and the central station

- Electric vehicle and power sales bureau co-operation committee convention report. N E L A Bul 7:453-4 Jl '20
- Electric vehicle sessions of N.E.L.A. Elec W 75:1253-4 My 29 '20; Elec R 76:875-6 My 22 '20
- Electric vehicles contribute \$400,000 to the yearly revenue of the Commonwealth Edison company. Elec W 77:1096 My 14 '21
- Electric vehicles from the power station engineer's view-point. R. J. Mitchell. il Electrician 86:791-3 Je 24 '21
- Methods used in modern electric vehicle service station. il Elec R 77:991-4 D 25 '20
- Report of committee on garage and rates. plans N E L A Bul 7:652-5 S '20

Electric ventilators. *See* Electric fans, Ventilating

Electric water heaters

- Application and use of immersion electric heaters. J. M. Strait. il diags Elec R 79:161-3 Jl 30 '21
- Electric range, water and air heaters; their value to the central station. F. C. Piatt. J Elec 46:563-6 Je 1 '21
- Home-made electric water heater. E. C. Soares. diag Elec W 75:1201 My 22 '20
- Improved models of Sepco electric water heaters. il Elec R 78:1028 Je 25 '21
- Simple electric water heater for the utilization of surplus hydro-electric power. H. A. Winne. diags plan Gen Elec R 22:1030-4 D '19; Same. Paper 25:28, 30-3 Ja 28 '20

Electric waves

- Electromechanical device for rapid schedule harmonic analysis of complex waves. F. S. Dellenbaugh, jr. bibliog il diags Am Inst E E J 40:135-44 F '21
- Harmonic analysis by selected ordinates. A. E. Clayton. Inst E E J 59:491-510 My '21; Discussion. 59:751-5 Jl '21
- Harmonic analysis of rectilinear wave-forms. diags Inst E E J 57:sup82-4 '19
- High frequency absorbers. G. Faccioli and H. G. Brinton. Gen Elec R 24:444-54, 656-68 My, Jl '21
- Practical method of harmonic analysis. P. Kemp. Inst E E J 57:sup85-91 '19; Discussion. 58:892 S '20
- Surges on a system of parallel conductors; abstract. H. M. Pleijel. Elec W 75:31-2 Ja 3 '20
- Voltage surges in coils; abstract. W. Rogowski. Elec W 75:88 Ja 10 '20

See also Electric currents, Alternating; Oscillations; Wireless measurement; Wireless telegraph

Electric welding

- Alternating current welding equipment. il diags Ry R 65:896-7 D 13 '19
- A.I.E.E. electric welding session. il Elec W 76:64-5 Jl 10 '20
- American vertical spot-welding machine. il Am Mach 54:752 Ap 28 '21
- Bascule bridge repaired by electric welding. il Eng N 86:727-8 Ap 28 '21
- Cast-iron planer bed electrically welded. il Iron Age 105:1094 Ap 15 '20
- Development of welded ships; advantages of electric welding over riveting. W. T. Bonner. diags plan Sci Am M 2:246-8 N '20
- Developments in the electrical industry during 1919. J. Liston. il Gen Elec R 23:36-7 Ja '20
- Discovery and application of electric welding. E. Thomson. Min & Met 172:27-8 Ap '21
- Electric butt welding machine designed especially for welding high speed drills. il Iron Age 107:917 Ap 7 '21
- Electric seam-welding machines. A. Gradenwitz. il Am Mach 54:128-9 Ja 27 '21
- Electric welding. E. Viall. 417p McGraw-Hill '21
- Electric welding. L. B. Wilson. Eng & Ind Management 5:295-6 Mr 10 '21

Electric welding—Continued

- Electric welding and welding appliances. H. Carpmael. 128p Constable & co. ltd., London '20
- Electric welding as a factor in reclamation of street cars. J. S. Dean. Elec J 18:483 O '21
- Electric welding for railway shops. Elec Ry J 56:977-8 N 6 '20
- Electric welding in radio apparatus. F. A. Anderson. il J Elec 46:132-3 F 1 '21
- Electric welding machine for steel tape. il Engineering 109:802 Je 11 '20
- Electric welding machinery. Elec W 76:241 J1 31 '20
- Electric welding of a Diesel cylinder head. L. H. Morrison. il diags Power 50:659-60 O 28 '19
- Electric welding practice. J. H. Anderton. J Elec 45:508-9, 572-4 D 1-15 '20
- Electrically welded motorship Esab IV. O. Kjellberg. diags plans Marine Eng 26:600-2 Ag '21
- Electrically-welded ship Fullagar. diags Engineering 110:25-6 J1 2 '20
- Electrically welded ships. W. T. Bonner. il diags plan Int Marine Eng 25:330-9 Ap '20
- Electrically welded stay-bolt holes. H. Bleibtren. diags Power 51:151-2 Ja 27 '20
- Electrically-welded structural steelwork. diags Engineering 111:323 Mr 18 '21; Same. Eng & Contr 56:197 Ag 31 '21
- Electro-percussive welding. diag Elec W 77:367 F 12 '21
- Electro-percussive welding. E. Viall. il chart diags Am Mach 51:881-2 N 13 '19
- Electro-percussive welding developments. Mach 27:165 O '20
- Energy requirements in butt-welding steel and iron pipe. G. T. Jacocks. il Elec W 76:1267-8 D 25 '20
- Eye protection in welding operations. C. Sylvester. Sci Am M 2:52-3 J1 '20
- Hints for electric welders. H. L. Unland. Sci Am S 88:296 N 15 '19
- Loose talk on welding should be stopped. J. F. Lincoln. Elec W 78:172 J1 23 '21
- Maintenance of welding machines and selection of types to be used. L. W. Webb. Power 52:658-9 O 26 '20
- Les méthodes industrielles de soudure électrique. J. Escard. il diags Génie Civil 76:294-7, 315-17, 333-6, 352-4, 372-4 Mr 20-Apr 17 '20
- Modern electric welding machines. il diags Electrician 84:399-400 Ap 9 '20
- Modern welding and cutting; electric butt-welding machines and work. E. Viall. il Am Mach 53:768-77 O 21 '20
- Modern welding and cutting; electric welding—historical. E. Viall. il diags Am Mach 53:497-9 S 9 '20
- Modern welding and cutting; spot welding machines and work. E. Viall. il diags Am Mach 53:807-21 O 28 '20
- Pontelec welding equipment. il Electrician 85:138-9 J1 30 '20
- Progress in electric seam welding machines. A. Neuburger. Aerial Age 13:446 J1 18 '21
- Recent developments in electropercussive welding. D. F. Miner. il diags Elec R 77:679-82 O 30 '20; Same cond. Iron Tr R 67:591-3 Ag 26 '20; Same cond. Iron Age 106:1040-1 O 21 '20; Abstract. Am Inst E E J 39:533-5 Je '20
- Repairing a gold dredge bull gear. C. M. Romanowitz. il diag Eng & Min J 111:1030-1 Je 18 '21
- Repairing the frame of a Diesel engine. il Engineering 111:786 Je 24 '21
- Repairing waterwheel runner by electric welding. J. H. Siegfried. il Elec W 77:769 Ap 2 '21
- Resistance welding and its application to refrigerating machinery. J. H. Gravell. A S R E J 8:11-16; Discussion. 16-18 J1 '21
- Rock drill steels too short for use reclaimed by welding. W. T. Ober. il Elec W 77:942-3 Ap 23 '21; Same. Eng & Contr 56:150-1 Ag 17 '21; Same abr. Min & Met 174:51 Je '21
- La soudure par électro-percussion et ses emplois aux États-Unis. diags Génie Civil 78:87-8 Ja 22 '21
- Speeds attained in electrical hand welding. diag Elec W 76:981 N 13 '20
- Spot and arc welding. H. A. Hornor. 296p Lippincott '20
- Spot welding machine for making ships' ventilators. il Engineer 132:176 Ag 12 '21
- Spot welding machine made by the American electric fusion corporation. il Iron Age 107:1676 Je 23 '21
- Stepping roller welding machine. Blast F & Steel Pl 9:444 J1 '21
- Taylor spot-welding machine. il Mach 27:801-2 Ap '21; Am Mach 54:705 Ap 21 '21; Ry Mech Eng 95:405 Je '21
- Useful hints on electric welding. H. L. Unland. il Foundry 47:863-5 D 1 '19; Excerpts. Elec Ry J 54:756-7 O 18 '19
- Using brazed and welded bonds. G. H. McKelway. il Elec Ry J 55:796-9 Ap 17 '20
- Welded joint in structural-steel work. R. Howard. il Sci Am 122:567+ My 22 '20
- Welded locomotive tender tank. J. W. Murphy. il diag Ry Mech Eng 95:550 S '21
- Welding boiler tubes by the electric resistance process. P. T. Van Bibber. il diags. Am Mach 52:653-7 Mr 25 '20
- Welding steel poles. G. H. McKelway. Elec Ry J 55:560 Mr 20 '20
- Wheel welding in Terre Haute. Elec Ry J 57:860 My 7 '21
- Winfield type-B6 butt-welding machine for drills. il Am Mach 54:797-8 My 5 '21
- Year of preparation in welding. C. A. Adams. Elec W 75:321-2 F 7 '20

Bibliography

- List of works in the New York public library relating to electric welding. W. B. Gamble. N Y Public Library Bul 17:375-93 My '13

Cost

- Cost factors on a large welding job. D. C. Cook. il Am Mach 52:148 Ja 15 '20
- Cost of electrical resistance welding. L. E. Wilson. Elec R (Lond) 88:459 Ap 8 '21

Rates

- Making proper rates for electric welding. S. I. Oesterreicher. Elec W 75:70-2 Ja 10 '20

Testing

- Desirability of standardization in the testing of welds. F. M. Farmer. il diags Engineering 111:239-42 F 25 '21; Same. Engineer 131:200-2 F 25 '21; Same cond. Eng & Ind Management 5:256-61 Mr 3 '21; Discussion. Engineering 111:220-2 F 25 '21; Engineer 131:199, 231-2 F 25-Mr 4 '21
- Testing electric welds. S. W. Miller. J Elec 45:534 D 1 '20

Electric welding, Arc

- Abstracts of papers read before the American electrochemical society. Chem & Met Eng 24:817-18 My 11 '21
- A-c. versus d-c. arc welding. A. M. Candy. Am Inst E E J 39:840-1 S '20
- A-c. vs. d-c. arc welding. C. J. Holslag. Am Inst E E J 39:647 J1 '20
- American welding society holds 1st annual meeting, New York. Ry Age 68:1290 Ap 30 '20; Ry Mech Eng 94:380 Je '20
- Application of arc welding in machinery construction. A. M. Candy. il diag Elec R 79:1-5 J1 2 '21
- Applications of electric arc welding. C. B. Auel. il diags Ind Management 59:107-14, 203-7 F-Mr '20
- Applications of electric arc welding. C. T. Perry. il Textile World 57:3497+ My 8 '20
- Apply arc welding to reduce the scrap pile. B. C. Tracey. il Gen Elec R 24:587-90 Je '21
- Arc-weld rail bonds which have a direct weld between copper and steel. il Elec Ry J 56:1066-7 N 20 '20
- Arc-welded bonds eliminate moisture and defy corrosion. W. P. Bovard. il Coal Age 17:923 My 6 '20
- Arc-welded building construction. il diags Engineer 129:510 My 14 '20; Same. Eng & Contr 53:740 Je 30 '20; Same cond. Iron Age 106:12 J1 1 '20
- Arc welded ships. O. H. Eschholz. il diag Marine Eng 26:54-6 Ja '21

Electric welding, Arc—Continued

- Arc welding. F. A. Anderson. *il J Elec* 43:558-9; 44:70-2 D 15 '19, Ja 15 '20
- Arc welding and motor maintenance discussed at meeting of Association of electric railway men. *il chart diags Elec Ry J* 57:537-40 Mr 19 '21
- Arc-welding applications increase 100 per cent in 1920. *Elec W* 77:1068-9 My 7 '21
- Arc welding applied to refrigerating machinery. A. M. Candy. *il diags A S R E J* 7:259-80 Ja '21
- Arc welding developments. *Engineering* 109:153 Ja 30 '20
- Arc welding equipment in the foundry. W. W. Reddie. *il Elec J* 18:96-9 Mr '21
- Arc welding in car equipment maintenance. *il Elec Ry J* 55:574-7 Mr 20 '20
- Arc welding of rail joints without planing the plates. H. H. George. *il Elec Ry J* 55:1254 Je 19 '20
- Arc welding on railway properties. A. M. Candy. *il Elec Ry J* 57:121-4 Ja 15 '21
- Arc welding outfit for tapping water mains. *il Eng & Contr* 55:237 Mr 9 '21
- Arc welding outfit used before tapping steel water pipe. *il diag Eng N* 84:1212-13 Je 17 '20; *J Elec* 45:528 D 1 '20
- Arc welding practice. J. H. Anderton. *J Elec* 45:572-4 D 15 '20
- Broken switch casting reclaimed by electric arc welding. A. McGregor. *il Elec Ry J* 57:139-40 Ja 15 '21
- Building without rivets. S. T. Ericson. *Factory* 26:1094+ My 1 '21
- Carbon-electrode arc welding and cutting. O. H. Eschholz. *il diag Am Mach* 53:499-504 S 9 '20
- Carbon-electrode arc welding and cutting. O. H. Eschholz. *il Elec W* 74:1158-62 D 27 '19
- Chemical and metallurgical aspects of electric arc welding. J. H. Paterson. *Elec R (Lond)* 88:135-6 F 4 '21
- Correct current values for welding with metallic electrodes. W. Spraragen. *Elec W* 77:50 Ja 1 '21
- Effects of the chemical composition of welding electrodes. J. S. Orton. *il Am Mach* 51:625-6 S 25 '19; Same. *Ry R* 65:831-3 D 6 '19
- Electric arc versus gas welds. C. T. Perry. *Power* 51:604 Ap 13 '20; Discussion. 51:934; 52:109-10 Je 8, Jl 20 '20
- Electric arc welding. 6th ed. 74p Lincoln electric co., Cleveland, O. '21
- Electric arc welding. F. A. Anderson. *il J Elec* 45:510-11 D 1 '20
- Electric arc welding; abstracts. H. M. Sayers. *Elec R (Lond)* 89:164-6 Jl 29 '21; *Electrician* 87:105 Jl 22 '21
- Electric arc welding applied to aluminum. F. J. Heyes. *Elec R (Lond)* 88:127-8 Ja 28 '21
- Electric arc welding applied to structural steel framing. *il diag Am Arch* 117:707-11 Je 2 '20
- Electric arc welding in railroad shops. A. M. Candy. *il Ry Mech Eng* 95:456-8 Jl '21
- Electric arc welding in the manufacture of new boilers. *il diags Elec R (Lond)* 89:208-9 Ag 12 '21
- Electric-arc welding of steel; properties of the arc-fused metal. H. S. Rawdon, E. C. Groesbeck and L. Jordan. *bibliog il diags U S Bur Stand Tech Pa* 179:1-63 '20; Abstracts. *Mech Eng* 42:567-71 O '20; *Mach* 27:1037 Jl '21
- Electric arc welding to steel, malleable-iron and gray-iron castings. R. E. Kinkead. *Iron Age* 106:534 Ag 26 '20
- Electric arc welding with alternating current. F. R. Daniels. *il chart Mach* 26:967-71 Je '20
- Electric arc welding; with discussion. H. L. Unland. *A S R E J* 7:426-31 My '21
- Electric welding. C. J. Jewell. *Electrician* 85:680-1 D 10 '20; Same. *Inst E E J* 59:54-5 D '20
- Electric welding a six-ton crankshaft. *il Am Mach* 51:987-8 D 11 '19
- Electric welding in marine repairs. *il Int Marine Eng* 25:716-17 S '20
- Electric welding; methods and machines employed. *il diags Automobile Eng* 11:105-9 Mr '21
- Electric welding of structural steel. O. A. Kenyon. *il diags Iron Age* 105:1740-2 Je 17 '20
- Electric welding on the New York Central. H. A. Currie. *il Ry R* 65:867-9 D 13 '19
- Electrically welded mill building under erection in Brooklyn. *il Eng N* 84:708-9 Ap 8 '20
- Electrically-welded steel frame building. *diags plans Engineering* 111:55-6 Ja 14 '21; Same. *Eng & Contr* 55:306-7 Mr 30 '21
- Electrically welded tanks show many advantages over riveted ones. W. Schenstrom. *il Elec W* 77:1377-8 Je 11 '21
- Electrode holders for metallic arc welding. L. W. Webb. *diag Power* 53:148-9 Ja 25 '21; Same. *Eng & Ind Management* 5:348-9 Mr 24 '21
- Die entwicklung des elektrischen lichtbogensschweissverfahrens in den letzten jahren. G. Schulze. *diags Stahl & Eisen* 41:55-6 Ja 13 '21
- Erects electrically welded steel structure in New York. R. V. Ficker. *il Iron Tr R* 66:1270-2 Ap 29 '20; Same *abr. Eng & Contr* 53:498 Ap 28 '20
- General notes on arc welding. R. E. Frick-ey. *il J Elec* 45:512-13 D 1 '20
- How to weld cast iron electrically. *il Foundry* 49:68 Ja 15 '21
- Kjellberg process of electric arc welding. *diag plan Mach* 27:1051 Jl '21
- Load curves of arc cutting and welding. D. W. Blakeslee. *Elec W* 77:492 F 26 '21
- Metal deposition in arc welding. O. H. Eschholz. *il Elec W* 75:1473-5; 76:118-21 Je 26, Jl 17 '20
- Metallic-electrode arc-welding process. O. H. Eschholz. *il diags Mech Eng* 42:572-4 O '20
- Metallography of arc-fused steel. H. S. Rawdon, E. C. Groesbeck and L. Jordan. *il Chem & Met Eng* 23:777-84 O 20 '20
- Les méthodes industrielles de soudure électrique. J. Escard. *il diags Génie Civil* 76:76:333-6, 315-17, 352-4 Mr 27-Apr 10 '20
- Modern welding and cutting. *il diag Am Mach* 53:537-42, 583-8, 665-70, 719-27 S 16-O 14 '20
- Modern welding processes. *Eng & Ind Management* 6:186+ Ag 18 '21
- Overhead arc welding—theory and practice. O. H. Eschholz. *il diags Power* 52:777-80 N 16 '20; Same. *Elec W* 76:966-9 N 13 '20
- Phenomena of arc welding. O. H. Eschholz. *il diags Am Electrochem Soc Trans v* 39 (preprint 8):59-71 Ap '21; Excerpts. *Electrician* 87:412-13 S 30 '21
- Physical properties of arc-fused steel. H. S. Rawdon, E. C. Groesbeck and L. Jordan. *il diags Chem & Met Eng* 23:677-84 O 6 '20
- Plastic arc-welding on ship work. J. O. Smith. *il Am Mach* 52:189-90 Ja 22 '20; Same. *Int Marine Eng* 25:47-8 Ja '20
- Present state of electric arc welding. *il Electrician* 85:280-2 S 3 '20
- Progress of welding in the shipyards. W. T. Bonner. *il diags Marine Eng* 26:57-65 Ja '21
- Quasi-arc welding. *il Textile World* 57:1643 F 28 '20
- Removing broken taps. K. L. Unland. *il Am Mach* 52:899-900 Ap 22 '20
- Repairing cast iron cylinders by welding. H. G. Knox and J. W. Owens. *il diags Int Marine Eng* 25:340-6 Ap '20
- Repairs made by electric welding. *il Power* 51:462-4 Mr 23 '20
- Sawmill reclaims machine parts by arc welding. *il Pop Mech* 35:708 My '21
- Short arc is necessary for successful welding. C. J. Holslag. *diags Elec W* 76:434 Ag 28 '20
- Solving some arc welding problems. A. M. Candy. *il Foundry* 49:179-85 Mr 1 '21; Same. *Iron Tr R* 68:829-35 Mr 24 '21
- La soudure électrique à l'arc. *Génie Civil* 79:136 Ag 6 '21
- La soudure électrique par arc à courant continu; la dynamo Bergman. *diags Génie Civil* 77:535-6 D 25 '20
- Speed of metal arc welding. W. Spraragen. *Eng & Contr* 53:598 My 26 '20
- Stride forward in electric welding. *il Sci Am* 124:389+ My 14 '21

Electric welding, Arc—Continued

- Successful use of welded joints in Baltimore. W. W. Wysor. *il* diags Elec Ry J 58:170-1 J1 30 '21
- Theory of metallic arc welding. R. G. Hudson. *il* Elec W 74:995-7 N 29 '19; Same. Iron Tr R 65:1515-17 D 4 '19; Same. Sci Am M 1:214-16 Mr '20
- Using the metallic arc for track welding. C. J. Hopkins. diags Elec Ry J 55:253 Ja 31 '20
- Various applications of the electric arc in the steel mill. C. J. Holslag. Iron Age 106:526 Ag 26 '20
- Welding an engine cylinder from the inside. O. A. Kenyon. *il* Int Marine Eng 25:188-90 Mr '20
- Welding arc; is the metal transmitted chiefly as a spray or as a vapor? A. W. Slocum. Sci Am M 3:245-6 Mr '21
- Welding by electric arc process. J. A. Randolph. Iron Tr R 66:926-7 Mr 25 '20; Same cond. Foundry 48:342+ My 1 '20
- Welding cast iron with the electric arc. O. A. Kenyon. *il* diags Iron Age 105:12-16 Ja 1 '20
- Welding plant on motor trucks. *il* Elec Ry J 56:1067 N 20 '20
- Welding structural steel work. H. B. Payne. *il* diags Elec W 75:1421-2 Je 19 '20
- Welding the interior surface of a cast-iron cylinder. O. A. Kenyon. *il* Mach 26:642-3 Mr '20
- Welding with the electric arc. J. F. Springer. diags Textile World 57:4236+ Je 5 '20
- Welding with two arcs in series. Sci Am 124:483 Je 18 '21

Machinery

- Arc welding machinery of the U.S. light & heat corporation. W. A. Turbayne. Am Inst E E J 39:535-6 Je '20
- Automatic arc welding. H. L. Unland. diags Gen Elec R 24:583-6 Je '21
- Automatic arc welding apparatus. S. R. Bergman and H. L. Unland. Am Inst E E J 39:536-7 Je '20
- Automatic electric arc welding machine. H. L. Unland. *il* diags Am Mach 53:403-6 Ag 26 '20
- Characteristics and performance of arc welding machinery. A. M. Candy. *il* diags Am Inst E E J 39:531-3 Je '20
- Characteristics of arc-welding machines. A. M. Candy; C. J. Holslag. Elec W 76:784 O 16 '20
- Daysohms low tension welder regulator. *il* Electrician 86:588-9 My 13 '21; Elec R (Lond) 88:631 My 13 '21; Engineer 131:484 My 6 '21; Engineering 111:562 My 6 '21
- Electric arc-welding machine for small work. *il* Am Mach 53:1013 N 25 '20
- Electric welding machines—alternating current equipment. L. W. Webb. diags Power 52:501-3 S 28 '20
- Electric welding machines—direct-current constant-current types. L. W. Webb. diags Power 52:250-3 Ag 17 '20
- Electric welding machines—direct-current constant-potential types. L. W. Webb. diags Power 52:210-12 Ag 10 '20
- Electric welding machines—factors influencing their operation. L. W. Webb. Power 52:337-8 Ag 31 '20
- Gas engine driven arc welding units for intermittent and heavy duty. *il* Marine Eng 26:621-2 Ag '21
- General Electric arc-welding generator sets. *il* Am Mach 55:114-15 J1 21 '21
- General Electric automatic arc welder. *il* Mach 26:676 Mr '20; Am Mach 52:527 Mr 4 '20; Elec Ry J 55:395 F 21 '20; Engineer 129:220 F 27 '20; Ry R 66:336-7 F 28 '20; Iron Age 105:734 Mr 11 '20; Ry Age 68:787 Mr 12 '20; Int Marine Eng 25:351 Ap '20; Power 51:548 Ap 6 '20
- High speeds obtained in routine work by automatic welding. H. L. Unland. *il* Elec W 76:836-7 O 23 '20
- New electric arc welding machine. *il* diags Engineer 132:18-19 J1 1 '21
- New resistance-type arc welder. *il* Elec Ry J 57:1003 My 28 '21

New type of arc-welding generator. S. R. Bergman. *il* diags Gen Elec R 23:442-6 My '20

Portable electric arc welding apparatus built by the Electric arc cutting & welding co. *il* Mach 27:390-1 D '20

Portable engine driven welding equipment. *il* Elec R 79:254 Ag 13 '21

Recent development in machines for electric arc welding. *il* J Elec 45:561 D 15 '20

Sheet metal arc-welding machine. E. A. Thanton. *il* diags Am Mach 53:663 O 7 '20

Track welder has resistance giving thirty-six current values for varied uses. *il* Coal Age 19:1081 Je 16 '21

Welding machine having self-controlled current affords only a short arc. *il* Coal Age 19:579 Mr 31 '21

Westinghouse single-operator electric-welding outfit. *il* Ry Age 68:1652 Je 10 '20; Iron Age 105:1738 Je 17 '20

Wilson arc-welding machine for rail bonding and trackwork. Elec Ry J 57:563 Mr 19 '21; Eng & Contr 55:266 Mr 16 '21

Safety devices and measures

Safety methods used in welding. Power Pl Eng 24:992-3 O 15 '20

Study and teaching

Training arc welders. O. H. Eschholz. *il* diags Am Mach 52:837-43 Ap 15 '20

Training electric welders. *il* diags Mach 26:1142-5 Ag '20

Testing

Properties of arc metal and arc welds as determined by tests. O. H. Eschholz. *il* diags Power 53:250-5 F 15 '21

Electric welding barge

Floating electric welder. R. R. Roane. *il* diags plans Int Marine Eng 25:488-91 Je '20

Electric wire and wiring

Adequate wiring for a small house. plans Arch & Bldg 53:19-21+ Mr '21

Alarm systems offer opportunity for new wiring business. E. R. Murray. diags J Elec 47:269-70 O 1 '21

Aluminum for transmission lines. Sci Am M 3:280 Mr '21

Architect's viewpoint. H. H. Gutterson. *il* plans J Elec 45:162-5 Ag 15 '20

Business methods for handling wiring contracts. A. L. Nelson. *il* diags Elec R 78:1006-10 Je 25 '21

Cheapness fallacy in house wiring. R. G. Tyler. Electrician 86:427 Ap 8 '21

Combined conduit and wiring tables aid wiremen. A. G. Humphrey. Elec W 77:885 Ap 16 '21

Construction of industrial electrical distribution systems. V. E. Johnson. diags plan Power Pl Eng 25:957-61 O 1 '21

Copper-wire properties and requirements governing installation. E. P. Slack. Power 54:590-1 O 18 '21

Correct method of trolley-wiring mines. M. W. Beddow. *il* Coal Age 17:796-8, 844-8 Ap 22-29 '20

Does a contractor buy or sell a wiring job? J. W. Collins. Elec R 79:249-50 Ag 13 '21

Earthing: report of the earthing sub-committee of the wiring rules committee. Inst E E J 58:468-75; Discussion. 476-90 Je '20

Economic use of galvanized steel wire. J. P. Jollyman and J. F. Strachan. J Elec 44:356-8 Ap 15 '20

Ediswan house-wiring system. *il* Elec R (Lond) 89:133-4 J1 22 '21; Electrician 87:112-13 J1 22 '21

Electric light wiring for wide bays in saw-tooth roof buildings or temporary lighting. diags Textile World 58:1554 S 4 '20

Electric light wiring systems. F. T. Allread. Elec R (Lond) 88:743; Discussion. 743-4 Je 10 '21

Electric wiring in shops. J. F. Springer. Gas Age 47:519-20 Je 25 '21

Electrical distribution system for modern concrete factory. C. P. Trueax. *il* diags plan Elec R 78:209-13 F 5 '21

Electrical equipment of artisan dwellings. L. Milne. Inst E E J 58:464-7; Discussion. 476-90 Je '20

Electric wire and wiring—Continued

- Electrical heating and ventilating equipment of the Cunard building. H: C. Meyer. Arch Forum 35:22-3 J1 '21
- L'emploi de l'aluminium pour les lignes électriques. Génie Civil 77:509-11 D 18 '20
- Ethics of internal wiring. A. Kirk. Electrician 85:358-60 S 24 '20
- Factory wiring. E. Austin. il Eng & Ind Management 5:67-8 Ja 20 '21
- Hints on direct current wiring practice. diags Power Pl Eng 24:1034-8 N 1 '20
- Hiring wiring—an anomalous system. Electrician 85:688-9 D 10 '20
- House wiring; a treatise describing and illustrating up-to-date methods of installing electric light and power wiring, bell wiring and burglar alarm wiring. T: W: Poppe. 13-208p Henley '20
- House-wiring growth featured at Boston show. il Elec W 77:1436 Je 18 '21
- How factory feeders were supported on poles fastened to buildings. il Elec W 75:849 Ap 10 '20
- How to splice stranded wire conductors. E. D. Hunt. diags Coal Age 17:210 Ja 29 '20
- Illumination by direct lighting; table. J Elec 45:284 S 15 '20
- In wiring the electrical home—; valuable hints. il plan J Elec 45:168-9 Ag 15 '20
- Inspectors discuss wiring and equipment problems. Elec R 78:226-8 F 5 '21
- Iron and steel wire for transmission. R. W. Goddard. Elec W 75:891-3 Ap 17 '20
- Kingsway wiring system. il Elec R (Lond) 89:399 S 23 '21
- Merchandising plan for selling electrical wiring; advance report of Wiring committee of the N.E.L.A. il diag plans Elec R 78:331-4 F 26 '21; Excerpts. Elec W 77:608-9 Mr 12 '21
- Method of distributing power for industrial plants. D. E. Hayner. diag plan Elec W 77:1489-90 Je 25 '21
- Method used to wire a room with high ceiling. W. F. Perry. diag Elec R 76:699-700 Ap 24 '20
- Modern house wiring. C. B. Campbell. plan J Elec 44:66-7 Ja 15 '20
- New carhouse wiring rules. Elec Ry J 55:748 Ap 10 '20
- Notes on the installation and maintenance of electrical apparatus. W. Cross. Inst E E J 58:15-18 D '19
- Obscure defects in house fittings and some unusual remedies. Elec R (Lond) 88:642 My 20 '21
- Off-peak schedule motor cutout. R. S. Seese. diag Power 51:392 Mr 9 '20
- Problem course in electricity. H. H. Bliss. diags J Elec 45:529-31, 574-6; 46:29-31, 81-3 D 1 '20-Ja 15 '21
- Progress in junction box designs. il diag Electrician 86:134-5 Ja 28 '21
- Reduction in the temperature of a wire when covered with insulation. A. B. Easton. Electrician 85:202-3 Ag 20 '20
- Relations between circuits, floor area and number of outlets. J Elec 46:552 Je 1 '21
- Report of the wiring committee. N E L A Bul 7:614-23 S '20
- Rules for installation of meters and motor equipment. Elec W 76:1266 D 25 '20
- Simplifying power-station wiring for control circuits. F. N. Bechoff. diag Elec W 75:1310-11 Je 5 '20
- Some experience with overhead ground wires. Elec W 78:474 S 3 '21
- Surface wiring systems: helpful notes on existing methods. il Electrician 87:467-70 O 7 '21
- Transmission characteristics of iron and steel wire. E. Kurtz. Elec R 79:200-2 Ag 6 '21
- Uniform service and meter wiring. L. C. Peterman. il diags Elec W 77:359-62 F 12 '21
- Use of aluminum for electric transmission lines; abstract. M. Dusaughey. Chem & Met Eng 24:313-14 F 16 '21
- Use of armored cable to wire old residences. Elec R 78:399 Mr 5 '21
- Wiring a residence for adequate lighting outlets. W: B. Eastwood. plans Elec R 78:939-42 Je 11 '21

- Wiring a switchboard. J: J. Ramsey. diags Power Pl Eng 25:998-9 O 15 '21
- Wiring each room in the model electric home. plans Elec R 77:311-14 Ag 28 '20
- Wiring for electric light in small houses. A. Kirk. Electrician 84:417-18 Ap 16 '20
- Wiring for light and power, a detailed and fully illustrated commentary on the national electrical code. T. W. Croft. 465p 2d ed. McGraw-Hill '20
- Wiring layout for large repair shop. H. L. Cornelison. il diags plan Elec W 75:944-6 Ap 24 '20
- Wiring of a middle-class home. M. Luckiesh. plans Elec R 76:976-9 Je 12 '20
- Wiring of the home electric. il plans Bldg Age 43:33-5+ Je '21
- Wiring plans of San Francisco's model electrical home. Elec R 77:123-4 J1 24 '20

See also Electric cables; Electric conductors; Electric conduits; Electric distribution; Electric engineering—Laws and regulations; Electric fuses; Electric inspection; Electric lighting; Electric lines; Electric railroads—Wiring; Electric transmission; Electricity in the home; Insulation (electric); Telegraph; Telephone; Trolley wire; *also* National electrical code, National electrical safety code

Cost

- Basic schedule of house wiring costs. A. L. Nelson, C. Renshaw and R. H. Tillman. Elec W 77:701-2 Mr 26 '21
- Economy of substituting copper for iron wire; investigation of losses in iron and steel conductors. H. S. Rush. Elec W 78:515-17 S 10 '21
- Proper quotations for electrical house wiring. A. L. Nelson. plan Elec R 78:495-8 Mr 26 '21
- Why not fixed prices for wiring jobs? Elec W 77:1114 My 14 '21
- Wiring committee shows how to quote proper prices on house wiring jobs. N E L A Bul 8:213-16 Ap '21
- Wiring for so much per outlet. J. W. Collins. Elec R 76:521-2 Mr 27 '20

Safety measures

- Chicago inspection department passes on special cases. Elec R 78:668-9 Ap 23 '21
- Control of wiring. Electrician 85:560-1 N 12 '20
- Grounding and polarization as protecting measures. W. J. Canada. diags Elec R 76:351-4, 391-4 F 28-Mr 6 '20
- Safe construction for coal-mine distribution circuits. Elec W 76:1123 D 4 '20

See also Linemen's equipment

Specifications

- Tentative specifications for insulated wire and cable; 30-per-cent hevea rubber. Am Soc T M Pro v 20 pt 1:736-60 '20
- Tentative specifications for tinned soft or annealed copper wire for rubber insulation. Am Soc T M Pro v 20 pt 1:574-9 '20

Standards

- Standardization of wiring methods. H. H. Courtright. J Elec 44:382-4 Ap 15 '20
- See also* National electrical code

Tables, calculations, etc.

- Application of vectors to wiring diagrams. L. A. Terven. diags Elec W 75:60-3 Ja 10 '20
- Charts for quick solution of line-drop problems. E. P. Peck. charts (supp) Elec W 77:1238 My 28 '21
- Determining size of wire and the length of span. D. F. Parrott. diag Elec W 76:928 N 6 '20
- Graphic study of current capacity of several wires in conduit. D. W. Blakeslee. Elec W 78:127 J1 16 '21
- Number of feet in pound of insulated wire. Pop Mech 35:638 Ap '21
- Relation between line regulation load and size of conductor. A. M. McCabe. chart Elec W 75:1199 My 22 '20

- Electric wire and wiring**—Tables, calculations, etc.—*Continued*
Suggested demand-factors for use in interior wiring. V: H. Tousley. Elec R 76: 219-21 F 7 '20
- Testing**
Tests of heater cords; report by the Electrical testing laboratories. il N E L A Bul 7:793-802 N '20
- Electrical development association of Great Britain and Ireland**
Developing electrically in England. Elec W 75:19-20 Ja 3 '20
- Electrical manufacturers' council**
Manufacturers' enlarged cooperative effort. Elec W 75:1002-3 My 1 '20
- Electrical safety conference**
Result of the work of the conference during the past two years. Safety Eng 41:118-21 Mr '21
Standard for control equipment issued by Electrical safety conference. Elec W 77: 732 Mr 26 '21
- Electrical sales associates of New England**
Electrical sales associates organized in New England. Elec W 77:446 F 19 '21
- Electrical supply jobbers' association**
Convention, Del Monte, May 11-14. J Elec 44:421-3, 550-2 My 1, Je 1 '20
Convention, Hot Springs, Va. Elec R 79: 63-4 Jl 9 '21
Semi-annual meeting, Cleveland, Nov. 17-19. Elec R 77:849 N 27 '20
- Electricians**
Descriptions of occupations; electrical manufacturing distribution and maintenance. 33p '18 U.S. Bureau of labor statistics, Washington, D.C.
See also Linemen's equipment
- Electricians' tools**
Home-made tools for electrical repair shop. il Elec W 75:385-6 F 14 '20
Simple lifting tool for high-tension lines. H. E. Weightman. diags Elec W 75:77 Ja 10 '20
Undercutting tools made from file and hacksaw blades. il Elec W 75:902-3 Ap 17 '20
- Electricity**
Advanced text-book of magnetism and electricity. R. W. Hutchinson. 2d ed. W. B. Clive, London '20
Danish engineers find new electrical action. il Pop Mech 35:178 F '21
Electric phenomena in extreme vacuo. H. E. Lilienfeld. diags Sci Am M 3:46-8 Ja '21
Electric service, a twentieth century commodity. J. A. McAteer. Elec R 78:791-2 My 14 '21
Electrical conditions of the earth and atmosphere. A. E. Baines. Sci Am S 88:290-1 N 15 '19
Electricity and gravitation. H. Bateman. Phys R 17:64-9 Ja '21
Electricity and magnetism for advanced students. S. G. Starling. 4th ed. 589p Longmans '20
Electricity and matter. E. Rutherford. il diags Engineering 111:296-7, 345-7, 379-81 Mr 11, 25-Ap 1 '21; Abstract. Electrician 86:457-9 Ap 15 '21
Electricity; its real nature and how it permeates all matter. T. Croft. Power Pl Eng 24:612-13 Je 15 '20
Electricity makes possible a lower cost and cleaner product; raisin industry. W. M. Giffen. J Elec 46:379-80 Ap 15 '21
Elements of applied electricity. H. H. Bliss. 1st ed. 100p Journal of electricity, San Francisco '20
Elements of electricity. R. A. Millikan and E. S. Bishop. 232p American technical society, Chicago '20
Elements of electricity as applied to electroplating. F. T. Taylor. Metal Ind 17:485-8 N '19
Elements of electro-technics. A. P. Young. 348p Pitman '20
Flow of electricity in a magnetic field. V. Volterra and E. Freda. bibliog diags Univ of Cal Pub in Mathematics v 1, no 13:249-320 '21
- Fundamental mechanical and electrical laws. R. W. Kent. 135p Dunwoody press, Minneapolis '21
Gas v. electricity. R. C. Black. Engineer 129: 498-9 My 14 '20
Gas v. electricity; discussion. Elec R (Lond) 88:366-8 Mr 18 '21
Introduction to technical electricity. S. G. Starling. 181p Macmillan '21
Mechanical analogs in alternating currents. G. R. Schuck. diags J Elec 45:180-1, 226-7, 283-4, 334-5, 431-2 Ag 15-O 1, N 1 '20
New physics. A. C. Crehore. J Elec 43:516-18 D 1 '19
Practical electricity. T. W. Croft. 646p McGraw-Hill '20
Problem course in electricity. H. H. Bliss. diags J Elec 45:78-9, 119-20, 183-4, 224-5, 277-9, 336-7, 380-1, 429-30, 482-3, 529-31, 574-6; 46:29-31, 81-3, 136-8, 204-5, 252-5, 301-4, 353-4, 397-8, 451, 520-2, 572-4; 47: 75-6 Jl 15 '20-Je 1, Jl 15 '21
Problem of the fuel cell. E. K. Rideal and U. R. Evans. Elec R (Lond) 88:835 Je 24 '21
Spirit of progress. S. M. Kennedy. il J Elec 44:122-6 F 1 '20
Swoope's Lessons in practical electricity; an elementary text book. C. W. Swoope. 16th ed. 625p Van Nostrand '20
Thermal efficiency of the generation and use of gas and electricity. D. Clerk. diags Inst E E J 58:765-7; Discussion. 767-79 S '20
Thermal efficiency of the generation and use of gas and electricity; with discussion. D. Clerk. diags Electrician 84:688-90, 695-6 Je 25 '20
What is electricity? C: R. Gibson. 2d ed., rev. 215p Seeley, Service & co., ltd., London '20
See also Armatures; Atmospheric electricity; Commutation (electricity); Corona (electricity); Dielectrics; Eddy currents; Electric generators; Electrons; Electrophysiology; Hall effect; Induction (electricity); Induction coils; Insulation (electric); Ionization; Lightning; Magnetism; Photoelectric effect; Piezo-electricity; Radioactivity; Stray currents; Telegraph; Telephone; Thermoelectricity; Wireless telegraph; Wireless telephone; X rays; *also* headings beginning Electric and Electro; *also* the subdivision Electric equipment under various headings, e.g. Foundries—Electric equipment, Ships—Electric equipment
- Experiments**
My electrical workshop. F. T. Addyman. 249p Wireless press, New York '20
- Fire hazard**
Electric fires. Sci Am M 3:475-6 My '21
Electric fires only 2.57 per cent of all. R. Trautschold. Elec W 77:693-6 Mr 26 '21
Precautions that should be taken to prevent electrical equipment from starting fires. E. V. King. Coal Age 19:1161-2 Je 30 '21
- History**
Epoch-making discoveries of the years 1819 and 1820. E. Thomson. Am Inst E E J 39: 1021-7 D '20; Same. Gen Elec R 23:975-83 D '20
Oersted's and Ampère's discoveries. M. I. Pupin. Am Inst E E J 39:1028-31 D '20
One hundred years ago today; anniversary of discovery of fundamental electromagnetic laws by Ampère and Oersted. Elec W 76: 570-3, 736 S 18, O 9 '20
- Storage**
See Electric distribution
- Study and teaching**
Electrical instruction in a high school. A. L. Jordan. il J Elec 43:556-7 D 15 '19
Instruction in practical electricity for boy scouts of America. il N E L A Bul 8:14-16 Ja '21
- Tables, calculations, etc.**
Characteristic curves. J. Marsten. Wireless Age 8:33-5 Ag '21

Electricity—Tables, calculations, etc.—Cont.

Heat losses in the conductors of alternating-current machines. W. V. Lyon. diags Am Inst E E J 40:398-410 My '21

High frequency absorbers. G. Faccioli and H. G. Brinton. Gen Elec R 24:444-54, 656-68 My, Jl '21

Systems with propagated coupling. A. W. Porter and R. E. Gibbs. diags Philos Mag 6th ser 41:432-40 Mr '21

Theory and calculation of variable electrical systems. J. R. Carson. Phys R 17:116-34 F '21

See also Electric engineering—Tables, calculations, etc.; Electric wire and wiring—Tables, calculations, etc.

Terminology

See also Physics—Terminology

Electricity, Accidents from

Authoritative report on Tonawanda (N.Y.) substation accident. J. L. Harper. Elec W 76:1023 N 20 '20

Electricity in factories; abstracts. G. S. Ram. Elec R (Lond) 89:198-9 Ag 5 '21; Electrician 87:163 Jl 29 '21; Eng & Ind Management 6:180-1 Ag 18 '21

Overheating of iron conduit containing three-phase conductors. diags Power 54:113 Jl 19 '21

Penalty for carelessness in operation. Elec W 78:22 Jl 2 '21

Reducing electrical hazards in mills. W. Greenwood. Iron Tr R 69:875-6+ O 6 '21

Some electrical causes of dust explosions. D. J. Price. il diags Elec R 78:179-81 Ja 29 '21; Same. J Elec 46:240-2 Mr 1 '21

See also Electric conduits—Failures; Electricity, Injuries from

Electricity, Atmospheric. See Atmospheric electricity**Electricity, Injuries from**

Accidents due to electrical causes show marked decrease. Elec W 76:983 N 13 '20; Same. N E L A Bul 7:905 D '20

Contact with 33,000-volt circuit did not kill man. W. P. Mackle. Elec W 78:121 Jl 16 '21

First aid for electrical injury. J. S. Dean. il Elec J 18:156 Ap '21

Hazards to the troubleman. J. A. Schabeck. N E L A Bul 8:39-40 Ja '21

Need for information on treatment of electrical burns and shock. J. M. Buswell. Elec W 77:1104 My 14 '21

Resuscitation from electrical shock by the prone-pressure method. C. B. Scott. Elec W 77:652 Mr 19 '21; Same. N E L A Bul 8:234 Ap '21

Resuscitation through pain inflicted by a blow. W. P. Strickland. Elec W 76:929 N 6 '20

Tapping power lines causes high voltage to ground. C. A. Aubrey. diags Elec W 75:554-5 Mr 6 '20

See also Electric shock

Electricity, Static

Cause of static phenomena on ignition cables. H. F. Geist. diags Automotive Ind 42:804-7 Ap 1 '20

Overcoming static electricity in printing. W. D. Hornaday. Inland Ptr 65:726-7 S '20

Protecting gasoline tank trucks from fire thru static electricity. F. A. Bean. Nat Pet N 13:32 S 28 '21

Static electricity in belts. il Power 52:871 N 30 '20

Static preventer buried in the earth. diags Wireless Age 8:18 D '20

Electricity in freight handling

How electricity helps solve the package freight handling problem. F. T. Smith. il Int Marine Eng 25:1-6 Ja '20

Material handling by electrically operated equipment. Gen Elec R 24:284-389 Ap '21

See also Terminals—Electric equipment

Electricity in lumbering

Electric applications in the logging industry of the Northwest. E. P. Whitney. il Gen Elec R 24:631-8 Jl '21

Electric power invades woods. il Sibley J 35:71 Ap '21

Electrical logging. R. E. Gray. il J Elec 43:492-4 D 1 '19

Electricity basic in development of timber resources. D. T. Mason. map J Elec 46:429-30 My 1 '21

Electricity in the lumber industry. E. F. Whitney and W. C. Heston. il J Elec 46:114-16 F 1 '21

Electricity in the lumber industry; electrical installation at the Carlisle-Pennell lumber co., Onalaska, Wash. J. M. Dodds. il plan Gen Elec R 24:794-802 S '21

Logging by electricity. A. Longville. il Sci Am 124:285 Ap 9 '21

Portable electric logging yarder and loader. il Eng & Contr 55:159 F 16 '21; Same. Elec R 78:460 Mr 19 '21

Electricity in mining

Air-break colliery switchgear. diag Electrician 87:494 O 14 '21

Approved explosion-proof coal-cutting equipment. L. C. Ilsley and E. J. Gleim. il diags U S Bur Mines Bul 78:1-48 '20

Automatic substations save labor, act promptly and insure equipment against roasting. R. J. Wensley. il Coal Age 20:407-9 S 15 '21; Abstract. Min & Met 177:44-5 S '21; Same. Sci Am M 4:285-6 S '21

Blaisdell distributor and a conveyor applied to storage problems. W. A. Harris. il diags Electrician 86:31-3 D 31 '20

Braden copper company's power system in Chile. il diags map plan Power 52:730-4 N 9 '20

Build an up-to-date plant and electrify the mine. Coal Age 17:1012 My 13 '20

Bunker Hill enterprise. T. A. Rickard. diags Min & Sci P 121:195-200, 227-31 Ag 7-14 '20

Cable testing in mines. E. A. Guthrie. diags Inst E E J 57:sup328-32 '19

Chile exploration company's Tocopilla power plant. P. H. Thomas. il Power 51:492-5 Mr 30 '20

Choice of electrical equipment for gold and silver mining. B. B. Beckett. J Elec 44:440-2 My 1 '20

Coal mine power transmission. W. C. Adams. W Soc E J 26:337-49 O '21

Consumption records of electric mine hoists. Elec W 75:219 Ja 24 '20

Correct method of trolley-wiring mines. M. W. Beddow. il Coal Age 17:796-8, 844-8 Ap 22-29 '20

Demand factor of coal mining loads. C. Lee. W Soc E J 26:350-9 O '21

Demonstration of application of automatic switching in coal mines. il Elec R 79:354 S 3 '21

Designing an electric hoist to meet needs of a long mine slope. G. Bright. il Coal Age 17:890-4 My 6 '20

Economy and safety are secured by use of alternating-current coal cutters. C. B. Officer. il Coal Age 17:1303-6 Je 24 '20

Electric controllers for mine hoists. W. C. Goodwin. il diags Elec J 17:119-22 Mr '20

Electric drive in a Washington coal mine. E. J. Barry. Elec R 76:731-3 My 1 '20; Same cond. J Elec 44:565-7 Je 1 '20

Electric haulage and ventilating plant at the Easington colliery. il diags Engineering 110:804-6, 808 D 17 '20

Electric locomotive haulage problem. diag Coal Age 20:384-5 S 8 '21

Electric power a factor in the anthracite field. W. A. Thomas. Min & Met 177:48-9 S '21; Same. Sci Am M 4:284 S '21

Electric power for mining. F. S. Viele. il J Elec 45:71-3 Jl 15 '20

Electric service in Illinois coal mine. H. W. Eales. il diag Elec W 75:676-8 Mr 20 '20

Electric shovel in open-cut mining. C. R. Fisher and H. G. Head. il diags Gen Elec R 23:938-48 D '20

Electric winding engines and mine hoists. H. H. Broughton. diags Electrician 84:286-9, 340-3, 390-2, 441-3, 514-16, 612-15, 638-41; 85:54-5, 104-6 Mr 12, 26, Ap 9, 23, My 7, Je 4-11, Jl 9, 23 '20

Electricity in mining—Continued

- Electrical equipment for coal mine operation. K. J. Keith. Elec W 75:682-3 Mr 20 '20
- Electricity in coal mines. Min & Sci P 122: 228 F 12 '21
- Electricity in gold and silver mining. B. B. Beckett. il J Elec 44:263-5 Mr 15 '20
- Electricity in mines. Electrician 85:455 O 15 '20
- Electricity in mines. M. I. Williams-Ellis. il diags Elec R (Lond) 89:395-7, 428-30 S 23-30 '21
- Electricity in the mining industry of the West. G. J. Young. il J Elec 46:633-8 Je 15 '21
- Electricity in tin mining. D. M. W. Hutchison and W. J. Wayte. diags plans Inst E E J 58:171-91 F '20; Same abr. Electrician 84: 8-10, 36-9 Ja 2-9 '20; Discussion. Inst E E J 58:191-7 F '20
- Electrification of mines. G. Bright. Min & Met 174:19-21 Je '21
- Fuse versus automatic switch for motor protection. Coal Age 19:950-1 My 26 '21
- Illumination of coal mines. H. F. Barnes and J. H. Kurlander. il Elec R 77:41-9 Jl 10 '20
- Installing a power cable in a shaft. G. J. Kearney. diags Coal Age 17:1211 Je 10 '20
- Large American mine winding engine. il diags Engineer 131:540-2, 544 My 20 '21
- Method of installing armored cables in mines. J. E. Rock. Elec W 75:683 Mr 20 '20
- Methods of handling heavy mine cable installations. T. H. Arnold. Elec W 77:887-8 Ap 16 '21
- Methods of suspending electric power cables. R. P. Hines. il diags Coal Age 17:749-52 Ap 15 '20
- Mine-hoisting duty cycles in practical operation. M. A. Whiting. Eng Soc W Pa 36:345-65 Je '20; Same. Coal Age 18:630-7 S 23 '20; Discussion. Eng Soc W Pa 36:366-80 Je '20
- Mining laws on use of electricity in coal mines. Elec R 78:344 F 26 '21
- Mining with hydroelectric power. il map Iron Tr R 66:280-3 Ja 22 '20
- Modern electrical coal cutters. il Electrician 85:719 D 17 '20
- Nanty Glo has first coal-mine substation equipped to run without attendant. G. Bright. il Coal Age 19:613-17 Ap 7 '21; Same. Elec W 77:817-19 Ap 9 '21
- New electrically-driven hoisting equipment at Kilton collieries. M. Meredith. il Coal Age 17:596-7 Mr 25 '20
- New shaft operation of the Jamison coal & coke co. at Pleasant Unity, Pa. D. J. Baker. il Coal Age 17:212-15 Ja 29 '20
- Power company service for the coal mine. il map J Elec 46:242-4 Mr 1 '21
- Power requirements for coal mining. R. Anthony. il Elec W 76:14-15 Jl 3 '20
- Progress of electrification of mines. Am Inst E E J 40:577-8 Jl '21
- Protection of electric equipment in coal-mining service. B. F. Grimm. il diag map Coal Age 20:253-6, 291-5 Ag 18-25 '21
- Reduces losses in output and eliminates fires from overloads and shorts; installation of automatic circuit breakers. D. J. Baker. diags plan Coal Age 19:657-60 Ap 14 '21
- Safe construction for coal-mine distribution circuits. Elec W 76:1123 D 4 '20
- Safe ways of using alternating current for coal-cutting machinery. L. C. Ilsley and E. J. Gleim. Coal Age 18:106-7 Jl 15 '20
- Safety cut-out for mine trolley wires at loading chutes. E. D. Gardner. diags plan Elec W 78:25 Jl 2 '21; Same. Min & Met 175:22 Jl '21; Same, without plan. Eng & Min J 112:18 Jl 2 '21
- Standard A. C. geared winding equipments. C. E. Raeburn. il Electrician 86:38-9 D 31 '20
- State mining laws on the use of electricity in and about coal mines. L. C. Ilsley. U S Bur Mines Tech Pa 271:1-51 '20; Abstracts. Coal Age 19:20 Ja 6 '21; Elec W 77:763-5 Ap 2 '21
- Study of underground electrical prospecting. C. Schlumberger. diags Eng & Min J 111: 782-8, 818-23 My 7-14 '21
- Substation at Cordova mine has operated two years without attendant. il Coal Age 19:861-3 My 12 '21
- Susquehanna installs electric slope hoist and at a shaft replaces steam by electric drive. L. W. Le Grand. il Coal Age 19: 941-4 My 26 '21
- Treatment of direct-current motors for mining conditions. T. H. Arnold. il Power 52: 582-3 O 12 '20
- Trouble shooting in gold and silver mining. B. B. Beckett. il J Elec 45:375-7; 46:289-91 O 15 '20, Mr 15 '21
- Typical installations of electric mine hoisting in South Africa. E. B. Bell. il Gen Elec R 23:775-82 S '20
- Union Pacific coal co. discards many of its local power plants for a central station at Rock Springs, Wyo. D. C. McKeehan. il Coal Age 20:335-7 S 1 '21
- Use of central station power in mines and steel plants. K. A. Pauly. Gen Elec R 24: 479-83 Je '21
- Use of electricity in Pennsylvania coal mines discussed. Coal Age 17:310-11 F 12 '20
- W. G. Duncan coal co. will exchange power, sell current and operate on coal mined in bed below it. A. F. Brosky. diags plan Coal Age 20:416-17 S 15 '21
- West Virginia-Kentucky mine, mechanical and electrical engineers meet conjointly with coal exhibit. R. D. Hall. Coal Age 20: 505-7, 537-9 S 29-O 6 '21
- West Virginia mine electricians and mechanics discuss their everyday problems at 2d annual convention. Coal Age 18:1041-3 N 18 '20
- See also* Locomotives, Mine; Mine hoisting, Electric; Mine lighting; Mine signals; Mining engineering—Power
- Electricity in petroleum industry**
- Electric power in the oil fields. W. G. Lane. il J Elec 46:10-17 Ja 1 '21; Excerpts. Elec W 77:155-6, 323-4 Ja 15, F 5 '21
- Electrical equipment devised to locate oil sands. W. F. Kerr. Elec R 78:145-6 Ja 22 '21; Excerpt. Sci Am M 3:376-7 Ap '21
- Electricity in the oil and gas industries. C. S. Carter. il Sci Am M 2:244-5 N '20
- Electricity lowers operating cost of oil wells. J Elec 47:277 O 1 '21
- Electrification of mid-continent oil fields becoming general. H. L. Wood. Nat Pet N 12:58 Mr 10 '20
- Extension of electric power service into the oil fields. W. G. Taylor. il Gen Elec R 24: 535-8 Je '21
- Oil fields of Kansas partly electrified. Elec W 77:533-4 Mr 5 '21
- Power required for oil-well drilling. Elec W 77:1111 My 14 '21
- Electricity in refrigeration**
- Electric motors for driving refrigeration plants—their types, characteristics and selection. W. H. Motz. il Power 54:208-11 Ag 9 '21
- Electrical refrigeration. C. J. Carlsen. il map Elec J 17:502-6 N '20
- Energy and plant requirements for artificial ice storage. Elec W 77:547-8 Mr 5 '21
- Motor-driven ice plants—electrical consumption per ton of ice. J. E. Starr. il Power 52: 742-3 N 9 '20
- See also* Refrigerators, Electric
- Electricity in the home**
- Electric house from the architect's point of view. G. B. Imrie. il plans Electrician 86: 400-2 Ap 8 '21
- Electricity, small dwellings and garden cities. J. S. Whybrew. plans Electrician 86:408-10 Ap 8 '21
- Science of home making. Mrs Palmer. Electrician 86:406-7 Ap 8 '21
- Supply of electricity to housing colonies. E. E. Hoadley. Electrician 86:404-5 Ap 8 '21
- See also* Electric apparatus and appliances, Domestic; Electric heating; Electric lighting; Electric water heaters

Electricity on ships. See Ship propulsion, Electric; Ships—Electric equipment

Electricity on the farm

Economic possibilities of electrical farm development. A. R. Sawyer. *il Elec R* 79: 645-8 O 29 '21

Electricity on California farms. L. J. Fletcher. *J Elec* 45:466 N 15 '20

Farm savings are made possible by the use of electricity. R. Trautschold. *il J Elec* 47: 104-6 Ag 1 '21

Farming with electricity; a hundred-thousand acre tract that is fully equipped with modern machinery. R. Howard. *Sci Am* 124:387+ My 14 '21

Hydro power for the Canadian farmer. *il Sci Am* 122:93+ Ja 24 '20

Motors for the farm. *J Elec* 45:478 N 15 '20

What a plumber should know about electricity. G. W. Hill. *Dom Eng* 91:101+ Ap 17 '20

What the farm light field offers the live plumbing and heating contractor. F. W. Driscoll. *il Dom Eng* 92:331-2+ Ag 14 '20

Woman on the farm; farm lighting set. *il J Elec* 45:467-8 N 15 '20

See also Electric service, Rural; Electro-horticulture; Farm lighting plants; Incubators, Electric

Electricity supply

Commercial problems in electricity supply. E. Cross. *Elec R (Lond)* 89:225-6; Discussion. 227 Ag 12 '21

Electricity supply and housing schemes; some practical problems. W. F. T. Pinkney. *Electrician* 86:402-4 Ap 8 '21

Place of electricity in town planning. C. B. Purdom. *Electrician* 86:407 Ap 8 '21

Some paradoxes of supply. H. E. Goody. *Electrician* 85:27 Jl 2 '20

See also Electric lines; Electric plants

Australia

Western Australian government tramways and electricity supply. *Elec R (Lond)* 88: 92-3 Ja 21 '21

Birmingham, England

Supply of electrical energy in Birmingham and district. F. Forrest. *Elec R (Lond)* 89: 291-2 Ag 26 '21

British Columbia

Electrical development necessary to British Columbia's progress. *Elec W* 77:948 Ap 23 '21

California

California's power famine. C. W. Geiger. *il Sci Am* 122:419+ Ap 17 '20

Electric power situation in California. L. S. Ready. *J Elec* 44:479-81 My 15 '20

Power situation in California—1920. H. G. Butler. *J Elec* 45:558-60 D 15 '20

Proposed five hundred million power bill for California; complete text with annotations by Robert Sibley. *J Elec* 47:341-2 N 1 '21; Excerpt. *Elec W* 78:941-2 N 5 '21

France

Project for the high-tension distribution of electrical energy throughout France. C. Duval and C. Lavanchy. *map Power* 54:342 Ag 30 '21

Re-establishing electric service in France. *map Elec W* 76:68-9 Jl 10 '20

Germany

Germany's power resources. *map Power* 53: 140-2 Ja 25 '21

Resultats de la loi concernant la socialisation de l'exploitation de l'électricité, en Allemagne. *Génie Civil* 78:256-7 Mr 19 '21

Great Britain

Crisis in the electricity supply industry. W. A. Jones; T. W. Cole. *Electrician* 85: 689-90 D 10 '20

Current views on electricity generation and its relation to coal economy. J. E. Sayers. *Inst E E J* 59:47-51 D '20

Development of rural electricity supply; Hereford's (England) interesting enterprise. *il diag map Electrician* 85:472-5 O 22 '20

Electric supply. H. Dickinson. *Inst E E J* 59:56-60 D '20; Abstract. *Electrician* 85: 567-8 N 12 '20

Electricity district schemes. H. M. Sayers. *Elec R (Lond)* 88:59-61 Ja 14 '21

Electricity districts. *map Elec R (Lond)* 88: 4-6 Ja 7 '21

Electricity supply. C. J. Jewell. *Inst E E J* 59:51-5 D '20

Electricity (supply) act. *Engineering* 109:18-19 Ja 2 '20; Same. *Electrician* 84:96-7 Ja 23 '20

Electricity (supply) act, 1919—overhead lines and wayleaves. W. Fennell. *Elec R (Lond)* 88:336-7 Mr 18 '21

Electricity supply in North Wales. *Electrician* 86:234, 282-3 F 18, Mr 4 '21

Electricity supply in the United Kingdom; report of the electricity commissioners. *Elec R (Lond)* 89:582-3, 619-20, 651-2 O 28-N 11 '21

Electricity (supply) (no. 2) bill, 1920. *Elec R (Lond)* 88:196-7 F 18 '21

Joint electricity authorities. *Elec R (Lond)* 88:233-6, 268-70, 324-6, 337-40 F 25-Mr 18 '21

Labour situation as it affects the electricity supply industry. T. W. Cole. *Elec R (Lond)* 88:425-6, 457-8, 527-8 Ap 1-8, 22 '21

Manchester-Salford linking up. *il diag Electrician* 84:84-6 Ja 23 '20

North-western centre of I.E.E.; chairman's address. J. A. Robertson. *Inst E E J* 58: 48-55 D '19

La nouvelle loi anglaise sur la distribution de l'énergie électrique. J. Tribot-Laspière. *Génie Civil* 76:370-2 Ap 17 '20

Post-war conditions and developments, with particular reference to the electricity supply industry. J. R. Beard. *plans Inst E E J* 59: 30-41 D '20; Abstract. *Electrician* 85:588-9 N 19 '20

Powers of the electricity commissioners. *Engineer* 131:370 Ap 8 '21

Present position and future of electricity supply. S. J. Watson. *Electrician* 84:470-2 Ap 30 '20

Some notes on nationalisation of electricity supply. J. M. M. Munro. *Electrician* 84: 593-4 My 28 '20

Twelve months' experience with the British electricity supply act. *Elec W* 77:709 Mr 26 '21

Western centre: chairman's address. A. Ellis. *Inst E E J* 58:23-5 D '19

Work of the electricity commissioners. *Elec R (Lond)* 88:577-8 My 6 '21

See also Electricity supply—London

Kansas

Economic generation of electricity by power zones in Missouri and Kansas. H. H. Kuhn. *chart map Elec R* 78:683-7 Ap 30 '21

London

Electricity supply in London. *Electrician* 85: 438-9 O 15 '20

Electricity supply in London. *Electrician* 85: 645 D 3 '20

Electricity supply in N.E. London. *Elec R (Lond)* 88:93-5 Ja 21 '21

Greater London electricity supply. *Electrician* 85:664-5 D 3 '20

Joint electricity authorities. *Elec R (Lond)* 88:633-4, 643-4, 697-9, 729-31, 765-7, 796-9, 806-10; 89:5-10, 67-71, 100-3, 110-13, 140-3, 173-5, 230-1 My 13-Ag 12 '21

London and home counties electricity district. *Engineer* 131:258+ Mr 11 '21

London and home counties electricity supply scheme. *Elec R (Lond)* 88:363-5 Mr 18 '21

London district electricity schemes. *Electrician* 86:652-3, 761-2 My 27, Je 17 '21

London electricity inquiry. *Electrician* 86:803-6; 87:20-3, 52-5, 81-4, 109-12, 161-2, 186-9 Je 24-Ag 5 '21

London electricity supply problem. *Engineer* 131:638, 662-3; 132:7, 34, 62, 96, 123 Je 17-Jl 29 '21

- Electricity supply—London—*Continued*
West Riding electricity district. Electrician 86:668-70, 699-701 My 27-Je 3 '21
- Missouri**
Economic generation of electricity by power zones in Missouri and Kansas. H. H. Kuhn. chart map Elec R 78:683-7 Ap 30 '21
- Netherlands**
Electrification of Holland. map Engineer 129: 557 Mr 28 '20
New national electric supply planned for Holland. diag Elec R 77:208-9 Ag 7 '20
- New England**
Planning for power in New England. diags Elec W 75:557 Mr 6 '20
St Lawrence river project. H: I. Harriman. Boston Soc C E J 8:43-9 Ja '21; Abstract. Elec W 77:114-15 Ja 8 '21
See also Super-power survey
- New York (city)**
Feasibility of hydro-electric power for New York metropolitan district. W: B. Parsons. Elec W 77:525-7 Mr 5 '21; Same abr. N E L A Bul 8:199-202 Ap '21; Same cond. Power 53:324-5 F 22 '21; Discussion. Power 53:288-9, 325-6 F 15-22 '21
Light, heat and power for the Metropolitan district of New York. J. W. Lieb. Power 53:407 Mr 8 '21
- Norway**
Development of electricity supply in Norway and Sweden. Elec W 77:1159-60 My 21 '21
- Pittsburgh, Pennsylvania**
Power requirements in the Pittsburgh district. J. McKinley. Elec J 18:219-22 My '21
- South Africa**
Electric power supply in South Africa. C. H. Merz. Electrician 86:641-2 My 20 '21
- Spain**
State electric power control in Spain. Engineering 109:796-7 Je 11 '20
- Sweden**
Development of electricity supply in Norway and Sweden. Elec W 77:1159-60 My 21 '21
- Switzerland**
Electricity in Switzerland. Elec R (Lond) 88: 246 F 25 '21
- United States**
Electricity produced in 1920. Power 53:416 Mr 15 '21
Power service for a Middle West section; survey in western Pennsylvania and eastern Ohio. L. A. Whitsit. map Elec W 76: 969-71 N 13 '20
Electro-cardiograph. *See* Heart
Electro sherardizing. *See* Galvanizing
Electrobiology. *See* Electrophysiology
Electrocator. *See* Locating machines
Electrochemical analysis
Arc images in chemical analysis. W: R. Mott. Am Electrochem Soc Trans v 37 (preprint 11):121-60 Ap '20
Chemical action at a distance. A. F. Fellows. diags Sci Am M 2:136-7 O '20
Electrolytic determination of the halogens: an indirect method. J. H. Reedy. diag Am Chem Soc J 41:1898-1902 D '19
Electrolytic resistance method for determining carbon in steel. J. R. Cain and L. C. Maxwell. il diags U S Bur Stand Tech Pa 141:1-21 '19
Revision of the atomic weight of cadmium; electrolytic determination of cadmium in cadmium sulfate. G. P. Baxter and C. H. Wilson. Am Chem Soc J 43:1230-41 Je '21
Revision of the atomic weight of tin; the electrolytic determination of tin in tin tetrachloride. G. P. Baxter and H. W. Starkweather. diags Am Chem Soc J 42: 905-17 My '20
Revision of the atomic weight of zinc; electrolytic determination of zinc in zinc chloride. G. P. Baxter and J. H. Hodges. Am Chem Soc J 43:1242-51 Je '21
Revue de chimie analytique. A. Kling and A. Lassieur. il Chimie & Ind 4:457-66 O '20
- Electrochemical industries**
American electrochemical society meeting, Atlantic City; presidential address—our inventory. W. S. Landis. Chem & Met Eng 24:813-16 My 11 '21; Same. Chem Age 29: 163-5 My '21
Application of electricity in the dye industry; abstract. F. M. Perkin. Color Tr J 7: 16-17 Jl '20
Commercial possibilities in the electrochemical production of organic compounds. C. J. Thatcher. Chem & Met Eng 21:663-6 N 26 '19
Electrochemical industries in Sweden. J. W. Beckman. Chem & Met Eng 22:840 My 5 '20
Electrochemical industries; use of electric power. J: A. Seede. il Gen Elec R 24:522-7 Je '21
Energy consumed by electrochemical and metal-refining processes. J: A. Seede. Elec W 78:830-1 O 22 '21
See also Electrometallurgy
- Electrochemical plants**
Location for a New England electrochemical plant. C. T. Maynard. Am Electrochem Soc Trans v 37 (preprint 30):411-15 Ap '20
- Electrochemical society, American.** *See* American electrochemical society
- Electrochemistry**
Applied electrochemistry and metallurgy. C: F: Burgess; H. B. Pulsifer and B: B. Freud. 198p American technical society, Chicago '20
Chemical action of the electric discharge; abstract. G. Poma. Chem Soc J 120 pt 2: 570-2 O '21
Cleveland meeting, American electro-chemical society. Chem & Met Eng 23:719-26 O 13 '20
Colloid chemistry and electrochemistry. W. D. Bancroft. Am Electrochem Soc Trans v 37 (preprint 10):105-20 Ap '20
Electrochemical aspects of photographic development. S. E. Sheppard. Am Electrochem Soc Trans v 39 (preprint 26):307-18 Ap '21
Electrochemistry and electrometallurgy in 1919. A. A. Gray. Elec R 76:4-5 Ja 3 '20
Electrochemistry in 1920. A. A. Gray. il Elec R 78:9-10 Ja 1 '21
Electrometallurgy and electrochemistry in the West. L. W. Chapman. il J Elec 46:130-1 F 1 '21
Elements of electro-chemistry. J. Haas, jr. Metal Ind 16:161-2, 315-16, 405-7, 550-1; 17: 277-9, 420-4, 523-4; 18:130-2, 310-11, 363-4 Ap, Jl, S, D '18, Je, S, D '19, Mr, Jl-Ag '20
Theoretical study of nitrogen fixation by the electric arc. C: P. Steinmetz. Chem & Met Eng 22:299-304, 353-7, 411-16, 455-62 F 18-Mr 10 '20
See also Chemistry, Physical; Electric batteries; Electrochemical analysis; Electrochemical industries; Electrodes; Electrolysis; Electrolytes; Electrolytic cells; Electrometallurgy; Electromotive force; Electroplating; Electrotyping; Overvoltage; Reduction, Electrolytic
- Electrode holders**
Electrode holders for metallic arc welding. L. W. Webb. diag Power 53:148-9 Ja 25 '21; Same. Eng & Ind Management 5:348-9 Mr 24 '21
- Electrodeposition of metals**
Deposition of metals on wax. S: Wein. Metal Ind 19:71-2 F '21
Electro-deposition of copper and its industrial applications. C. W. Denny. 108p Pitman '21
Electro-deposition of iron. W. E. Hughes. Metal Ind 19:405-7, 441-3 O-N '21
Electrodeposition of lead-tin alloys. W. Blum and H. E. Haring. il Am Electrochem Soc Trans v 40 (preprint 11):147-64 S '21; Same. Brass W 17:302-4, 315-17 O-N '21

Electrodeposition of metals—Continued

Electro-salvage. *il Elec R (Lond)* 88:763 Je 10 '21

Researches on the electrodeposition of iron. W. E. Hughes. *Am Electrochem Soc Trans v 40 (preprint 2):15-53 O '21*

Slip-lines and twinning in electro-deposited iron. W. E. Hughes. *il Iron & Steel Inst J* 103:355-63 no 1 '21

Structure and properties of alternately electrodeposited metals. W. Blum. *il Am Electrochem Soc Trans v 40 (preprint 10):137-46 S '21*

Symposium on electrodeposition. *Chem & Met Eng* 25:689-90 O 12 '21

Trihalogen-methyl reactions; the use of the silver cathode in electro-deposition of copper. H. W. Doughty and B. Freeman. *Am Chem Soc J* 43:700-4 Ap '21

See also Electroplating

Electrodes

Activity coefficient of normal potassium chloride solution and the potential of the normal calomel electrode. J. A. Beattie. *Am Chem Soc J* 42:1128-31 Je '20

Apparent irreversibility of the calomel electrode. A. W. Laubengayer. *Am Electrochem Soc Trans v 39 (preprint 31):355-9 Ap '21*; Same. *J Phys Chem* 25:332-6 Ap '21

Carbon electrodes in the making. A. R. Surface. *il Sci Am* 122:423 Ap 17 '20

Chlorine overvoltages. E. Newbery. *Chem Soc J* 119:477-86 Ap '21

Continuous calcination of carbon for electrodes; patent. *Chem & Met Eng* 24:576 Mr 30 '21

Desirable qualities in welding electrodes. C. J. Holslag. *Elec W* 77:157 Ja 15 '21

Effects of the chemical composition of welding electrodes. J. S. Orton. *il Am Mach* 51:625-6 S 25 '19; Same. *Ry R* 65:831-3 D 6 '19

L'électrode continue de Söderberg. O. Ravner. *il diags Chimie & Ind* 4:731-4 D '20

Electrode that bakes itself. A. R. Surface. *diag Sci Am* 122:705+ Je 26 '20

Graphitized electrodes; patent. *Chem & Met Eng* 22:41 Ja 7 '20

Hydrogen overvoltage. E. Newbery. *Am Chem Soc J* 42:2007-11 O '20

New plant for making carbon electrodes; Republic carbon co., Niagara Falls, N.Y. *il plan Iron Age* 105:188-90 Ja 15 '20

Observations on the zinc electrode. W. C. Moore. *Am Chem Soc J* 43:81-4 Ja '21

Overpotential and catalytic activity. E. K. Rideal. *Am Chem Soc J* 42:94-105 Ja '20

Proper care of electrically heated oil-tempering baths. C. T. Hathaway. *Elec W* 77:212 Ja 22 '21

Properties of arc metal and arc welds as determined by tests. O. H. Eschholz. *il diags Power* 53:250-5 F 15 '21

Regeneration of manganese-dioxide electrodes. *Engineering* 112:342-3 S 2 '21

Simple hydrogen electrode. C. H. Bailey. *diags Am Chem Soc J* 42:45-8 Ja '20

Söderberg electrode: first American installation. J. W. Richards. *il Am Electrochem Soc Trans v 38 (preprint 2):17-24 O '20*; Excerpts. *Chem & Met Eng* 23:721 O 13 '20

Söderberg self-baking continuous electrode. J. W. Richards. *il diag Am Electrochem Soc Trans v 37 (preprint 1):1-15 Ap '20*; Excerpts. *Iron Age* 105:1171-3 Ap 22 '20; Abstract. *Sci Am M* 1:564 Je '20; Abstract. *Génie Civil* 77:417-18 N 20 '20

Solving some arc welding problems. A. M. Candy. *il Foundry* 49:179-85 Mr 1 '21; Same. *Iron Tr R* 68:829-35 Mr 24 '21

Specifications for welding wire. *Mach* 26:806 My '20

Study of the deterioration of nickel spark-plug electrodes in service. H. S. Rawdon and A. I. Krynitzky. *il U S Bur Stand Tech Pa* 143:1-16 '20; Abstract. *J Fr Inst* 188:812-13 D '19

Welding by electric arc process. J. A. Randolph. *Iron Tr R* 66:926-7 Mr 25 '20; Same cond. *Foundry* 48:342+ My 1 '20

See also Electric furnaces—Electrodes

Electrodynamics

Electrodynamic forces in electric furnaces. C. Hering. *diags Am Electrochem Soc Trans v 39 (preprint 19):201-11 Ap '21*

Generalization of electrodynamics with applications to the structure of the electron and to non-radiating orbits. L. Page. *diag Phys R* 18:292-302 O '21

Systems with propagated coupling. A. W. Porter and R. E. Gibbs. *diags Philos Mag* 6th ser 41:432-40 Mr '21

See also Inductance; Self inductance

Electrohorticulture

Electricity and agriculture. *Elec R (Lond)* 88:41 Ja 14 '21

Inaugural address; electricity in agriculture. L. B. Atkinson. *Inst E E J* 59:13-15 D '20; Same cond. *Sci Am M* 3:376 Ap '21

Position of electro-culture. *Electrician* 85:223 Ag 27 '20

Electrolysis

Continuous process for electrolytic regeneration of chromic acid. R. H. McKee and S. T. Leo. *diags J Ind & Eng Chem* 12:16-26 Ja '20

Electricity and matter. E. Rutherford. *il diags Engineering* 111:296-7, 345-7, 379-81 Mr 11, 25-Ap 1 '21; Abstract. *Electrician* 86:457-9 Ap 15 '21

Electro-analytical separation of nickel (cobalt) from arsenic. N. H. Furman. *Am Chem Soc J* 42:1789-93 S '20

Electro endosmosis and the preparation of solid alkali amalgams. S. B. Frank and J. R. Withrow. *Am Chem Soc J* 42:671-5 Ap '20

Électrolyse des chlorures alcalins. R. Moritz. *Chimie & Ind* 5:636-41 Je '21

Electrolytic manufacture of paraminophenol. A. S. McDaniel, L. Schneider and A. Ballard. *diags Am Electrochem Soc Trans v 39 (preprint 27):319-27 Ap '21*

Electrolytic oxidation of hydrochloric acid to perchloric acid. H. M. Goodwin and E. C. Walker, 3rd. *diag Am Electrochem Soc Trans v 40 (preprint 30):377-86 S '21*

Electrolytic oxidation of the leuco-base of malachite green. A. Lowy and E. H. Haux. *diag Am Electrochem Soc Trans v 40 (preprint 6):99-104 S '21*

Electrolytic preparation of potassium ferricyanide. O. W. Brown, C. O. Henke and I. L. Miller. *J Phys Chem* 24:230-7 Mr '20

Electrolytic preparation of sodium permanganate. C. O. Henke and O. W. Brown. *J Phys Chem* 24:608-16 N '20

Electrolytic production of calcium. P. H. Brace. *diags Am Electrochem Soc Trans v 37 (preprint 6):69-82 Ap '20*

Electrolytic production of hydrogen. H. L. Barnitz. *diags Chem & Met Eng* 22:201-6 F 4 '20

Electrolytic production of hydrogen peroxide. F. W. Skirrow and E. R. Stein. *Am Electrochem Soc Trans v 38 (preprint 10):69-79 O '20*

Electrolytic production of sodium and potassium permanganates from ferromanganese. R. E. Wilson, W. G. Horsch and M. A. Youtz. *J Ind & Eng Chem* 13:763-9 S '21

Electrolytic production of sodium perborate. P. C. Alsgaard. *Am Electrochem Soc Trans v 40 (preprint 13):173-90 S '21*

Electrolytic water-proofing of textile fabrics: the Tate process. H. J. M. Creighton. *il diags J Fr Inst* 192:497-510 O '21

Extracting oil by electrolytic action. R. G. Skerrett. *il Sci Am* 123:428+ O 23 '20

Factors influencing the electrolysis of organic compounds. R. Freas. *diag Am Electrochem Soc Trans v 40 (preprint 5):87-98 S '21*

Faraday's law at the cathode. J. W. Richards. *Am Electrochem Soc Trans v 38 (preprint 7):45-7 O '20*; Same. *Metal Ind* 18:469 O '20; Same. *Brass W* 17:179 Je '21

Graphic control of electrolytic processes. B. G. Worth. *Am Electrochem Soc Trans v 40 (preprint 21):281-5 S '21*

Meeting of the American electrochemical society; papers on electrolysis. *Chem & Met Eng* 25:685-7 O 12 '21

Electrolysis—Continued

- Notes on calcium. P. H. Brace. diags *Engineering* 111:308-10 Mr 11 '21; Same. *Chem & Met Eng* 25:105-9 Jl 20 '21
- Potassium permanganate from ferromanganese by electrolysis. M. deK. Thompson. *Chem & Met Eng* 21:680-1 N 26 '19
- Problem course in electricity; electrolytic processes. H. H. Bliss. diags *J Elec* 46:353-4 Ap 1 '21
- La production électrolytique de l'hydrogène et de l'oxygène. diags *Génie Civil* 76:237-8 F 28 '20
- Theory of electrochemical chlorate and perchlorate formation. N. V. S. Knibbs and H. Palfreeman. *Chem Soc J* 120 pt 2:396-8 Je '21
- See also Electrochemical analysis; Electrolytes; Electrolytic cells; Electrolytic corrosion; Electrometallurgy; Ions; Over-voltage; Reduction, Electrolytic; Sewage disposal—Electrolytic treatment
- Electrolysis of pipes. See Electrolytic corrosion
- Electrolytes**
- Abnormality of strong electrolytes. D. L. Chapman and H. J. George. *Philos Mag* 6th ser 41:799-801 My '21
- Activities of the ions in aqueous solutions of some strong electrolytes. F. H. Getman. *Am Chem Soc J* 42:1556-64 Ag '20
- Activities of the ions in solutions of mixed electrolytes. Ming Chow. diags *Am Chem Soc J* 42:497-502 Mr '20
- Activity coefficient of strong electrolytes. G. N. Lewis and M. Randall. *Am Chem Soc J* 43:1112-54 My '21
- Application of the law of mass action to strong electrolytes, and the derivation of the general equation of the ionization isotherm. W. Hughes. *Philos Mag* 6th ser 42:428-31 S '21
- Colloidal electrolytes; soap solutions and their constitution. J. W. McBain and C. S. Salmon. diags *Am Chem Soc J* 42:426-60 Mr '20
- Degree of ionization of very dilute electrolytes. G. N. Lewis and G. A. Linhart. *Am Chem Soc J* 41:1951-60 D '19
- Distribution of a strong electrolyte between benzene and water. A. E. Hill. *Am Chem Soc J* 43:254-68 F '21
- Form of the conductance function in dilute solutions. C. A. Kraus. *Am Chem Soc J* 42:1-18 Ja '20
- Nature of chemical force and the anomaly of strong electrolytes. W. Hughes. *Philos Mag* 6th ser 42:134-8 Jl '21
- Studies in emulsions; the reversal of phases by electrolytes, and the effects of free fatty acids and alkalis on emulsion equilibrium. S. S. Bhatnagar. *Chem Soc J* 119:61-8 Ja '21
- See also Electric batteries; Electrochemistry; Electrodes; Electrolysis; Electrolytic cells
- Conductivity**
- Conductance of solutions of ternary electrolytes in propyl alcohol. C. A. Kraus and J. E. Bishop. *Am Chem Soc J* 43:1568-75 Jl '21
- Conductivity and frequency. E. D. Eastman. diags *Am Chem Soc J* 42:1648-55 Ag '20
- Dielectric constants of electrolytic solutions. R. T. Lattey. diags *Philos Mag* 6th ser 41:829-48 Je '21
- Industrial applications of electrolytic conductivity measurements. E. A. Keeler. *Am Electrochem Soc Trans v* 38 (preprint 3): 25-30 O '20
- Ion mobilities, ion conductances, and the effect of viscosity on the conductances, of certain salts. D. A. MacInnes. *Am Chem Soc J* 43:1217-26 Je '21
- New method of measuring electrolytic conductance. C. Marie and W. A. Noyes, jr. diags *Am Chem Soc J* 43:1095-8 My '21
- Electrolytic analysis. See Electrochemical analysis

Electrolytic cells

- Chemical efficiency and concentration of caustic salt from Townsend cells. A. H. Hooker. il charts *Chem & Met Eng* 23:961-8 N 17 '20
- Early commercial electrolytic cells. C. B. Barton. *Chem & Met Eng* 23:189-91 Ag 4 '20
- Electrolytic cell oscillations. diags *Wireless Age* 8:19 Ja '21
- Electrolytic chlorate cell; patent. *Chem & Met Eng* 23:892 N 3 '20
- Electrolytic chlorine cell; patent. diags *Chem & Met Eng* 22:1216 Je 30 '20
- Fundamentals of the electrolytic diaphragm cell. H. K. Moore. *Chem & Met Eng* 23:1011-15, 1072-4, 1125-8 N 24-D 8 '20
- Marsh electrolytic cell for chlorine and caustic soda. C. W. Marsh. il *Chem Age* 29:10-11 Ja '21
- Marsh electrolytic cells for chlorine and caustic soda. C. W. Marsh. *Can Chem & Met* 5:49-50 F '21
- Marsh electrolytic cells for chlorine, caustic soda and hydrogen. C. W. Marsh. diags *Am Electrochem Soc Trans v* 39 (preprint 25): 297-306 Ap '21; Excerpt. *Chem & Met Eng* 24:819-20 My 11 '21
- New type of electrolytic cell. H. S. Lukens. diags *J Ind & Eng Chem* 13:562-3 Je '21
- New Vorce electrolytic cell. diags *Paper* 27: 236 N 10 '20
- Rise and development of the electrolytic alkali and chlorine industry in Europe. J. B. C. Kershaw. il diags *Chem & Met Eng* 24: 77-82, 119-22, 167-70 Ja 12-26 '21
- Study of the photo-active electrolytic cell, platinum—rhodamine-B—platinum. C. C. Murdock. diags *Phys R* 17:626-47 My '21
- Electrolytic corrosion**
- Anode corrosion of lead in sodium hydroxide solutions. O. W. Brown, C. O. Henke and L. T. Smith. *J Phys Chem* 24:367-78 My '20
- Automatic substation in electrolysis mitigation. E. R. Shepard. charts *Elec Ry J* 57: 805-8 Ap 30 '21
- Co-operation in electrolysis research. *Elec Ry J* 55:755-7 Ap 10 '20
- Corrosion of brass in dilute electrolytes. J. H. Reedy and B. Feuer. diags *J Ind & Eng Chem* 12:541-7 Je '20
- Corrosive action of soils on iron and lead. L. A. Stenger. *Chem & Met Eng* 22:965-8 My 26 '20
- Destructive effect of current on ball bearings of electric cars. H. Angstrom. il diags *Elec Ry J* 57:941-4 My 21 '21
- Effect of air and water on materials used in engineering work. H. E. Yerbury. *Inst E E J* 57:sup118-26; Discussion. sup126-33 '19
- Electrolysis in concrete. E. B. Rosa, B. McCollum and O. S. Peters. bibliog il diags *U S Bur Stand Tech Pa* 18:1-142 '19; Excerpts. *Eng & Contr* 52:611-12 N 26 '19; Same. *Can Eng* 38:199-200 F 5 '20
- Electrolysis mitigation in Winnipeg. W. N. Smith. charts *Elec Ry J* 57:584-9 Mr 26 '21; Abstract. *Eng N* 87:29-30 Jl 7 '21; Discussion. *Elec Ry J* 58:52 Jl 9 '21
- Electrolysis surveys and their significance; report of 1920 A.G.A. electrolysis committee. bibliog il diags *Am Gas Assn Technical sec v* 2:273-312; Discussion. 313-19 '20
- Electrolytic corrosion of lead by continuous and periodic currents. E. R. Shepard. *Am Electrochem Soc Trans v* 39 (preprint 4): 23-36 Ap '21
- Electrolytic corrosion of lead-thallium alloys. C. G. Fink and C. H. Eldridge. *Am Electrochem Soc Trans v* 40 (preprint 26):335-44 S '21
- Electrolytic destruction of steel due to leakage from electric railroads. *Sci Am* 122: 124 Ja 31 '20
- Law on electrolysis. S. S. Wyer. *Elec Ry J* 57:1001 My 28 '21
- Permanent electrolysis committee suggested in ruling handed down by Railroad commission of Wisconsin. *Elec Ry J* 55:903-4 My 1 '20

Electrolytic corrosion—Continued

- Progress of American committee on electrolysis. *Am Water Works Assn J* 7:618-21 *Jl* '20
- Report of electrolysis committee. *il diag Am Gas Assn Technical sec v* 1:308-35; Discussion. 335-41 '19
- Report of the committee on electrolysis of the A.E.R.A. *Elec Ry J* 58:616-17 *O* 8 '21
- Report on the electric street railways of Milwaukee, Wisconsin, and other public utility companies for the city of Milwaukee. E. E. Brownell. 2d ed. 362p, 184p E. E. Brownell, Philadelphia '20
- Some aspects of electrolysis. G. Alleman. *il Am Water Works Assn J* 7:882-91 *N* '20; Same cond. *Can Eng* 39:175-7 *Jl* 22 '20; Excerpts. *Eng & Contr* 54:236-7 *S* 8 '20; Discussion. *Am Water Works Assn J* 8:116-18 *Ja* '21; Same. *Eng & Contr* 55:141-2 *F* 9 '21
- Steel water main electrolysis in St Louis serious. L. Chivvis. *Eng N* 84:911-12 *My* 6 '20
- See also* Corrosion and anti-corrosives
- Electrolytic reduction.** *See* Reduction, Electrolytic
- Electromagnetic separators.** *See* Magnetic separators
- Electromagnetic theory**
- Absolute significance of Maxwell's equations. F. D. Murnaghan. *Phys R* 17:73-88 *F* '21
- Atomic model based upon electromagnetic theory. A. C. Crehore. *Philos Mag* 6th ser 42:569-92 *O* '21
- Comparison between the fundamental equations for the ponderomotive force for point charges due to Larmor-Lorentz and to Megh Nad Saha. A. C. Crehore. *Phys R* 17:249-52 *F* '21
- Discrepancies in the electromagnetic theory. A. C. Crehore. *J Elec* 44:224-6 *Mr* 1 '20
- Electromagnetic theory is fundamental in the sciences. A. E. Kennelly. *Elec W* 77:29-30 *Ja* 1 '21; Same abr. *Soc Auto Eng J* 8:318 *Ap* '21
- Electromagnetic theory of gravitation. H. A. Wilson. *Phys R* 17:54-9 *Ja* '21
- Electromagnetic theory of radiation. H. Bateman. *Philos Mag* 6th ser 41:107-13 *Ja* '21
- New physics. A. C. Crehore. *J Elec* 43:516-18, 561-3; 44:27-9, 75, 118-19, 178, 224-6, 325-6, 442-4, 516-17, 568-71 *D* 1 '19-Mr 1, *Ap* 1-Je 1 '20
- Newtonian laws of gravitation deduced from the Saha electromagnetic theory applied to the Copernican atom. A. C. Crehore. *Phys R* 17:252-5 *F* '21
- Significance of Maxwell's theory. A. Press. *diags Electrician* 85:177-8 *Ag* 13 '20
- See also* Electric waves; Electrons; Hall effect; Light
- Electromagnetism**
- Centenary of discovery of electromagnetism. F. B. Crocker. *Elec W* 75:1426 *Je* 19 '20
- Centennial of the discoveries of Oersted, Arago, and Ampère. C. E. Magnusson. *Am Inst E E J* 39:1031-3 *D* '20
- Electromagnetic process of removing internal strains. *diag Mach* 27:320 *D* '20
- Electromagnetic waves in gravitational and magnetic fields. W. Rollins. *Sci Am* 125:201 *S* 17 '21
- Epoch-making discoveries of the years 1819 and 1820. E. Thomson. *Am Inst E E J* 39:1021-7 *D* '20; Same. *Gen Elec R* 23:975-83 *D* '20
- Magnetic reflection. J. D. Ross. *diags J Elec* 46:246-8 *Mr* 1 '21
- Measurement of the electromagnetic field of transoceanic radiographic waves. G. Valauri. *diag Electrician* 86:249-50 *F* 25 '21
- Neumann's law of electromagnetic induction. A. Anderson. *Philos Mag* 6th ser 42:506-8 *O* '21
- Oersted's and Ampère's discoveries. M. I. Pupin. *Am Inst E E J* 39:1028-31 *D* '20
- One hundred years ago today; anniversary of discovery of fundamental electromagnetic laws by Ampère and Oersted. *Elec W* 76:570-3, 736 *S* 18, *O* 9 '20

Professor Elihu Thompson's early experimental discovery of the Maxwell electromagnetic waves. M. B. Snyder. *Gen Elec R* 23:208 *Mr* '20

See also Inductance; Self inductance

Electromagnets

- Effect of the short-circuit winding in alternating-current electromagnet. L. Dreyfus. *Elec W* 78:886 *O* 29 '21
- Electromagnets in a plate cooling bed. G. F. Paul. *il Iron Age* 108:321-3 *Ag* 11 '21
- External field produced by a cylindrical electromagnet. C. T. Hutchinson and H. Pender. *diags Am Inst E E J* 39:822-30 *S* '20
- Hold-down magnet control for vertical plate shears. S. L. Guthorn. *diags Elec W* 76:1071-2 *N* 27 '20
- How to build small electromagnets. J. A. Prior. *diags Pop Mech* 34:152-4 *Jl* '20
- Problem course in electricity; electromagnetic calculation. H. H. Bliss. *diags J Elec* 45:429-30, 482-3 *N* 1-15 '20
- Submarine tests with the Neale electromagnet. *il Elec R (Lond)* 89:303-4 *S* 2 '21
- See also* Armatures; Chucks, Magnetic; Commutators; Induction coils; Lifting magnets; Solenoids

Electrometallurgy

- Abundant power favors electrometallurgical industries in Washington. C. D. Grier. *Iron Tr R* 66:1755-7 *Je* 17 '20; Excerpt. *Min & Sci P* 121:132 *Jl* 24 '20
- Alloying precious metals electrically. D. Wilcox. *diag Metal Ind* 19:171 *Ap* '21
- Application of copper-refining practice to other fields. L. Addicks. *Chem & Met Eng* 23:110-12 *Jl* 21 '20
- Application of electrical energy to the melting of metals. H. A. Greaves. *diags Inst E E J* 57:sup250-3 '19
- Booth electric rotating furnace. C. H. Booth. *il diag Chem & Met Eng* 21:636-8 *N* 12 '19
- Ductile electrolytic nickel. C. P. Madsen. *Am Electrochem Soc Trans v* 39 (preprint 23):269-76 *Ap* '21; Same. *Chem & Met Eng* 24:922-4 *My* 25 '21; Same. *Brass W* 17:166-70 *Je* '21
- Electrical power used in the production of zinc. *Elec R* 77:486 *S* 25 '20
- Electrical production of alloys. R. M. Major. *Am Electrochem Soc Trans v* 37 (preprint 33):441-7 *Ap* '20
- Electrochemistry and electrometallurgy in 1919. A. A. Gray. *Elec R* 76:4-5 *Ja* 3 '20
- Electrolysis vs. retort smelting for zinc. F. Laist. *Chem & Met Eng* 25:754-5 *O* 19 '21
- Electrolytic chromium. G. J. Sargent. *Am Electrochem Soc Trans v* 37 (preprint 18):275-92 *Ap* '20
- Electrolytic recovery of zinc; abstracts. S. Field. *Engineering* 111:397-8 *Ap* 1 '21; *Elec R (Lond)* 88:570-1 *Ap* 29 '21
- Electrolytic refining of tin. E. F. Kern. *il Am Electrochem Soc Trans v* 38 (preprint 16):187-206 *O* '20
- Electrolytic separation of copper from a copper-cobalt-nickel matte. R. G. Knickerbocker. *flow sheet diags Min & Sci P* 121:45-50 *Jl* 10 '20
- Electrolytic zinc. *Eng & Min J* 111:341-2 *F* 19 '21
- Electrolytic zinc. C. A. Hansen. *diags Min & Met* 152:1247-81 *Ag* '19; Discussion. 157: (sec 12) 21-8 *Ja* '20
- Electrolytic zinc methods. H. R. Hanley. *Min & Sci P* 121:795-804 *D* 4 '20
- Electrolytic zinc plant of the Anaconda copper mining co., at Great Falls, Mont. F. Laist. *flow sheet il plan Chem & Met Eng* 24:245-50 *F* 9 '21
- Electrolytic zinc plant of the Consolidated mining & smelting co. of Canada, ltd. L. W. Chapman. *flow sheet diags plan Chem & Met Eng* 23:227-31 *Ag* 11 '20
- Electrolytic zinc plant of the Judge mining & smelting co., at Park City, Utah. L. S. Austin. *Min & Sci P* 120:409-10 *Mr* 20 '20
- Electrolytic zinc plant of the Judge mining & smelting co. at Park City, Utah. L. W. Chapman. *flow sheet diags Chem & Met Eng* 22:537-40 *Mr* 24 '20

Electrometallurgy —Continued

- Electrometallurgy and electrochemistry in the West. L. W. Chapman. *il J Elec* 46:130-1 F 1 '21
- Electrometallurgy of zinc. W. R. Ingalls. *Am Electrochem Soc Trans v* 40 (preprint 12): 165-72 S '21
- Features of the electrical equipment of the Alaska Juneau gold mining company. F. S. Rice. *il Min & Sci P* 120:251-3 F 14 '20
- 40th general meeting of American electrochemical society. *Iron Age* 108:879-81 O 6 '21
- German electrotechnics during the war: electrometallurgy; abstract. V. Engelhardt. *Elec W* 75:225 Ja 24 '20
- Hydrometallurgy of copper sulfides. W. E. Greenawalt. *Min & Met* 166:20-1 O '20; Same. *Sci Am M* 2:188-9 O '20
- Judge electrolytic zinc plant. G. C. Heikes. *il diags Eng & Min J* 110:1118-23 D 11 '20
- Making a 5 per cent. nickel-cast-iron alloy in an electric furnace. D. N. Witman. *Min & Met* 176:29+ Ag '21
- Melting fine and sterling silver by electricity. H. A. DeFries. *diag Chem & Met Eng* 25:507-8 S 14 '21
- Metallurgical operations of the Judge mining & smelting company. A. B. Parsons. *flow sheet il diags Min & Sci P* 122:153-9 Ja 29 '21
- Mineral conservation by electricity. G. B. Rosenblatt. *il J Elec* 46:65-6 Ja 15 '21
- Power problem in a copper refinery. L. Ad-dicks. *Chem & Met Eng* 23:275-8 Ag 18 '20
- Present status of the electric furnace in the American metal industries. R. M. Keeney. *Chem & Met Eng* 23:980-4 N 17 '20
- Procédé électrolytique de décapage et d'oxydation des métaux. *il Génie Civil* 76:124-6 Ja 31 '20
- Production of electrolytic cadmium. H. R. Hanley. *flow sheet il Chem & Met Eng* 23:1257-64 D 29 '20
- Radiant resistor furnace for distilling scrap zinc. F. A. J. Fitzgerald. *Elec W* 75:168 Ja 17 '20
- Symposium on electrically produced alloys at American electrochemical society Boston convention. *Chem & Met Eng* 22:730-1 Ap 21 '20; *Elec R* 76:657-60 Ap 17 '20; *Iron Age* 105:1105-9 Ap 15 '20; *Iron Tr R* 66:1118-19 Ap 15 '20
- Symposium on non-ferrous electrometallurgy. *Chem & Met Eng* 25:687-9 O 12 '21
- Use of electricity in metallurgical processes. R. M. Keeney. *Elec J* 17:206-12 My '20; Abstract. *Sci Am M* 2:89-90 JI '20
- See also* Cyanide process; Electric furnaces; Electrolytic corrosion; Electroplating; Electrotyping; Magnetic separation of ores; Smelting; Electric; *also* Iron metallurgy—Electrometallurgy; Steel metallurgy—Electrometallurgy

Bibliography

- Electric furnace as applied to metallurgy; a reading list, 1900-1919. C. J. West. 92p '20 Arthur D. Little, Inc., Cambridge, Mass. [Reprinted from the Transactions of the American Electrochemical Society v. 37, 1920]

Electrometer

- Measuring condenser losses with electrometer; abstract. M. Thielers. *Elec W* 77:1007 Ap 30 '21

Electrometric titration. See Volumetric analysis**Electromotive force**

- Activities of the ions in solutions of mixed electrolytes. Ming Chow. *diag Am Chem Soc J* 42:497-502 Mr '20
- Activity coefficient of normal potassium chloride solution and the potential of the normal calomel electrode. J. A. Beattie. *Am Chem Soc J* 42:1128-31 Je '20
- Determination of the electrolytic potential and overvoltage of arsenic. V. B. Marquis. *Am Chem Soc J* 42:1569-73 Ag '20
- Difference of potential in biology. J. L. Pech. *Sci Am M* 2:122 O '20

- Distinction between intrinsic and spurious contact e.m.f.s and the question of the absorption of radiation by metals in quanta. R. A. Millikan. *diag Phys R* 18:236-44 S '21

- Free energy of dilution and the transference numbers of lithium chloride solutions. D. A. MacInnes and J. A. Beattie. *diags Am Chem Soc J* 42:1117-28 Je '20

- Oxidation and reduction of hydroquinone and quinone from the standpoint of electromotive-force measurements. F. S. Granger and J. M. Nelson. *Am Chem Soc J* 43:1401-15 JI '21

- Precision galvanometric instrument for measuring thermoelectric e.m.f.s. T. R. Harrison and P. D. Foote. *il diags Am Inst E E J* 39:165-76 F '20

- Reproducible liquid junction potentials: the flowing junction. A. B. Lamb and A. T. Larson. *diags Am Chem Soc J* 42:229-37 F '20

- Study of the saturated potassium chloride calomel cell. H. A. Fales and W. A. Mudge. *Am Chem Soc J* 42:2434-53 D '20

- Thermionic current between parallel plane electrodes; velocities of emission distributed according to Maxwell's law. T. C. Fry. *Phys R* 17:441-52 Ap '21

- Thermo-electromotive force and alloy research. J. L. Haughton. *il diags Engineering* 109:803-7 Je 11 '20

See also Oscillations

Electron society

- Organized December 1919. For information address E. M. V. Leewah, secretary, Engineering societies building, New York.

Electron tubes. See Vacuum tubes**Electrons**

- Angular momentum and some related properties of the ring electron. H. S. Allen. *Philos Mag* 6th ser 41:113-20 Ja '21

- Architecture of the atom. O. R. Foster. *diags Sci Am* 122:544+ My 15 '20

- Architecture of the molecule. O. R. Foster. *diags Sci Am* 122:596+ My 29 '20; Same. *Brass W* 17:10-11 Ja '21

- At the rock bottom of matter. I. Langmuir. *Sci Am* 122:421 Ap 17 '20

- Average force between revolving electrons. A. C. Crehore. *diag J Elec* 44:388-9 Ap 15 '20

- Charge on the electron and the value of Planck's constant h . I. Langmuir. *J Fr Inst* 189:603-5 My '20

- Chemical effects of alpha particles and electrons. S. C. Lind. 182p Chemical catalog co., New York '21

- Comparison of the thermionic and photoelectric work function from platinum. O. Koppius. *Phys R* 17:395-7 Mr '21

- Counting electrons; Prof. Millikan's apparatus. R. Howard. *il Sci Am* 124:465+ Je 11 '21

- Critical electron velocities for the production of luminosity in atmospheric neon. F. Horton and A. C. Davies. *diag Philos Mag* 6th ser 41:921-40 Je '21

- Dissociation of hydrogen and nitrogen by electron impacts. A. L. Hughes. *diag Philos Mag* 6th ser 41:778-98 My '21

- Does an accelerated electron necessarily radiate energy on the classical theory? S. R. Milner. *diag Philos Mag* 6th ser 41:405-19 Mr '21

- Effect of a uniform magnetic field on the motion of electrons between coaxial cylinders. A. W. Hull. *Phys R* 18:31-57 JI '21

- Electronic constitution of normal carbon chain compounds, saturated and unsaturated. E. J. Cuy. *Am Chem Soc J* 42:503-14 Mr '20

- Electronic energy and relativity. F. Slate. *Philos Mag* 6th ser 41:96-106 Ja '21

- Electrons. W. Bragg. *il Inst E E J* 59:132-7 Ja '21; Same. *Engineering* 111:120-2 Ja 28 '21; Same. *Elec R (Lond)* 88:125-7 Ja 28-F 4 '21; Excerpts. *Engineer* 131:142-3 F 11 '21; Abstract. *Electrician* 86:125-6 Ja 28 '21

- Electrons and heat. F. G. Edwards. *Sci Am* S 88:385 D 27 '19

Electrons—Continued

- Electrons and the engineer. Engineer 129:603-4 Je 11 '20; Same. Eng & Contr 54:326-7 S 29 '20
- Entropy of electron gas. R: C. Tolman. Am Chem Soc J 43:1592-1601 Jl '21
- Force, apparently due to mass, acting on an electron, and the non-identity of isotopes in spectra and other properties. W: D. Harkins and L. Aronberg. il diag Am Chem Soc J 42:1328-35 Jl '20
- Generalization of electrodynamics with applications to the structure of the electron and to non-radiating orbits. L. Page. diags Phys R 18:292-302 O '21
- Langmuir's theory of the arrangement of electrons in atoms and molecules. C: R. Bury. Am Chem Soc J 43:1602-9 Jl '21
- Light and electrons. O. Lodge. Philos Mag 6th ser 42:177-83 Jl '21
- Magnetic electron. A. H. Compton. il J Fr Inst 192:145-55 Ag '21
- New theory of matter. A. C. Crehore. diags J Elec 44:568-71 Je 1 '20
- On a possible connexion between the magnetic state of iron and its photo-electric properties. J. H. J. Poole. diags Philos Mag 6th ser 42:339-51 S '21
- Possible magnetic polarity of free electrons. A. H. Compton. Philos Mag 6th ser 41:279-81 F '21
- Resonance potentials and low-voltage arcs for metals of the second group of the periodic table. F. L. Mohler, P. D. Foote and W. F. Meggers. U S Bur Stand Sci Pa 403:725-37 '20
- Secondary electron emission from copper surfaces. I. G. Barber. diags Phys R 17:322-38 Mr '21
- Solar system in miniature devised by Birke-land. M. Tevis. il Sci Am 124:21 Ja 8 '21
- Some elements of the electron theory of matter. V. Karapetoff. Am Inst E E J 40:197 Mr '21
- Stability of atoms as related to the positive and negative electrons in their nuclei, and the hydrogen, helium, H_3 , H_2 theory of atomic structure. W: D. Harkins. diags Am Chem Soc J 42:1956-97 O '20
- Theory of the motion of electrons between coaxial cylinders taking into account the variation of mass with velocity. L. Page. Phys R 18:58-61 Jl '21
- What a study of atoms and electrons tells us of the stars. H: N. Russell. Sci Am 125:12+ Jl 2 '21
- See also Electric discharges; Electro-magnetic theory; Ions; Radioactivity; Vacuum tubes
- Electropercussive welding.** See Electric welding
- Electrophysiology**
- Difference of potential in biology. J. L. Pech. Sci Am M 2:122 O '20
- Electric resistance of human body. Sci Am 125:99 Ag 6 '21
- Electrical resistance of the human body. Pop Mech 35:716-17 My '21
- Electrical resistance of the human body. F. Wenner, J. S. Martin and N. Forman. Phys R 18:141-2 Ag '21
- Human body as a conductor of electricity. M. Gildemeister. diag Sci Am M 1:279-80 Mr '20
- Nature of protoplasmic and nervous transmission. R. S. Lillie. J Phys Chem 24:165-91 Mr '20
- See also Electricity, Injuries from
- Electroplaters' society, American.** See American electroplaters' society
- Electroplating**
- American electro-platers' society convention; a description of the plating and finishing shops of Rochester, N.Y. G. B. Ellis. il Metal Ind 18:255-61 Je '20
- Black nickel plating solutions. G: B. Hogaboom, T. F. Slattery and L. B. Ham. U S Bur Stand Tech Pa 190:1-9 '21; Same. Brass W 17:202-4 Jl '21
- Bronze plating. F. C. Mathers and S. Sowder. Am Electrochem Soc Trans v 37 (preprint 7):83-6 Ap '20; Same. Metal Ind 18:170-1 Ap '20
- Cleaning and electro-plating of metals. H. H. Reama. 116p Oakley chemical co., New York '20
- Cleaning metals for electro-plating. J. H. Richards. Metal Ind 18:518 N '20
- Description of the plating industry of Indianapolis, Ind. E. Bullock. il Metal Ind 19:229-33 Je '21
- Discussion on electroplating by the Sheffield section of the Faraday society and the Institute of metals. Engineering 110:710-11 N 26 '20; Electrician 85:625-6 N 26 '20; Metal Ind 19:75-6, 162 F, Ap '21
- Discussion on structure of electrodeposited metals. Brass W 17:18-21 Ja '21
- Early history of electro-silver plating. R. E. Leader. Metal Ind 18:26-30 Ja '20
- Electro-deposition as a repairing process. W. R. Barclay. Metal Ind 19:117-19, 159 Mr-Ap '21
- Electro-deposition in automotive repair work. B. H. Thomas. diag Automotive Ind 43:418-20 Ag 26 '20; Same. Mach 27:381-2 D '20; Abstract. Motor Age 38:17+ O 14 '20
- Electrodeposition of brass from cyanide solutions. A. L. Ferguson and E. G. Sturdevant. Am Electrochem Soc Trans v 38 (preprint 12):87-122 O '20; Abstract. Chem & Met Eng 23:723 O 13 '20; Summary. Metal Ind 18:463 O '20
- Electroplating for the experimenter. diags Wireless Age 8:27-9 F '21
- Electroplating generator with link-belt drive. il Elec R 78:323 F 19 '21
- Electroplating in South America. H. Greene. Metal Ind 18:81-2 F '20
- Electroplating nonconducting surfaces. A. P. Jones. Pop Mech 33:152 Ja '20
- Elements of electricity as applied to electro-plating. F. T. Taylor. Metal Ind 17:485-8 N '19
- Experimental electroplating; methods and apparatus employed for laboratory purposes. F. H. Sweet. diags Metal Ind 18:559-60 D '20
- Few simple electroplating calculations. Metal Ind 18:365-6 Ag '20; Correction. L. M. Graham. 18:402 S '20
- Foreman plater. J. Walker. Metal Ind 18:178 Ap '20
- Inert salts in plating solution. C: H. Proctor. Metal Ind 19:115-16 Mr '21
- Metal deposition; tables showing the amount of metal deposited per ampere per minute. A. Odero. Brass W 17:271-2+ S '21
- Metal plating; a compilation of tables showing the time required to deposit a given thickness of metal. W. G. Knox. Metal Ind 17:269-71, 372-4; 18:14-15, 168-9, 264-6, 361-2, 566-7; 19:25-7, 160-2, 236-9 Je, Ag '19, Ja, Ap, Je, Ag, D '20-Ja, Ap, Je '21
- Modern electroplater. K. M. Coggeshall. 276p Henley '20
- Painting with metal spray. R. G. Skerrett. il Sci Am 125:128+ Ag 20 '21
- Recent work on nickel plating. W. E. Hughes. Electrician 86:583-4 My 13 '21
- Restoration of worn machine parts. Engineering 111:655 My 27 '21; Excerpt. Automotive Ind 44:1440 Je 30 '21
- Review of electroplating industry for 1920. C: H. Proctor. Metal Ind 19:29-30 Ja '21; Correction. 19:72 F '21
- Review of the electro-plating industry for 1919. C: H. Proctor. Metal Ind 18:34 Ja '20
- Specification of electroplating for the automotive industry. W: Blum. Automotive Ind 44:1289-91+ Je 16 '21
- Structure of metal electro-deposited upon rotating cathodes. W. E. Hughes. J Phys Chem 25:495-509 Je '21
- Tungar rectifier in electroplating. il Brass W 17:222 Ag '21
- War experiences in electro-deposition. W. R. Barclay. diags Metal Ind 19:324-5 Ag '21
- See also Electrometallurgy; Electro-typing; Nickel plating; Silver plating

Electroplating—Continued**Patents**

Edison's electroplating patent. diag Metal Ind 19:119 Mr '21

Electropneumatic brakes. See Brakes, Electropneumatic

Electroscope

Practical methods for the determination of radium; alpha-ray method, gamma-ray method, miscellaneous. S. C. Lind. il diag J Ind & Eng Chem 12:469-72 My '20

Radium production in America. H. D. d'Aguiar. Chem & Met Eng 25:877-80 N 9 '21

Electrosmosis. See Osmosis

Electrostatic adhesion

Electrostatic adhesion. diag Elec R (Lond) 88:744-5 Je 10 '21

Physical phenomenon and its application. A. Johnsen and K. Rahbek. diags Engineer 131:600-1 Je 3 '21; Excerpts. Sci Am 125A: 41 N '21; Electrician 86:694 Je 3 '21; Discussion. Engineer 131:614 Je 10 '21

Re-discovered physical phenomenon work of Johnsen and Rahbek. Engineering 111:685-6 Je 3 '21

Electrostatic machines. See Electric machines

Electrostatics

Some applications of the method of images. J. Kunz, P. L. Bayley and C. M. Hebbert. diags Phys R 17:147-60 F '21

See also Condensers (electricity); Electric discharges; Electric machines; Induction (electricity)

Electrotechnical commission, National. See National electrotechnical commission

Electrotherapeutics**Apparatus and appliances**

Selling violet-ray apparatus in electrical stores. W: B. Eastwood. il Elec R 78:165-8 Ja 29 '21

Electrotypes in advertising

Beaver Board broadens dealer electro service. L. H. Harvey. Ptr Ink 110:107-8 Ja 8 '20

Electrotyping

Electrolytic reproduction of engraved printing plates. W: Blum and T: F. Slattery. Chem & Met Eng 25:320-1 Ag 24 '21

Structure and properties of alternately electrodeposited metals. W: Blum. il Am Electrochem Soc Trans v 40 (preprint 10):137-46 S '21

See also Electrometallurgy; Stereotype

Elektron metal

Elektron metal. Aerial Age 13:325 Je 13 '21

Eleostearic acid

C₁₈ fatty acids—the non-identity of eleostearic acid tetrabromide from tung oil with ordinary linolic acid tetrabromide. B. H. Nicolet. Am Chem Soc J 43:938-40 Ap '21

Elephants

When circus elephants go bad. F. Braden. il Pop Mech 35:487-93 Ap '21

Elephants, Fossil

Texan finds fossil of American elephant. il Pop Mech 36:240 Ag '21

Elevated railroads

Chicago Elevated railway raised. il diags plan Eng N 87:448-50 S 15 '21

Chicago elevated railways organize for safety. chart Elec Ry J 55:340-1 F 14 '20

Chicago "L" eliminates some of its station agents. Elec Ry J 58:772 O 29 '21

Concrete elevated-railway floor with precast form slabs. il diags Eng N 85:120-1 Jl 15 '20

Elevated road urged. Elec Ry J 58:562 O 1 '21

New rapid transit railway for Sydney, Australia. map Eng N 85:56-8 Jl 8 '20

Points in elevated railway design from Philadelphia experience. Eng N 85:298-9 Ag 12 '20

Subways for city transportation; relative advantages of subways and elevated railways. R. Ridgway. Elec Ry J 58:833-4 N 5 '21

See also Hedwaygraph; also Boston Elevated railway

Elevators

Care and maintenance of plunger hydraulic elevators. A. B. Burgess. diags Power 51: 101-2 Ja 20 '20

Freight-handling devices at the port of Seattle. G. Gordon. il diag Ry R 69:261-4 Ag 27 '21

Hydraulic elevator repair. G: H. Wallace. diag Power Pl Eng 24:836-7 S 1 '20

Maintenance of hydraulic elevators. R. L. Tullis. Power 52:982-3 D 21 '20

Material-handling in Brooklyn army base. il Textile World 57:1199+ F 7 '20

Portable stacking elevator. il Marine Eng 25: 845-6 O '20

Repairing drumshaft bearing on elevator machine. D. A. Manson. diags Power 50:647 O 28 '19

Reserve strength of elevator ropes. W. Voigtlander. il diags Power 52:115-16 Jl 20 '20

Thrilling elevator ride to Alpine summit. il Pop Mech 36:335 S '21

See also Hoisting machinery

Accidents

Defectoscope and elevator accidents. Sci Am 125A:51 N '21

Elevator weights break. G: H. Wallace. diag Power Pl Eng 25:579 Je 1 '21

Frequency of elevator accidents. Safety Eng 41:75-6 F '21

Inspection

Elevator inspecting. A. D. Palmer. Power Pl Eng 25:412-14 Ap 15 '21

What constitutes proper elevator inspection? D. J. Gitto. Power 51:607-8 Ap 13 '20

Law

Elevator laws of the state of Pennsylvania and the city of Philadelphia. E: A. Smith. Power 50:786-7 N 25 '19

Excerpts from elevator regulations of the building code of Chicago, Ill., as amended June 25, 1917. E: A. Smith. Power 50:846 D 16 '19

Excerpts from elevator regulations, state of Massachusetts. E: A. Smith. Power 50:630-1 O 21 '19

Excerpts from elevator safety orders state of California. E: A. Smith. Power 51:236-7 F 10 '20

Safety devices and measures

Freight elevators; safeguarding shaftways, cables, counterweights and operation. diags Power Pl Eng 25:667-9 Jl 1 '21

New safety device for sidewalk freight elevators. il Safety Eng 42:94-5 Ag '21

Rules for elevator operation; from safety code prepared by the American society of mechanical engineers. Textile World 58: 533+ Jl 24 '20

Safety device for elevator gate. J. E. Housley. diags Power 54:677-8 N 1 '21

Standards

Elevator standardization; excerpts from preliminary report. Am Inst Arch J 9:309-11 S '21; Mech Eng 43:561-2 Ag '21

Structural service department; standardizing elevators. S. W. Jones and L. E. Kern. Am Inst Arch J 9:25-6 Ja '21

Elevators, Electric

Alternating-current motors for high-speed elevators. J. J. Matson. Gen Elec R 24: 518-21 Je '21

Automatic push button elevators. H. L. Keith. il Elec J 16:512-14 D '19

Brake adjustments on gearless-type high-speed traction elevators. W. Zepernick. il diags Power 53:968-71 Je 14 '21

Controls for a.c. elevator motors. il Am Arch 119:434-5 Ap 6 '21

Cutler-Hammer elevator controllers. il Ry Age 69:458 S 10 '20

Elevators, Electric —Continued

- Electric elevator machinery—brake adjustments. M. A. Myers. *il* diags Power 51:1038-40 Je 29 '20
- Electric elevator machinery—cable and sheaves. M. A. Myers. *il* diags Power 53:212-17 F 8 '21
- Electric elevator machinery—car and counterweights. M. A. Myers. *il* diags Power 53:932-4 Je 7 '21; Same *abr.* Eng & Ind Management 6:335-7 S 22 '21
- Electric elevator machinery—car safeties. M. A. Myers. *diags* Power 54:176-7 Ag 2 '21
- Electric elevator machinery—elevator cables, their care and inspection. M. A. Myers. *il* diags Power 54:369-71 S 6 '21
- Electric elevator machinery—motor operation. M. A. Myers. *il* plans Power 51:920-1 Je 8 '20
- Electric elevator machinery—overspeed governors. M. A. Myers. *il* diags Power 54:50-1 Jl 12 '21
- Electric elevator machinery—thrust bearings. M. A. Myers. *il* diags Power 52:378-81 S 7 '20
- Electric-elevator machinery—worm gears and their lubrication. M. A. Myers. *il* diags Power 52:136-8 Jl 27 '20
- Lifts operated by one man. *il* Iron Age 104:1255 D 18 '19
- Locating trouble on elevator equipment. W. Zepernick. Power 54:145-6 Jl 26 '21
- Motor-control equipment used in elevator service. G. J. Kirkgasser and E. W. Seeger. *il* diags Elec R 79:465-8, 619-22 S 24, O 22 '21
- Rules for elevator operation; from safety code prepared by the American society of mechanical engineers. Textile World 58:533+ Jl 24 '20
- Types of control on a-c. elevator motors. *il* Elec R 79:105 Jl 16 '21

Elevators, Pneumatic

- Pneumatic elevators. W: Cramp. Engineering 110:330 S 3 '20

Ellagic acid

- Gallotannin. M. Nierenstein, C: W. Spiers and A. Geake. Chem Soc J 119:275-86 Mr '21

Ellipse

- Calculating the radii of an ellipse. E: Heller. *diag* Am Mach 55:239 Ag 11 '21

Ellipsograph

- Ellipsograph for manhole cutting. *diags* Engineering 110:817 D 17 '20
- Homemade ellipsograph. E. M. Love. *diags* Pop Mech 36:455 S '21
- Isoperimetric ellipsograph. J. A. Van Groos. *diags* Sci Am M 3:163-4 F '21

El Paso & Southwestern railroad

- Report. map Ry Age 71:190-1 Jl 30 '21

Eltinge, Julian

- Residence of Julian Eltinge, esq., Los Angeles, California. F. Grey. *il* plan Arch Rec 49:99-113 F '21

Elutriation

- Elutriation tests on American kaolins. H. G. Schurecht. *il* *diag* Am Cer Soc J 3:355-78 My '20

Elyria, Ohio**Water supply**

- Municipal water works construction at post-war prices. M. R. Scharff. *diag* plan Munic Eng 59:138-40 O '20

Elzevir family

- Elzevir dynasty of printers. H: L: Bullen. *il* Inland Ptr 67:341-3 Je '21

Embalming

- Chemistry for undertakers. M. Seyt. Chem & Met Eng 22:484-5 Mr 17 '20

Embankments

- Density tests of earth shrinkage in railway fills. Eng N 85:782-3 O 21 '20; Discussion. C: Prelini. 85:1007 N 18 '20
- Difficult swamp road construction. *il* Pub Works 50:49-50 Ja 15 '21
- Embankment filling without trestles. *il* *diags* Ry R 66:1093-6 Je 26 '20; Same. Eng & Contr 54:162-3 Ag 18 '20

Experience shows shrinkage of earthwork.

- C: A. Ferry. Eng N 85:375 Ag 19 '20
- Experiments give data on embankment shrinkage. *il* Ry Age 68:1573-7 Je 4 '20; Abstract. Eng & Contr 53:682-3 Je 16 '20
- Methods of investigating subsidence under railway fills. *diags* Eng N 86:437-8 Mr 10 '21

Question of earthwork shrinkage in valuation. Ry R 66:89-90 Ja 17 '20; Same *abr.* Eng & Contr 53:190 F 18 '20

Sheerboards used in building hydraulic fill dam. *il* *diag* Eng N 86:291-2 F 17 '21

Shrinkage and swell of materials in railway fills. Eng N 85:418-19 Ag 26 '20

Shrinkage in railway fills. H. S. Marshall. Eng & Contr 54:591 D 15 '20

Shrinkage of earthwork. H. N. Pharr; C: A. Ferry. Eng N 85:668-9 S 30 '20

Shrinkage of embankments. Eng & Contr 53:562 My 19 '20

Shrinkage of loosely filled earthwork in embankments. E. E. R. Tratman. Eng N 84:1256-60 Je 24 '20; Discussion. 85:135-6, 474-5, 811-12 Jl 15, S 2, O 21 '20

Subsidence and shrinkage of embankments. *diags* Eng & Contr 55:400-1 Ap 20 '21

Subsidence of earth fills as a factor in valuation. *diags* Eng N 86:434-6 Mr 10 '21

Subsidence of embankments. Eng & Contr 53:463 Ap 21 '20

See also Causeways; Dams; Dikes (engineering); Earthwork; Levees; Railroads—Earthwork; Rivers; Sea walls

Embargo

- New embargo regulations. Ry Age 69:647-8 O 15 '20

Embossing machines

- Embossing machines used in rubber manufacture. *il* *diags* India Rubber W 64:643-5 Je '21

Merey rotary embossing machines. *il* Mach 27:487 Ja '21

Embroidery

- Exhibit of Roumanian textile and craft work. *il* Color Tr J 9:130-1 O '21.

Embroidery machines

- Machine-made laces and embroideries. R. G. Skerrett. *il* Sci Am M 2:47-52 Jl '20
- Production of machine made embroidery. *il* Textile World 57:4389+ Je 12 '20

Embryology

- Action of X-rays upon fertilized frog's ova. W. M. Baldwin. Sci Am M 2:364 D '20
- Mechanical side of evolution. A. Weber. *il* Sci Am M 3:121-6 F '21

Eminent domain

- Engineer and eminent domain; legal and engineering problems in condemnation procedure analyzed. C: R. Harte. Elec Ry J 57:851-2 My 7 '21

Emmet, William Le Roy, 1859-

- Romance of invention. C. H. Claudy. Sci Am 123:424+ O 23 '20
- W. L. Emmet receives Edison medal at 1919 annual meeting of A.I.E.E. Gen Elec R 23:2-3 Ja '20; Elec W 75:1277-8 My 29 '20; Power 51:901-2 Je 1 '20

Emory university, Atlanta, Georgia

- Emory university. A. T. North. *il* Am Arch 118:429-32, 444a-h O 6 '20

Emotions

- Electrical expression of human emotion. A. D. Waller. Electrician 86:202 F 11 '21; Same. Sci Am M 3:340 Ap '21
- Obstipui, comae steterint; the physical sensations accompanying the emotions of fear and horror. M. Tevis. Sci Am 123:497 N 13 '20

Employee associations. See Employees' representation in management; Penn-American employees' association

Employees

- Efficiency and high wage rates. R. S. Clark. Ind Management 58:506-9 D '19
- How athletic contests have built plant loyalty in 31 factories. H. O. Bodine. *il* Factory 25:199-203 Jl 15 '20
- Individual. D. C. Calthrop. Engineer 131:409 Ap 15 '21

Employees—Continued

- Invitation to employees to learn more about their company. *Ptr Ink* 113:141-2 N 18 '20
- Paying the worker a fair reward on his just worth. H. Tipper. *Automotive Ind* 42:1174-5 My 20 '20
- Poise in the applicant. E. J. Bengé. *Ind Management* 62:113 Ag '21
- Room at the top. S. M. Kennedy. *J Elec* 44:210-12 Mr 1 '20
- Selling a better sales sense to employees. R. Bostick. *Ptr Ink* 116:61-2+ J1 7 '21
- Systematizing thrift among employees. F. R. Hickman. *Iron Age* 105:133-4 Ja 8 '20
- Teaching the workers what advertising does. *Ptr Ink* 112:19-20 J1 1 '20
- These employees have their own golf course. C. B. Larrabee. *il Ptr Ink M* 3:33-4+ O '21
- Turner company proud of employees' service records. *il Concrete* 16:76 F '20

See also Ability tests; Age; Apprentices; Arbitration, Industrial; Bonus system; Cotton mills—Employees; Dental service, Industrial; Disabled; Efficiency, Industrial; Electric railroads—Employees; Employees' representation in management; Employment management; Employment systems; Foremen; Forewomen; Government employees; Hygiene, Industrial; Industrial betterment; Job analysis; Labor and laboring classes; Labor contracts; Medical service, Industrial; Mental hygiene, Industrial; Municipal employees; Office workers; Physical examinations; Railroads—Employees; Rubber factories—Employees; Saving; Steel workers; Street railroads—Employees; Suggestion systems; Textile workers; Wages; Welfare work in industry; Woman—Employment

Ex-employees

- Contracts restraining employees from engaging in competitive trade. T. Conyngton. *Administration* 2:389-91 S '21
- Rights of ex-employees. *Eng & Ind Management* 5:580-2 My 19 '21

Promotion

- Promotion of ambitious workers. *Coal Age* 16:375-6, 628; 17:23, 195-6, 417-18 Ag 28, O 9 '19, Ja 1, 22, F 26 '20
- Unjust practice in promotion. R. Waldo. *Ind Management* 60:152 Ag '20

See also Employment management

Rating

- Basing compensation upon individual worth. M. R. Lott. *Ind Management* 62:211-13 O '21
- Building a machine to measure ability. C. P. Engel. *Automotive Ind* 41:1028-31 N 20 '19
- Charts that help pick the right man for the job. *Factory* 25:383-4 Ag 1 '20
- Giving the worker a card-index rating. F. H. Williams. *Iron Age* 107:1033-5 Ap 21 '21; Same. *Eng & Ind Management* 5:575-7 My 19 '21
- Making pay envelopes reflect merit. R. A. Ilg. *il Factory* 26:837-9 Ap 1 '21
- Man-rating plan proves to be incentive to good work. D. Kirkland. *Ptr Ink* 113:33-6 O 7 '20
- Personnel in the organization. J. E. Shute. *N E L A Bul* 7:910-12 D '20
- Practical method of rating central station employees. J. E. Shute. *Elec W* 77:946-8 Ap 23 '21
- Sharing the wage fund according to merit. L. E. Ashley. *Factory* 24:621-2 Mr 1 '20
- Standardizing the job. M. R. Lott. *Factory* 24:54-5 Ja '20

Selection

See Employment systems

- Employees, Blind.** *See* Blind
- Employees, Defective.** *See* Defective and delinquent classes
- Employees, Disabled.** *See* Disabled
- Employees, Government.** *See* Government employees
- Employees, Municipal.** *See* Municipal employees

Employees, Selection of. *See* Employment systems

Employees, Training of

- Building a foundation for future production. P. F. O'Shea. *il Factory* 26:1291-3 Je 1 '21
- Building both citizens and team-workers. *Factory* 24:654+, 1166+ Mr 1, Ap 15 '20
- Building finished workers from green apprentices. *il Factory* 25:549-51 Ag 15 '20
- Correlation of shop and classroom work in training machinists. *il Automotive Ind* 42:1463-5 Je 24 '20
- Educating an entire personnel. M. H. Reasoner. *Am Mach* 52:439-41 F 26 '20
- Education on the Great Western railway. *Eng & Ind Management* 5:230-1 F 24 '21
- Employee training. J. V. Morris. 311p McGraw-Hill '21
- Factory training departments to date. H. E. Miles. *Am Ind* 20:26-7 F '20
- Foreman and his job. F. H. Colvin. *diags Am Mach* 54:1002-4 Je 9 '21
- Foreman and training. H. Diemer and others, eds. 79p La Salle extension university, Chicago '21
- Foreman or teacher—which? W. A. Ayars. *Am Mach* 55:106-7 J1 21 '21
- Graduate student course at Westinghouse electric and manufacturing company. E. B. Roberts. *Sibley J* 34:9-10 Mr '20
- Handling shipyard traffic at Sparrows Point, Md. L. H. Palmer. *il diags plan Elec Ry J* 55:930-5 My 8 '20
- Holding workers by training them. H. S. Trecartin. *Factory* 24:628-9 Mr 1 '20
- How movies can help you train workers. A. Pittman. *il Factory* 25:29-32 J1 1 '20
- How the National city bank trains 400 employees to write better letters. R. Steffan. *Ptr Ink* 115:33-5+ Ap 7 '21
- How training departments have bettered production; a symposium of experiences in seventeen American factory training departments. (Training Bul. 12) 23p '19 U.S. Dept. of Labor, Training Service, Washington, D.C.
- How we cut training costs. J. R. Sedgwick. *Factory* 26:51-2 Ja 1 '21
- Improved service obtained by training service men in automobile industry. *Automotive Ind* 44:562-4 Mr 10 '21
- Increasing production by training workers; Norton co., Worcester, Mass. J. C. Spence. *Mach* 27:321-3 D '20
- Industrial engineering as major profession. *Iron Age* 106:1331-5 N 18 '20
- Industrial training. G. A. Seyler. *Iron Age* 107:1111-12 Ap 28 '21; Same. *Iron Tr R* 68:1391-2 My 19 '21
- Industrial training and selection of personnel. C. R. Dooley. *Chem & Met Eng* 25:692-5 O 12 '21
- Men for responsible positions provided by training school at Cleveland plant. *Iron Age* 105:332 Ja 29 '20
- Methods of hiring and training men. H. S. Day. *Elec J* 17:447-51 O '20
- New adventure. *Am Mach* 53:203-4 J1 29 '20
- Our flying squadron; how it boosts production and builds executives for the Goodyear tire and rubber company. P. W. Litchfield. *il Factory* 24:611-14 Mr 1 '20
- Our youngsters are promoted sooner because of this plan. H. R. Baldwin. *il System* 40:176+ Ag '21
- Power company offers students training course. *J Elec* 46:547 Je 1 '21
- Preparing industrial English lessons for the industries of Massachusetts. G. F. Quimby and C. H. Paull. *il Ind Management* 59:231-6 Mr '20
- Report of the committee on personnel and training of transportation employees of the American electric railway transportation and traffic association. *Elec Ry J* 58:653-4 O 8 '21
- Sending all our executives to school to learn team-work. F. F. Beall. *Factory* 24:431-6 F 15 '20
- Solving the labor problem; educating and training the man to fit him to his job. C. F. Carter. *Sci Am* 124:306+ Ap 16 '21

Employees, Training of—Continued

- Steel export company inaugurates training course for employees. *Iron Age* 106:523 Ag 26 '20
- Successful substitute for apprenticeship; Willys-Overland co., Toledo, Ohio. *il Mach* 26:746-8 Ap '20
- Suggestions regarding factory training. J. F. Johnson. *charts Ind Management* 59:163-4 F '20
- Traffic apprenticeships on North Eastern railways of England. *Ry R* 67:763 N 20 '20
- Training and developing the railroad worker. J. C. Clark. *Ry Age* 70:719-21 Mr 18 '21
- Training industrial workers. R. W. Kelly. 437p Ronald press '20
- Training leaders for foremanship classes. D. J. MacDonald. *Am Mach* 55:249-51 Ag 18 '21
- Training machinists reduces amount of spoiled work. N. G. Shidle. *il Automotive Ind* 43:74-6 Jl 8 '20
- Training men for foundry duties. C. C. Schoen. *Foundry* 48:59-61 Ja 15 '20; Same. *Iron Age* 105:263-4 Ja 22 '20
- Training men for tractor service work. N. G. Shidle. *il Automotive Ind* 44:224-6 F 3 '21
- Training men in the molding art. R. R. Clarke. *Foundry* 48:11-13 Ja 1 '20
- Training of unskilled labour for the purposes of mass production. *Eng & Ind Management* 6:93-4 Jl 28 '21
- Training operators in a machine shop; methods employed in the plant of the Norton company, Worcester, Mass. J. C. Spence. *il Mach* 27:421-3 Ja '21
- Training salesmen; executive apprentices included in American rolling mill plan of education. *Iron Age* 107:763 Mr 24 '21
- Training shop workers. *Factory* 24:738+, 1560+; 25:236+, 556+, 996+, 1762+; 27:96+, 430+ Mr 1, My 15, Jl 15, Ag 15, S 15, D 1 '20, Jl, S '21
- Underground railway training school. *il Elec R (Lond)* 88:601 My 6 '21
- Using today's problems to train tomorrow's managers. W. D. Plumb. *System* 39:514-17+ Ap '21
- Worth-while training department; American tool works company, Cincinnati. L. C. Morrow. *il Am Mach* 53:893-6 N 11 '20
- See also* Apprentices; Corporation schools; Foremen; Industrial education; Salesmen, Training of; *also* Davis-Bournonville institute for welding and cutting, Shepard technical night school
- Employees, Transportation of**
- Lower costs through better workers. *il Factory* 27:198-200 Ag '21
- Employees as stockholders**
- American telephone & telegraph stock purchase plan. *Ptr Ink* 116:110-11 Jl 14 '21
- Capital interest vs. wages. C. W. Macara. *Textile World* 57:2665 Ap 10 '20
- Details of Harvester stock distribution. *Iron Age* 106:576-7 S 2 '20
- Employee-investors build thrift and good will; Utica gas & electric co. G. H. Stack. *il Elec W* 77:269-70 Ja 29 '21; Same. *Gas Age* 47:228 Mr 10 '21
- Every man his own capitalist in the Auto-car company. B. H. Lambe. *Nation's Business* 9:18 Ag '21
- Harvester company's liberal plan of extra compensation to employees. *Iron Age* 106:331 Ag 5 '20
- Interesting the employee in his work; plan by which employees become stockholders. F. H. Macpherson. *Paper* 26:24-8 Ap 14; 22 Ap 28 '20
- Lehigh Valley plan for selling stock to employees. A. F. Bayfield. *Ry Age* 69:883-4 N 19 '20
- Making partners of workers. S. Crowther. *Factory* 24:1701-3 Je 1 '20
- Penney store stock plan for managers. *Ptr Ink* 115:165+ My 19 '21
- Providence gas company to aid employees to become stockholders. *Am Gas Eng J* 113:479 D 4 '20
- Selling stock to employees. *Ptr Ink* 111:19-20 My 20 '20

- Significance of the employee as stockholder. W. Webb. *Paper* 28:9-10+ Jl 6 '21
- Stock-subscription plan for Du Pont employees. *Min & Sci P* 122:112 Ja 15 '21
- Ten year experiment in coöperation. W. Wallick. *Inland Ptr* 66:62 O '20
- Turning employee stock ownership facts into an advertising appeal. *Ptr Ink* 116:79-80 Ag 25 '21
- U.S. steel employees as investors in stock of corporation. *Comm & Fin Chr* 112:506-7 F 5 '21
- What has happened to industrial cooperative plans? R. Dickinson. *Ptr Ink M* 3:32-3+ Je '21
- Who owns your company? A. D. White. *Ptr Ink* 111:33-4 Ap 22 '20
- Youngstown sheet & tube co. announces issue of employees' stock. *Iron Tr R* 67:1153 O 21 '20
- Employees' gardens.** *See* Gardens, Factory
- Employees' magazines**
- Basic policies of the employees' magazine. J. T. Bartlett. *Am Mach* 52:1091-3 My 20 '20
- Building up esprit de corps. J. F. Weedon. *Gas Age* 45:199-200 F 25 '20
- Does the employees' magazine pay? H. G. Tregillus. *Factory* 25:891-3 S 15 '20
- Dramatic gesture and the photo: two ways to personalize management. J. T. Bartlett. *Ind Management* 62:273-4 N '21
- Employees' magazine and safety first. J. T. Bartlett. *Am Mach* 52:1358-9 Je 24 '20
- Employees' magazine more essential now than ever. R. Dickinson. *Ptr Ink* 114:133-4+ Mr 31 '21
- Employees' magazine when work is slack. J. T. Bartlett. *Ind Management* 61:416-17 Je '21
- Employees magazines. P. F. O'Shea. 122p H. W. Wilson co. '20
- Employees' magazines as distinguished from house-organs; list of institutions which are building morale with this medium. *Ptr Ink* 110:41-3 F 19; 130+ Mr 11; 157-8 Mr 18; 111:99-100 Ap 1; 60+ Ap 8; 181+ My 13 '20
- Employment department and the plant publication. J. T. Bartlett. *Am Mach* 53:287 Ag 5 '20
- Frivolous stuff in the plant paper. F. H. Williams. *Am Mach* 53:552 S 16 '20
- Gaging employees' magazine results. J. T. Bartlett. *Am Mach* 53:589-91 S 23 '20
- Guarding the employee's pocketbook. J. T. Bartlett. *Ind Management* 61:193-4 Mr 1 '21
- Helping the worker to understand wage cuts. R. E. Ramsay. *Factory* 27:480 O '21
- How big companies are using employees' magazines. P. F. O'Shea. *Ptr Ink* 114:118+ F 3 '21
- How printers are helping to reduce industrial unrest. R. E. Ramsay. *Ptg Art* 36:33-5 S '20
- How the employees' magazine promotes safety. G. G. Kingsley. *Ind Management* 62:242-3 O '21
- How we put our shop paper in overalls. H. Botsford. *Factory* 27:475-7 O '21
- Human interest in the employees' magazine. J. T. Bartlett. *Ind Management* 60:112-15 Ag '20
- Making a factory newspaper. C. R. Miller. *Iron Age* 105:544 F 19 '20
- Makin' 'em read the plant paper. F. H. Williams. *Ind Management* 60:70-2 Jl '20
- Making the plant paper pay; how to produce a successful employees' magazine. E. A. Hunger. *Ind Management* 60:341-4 N '20
- Naming the employees' magazine. J. T. Bartlett. *Ind Management* 61:15-16 Ja 1 '21
- Pictures for the employees' magazine. S. G. Wingfield. *Ptr Ink* 113:125-6 O 7 '20
- Plant newspaper—how to get it read. *Am Mach* 53:150 Jl 22 '20
- Possibilities of the house organ in textile mills. *il Textile World* 59:860-1+ F 5 '21
- Right policies for employees' publications. E. A. Hunger. *Ind Management* 61:323 My 1 '21

Employees' magazines—Continued

- Role of employees' magazines as viewed by their editors. A. Highton. *il Paper* 27:9-13+ F 23 '21
- Selling the house organ. K. F. Gray. *Ptg Art* 37:421-5 J1 '21
- Shop daily bulletin. G. O. Swartz. *Ind Management* 61:373 My 1 '21
- Shop paper as a means toward co-operation. P. F. O'Shea. *il Am Mach* 52:119-21 Ja 15 '20
- Shop paper as an aid to management. *Factory* 24:122+, 374+, 676+, 980+, 1418+, 1606+, 1778+, 1980+, 25:808+, 1490+, 1960+; 26:1340+; 27:412+, 688+ Ja-F 1, Mr 1, Ap 1, My 1-Je 15, S 1, N 1, D 15 '20, Je 1, S, N '21
- Some functions of the employees' magazine. J. T. Bartlett. *Am Mach* 52:385-8 F 19 '20
- This house-organ makes farm help work better. R. Cole. *il Ptr Ink M* 3:23+ S '21
- Why don't the employees read the shop paper? F. H. Williams. *Am Mach* 52:467-8, 1143-4; 53:363-4 F 26, My 27, Ag 19 '20
- See also House organs*
- Employees' representation in management**
- Account of the methods used and the results obtained by the Greenfield tap & die corporation, Greenfield, Mass., in the application of workmen's representation in the plants of the corporation. F. G. Echols, L. M. Lamb and R. P. Dolan. *il Mach* 26:1007-12 J1 '20
- Aiding workers with personal service. W. I. Clark. *Iron Tr R* 66:849-50 Mr 18 '20
- All labor troubles cannot be cured by the same remedy. W. M. Leiserson. *Automotive Ind* 43:855 O 28 '20
- American plan for western labor works out in practice. *J Elec* 47:183 S 1 '21
- Benefits of industrial democracy. C. J. Parrott. *Textile World* 56:2521-2 O 25 '19
- Carter oil company gives workers voice in establishing working conditions. *Nat Pet* N 12:49+ Mr 10 '20
- Co-operation and industrial progress. C. McCormick, jr. *Metal Ind* 17:492-4 N '19; Same *abr. Sci Am* 122:132+ F 7 '20
- Democracy in industry. P. Kreuzpointner. *Ind Management* 59:319 Ap '20
- Democracy is the expression of mill spirit. *il Textile World* 57:934+ F 7 '20
- Do employees really vote wage reductions? W. A. Davenport. *Factory* 26:968-9 Ap 15 '21
- Electric railway policy. G. Weston. *W Soc E J* 24:21-42 Ja 5 '20
- Employee representation in Illinois utility. *Elec W* 75:1493 Je 26 '20
- Employee representation in industrial plants. M. W. Alexander. *Elec W* 75:121-2 Ja 17 '20
- Employee representation in industrial plants. *Comm & Fin Chr* 113:1627-9 O 15 '21
- Employee representation in its relationship to industrial peace—an English experience. W. A. Earl. *Ind Management* 60:187-8 S '20
- Employee representation in management. R. L. Wilson. *Textile World* 59:2869+ Ap 30 '21
- Employee representation in Standard oil. B. Kline. *Ind Management* 59:355-60, 496-501 My-Je '20
- Employee representation in the American multigraph co. *Monthly Labor R* 13:18-21 J1 '21
- Employee representation indorsed; president's second Industrial conference reports. *Iron Age* 105:875-9 Mr 25 '20
- Employee representation plan adopted at Copper Queen. *Eng & Min J* 112:65-6 J1 9 '21
- Employee representation plan now in effect in Peoples gas light & coke company. *Am Gas J* 114:453-4 My 21 '21
- Employees advisory plan of the arsenals. N. D. Baker. *Ind Management* 58:400-2 N '19
- Employees' representation in management of industry. R. Meeker. *Monthly Labor R* 10:305-18 F '20; Abstracts. *Iron Age* 105:140-2 Ja 8 '20; *Mech Eng* 42:133-4 F '20

- Employees' representation plans in American industries. P. E. Barbour. *Eng & Contr* 53:276-8 Mr 10 '20
- Employees to be represented in Commonwealth Edison management of Chicago. *Elec W* 77:164-5 Ja 15 '21; *N E L A Bul* 8:114-15 F '21
- "For instance, employee representation has —"; ten results a year's trial of the plan has brought us. E. E. Bross. *Factory* 25:538-40 Ag 15 '20
- Forms of work councils in the United States. *Textile World* 57:930-1+ F 7 '20
- Frontier of control; a study in British workshop politics. C. L. Goodrich. 277p Harcourt, Brace and Howe, New York '20
- Gas workers' government; Peoples gas and coke company frame a co-operative labor management. *Gas Age* 47:25 Ja 10 '21
- Goodyear industrial republic. C. D. Crudginton. *Ind Management* 59:125-6 F '20
- Greenfield tap and die corporation plan of industrial representation. F. H. Colvin. *Am Mach* 52:447-8 F 26 '20
- How to sell employees on working for smaller pay. G. A. Nichols. *Ptr Ink* 115:3-4+ Je 2 '21
- Industrial conference declares for employee representation; summary of final report. *Ind Management* 59:348-54 My '20
- Industrial conference's report in detail. *Iron Tr R* 66:938-40 Mr 25 '20
- Industrial co-operation. *Min & Sci P* 123:248-9 Ag 20 '21
- Industrial democracy a sham? R. E. Newcomb. *Iron Tr R* 66:565-7 F 19 '20
- Industrial democracy in practice in England. C. H. Northcott. *Automotive Ind* 41:1197-1200 D 18 '19
- Industrial democracy plan. H. R. Fitzgerald. *Textile World* 56:2520-1 O 25 '19
- Industrial democracy pleases men. B. C. Forbes. *Eng & Contr* 53:104-5 Ja 28 '20
- Industrial democracy vs. the better boss. J. C. Lawrence. *Administration* 1:337-40 Mr '21
- Industrial history made at Wappingers Falls. *il Textile World* 57:2661+ Ap 10 '20
- Industrial personnel relations. A. H. Young. *W Soc E J* 24:341-50; Discussion. 350-8 Je '19
- Industrial representation in the Standard oil co. C. J. Hicks. *Min & Met* 159:(sec 4)1-3 Mr '20; Same. *Chem & Met Eng* 22:607-8 Mr 31 '20
- Industrial works councils in Germany. *Engineer* 129:169-70 F 13 '20
- International harvester company plan. W. E. Worth. *Brick & Clay Rec* 58:27-9 Ja 11 '21
- Labor case of the Pennsylvania railroad. *Ry R* 69:69-80 J1 16 '21; *Ry Age* 71:115-17 J1 16 '21
- Letting your employees do the hiring. *il Factory* 25:41-4 J1 1 '20
- Management and employees work out plan of factory conduct. R. Dickinson. *Ptr Ink* 110:130+ Ja 29 '20
- Many welfare plans accompany democracy. *Textile World* 57:1169 F 7 '20
- New German works council act. *Textile World* 58:4002 D 11 '20
- New Wilson & company industrial representation plan. *Ptr Ink* 116:138+ J1 21 '21
- La participation ouvrière aux bénéfices de la production. P. Razous. *Génie Civil* 78:59-61, 84-7 Ja 15-22 '21
- Peoples gas light & coke company offers workers chance to aid in running its offices. *Am Gas Eng J* 113:529-30 D 25 '20
- Practical aspects of employees' representation. E. B. Tolsted. *Ind Management* 58:410-12 N '19; Excerpts. *Iron Tr R* 65:1327-8 N 13 '19; Excerpts. *Power* 50:851-2 D 16 '19; Excerpts. *Eng & Contr* 53:218-19 F 25 '20
- Proceedings of the first Industrial conference (called by the President) October 6 to 23, 1919. 285p National industrial conference, Washington, D.C. '20
- Pullman company adopts employee representation. *Ry Age* 69:1114 D 24 '20

Employees' representation in management—Cont.

- Real community spirit at McCallum hosiery co. S: Sayward. *il* Textile World 60:561+ J1 23 '21
- Representative plan praised. J. A. Campbell. Iron Age 105:547-8 F 19 '20
- Results of cooperation between management and men. E. S. Cowdrick. *Ind Management* 62:32-3 J1 '21
- Results of employee representation plan when tested by steel strike. W. B. Dickson. *Min & Met* 166:17-18 O '20
- Rise and fall of an industrial democracy. F: H. Mill. *Eng & Contr* 53:442-3 Ap 14 '20
- Self-government in the building industry in Great Britain. *Monthly Labor R* 11:792-7 O '20
- Self-government put to the test; Goodyear tire and rubber co., at Akron, Ohio. *il* *Ind Management* 60:12-15 D 15 '20
- Selling employee representation to the workers. P: F. O'Shea. *il* *Factory* 25:228-31 J1 15 '20
- Sharing the responsibilities of production. F. H. Payne. *Ind Management* 58:499 D '19
- Some experiences in industrial relations. A. H. Young. *il* *Factory* 24:259-64 F 1 '20
- Speeches at a Standard oil meeting of employees' and companys' representatives. B. Kline. *Ind Management* 60:1-8 J1 '20
- Spiritual power in industry. J: Leitch. *Textile World* 57:1627 F 28 '20
- Stimulating cooperation between employer and employee; Clark equipment company, Buchanan, Mich. *il* *Mach* 26:544-50 F '20
- Successful trial of industrial representation plan; the Colorado fuel & iron company. E. S. Cowdrick. *Ind Management* 59:123-5 F '20
- Systems for mutual control of industry. W: L. Leiserson. *Mech Eng* 42:24-5+ Ja '20
- Three steps to readjusting a business. J. S. Carr, jr. *System* 39:218-20+ F '21
- Trends in management. W: L. Stoddard. *Factory* 24:1544-5 My 15 '20
- Truth about the Rock Island plan. G. L. Lacher. *Iron Age* 104:1329, 1369-70 D 25 '19
- Two years of industrial legislation in a large clothing factory. O. F. Carpenter. *Monthly Labor R* 11:234-45 Ag '20
- Way to industrial goodwill. C: W. Eliot. *Textile World* 57:3012; *Discussion*. 3014 Ap 24 '20
- What the British worker is thinking. C. H. Northcott. *Ind Management* 60:96-9 Ag '20
- Whitley plan in fifty British industries. *Iron Age* 105:16-18 Ja 1 '20
- Workers' control in Italy: the government proposal. *Int Labour R* 1:333-46 Mr '21
- Workmen demanding self-expression. C. McCormick, jr. *Iron Tr R* 65:1509 D 4 '19
- Works council in the United States. *Ind Management* 58:491-3 D '19
- Works councils and arbitration tribunals in the Czecho-Slovakian mining industry. *Int Labour R* 2:26-31 Ap '21
- Works employee plan. *Iron Age* 104:1334 D 25 '19
- See also* Industrial councils; Shop committees

Bibliography

Industrial democracy, 1848-1919; a study help. 34p '19 20c Library Employees' Union of Greater New York, 463 Central Park West, New York

Employees' stores. *See* Company stores; Co-operative stores

Employers' associations

Organization of employers and workers in Germany. *Monthly Labor R* 12:613-15 Mr '21; Same. *Chem & Met Eng* 24:889-90 My 18 '21

Employers' liability

Contractor responsible for injury to subcontractor's employee. *Pub Works* 48:315 Ap 10 '20

Federal employers' liability act. C. F. Bray. *Ry R* 66:681-2 Ap 24 '20

Injuries to workmen from noxious dust and gases. W. Gustin. *Chem & Met Eng* 22:181 Ja 28 '20

Liability for lack of ventilation. C. C. Sherlock. *Am Mach* 54:374-6 Mr 3 '21

Report of the committee of N.W.D.A. on employers' liability and workmen's compensation. *Oil Paint & Drug Rep* 100:33-6 O 4 '21

See also Accidents, Industrial; Workmen's compensation

Employment agencies

Clearing house for labor. charts *Pub Works* 49:300-2 O 2 '20

Des Moines manufacturers consolidate employment study. H. C. Pfund. *Iron Tr R* 68:286-9+ Ja 27 '21

Junior wage earners. A. Y. Reed and W. Woelpper. 171p Macmillan '20

Labour exchanges. *Engineering* 110:776 D 10 '20

State public employment bureau an aid to management. A. Gittes. *Ind Management* 58:504-5 D '19

Employment departments

How to lay out an employment department building. R. Waldo. chart plans *Ind Management* 61:215-17 Mr 1 '21

Planning an employment dept. building. R. J. Waldo. *il* plans *Textile World* 60:837+ Ag 6 '21

See also Employment systems

Employment management

Aids for the new employment manager. F. M. Keyser. *Ind Management* 60:245-7 S '20

American foundrymen's sessions on industrial relations. *Iron Age* 106:1049-51 O 21 '20

Association lessens labor difficulties. G. Frazar. *Iron Age* 106:654-7 S 9 '20

Attitude. J. E. Borchard. *Ind Management* 61:140 F 1 '21

Benefits of details in plant management. H. Tipper. *Automotive Ind* 42:34-5 Ja 1 '20

Bringing the worker's skill into play to increase production. H. Tipper. *Automotive Ind* 43:432-3 Ag 26 '20

Building a permanent organization. W: H. McGregor. *Mach* 26:1028-9 J1 '20

Building morale in an industrial center. A. J. Hain. *il* *Iron Tr R* 66:1394-8 My 13 '20

Building up subordinates. *Am Mach* 53:488 S 9 '20

Careful systematic plan for industrial relations. *Paper* 27:20+ S 22 '20

Case of the employee who does not strike. H. Tipper. *Automotive Ind* 42:574-5 F 26 '20

Clearing the track for production. J: O. Steendahl. *il* *Factory* 26:1200-1 My 15 '21

Comers, standbys and leaders. B. A. Franklin. *Ind Management* 62:48-51 J1 '21

Contacts in industrial relations. R. W. Immel. *Ind Management* 59:77-8 Ja '20

Cooperation between employer and employee. W: A. Rockenfield. *Mach* 26:822 My '20

Co-operation tends to the increase of output. *Iron Age* 106:131-3 J1 15 '20

Decreasing labor cost despite the prevalent unrest. H. Tipper. *Automotive Ind* 41:1082-3 N 27 '19

Definite analysis methods help solve labor difficulties. N. G. Shidle. *Automotive Ind* 42:1166-8 My 20 '20

Department of personnel research. E. J. Bengé. *Ind Management* 59:415-18 My '20

Development of factory personnel in the small town. N. G. Shidle. *il* *Automotive Ind* 42:1116-18 My 13 '20

Discussion of labor policy. J: F. Johnston. *Ind Management* 59:418-20 My '20

Do today's problems need new answers? E. M. Herr. *Factory* 25:1881-3 D 15 '20

Driving rough pictures from the plant. *Factory* 25:1730-1 D 1 '20

Economic education and square deal for workers. *Textile World* 57:945+ F 7 '20

Effects of the disagreeable job on the production curve. H. Tipper. *Automotive Ind* 42:724-5 Mr 18 '20

Employer's responsibility to workers. H. Tipper. *Automotive Ind* 41:1130-1 D 4 '19

Employment management and industrial relations. D. R. Kennedy. *Ind Management* 58:353-8 N '19

Employment management—Continued

- Employment management in Great Britain. W. J. Deeley. *Ind Management* 59:75-6 Ja '20
- Employment management, wage systems and rate setting. 103p Industrial press, New York '21
- Employment manager has problem. A. H. Young. *Foundry* 49:158-9 F 15 '21
- Employment manager in an engineering works. *Engineering* 111:65-6 Ja 21 '21
- Employment methods. N. W. Shefferman. 573p Ronald press '20
- Employment problems in textile industry. H. W. Kimball. *Textile World* 57:938+ F 7 '20
- Employment system in the textile industry. P. Tucker. *Textile World* 57:946+ F 7 '20
- Example of putting friendliness into a unionized shop. H. Tipper. *Automotive Ind* 43:882-3 O 28 '20
- Family spirit of employees a valuable asset to an organization. F. F. Hennaman. *Elec W* 76:1125 D 4 '20
- Fellow feeling in the factory. H. W. Kimball. *Ind Management* 62:59-60 Jl '21
- Field for employment management. *Am Mach* 53:1044 D 2 '20
- Fitting workers into specialized jobs. P. F. O'Shea. *Factory* 24:1884-8 Je 15 '20
- Five points of view on the question of hours of labor. H. W. Kimball. *Ind Management* 59:420-1 My '20
- Foreman and his job. F. H. Colvin. *Am Mach* 54:903-4 My 26 '21
- Foreman and the personnel department. C. W. Rice. *Sibley J* 34:122-7 S '20
- Gaining the confidence of the employees. P. Kreuzpointner. *Ind Management* 60:103-4 Ag '20
- Gaining workman cooperation through efficient wage regulation. C. H. Northcott. *Automotive Ind* 43:880-1 O 28 '20
- Getting personality into the plant. *Factory* 27:46 Jl '21
- Getting the home folks inside the factory. D. Wolf. *Factory* 24:805 Mr 15 '20
- Getting the home folks inside the factory; a copied plan that was successful. R. Angove. *Factory* 25:1898 D 15 '20
- Getting together with the employees. A. B. Weeks. *Iron Tr R* 65:1518 D 4 '19
- Giving workers the right perspective on the job. F. H. Williams. *Ind Management* 61:181-2 Mr 1 '21
- Grouping workers to get results. E. J. Bengé. *Factory* 24:1332-3 My 1 '20
- Guide and bibliography for labor managers. L. S. Lyon and M. R. Freedman. *Ind Management* 60:383-5 N '20
- Handling salesmen through their hearts. F. K. Pennington. *Ptr Ink* 110:3-4+ Mr 11 '20
- Handling the men who have no trade. H. W. Kimball. *Ind Management* 59:509-10 Je '20
- Handling women workers. *Factory* 24:172+, 1246+, 25:82+, 894+, 26:536+, 27:116+ Ja, Ap 15, Jl 1, S 15 '20, F 15, Jl '21
- Has the producer an equity in production? *Am Mach* 51:1114 D 25 '19
- Healthful and profitable place to work; Cleveland worsted mills co. *il Textile World* 59:3525+ My 28 '21
- Helping Jim and Bill stick to their jobs. R. J. Andersen. *Factory* 25:706-8 S 1 '20
- Helping the employees by singing in the plant. W. Webb. *Ind Management* 59:508 Je '20
- How an effective employment department is being developed. N. G. Shidle. *Automotive Ind* 43:370-3 Ag 19 '20
- How an effective labor policy has increased production. N. G. Shidle. *Automotive Ind* 45:168-70 Jl 28 '21
- How modern employment practices assure contented and efficient personnel. N. O. Irwin. *il Coal Age* 19:1077-80 Je 16 '21
- How one manufacturer handles labor; employment department of Graton & Knight mfg. co. R. I. Clegg. *Iron Age* 105:27-31 Ja 1 '20
- How one railway personnel department operated. C. C. Cook. *Ry Age* 69:325-6 Ag 20 '20
- How personnel readjustments are handled by Armour & co. W. S. MacArthur. *Eng & Contr* 55:526-7 My 25 '21
- Human element in production. A. F. Knobloch. *Soc Auto Eng J* 7:137-9 Ag '20; Discussion. 7:472-3 N '20
- Human element; practical suggestions in regard to getting on with workmen. J. J. Siefen. *Iron Age* 104:1272 D 18 '19
- Human engineering; a study of the management of human forces in industry. E. Wera. 378p Appleton '21
- Human equation in business. G. G. Munn. *Ptr Ink* 114:149-50+ F 17 '21
- Human factor. *Factory* 24:748+ Mr 1 '20
- Human factor in business. B. S. Rowntree. 176p Longmans '21
- Human factor in industry. L. K. Frankel and A. Fleisher. 366p Macmillan '20
- Human nature and personnel management. R. L. Voorhees. *Ind Management* 59:78-9 Ja '20
- Human side of the printing industry. R. F. Saladé. *il Ptg Art* 36:305-10 D '20
- Human touch method of management. C. C. Bradley, jr. *Am Mach* 52:935-6 Ap 29 '20
- Humanizing labor in the steel plant. P. Stremmel. *Iron Tr R* 65:1641+ D 18 '19
- Idealism as a factor in management. H. R. White. *Ind Management* 61:665-7 Mr 1 '21
- Importance of the human element in railroading; consideration of personnel departments and morale. W. S. Wollner. *Ry Age* 69:691-4 O 22 '20
- Increasing individual efficiency through decentralized responsibility. H. Tipper. *Automotive Ind* 45:182-3 Jl 28 '21
- Increasing production by raising plant efficiency. J. E. Schipper. *Automotive Ind* 43:26-7 Jl 1 '20
- Increasing production without a bonus. F. H. Colvin. *Am Mach* 52:869-71, 1041-4 Ap 22, My 13 '20
- Individual responsibility. J. J. Martindale. *Ind Management* 60:306-9 O '20
- Industrial conditions in Australia; Broken Hill mines. G. C. Stone. *Min & Met* 166:16-17 O '20
- Industrial democracy and the foreman. J. Calder. *Iron Age* 104:1265-6 D 18 '19
- Industrial government. J. R. Commons. *Int Labour R* 1:61-7 Ja '21; Same. *Administration* 1:145-50 F '21
- Industrial government. J. R. Commons and others. 425p Macmillan '21
- Industrial personnel relations. A. H. Young. *W Soc E J* 24:341-50; Discussion. 350-8 Je '19
- Industrial research in the art of man management. E. H. Schell. *Am Mach* 54:364-7 Mr 3 '21
- Insurance facts for employment men. H. W. Kimball. *Ind Management* 59:73-5 Ja '20
- Introduction to the psychological problems of industry. F. Watts. 240p Macmillan '21
- Ironing out the troubles between day and night shifts. C. C. Lynde. *Factory* 24:973-4 Ap 1 '20
- "Johnson, shake hands with our new man, Smith." *il Factory* 24:640-1 Mr 1 '20
- Jumping sickness among employees. A. H. Dute. *Ptr Ink* 110:57-8+ Mr 18 '20
- Labor maintenance; a practical handbook of employee's service work. D. Bloomfield. 530p Ronald press '20
- Labor policy of the White motor company. R. T. Solensten. *Ind Management* 59:330-2 Ap '20
- Labor problem. H. Tipper. *Am Mach* 52:549-52; Discussion. 552-6 Mr 11 '20
- Labor problem? why have one? S. M. Vauclain. *Nation's Business* 9:23 F '21
- Labor problems in the rubber industry. *India Rubber W* 62:413-14 Ap '20
- Laying the cards on the table. F. H. Colvin. *Am Mach* 53:531-3 S 16 '20
- Leaf from Lenin's policy on manpower. F. A. Kellor. *Eng N* 84:517-20 Mr 11 '20; Discussion. D. E. Gelwix. 84:787 Ap 15 '20
- Making a man without breaking him; story. R. J. Snell. *il System* 40:268-71 S '21
- Making employes 100% efficient. A. A. Bureau. *Am Ind* 21:34-5 Mr '21
- Making pay envelopes reflect merit. R. A. Ilg. *il Factory* 26:837-9 Ap 1 '21
- Making your men partners in your plans. *Factory* 26:597 Mr 1 '21

Employment management—Continued

- Man in the plant. E. Givens. J Elec 46:398-400 Ap 15 '21
- Management and the worker. G: F. Johnson and others. 228p A. W. Shaw co., Chicago; New York '20
- Management's obligation in a favorable employment market. W. C. White. Ind Management 62:264-5 N '21
- Managing industrial relations a job that must find itself. H. Tipper. Automotive Ind 41:982-3 N 13 '19
- Managing the man who wants all the credit. H. Brady. Ptr Ink M 3:26+ N '21
- Manners in management. R. H. Geblett. Ind Management 61:377 My 1 '21
- Method of increasing output. Textile World 57:2151+ Mr 20 '20
- Mind and work; the psychological factors in industry and commerce. C: S. Myers. 175p Putnam '21
- More work per man. J: H. Van Deventer. 440p Engineering magazine co., New York '21
- National founders' association, 24th annual convention, New York. Iron Age 106:1389-91 N 25 '20
- New discipline plan in Los Angeles. Elec Ry J 56:208 Jl 31 '20
- New employee as a vital factor in labor turnover. N. G. Shidle. il Automotive Ind 42:1216-18 My 27 '20
- New position in society of the American workman. H. Tipper. Automotive Ind 43:130-2 Jl 15 '20
- New trails in employment relationships. W. S. Gibbs. Ind Management 61:173-4 Mr 1 '21
- New York subway's plan for cooperation with employees. F. Hedley. Ptr Ink 113:177+ O 7 '20
- Office staff turns to selling, to maintain sales volume. W: B. Munroe. Ptr Ink 117:25-7+ O 20 '21
- Organization and functions of a modern industrial relations department. Blast F & Steel Pl 8:160-1 F '20
- Parker-Holladay poster service. Mach 28:170 O '21
- Pass this on to your men. Factory 24:1222+; 25:788+, 1670+ Ap 15, S 1, N 15 '20
- Perpetual inventory of the personnel. W: J. Wells. Administration 1:62-72 Ja '21
- Personnel administration. O. Tead and H. C. Metcalf. McGraw-Hill '20
- Personnel board keeps close tab on contractor's field forces. M. A. Darville. il diag Eng N 86:860-1 My 19 '21
- Personnel department organization. L. S. Bitner. chart Ind Management 58:502-4 D '19
- Personnel management of the Metropolitan life insurance company. L. Washington. Ind Management 62:27-32 Jl '21
- Personnel problem: to eliminate the waste of human effort. L. B. Hopkins. Chem & Met Eng 25:385-8 Ag 31 '21
- Personnel relations in industry. A. M. Simons. 341p Ronald Press '21
- Phonograph reduces labor turnover. F. H. Williams. Ind Management 62:60 Jl '21
- Plain talk for executives. Ind Management 62:309-13 N '21
- Plan that improved attendance 200%. W: S. Dutton. Factory 25:214-15 Jl 15 '20
- Planning a personnel department. M. R. Lott. Factory 24:614-17 Mr 1 '20
- Play of wits in handling men. E. A. Hunger. il Factory 24:790-2 Mr 15 '20
- Popularizing a fertilizer plant. R. L. Voorhees. Ind Management 61:189-90 Mr 1 '21
- Practical jokers among workmen. C. C. Sherlock. Chem & Met Eng 24:619-20 Ap 6 '21
- Practical personnel management. E. B. Morgan. il charts Ind Management 60:122-9 Ag '20
- Practical talk to foremen. G: D. Halsey. Ind Management 60:196-9 S '20
- Problem of the young engineer. D: Darrin. Heat & Ven 18:34-6 F '21
- Problems of employment and housing. G: M. Dunlop. Textile World 59:2875+ Ap 30 '21
- Produce more or shut down. Factory 25:1890-1 D 15 '20

- Production manager's solution of the labor problem. N. G. Shidle. Automotive Ind 44:1432-3 Je 30 '21
- Promoting team work through the ideal of service. il Automotive Ind 41:1228-9 D 18 '19
- Psychology in relation to industrial management. Eng & Contr 53:376-7 Mr 31 '20
- Psychology in the workshop. L. A. Pavay. Eng & Ind Management 5:214 F 17 '21
- Puncturing the "gotta swell job now" bubble. H. D. Kemperton. Ind Management 61:211-12 Mr 1 '21
- Putting across a campaign for greater production. il Factory 24:1133-7 Ap 15 '20
- Putting cooperation on a business basis. C. A. Lippincott. Factory 26:482-3 F 15 '21
- Putting pep into production. J. P. Brunt. il Factory 27:34-6 Jl '21
- Reducing the labor turnover. W: A. Rockenfield. Mach 26:1053-4 Jl '20
- Reducing the labor turnover by developing the individual. N. G. Shidle. Automotive Ind 42:1015-17 Ap 29 '20
- Relations between employer and employee. W: A. Rockenfield. Mach 26:916 Je '20
- Relations of managers to employees. R. G. Murbach. Paper 29:19-20+ S 28 '21
- Restoring the office personnel of a public utility company. P. W. Herring. Am Gas Assn Accounting sec v 2:12-22; Discussion. 22-33 '20
- Savings association as an aid to management. C. L. Walker. il Factory 25:1715-18 D 1 '20
- Scientific management. H: Atkinson. Eng & Ind Management 5:569-71; 6:97-8+ My 19, Jl 28 '21
- Selling democracy to the workers; management at the Rockland finishing co., Garberville, N.Y. il Textile World 59:1839+ Mr 12 '21
- Selling the sales force to the plant employees. W: Frank. Am Mach 53:625 S 30 '20
- Silent spokesmen in the factory. R. Scott. Gen Elec R 23:229-31 Mr '20
- Some common-sense management plans. F. Beard. System 40:171-2 Ag '21
- Some observations on man-power engineering. C: F. Dingman. Eng N 85:72-4 Jl 8 '20
- Standard performance of office forces. M. W. Osgood. Eng & Contr 53:76-7 Ja 21 '20
- Standard practice in personnel work. E. J. Bengé. 286p H. W. Wilson co. '20
- Standardizing the job. M. R. Lott. chart Factory 23:1290-2; 24:54-5, 286-8 D '19-F 1 '20
- Standards of service in the public utility. J: D. Kuster. J Elec 43:502-3 D 1 '19
- Study, co-operation, dividends and success. R. Waldo. Eng & Contr 53:220 F 25 '20
- Subordinate's measure of his boss. H. M. Riley. Am Gas Eng J 113:197-9 S 11 '20
- Teaching our workers to work. M. W. Osgood. il System 40:423-6+ O '21
- Teaching workers to think production. C. Chisholm. Factory 26:40-2 Ja 1 '21
- Teamwork should win worker. W. Drew. Iron Tr R 67:1611-13 D 9 '20
- They can have my right arm—. H. Botsford. Ind Management 62:156 S '21
- Today's labor problems. C: Piez. Factory 26:1059-61 My 1 '21
- True Americanism rules workers' life. W. G. Welborne. Iron Tr R 67:1751 D 23 '20
- Unconsidered factors in shop management. P. Kreuzpointner. Ind Management 59:70-2 Ja '20
- Using movies in the war on waste; what was accomplished at the National register company's plant. A. Pittman. il Factory 24:961-3 Ap 1 '20
- Value of the personal record. C. S. Bundesman. chart Ind Management 58:380 N '19
- What about your labor force when business picks up? how 30 manufacturers are planning for the future. il Factory 26:831-4 Ap 1 '21
- What kind of a boss are you? R. Dickinson. Ptr Ink M 3:19-20+ Ag '21
- What kind of personality has your plant? N. G. Shidle. Automotive Ind 43:722-3 O 7 '20

Employment management—Continued

- What makes a labor policy successful?; industrial relationships at the Greenfield tap & die corporation. N. G. Shidle. *Automotive Ind* 43:970-3 N 11 '20
- What personality means to the worker. J. E. Langendorfer. *Ind Management* 61:14 Ja 1 '21
- What the workers think about management. A. Fry. *Ind Management* 60:322-7, 437-40 N-D 1 '20
- White motor company labor policy worth serious analysis. N. G. Shidle. *chart Automotive Ind* 43:820-4 O 21 '20
- Why our men resisted the strike fever. A. T. Hunt. *il Factory* 25:1222-3 O 15 '20
- Working force. H. Diemer and others, eds. 67p La Salle extension university, Chicago '21
- Wrong methods made right. *System* 40:296+ S '21

See also Absenteeism; Applications for positions; Athletics; Bonus system; Bulletin boards; Bulletins; Dental service, Industrial; Efficiency, Industrial; Employees; Employees, Training of; Employees, Transportation of; Employees as stockholders; Employees' magazines; Employees' representation in management; Employment agencies; Employment departments; Employment systems; Factory bands; Factory management; Foremen; Forums, Industrial; Industrial management; Industrial relations; Job analysis; Labor turnover; Lunch rooms and cafeterias; Medical service, Industrial; Organization in industry; Priestman plan; Rest periods; Sick leave; Suggestion systems; Tardiness; Vacations; Welfare work in industry; Woman—Employment; *also* National association of corporation training

Advertising aids

- Building workman morale by advertising. H. Botsford. *Iron Age* 107:131 Ja 13 '21
- Human engineering in production. E. Wera. *Ptr Ink* 114:145+ Mr 24 '21
- Right sort of publicity for the plant. F. H. Williams. *Ind Management* 61:32 Ja 1 '21
- Where employees advertise their company to themselves. S. C. Lambert. *Ptr Ink* 111:135-6+ Ap 1 '20

See also Industrial relations—Advertising aids

Bibliography

- Bibliography of employment management. (Employment management ser. no. 9) Fed Bd for Vocational Educ Bul 51:1-117 Je '20
- Employment management. H. G. T. Cannons. p. 96-104 *Bibliography of industrial efficiency and factory management*, Routledge '20
- Guide and bibliography for labor managers. L. S. Lyon and M. R. Freedman. *Ind Management* 60:385 N '20

Incentives

- Comparison of wage incentive systems and the 100 per cent. time premium. L. V. Estes. *Ind Management* 60:210-17 S '20
- Helping workers to be proud of their skill. N. G. Shidle. *Automotive Ind* 44:762-3 Ap 7 '21
- "I am producing more" contest that doubled output. C. W. Ferguson. *il Factory* 26:332-4 F 1 '21
- Incentives to better workmanship appeal to a variety of instincts. N. G. Shidle. *Automotive Ind* 44:712-14 Mr 31 '21
- Interest of the worker is necessary to production. H. Tipper. *Automotive Ind* 43:532-3 S 9 '20
- Making employees interested in their work. H. D. Kitson. *Am Mach* 52:983-5 My 6 '20
- Making work fascinating as the first step toward reduction of waste. W. N. Polakov. *il Mech Eng* 43:731-4+ N '21
- Our men help us keep our promises. D. M. Perrill. *il Factory* 27:616 N '21
- Power of pride in improving punctuality. G. O. Swartz. *il Ind Management* 61:212-15 Mr 1 '21

- Pride in job and pride in craft displayed. R. Dickinson. *Ptr Ink* 111:108-9 Je 17 '20
- Production methods in shipbuilding; how incentive systems increase output. W. B. Ferguson. *Ind Management* 60:409-12 D '20
- Production value of industrial incentives. H. Tipper. *Automotive Ind* 44:1172-3 Je 2 '21
- See also* Bonus system

Study and teaching

- Employment management and industrial training. (Employment management ser. 4) Fed Bd for Vocational Educ Bul 48:1-106 '19

Employment managers

- Employment managers as vocational counselors. H. D. Kitson. *Ind Management* 61:211 Mr 1 '21
- Investment in courtesy. R. S. Clark. *Ind Management* 60:72-3 Jl '20
- What makes managers. J. H. Hammond. *Factory* 26:27-9 Ja 1 '21

Employment of children. *See* Child labor

Employment of women. *See* Woman—Employment

Employment service council of Canada

- Meeting, Ottawa, Sept. 23-24. *Can Eng* 39:409 O 7 '20

Employment systems

- Art of interviewing. *Ind Management* 60:247-8, 273-7, 310-11, 338-40 S-N '20
- Art of interviewing. A. H. Rodrick. *Am Mach* 54:1084-5 Je 23 '21
- Art of interviewing. A. Schleimer; A. B. Wadleigh; J. T. Crawford. *Ind Management* 61:312-15 Ap 1 '21
- Building a better force of workers: gaging applicants' skill will help you pick workers better suited to the job; four trade tests. E. S. Bengel. *Factory* 25:1237-9 O 15 '20
- Centralizing responsibility for employment and labor relations. *Elec Ry J* 56:1114-15 N 27 '20
- Character analysis by the observational method as used in the selection of employees. M. A. Lee. *il Sibley J* 35:22-8 F '21
- Choosing men through employment departments. H. Tipper. *Automotive Ind* 45:782-3 O 20 '21
- Choosing the office personnel. *Eng & Ind Management* 5:125-6+ Ja 27 '21
- Efficient system of hiring men. R. J. Waldo. *chart Mach* 28:135-7 O '21
- Employment bureau for trainmen. *il Elec Ry J* 56:278-9 Ag 7 '20
- Employment by mail. H. M. Fitz. *Am Mach* 54:917 My 26 '21
- Employment department and the plant publication. J. T. Bartlett. *Am Mach* 53:287 Ag 5 '20
- Employment department increases efficiency of office personnel. N. G. Shidle. *Automotive Ind* 43:576-8 S 16 '20
- Employment department—the front door of industry. E. S. Cowdrick. *Ind Management* 62:314-16 N '21
- Employment manager's task. R. J. Waldo. *Textile World* 58:2256+ O 2 '20
- Explanations that help. A. L. Baur. *Factory* 26:1342+ Je 1 '21
- False starters. J. D. Hackett. *Am Mach* 53:905-6 N 11 '20
- Fewer mistakes in selecting employees. W. S. Dutton. *Factory* 26:38-9 Ja 1 '21
- Foreman and the personnel department. C. W. Rice. *Sibley J* 34:122-7 S '20
- Hire-and-keep employment plans. *Factory* 24:378+, 556+, 904+, 1234+; 25:232+, 982+, 1440+; 26:858+; 27:210+ F 1-15, Mr 15, Ap 15, Jl 15, S 15, N 1 '20, Ap 1, Ag '21
- Hiring and placing men; methods followed at works of American rolling mill co. S. R. Rectanus. *Iron Age* 107:705-6 Mr 17 '21; *Same*. *Iron Tr R* 68:970-1 Ap 7 '21
- Hiring the salesman who makes good. R. Giles. *Ptr Ink* 113:3-4+ O 7 '20
- How of an employment department. M. R. Lott. *Factory* 24:798-800, 956-9, 1148-51 Mr 15-Ap 15 '20

Employment systems—Continued

- How the employment manager can cut factory costs. *Factory* 25:1571-3 N 15 '20
- Hunting psychologists. *Am Mach* 53:231 JI 29 '20
- Industrial training and selection of personnel. C. R. Dooley. *Chem & Met Eng* 25:692-5 O 12 '21
- Information for employees relative to working conditions. R. J. Waldo. *Ind Management* 59:326-7 Ap '20
- Interviewing for selection. E. B. Morgan. *Ind Management* 61:159-64, 292-8 Mr 1, Ap 1 '21
- Introducing the new worker. E. A. Shay. *Ind Management* 62:123-4 Ag '21
- It's the first impression which counts. *Factory* 25:1239 O 15 '20
- Keeping a string on old employees. R. N. Phelps. *Factory* 26:1415 Je 15 '21
- Keeping employees in line for promotion. R. I. Clegg. *Iron Age* 107:761-3 Mr 24 '21
- Keeping your force at work. A. M. Simons. *Factory* 26:192-3 Ja 15 '21
- Letting the worker pick his job. H. F. Porter. *Factory* 26:1306-7 Je 1 '21
- Making it easy to find the right technical men. I. W. Litchfield. *Factory* 25:1232-4 O 15 '20
- Methods of hiring and training men. H. S. Day. *Elec J* 17:447-51 O '20
- Mistakes in employment departments. E. H. Fish. *Ind Management* 59:327-30 Ap '20
- Overcoming the too-far-from-the-plant handicap in hiring; busses to bring workers from nearby towns, a dormitory for girls, and timely advertising. J. J. Phoenix. *il Factory* 25:696-8 S 1 '20
- Pension for workers when the plant is idle; the United diamond works. J. Henle. *Ptr Ink* 116:121-2 Ag 18 '21
- Personal card. C. G. Hobart. *Ind Management* 60:153-5 Ag '20
- Personnel department filing system. E. J. Benge. *chart Ind Management* 59:160-2 F '20
- Picking men for jobs in the transportation department. H. H. Norris. *Elec Ry J* 58:607-8 O 8 '21
- Plain talk for executives. *Ind Management* 62:157-9 S '21; *Comment.* J. H. Hopwood. 62:265 N '21
- Practical personnel management—the quitting before they start problem. E. S. Morgan. *Ind Management* 59:421-4 My '20
- Progress in industrial personnel. E. J. Benge. *chart Iron Age* 105:541-3 F 19 '20
- Putting the right man in the right job. *il Textile World* 59:866-7+ F 5 '21
- Rejecting the applicant. G. A. Shenkle. *Ind Management* 62:313-14 N '21
- Selecting employees by tests. H. A. Richmond. *Ind Management* 60:150-2 Ag '20
- Selection plans to reduce replacements. R. J. Waldo. *il Factory* 27:200-1 Ag '21
- Service department of Tennessee copper co. J. N. Houser. *Min & Met* 172:17 Ap '21
- Some things I have learned about employment departments. R. Waldo. *Ind Management* 60:454-5 D 1 '20
- Spotting the right man on your waiting list. G. D. Halsey. *Ind Management* 60:66 JI '20
- Standardization without understanding is harmful. H. Tipper. *Automotive Ind* 44:720-1 Mr 31 '21
- Successful employment agent. T. Leyden. *Ind Management* 60:277 O '20
- Value of industrial good will. D. Wolf. *Ind Management* 59:325-6 Ap '20
- Visualizing employment records. W. S. Wells. *charts Ind Management* 60:67-70 JI '20
- What items should the job specification include? E. J. Benge. *Ind Management* 59:330 Ap '20

See also Ability tests; Applications for positions; Employees; Employment agencies; Employment management; Labor turnover; Physical examinations

Advertising

- Advertise to overcome prejudice against department store employment. J. K. Novins. *Ptr Ink* 114:118+ F 24 '21

- Advertises nationally to obtain girl workers. *Ptr Ink* 115:95-6 My 5 '21
- Advertising and the high cost of hiring. *Ptr Ink* 110:116+ Mr 4 '20
- Advertising for workers; does it help or hurt your labor supply? *Factory* 25:376-8 Ag 1 '20
- Attracting just the right sort of people by help-wanted advertising. *Ptr Ink* 112:96+ S 2 '20
- Fur industry recruits apprentices by advertising. *Ptr Ink* 111:52 Ap 29 '20
- Girls tell of pleasant working conditions, in big-space advertisements. *Ptr Ink* 112:81-2 JI 1 '20
- Going after the worker when he feels good. W. W. Rodgers. *Ptr Ink* 113:150+ N 11 '20
- Half-page education in labor problems. C. L. Manson. *Ptr Ink* 111:81-2 Je 24 '20
- Hard work proves a drawing card in help wanted advertising. R. Dickinson. *Ptr Ink* 113:138+ O 7 '20
- How they invite better workers. H. D. Kemperton. *Ind Management* 60:328 N '20
- Manufacturer recruits employees in campaign of display advertising. *Ptr Ink* 110:61-2+ F 26 '20
- Message from Nellie. *Ptr Ink* 111:120 Ap 1 '20
- New ally of the employment manager; getting the neighborhood school children to boost the plant. D. Wolf. *Factory* 25:365-6 Ag 1 '20
- Putting punch into help wanted ads. F. H. Williams. *Am Mach* 53:611-12 S 30 '20
- Selling the job employees in big advertisements. *Ptr Ink* 111:125-6 My 6 '20
- See also* Farm labor, Advertising for

Emulsification

- Determination of resistance of lubricating oils to emulsification. *diags Am Soc T M Pro v* 20 pt 1:416-23; *Discussion.* 424-6 '20
- Gelatin as an emulsifying agent. H. N. Holmes and W. C. Child. *Am Chem Soc J* 42:2049-56 O '20
- Preventing emulsification in oil-circulation systems in power plants. R. E. Langston. *il Power* 52:740-1 N 9 '20
- Reduction of emulsified nitro-compounds; some extensions of the method. A. Lapworth, L. X. Pearson and R. D. Haworth. *Chem Soc J* 119:765-77 Je '21; *Abstract.* *Chem & Met Eng* 25:338 Ag 24 '21
- Surface tension of certain soap solutions and their emulsifying powers. M. G. White and J. W. Marden. *J Phys Chem* 24:617-29 N '20
- Emulsions**
- Bubbles, drops and grains. W. D. Bancroft. *Sci Am M* 1:366-9 Ap '20
- Colloid chemistry of petroleum. F. W. Padgett. *Chem & Met Eng* 25:189-92 Ag 3 '21
- Les colloïdes; préparation, propriétés, applications. H. Vigneron. *Génie Civil* 78:525-7 Je 18 '21
- Common characteristics of crude petroleum emulsions. E. E. Ayres, jr. *J Ind & Eng Chem* 13:1011-13 N '21
- Convenient method for the determination of water in petroleum and other organic emulsions. E. W. Dean and D. D. Stark. *il diags J Ind & Eng Chem* 12:486-90 My '20
- Corrosion protective action of certain colloidal solutions. W. J. Huff. *Chem & Met Eng* 25:865-6 N 9 '21
- Emulsifying agents in oil-field emulsions. J. L. Sherrick. *J Ind & Eng Chem* 13:1010-11 N '21
- Emulsions with finely divided solids. T. R. Briggs. *J Ind & Eng Chem* 13:1008-10 N '21
- Experiments on emulsions. T. R. Briggs and others. *J Phys Chem* 24:120-6, 147-60 F '20
- Oil-field emulsions. J. L. Sherrick. *diag J Ind & Eng Chem* 12:133-9 F '20
- Oil field practice in handling crude oil emulsion. S. Born. *J Ind & Eng Chem* 13:1013-14 N '21
- Production of transparent emulsions. T. M. Rector. *Chem Age* 29:408 O '21

Emulsions—Continued

- Recovering petroleum from emulsions by chemical treatment. R. R. Matthews and P. A. Crosby. *J Ind & Eng Chem* 13:1015-16 N '21
- Review of the literature of emulsions. A. W. Thomas. *J Ind & Eng Chem* 12:177-81 F '20
- Separation of fixed oils from soap-water emulsions. E. E. Ayres, jr. *il Chem & Met Eng* 22:1057-62 Je 9 '20
- Sharples process for the dehydration of water gas tar emulsions. *Am Gas Assn Technical sec v* 2:447-50 '20
- Studies in emulsions; the reversal of phases by electrolytes, and the effects of free fatty acids and alkalis on emulsion equilibrium. S. S. Bhatnagar. *Chem Soc J* 119:61-8 Ja '21
- See also Colloids
- Enabling acts**
- House legislation in the United States. *Am Arch* 118:408 S 29 '20
- Enamel and enameling**
- Application of decoration to art metal ware; enameling. A. F. Saunders. *il Metal Ind* 19:313-14 Ag '21
- Application of electric heat to vitreous enameling. L. E. Barringer. *il Am Cer Soc J* 4 pt 1:461-7 Je '21
- Application of manufactured gas in the vitreous enamel industry. C. C. Krausse. *diags Am Gas Assn Commercial sec v* 2:119-41; Discussion. 141-50 '20
- Automatic electric enameling oven. A. E. Holloway and H. L. Garbutt. *J Elec* 46:517 My 15 '21
- Automatic electric enameling oven installed at Forderer cornice works, San Francisco. E. Kramer. *il Elec J* 18:82-3 Mr '21
- Une cause de soufflure des émaux de faïenceries. J. Bartolet and J. Martinet. *Chimie & Ind* 5:651-2 Je '21
- Causes and control of fish scaling of enamels for sheet iron and steel. R. R. Danielson and W. H. Souder. *il Am Cer Soc J* 4:620-54 Ag '21
- Classification of enamels for sheet steel. R. R. Danielson. *Am Cer Soc J* 3:961-70 D '20
- Combining quality with efficiency in fender enameling. J. E. Schipper. *il Automotive Ind* 45:270-2 Ag 11 '21
- Data on the composition of arsenic enamels for copper. B. T. Sweely. *Am Cer Soc J* 4:350-6 My '21
- Electric cleaning of metals for enameling purposes. W. C. Lindemann. *Am Cer Soc J* 3:252-5 Mr '20
- Electric heat raises enameling output; new vitreous enameling furnace. J. W. Carpenter. *il Elec W* 77:873-5 Ap 16 '21
- Electric vitreous enameling oven. C. W. Mehling and J. W. Carpenter. *Am Cer Soc J* 4:271-6 Ap '21
- Enamel investigations at the Bureau of standards. *Chem & Met Eng* 22:810 Ap 28 '20
- Enameled steel manufacture; development of glass-lined steel containers. C. H. Jones. *il Chem & Met Eng* 25:883-6 N 9 '21
- Enameler's art. *Brass W* 17:235 Ag '21
- Enameling in the automobile industry. M. R. Armstrong. *il charts Elec J* 18:6-9 Ja '21
- Enamels division meeting of the American ceramic society. *Chem & Met Eng* 24:419-20 Mr 9 '21
- Enamels for sheet iron and steel. J. B. Shaw. *il U S Bur Stand Tech Pa* 165:1-88 '20
- Fish-scaling. J. B. Shaw. *Am Cer Soc J* 3:489-97 Je '20
- Fish scaling in enamels for sheet steel. *Sci Am* 122:604 My 29 '20
- How the Chinese make their beautiful enamel-work. S. J. Hall. *il Sci Am* 122:247+ Mr 6 '20
- Melting glass with atmospheric burners. J. E. Bullard. *Gas Age* 47:74-5 Ja 25 '21
- Metallography of the oxy-acetylene weld as affected by enameling. E. P. Poste. *il Am Cer Soc J* 4:546-57 Jl '21
- Papers on enameling before the Chicago section, American ceramic society. *Chem & Met Eng* 22:1107 Je 16 '20

- Porcelain enameling furnaces. C. G. Armstrong. *il Chem & Met Eng* 24:486-8 Mr 16 '21
- Preparing sheets for enameling. R. R. Danielson. *Iron Tr R* 66:1399-1401 My 13 '20
- Some relations of composition to solubility of enamels in acids. H. F. Staley. *Am Cer Soc J* 4:703-17 S '21
- Titanium enamels. R. D. Landrum and L. J. Frost. *Am Cer Soc J* 3:316-21 Ap '20
- Use of zinc sulphide for white and luminous enamels. J. Schaefer. *Am Cer Soc J* 4:75-6 Ja '21
- When electricity fires the enamel ware. C. W. Mehling and J. W. Carpenter. *il Sci Am* 125:204 S 17 '21
- Where gas enters in the enamel industry. G. C. Shadwell. *Am Gas Eng J* 113:21-4+ Jl 10 '20
- Wonders of the enameler's art. J. H. Davies. *Sci Am M* 4:28 Jl '21

Bibliography

- Reading list on vitreous enameling on iron and steel. C. J. West. *Am Cer Soc J* 4:47-64 Ja '21 [Reprinted by Arthur D. Little, Inc., Cambridge, Mass.]

Patents

- United States patents relating to enamels with special reference to enamels for iron and steel. C. J. West. *Am Cer Soc J* 3:893-9 N '20 [Reprinted by Arthur D. Little, Inc., Cambridge, Mass., in Bibliographic ser. no. 7, p. 21-7]

Enameled ware

- Development of American clays. S. R. Winters. *il Sci Am* 122:487 My 1 '20
- Materials and methods used in the manufacture of enameled cast-iron wares. H. F. Staley. *diags plans U S Bur Stand Tech Pa* 142:1-158 '19; Abstract. *Foundry* 48:98 F 1 '20
- Relative action of acids on enamels. *il Am Cer Soc J* 3:560-7 Jl '20
- Encoppering. See Guns (ordnance)
- Energy. See Force and energy
- Engels copper mining company
- Operations of the Engels copper mining company. A. B. Parsons. *il diags Min & Sci P* 123:151-8, 183-94 Jl 30-Ag 6 '21
- Engine houses. See Roundhouses
- Engine terminals. See Locomotive terminals

Engineering

- Art in structures. G. S. Binckley. *Eng N* 85:1024-6 N 25 '20; Discussion. F. H. Frankland. 85:1104-5 D 2 '20
- Broader application of engineering methods in public affairs. B. H. Peck. *Ry R* 67:856-9 D 4 '20
- Building for the future. *Sci Am* 122:416 Ap 17 '20
- Common sense and engineering. J. E. Aldred. *Am Mach* 53:839-42 N 4 '20; Excerpts. *Eng N* 85:18-20 Jl 1 '20
- Common sense in engineering. W. M. McFarland. *Am Mach* 53:989-94 N 25 '20; Excerpt. *Can Eng* 39:257-8 Ag 19 '20
- Engineer is business missionary. E. C. Kreutzberg. *Iron Tr R* 68:25-8 Ja 6 '21
- Engineering and construction organization for rapid work. I. W. McConnell. *Eng & Contr* 54:287-9 S 22 '20
- Engineering as a profession and the value of an engineering education. H. M. Crane. *Soc Auto Eng J* 8:496+ My '21
- Engineering as prosperity insurance. G. O. Smith. *Eng & Contr* 53:109-10 Ja 28 '20
- Engineering in the woodworking industries. *il Mech Eng* 43:85-101; Discussion. 101 F '21
- Financial engineering. O. B. Goldman. 271p Wiley '20
- Future of the engineering profession. *Engineering* 110:803 D 17 '20
- Genesis of architectural engineers. E. A. Roth. *Arch & Bldg* 53:69-70 S '21
- Mechanics' handbook. 7th ed. 330p International textbook co., Scranton, Pa. '20
- 1920 uneventful in engineering. *Eng N* 86:1 Ja 6 '21

Engineering—Continued

Observations on the human side of engineering. W. W. Horner. *Munic Eng* 60:228-9 Je '21

Present position of engineering. B. Geen. *Eng N* 84:673 Ap 1 '20

Relation of engineering to drainage. S. H. M'Crory. *Eng & Contr* 54:573-4 D 8 '20; Same. *Can Eng* 40:310 Mr 17 '21

Relation of housing to engineering. *Munic Eng* 59:210+ D '20

Some fundamentals of engineering economics. D. B. Rushmore. map *Gen Elec R* 22:820-4 N '19

See also Aeronautics; Aqueducts; Arches; Architecture; Automobile engineering; Blasting; Breakwaters; Breakwaters, Air; Bridges; Building; Building materials; Canals; Chemical engineering; Civil engineering; Construction equipment; Curves; Dams; Dikes (engineering); Docks; Drainage; Dredging; Drilling and boring (earth and rocks); Earthwork; Efficiency, Industrial; Electric engineering; Embankments; Engineers; Engines; Foundations; Girders; Grouting; Harbors; Haulage; Hydraulic engineering; Irrigation; Lighting; Machinery; Marine engineering; Masonry; Mechanical drawing; Mechanical engineering; Mechanical handling; Mechanics; Mensuration; Mining engineering; Models; Municipal engineering; Public works; Pumping; Railroad engineering; Railroads—Construction; Reclamation of land; Reservoirs; Rivers; Roads; Sanitary engineering; Sea walls; Standardization; Standards, Engineering; Steam engineering; Steam engines; Strains and stresses; Strength of materials; Subways; Surveying; Tunnels and tunneling; Water supply engineering; *also* headings beginning Engineering

Bibliography

Bibliography of the literature of historical engineering to 1640. *Engineer* 130:484 N 12 '20

Cassier's engineering abstracts. Classified monthly bibliography published in two installments on alternate weeks in *Engineering and industrial management*

Catalogue of books and periodicals in the library. 91p Public service corp. of New Jersey, Newark '20

Monthly list of recent engineering articles of interest (May 1st to August 1st, 1921). *Am Soc C E Pro* 47[Soc. aff.]:684-717 Ag '21 (continued in monthly nos.)

New technical books. Published quarterly. New York public library

Technical books of 1919. D. Hendry, comp. Pratt institute free library, Brooklyn, N.Y. 28p '20

Technical books of 1920. D. Hendry, comp. Pratt institute free library, Brooklyn, N.Y.

Costs

Comparison of pre-war and post-war production costs in engineering. R. J. A. Pearson. *Engineering* 111:537-40 Ap 29 '21; Same. *Eng & Ind Management* 5:713-15, 740-2; 6:11-13 Je 23-Jl 7 '21; Abstract. *Elec R (Lond)* 88:637-8 My 20 '21

Cost factors of consulting engineering practice. C. H. Young. *Munic Eng* 61:17-20+ Jl '21

Engineering costs. F. Walker. *Eng & Ind Management* 5:486-90 Ap 28 '21; Discussion. 5:578 My 19 '21

Definitions

Defining words, exemplified by engineering. *Eng & Contr* 53:29-30 Ja 14 '20

Definition of engineering needed as basis for license laws. W. H. Drane. *Eng N* 85:40 Jl 1 '20

Four definitions of engineering. *Eng & Contr* 53:7 Ja 7 '20

Study of definitions of professional engineer and engineering. A. D. Flinn, A. W. Kiddle and H. W. Craver. *Eng & Contr* 54:96-102 Jl 28 '20; Excerpts. *Can Eng* 39:213-15 Ag 5 '20

2,000-year old definition of an engineer. *Eng & Contr* 53:83 Ja 21 '20

History

History of engineering. C. Matschoss. *Eng N* 85:415-16 Ag 26 '20

Links in the history of engineering. R. Jenkins. *Engineer* 124:493; 125:311-12, 445-6, 486, 488-9, 492; 126:52, 333-4, 534-6; 127:471, 536-7; 128:507-8; 129:162-4, 519-20 D 7 '17, Ap 12, My 24, Je 7, Jl 19, O 18, D 20 '18, My 16, 30, N 21 '19, F 13, My 21 '20

Needed; a history of engineering. R. Fleming. *Eng N* 84:322-4 F 12 '20

Needed—a history of engineering. C. Prelini. *Eng N* 84:580 Mr 18 '20

President's address at summer meeting of the Newcomen society. *Engineer* 131:636-8 Je 17 '21

Study and teaching

Introducing the freshman to engineering. G. A. Stetson. *Eng Educ* 11:59-60 O '20

Opportunities for the study of engineering at American higher institutions. 8p U.S. Bureau of education '20

See also Engineering colleges; Engineering education

Tables, calculations, etc.

Errors of approximate rules for I-beam capacities. E. Piercy. *Eng N* 84:686 Ap 1 '20

Handbook of engineering mathematics. W. E. Wynne and W. Spraragen. 2d ed., rev. and enl. 282p Van Nostrand '20

Interconversion tables and chart for units of volume and weight, and energy. *Chem & Met Eng* 24:434 Mr 9 '21

See also Equations, Cubic; *also* subdivision Tables, calculations, etc., under various headings, e.g. Earthwork—Tables, calculations, etc.; Electric engineering—Tables, calculations, etc.; Hydraulics—Tables, calculations, etc.; Lighting—Tables, calculations, etc.

Terminology

Confusion of engineering terms. C. A. Joerger. *Power* 54:226 Ag 9 '21; Discussion. 54:338 Ag 30 '21

Canada

Engineering legislation in Canada. F. S. Keith. *Eng N* 86:21-4 Ja 6 '21

Generation of engineering in Canada. R. O. Wynne-Roberts. *Can Eng* 38:170-2 Ja 29 '20

Colombia

Engineering in Venezuela and Colombia. J. L. Crane. *Eng N* 86:907-8 My 26 '21

Germany

What engineers are doing in Germany. E. J. Mehren. *il Eng N* 85:562-5 S 16 '20

Great Britain

Iron, steel, coal, and engineering. *Engineer* 129:2-4, 29-31 Ja 2-9 '20

Iron, steel, coal and engineering trades in 1920. *Engineer* 131:2-5, 31-4 Ja 7-14 '21

Netherlands

Making the most of limited natural resources in Holland. E. J. Mehren. *il diag maps Eng N* 85:761-5 O 14 '20

Oregon

Biennial report. Oregon State board of engineering examiners, Salem '21

Pacific coast

Observations on a Pacific coast trip. F. C. Wight. *il Eng N* 85:1132-3, 1180-1, 1220-1, 1263-4; 86:27-8, 56-7 D 9 '20-Ja 13 '21

Rumania

Engineering and construction prospects in Roumania. R. S. Doman. *Eng N* 83:925-6 N 27 '19

Russia

Engineering in Russia. *Elec R (Lond)* 88:578 My 6 '21; Same. *Electrician* 86:555 My 6 '21

Engineering—Russia—Continued

Training and achievements of the Russian engineer. *il Min & Met* 167:21-3 N '20

Switzerland

Engineering activities in Switzerland. E. J. Mehren. *il Eng N* 85:615-16, 708-14 S 23, O 7 '20

Swiss technical notes. *Eng N* 86:856-7 My 19 '21

Texas

Engineering activities of the Houston district. *Am Soc C E Pro* 47[Soc. aff.]:467-73 My '21

United States

Inspiring outlook for American engineering; abstracts. M. L. Cooke. *Power* 52:680-1 O 26 '20; *Eng & Contr* 54:617-18 D 22 '20

National program for great engineering problems. H. Hoover. *Min & Met* 166:3-5 O '20; Same. *Eng & Contr* 54:258-9 S 15 '20; Same. *Eng N* 85:544-5 S 16 '20; Excerpts. *Am Mach* 53:788d-e O 21 '20

Venezuela

Engineering in Venezuela and Colombia. J. L. Crane. *Eng N* 86:907-8 My 26 '21

Engineering advertisers' association

Annual meeting, Chicago, March 8. *Ry R* 68:474 Mr 19 '21

Engineering colleges

Co-operation between engineering societies and educators in standardizing engineering education. J. H. Dunlap. *Munic Eng* 59:59-61 Ag '20

Coöperation between the preparatory schools, the engineering colleges and industries as viewed from the standpoint of the educator. A. M. Greene, jr. *Eng Educ* 11:5-17 S '20

Electrical engineering students increase. *Elec W* 77:141-2 Ja 15 '21

Engineer schools show increase in student registration. *Eng N* 85:1192 D 16 '20

Engineering college registration shows 4-per cent gain. *map Eng N* 86:1104-6 Je 30 '21

Engineering college vs. arts college. P. B. M'Donald. *Eng & Contr* 53:710-11 Je 23 '20

Engineering colleges and safety training. G. F. Blessing. *N E L A Bul* 7:819-20 N '20

Enrollment in engineering schools greater than in 1917. *Eng N* 84:10-11 Ja 1 '20

General status of technical education. *Soc Auto Eng J* 9:106 Ag '21

Relation of educational institutions to the industries. H. P. Talbot. *J Ind & Eng Chem* 12:943-7 O '20

Scientific research in the engineering schools. A. E. Kennelly. *il Elec W* 75:150-1 Ja 17 '20

Specialized curricula in engineering colleges. A. A. Potter. *Mech Eng* 42:127 F '20

Specialized training in college. W. S. Ayars. *Mech Eng* 43:56-7 Ja '21

What our engineering colleges owe our industries. R. Matthews. *Ind Management* 61:155-8 Mr 1 '21; Same. *Chem Age* 29:157-60 Ap '21

World of the imagination. P. B. M'Donald. *Eng & Contr* 54:172 Ag 18 '20

See also Engineering laboratories; *also* names of colleges, e.g. Cincinnati university, Cornell university—Sibley college, Harvard engineering school, Loughborough technical college, Massachusetts institute of technology, Robert college—Engineering school

Engineering contracts

As the engineer may direct. E. F. Ayres. *Eng & Contr* 54:170-1 Ag 18 '20

Contract clauses that tend to work a hardship on the contractor. R. A. Stone. *Eng & Contr* 53:528-9 My 5 '20

Contracts in engineering. J. I. Tucker. 2d ed. 331p McGraw-Hill '20

Contracts, specifications and engineering relations. D. W. Mead. 2d ed. 557p McGraw-Hill '20

Elements of specification writing. R. S. Kirby. 2d ed. rev. 153p Wiley '21

General conditions in electrical and other engineering contracts. W. S. Kennedy. Sweet and Maxwell, London. '20

Minimizing the risk in contracting and the engineer's part therein. W. B. King. *Eng N* 86:227-9 F 3 '21; Same. *Eng & Contr* 55:160-2 F 16 '21

See also Building contracts; Contracts; Contracts, Letting of; Pavements—Contracts; Refuse disposal—Contracts; Roads—Contracts; Sewerage—Contracts; Street lighting—Contracts; Waterworks—Contracts

Engineering council

Classification of engineers; committee report. *Am Inst E E J* 39:182-8 F '20; Same. *Eng & Contr* 53:41-5 Ja 14 '20; Same, without tables. *Mech Eng* 42:138-40 F '20; Same cond. *Eng N* 84:117-21 Ja 15 '20; Excerpt. *Ry Age* 68:440-1 F 6 '20

Engineering bulwark; the proposed standing army, for purposes of peace, of the men who know how to do things. R. L. Humphrey. *Sci Am* 123:176+ Ag 21 '20

Engineering council. E. H. Leslie. *Min & Sci P* 121:704 N 13 '20

Engineering council enters large sphere. J. P. Channing. *Min & Met* 168:17-18 D '20

History and future of Engineering council. A. D. Flinn. *Min & Met* 168:15-16 D '20

Meeting, Oct. 21. *Power* 52:721 N 2 '20

Personnel, purpose and work of committees of Engineering council. *Min & Met* 168:18-21 D '20

Registration of engineers; abstract of report of the committee. *Min & Sci P* 120:232-6 F 14 '20; *Mech Eng* 42:77-8 Ja '20; *Am Inst E E J* 39:188-90 F '20

Three years of engineering council accomplishment. *Elec W* 75:1196-7 My 22 '20

Engineering education

Broader training of engineers. W. I. Slichter. *Am Inst E E J* 39:44 Ja '20

Canadian demands in engineering education. C. H. Mitchell. *Eng N* 84:369-71 F 19 '20

College trained engineer. C. E. Magnusson. *Am Inst E E J* 40:730-6 S '21

College training for executives. J. W. Roe. *Ind Management* 58:458-61 D '19

Commercial engineering; report of a conference on business training for engineers and engineering training for students of business. G. L. Swiggett. (Bul. 1919, no. 58) 178p '20 U.S. Bureau of education, Washington, D.C.

Cooperation between education and industry from the viewpoint of the manufacturer. R. D. Chapin. *Good Roads* n s 20:119-20, 122-3 S 8 '20; Same cond. *Automotive Ind* 43:278-9 Ag 5 '20

Coöperation between engineering schools and the utilities. H. B. Shaw. *Ind Management* 60:377-80 N '20

Co-operative system of engineering education. E. K. Scott. *Elec R (Lond)* 89:107-8 Jl 22 '21

Distinctive features of a co-operative course in engineering. W. H. Timbie. *Eng N* 85:119 Jl 15 '20

Education of an engineer. R. W. Sorensen. *J Elec* 45:112-13 Ag 1 '20

Education of the engineer. R. S. Woodward. *Chem & Met Eng* 23:926-8 N 10 '20

Engineer in the making; symposium. *J Elec* 45:110-12 Ag 1 '20

Engineering as a profession and the value of an engineering education. H. M. Crane. *Soc Auto Eng J* 8:496+ My '21

Engineering courses should be of professional grade. W. H. Burr. *Eng N* 87:65-6 Jl 14 '21; Same. *Eng & Contr* 56:180-1 Ag 24 '21; Excerpts. *Soc Auto Eng J* 9:180-1 S '21; Discussion. *Eng N* 87:239-41, 248-9, 332-3, 376, 536-7, 578-9 Ag 11. 25-S 1. 29-O 6 '21

Engineering education. *Min & Sci P* 121:223-4 Ag 14 '20

Engineering education. P. B. McDonald. *Min & Sci P* 121:329 S 4 '20

Engineering education and life. C. T. Brady, jr. *Eng N* 84:31-2 Ja 1 '20

Engineering education at University college, London. *il diags plans Engineering* 109:339-42 Mr 12 '20

Engineering education in America. *Electrician* 84:611 Je 4 '20

Engineering in Japan. C. F. Mason. *Eng & Min J* 111:12 Ja 1 '21

Engineering education—Continued

- Engineering societies and engineering education. I. N. Hollis. Eng Educ 11:94-135; Discussion. J. L. Van Ornum. 135-8 N '20
- Engineering training as related to professional success. A. West. Can Eng 39:235-6 Ag 12 '20
- Essentials of an engineering education. Mech Eng 43:420-1 Je '21; Discussion. A. J. Wood. 43:622-3 S '21
- First annual conference on employment and education held Nov. 12 at Chicago under auspices of Am. association of engineers. Eng & Contr 54:520-1 N 24 '20
- How should the engineer be educated? views of prominent educators and of employers of engineers. Am Mach 54:1105-9 Je 30 '21
- Laboratory practice. F. W. Greve. Eng Educ 7:25-9 S '21
- Latin and Greek. W. H. Shockley. Eng & Min J 109:481-2 F 21 '20
- Liberal element in engineering education. G: F. Swain. Eng & Contr 52:733-4 D 24 '19
- La nécessité de l'instruction artistique pour l'ingénieur français; abstract. Umbdenstock. Génie Civil 78:465-6 My 28 '21
- Opportunities for the study of engineering at American higher institutions. (Higher educ. circ. 20) Sp '20 U.S. Bureau of education. Washington, D.C.
- Professional spirit in engineering education. C. R. Mann. Eng N 84:1242-4 Je 24 '20
- Profit and loss of engineering training. Electrician 85:439 O 15 '20
- Progress in engineering education at Columbia university. N. M. Butler. Eng N 84:823 Ap 22 '20
- Reflections on engineering and education. J: F. Hayford. Eng & Contr 52:545-7 N 5 '19
- Report of the conference on employment and education held by the American association of engineers, Chicago, Nov. 12, 1920. 48p American assn. of engineers, Chicago
- Requirements of the engineering industries and the education of engineers; the Schneider plan as applied to the cooperative plan between the General Electric and M.I.T. M. W. Alexander and D. C. Jackson. Mech Eng 43:391-5+ Je '21
- Some forces in engineering education. H. A. Watt. Eng N 84:771-3 Ap 15 '20
- Suggestions for improving fitness of engineering school graduates. Eng & Contr 56:393-4 O 26 '21
- Technical education of the civil engineer. Engineering 112:239 Ag 12 '21
- Technical training. J Elec 45:107-9 Ag 1 '20
- Tendencies in engineering education. P. F. Walker. Ind Management 58:445-7 D '19
- Training for leadership. W. F. M. Goss. Ry R 69:13-15 Jl 2 '21
- What is needed to develop good research workers. W. R. Whitney. il Elec W 75:151-3 Ja 17 '20

See also Apprentices; Engineering—Study and teaching; Engineering colleges; Engineering laboratories; Mining schools and education; Railroad engineering—Study and teaching; Surveying—Study and teaching; Technical education

Engineering equipment

- Purchase and erection of engineering equipment. A. S. Loizeaux. Power 52:70-2 Jl 13 '20; Same. Paper 27:24-5+ N 10 '20

Engineering ethics

- Code of ethics. Min & Sci P 121:4 Jl 3 '20; Same. Eng & Contr 54:177 Ag 25 '20
- Code of ethics. A. G. Christie. Am Soc Heat & V E J 27:156-9; Discussion. 159-61 Mr '21

- Code of ethics restated. M. E. Cooley. Mech Eng 42:704-5 D '20

- Code of practice and schedule of fees for structural engineers. Eng & Contr 54:603-5 D 22 '20; Same. W Soc E J 26:68-71 Mr '21

- Ethical and practical considerations regarding the engineering corporation. Eng N 86:1109-11 Je 30 '21

- Gratuitous professional advice. Eng N 86:330 F 24 '21

- Proposed code of ethics for contractors; submitted at New Orleans convention of the Associated general contractors. Eng N 86:257-8 F 10 '21

- Report of special committee of A. S. M. E. on code of ethics. Mech Eng 42:123-4 sec 2 S '20; Same. Ry R 66:894-5 My 29 '20; Same. Chem & Met Eng 22:1042 Je 2 '20; Same. Iron Tr R 66:1627 Je 3 '20; Same. Eng & Min J 109:1325 Je 12 '20; Same. Eng N 84:1261 Je 24 '20; Same. Min & Sci P 120:901 Je '19 '20; Same. Elec W 76:8 Jl 3 '20; Discussion. Mech Eng 42:591 O '20

- Toronto engineers framing new code of ethics. Can Eng 39:597-9 D 9 '20

- True spirit of engineering. Power 53:751 My 10 '21

See also Engineers—Public relations

Engineering experiment stations

See also Illinois university—Engineering experiment station; United States—Mines, Bureau of—Experiment stations

Engineering foundation

- Annual report for sixth year. Am Inst E E J 40:348-50 Ap '21

- Engineering foundation: its work and needs. A. D. Flinn. Min & Sci P 122:86-7 Ja 15 '21

- Engineering foundation seeks large endowment. Mech Eng 42:598 O '20

- Relations, policy and work. Ry R 67:404-5 S 11 '20; Iron Age 106:572 S 2 '20

Engineering institute of Canada

- Questions of policy for Engineering institute of Canada. R. O. Wynne-Roberts. Can Eng 39:415-16 O 7 '20

- 7th general professional meeting. Niagara Falls, Sept. 16-18. Can Eng 39:370-4 S 23 '20; Eng N 85:624-5 S 23 '20

- 33d annual convention, Montreal. Can Eng 38:187-91 F 5 '20

- 35th annual meeting, Toronto, Feb. 1-3. Can Eng 40:190a-6+, 206-7 F 3-10 '21; Eng N 86:275-6 F 10 '21

- Toronto engineers' policy discussion. Can Eng 39:446-7 O 21 '20

Engineering laboratories

- Central research laboratory of the General motors company. J. E. Schipper. il Automotive Ind 44:900-1 Ap 28 '21

- Engineering education at University college, London. il diags plans Engineering 109:339-42 Mr 12 '20

- Laboratories of the Hydro-electric power commission of Ontario. Can Eng 39:276+ Ag 26 '20

- New Mechanical engineering laboratory, College of engineering, University of Illinois. C: R. Richards. il plan Mech Eng 42:110-13+ F '20

- Products of the Rudge-Whitworth research laboratory. il Engineer 131:430-1 Ap 22 '21; Engineering 111:487-8 Ap 22 '21

See also Electric laboratories; Metallurgical laboratories; Testing laboratories

Bibliography

- Chemical and engineering laboratories. C. J. West. J Ind & Eng Chem 12:295-6 Mr '20; Same. Am Arch 117:295-6 Mr 3 '20

Engineering law

- Amendments to draft of bill to be introduced in Ontario legislature. Can Eng 40:369 Ap 7 '21

- By-laws prepared by Manitoba association of professional engineers. Can Eng 39:389-91 S 30 '20

- Case against engineering practice by corporations. Eng N 86:724-5 Ap 28 '21

- Engineering legislation in Canada. F. S. Keith. Eng N 86:21-4 Ja 6 '21

- Engineering profession act. Province of Alberta. Can Eng 39:160-2 Jl 15 '20

- Ethical and practical considerations regarding the engineering corporation. Eng N 86:1109-11 Je 30 '21; Discussion. E. Haupt. 87:204 Ag 4 '21

- Recent laws for the registration of engineers. Am Soc C E Pro 47[Soc. aff.]:518-39 My '21

Engineering law—Continued

- Recommended uniform law for registration of architects, engineers and land surveyors. 39p N '20 Engineering council, 29 W. 39th st, N.Y. [Reprinted from Proceedings, American society of civil engineers, October, 1920, page 767, and November, 1920, page 850]
- Report of Ontario committee on legislation. Can Eng 39:631-5 D 23 '20
- Saskatchewan's engineering profession act. Can Eng 39:615-18 D 16 '20
- Shall corporations and partnerships practice engineering? Eng N 86:518-20, 524-5 Mr 24 '21
- Test code for evaporating apparatus. Mech Eng 43:184-7 Mr '21
- Three power-test codes ready for A. S. M. E. Chicago meeting. Eng & Min J 111:635 Ap 9 '21
- Uniform law for registering engineers, architects and surveyors recommended by special committee engineering council. W Soc E J 25:sup26-32 O '20
- See also* Boilers—Laws and regulations; Building laws and regulations; Engineering contracts; Engineers—Licenses; Plumbing laws and regulations

Engineering libraries

- Co-ordination in libraries and abstracts; plan for consolidating in one catalogue books of various science libraries in London and suggestions for abstracting papers. A. B. Eason. Electrician 85:471-2 O 22 '20
- Importance of an office library. Eng & Contr 55:432 My 4 '21
- See also* American electric railway association—Library; Engineering societies' library, New York; Technical libraries

Engineering libraries, Private

- Consulting engineers' libraries. R. Canovan. Pub Works 49:285 S 25 '20

Engineering literature

- Co-ordination in libraries and abstracts; plan for consolidating in one catalogue books of various science libraries in London and suggestions for abstracting papers. A. B. Eason. Electrician 85:471-2 O 22 '20; Discussion. P. Dunsheath. 85:570 N 12 '20
- Introduction to the literature of historical engineering to the year 1640. E. W. Hulme. Engineer 130:483-4 N 12 '20

Engineering offices

- Calculating machines save time and insure accuracy. D. J. Baker. il Coal Age 18:435-8 Ag 26 '20

Accounting

- Accounting records for consulting engineers. A. L. Mullergren. Eng N 87:685-7 O 27 '21
- Cost factors of engineering practice. C. H. Young. Eng & Contr 55:81-4 Ja 26 '21; Same cond. Eng N 86:542-3 Mr 31 '21
- Simple accounting system for an engineering office. G. N. Pfeiffer. Eng N 85:154 JI 22 '20

See also Electric contractors—Accounting

Engineering periodicals

- Getting the full value of engineering periodicals. P. Thompson. Eng N 87:456 S 15 '21
- Growing practice of training engineering students to read current periodicals. Eng & Contr 53:144-5 F 11 '20
- Industrial magazines and labor conditions. H. E. Cleland. Chem & Met Eng 21:682-3 N 26 '19
- What will the American society of civil engineers do with its proceedings? Eng N 85:774-5 O 21 '20

See also Technical periodicals

Engineering progress (periodical)

- German propaganda through a new engineering journal. Elec W 78:320 Ag 13 '21

Engineering reports

- Hints on the writing of engineering reports. D. W. Mead. Eng N 85:891-2 N 4 '20; Discussion. 85:947-8, 1055, 1102-3, 1248 N 11, 25, D 2, 23 '20

- How to conduct bond campaigns for municipal improvements. R. E. McDonnell. Munic Eng 58:36, 38+ Ja '20; Same. Eng & Contr 53:279-80 Mr 10 '20

- Writing of engineering reports. C. B. Breed. Eng & Contr 55:88 Ja 26 '21

See also Municipal engineering—Reports

Engineering research

- Engineering research. *See* monthly numbers of Mechanical engineering
- Illuminating laboratory research and developments. W. D'A. Ryan. il Elec R 78:779-81 My 14 '21
- Research on the Pacific coast and at the naval experiment station at Annapolis. Mech Eng 42:50-4 Ja '20
- Research the bond between the university and industry. A. E. White. Soc Auto Eng J 8:497-500; Discussion. 500-1 My '21
- Strength and suitability of engineering materials. C. F. Jenkin. Engineer 130:200-1 Ag 27 '20
- \$30,000 contribution for coöperative research. Mech Eng 42:588 O '20
- See also* Aeronautic research; Electric research; Engineering laboratories; Highway research; Industrial research; Laboratories; Mining research; Scientific research; United States—Mines, Bureau of—Experiment stations

- Engineering service for business (United States Bureau of chemistry) Organization. Am Inst E E J 39:959 N '20

Engineering societies

- A. A. E. will not support national societies' plan for comprehensive body. J. H. Morgan. Eng N 84:52 Ja 1 '20
- Chinese and American engineers form an association in Peking. Min & Met 168:45 D '20
- Coming national engineers' organization. L. C. Marburg. Power 51:557 Ap 6 '20
- Constructive effort versus destructive criticism and inactivity in professional societies. L. Metcalf. Boston Soc C E J 7:157-68 My '20; Same abr. Eng & Contr 54:214-15 S 1 '20
- Democratic representation in proposed society federation. M. L. Cooke. Eng N 84:439 F 26 '20
- Engineering center of the British Empire. E. J. Mehren. Eng N 84:1213-14 Je 17 '20
- Engineering educator's opportunity in engineering organization. W. E. Bullock. Eng Educ 11:72-5 O '20
- Engineering societies and engineering education. I. N. Hollis. Eng Educ 11:94-135; Discussion. J. L. Van Ornum. 135-8 N '20
- Engineering society organization in Great Britain. E. J. Mehren. Eng N 85:227-8 JI 29 '20
- First congress of engineers. Eng & Min J 109:1322-4 Je 12 '20
- First step toward federation of engineering societies. Mech Eng 42:198-9 Mr '20
- Functions of engineering societies in industry. E. Hopkinson. Mech Eng 42:(sec 2)28-9 F '20
- General engineers' union. J. W. Richards. Eng & Min J 109:504 F 21 '20
- How engineers are affiliated at Spokane. J. C. Ralston. Eng N 84:436 F 26 '20
- Important experiment in society management. Eng N 86:881 My 26 '21
- Interesting the younger men in society activities. L. Metcalf. Eng N 84:830 Ap 22 '20
- National organization of engineering societies. A. H. Rogers. Min & Met 161:3-4 My '20
- National society of engineers. Power 51:229-30 F 10 '20
- Organization of an engineering society. M. L. Cooke. Mech Eng 43:323-5+ My '21
- Organization of an engineering society discussed at A.S.M.E. spring meeting. Mech Eng 43:538-40 Ag '21
- Pre-conference reflections; what the societies have accomplished to date in non-technical work. Eng N 84:1074 My 27 '20
- Problem of handling the external relations of engineering societies. Eng N 84:487-8, 534-5 Mr 4-11 '20

Engineering societies—Continued

- Proceedings of the joint engineering societies' dinner April 19, 1920. W Soc E J 25:285-311 My 5 '20
- Professional sections. C: E. Lucke. Mech Eng 42:303-4 My '20
- Progress of engineering societies in 1920. C. W. Rice. Power 53:22 Ja 4 '21
- Proposed engineering federation. Eng N 84:1039 My 27 '20
- Proposed federation of engineering profession. C. Townley. Am Inst E E J 39:280-2 Mr '20
- St Louis members offer substitute plan for unified national body. Eng N 84:147-8 Ja 15 '20
- Ultimate aim of engineering organization. L. E. Ayres. Eng N 84:918-19 My 6 '20
- Unionization of engineers. Eng & Min J 109:685 Mr 20 '20
- See also Aviation clubs; Electric engineering societies; also names of societies, e.g. American society of mechanical engineers, Boston society of civil engineers, Engineering institute of Canada, Federated American engineering societies
- Engineering societies' library, New York**
- Recataloging of the Engineering societies library, New York. H. W. Craver. Mech Eng 43:64-5 Ja '21; Same abr. Min & Met 161:11-12; 168:23-4 My, D '20
- Engineering standards. See Standards, Engineering**
- Engineering standards association, Canadian.**
- See Canadian engineering standards association
- Engineering standards committee, American.**
- See American engineering standards committee
- Engineers**
- Address of Herbert Hoover before the Federation of engineering societies. Sibley J 34:176-9 D '20
- Address to the students' section. A. P. Trotter. Inst E E J 58:117-22 Ja '20
- American engineer in Mexico. D: Stock. Ind Management 61:84 F 1 '21
- Coming, the engineer. Eng & Contr 53:551 My 12 '20
- Co-operation among engineers. F. H. Newell. Eng & Contr 52:732-3 D 24 '19
- Crossover practice; an argument on the issues of the Pittsburgh bridge case. F. C. Shenehon. Eng N 84:1254 Je 24 '20
- Defining the status and scope of the executive in engineering. S: M. Vauclain. Coal Age 18:131-2 Jl 15 '20; Same. Eng & Contr 54:160-1 Ag 18 '20
- Encourage young engineers to enter railway organizations. H. H. Johnson. Elec J 18:449-50 O '21
- Engineer. J: H. Hammond. 194p Scribner '21
- Engineer a failure as a manager. P. Cabot. Eng N 87:692 O 27 '21
- Engineer and contractor—mutual use, not abuse. S. H. Wright. Eng N 85:1166-7 D 16 '20
- Engineer and eminent domain; legal and engineering problems in condemnation procedure analyzed. C: R. Harte. Elec Ry J 57:851-2 My 7 '21
- Engineer and unionism. R. M. Hosea. W Soc E J 25:sup22-3 Mr 20 '20
- Engineer, his training, work, and legal status. F. S. Grogan. Inst E E J 58:523-4 Je '20
- Engineer in foreign trade; technical and business qualifications demanded of federal representatives for special investigators. R. S. Mac Elwee. Eng N 86:959 Je 2 '21
- Engineer in industry. E: A. Deeds. Soc Auto Eng J 7:331-3 O '20
- Engineer in industry. A. C. Purday. Engineer 131:385 Ap 8 '21
- Engineering and adventure. P. B. McDonald. Eng N 84:17-18 Ja 1 '20
- Engineering aristocracy blamed for present status of technical men. J. L. Harrison. Eng N 83:1071-2 D 25 '19; Discussion. E. M. Goldstine. 84:343 F 12 '20
- Engineers and the law. T. P. Alexander. Eng N 85:1151-2 D 9 '20; Same. Eng & Contr 54:566 D 8 '20
- Engineers and the price system. T. Veblen. 169p B. W. Huebsch, New York '21
- Engineers as statisticians. F. H. Plaisted. Eng & Contr 53:313-14 Mr 24 '20
- Engineers—from the business man's point of view. H. L. Ferguson. Eng N 85:34-5 Jl 1 '20; Same abr. Eng & Contr 54:428 O 27 '20
- Engineer's part in the shaping of national prosperity. G: O. Smith. Coal Age 17:1263-4 Je 17 '20; Same. Min & Sci P 121:243-4 Ag 14 '20
- Engineer's place in the industry. H: M. Crane and others. Soc Auto Eng J 8:502-5 My '21
- Engineer's place in town planning. T: Adams. Can Eng 40:363-4 Ap 7 '21
- Factors necessary for highest engineering success. Engineer 132:74 Jl 15 '21
- Field for engineers as statisticians. Eng & Contr 53:255-6 Mr 10 '20
- Future opportunities and obligations of engineers. G: W. Fuller. Boston Soc C E J 6:341-52 D '19
- Gauging the engineer. W. S. Finley, jr. Sibley J 35:100-7+ Ag '21
- Get the young engineer while the getting is good. M. B. Lambert. Elec Ry J 57:1137-8 Je 18 '21
- Greatest living engineers. Elec Ry J 57:765 Ap 23 '21
- How engineers are affiliated at Spokane. J. C. Ralston. Eng N 84:436 F 26 '20
- How one consulting engineer got a job; sidelights on the business side of engineering in designing schoolhouses for the city of New York. E. E. Seelye. il diags plan Eng N 86:940-2 Je 2 '21; Discussion. E. A. Fraser. 87:161 Jl 28 '21
- In union—not confederacy—lies future strength of engineering profession. H: B. Smith. Eng N 83:1024-5 D 11 '19
- Inaugural address as president of A. I. M. E. H. Hoover. Min & Met 159:(sec 1) 3-7 Mr '20; Same. Chem & Met Eng 22:349-52 F 25 '20; Same. Eng & Contr 53:202-4 F 25 '20; Same. Eng & Min J 109:497-500 F 21 '20; Same. Min & Sci P 120:315-18 F 28 '20; Excerpts. Eng N 84:418-20 F 26 '20
- Industry and the engineer. J: H. Hammond. Administration 2:289-94 S '21
- Leaf from Lenin's policy on manpower. F. A. Kellor. Eng N 84:517-20 Mr 11 '20; Discussion. D. E. Gelwix. 84:787 Ap 15 '20
- Machinist-engineer. B. Ashford. diags Power Pl Eng 25:766-7 Ag 1 '21
- Making better engineers of college men; power to think is more important than mind filled with facts. Elec W 78:567-9 S 17 '21
- Making of an engineer. W: Ellis. Eng & Contr 52:751-2 D 31 '19
- New engineering ideals. I. O. Baker. Am Soc C E Pro 47[Soc. aff.]:510-16 My '21; Same abr. Eng & Contr 56:235-6 S 7 '21; Excerpts. Pub Works 51:279-80 O 8 '21; Soc Auto Eng J 9:306 N '21; Abstract. Engineer 132:459 O 28 '21
- Opportunities for American engineers in foreign countries. F: Lavis. Eng & Contr 53:662-3 Je 9 '20; Same cond. Eng N 84:1024-5 My 20 '20
- Opportunity and responsibility of the engineer. S: Gompers. Min & Met 172:18-19 Ap '21
- Position of the engineer in industry. G. R. Haigh. Mech Eng 43:275 Ap '21
- Problems of the young engineer. D: Darin. Heat & Ven 18:34-6 F '21
- Proceedings of the joint engineering societies' dinner. April 19, 1920. W Soc E J 25:285-311 My 5 '20
- Professional side of labor problem; status of the engineer in employment discussed at a conference of the American association of engineers. Iron Age 106:1338-9 N 18 '20
- Proper position of the engineer in industrial and political circles. E. C. De Segundo. Electrician 84:59 Ja 16 '20
- Qualities of success. M. L. Brown. Power 51:674 Ap 27 '20

Engineers—Continued

- Qualities of the young engineer. L. B. Atkinson. Electrician 86:277-8 Mr 4 '21
- Question in factory management. L. L. Thwing. Am Mach 54:422 Mr 10 '21; Discussion. A. W. Forbes. 54:739 Ap 28 '21
- Real functions of the engineer. G. W. Bacon. Elec W 75:259 Ja 31 '20
- Recognition and remuneration of the engineer. Eng & Contr 52:729 D 24 '19
- Recognition of the engineer. B. J. Arnold. W Soc E J 25:167-8 Mr 5 '20
- Recognition to be gained through writing. R. Canavan. Eng & Contr 54:22-3 JI 7 '20
- Record of engineers suggested by doctors' system. E. Judson. Eng N 84:875-6 Ap 29 '20
- Relations between land surveyors and engineers. W. D. Jones. Munic Eng 60:103-4 Mr '21
- Salaries and qualifications for Manitoba engineers. Eng N 85:1191-2 D 16 '20
- Scholarship and eminence in engineering. R. Walters. Eng Educ 11:361-76 Ap '21 [Published separately by American association of collegiate registrars, Lehigh University, South Bethlehem, Pa.]
- Shifting lines. Sci Am 123:244 S 11 '20
- Should professional engineers organize union? W: Snaith; P: Gillespie. Can Eng 38:281-5 Mr 11 '20
- Some moral factors in the engineer's career. A. R. Wolff. Stevens Ind 38:152-7 Ap '21
- Specifications used by utility company in employing engineers. N E L A Bul 8:491-2 Ag '21
- Straight talk on success in life. C: M. Schwab. Eng N 84:681-4 Ap 1 '20
- Study of definitions of professional engineer and engineering. A. D. Flinn, A. W. Kiddle and H. W. Craver. Eng & Contr 54:96-102 JI 28 '20; Excerpts. Can Eng 39:213-15 Ag 5 '20
- Suggested remedies for some ills of the engineer. S. M. Swaab. Eng N 84:482-3 Mr 4 '20
- Trade unionism and engineers. C: A. Mullen. Can Eng 38:119-21 Ja 8 '20
- Training and achievements of the Russian engineer. il Min & Met 167:21-3 N '20
- Training of an engineer for overseas service. F. Lavis. Stevens Ind 37:135-41 Ap '20
- Trend toward the engineer. Eng & Contr 55:176 F 23 '21
- Union of technical engineers. Eng & Contr 53:362-3 Mr 31 '20
- Views on the engineer: colonial affairs and in war. L. Wood. Eng N 84:577-8 Mr 18 '20
- What an employer requires when engaging an engineer. F. D. Chase. Eng & Contr 54:515-16 N 24 '20; Same. Am Soc Heat & V E J 27:233-6 Mr '21; Same. Munic Eng 61:61-4 Ag '21
- What is an engineer? F: H. Newell. Ry R 66:798 My 15 '20
- What will engineers pay to improve their status? Eng N 83:492-3. 720-2. 894-5. 960-1 S 11, O 16, N 13, 27 '19
- Why do engineer graduates shun railway jobs? Ry Age 68:713-17, 758, 1049-50 Mr 5-12, 26 '20

See also Bridge engineers; Chemical engineers; Civil engineers; Engineering education; Engineering ethics; Engineering societies; Highway engineers; Industrial education; Marine engineers; Mechanical engineers; Mining engineers; Municipal engineers; Railroad engineers; State engineers; Steam engineers; Surveyors; Technical writing; *also* names of engineers, e.g. Isaacs, John D.

Advertising

- Preparation and distribution of engineering news items. R. W. Crum. Eng & Contr 56:340 O 5 '21
- Publicity for engineers; abstracts. Elec W 75:1363-4 Je 12 '20; Min & Met 163:15-16 JI '20

Directories

See also Western society of engineers

Fees

- Code of practice and schedule of fees for structural engineers. Eng & Contr 54:603-5 D 22 '20; Same. W Soc E J 26:68-71 Mr '21; Excerpt. Eng N 86:379-80 Mr 3 '21
- Engineering fees not excessive in government housing. C: P. Chase. Eng N 84:294 F 5 '20
- Fee schedule for consulting engineers. W. L. Benham. Eng N 84:878 Ap 29 '20
- Fees and services of practicing engineers. W. L. Benham. Can Eng 40:419-22 Ap 28 '21; Same abr. Eng & Contr 55:37-40 Ja 12 '21; Excerpts. Eng N 85:1266-7 D 30 '20
- Report of committee of the American association of engineers on fees for practicing engineers. Elec R 78:695-8 Ap 30 '21
- Report on services and fees of practicing engineers. Eng N 86:671 Ap 21 '21
- Schedules of engineering fees. Eng & Contr 53:160 F 11 '20; Same. Can Eng 38:425 Ap 29 '20
- Some problems of the practicing engineer. J. W. Cunningham. Eng & Contr 54:147-8 Ag 11 '20
- Various schedules of fees for consulting engineers. E. I. Mitchell. Eng N 85:941-2 N 11 '20; Same. bibliog Min & Met 169:15-17 Ja '21

See also Engineers—Salaries

Licenses

- Abstract of model law for licensing engineers. Min & Met 167:8-9 N '20
- Act incorporating the Manitoba association of professional engineers. Can Eng 38:385-7 Ap 15 '20
- Alberta bill for registration of engineers. Can Eng 38:324-7 Mr 25 '20; Complete act. 39:160-2 JI 15 '20
- Boston engineers report against licensing law. Eng N 87:104 JI 21 '21
- British Columbia's Engineering profession act: complete text. Can Eng 38:511-14 My 27 '20
- Colorado revises engineers' license law. Eng N 86:698 Ap 21 '21
- Does a license law help? Power 52:591, 833-4 O 12, N 23 '20
- Engineering legislation in Canada. F. S. Keith. Eng N 86:21-4 Ja 6 '21
- Engineering legislation making progress; British Columbia, Manitoba and Quebec acts passed. Can Eng 38:354-5 Ap 8 '20
- Engineering profession act of Nova Scotia. Can Eng 39:199-202 JI 29 '20
- Engineers' license examinations in different states. Eng N 85:1144 D 9 '20
- Evasion of licensing. Min & Sci P 123:80, 251-2 JI 16, Ag 20 '21
- Examinations for engineers' licenses. Eng & Contr 55:93 Ja 26 '21
- Is Massachusetts going to lie down. W: E. Dixon. Power 53:194 F 1 '21
- Joint registration laws. Arch Forum 33:232 D '20
- Licensing of engineers. Am Soc Heat & V E J 27:326-35 Ap '21
- Licensing of engineers. Min & Sci P 122:319-20; 123:332 Mr 5, S 3 '21
- Licensing of engineers; editorial. Min & Sci P 120:217-18 F 14 '20
- Licensing of engineers in Montana. Min & Sci P 122:297-8 F 26 '21
- Licensing of mining engineers. Min & Met 177:38 S '21
- Licensing of mining engineers. P. E. Barbour. Eng & Min J 111:857 My 21 '21
- Licensing water purification plant operators in New Jersey. C: H. Capen, jr. Eng N 86:1041-2 Je 16 '21
- Minnesota enacts weak license law. Eng N 86:783 My 5 '21
- National engineer's license law. Power Pl Eng 24:156-7 Ja 15 '20
- New Brunswick's Engineering profession act; text of bill. Can Eng 38:465-8 My 13 '20
- New Indiana license law. Eng N 86:604 Ap 7 '21
- New York law requires licensing of engineers. Mech Eng 42:574 O '20

Engineers—Licenses—Continued

- Proposed joint registration law for architects and engineers. R: E. Schmidt. Am Inst Arch J 8:131-2 Mr '20
- Reasons advanced against laws requiring registration of engineers. J: C. Trautwine, jr. Eng N 86:650 Ap 14 '21
- Recommendations made for engineer license law in Minnesota. Eng N 84:1115 Je 3 '20
- Recommended uniform law for registration of architects, engineers and land surveyors. 39p N '20 Engineering council, 29 W. 39th st, N.Y. [Reprinted from Proceedings, American society of civil engineers, October, 1920, page 767, and November, 1920, page 850]
- Registration of architects, engineers and land surveyors. Am Inst E E J 40:70-1 Ja '21
- Registration of engineers. B. B. Gottsberger. Min & Met 179:15-18 N '21
- Registration of engineers; abstract of report of the committee to Engineering council. Min & Sci P 120:232-6 F 14 '20; Mech Eng 42:77-8 Ja '20; Am Inst E E J 39:188-90 F '20
- Registration of Ohio engineers and architects. Pub Works 49:482-3 N 20 '20
- Saskatchewan's engineering profession act. Can Eng 39:615-18 D 16 '20
- State registering and licensing of engineers. T. L. Condon. Min & Met 157:(sec 1) 17-19 Ja '20
- State registration of engineers. T. L. Condon. W Soc E J 25:544-9 O '20; Excerpt. Eng N 85:38 Jl 1 '20
- Uniform law for registering engineers, architects and surveyors recommended by special committee engineering council. W Soc E J 25:sup26-32 O '20
- View on British registration of engineers. P. Griffith. Eng N 85:362-3 Ag 19 '20

Public relations

- Broader application of engineering methods in public affairs. B. H. Peck. Ry R 67:856-9 D 4 '20
- Engineer and public affairs. J: Wilson. Eng & Contr 53:693-4 Je 16 '20
- Engineer and the community. E. H. Sniffin. Sibley J 34:16-17 F '20
- Engineer and the public. Engineering 110:675 N 19 '20; Same. Eng & Contr 55:296 Mr 30 '21
- Engineer as a public servant. W. Beahan. Eng & Contr 52:703-4 D 17 '19
- Engineer in public service. W. S. Twining. Eng & Contr 53:550-1 My 12 '20
- Engineer to participate in public affairs; abstracts. C. Townley. Power 51:523 Mr 30 '20; Elec W 75:453-4 F 21 '20
- Engineering as insurance for future prosperity. G: O. Smith. Elec R 76:175-9 Ja 31 '20; Same cond. Eng & Contr 53:109-10 Ja 28 '20; Same cond. Power 51:480-1 Mr 23 '20
- Engineers in public service would gain by uniform classification. H. W. Levy. Eng N 85:669-70 S 30 '20
- Engineer's influence in public utilities. S: Insull. W Soc E J 25:358-63 My 20 '20; Abstract. Power 51:611 Ap 13 '20
- Engineer's relation to public questions. F. J. Miller. Mech Eng 42:336 Je '20
- Engineer's responsibility for efficient government. F: P. Gruenberg. Eng & Contr 52:623-5 N 26 '19
- Engineer's responsibility in social problems. R. W. Leonard. Eng N 84:366-8 F 19 '20
- Engineer's service to society. H. Hoover. Eng & Ind Management 5:270-2 Mr 3 '21
- Engineer's service to society. F. J. Miller. Mech Eng 43:1-4+ Ja '21
- Relation of the engineer to public health work. C. M. Baker. Eng & Contr 55:366-7 Ap 13 '21
- Relation of the professional technical man to civic progress. H: K. Holtzman. W Soc E J 25:66-9 Ja 20 '20
- Some phases of relationship of engineering societies to public service. H. Hoover. Am Inst E E J 39:1073-5 D '20; Same. Eng N 85:1053-5 N 25 '20; Same. Iron Age 106:1412-14 N 25 '20; Same. Am Mach 53:1061-3 D 2 '20; Same. Min & Met 168:3-7 D '20; Ex-

cerpts. Comm & Fin Chr 111:2104-5 sec 1 N 27 '20; Iron Tr R 67:1467-8 N 25 '20; Power 52:876-8 N 30 '20; Ry Age 69:933-5 N 28 '20; Chem & Met Eng 23:1077-80 D 1 '20; Mech Eng 42:722-3 D '20

Why engineers make successful city managers. C: E. Ashburner. Eng & Contr 56:102 Ag 3 '21

Relations with architects

- Architects join engineers in state federation in Minnesota. Eng N 85:43+ Jl 1 '20
- Architects' movement to improve relations with the engineers and with the public. Heat & Ven 17:37-9 F '20
- Architectural engineer: being a discussion of the inter-professional relations of the architect, the architectural engineer and the engineer. R. W. Yardley. Am Arch 117:27-30 Ja 7 '20
- Relation of engineer to architect. F. C. Shenhon. Eng N 84:174-5 Ja 22 '20; Same. Eng & Contr 53:224-5 F 25 '20
- Relationship between the architect and the engineer. K. Berle. Am Arch 119:4-5 Ja 5 '21

Salaries

- Classification and compensation of government federal engineers. Min & Met 161:9-10. My '20
- Classification of engineers; Engineering council committee report. Am Inst E E J 39:182-8 F '20; Same. Eng & Contr 53:41-5 Ja 14 '20; Same, without tables. Mech Eng 42:138-40 F '20; Same cond. Eng N 84:117-21 Ja 15 '20; Excerpt. Ry Age 68:440-1 F 6 '20
- Comparison of engineering work and salaries in Pacific coast cities. Eng N 84:18 Ja 1 '20
- Comparison of report of Congressional joint commission with report of Council committee on reclassification of salaries. Am Inst E E J 39:695-6 Jl '20; Same. Eng & Contr 54:15 Jl 7 '20; Excerpt (Table). Eng N 85:224 Jl 29 '20
- Compensation from the engineer's point of view. Eng N 84:946-7 My 13 '20
- Compensation of Chinese engineers. R. D. Goodrich. Eng N 84:1021 My 20 '20
- Compensation of engineers. O. C. Merrill. Can Eng 38:421-2 Ap 29 '20
- Compensation of engineers should be increased. Can Eng 38:248-51 F 26 '20
- Engineering profession and government technology. R. S. McBride. Chem & Met Eng 23:1265-7 D 29 '20
- Engineers in railroad wage award. Eng N 85:571-2 S 16 '20
- Engineers resent 1916 basis for 1919 salaries. Eng & Contr 52:542-3 N 5 '19
- Engineer's salary and present conditions. Mech Eng 42:195-7 Mr '20
- Federal engineers classified as to duties and pay. Eng N 84:780-1 Ap 15 '20
- Fixing the compensation of engineers. Am Mach 52:910-13 Ap 22 '20
- Incomes in engineering profession compared with others. Eng N 86:387 Mr 3 '21
- Increased compensation for engineering employees of New York city. Eng & Contr 54:427 O 27 '20; Same cond. Pub Works 49:438 N 6 '20
- Low pay of city and state engineers disclosed by answers to questionnaire. Eng N 84:217-21 Ja 29 '20
- Manitoba engineers pledged to salary schedule. Can Eng 39:505-8 N 11 '20
- Municipal engineers' salaries proposed by A. A. E. Eng N 84:898-9 My 6 '20; Same. Eng & Contr 53:499 Ap 28 '20
- New salary schedule urged for engineers in federal service. Eng N 84:561-2 Mr 18 '20
- Pay of professional engineers on railroads. Ry R 66:33-4 Ja 3 '20
- Proposed engineer salary scale in highway service. Eng N 83:1046 D 25 '19
- Proposed schedule of salaries for engineers in state highway service. A. N. Johnson. Munic Eng 58:9-11 Ja '20
- Recommended salaries for engineers in municipal service. S. C. Hadden. Munic Eng 59:17-21 Jl '20

Engineers—Salaries—Continued

- Report of the Classification and compensation committee to Engineering council. Am Mach 53:464-70 S 2 '20
- Salaries and qualifications for Manitoba engineers. Eng N 85:1191-2 D 16 '20
- Salaries of engineers in the service of the Massachusetts highway commission. Eng N 84:224 Ja 29 '20
- Salary increases of engineers in Iowa. Eng N 84:907 My 6 '20
- Standardization of compensation and classification for mechanical engineering, automotive engineering, ordnance engineering and for machinist work. Am Mach 52:855-8 Ap 15 '20
- Substantial increase in compensation of engineer employees in New York city. A. S. Tuttle. Min & Met 168:21-2 D '20
- Toronto engineers demand action on salaries. Can Eng 38:285-6 Mr 11 '20
- See also* Highway engineers—Salaries

War service

- Engineering battalions: their work in the war. A. W. Currie. Can Eng 38:203-10 F 12 '20
- Engineers, Chemical. *See* Chemical engineers
- Engineers, Industrial. *See* Industrial engineers
- Engineers, Mechanical. *See* Mechanical engineers
- Engineers' club of Philadelphia
- Engineers discuss burning of river coal and culm. Elec Ry J 56:1195 D 11 '20; Power 52:957-8 D 14 '20
- Engineers' exchange
- Engineers' exchange organized in Chicago. Power 53:487 Mr 22 '21
- Important organization for the assistance of engineering work. Eng & Contr 56:21-2 Jl 6 '21
- Engineers' society of western Pennsylvania
- Resolutions of Pittsburgh engineers on bridge design by architects. Eng N 84:223 Ja 29 '20
- Engines**
- Engine alignment. diags Locomotive 33:198-208 Jl '21
- Engine building in the United States. Iron Age 107:1526 Je 9 '21
- See also* Air engines; Airplane engines; Airship engines; Automobile engines; Bergsund engine; Blowers; Crankshafts; Diesel engines; Dynamobile; Farm engines; Fire engines; Fuel; Gas and oil engines; Governors (machinery); La Rhone engines; Locomotives; Marine engines; Pistons; Pumping machinery; Steam engines; Steam turbines; Turbines

Design

- Piston displacement, velocity and acceleration for reciprocating engines. J: L. Bogert. diags Marine Eng 25:983-9 D '20

Foundations

See Machinery—Foundations

Testing

- Testing of motive-power engines. R. Royds. 2d ed. 392p Longmans '20
- England, George, and company
- Short histories of famous firms; Hatcham ironworks, London. il Engineer 132:58-9 Jl 15 '21

England

See also Electric plants (central stations)—Great Britain; Hydroelectric plants—England; Roads—England

English channel

Contribution to the meteorology of the English channel. H. D. Grant. il diags Aeronautical J 25:25-38 Ja '21

English language

- Engineering English should mean good English. Elec W 77:974 Ap 30 '21; Same. Eng & Contr 55:606 Je 22 '21
- English diction. F. H. Teall. Inland Ptr 67:763-4 S '21

- Faulty English. F. H. Teall. Inland Ptr 64:430-1 Ja '20
- Flawless diction unknown. F. H. Teall. Inland Ptr 66:179-80 N '20
- Propaganda for pure English. F. H. Teall. Inland Ptr 66:756-7 Mr '21
- Various whims of purists. F. H. Teall. Inland Ptr 67:188-9 My '21
- See also* Commercial correspondence; Compound words; Spelling reform; Technical writing; Words

Business English

- Better business English. J: M. Manly and J: A. Powell. 217p Drake '21
- Business English and correspondence. R. Davis and C. H. Lingham. rev. ed. 400p Ginn '14-'21

Study and teaching

- Qualifications of the teacher of English for engineers. S. A. Harbarger. Eng N 85:159 Jl 22 '20

English language (for foreigners)

- Preparing industrial English lessons for the industries of Massachusetts. G: F. Quimby and C: H. Paull. il Ind Management 59:231-6 Mr '20

Engraving

- Commercial engraving and printing. C: W. Hackleman. 846p Commercial engraving pub. co., Indianapolis, Ind. '21
- Cutting out whites on the plate. Ptr Ink 117:49-50+ N 3 '21
- Engraving. T. W. Lascelles. 118p Pitman '20
- Line engravings that closely resemble product's appearance. T: Russell. Ptr Ink 116:44+ Jl 28 '21
- Print methods. P. J. Lemos. 8p School arts magazine, Worcester, Mass. '21
- Process engraving. S. H. Horgan. *See* monthly numbers of Inland printer
- What the advertiser & artist should know about reproduction. L. Kroeger, ed. 230p Linnings, 110 W. 40th st., New York '21
- See also* Ben Day process; Color printing; Etching; Lithography; Photoengraving; Wood engraving

Engraving (metal work)

- Application of decoration to art metal ware. A. F. Saunders. il Metal Ind 19:21-2 Ja '21

Engraving machines

- Cooke engraving and profiling machine. il diags plans Engineer 129:630, 631 Je 18 '20

Engravings**Printing**

- Economical way of using silver prints. Ptr Ink 112:118+ Jl 1 '20
- Safeguarding the line plate. Ptr Ink 112:57-8+ Ag 5 '20

Enolic compounds

- Eine neue methode zur titration von enolen in keto-enol-gemischen; (anwendungen der komplexchemie auf probleme der organischen chemie). W. Hieber. Deutsche Chem Gesell Ber 54:902-12 My '21

Entelodonts

- Entelodonts in the Marsh collection. E: L. Troxell. il Am J Sci 50:243-55, 361-86, 431-45 O-D '20

Entropy

- Entropy changes at low temperatures. G. E. Gibson, W. M. Latimer and G. S. Parks. Am Chem Soc J 42:1533-50 Ag '20
- Entropy of electron gas. R: C. Tolman. Am Chem Soc J 43:1592-1601 Jl '21
- Entropy of gases. R: C. Tolman. Am Chem Soc J 42:1185-93 Je '20
- Mass effect in the entropy of solids and gases. W. M. Latimer. Am Chem Soc J 43:818-26 Ap '21
- Principle of similitude and the entropy of polyatomic gases. R: C. Tolman. Am Chem Soc J 43:866-75 Ap '21
- Question of entropy. G. A. Goodenough. Mech Eng 43:690 O '21

Entropy—Continued

Temperature entropy diagrams for gas and oil engine cycles. G. B. Petter. diags *Engineering* 111:669-70 Je 3 '21

Third law of thermodynamics and the entropy of solutions and of liquids. G. N. Lewis and G. E. Gibson. *Am Chem Soc J* 42:1529-33 Ag '20

Turbine efficiency calculations; use of heat-entropy diagram. P. F. Christopher. *Power Pl Eng* 25:1039-42 N 1 '21

Enzymes

Chemistry of enzyme actions. K. G. Falk. 136p Chemical catalog co., New York '21

Lipolytic enzymes in olive oil. T. M. Rector. *J Ind & Eng Chem* 12:156-8 F '20

See also Diastase; Fermentation; Invertase; Phytase; Polyzime

Ephedrine

Synthesis of ephedrine, ψ -ephedrine, their optical antipodes and racemic compounds; abstract. E. Späth and R. Göhring. *Chem Soc J* 120 pt 1:45-8 Ja '21

Epicamphor

Epicamphor. W. H. Perkin, jr. and A. F. Titley. *Chem Soc J* 119:1089-1107 Jl '21

Eporeodons

John Day Eporeodons, with descriptions of new genera and species. M. R. Thorpe. bibliog *il Am J Sci* 3:93-111 Ag '21

Equations, Cubic

Nomographic solution of cubic equation. S. Okabe. *Eng N* 84:1249 Je 24 '20

Equations, Differential. *See* Differential equations

Equilibrium

See also Floating bodies

Equilibrium, Chemical. *See* Chemical equilibrium

Equipment trust. *See* Electric railroads—Equipment trust; Railroads—Equipment trust

Erbium

Concentration of the erbium earths. P. H. M.-P. Brinton and C. James. *Am Chem Soc J* 43:1397-1401 Jl '21

Erie board of commerce

Keeping out the wildcat stock. H. A. Davidson. *Nation's Business* 8:76+ S '20

Erie forge and steel company

War plant of Erie forge & steel co. S. G. Koon. *il Iron Age* 107:1595-1603 Je 16 '21

Erie railroad

Radical changes in Erie railroad organization. map *Ry Age* 68:540-1 F 20 '20

Reminiscences of the Erie electrification at Rochester. W. N. Smith. *Elec J* 18:40-1 Ja '21

Single-phase in thirteen years successful operation on the Erie. Q. W. Hershey. *il map Elec J* 17:460-3 O '20; Same. *Ry R* 67:540-2 O 9 '20

Eritrea

Eritrea; a Red sea Italian colony of increasing interest to American commerce. A. E. Southard. *U S Sp Cons Rep* 82:1-67 '20

Erlenmeyer, Friedrich Gustav Karl Emil, 1864-1921

Sketch. B. Lepsius. *Deutsche Chem Gesell Ber* 54:sup107-8; Bibliography. sup108-13 My '21

Erosion

Effect of erosion on mineralized areas in northern Sonora. G. J. Mitchell. *il Eng & Min J* 110:1081-2 D 4 '20

Erosional history of the driftless area. A. C. Trowbridge. *il diags maps Iowa Univ Studies in Natural History* 9:1-127 '21

Methods of checking erosion of farm lands in Iowa. M. H. Hoffman. *Eng N* 87:28 Jl 7 '21

Origin of rock tanks and charcos. K. Bryan. *il diags maps Am J Sci* 50:188-206 S '20

Stream bed enlargements in Kansas; eroded channels lead to culvert and bridge failures. D. Alkins, jr. *il diags Eng N* 85:882-3 N 4 '20

Errors, Theory of

Genesis of the law of error. F. Y. Edgeworth. *Philos Mag* 6th ser 41:148-58 Ja '21

Probability curve. W. L. Hart. diags *Am Water Works Assn J* 7:811-20 N '20

See also Probabilities

Erythrodextrin

Individuality of erythrodextrin. J. C. Blake. *Am Chem Soc J* 42:2673-8 D '20

Eskar

Anderson esker. J. R. Reeves. diags *Am J Sci* 50:65-8 Jl '20

Eskew, William

Master typographers of today. J. L. Frazier. *por Inland Ptr* 67:641-4 Ag '21

Eskimos

See also Igloos, Concrete

Implements

Copper implements of the copper Eskimo. D. A. Cadzow. *il Eng & Min J* 111:1024-7 Je 18 '21

Esparto

Improved process for the manufacture of esparto pulp. E. Arnould. *Paper* 26:22-3 Ag 18 '20

Paper from esparto fiber. *Paper* 28:15 Ap 6 '21

Esperanto

Essentials of Esperanto. W. R. Daingerfield. *J Elec* 44:32-3, 79-80, 129, 174 Ja 1-F 15 '20

For a single language. *Nation's Business* 8:72 S '20

International auxiliary language problem. W. Nichols. *Sci Am M* 3:365-8 Ap '21

Essential oils

American essential oils. G. A. Russell. *Chem Age* 29:413-15 O '21

Essential oil from andropogon iwarancusa, Jones, and the constitution of piperitone. J. L. Simonsen. *Chem Soc J* 119:1644-54 O '21

See also Flavoring extracts; Peppermint; Perfumery; Piperitone

Estates, Private

Automobile and the private estate. T. S. Rogers. diags *Arch Forum* 32:113-16, 171-4, 253-4; 33:23-5, 69-72 Mr-Ap, Je-Ag '20

Esterification

Application of Victor Meyer's esterification law to 2,6-xylic acid and its reduced derivatives. R. W. Hufferd and W. A. Noyes. *Am Chem Soc J* 43:925-35 Ap '21

Esters

Identification of acids; para halogen phenacyl esters. W. L. Judefind and E. E. Reid. *Am Chem Soc J* 42:1043-55 My '20

Influence of ester transposition in the determination of saponification numbers. A. M. Pardee and E. E. Reid. *J Ind & Eng Chem* 12:129-33 F '20

Preparation of esters by direct replacement of alkoxyl groups. M. Reimer and H. R. Downes. *Am Chem Soc J* 43:945-51 Ap '21

Die umesterung und ihre beziehung zur konstitution der fette. A. Grün. *Deutsche Chem Gesell Ber* 54:290-9 F '21

Estey organ company

To sell the customer you can't get to. R. Cole. *il Ptr Ink M* 2:35-6+ F '21

Esthetics

Basis of beauty. *il Am Arch* 119:263-4 Mr 9 '21

See also Art; Painting; Sculpture

Esthonia**Industries and resources**

Esthonian oil-shale industry to receive state aid. *Eng & Min J* 112:544 O 1 '21

Estienne, Henry, II, 1528-1598

Robert and Henry Estienne and the Estienne dynasty of printers. H. L. Bullen. *Inland Ptr* 67:198-200 My '21

Estienne, Robert, I, 1503-1559

Robert and Henry Estienne and the Estienne dynasty of printers. H. L. Bullen. *il Inland Ptr* 67:198-200 My '21

Estimates

- Cost estimating. N. F. Helmers. Good Roads n s 19:229-30+ My 5 '20
 Elements that must be considered in cost estimating. Eng & Contr 53:567-9 My 19 '20
 Estimates should parallel cost-keeping method. Automotive Ind 41:930-1 N 6 '19
 Evils of underestimating construction costs. W: E. Skinner. Munic Eng 59:6-8 J1 '20; Same. Can Eng 39:277-8 Ag 26 '20
 Expense of estimating. H: K. Kolsman. Eng & Contr 53:493 Ap 28 '20
 How do you figure contracts? D. S. Colburn. Concrete 16:196-7 Ap '20; Same. Eng & Contr 53:92 Ja 28 '20
 Include overhead expense in wage charge. Metal Work 94:214 Ag 13 '20
 Is it covered in the estimate? Metal Work 94:180-1+ Ag 6 '20
 Making estimating more than a guess. P. T. Harkness. il Factory 25:890-1 S 15 '20
 Making special products show a profit. H. S. Trecartin. Factory 25:526-7 Ag 15 '20
 Mental and moral qualifications of an estimator. D. F. Holtman. Eng & Contr 53:80-1 Ja 21 '20
 La prévision des prix de revient sur les chantiers de travaux publics. E. Pobeguvin. Génie Civil 76:157-9 F 7 '20
 Psychology of an estimate sheet. D: H. Cuyler. Dom Eng 92:280-1 Ag 7 '20
 Reasonableness and honesty of contractors' bids. G. H. Hailey. Eng & Contr 56:276 S 21 '21
 Weight table for estimating. F. W. Salmon. Am Mach 54:182-3 F 3 '21
 Why bidders go wrong! C: F. Dingham. Eng & Contr 56:148 Ag 17 '21
See also Bridges—Estimates; Building—Estimates; Concrete construction—Estimates; Labor cost; Plumbing—Estimates; Quantity system of estimating; Trestles—Estimates

Etching

- Deep etching of steel. H: S. Rawdon and S: Epstein. il Sci Am M 2:54-8 J1 '20
 Etching steel blades. Metal Ind 18:551 D '20
 Ferric sulphate as a new etching reagent in the metallography of aluminum. R. J. Anderson. Metal Ind 19:69-70 F '21
 Iron and steel etching solutions. R. S. Kerns. Foundry 48:444a, 484a Je 1-15 '20
 Marking tools by etching. E. A. Dixie. il diags Am Mach 53:1047-8 D 2 '20
 Metallographic etching reagents: for copper. H: S. Rawdon and M. G. Lorentz. il U S Bur Stand Sci Pa 399:641-68 '20
 Nonferrous etching solutions. E. J. Davis. Foundry 49:186a, 236a Mr 1-15 '21
 Satisfactory etching reagents. Chem & Met Eng 24:207 F 2 '21
 Use of ammonium persulphate for revealing the macrostructure of iron and steel. H: S. Rawdon. il U S Bur Stand Sci Pa 402:715-23 '20; Same. Iron Age 106:965-8 O 14 '20

Etchings

- Dance and architecture; etchings of dancers by Troy Kinney. Am Inst Arch J 8:322, 323-30 S '20

Ether

- Catalytic preparation of ether. A. Maihle and F. De Godon. Chem & Met Eng 22:329 F 18 '20
 Note on catalysis in the manufacture of ether. H. Schlatter. J Ind & Eng Chem 12: 1101-2 N '20

Ether (of space)

- Checking up Einstein: the proposed repetition of the Michelson-Morley experiment in search of evidence of ether drift. M. A. Henry. il diag Sci Am 122:646+ Je 12 '20
 Ether, light, and matter. O. Lodge. Philos Mag 6th ser 41:940-3 Je '21
 Relation of radiant energy to matter, space and time. J. D. Ross. diags Am Inst E E J 39:985-94 N '20
 Two sides of the ether puzzle. R. D. Rusk. il diag Pop Mech 34:371-2 S '20

Ethers

- Comparison of the activity of certain unsaturated groups with the activity of the allyl group in certain ethers. S. G. Powell and R. Adams. Am Chem Soc J 42:646-58 Mr '20
 Ethers derived from the addition products of the nitro-anilines and chloral. A. S. Wheeler and S: C. Smith. il Am Chem Soc J 43:941-5 Ap '21
 Research on pseudo-bases; dialkylamino-methyl alkyl ethers and sulphides. C: M. McLeod and G. M. Robinson. Chem Soc J 119:1470-6 S '21

Ethics, Business. See Business ethics

Ethics, Engineering. See Engineering ethics

Ethyl chloride

- Rate of evaporation of ethyl chloride from oils. C: Baskerville and M. Hirsh. J Ind & Eng Chem 13:322-3 Ap '21
 Technical applications of ethyl chloride. A. Henning. A S R E J 6:446-55 My '20

Ethyl chloroformate

- Action of ethyl chloroformate on tertiary cyclic amines [alkaloids]. J. Gadamer and F. Knoch. Chem Soc J 120 pt 1:579-81 Ag '21

Ethyl cyanoacetate

- Mechanism underlying the reaction between ethyl cyanoacetate and tautomeric substances of the keto-enol type. C. K. Ingold. Chem Soc J 119:329-41 Mr '21

Ethyl ether

- Solubility of ethyl ether in solutions of sodium chloride. P. C. L. Thorne. Chem Soc J 119:262-8 Mr '21

Ethyl hydrogen sulfate

- Ethyl hydrogen sulphate. H. B. Dunncliff and G. S. Butler. Chem Soc J 119:1384-92 S '21

Ethyl nitrate

- Action of the Grignard reagent on certain nitric esters. H. Hepworth. Chem Soc J 119:251-60 Mr '21

Ethylamine

- Conductivity and viscosity of solutions in dimethylamine, trimethylamine, ethylamine, diethylamine, triethylamine, and propylamine. H. M. Elsey. diags Am Chem Soc J 42:2454-76 D '20

Ethylene

- Action of the chlorides of sulphur on substituted ethylenes; the action of propylene on sulphur monochloride and the synthesis of $\beta\beta$ -dichlorodi-n-propyl sulphide. S: Coffey. Chem Soc J 119:94-8 Ja '21

- Ethyl alcohol from coke oven gas. E. Bury and O. Ollander. Am Gas Eng J 112:179-83 Mr 6 '20; Abstract. Gas Age 45:294-5 Ap 10 '20

- Formation of anthracene from benzene and ethylene. J. E. Zanetti and M. Kandell. J Ind & Eng Chem 13:208-11 Mr '21

- Industrial alcohol can be made from coke-oven gases. Coal Age 17:910 My 6 '20

- Interaction of ethylene and sulphur monochloride. F: G: Mann, W: J. Pope and R: H: Vernon. Chem Soc J 119:634-46 My '21

- Mechanism of the reaction between ethylene and sulfur chloride. J. B. Conant, E. B. Hartshorn and G. O. Richardson. Am Chem Soc J 42:585-95 Mr '20

- Method of extracting ethylene from coke oven gas on commercial scale developed. Am Gas Eng J 112:87-8 Ja 31 '20

- New by-product from coke-oven gas. Iron Age 106:13-14 J1 1 '20

- Preparation of ethylene by hydrogenation of acetylene. W: H. Ross, J. B. Culbertson and J. P. Parsons. diags J Ind & Eng Chem 13:775-8 S '21

- Propagation of flame in mixtures of ethylene and air. W: R. Chapman. Chem Soc J 119: 1677-83 O '21

- Reaction between selenium monochloride and ethylene. F. H. Heath and W. L. Semon. J Ind & Eng Chem 12:1100-1 N '20

Ethylene compounds

Interaction of sulphur monochloride and substituted ethylenes. W: J. Pope and J. L. B. Smith. Chem Soc J 119:396-400 Ap '21

Ethylenechlorohydrin

Schwefelhaltige abkömmlinge aus äthylen chlorohydrin. E. Fromm and A. Kohn. Deutsche Chem Gesell Ber 54:320-6 F '21

Ethylstannic acid

Ethylstannic acid and derivatives. J: G. F. Druce. Chem Soc J 119:758-63 My '21

Ethyluric acid. See Uric acid**Eucalyptus oils**

See also Piperitone

Eugenics

Our latest science—eugenics. A. A. Hopkins. Sci Am 125:273+ O 15 '21
Standardizing state eugenic effort. C. L. Carlisle. Sci Am M 2:364-5 D '20

Eugenol benzoate

Determination of the composition of mixtures of eugenol and isoeugenol benzoates by means of melting points. P. V. McKie. Chem Soc J 119:777-9 Je '21

Europe

See also Electric industries—Europe; Railroads—Europe

Description and travel

Troubles and joys of a traveler—homeward bound. E. J. Mehren. il Eng N 85:901-4 N 4 '20

Economic conditions

Business policies. Factory 40:34-5+ Jl '21
Conditions abroad. W. S. Kies. Comm & Fin Chr 111:1996-7 sec 1 N 20 '20

Conditions abroad now brighter than at any time in last two years. T. W. Lamont. Comm & Fin Chr 112:2590 Je 18 '21

Conditions in Europe. L: W. Douglas. Min & Sci P 123:64-6 Jl 9 '21

Deficits, debased currencies and shattered credit of Europe—cause and effect. F. W. Hirst. Comm & Fin Chr 113:116-18 sec 2 O 29 '21

Economic survey of certain countries specially affected by the war at the close of the year 1919. 118p Great Britain. Dept. of overseas trade, H. M. Stationery off., London '20

Effect of European conditions on American business. il Dom Eng 97:146-8 O 22 '21

Europe at the crossroads. P. M. Warburg. Comm & Fin Chr 111:2193-4 D 4 '20

Europe offers unparalleled opportunities to American energy. A. C. Bedford. Nat Pet N 12:35-6 D 8 '20

Evidence justifies hope for European recovery. J: Oakwood. Annalist 18:197-8 Ag 29 '21

General impressions of Europe. E. J. Mehren. Eng N 85:515-16 S 9 '20

Industrial conditions in Europe. A. C. Higgins. Am Mach 55:616-17 O 13 '21

Industrial outlook in Europe. A. Luchars. Mach 27:121-2 O '20

Is Europe a good risk? A. C. Bedford. System 39:172-3+ F '21

Post-war conditions in Europe, with some comparisons of American and European by-product coke-oven practice. J: I. Thompson. Eng Soc W Pa 35:427-44; Discussion. 445-8 D '19

Progress of the world's power industry in the European power field. L. W. Alwyn-Schmidt. Power Pl Eng 24:1020-3 N 1 '20

Recent impressions of industrial conditions in Europe. C. F. Dietz. Mach 26:611-13 Mr '20

Revival of industrial activity in Europe; relation to the development of the available sources of power supply. L. W. Alwyn-Schmidt. Power Pl Eng 25:205-7 F 15 '21

Shop and trade conditions in Europe. E. A. Dixie. Am Mach 54:78-80 Ja 13 '21

Sidelights on business conditions abroad. S: M. Vaucrain. Ry R 67:163-4 Jl 31 '20

To build a saner world. A. Geddes. Nation's Business 8:27-8 Je '20

See also Finance—Europe; Housing problem—Europe

Industries and resources

Selling machinery in Europe since the armistice. O. F. Allen. il Am Mach 54:393-7, 462-6 Mr 10-17 '21

Undamaged foundations promise revival of European trade. E. C. Eckel. Annalist 17:494 My 2 '21

See also Electric industries—Europe; Gas industry—Europe; Iron ores—Europe

Maps

Map of Europe at beginning of 1920. Ind Management 59:141 F '20

European war

Engineering during the great war. H. R. Sankey. Engineering 110:583-6 O 29 '20; Same. Engineer 130:418-19, 451-2 O 29-N 5 '20

Le réseau des chemins de fer de la Belgique et du Nord de la France, pendant la guerre. H: Marchand. Génie Civil 76:208-10 F 21 '20

Aerial operations

American ordnance production in the Great War. Engineer 132:268-9 S 9 '21

German air force in the great war. G: P. Neumann. 297p Hodder & Stoughton, London

Story of the part played by aviation with the British, German and American fleets. E. O. McDonnell. il Flying 8:905-11, 997-9; 9:33-5+ D '19-F '20

Truth about our aeroplane record. H. B. Hickam. Aerial Age 14:155-8 O 24 '21

Claims

Report by President Wilson regarding claims of Americans against German government. B. Colby. Comm & Fin Chr 112:1093-6 Mr 19 '21

Cost

Cost of war aviation only \$598,090,781; \$582,564,781 has been returned to U.S. treasury. Aviation 10:488-91, 524-5 Ap 18-25 '21

Cost of war to allies estimated at over 177 billion dollars. Comm & Fin Chr 112:1223-4 Mr 26 '21

Destruction of property

La destruction systématique par les Allemands des industries de la filature et du tissage et l'effort de reconstitution déjà réalisé. il Génie Civil 78:390-2 My 7 '21

Les destructions systématiques, par les Allemands, des usines métallurgiques du Nord et de l'Est de la France. il Génie Civil 77:385-91 N 13 '20

Devastation of France. Engineering 111:366-7 Mr 25 '21

Systematic destruction of Serbian railways by enemy armies. G. Gordon-Smith. il Ry R 67:225-7 Ag 14 '20

See also European war—Claims

Economic aspects

American industry in the war. B. M. Baruch. 421p U.S. War industries board, Washington, D.C. '21

Effect of the European war on the paper industry. R. B. Payne. Paper 28:208+ Ap 20 '21

Effect of the war on construction. P. Junkersfeld. il Elec W 75:114-15 Ja 17 '20

English view of the economic effect of the war on U.S. Annalist 17:110+ Ja 17 '21

History of post-war crises. H. H. Manchester. Am Mach 55:9-11 Jl 7 '21

La politique du fer au cours de la guerre; la question de Briey. Génie Civil 77:352-4 O 30 '20

Finance

Battle line of finance. J: Burnam. Nation's Business 9:14-15 N '21

Direct and indirect costs of the great world war. E. L. Bogart. 2d ed. rev. 338p Oxford '20

Financing of war as shown by British treasury figures. Comm & Fin Chr 111:1520 O 16 '20

European war—Finance—Continued

United States today the heaviest investor in the world war. *Annalist* 17:327-8 Mr 14 '21

Indemnities

See German indemnities

Naval operations

See also Jutland, Battle of

Peace and mediation

House passes Porter peace resolution. *Comm & Fin Chr* 112:2598-9 Je 18 '21

Knox peace resolution passed by Senate. *Comm & Fin Chr* 112:1933-5 My 7 '21

United States declares war with Germany and Austria at end. *Comm & Fin Chr* 113:140-1 Jl 9 '21

Results

Credit account. *Sci Am* 122:616 Je 5 '20

Submarine operations

American ordnance production in the Great War. *Engineer* 132:232-3 S 2 '21

Les sous-marins anglais pendant la guerre et la lutte contre les sous-marins allemands. A. Poidloué. *il diags map plan Génie Civil* 76:85-9 Ja 24 '20

Canada

Engineering battalions: their work in the war. A. W. Currie. *Can Eng* 38:203-10 F 12 '20

Germany

Dismantling the fortifications of Heligoland. *il Sci Am* 121:556-7 D 6 '19

Report of the activities of the German board of trade during the war with tabulated data on the wage conditions and accidents for the period 1913-1918. *Chem & Met Eng* 23:976-9 N 17 '20

United States

Truth about our aeroplane record. H. B. Hickam. *Aerial Age* 14:155-8 O 24 '21

War problems in minerals. *Eng & Min J* 112:500-2, 570-5, 651-6 S 24, O 8, 22 '21

War work of the Bureau of standards. *il U S Bur Stand Misc Pub* 46:1-299 '21; Abstract. *Am Mach* 54:1043 Je 16 '21

Evansville, Indiana**Water supply**

Results of pitometer survey of the Evansville water system. C. Streithof. *Munic Eng* 58:186, 188-9 Ap '20; Abstract. *Eng N* 85:253 Ag 5 '20

Evaporation

Discussion on reservoir evaporation. C. E. Grunsky. *J Elec* 47:29-30 Jl 1 '21

Equivalent evaporation. J. S. A. Johnson. *diags Power* 51:28-30 Ja 6 '20

Evaporation from Gatun Lake, Panama Canal zone. J. E. Hughes. *Eng & Contr* 56:123 Ag 10 '21

Evaporation from reservoirs. H. A. Barre. *J Elec* 46:489-90 My 15 '21

Evaporation from the standpoint of the hydraulic engineer. C. H. Lee. *J Elec* 46:490-1 My 15 '21

Evaporation from water surfaces. N. W. Cummings. *J Elec* 46:491-6 My 15 '21

Evaporation—its calculation and relation to boiler efficiency. A. F. Brewer. *Power* 54:296 Ag 23 '21

Factor of evaporation chart. M. W. Leonard. *chart Power* 54:428 S 13 '21

Figuring evaporation from temperature records. C. E. Grunsky. *J Elec* 46:23-6 Ja 1 '21

Measuring evaporation. S. R. Winters. *il Sci Am* 124:13 Ja 1 '21

Spontaneous evaporation. H. B. Weiser and E. E. Porter. *J Phys Chem* 24:333-41 My '20

Theory of atmospheric evaporation—with special reference to compartment dryers. W. H. Carrier. *chart J Ind & Eng Chem* 13:432-8 My '21

Volatilization losses of phosphorus during evaporations of phosphates with sulfuric acid or fusions with pyrosulfate. W. F. Hillebrand and G. E. F. Lundell. *Am Chem Soc J* 42:2609-15 D '20

See also Distillation; Drying; Drying apparatus; Evaporators; Petroleum—Evaporation losses

Evaporators

Appareil d'évaporation automatique, pour sucrerie, système Defasse. A. Defasse. *diag Génie Civil* 76:338 Ap 3 '20

Evaporation by vapor compression. B. Dunglinson. *diags Chem & Met Eng* 25:246-7 Ag 10 '21

Evaporator experiment station at the University of Michigan. W. L. Badger and P. W. Shepard. *il diags Chem & Met Eng* 23:159-64 Jl 28 '20

Improvement in evaporator design. R. V. Cook. *il Chem Age* 29:409-10 O '21

Increasing evaporator efficiency. F. T. Hobley. *diag Int Marine Eng* 25:70 Ja '20

Multiple effect evaporation. B. Dunglinson. *il diags Chem & Met Eng* 25:110-15 Jl 20 '21

Phosphoric acid evaporation. H. E. LaBour. *diags Chem & Met Eng* 24:466-8 Mr 16 '21

Studies in evaporator design. W. L. Badger, P. W. Shepard and E. M. Baker. *diags Chem & Met Eng* 23:237-41, 281-4, 390-3, 569-74; 25:459-63 Ag 11-18, S 1, 22 '20, S 7 '21

Vapor compression system of evaporation. G. Carlsson. *diags Chem & Met Eng* 24:645-7 Ap 13 '21; Discussion. 24:1044-5 Je 15 '21

Laws and regulations

Test code for evaporating apparatus. *Mech Eng* 43:184-7 Mr '21

Evening and continuation schools

Does it pay to run a night school in your plant? experience of the Shepard technical night school. *Factory* 25:1412-13 N 1 '20

Industries want continuation schools to remain in New York city. *Elec R* 78:575 Ap 9 '21

Organization and administration of part-time schools. 33p University of the state of New York, Albany '20

Recent development of part-time or continuation schools in the United States. *Monthly Labor R* 10:963-6 Ap '20

Suggestions and outlines for evening trade extension classes. R. H. H. Blome. 48p Arizona Dept. of vocational education, Phoenix '21

Westinghouse technical night school. W. W. Reddie. *il Elec J* 18:150-2 Ap '21

See also Corporation schools

Everest, Mount

World's greatest adventure; the ascent of Mt Everest as a test for human endurance. H. S. Sinclair. *il map Sci Am M* 4:19-22 Jl '21

Everett, Washington**Water supply**

Sultan water supply of Everett, Washington. C. S. Burns. *il Am Water Works Assn J* 7:451-5 Jl '20

Everglades, Florida

Results of run-off experiments with muck soil; abstracts. F. C. Elliott. *diag Eng & Contr* 55:363-5 Ap 13 '21; *Eng N* 87:157-8 Jl 28 '21

Eversharp pencils

What we have learned in marketing Eversharp. C. A. Frary. *Ptr Ink* 116:3-4+ Ag 11 '21

Evidence, Expert. See Expert evidence**Evodiamine**

Evodiamine and rutaecarpine; abstract. Y. Asahina and S. Mayeda. *Chem Soc J* 120 pt 1:48-50 Ja '21

Evolution

Evolution of flowering plants and warm-blooded animals. E. W. Berry. *Am J Sci* 49:207-11 Mr '20; Excerpts. *Sci Am M* 1:558-9 Je '20

Evolution—Continued

Hybridization and evolution. E. M. East. *Sci Am M* 3:78 Ja '21

Mechanical side of evolution; recent discoveries in the field of embryology. A. Weber. *il Sci Am M* 3:121-6 F '21

Mutation and evolution; some interesting recent experiments by Van der Wolk. R. H. France. *il Sci Am M* 3:400-1 My '21

Parasitism and symbiosis in relation to evolution. M. Caullery. *il diags Sci Am M* 1:399-403 My '20

See also Heredity; Mendelism

Excavating machinery

Canal building by electricity. *il Electrician* 86:201-2 F 11 '21

County replaces teams and slip scrapers with power scraper for excavating gravel. *il Eng & Contr* 54:453 N 3 '20

County road commissioners successfully employ power drag scraper in working gravel bank. *il Munic Eng* 59:sup25-6 D '20

Digging and loading in one motion. B. F. Mundorff. *il Sci Am* 123:59 Jl 17 '20

Ditch digging by machinery. *il Sci Am* 124:234 Mr 19 '21

Ditch-digging giant. *il Sci Am* 124:209+ Mr 12 '21

Dragline cableway excavator rehandling coal. *il Power* 52:260 Ag 17 '20

Dragline excavator also drives piles in reclamation work. A. W. Walker. *il Eng N* 86:354 F 24 '21

Dragline excavator loads scows anchored in channel it dug. A. I. Silander. *Eng N* 84:55 Ja 1 '20

Dragline excavator used economically in building highways in the Platte Valley in Nebraska. G. E. Johnson. *il Munic Eng* 59:sup25 Ag '20

Earth handling machinery. A. H. Sauerbrun. *il Good Roads n s* 21:225-6+ Ap 27 '21

Earth moving machinery in Bronx parkway. *il Pub Works* 49:293-8 O 2 '20

Les excavateurs mécaniques: leurs perfectionnements récents et la pratique actuelle de leur emploi. *il diags Génie Civil* 78:185-90 F 26 '21

Excavating with electric power in the Miami conservancy district. L. C. McLure. *il Elec J* 18:359-61 Ag '21

Excavation with power scraper. *il diags Pub Works* 48:330-1 Ap 17 '20

Keystone 14-ton all-steel traction excavator. *il Concrete* 19:83 Ag '21; *Eng & Contr* 55:577-8 Je 8 '21

New uses for dragline cableway excavators in dirt-moving field. *il Eng & Contr* 54:651-2 D 29 '20

Profitable adaptations of an excavator and loader in pits and quarries. *il Munic Eng* 60:sup28+ My '21

Recent excavator practice. F. H. Livens and W. Barnes. *il diags Engineering* 110:110-14 Jl 23 '20; Abstract and discussion. *Engineer* 130:82-3 Jl 23 '20

Sewer construction with a dragline excavator. *il Eng & Contr* 54:467 N 10 '20

Shaft excavating machine and improved shaft lining. *il Eng & Contr* 56:95-6 Jl 27 '21

Smith excavator and loader in operation. *il Munic Eng* 58:sup40 My '20

Tile-trenching machinery. D. L. Yarnell. *il diags U S Agric Farmers' Bul* 1131:1-27 '20

See also Dredges; Electric shovels; Mining machinery; Rock drills; Shoveling machines; Steam shovels; Trenching machinery; Tunneling machines

Manufacture

Lincoln works of Messrs. Ruston and Hornsby, limited. *il plans Engineering* 110:33-7, pl 5-8 Jl 9 '20

Testing

Chart records of excavating machine operations. *il charts Eng N* 85:176-7 Jl 22 '20

Excavation

Basement excavation after building erection was well advanced. *il diag Eng & Contr* 53:686 Je 16 '20

Better building methods. L. S. Keir. *diags Bldg Age* 43:24-8 Mr '21

Concrete job mechanical; building the substructure for the New York county court house. *il plan Pub Works* 49:587-90 D 25 '20; Same. *Eng & Contr* 55:52-3 Ja 19 '21

Deep pit rock excavation by dragline machines. *il diags plan Eng N* 85:196-9 Jl 29 '20

Dragline excavates pits for bridge foundations. C. H. Paul. *il Eng N* 85:1154 D 9 '20

Dragline excavator operations at the Englewood dam. H. S. R. McCurdy. *map Eng N* 86:603-4 Ap 7 '21

Dragline excavator operations on Murrumbidgee irrigation project, Australia. *Eng & Contr* 56:155 Ag 17 '21

Drag-line rock excavation for large dams. *Pub Works* 48:113-14 F 21 '20

Draining wet sand. *Pub Works* 49:507-8 N 27 '20

Earth and rock pressures. H. G. Moulton. *il diags Min & Met* 158:(sec 13) 1-25 F '20

Excavating a mountain of rock. *il Pub Works* 48:215-16 Mr 20 '20

Excavating foundation pit in quicksand. *Pub Works* 49:239-40 S 11 '20

Excavating the foundation for Hetch Hetchy dam. *il diag Eng N* 87:222-4 Ag 11 '21

Excavating under unusual conditions. *il diag Concrete* 17:63 Ag '20; *Pub Works* 49:177-8 Ag 21 '20; *Bldg Age* 42:35-6 S '20

How beach sand can be most economically excavated and loaded in trucks. *diags Pub Works* 50:211-13 Mr 5 '21

Keeping track of progress on General motors building excavation in Detroit. *Eng N* 84:737-8 Ap 8 '20

Method of blasting a wide ditch. H. Gough. *Eng & Contr* 54:501 N 17 '20

Progress on Queenston-Chippawa power canal. *il Can Eng* 39:347-52 S 16 '20

Quicksand; its nature, behavior and control. C. R. Gow. *diags Can Eng* 39:392-5 S 30 '20; Excerpts. *Eng & Contr* 54:389-92 O 20 '20; Abstract. *Pub Works* 50:98-100 Ja 29 '21

Rock excavated by improvised digger fixed to stiff-leg derrick. P. P. Suiter. *il Eng N* 86:314 F 17 '21

Rock excavation with drag lines for Miami conservancy dams. *il diags Eng & Contr* 53:61-3 Ja 21 '20

Strip overburden and dig clay with dragline. *il Brick & Clay Rec* 58:395-6 Mr 8 '21

Well points used in excavating for beach resort hotel. F. P. Kemon. *il Eng N* 85:890 N 4 '20

See also Blasting; Dredging; Earthwork; Excavating machinery; Shaft sinking; Steam shovels; Street openings; Subways; Trenches; Tunnels and tunneling

Cost

Earth moving machinery in Bronx parkway. *il Pub Works* 49:293-8 O 2 '20

Method of estimating excavation and finished grading. L. S. Keir. *Bldg Age* 43:54-5+ Je '21

Methods and cost of excavating for small sewers in rock. D. B. Davis. *diag Munic Eng* 60:4-5 Ja '21

Operating cost of 40 drag line excavators on U.S. reclamation projects. *Eng & Contr* 56:278-9 S 21 '21

Excavation, Hydraulic. *See* Hydraulic excavation

Excess baggage charges. *See* Baggage

Excess profits tax

After excess profits tax what? J. W. Hill. *Iron Tr R* 66:44-7 Ja 1 '20

Calculating corporation taxes. *Iron Tr R* 66:178-9 Ja 8 '20

Computation of commissions and federal taxes; where commissions are based upon profits after deducting taxes. A. van Oss. *J Account* 31:1-20 Ja '21

Excess profits tax—Continued

- Excess profits duty and corporation profits tax. J. Gault. 190p E. Wilson, London '21
- Excess profits tax procedure, 1921. R. H. Montgomery. 594p Ronald press '21
- Excess tax and its weakness. T: S. Adams. Am Ind 21:21+ Mr '21
- How to compute the excess profits tax. M. Rolnik. 80p Mechanics & metals national bank, New York '21
- Inventor and the excess profits law. F. O. Richey. Am Ind 21:38-9 Ag '20
- Invested capital from a legal standpoint as applied to excess and war profits taxation. K. H. Addington. J Account 31:110-20 F '21
- Paying everybody else's taxes. W: B. Colver. Am Ind 21:13-14 S '20
- Revision of the excess profits tax. M. Rindler. Administration 1:185-94 F '21
- Ruinous excess profits tax must be abolished. Am Mach 52:864 Ap 15 '20
- Secretary of treasury Houston recommends revision of income and profit taxes. Comm & Fin Chr 110:1139-40 Mr 20 '20
- Supreme court decides LaBelle tax suit. Iron Age 107:1324-5 My 19 '21
- Trends in management; what the excess profits tax means to plant management. W. R. Basset. Factory 26:470-2 F 15 '21
- Value versus cost in taxation: La Belle iron works versus the U.S.; with text of decision. J Account 32:46-58 Jl '21

See also Corporations—Taxation

Excitation equipment. See Electric plants—Excitation equipment

Exclusive agencies

- Exclusive dealers or an open market? Ptr Ink 114:42 Mr 31 '21
- I'll buy if you give me the exclusive agency. Ptr Ink 111:49-50+ My 20 '20
- When the salesman should not overpaint his rainbows. E: T. Tandy. Ptr Ink 115:3-4+ Je 9 '21

Bibliography

- Can sales be increased by abolishing exclusive agencies? Ptr Ink 116:33-4 Ag 4 '21

Executive ability

- How to develop executive ability. J: H. Van Deventer. plan Ind Management 60:260-4 O '20
- How to develop executive ability through personality. G. S. Small. Ind Management 61:115-18 F 1 '21

See also Efficiency, Industrial

Executives

- Antioch plan; training for administration and proprietorship at a small college. A. E. Morgan. Eng N 86:108-11 Ja 20 '21; Discussion. 86:480 Mr 17 '21
- Builders of business; E. H. Hulbert and R. A. Bartley. System 40:164-7 Ag '21
- Business man—and his time. il System 39:40-3 Ja '21
- Can you afford to lose an executive? F. L. Eidmann. Factory 26:318-19 F 1 '21
- College training for executives. J. W. Roe. Ind Management 58:458-61 D '19
- Cooperating to educate a community's executives. H. C. Stevenson. il Factory 27:182-7 Ag '21
- Engineer a failure as a manager. P. Cabot. Eng N 87:692 O 27 '21
- Executives and how they are made. M. L. Jeffrey. Mach 27:369 D '20
- Getting executive leadership. W. R. Basset. Am Mach 54:492-6 Mr 24 '21
- How should the manager get his facts? J. H. Cummings. il System 40:141-5+ Ag '21
- How to become a successful shop executive. P. R. Ramp. Iron Age 106:823-6 S 30 '20
- How we grow our executives. W. T. Sharp. System 40:174-6+ Ag '21
- Industrial leadership and executive ability. E: D: Jones. 275p Engineering magazine co., New York '20
- New executive for the new times. H. C. Barnes. Ind Management 58:405-8 N '19
- Over the executive's desk. il System 40:286-8+, 421-3 S-O '21

- Plodding—or over-brilliancy? H. G. Tregillus. Factory 25:211-12 Jl 15 '20
- Possibility of developing leaders. H. Tipper. Automotive Ind 44:1122-3 My 26 '21
- Psychology of business hours. G: V. N. Dearborn. Sci Am M 1:500-3 Je '20
- Qualifications of good executives. H: S. Dennison. Administration 1:289-92 Mr '21
- Question of succession: how Gunderson's right-hand men picked their new chief; story. J. H. McCullough. il System 40:148-51+ Ag '21
- Sending all our executives to school to learn team-work. F. F. Beall. Factory 24:431-6 F 15 '20
- Shop politics; comparison of political and honest executives. L. J. Voorhees. Am Mach 54:235-7 F 10 '21
- Subordinate's measure of his boss. H. M. Riley. Am Gas Eng J 113:197-9 S 11 '20
- Training executives for foundries. B. W. Benedict and R. E. Kennedy. il chart diag Foundry 48:902-7 N 15 '20
- Training foremen for executives. J: Calder. Ind Management 60:145-9 Ag '20
- Trends in management; factory executives of tomorrow—how will they be trained? W: L. Stoddard. Factory 26:970-2 Ap 15 '21
- Using today's problems to train tomorrow's managers. W. D. Plumb. System 39:514-17+ Ap '21
- V. W. sends a fireless cooker; story. R. R. Updegraff. System 40:544-7+ N '21
- What makes men give their best? H. L. Ferguson. System 39:368-70+ Mr '21

See also Efficiency, Industrial; Employment management; Factory management; Foremen; Forewomen; Industrial management; Office management

Executors and administrators**Accounting**

- Accounting in decedents' estates. H. D. Greeley. Administration 1:219-28, 368-76, 527-36 F-Ap '21
- Executors' accounts. C: H. Widdifield. 2d ed. 531p Carswell co., ltd., Toronto '19

Ex-employees. See Employees—Ex-employees

Exercising apparatus. See Orthopedic apparatus

Exhaust gas. See Automobile engines—Exhaust

Exhaust heads

- Details of exhaust head construction. C: L. Hubbard. il diags Sheet Metal Worker 12:557-9 S 16 '21

Exhaust steam

- Advantages of the exhaust steam injector. C. Roberts. diags Ry Mech Eng 95:290-1 My '21
- Conservation of coal by saving exhaust steam in the textile industries. W: B. Hoyt. Am Soc Heat & V E 25:407-10 '19
- Cutting power costs at an anthracite mine by utilizing exhaust steam. D. C. Ashmead. il diags plans Coal Age 17:983-6 My 13 '20
- Eliminating cylinder oil from exhaust steam. W. H. Wakeman. diags Power Pl Eng 25:749-52 Ag 1 '21
- Eliminating fuel waste in power plants. C: L. Hubbard. diags plan Power Pl Eng 24:324-6 Mr 15 '20
- Exhaust available and size of heater. Power Pl Eng 24:1093 N 15 '20
- Exhaust steam heating. R. A. Cultra. diag Power Pl Eng 25:389-90 Ap 1 '21; Discussion. 25:532, 772-3 My 15, Ag 1 '21
- Exhaust steam; its employment for power, heating &c. E. R: Dolby. Engineering 112:74 Jl 8 '21; Abstract. Electrician 87:40 Jl 8 '21; Discussion. Engineering 112:42-3 Jl 8 '21; Electrician 87:40-1 Jl 8 '21
- Exhaust wastes. il Power Pl Eng 25:72-4 Ja 1 '21
- Fallacy of superheating exhaust steam. W. F. Schaphorst. Power Pl Eng 24:1165 D 15 '20; Same. Paper 28:21 Mr 30 '21
- Generating power with exhaust from mill engines. il diags plan Power Pl Eng 25:641-6 Jl 1 '21

Exhaust steam—Continued

- Heat-balance study of Colfax power station. W. P. Gavit. diags Power 53:824-7 My 24 '21
- Heating plan must be considered; byproduct current from steam. I. N. Evans. diags Power 54:137-8 Jl 26 '21; Discussion. L. R. Lee. 54:334 Ag 30 '21
- Heating plant as a source of power; turbo-generator unit condensing into the heaters of a hot-water forced circulation system. I. N. Evans. il Power 52:846-9 N 30 '20; Discussion. 53:521-2; 54:115-16 Mr 29, Jl 19 '21
- Heating water with exhaust or live steam. il Sci Am 124:269 Ap 2 '21
- Making waste power pay the bill. J. H. Moss. il Factory 26:1412-14 Je 15 '21
- New Armour South St Paul plant. il diag plans Power 51:48-54 Ja 13 '20
- Piping for exhaust steam. W. H. Wakeman. diags Dom Eng 96:375-6+ Ag 27 '21
- Power from exhaust steam drives turbo-generators at Western drop forge co. plant. il diags Power Pl Eng 25:303-7 Mr 15 '21
- Saving steam and power in the paper mill. F. C. Farnsworth. diag Paper 27:78-80 N 10 '20
- Steam regenerators in mine plants save one-third the coal. W. H. Schacht. diags Power 52:836-8 N 23 '20; Excerpts. Min & Met 164:32-3 Ag '20
- Tests on small engines at high back pressures. A. E. Flowers, R. J. Pepper and C. Field. Chem & Met Eng 22:318-20 F 18 '20
- Use and value of exhaust steam. A. E. Berggren. Am Soc Heat & V E J 26:665-70 O '20
- Using exhaust steam to moisten fuel. A. J. Dixon. diag Power 54:337 Ag 30 '21
- L'utilisation des vapeurs d'échappement pour le chauffage. Génie Civil 78:89-90 Ja 22 '21
- Utilization of back pressure in British power plants. C. H. S. Tupholme. diags Power Pl Eng 25:851-3 S 1 '21
- Utilisation of exhaust steam in turbines. M. Deacon. diags Engineering 112:165-6; Discussion. 141 Jl 22 '21; Abstracts. Electrician 87:49 Jl 8 '21; Engineer 132:85-6 Jl 22 '21; Elec R (Lond) 89:228-9 Ag 12 '21
- Utilizing exhaust steam for mine pumping. D. J. Baker. il diags plan Coal Age 18:890-3 O 28 '20
- Utilizing the exhaust steam at collieries. R. Bowen. Coal Age 18:23 Jl 1 '20
- Where electricity is a by-product; power plant of J. H. Williams & co. il plan Power Pl Eng 24:871-5 S 15 '20

See also Exhaust heads

Exhaust systems

- Construction of ducts for forge exhaust and blast systems. il diags plans Heat & Ven 17:35-9 D '20
- Dust exhaust system at Arizona copper co. mill. M. R. Hull. flow sheet plans Chem & Met Eng 22:207-8 F 4 '20
- Exhaust hoods for grinding machines. E. E. Snow. diags Am Mach 51:947-8 N 27 '19
- Exhaust systems for removal of dust and fumes from workrooms. diags Power Pl Eng 25:724-5 Jl 15 '21
- Points on designing blow pipe systems. il diags plans Sheet Metal Worker 12:567-9 S 16 '21
- Standards for measuring the efficiency of exhaust systems in polishing shops. C. E. A. Winslow, L. Greenburg and H. C. Angermeyer. diags Am Soc Heat & V E J 26:supXX-XL S '20

See also Dust removal; Pneumatic injectors; Waste removal

Exhibition buildings

See also Crystal palace, London

Exhibitions

- British science and key industries exhibition, Glasgow, Nov. 17. il Engineer 128:529-30 N 28 '19
- Roads and transport exhibition, Islington, Nov. 20-27. Engineer 128:532-3, 559-61 N 28-D 5 '19

Shipping, engineering, and machinery exhibition held at Olympia, Sept. 25th-Oct. 17th. Illum Engr 12:297-9 O '19

See also subdivision Exhibitions under names of subjects, e.g. Aeronautics—Exhibitions; Automobiles—Exhibitions; Chemical industries—Exhibitions; Electric industries—Exhibitions; Laundry machinery—Exhibitions; Scientific apparatus and instruments—Exhibitions; Shipbuilding—Exhibitions; Steel, Heat treatment of—Exhibitions

Lighting

Light and power installation at pageant of progress. R. W. Ashley. il Elec R 79:149-51 Jl 30 '21

Exits

Protection of life against fire; exits and fire alarms. Am Gas J 115:29-30 Jl 9 '21; Same abr. Sci Am 124:516+ Je 25 '21

Expansion (heat)

- Coefficient of expansion of alloy steels. J. A. Mathews. Min & Met 158:(sec 8) 1-4 F '20; Same. Iron Tr R 66:563-4+ F 19 '20; Same. Blast F & Steel Pl 8:185-7 Mr '20
- Expansion and contraction of metals when welded. diags Motor Age 38:36-7 S 23 '20
- Measurements on the thermal dilatation of glass at high temperatures. C. G. Peters and C. H. Cragoe. diags U S Bur Stand Sci Pa 393:449-87 '20
- Methods of correcting oil volumes for temperature. Nat Pet N 12:97 S 15 '20
- Stretched wire apparatus for measuring thermal expansions. A. W. Gray. il diags Chem & Met Eng 21:667-71 N 26 '19; Same. Sci Am M 1:457-60 My '20
- Thermal expansion of copper and its important industrial alloys. P. Hidnert. Min & Met 169:27-8 Ja '21
- Thermal expansion of insulating materials. W. H. Souder and P. Hidnert. il U S Bur Stand Sci Pa 352:387-417 '19
- Expansion joints. *See* Concrete construction—Expansion joints; Pavements, Concrete—Expansion joints; Pipe joints
- Experiment stations. *See* United States—Mines, Bureau of—Experiment stations
- Experimental mines. *See* Mines, Experimental
- Experimental roads. *See* Roads, Experimental
- Expert evidence
- Geologists as expert witnesses. F. L. Ransome. Econ Geol 15:339-49 Je '20; Excerpts. Min & Sci P 121:666 N 6 '20
- Geologists as witnesses in mining litigation. C. K. Leith. Econ Geol 15:674-80 D '20
- Exploration. *See* Antarctic exploration; Arctic exploration; South pole

Explosions

- Acetylene generator explosion; report of accident at plant of Moore shipbuilding company, Oakland, California. L. Balliet. Power Pl Eng 25:576-7 Je 1 '21
- Explosion hazard and its prevention. J. F. Shadgen. Iron Age 108:127-30, 205-6+ Jl 21-28 '21
- Explosion in refrigerating plant. J. Henderson. Power 53:300 F 22 '21
- Explosion of a brewing copper. Engineering 112:343 S 2 '21
- Explosion of a cast-iron steam pipe. Engineering 112:102-3 Jl 15 '21
- Explosion of a steam-heated calender. Engineering 112:583-4 O 21 '21
- Explosion of a steam stop valve. Engineering 112:537 O 14 '21
- Explosion of the nitrate plant at Oppau. il map Chem & Met Eng 25:818-22 N 2 '21
- Explosions in air pipes to blast furnaces. J. O. Benefiel. Power Pl Eng 25:753 Ag 1 '21
- Fatal drying cylinder explosion. Engineering 112:217 Ag 5 '21
- Fixing of blame for a gas explosion. J. Simpson. Gas Age 44:446-7 N 15 '19
- Gasoline explosion at Memphis. il Ry Age 70:416 F 18 '21; Ry R 68:276-7 F 19 '21
- Piezoelectric method of measuring explosion pressures. D. A. Keys. diags Philos Mag 6th ser 42:473-88, pl 16 O '21

Explosions—Continued

Possibilities of furnace explosions due to banked fires. W. H. De Muth. Elec R 76:121 Ja 17 '20

Street explosions in electric conduits. Eng N 87:645 O 20 '21

Velocity of explosive sounds. Sci Am 123:373 O 9 '20

Wall street explosion. J: R. Healy. Eng N 85:717 O 7 '20

Wilson plant cylinder-head explosion. plan Power 54:430, 542 S 13, O 4 '21

See also Aluminum dust; Boiler explosions; Chemical laboratories—Accidents; Coal dust; Coal mines and mining—Accidents and explosions; Dust explosions; Explosives; Flywheel explosions; Fuel economizer explosions; Inflammable mixtures; Laundry mangles—Explosions; Mine accidents; Mine explosions; Molasses tank explosions; Sewer explosions; Tank cars—Explosions; Tanks—Failures; Vulcanizer explosions

Explosives

Definition of permissible explosive. W: W. Adams. Concrete 18:sup45 Mr '21; Same. Min & Sci P 122:96 Ja 15 '21

Dictionary of explosives. A. Marshall. 159p J. & A. Churchill, London '20

Explosive that cannot freeze. Min & Sci P 122:481-2 Ap 2 '21

Explosives used in mining during 1920. Coal Age 20:104 Jl 21 '21

Explosives used to snuff out largest gas well fire ever known, after all other methods failed. il Am Gas Eng J 112:164+ F 28 '20; Mech Eng 42:212 Ap '20; Eng & Contr 53:191 F 18 '20; W Soc E J 25:17-18 F 20 '20

Handling of explosives. Min & Sci P 122:676 My 14 '21

Modern commercial explosives and their uses. A. J. Strane. Min & Met 163:34 Jl '20; Same. Sci Am M 2:94-5 Jl '20; Same. Eng & Min J 110:458 S 4 '20

Modern explosives. S. I. Levy. (Common commodities and industries series) 109p Pitman '20

Modern road building and maintenance. A. P. Anderson. 146p Hercules powder co., Chicago '21

Nature and force of explosives. Coal Age 18:594 S 16 '20

Non-freezing explosive. W. H. Dawson. Concrete 18:sup45 Mr '21

Practice of opening kegs of black blasting powder with wooden tools condemned; abstracts. S. P. Howell. Eng & Min J 110:868 O 30 '20; Coal Age 20:638 O 20 '21; Min & Sci P 121:698 N 13 '20

Production of explosives in the United States during the calendar year 1919. W: W. Adams. U S Bur Mines Tech Pa 259:1-29 '20

Production of explosives in the United States during the calendar year 1920. W: W. Adams. U S Bur Mines Tech Pa 291:1-44 '21; Abstract. Eng & Contr 55:500 My 18 '21

Production of explosives in the United States from 1912 to 1919. Eng & Contr 55:394 Ap 20 '21

Relieving the nitrate pressure; the development of liquid oxygen explosives during the war. Sci Am 122:673 Je 19 '20

Research in explosives. Min & Met 171:19 Mr '21

Researches on modern brisant nitro explosives. C. F. van Duin and B. C. R. van Lennep. (Reprint & Circ. Ser. 15) 35p '20 50c National Research Council, 1701 Massachusetts av, Washington, D.C.

Safety factors in the use of explosives in quarrying. W. O. Snelling. Eng & Contr 52:586-9 N 19 '19; Excerpt. Concrete 15:sup91-2 D '19

Some physico-chemical problems connected with the stability of explosives. C. N. Hinshelwood. Chem Soc J 119:721-34 My '21

Some properties of explosives. R. Robertson. Chem Soc J 119:1-29 Ja '21

Transforming explosives into fertilizers. Sci Am 124:33 Ja 8 '21

Type of explosive in Wall street explosion. J: R. Mardick. Chem & Met Eng 23:717-18 O 13 '20

See also Ammunition; Blasting; Coal mines and mining—Explosives; Detonators; Dynamite; Gunpowder; Hexanitrodiphenylamine; Inflammable mixtures; Mines, Military; Nitrocellulose; Nitroglycerin; Nitrostarch; Oxygen, Liquid; Torpedoes; Trinitrotoluene; Trinitroxyline; Trojan powder

Laws and regulations

Federal control of explosives. Eng & Min J 109:592 Mr 6 '20

Regulation of explosives in the United States, with especial reference to the administration of the explosives act of October 6, 1917 by the Bureau of mines. C: E. Munroe. U S Bur Mines Bul 198:1-45 '21

Manufacture

La fabrication des poudres et explosifs. L. Lheure. il Chimie & Ind 3:501-37 Ap '20

Possible uses of corn cob cellulose in the explosives industry. L. G. Marsh. J Ind & Eng Chem 13:296-8 Ap '21

Storage

Bomb and bullet proof magazine has double roof. R. C. Hardman. diags Eng N 84:998 My 20 '20

France to store explosives in glacier-fed lakes. Pop Mech 33:25 Ja '20

Standard storage magazines recommended by the Institute of makers of explosives. 2p 12 fold. pl Institute of makers of explosives, 103 Park av., New York '20

Testing

Ignition tests of explosives. W. J. Montgomery. il Coal Age 17:43-7 Ja 8 '20

Sensitiveness of explosives to frictional impact. S. P. Howell. il diags U S Bur Mines Tech Pa 234:1-15 '19; Same, without tables (Pendulum-type testing apparatus). Sci Am M 1:6-8 Ja '20

Testing explosives force with the piezometer; pressure-electricity produced in crystals by the explosive gases of guns and motors. Sci Am M 3:337-8 Ap '21

Transportation

Annual report of the Bureau of explosives. Ry Mech Eng 95:298 My '21

Bureau of explosives. Ry R 66:350-2 F 28 '20

Bureau of explosives pamphlets. Ry Mech Eng 94:24-6 Ja '20

Handling of explosives. S. P. Howell. Min & Sci P 121:242 Ag 14 '20

Handling of high explosives in war time. G. L. Carden. il Eng & Min J 109:17-23 Ja 3 '20

See also Tank cars

Explosives, Military

Development of liquid oxygen explosives during the war. G: S. Rice. il diags U S Bur Mines Tech Pa 243:1-44 '20

Initiation of military explosives. W: A. Corley. bibliog J Fr Inst 191:87-120 Ja '21

Some war developments of explosives. Engineering 111:623 My 20 '21

Strength and velocity of detonation of various military explosives. W. C. Cope. J Ind & Eng Chem 12:870-3 S '20

Theoretical maximum pressure developed in own volume by thirteen military explosives. J. E. Crawshaw. J Fr Inst 189:607-25 My '20

See also Trojan powder

Export oil corporation

Pure oil co. files amended petition against the export oil corporation. Nat Pet N 13:21-2 Ag 3 '21

Export publishers' association

Export publishers unite. Am Ind 21:46 Je '21

Export trade

- Abstracts of addresses at National foreign trade convention. *Am Mach* 54:927-8 My 26 '21
- Acceptance syndicate plan for financing exports. J. T. Holdsworth. *Comm & Fin Chr* 113:133-5 Jl 9 '21
- Address at S.A.E. meeting. D: Beecroft. *Automotive Ind* 44:1091-5 My 26 '21; Same. *Soc Auto Eng J* 9:1-4 Jl '21
- American exports not increasing by leaps and bounds. *Automotive Ind* 43:832-3 O 21 '20
- American sales methods effective in the Orient. *Ptr Ink* 110:107-8 F 19 '20
- American viewpoint; expressions at the convention of National association of manufacturers. *Am Ind* 21:34-8 Je '21
- America's foreign competition. R. E. Thayer. *Ry Age* 69:1027 D 10 '20
- Are you selling abroad—or only dumping? J. H. Collins. *Ptr Ink* 116:77-8 Ag 25 '21
- Better export sales letters. W. F. Wyman. *Ptr Ink* 115:25-8 Je 30 '21
- Business conditions and foreign trade. J: H. Hammond. *Textile World* 59:3787+ Je 4 '21
- Business opportunities in Asia. F. R. Still. *Dom Eng* 90:328-9 F 14 '20
- Capital for foreign trade. *Nation's Business* 8:82 D '20
- Cashing in on the export salesman. W. F. Wyman. *Ptr Ink* 116:73-4+ Ag 4 '21
- China and Far East best market for U.S. products. *Am Mach* 53:604j-k S 23 '20
- Collective selling in foreign markets. *Sci Am* 122:696 Je 26 '20
- Continued prosperity dependent upon foreign trade. E. Harding. *Annalist* 17:542+ My 16 '21
- Co-operative opportunities offered by the Edge bill, just passed. G. H. Montague. *Dom Eng* 89:635-6+ D 27 '19
- Co-operative trading in the automotive export field. G: E. Quisenberry. *Automotive Ind* 43:128-9 Jl 15 '20
- Decries pessimism. H. Hoover. *Am Mach* 55: 120e-f Jl 21 '21; Same. *Min & Sci P* 123:131-4 Jl 23 '21; Same. *Paper* 28:23-6 Jl 27 '21; Excerpts. *Coal Age* 20:67-8 Jl 14 '21; *Automotive Ind* 45:128-9 Jl 21 '21; *Iron Tr R* 69: 171-2 Jl 21 '21
- Developing and holding foreign trade. *Am Mach* 53:1049-51 D 2 '20
- Diplomatic duty of business. A. C. Bedford. *Nation's Business* 9:15 Je '21
- Direct selling in the foreign trade field. D: Beecroft. *Automotive Ind* 43:430-1 Ag 26 '20
- Edge bill offers export hope. J: W. Hill. *Iron Tr R* 65:1730-1 D 25 '19
- Engineer is business missionary. E. C. Kreutzberg. *Iron Tr R* 68:25-8 Ja 6 '21
- Enthusiastic National foreign trade convention. A. I. Findley. *Iron Age* 105:1441-3 My 20 '20
- Essentials of successful foreign trade. *Ry Age* 68:1514-15 My 28 '20
- Export difficulties are growing. *Iron Tr R* 66:1181 Ap 22 '20
- Exporting iron and steel. V. G. Iden. *il Iron Tr R* 66:987-91, 1257-61, 1474-7+; 67:236-40, 1411-15, 1675-8; 68:698-703, 1657-61 Ap 1, 29, My 20, Jl 22, N 18, D 16 '20, Mr 10, Je 16 '21
- Exporting time sheets to bring back pay-rolls. G: E: Smith. *Am Mach* 54:392a-b Mr 3 '21
- Exporting to the world. A. A. Preciado. 430p James A. McCann co., New York '20
- Extracts from National foreign trade convention addresses. *Am Mach* 52:1258-61 Je 10 '20
- Far vision needed in merchandising abroad. A. Stote. *Ptr Ink* 110:121-2+ Ja 22 '20
- Federal reserve system and development of foreign trade. J. H: Case. *Comm & Fin Chr* 113:1524-6 O 8 '21
- Federation and foreign trade. *Iron Age* 105: 955-6 Ap 1 '20
- Financing foreign trade. J: McHugh. *Dom Eng* 94:44-5+ Ja 1 '21
- Financing foreign trade. A. W. McLean. *Textile World* 59:3791 Je 4 '21
- Financing of export trade regulated. *Iron Tr R* 66:983-4 Ap 1 '20
- Financing our foreign trade. G: E. Smith. *Marine Eng* 26:303-4 Ap '21
- Financing South American trade. *Nation's Business* 9:56+ Ja '21
- First national bank of St Louis on Ter Meulen credit plan and export finance schemes. *Comm & Fin Chr* 113:241 Jl 16 '21
- Foreign machine tool trade and credits. A. W. Henn. *Mach* 26:924 Je '20
- Foreign trade outlook as affected by prospective tariff changes. G: E. Roberts. *Americas* 7:1-3 Ap '21
- Foreign trade situation. W. L. Neilson. *Mach* 27:125-6 O '20
- Future foreign trade in textiles. E. L. Little. *Textile World* 57:958+ F 7 '20
- Future of our foreign trade; a study of our international balance in 1919. F. A. Vanderlip and J: H. Williams. 44p n.d. Harvard university, Committee on economic research
- German restrictions on export trade. *Ptr Ink* 111:148 Ap 15 '20
- Government aid, moral and financial, for foreign trade. *Annalist* 17:396 Ap 4 '21
- Handful of export ideas. *il System* 40:78+ Jl '21
- Hints on export translations. A. McQueen. 24p The Fifth-third national bank, Cincinnati, O. '21
- How we finance exports despite foreign exchange. S: C. Dobbs. *System* 39:340+ Mr '21
- Hundred million foreign trade financing corporation. *Comm & Fin Chr* 111:2264-5, 2377 D 11-18 '20
- I learn the A-B-C's of foreign trade. C: R. Flint. *il System* 40:277-80+ S '21
- Importance of foreign trade in copper and other non-ferrous metals. F. E. Wormser. *Eng & Min J* 111:459-63 Mr 12 '21
- Increasing activity of our manufacturers in supplying foreign markets. O. P. Austin. *Americas* 7:4-8 Ap '21
- International association of machinists develops business in foreign lands. *Iron Age* 108:1147 N 3 '21
- International trade presents varied problems. G. A. O'Reilly. *Textile World* 57:960+ F 7 '20
- Is the Edge law inadequate to promote foreign trade. R: H. Tingley. *Annalist* 17:395-6 Ap 4 '21
- Long credits greatest need, voice of 8th annual foreign convention. D: Beecroft. *Automotive Ind* 44:991-6 My 12 '21
- Long-term credits for export trade as solution of unemployment problem. G: E. Smith. *Coal Age* 19:458-9 Mr 10 '21
- Making export profits by correspondence. W. F. Wyman. *Ptr Ink* 115:57-8+ My 26 '21
- Manhattan—experimental territory for foreign trade. L. Lodian. *il Ptr Ink M* 2:18+ My '21
- N.A.C.C. resumes export managers' meetings. D: Beecroft. *Automotive Ind* 43:754-5 O 14 '20
- National foreign trade council 7th annual convention, San Francisco. *Ry Age* 68:1447-51 My 21 '20; *Iron Tr R* 66:1463-4 My 20 '20; *Am Mach* 52:1210-11 Je 3 '20
- National foreign trade council 8th annual convention, Cleveland. *Iron Age* 107:1245-7 My 12 '21; *Am Mach* 54:875-7 My 19 '21; *Iron Tr R* 68:1306-7 My 12 '21; *Ry Age* 70:1123-4 My 13 '21
- Need of a world-wide vision. W. H. Booth. *Comm & Fin Chr* 113:199-203 sec 2 O 29 '21
- Old methods to guide return to international normalcy. F: Todd. *Annalist* 17:521 My 9 '21
- Our European account. *Sci Am* 122:328 Mr 27 '20
- Our part in the world's commerce. F. O. Watts. *Comm & Fin Chr* 113:91-5 sec 2 O 29 '21
- Our possibilities in foreign trade. A. H. Holliday. *Blast F & Steel Pl* 8:594-5 N '20; Excerpts. *Iron Age* 106:1106-7 O 28 '20

Export trade—Continued

- Our South American trade and its financing. F. O'Malley. il map (Foreign commerce series no. 3) 125p '20 The National City Bank of New York, N.Y.
- Paper money and Europe's trade. C. C. Latour. *Annalist* 17:663+ Je '20 '21
- Penalties of one-way trade. G. E. Smith. *Nation's Business* 9:26 Ja '21
- Possibilities of export trade during 1921. B. Alexander. *Textile World* 59:1509 F 26 '21
- Preparing the export salesman for the field. W. F. Wyman. *Ptr Ink* 116:25-8 Jl 14 '21
- Present financial situation as affected by foreign trade. W. Lichenstein. *Comm & Fin Chr* 112:211-13 Ja 15 '21
- Profitable foreign investments, or loss of export trade—which will America choose? R. M. Byrnes. *Americas* 7:1-5+ F '21
- Prospects for exports increasing. *Iron Tr R* 68:1162 Ap 28 '21
- Prospectus of foreign trade financing corporation. *Comm & Fin Chr* 111:2095-6 sec 1 N 27 '20
- Raincoats for rainless Chile. C. L. Chandler. *Nation's Business* 9:26 N '21
- Rating our foreign customers. *Nation's Business* 9:13 N '21
- Relation of our industrial capacity to our foreign trade; abstracts. J. A. Farrell. *Iron Age* 105:1384-5 My 13 '20; *Ry Age* 68:1447-9 My 21 '20; *Iron Tr R* 66:1463-4 My 20 '20
- Relation of the railways to foreign trade. W. Sproule. *Ry Age* 68:1453-5 My 21 '20
- Report of committee on foreign trade. J. D. Woodside. *Textile World* 59:3773+ Je 4 '21
- Sampling in export selling. W. F. Wyman. *Ptr Ink* 112:33-6 S 9 '20
- Selling abroad under adverse exchange conditions. G. C. Poole. *Ptr Ink* 111:125-6+ Ap 1 '20
- Selling American machinery in foreign markets. H. M. Hein. *Am Mach* 53:913-14 N 11 '20
- Selling machinery in Europe since the armistice. O. F. Allen. il *Am Mach* 54:393-7, 462-6 Mr 10-17 '21
- Service of the business press to foreign trade. J. H. McGraw. *Am Mach* 52:1269-71 Je 10 '20; Same cond. *J Elec* 44:602-3 Je 15 '20
- Settlement of our export balance. L. E. Pierson. *Comm & Fin Chr* 112:2252-4 My 28 '21
- Some basic truths I learned in two great markets. C. R. Flint. *System* 40:419-21+ O '21
- Some do's and don'ts that will help in foreign trade. *Am Mach* 52:922 Ap 22 '20
- Spanish tax law and American trade. *Am Mach* 54:556 Mr 31 '21
- Standard American export practice. India Rubber W 61:345-7 Mr '20
- Team work and teeming millions. C. D. Snow. *Nation's Business* 8:65+ Jl '20
- Ten great commodities exported. *Nation's Business* 9:51+ Jl '21
- There's no mystery to foreign credits. W. F. Wyman. il *System* 39:213-15+ F '21
- Time is ripe to improve the routing of export salesmen. W. F. Wyman. *Ptr Ink* 112:61-2+ Ag 19 '20
- Trading with the new countries of Central Europe. O. P. Austin. (Foreign commerce ser. 6) 66p maps National city bank of New York, 55 Wall st., N.Y. '21
- Undamaged foundations promise revival of European trade. E. C. Eckel. *Annalist* 17:494 My 2 '21
- Unification of terminals and foreign commerce. T. C. Powell. *Ry Age* 67:1123-4 D 5 '19
- United States as a trader in the world markets. D. Beecroft. *Automotive Ind* 42:1148-9 My 20 '20
- Urgency of foreign trade financing corporation. C. H. Sabin. *Comm & Fin Chr* 111:2278 D 11 '20
- Value of deliveries. A. E. Ashburner. *Nation's Business* 9:24-5 Jl '21
- Vicissitudes of exporting in 1920. *Iron Age* 107:135-6 Ja 13 '21

When exports are forced; pressure for a revival of the War trade board. *Nation's Business* 9:16-17 Ja '21

Why my business has seldom shut down. A. B. Farquhar. *System* 39:815-17+ Je '21

Yarn exports to Argentine and their future. F. E. Hagemeyer. il *Textile World* 57:959+ F 7 '20

See also Advertising, Foreign; Foreign exchange; Letters of credit; Packing for shipment; Tariff; Treaties, Commercial; also subdivision Commerce under names of countries, e.g. Latin America—Commerce, Near East—Commerce, South America—Commerce, United States—Commerce; also Foreign trade financing corporation

Accounting

Accounting for an export house. M. Shmerler. *J Account* 30:106-17 Ag '20

Bibliography

American export trade. G. Krochman, comp. St Louis Public library, *Monthly Bul* p 28-32 F '21

Books on foreign markets. M. L. Prevost. *World's Markets* 8:28-9 F; 33-4 Mr; 37 Ap '21

Books on foreign trade; a list of books, periodicals, pamphlets, etc. 9p '20 Public Library, Seattle, Wash.

Books on foreign trade: bibliography of publications, including pamphlets on shipping, international trade routes, American merchant marine, etc. M. L. Prevost. p 37-9 *World's Markets* Je '20

Books on foreign trade, with special reference to South America, China, Japan, Russia. 20p Los Angeles Public Library, Dept. of Sociology. '20

Exporter's reference library. A. J. Wolfe. *Ptr Ink* 114:141-2+ Mr 3 '21

Credit

See Credit, Foreign

Statistics

Domestic exports from the United States by countries, during October, 1920; metal-working machinery; tabulation. *Am Mach* 53:1260 D 30 '20

Electrical exports for July half a million ahead of last year. *Elec W* 76:659-60 S 25 '20

Export and import statistics indicate industrial trend. O. M. Fox. *Eng N* 85:835-6 O 28 '20; Discussion. 85:1103-4 D 2 '20

Export trade with Mexico doubled in last year—imports also increased. *Am Mach* 54:800h My 5 '21

Foreign trade: 1920 compared with 1914. P. Austin. *Brass W* 17:13-14 Ja '21

Foreign trade of the United States, 1919-20. *Comm & Fin Chr* 111:433-6 Jl 31 '20

Foreign trade of United States in 1920-21. *Comm & Fin Chr* 113:779-81 Ag 20 '21

1920 transformer exports reach total of \$4,803,158. *Elec W* 78:441 Ag 27 '21

Our foreign trade in 1920. *Am Mach* 54:392d Mr 3 '21

Our foreign trade in 1920. *Comm & Fin Chr* 112:509-12 F 5 '21

Trade of the United States with Hawaii in 1920. *J Elec* 47:113 Ag 1 '21

Trade of the United States with the world, 1917-1918; exports. U S Bur For & Dom Com misc ser 78:1-346 pt 2 '19

Trade of the United States with the world, 1918-1919; exports. U S Bur For & Dom Com misc ser 106:1-456 pt 2 '21

Study and teaching

Training for foreign trade. R. S. MacElwee and F. G. Nichols. map U S Bur For & Dom Com misc ser 97:1-195 '19

Express companies

Express consolidation approved by commission; combination of companies into American railway express. *Ry Age* 69:1119-20 D 24 '20

Express contract approved. *Ry Age* 69:1154-5 D 31 '20

Express companies—Continued

Express situation; abstracts. G: C. Taylor.
Ry R 66:740-1 My 1 '20; Ry Age 68:1247-8
Ap 23 '20

See also American railway express company

Express rates

Express rate increase of 12½ per cent authorized. Ry R 67:280-1 Ag 21 '20

Increased express rates and the reasons for them. Ry R 67:161-2 Jl 31 '20

Increased express rates are authorized. Ry Age 69:317-20 Ag 20 '20

Supplemental increase in express rates. Ry Age 69:574 O 1 '20

West's parcel-post and express comparative rate guide. T. E. West. 139p West's rate service, Los Angeles '21

Express service

Duplicate numbered express receipts to check losses. Ry R 67:321-2 Ag 28 '20

Inter-state commerce commission grants express companies 12½ per cent increase in rates. Comm & Fin Chr 111:754-5 Ag 21 '20

Railroads and the express service. S. W. Todd. il Ry R 66:548-9 Ap 3 '20

See also American railway express company; Electric railroads—Freight

Money orders

Europe favors advertised money orders. H. T. Mitchell. Ptr Ink 114:149+ Ja 27 '21

Foreign money order manual. 59p American express co., New York '20

Expressways

Congestion defended by landscape architect. Am Arch 119:454+ Ap 13 '21

Expressways proposed to relieve N.Y. traffic congestion. C. W. Leavitt and A. Schaeffer. Eng N 86:547 Mr 31 '21

Extensometer

Calibration bar for extensometers. E. Rawson. il diags Engineering 111:68, 69 Ja 21 '21

Extensometer calibrating device. R. L. Templin. il diags Chem & Met Eng 25:248-51 Ag 10 '21

Neate's recording extensometer. il Engineering 111:753 Je 17 '21

Extraction processes

Liquid sulphur dioxide in oil extraction. R. H. McKee. Chem Age 29:425-6 O '21

Numerical relation between cells and treatments in extraction processes. L. F. Hawley. J Ind & Eng Chem 12:493-6 My '20

Recovery of waste roofing felt. L. F. Hawley and O. Kress. Paper 27:18-19+ O '20

Solvent extraction of edible fats and oils. H. Austin. il Oil Paint & Drug Rep 100:ix+S 20 '21

See also Sugar manufacture

Extracts

See also Flavoring extracts

Manufacture

At least fifty per cent of extracts require heat in their production. G. C. Shadwell. il Am Gas Eng J 112:101-4 F 7 '20

Extrusion process

Extruding brass and copper rods. E: K. Hammond. il Mach 27:1-4 S '20

Extrusion. Engineer 132:457-8 O 28 '21

Extrusion defect. R. Genders. il diags Engineering 112:487-9 S 30 '21; Excerpt. Iron Age 108:996-7 O 20 '21; Discussion. Engineering 112:483 S 30 '21; Iron Age 108:997 O 20 '21

Extrusion of brass. C. P. Karr. Metal Ind 19:113 Mr '21

Extrusion of lead pipe. E. Sheldon. il diags Am Mach 51:909-13; 52:59-62 N 27 '19, Ja 8 '20

Hooker method of extrusion; extruding brass cartridge shells and seamless copper radiator tubes. G. Frazar. il Iron Age 107:453-7 F 17 '21

Increasing application of extrusion. diags Automotive Ind 43:568 S 16 '20

Making brass rods and wire illustrated. O. A. Kenyon. il Iron Age 105:1437-40 My 20 '20

Eye

Contrast sensibility of the eye. E. Karrer and E. P. T. Tyndall. diags U S Bur Stand Sci Pa 366:679-92 '20

Curious facts about eyes. Sci Am M 4:44 Jl '21

Effect of electric light on the eye. H. Reichenbach. Sci Am S 88:328 N 29 '19

Effect of variations in intensity of illumination on functions of importance to the working eye. C. E. Ferree and G. Rand. Illum Eng Soc 15:769-92; Discussion. 792-801 no 9 '20

Machine measures electric impulses of eyes. il Pop Mech 35:734 My '21

Photo-electric currents in the eye. C: Sheard. Sci Am M 3:370-1 Ap '21

See also Color blindness; Eye strain; Sight

Bibliography

Papers on light and the eye. Illum Eng Soc 15:sup131-2 no 9 '20

Care and hygiene

Care of the printer's eyesight. L. Gaster. Illum Engr 13:28 F '20

Conserving eyesight—for more production. C. H. Brooks. Textile World 58:380+ Jl 17 '20

Corrected eyesight—how it increased production. H. Brown. Factory 25:55-6 Jl 1 '20

Factory eye room saves workers' sight and increases output. S. DeHart. il Ind Management 61:23-4 Ja 1 '21

Works optical scheme: the care of eyesight in industry. C. U. Kerr. Eng & Ind Management 6:69-70 Jl 21 '21

Diseases

Use of ultra-violet light in treating diseases of the eye. T. H. Butler. Illum Engr 13:272 O '20

See also Miners' nystagmus

Examination

Investing in good eyesight. P. W. Blair. Factory 27:262+ Ag '21

Protection

Care of the eyes in industry. Iron Age 108:933 O 13 '21

Effect of ultra-violet rays on the eye. C. R. Kindall. Chem & Met Eng 23:1071 D 1 '20; Same. Gen Elec R 23:893 N '20; Same abr. Eng & Min J 110:1179 D 18 '20

Eye protection in welding operations. R. R. Butler. il Engineering 109:823-6 Je 18 '20

Eye protection in welding operations. C. Sylvester. Sci Am M 2:52-3 Jl '20

Method for determining the opacity of eye-protective glasses to ultra-violet rays. Chem & Met Eng 23:919 N 10 '20

Protection and the eye. Safety Eng 42:42-4 Jl '21

See also Goggles

Eye (animals)

How the lower animals see; old and new ideas on the function and operating details of insect eyes. W: Crowder. il Sci Am 124:501, 509+ Je 25 '21

Eye strain

Eyestrain and moving pictures. Elec R 78:745 My 7 '21

Importance of eyestrain in relation to industry. Monthly Labor R 11:160-2 Jl '20

Interim report of the joint committee appointed by the Illuminating engineering society to inquire into eyestrain in cinemas. Illum Engr 13:189-93 Je '20; Abstract. Sci Am M 3:74 Ja '21

Eyebars

Design of standard lugs. B. C. Boulton. il diags Aerial Age 12:634-7 F 28 '21; Abstract. Eng N 87:438-9 S 15 '21

Study of stresses in eyebar heads in chain bridges. J. Beke. diags Eng N 87:234-8 Ag 11 '21; Discussion. J. M. Paris. 87:621 O 13 '21

Eyeglass Insurance. See Insurance, Eyeglass

F

Fabric fur

Fabric furs to be widely advertised. H. E. Agnew. *Ptr Ink* 116:76+ S 22 '21

Fabric joints. See Joints, Fabric**Fabricated ships.** See Shipbuilding—"Fabricated" ships**Fabrics.** See Airplane fabric; Balloon fabric; Cotton fabrics; Textile fabrics; Tire fabrics**Fabrics, Waterproofing of.** See Waterproofing of textiles**Fabrikoid**

Fabrikoid apron for the paper machine. *il Paper* 28:18-19 My 4 '21

Fabroil

Compressed cotton used for silent gear. *il Motor Age* 37:35 Mr 4 '20; Same. *Automotive Ind* 42:863 Ap 8 '20

Fabry, Charles

Presentation of the Franklin medal and certificate of honorary membership to professor Charles Fabry and Mr Frank J. Sprague, and certificate of honorary membership to General John J. Pershing. *J Fr Inst* 192:369-76 S '21

Facades

Facade in three units. I. T. Frary. *Arch Rec* 47:188+ F '20

Facing tools

Cedar Rapids valve facing machine. *il Mach* 27:594-5 F '21

Factories

American chicle company's factory, Long Island City, N. Y. *il Arch Rec* 48:553-6 D '20

Are your buildings to blame for high production costs? W. R. Basset and M. G. Farrell. *il Factory* 24:1521-5 My 15 '20

Brown Lipe gear building construction involves unusual features. W. H. Barney. *il Concrete* 18:171-3 Ap '21

Corner of the factory group of the British xylonite co., ltd., Hale End, London, England; view. *Am Arch* 117:116d Ja 28 '20

Design of the modern factory. E. G. W. Souster. *plan Electrician* 84:482-4 Ap 30 '20

Extension to Dunlop tire co's plant, Toronto. *il diags plans Can Eng* 40:259-63 Mr 3 '21

Factory conditions in Great Britain in 1919. *Engineering* 110:544-5 O 22 '20

Factory design in England. *il Am Arch* 117:116 Ja 28 '20

Factory stairs and stairways. G. L. H. Arnold. *diags Am Arch* 117:129-34, 161-4 Ja 28-F 4 '20

Federal electric and Walker vehicle plants, Chicago. *il diag plans Am Arch* 119:559-64 My 11 '21

Fitting the factory roof to the factory needs. H. G. Tregillus. *diags Factory* 25:45-6 Jl 1 '20

Kahn tailoring company building, Indianapolis, Ind. *il plan Am Arch* 117:353-5 Mr 17 '20

Lincoln works of Messrs. Ruston and Hornsby, limited. *il diags plans Engineering* 110:4-10, 33-7, pl 1-2, 5-8 Jl 2-9 '20

Machine tool plant of new design; new plant of Foote-Burt co., Cleveland. F. L. Prentiss. *il plan Iron Age* 107:311-16 F 3 '21

Main elevation, optical works, Messrs. Ross, ltd., Clapham Common, London, England; view. *Am Arch* 117:116f Ja 28 '20

Manufacturing in a glass case. *Factory* 24:53 Ja '20

Modern industrial plant of the American chicle company. W. E. Groben. *Arch & Bldg* 52:102-4, pl 139-40 D '20

Modern practice in reinforced concrete construction. *il diags plans Am Arch* 119:177-85 F 16 '21

Multiple-unit plan for compact factory plant. *il diags Eng N* 85:737-9 O 14 '20

New plant of Mitchell-Bissell co., N.Y. *il Textile World* 58:1313+ Ag 28 '20

New plant of National Acme company. *il plans Iron Age* 104:1111-19 D 4 '19

New plant of the Foote-Burt company, Cleveland. *il plan Mach* 27:528-30 F '21

New type saw-tooth construction. W. P. Parker. *diags Textile World* 57:2509 Ap 3 '20

La nouvelle usine de la C^{ie} électro-mécanique au Bourget (Seine). C. Dantin. *il diags plan Génie Civil* 78:541-5, pl 7 Je 25 '21

Planning the factory to include future needs. *diag Factory* 25:537-8 Ag 15 '20

Prest-o-lite buildings of flat-slab construction. *il diags plan Can Eng* 39:189-94 Jl 29 '20

Sectional unit factory. *il Sci Am* 123:550+ N 27 '20

There's plenty of business for the Barron brick co. *il Brick & Clay Rec* 59:345-8 S 6 '21

Time and cost records broken in hollow ware factory of new type. *il plan Brick & Clay Rec* 58:999-1015 Je 14 '21

Tool plant of Foote-Burt co., Cleveland, reflects new ideas. D. O. Taber. *il diags plan Iron Tr R* 68:344-9 F 3 '21

What construction shall I choose? *Factory* 24:809 Mr 15 '20

What is your plant worth? C. W. McKay. *Factory* 24:41-2 Ja '20

What's the best shape for a factory building? *Factory* 24:64-5 Ja '20

Working conditions in factories; report of H. M. inspector of factories. *Elec R (Lond)* 89:240-1, 290 Ag 19-26 '21

Works of Messrs. Clayton and Shuttleworth, ltd., Lincoln. *il diags plans Engineering* 109:741-7, 778-81, pl 40-7 Je 4-11 '20

Works of Messrs. William Foster and co., ltd., Lincoln. *il diags plan Engineering* 109:847-50, pl 52-5 Je 25 '20

See also Automobile factories; Carpet factories; Cement plants; Chemical plants; Cotton mills; Dye factories; Electric driving; Factory management; Factory sanitation; Flour mills; Foundries; Glass factories; Industrial buildings; Iron works; Knitting mills; Loft buildings; Machine shops; Paper mills; Rubber factories; Sawmills; Shoe factories; Silk mills; Skoda works; Steel works; Textile mills; Tube mills (factories); Woodworking shops

Accounting

Analyzing of the elements of production cost. W. E. Hundley. *Automotive Ind* 44:863-5 Ap 21 '21; Abstract. *Iron Age* 107:984 Ap 14 '21

Budgetary control of plants and equipment. J. O. McKinsey. *Administration* 1:647-58 My '21

Burden absorption for administrative control. A. L. Hamburger. *Administration* 2:325-9 S '21

Checking costs from raw to finished product in an industry handling liquids. R. E. Roesler. *Factory* 27:37 Jl '21

Cost keeping in the small shop. F. H. Colvin. *Am Mach* 53:442-3 S 2 '20; Discussion. T. P. Schustek. 53:1026 D 2 '20

Costing as an aid to management. *Eng & Ind Management* 5:300-1 Mr 10 '21

Costing; some phases of modern cost finding with particular reference to the manufacture of electrical apparatus. R. Townsend. *Electrician* 84:491-5, 540-3 Ap 30, My 14 '20

Costs—a short study of factory economics. A. G. Peterkin. *Chem & Met Eng* 24:253-9 F 9 '21

Economical interchangeable manufacturing practice. E. Buckingham. *Mach* 26:636-41 Mr '20

Elements of inventory control. C. E. Woods. *charts Administration* 2:181-214 Ag '21

Factory control through accounts and statistics. J. P. Jordan. *Administration* 1:53-61 Ja '21

Factory costs. L. T. Konopak. *J Account* 30:329-37 N '20

Handling factory costs. *Factory* 24:356+, 1748+, 25:740+, 1502+, 1902+, 26:664+, 1416+ F 1, Je 1, S 1, N 1, D 15 '20, Mr 1, Je 15 '21

Have you a danger line in your cost estimates. A. A. Alles, jr. *Automotive Ind* 41:1067-9 N 27 '19

Factories—Accounting—Continued

- How to get back to normal quickly. C. E. Knoeppel. Foundry 49:176-8, 223-4 Mr 1-15 '21; Same. Iron Tr R 68:692-4, 760-1 Mr 10-17 '21
- Industrial accounting as an aid to management, by H. N. Sweet. Review. Administration 1:280-3 F '21
- Limitations of system. F. R. C. Steele. J Account 31:21-9 Ja '21
- Machine-hour rate method of distributing manufacturing expense. C. Haigh. Mach 27:370-2 D '20; Excerpts. Iron Age 106:1207-8 N 4 '20; Abstract. Iron Tr R 67:1263 N 4 '20
- Machine tool builders discuss accounting methods. chart Am Mach 54:160h-i Ja 27 '21
- Making factory cost-finding a part of the sales record. E. S. Fassett. Factory 25:1569-71 N 15 '20
- Management problems of the small factory; costs and their use. E. Cordeal. il Ind Management 62:114-19 Ag '21
- Manufacturing accounts. G. H. Newlove. J Account 31:176-86 Mr '21
- Modern production methods. W. R. Basset. Am Mach 53:709-11, 798-802, 889-91; 54:187-91, 398-402, 858-63, 1032-6; 55:57-60, 184-7, 286-8 O 14, 28, N 11 '20, F 3, Mr 10, My 19, Je 16, Jl 14, Ag 4, 18 '21
- Necessity of proper cost accounting. J. B. Sehl. Iron Age 108:391-3 Ag 18 '21
- Reading executive policies in factory cost figures. P. M. Atkins. Factory 25:1874-7 D 15 '20
- Regulating costs and production. F. O. Vance. Metal Ind 19:327-8 Ag '21
- Scientific management; costing. H. Atkinson. Eng & Ind Management 5:370-1, 427-30+ Mr 31, Ap 14 '21
- Shop production-control and accounting systems. A. G. Drefs. Soc Auto Eng J 7:33-8 Jl '20; Same cond. Automotive Ind 43:22-5 Jl 1 '20; Discussion. Soc Auto Eng J 7:470-2 N '20
- Work in progress account: an essential feature in modern costing. R. Stelling. Eng & Ind Management 5:734-6 Je 30 '21
- See also Box factories—Accounting; Nail industry—Accounting; Power cost—Accounting

Accidents

See Accidents, Industrial

Cleanliness

- Cleaning as a manufacturing operation. W. H. Nicholson. Textile World 58:3209+ N 6 '20
- Encouraging cleanliness in the factory. il Mach 27:49-50 S '20
- Good factory housekeeping through competition. il Factory 24:1528-9 My 15 '20
- Keeping the factory clean. H. P. Martin. il Factory 25:527-30 Ag 15 '20
- See also Factory sanitation

Floors

- Concrete road methods applied to construction of factory floor. il Eng & Contr 55:184 F 23 '21
- Creosoted wood-block factory floors. L. T. Ericson. il Am Arch 119:212-14 F 23 '21; Same cond. Mech Eng 43:92-5 F '21; Excerpts. Eng & Ind Management 5:628 Je 2 '21
- Factory floors for special uses; types recommended by experiences in navy for acid-subjected floors and for different kinds of storehouses and workshops. H. S. Rinker. Eng N 85:54-5 Jl 8 '20

Heating and ventilation

- Arrangement of heating pipes an important factor in decay of factory roofs. F. J. Hoxie. il diags Am Soc Heat & V E 25:89-97 '19; Same. Eng N 84:578-9 Mr 18 '20; Discussion. Am Soc Heat & V E 25:97-100 '19
- Fresh air and production. J. F. Leonard. Ind Management 59:271 Ap '20
- Heating and giving modern factory a climate. diags plans Plumber 94:484-5, 508-9 N 5-19 '20

Heating and ventilating industrial buildings. C: L. Hubbard. il diags plans Am Arch 118:545-52, 707-12; 119:71-5, 95-100 O 27, D 1 '20, Ja 19-26 '21

Heating with pipeless furnaces. C: L. Hubbard. il diags Factory 25:1050-2 O 1 '20

Important work on the science of ventilation. diags Heat & Ven 17:39-41 N '20

Instrument for automatic control of humidity in shops. Eng & Contr 55:93-4 Ja 26 '21

Keeping factory temperatures where you want them; how air washers and coolers are used in factory ventilation. C: L. Hubbard. diags Factory 26:1195-8 My 15 '21

Liability for lack of ventilation. C. C. Sherlock. Am Mach 54:374-6 Mr 3 '21

Losses due to removing hot air from factories. J: L. Alden. chart Power 51:93-4 Ja 20 '20

Meeting the air requirements in a bindery and printing plant; Irving-Pitt mfg. co., Kansas City, Mo. N. W. Downes. il diags plans Heat & Ven 18:25-30 F '21

New idea in factory heating. Sci Am 123:550+ N 27 '20

Plan heating business by re-building. W: Hutton. plans Dom Eng 90:50-2 Ja 10 '20

Plant of the Powers regulator co. il diags plans Power Pl Eng 24:967-71 O 15 '20

Putting wind to work. C. A. Eddy. il Factory 24:970-2 Ap 1 '20

Trends in management. E. V. Hill. chart Factory 24:1340-2 My 1 '20

Ventilation of factories and workshops. 26p Gt. Brit. Home dept., H. M. Stationery off., London '20

See also Paper mills—Heating and ventilation; Textile mills—Heating and ventilation

Layout

- Developing an industrial plant layout. A. T. Doud. plans Ind Management 62:149-52 S '21
- How to find the best plant layout. H. Haynes. il Factory 24:51-3 Ja '20
- Loopholes that make a factory bigger. H. L. Wittstein. il diag plan Factory 24:1889 Je 15 '20
- Plating and polishing factory floor plan. plan Metal Ind 18:267 Je '20
- 70% more workers in the same floor space. H. S. Trecartin. il Factory 25:203-4 Jl 15 '20

Libraries

See Business libraries; Factory libraries; Technical libraries

Lighting

- Accidental illumination. R. E. Simpson. N E L A Bul 7:922-4 D '20
- Annual report of H. M. Chief inspector of factories (1919). Illum Engr 13:249-50 S '20
- Applied illumination described and illustrated. O. C. White. il Elec R 78:572 Ap 9 '21
- Artificial lighting in the rubber industry. E. L. Elliott. il India Rubber W 63:239-41, 329-32, 412-16; 64:483-6, 640-2 Ja-Ap, Je '21
- Artificial lighting of interiors. Engineering 110:871 D 31 '20
- Better illumination cuts production costs. W. Harrison, O. F. Haas and F. W. Dopke. il Elec W 78:763-4 O 15 '21
- Better industrial and commercial lighting. R. M. Alvord. il J Elec 46:480-3 My 15 '21
- Better ways to light the work. Factory 24:332+, 644+; 25:630+, 986+ 1650+, 1808+; 26:344+; 27:244+ F 1, Mr 1, Ag 15, S 15, N 15-D 1 '20, F 1, Ag '21
- Central station experience in the improvement of factory lighting. J. B. Wilson. Illum Eng Soc 15:582-7 no 8 '20; Same. Elec R 77:773-4 N 13 '20; Discussion. Illum Eng Soc 15:587-90 no 8 '20
- Charts and data for industrial lighting designs. P. A. Powers. diags Elec R 79:231-4 Ag 13 '21
- Daylight illumination in the shops. il Int Marine Eng 25:122, 125-6 F '20
- Demonstrating effective lighting. il diag plan Elec W 76:865-8 O 30 '20
- Demonstrating industrial lighting. il diag plan Elec R 77:231-5 Ag 14 '20

Factories—Lighting—Continued

- Developing industrial lighting. il Elec R 78: 573-5 Ap 9 '21
- Drive for high-intensity industrial lighting. O. R. Hogue. il Elec W 75:1366-7 Je 12 '20
- Elimination of waste in industry due to poor lighting. W. Harrison. il Chem & Met Eng 25:407-9 Ag 31 '21
- Experts on factory lighting. Electrician 87: 240-1 Ag 19 '21
- Factory lighting—a central station problem. O. R. Hogue and J. J. Kirk. il Illum Eng Soc 15:46-53; Discussion. 54-60 no 1 '20
- Factory lighting equipment for industries. R. Trautschold. il Power Pl Eng 25:423-5 Ap 15 '21
- Gas lighting with holophane reflectors in a boot factory. Illum Engr 13:293 O '20
- Good lighting aids production. W. Harrison. il Iron Tr R 65:1637-41 D 18 '19
- High cost of poor lighting. R. E. Simpson. Illum Eng Soc 15:576-81 no 8 '20; Same abr. N E L A Bul 8:57-9 Ja '21
- High intensity factory illumination. M. A. Smilari. il Iron Age 105:1428-31 My 20 '20
- High intensity improves sewing-machine lighting. D. S. Meyers. il diag Elec W 77: 1054-5 My 7 '21
- How 17 everyday lighting problems have been solved. S. G. Hibben. il Factory 25:1737-40 D 1 '20
- Human factor in industrial lighting. J. R. Cravath. J Elec 46:181-3 F 15 '21
- Illumination design simplified. E. A. Anderson. il Elec W 77:417-22 F 19 '21; Same. Elec R 78:411-15, 569-72 Mr 12, Ap 9 '21
- Illumination of a modern motor truck plant. W. A. Scott. il Elec R 78:943-5 Je 11 '21
- Industrial and factory lighting. il J Elec 46: 186-7 F 15 '21
- Industrial illumination. J. J. McLaughlin. il J Elec 45:418-19 N 1 '20
- Industrial illumination. V: H. Todd. il diags Power Pl Eng 24:609-11, 701-4, 796-8 Je 15, Jl 15, Ag 15 '20
- Industrial illumination far behind lamp development. S. E. Doane. il Elec W 77:37-8 Ja 1 '21
- Industrial lighting as an element in mass production. L. Gaster. il diag Electrician 84:485-7 Ap 30 '20
- Industrial lighting code for factories, mills, offices and other work places. 3d ed., rev. 51p Industrial commission of Wisconsin, Madison '21
- Industrial lighting codes. G. H. Stickney. il Elec W 75:378-9 F 14 '20
- Industrial lighting with mercury vapor lamps. E. L. Elliott. il Elec R 79:399-402 S 10 '21
- Lighting of factories and workshops. Elec R (Lond) 89:293-4, 422-3 Ag 26, S 23 '21
- Lighting of shoe factories. A. L. Powell and J. H. Kurlander. il plans Illum Eng Soc 15:603-28; Discussion. 628-30 no 8 '20
- Lighting specialist's opportunity lies in industry. C. A. Tupper. il plan Elec R 78: 927-9 Je 11 '21
- Maintenance is lighting problem. W. Harrison and J. R. Colville. il Iron Tr R 67:1603-6 D 9 '20
- Modern industrial lighting for Oregon. F. H. Murphy. il Elec W 76:820-3 O 23 '20; Abstract. Illum Engr 13:273-4 O '20
- Modern shop lighting. O. F. Haas. Blast F & Steel Pl 8:532+ S '20
- Monochromatic illumination of mills. il Textile World 58:1531+ S 4 '20
- 90% more light from your present equipment. W. Harrison and J. C. Colville. Factory 25:53-4 Jl 1 '20
- Notes on industrial lighting. O. L. Johnson. il Elec J 17:198-201 My '20
- Painting profits into your factory. il Factory 26:595-6 Mr 1 '21
- Plant economies resulting from better lighting. C. H. Reeder. il Elec R 78:933-7 Je 11 '21
- Plant illumination as related to production. Automotive Ind 43:220-1 Jl 29 '20
- Poor lighting and its excuses for existence. O. L. Johnson and P. A. Powers. il Elec R 78:565-8 Ap 9 '21
- Possibilities of industrial lighting. R. O. Eastman. il map Elec W 75:263-5 Ja 31 '20

- Practical application of general lighting safety orders. R. L. Eltringham. J Elec 45: 65-6 Jl 15 '20
- Producing daylight effect by artificial lighting. il Mach 27:548 F '21
- Proper illumination a factor in increased production. O. L. Johnson. il Elec R 76:761-3 My 8 '20
- Real meaning of productive illumination intensities. D. H. Tuck. il Elec W 76:684-5 O 2 '20
- Relation of electric lighting to safety. A. B. Oday. il Elec R 76:764-6 My 8 '20
- Restoring a lighting system. W. Harrison and J. R. Colville. il Textile World 59: 3271+ My 14 '21
- Safety features of industrial lighting. S. G. Hibben. diags Illum Eng Soc 16:47-55 no 3 '21; Same. Elec R 78:773-6 My 14 '21; Same cond. Safety Eng 41:13-18 Ja '21; Excerpt. Power Pl Eng 25:567-8 Je 1 '21
- Selecting illumination for the industrial plant. J. J. McLaughlin. il J Elec 47:67-8 Jl 15 '21
- Some facts about shop lighting. Sci Am 125: 152 Ag 27 '21
- Some out of the ordinary applications of industrial lighting. S. G. Hibben. il diags Illum Eng Soc 15:591-8; Discussion. 598-602 no 8 '20
- Standards for the lighting of interiors. Illum Engr 13:275-6 O '20
- Survey of industrial lighting in fifteen states. R. O. Eastman. diags map Illum Eng Soc 15:77-93 no 1 '20; Abstract. Illum Engr 13:131-3 Ap '20; Discussion. Illum Eng Soc 15:93-6 no 1 '20
- Survey of prevailing conditions as to industrial lighting. Elec R 76:139-41, 180-3, 222-7 Ja 24-F 7 '20
- Symmetrical and economical factory lighting installation. A. H. Magnuson. il diag Elec W 78:574 S 17 '21
- Symposium—application of industrial lighting codes; codes of Wisconsin, New York, New Jersey, Pennsylvania and Federal code. il Illum Eng Soc 14:435-77; Discussion. 480-99 no 9 '19
- Value of lighting has at last been recognized. W. Harrison. il Elec W 75:146-8 Ja 17 '20
- Value of proper illumination. F. D. Fagan, R. E. Fisher and H. W. Kimball. J Elec 44: 154-6 F 15 '20
- What better illumination means to the business man. A. W. Childs. il plan J Elec 46:483-5 My 15 '21
- What one plant has learned about lighting. J. J. McLaughlin. il Factory 25:1413-15 N 1 '20
- When daylight fails; how is it best replaced?; photographs. Factory 24:56-7 Ja '20
- Year's developments in the science of industrial lighting; report of the Lighting sales bureau. National electric light association. J. Daniels. il Safety Eng 42:54-7 Ag '21
- See also Canneries—Lighting; Foundries—Lighting; Machine shops—Lighting; Textile mills—Lighting; Woodworking shops—Lighting

Location

- Choosing the new plant location. H. H. McCanna. il map Ind Management 61:396-8 Je '21
- Location as a factor in eliminating industrial waste. V: V. Kelsey. Chem & Met Eng 25: 401-2 Ag 31 '21
- Scientific location of manufacturing plants. J. G. Frederick. map Ind Management 62: 153-5 S '21
- Selecting the proper site for an industrial plant. G. G. Hollins. Paper 28:11+ Je 1 '21
- Should factories go back to the farm? W. R. Basset. il Factory 26:1387-90 Je 15 '21
- Sites for manufacturing plants. C: W. MacMullen. chart Textile World 60:585 Jl 23 '21
- Small town as a manufacturing center. N. G. Shidle. Automotive Ind 43:874-5 O 28 '20
- Why we're glad we moved to the country. F. Holton. il Factory 27:49-51 Jl '21

Lunch rooms

- See Lunch rooms and cafeterias, Employees'

Factories—Continued

Management

See Factory management

Protection

Insuring protection to industrial plants. W. F. Mulhall. *il Iron Tr R* 67:581-4 Ag 26 '20

Sanitation

See Factory sanitation

Signals

Audible electric signals in industrial plants, and acoustical engineering. V. Karapetoff. *il Am Inst E E J* 39:13-19 Ja '20; Abstracts. *Int Marine Eng* 24:466-8 Jl '19; *J Elec* 43:66-7 Jl 15 '19; *Textile World* 55:3707+ Je 14 '19; *Iron Age* 103:1715 Je 26 '19; *Elec R* 74:946 Je 7 '19

Audible signals in foundries. V. Karapetoff. *diags Sibley J* 33:101-3 D '19

Code calling systems in steel plants. V. Karapetoff. *diags Iron Age* 105:1501-3 My 27 '20

Colored light signal system for locating executives in a shop. *Mach* 27:33 S '20

Water supply

See Water supply for factories

Yards

Curious aids to recreation in factory yard. *il Pop Mech* 33:374-6 Mr '20

Factory accidents. See Accidents, Industrial

Factory athletics. See Athletics

Factory bands

Factory band idea as aid to personnel. V. E. Healy. *il Ptr Ink* 114:101-4 Ja 20 '21

Factory costs. See Manufactures—Costs

Factory dust. See Dust

Factory forums. See Forums, Industrial

Factory gardens. See Gardens, Factory

Factory inspection

Annual report of H. M. Chief inspector of factories (1919). *Illum Engr* 13:249-50 S '20

Factory laws

Compulsory welfare work in England. J. A. Hunter. *Textile World* 60:1219 Ag 27 '21

English cotton industry service work. *Textile World* 58:2355+ O 2 '20

Factory acts in relation to welfare. *Eng & Ind Management* 5:604-6 My 26 '21

See also Child labor; Employers' liability; Factory inspection; Hours of labor; Industrial laws; Labor laws; Lighting—Laws and regulations; Minimum wage; Woman—Employment

Factory libraries

Factory libraries; photographs. *il Factory* 25:884-5 S 15 '20

Off the president's bat; library of E. F. Houghton and co., Philadelphia. C: E. Carpenter. *Special Lib* 12:62-5 Ap '21

Plant library as an incentive basis for suggestion plan. G: W. Gray. *Ind Management* 61:436 Je '21

Using books to make better foremen; the Westinghouse electric and manufacturing company. E. H. Drylie. *Factory* 26:1085-6 My 1 '21

See also Business libraries; Technical libraries

Factory lunch rooms. See Lunch rooms and cafeterias

Factory management

Application of power to modern industry. *il Elec W* 76:165-7 Jl 24 '20

Brick dust versus gold dust. G. W. Greenwood. *Brick & Clay Rec* 59:505-6+ O 4 '21

Cards that keep machines busy. *il Factory* 27:190-1 Ag '21

Central control system in the Franklin plant. F. D. Jones. *il Mach* 27:745-9 Ap '21

Combination bonus and production control. C. E. Woods. *charts Administration* 1:239-45, 313-36 F-Mr '21

Control of external production. C. S. Pettit. *Eng & Ind Management* 5:632-3 Je 2 '21

Control of production. *Eng & Ind Management* 6:232-6 S 1 '21

Controlling efficiency in the clay plant. A. H. Kaoppel. *Brick & Clay Rec* 59:188-91 Ag 9 '21

Controlling production and keeping costs in a broaching tool plant. H. R. Simonds. *il Iron Tr R* 66:697-702 Mr 4 '20

Controlling your printing bills. J. H. Shepard. *Factory* 24:281-2 F 1 '20

Determining policies or planning production—which counts most? W. R. Basset. *Factory* 26:732-4 Mr 15 '21

Dull-period jobs that keep the factory busy. *Factory* 26:834-6 Ap 1 '21

Economic value of factory investigations. A. A. Dowd and F. W. Curtis. *Mach* 28:121-2, 208-12 O-N '21

Efficiency lacking in many shops. H. M. Fitz. *Iron Age* 106:1609-11 D 16 '20

Engineer's work definitely related to human element in the plant. H. Tipper. *Automotive Ind* 44:1254-5 Je 16 '21

Factory administration and cost accounts. E: T. Elbourne. new ed. 811p Longmans '21

Factory control through accounts and statistics. J. P. Jordan. *Administration* 1:53-61 Ja '21

Factory managers, take notice! C. H. Handforth. *Ind Management* 59:376 My '20

Factory organization and administration. H. Diemer. 3d ed. 398p McGraw-Hill '21

Factory production from the human side. H. Tipper. *Automotive Ind* 41:932-3 N 6 '19

Finding the better way. C: E. Ruby. *il Ind Management* 62:303-8 N '21

Flow of work. H. Diemer and others, eds. 64p La Salle extension university, Chicago '21

Foreman training and factory management. L. A. Hartley. 128p Woodruff ptg. co., Lincoln, Neb. '20

Functions of organized committees. T. Williams. *charts Administration* 2:295-304 S '21

Fundamentals of manufacturing. H: F. Albright. *il Ind Management* 62:161-5 S '21

Getting along with less maintenance material. P. M. Atkins. *Factory* 26:1406-8 Je 15 '21

Getting back to economical manufacturing. W. R. Basset. *Factory* 26:583-7 Mr 1 '21

Getting quality with economy. L. J. Belnap. *il Factory* 27:467 O '21

Getting ready to manufacture for lower prices; how two manufacturers have changed quantity of production to economy of production. W. R. Basset. *Factory* 25:1211-15 O 15 '20

Goodyear three-shift system. *Textile World* 57:939+ F 7 '20

Graphic planning of payroll procedure. W. C. Bober. *Ind Management* 60:336-7 N '20

Graphic production control for the small shop. R. J. Rahn. *Ind Management* 61:432-6 Je '21

Growing pains of business. W: R. Basset. *Ptr Ink* 111:165+ Ap 8 '20

Handling material in factories. W: F. Hunt. 404p Industrial extension institute, 9 E. 45th st., New York '20

Having an advertising campaign endorsed by the factory. T. Thrift. *Ptr Ink* 111:25-7+ Je 10 '20

How a factory diplomat aids production by a card index. *Factory* 25:1398-1400 N 1 '20

How can we increase production?—accident prevention. S. J. Williams. *Am Mach* 53:270-2 Ag 5 '20; Same. *W Soc E J* 25:550-5 O '20

How do you regulate materials? H: H. Farquhar. *Am Mach* 52:1338-40; 53:101-4, 151-2 Je 24, Jl 15-22 '20

How far does it pay to carry simplification? W. R. Basset. *il System* 40:413-15+ O '21

How Loyd Scruggs built an immense business by disregarding precedent. G. A. Nichols. *Ptr Ink* 113:3-4+ D 30 '20

How Mr Brown made over his shop. W. Clark. *Factory* 25:1731-5 D 1 '20

Factory management—Continued

- How other men manage. Factory 24:324+, 494+, 880+, 1080+, 1942+, 25:1078+, 1320+, 1656+; 26:788+; 27:236+ F 1-15, Mr 15-Ap 1, Je 15, O 1-15, N 15 '20, Mr 15, Ag '21
- How the banker sizes up your management methods. C. B. Hazlewood. Factory 26:960-1 Ap 15 '21
- How the inspection department helps the factory. G: S. Radford. Ind Management 60:418-21 D 1 '20
- How three plant managers are getting greater production. Factory 24:1902-3 Je 15 '20
- How to increase production and lower costs by the balance of work. W: D. Hemmerly. il Paper 26:18-21 My 26 '20
- How to increase shop production. E. T. Spidey. Eng & Ind Management 6:88-92 Jl 28 '21
- How to reduce expenses without hurting the business. Factory 26:167-70+ Ja 15 '21
- How we applied simplification. G: A. Gal-liver. il System 40:265-8+ S '21
- How we capitalize the lull. W. D. Plumb. il Factory 27:195-7 Ag '21
- Human element as related to standardization and uniformity. H. Tipper. Automotive Ind 45:432-3 S 1 '21
- Idleness and its relation to industry. T. W. Dinlocker and A. W. Wainwright. Automot-ive Ind 44:1012-17 My 12 '21 (Published in pamphlet form. 16p Industrial cost asso-ciation, Pittsburgh, Pa. '21)
- Improving shop methods by analysis. L. V. Estes. Ind Management 59:306-10, 367-71 Ap-My '20
- Increasing output of labor. G: F. Kuhne. Am Mach 53:1121 D 16 '20
- Increasing production, decreasing costs. C. U. Carpenter. 432p The Engineering magazine co., New York '20
- Increasing the yield from rejected materials. T. F. W. Meyer. Factory 24:60-3 Ja '20
- Industrial engineering in rubber factories. M. C. W. Tomlinson. India Rubber W 63:165-6 D '20
- Industrial relations at Mount Hope plant. A. R. White. il Textile World 60:2287+, 2421-2 O 22-29 '21
- Influence of variety, quantity and complexity of product in manufacturing control. G: D. Babcock. Ind Management 61:270-3 Ap 1 '21
- Inspection as an aid to planning. G: S. Rad-ford. Ind Management 61:25-30 Ja 1 '21
- Installing management methods in the wood-working industry. C. M. Bigelow. il charts diags Ind Management 58:1-8, 124-33, 185-95, 295-305, 388-99, 470-7 Jl-D '19
- Interdepartment production contests. R. R. Potter. Soc Auto Eng J 7:258-62 S '20; Dis-cussion. 7:473-4 N '20
- Keeping the factory busy all the year 'round. E. Newman. il Factory 25:876-9 S 15 '20
- Lincoln motor production plan. I. J. Beatty. Factory 24:440-2, 623-6, 793-6, 967-70, 1144-7, 1547-9, 1705-7, 1879-82 F 15-Ap 15, My-15-Je 15 '20
- Maintaining prices in spite of rising costs. N. G. Shidle. Automotive Ind 43:528-9 S 9 '20
- Making the production job a game. A. R. King. il Factory 24:952-5 Ap 1 '20
- Making tin mills more efficient. J. K. Lamo-ree. Iron Tr R 65:1642-6 D 18 '19
- Management as a factor in economical pro-duction. H. W. Allingham. Eng & Ind Management 5:267-8 Mr 3 '21
- Management problems of the small factory. E. Cordeal. Ind Management 61:306-10, 370-3; 62:114-19, 182-7 Ap 1, My 1, Ag-S '21
- Management's responsibility for restriction of output. F. L. Impey. Elec R (Lond) 89:243-4 Ag 19 '21
- Manufacturing department and the customer's order. Eng & Ind Management 6:65-6 Jl 21 '21
- Mass production. H. W. Allingham. plan Electrician 84:478-9 Ap 30 '20
- Mass production as applied to machine tools. E. W. Field. il Electrician 84:496-8 Ap 30 '20
- Material control for the small industrial plant. H: C. Haskell. Ind Management 62:271-3 N '21
- Methods of a production office. Eng & Ind Management 5:483-5 Ap 28 '21
- Methods of management. Eng & Ind Manage-ment 5:431-2, 456-7, 510-12, 654-6, 709-10 Ap 14-21, My 5, Je 9, 23 '21
- Methods that bring lowest costs. S. E. Thompson. Factory 26:1199-1200 My 15 '21
- Modern production methods. W. R. Basset. chart Am Mach 53:17-20, 63-6, 215-19, 619-25; 54:99-103; 55:286-8, 421-3, 501-5 Jl 1-8, 29, S 30 '20, Ja 20, Ag 18, S 15, 29 '21
- More attention to administration. J. H. Sheppard. Factory 25:1735-6 D 1 '20
- Multiple production—a new slogan. R. G. Skerrett. il Sci Am 122:58-9+ Ja 17 '20
- New department in Timken-Detroit axle co.'s Detroit plant; factory planning engineer. D. F. Kennedy. Iron Age 106:1177-9 N 4 '20
- New products to keep the factory busy. W: S. Dutton. il Factory 27:468-70 O '21
- Non-productive costs. F. O. Wells. Am Mach 55:563-4 O 6 '21
- Odd-jobs man. G: Gilbert. Am Mach 54:671 Ap 21 '21
- Or what have you? A. B. Campbell, jr. Fac-tory 24:1904-5 Je 15 '20
- Organization and management of the small shop. E. W. Leach. Am Mach 55:81-4, 190-3, 262-6, 338-41, 438-41, 513-16, 592-5, 671-3, 754-6, 883-5 Jl 21, Ag 4, 18, S 1, 15, 29, O 13, 27, N 10, D 1 '21; Discussion. A. W. Forbes. 55:719 N 3 '21
- Organization plan that typifies modern man-agement. S. H. Bullard. Ind Management 60:441-4 D 1 '20
- L'organisation scientifique appliquée à une fabrique de colles animales. V: Cambon. diag Chimie & Ind 5:96-102 Ja '21
- Organization, system and routine in a phono-graph-motor shop. W. E. Thompson. il chart Am Mach 52:127-31 Ja 15 '20
- Our flying squadron; how it boosts produc-tion and builds executives for the Good-year tire and rubber company. P. W. Litch-field. il Factory 24:611-14 Mr 1 '20
- Output problem. J. E. Powell. 168p Library press, London '20
- Planning and controlling production in a French shop. E. Jullien. il Am Mach 54:889-93 My 26 '21
- Planning as a function of management. A. R. Stelling. Eng & Ind Management 5:297-8, 317-19 Mr 10-17 '21
- Practical ways to cut costs. il Factory 24:48-50, 445-7, 1720-1; 25:701-4, 1573-4; 26:46-8, 606-7, 1083-4; 27:614-16 Ja, F 15, Je 1, S 1, N 15 '20, Ja 1, Mr 1, My 1, N '21
- Production control by graphics. F. R. Daniels. il Mach 28:112-20 O '21
- Production control; what it gives and what it takes. P. J. Darlington. il Ind Manage-ment 62:95-8 Ag '21
- Production department. M. H. Potter. chart Metal Ind 18:171 Ap '20
- Psychology of the one man-one job problem. H. Tipper. Automotive Ind 41:1230-1 D 18 '19
- Putting across a campaign for greater pro-duction. il Factory 24:1133-7 Ap 15 '20
- Question in factory management; starting a new department. W. B. Bennett. Am Mach 53:375 Ag 19 '20
- Reason why. W. J. Hiscox. Electrician 85:589, 656-7, 713-14; 86:252-3, 355, 524-5, 665, 725 N 19, D 3, 17 '20, F 25, Mr 25, Ap 29, My 27, Je 10 '21
- Sales that set the pace for production. W. R. Basset. Ptr Ink 111:3-4+ My 6 '20
- Save \$2—we'll give you one. P: F. O'Shea. Factory 27:326-8 S '21
- Seeing the short cuts. India Rubber W 61:340-1 Mr '20
- Sharpening up dull periods; 50 manufactur-ers tell how they take advantage of slack times. il Factory 26:718-23 Mr 15 '21
- Shop politics; comparison of political and honest executives. L. J. Voorhees. Am Mach 54:235-7 F 10 '21
- Short cuts. Factory 26:200+, 744+, 1454+; 27:56+ Ja 15, Mr 15, Je 15-Jl '21

Factory management—Continued

- Simplification in industry. G: A. Galliver. *il* Factory 27:463-6 O '21
- Simplification in industry; what simplification accomplished for us. J. M. Williams. *Factory* 26:952-3 Ap 15 '21
- Simplification in industry; why it paid us to reduce our line and make more goods. W. D. Pardoe. *Factory* 26:1175-7 My 15 '21
- Size of works and the efficiency of control. *Engineering* 109:135-6 Ja 30 '20
- Solving problems of production. G: T. Trundle, jr. *Iron Tr R* 66:1683-4 Je 10 '20
- Specific shop-order plan. T. J. King. *Administration* 2:321-4 S '21
- Steering the shop through the presidential campaign. *Factory* 25:536-7 Ag 15 '20
- Supplying goods to specification: the importance of detailed instructions. *diags Eng & Ind Management* 5:372-3 Mr 31 '21
- Technical man's duties. A. B. Green. *Paper* 29:9-11+ O 19 '21
- Three steps to readjusting a business. J. S. Carr, jr. *System* 39:218-20+ F '21
- Time limit on chair warming; plan for making the factory visitors feel at home. *Factory* 25:1405 N 1 '20
- Tool and fixture control in woodworking. C. M. Bigelow. *il diags Ind Management* 59:284-7 Ap '20
- Training men to specialize in cutting costs. E: L. Ryerson, jr. *il Factory* 26:590-4 Mr 1 '21
- Trend of industrial management. E. H. Schell. *Am Mach* 54:557-8 Mr 31 '21
- Trends in management; factory executives of tomorrow—how will they be trained? W: L. Stoddard. *Factory* 26:970-2 Ap 15 '21
- Trends in management; is there any movement toward organizing foremen? A. D. McKillop. *Factory* 27:52-3 Jl '21
- Trends in management; what is the business outlook today? C: Piez. *Factory* 26:30-2 Ja 1 '21
- Trends in management; what the factory fire-prevention points to. F. H. Wentworth. *Factory* 26:854-5 Ap 1 '21
- Visualizing facts for control. L. V. Estes. *diags Ind Management* 59:57-63, 127-33, 209-14 Ja-Mr '20
- Warring on waste. *Factory* 26:674+, 864+, 1202+; 27:64+, 564+ Mr 1, Ap 1, My 15, Jl, O '21
- What I learned when each superintendent inventoried his job. W. J. Kilpatrick. *il Factory* 24:37-40 Ja '20
- When machines are idle; a dozen answers to the question, "Who pays overhead in dull periods?" *Factory* 26:947-52 Ap 15 '21
- Where can you cut costs? charts *Factory* 26:966-8 Ap 15 '21
- With the works engineer. *il diag Factory* 26:906+, 978+; 27:88+, 492+ Ap 1-15, Jl, O '21
- Works management. H: Fowler. *Engineer* 130:398 O 22 '20
- Works management. F. C. Van Dyke. *Engineering* 109:35-6 Ja 9 '20
- Works manager's problems. W. D. Forbes. *Am Mach* 54:331 F 24 '21
- Works organisation; production engineer's planning department in an automobile factory. R. Waring-Brown. *diags Eng & Ind Management* 6:377-82 O 6 '21
- See also* Assembling methods; Bonus system; Bulletins; Company stores; Control boards; Conveying machinery; Cost accounting; Dental service, Industrial; Efficiency, Industrial; Employees; Employees, Transportation of; Employees' representation in management; Employment managers; Employment management; Employment systems; Factories—Cleanliness; Factories—Signals; Factory transportation; Foremen; Foremen's meetings; Forewomen; Industrial betterment; Industrial management; Inspection; Inventories; Janitors; Job analysis; Knitting mills—Management; Machine shop management; Mechanical handling; Medical service, Industrial; Metal cleaning; Motion study; Office management; Organization in industry; Packing for ship-

ment; Paper mills—Management; Payrolls; Piece work; Planning; Production; Progress records; Purchasing; Records; Rest periods; Routing systems; Safety devices and measures; Schedules; Service (in industry); Shipment of goods; Stores systems; Suggestion systems; Symbols, Mnemonic; Textile mills—Management; Time keeping; Time study; Vacations; Waste; Welfare work in industry

Bibliography

- Bibliography of industrial efficiency and factory management. H. G. T. Cannons. 167p G. Routledge & sons, London; Dutton, New York '20
- Factory papers. *See* Employees' magazines; House organs
- Factory sanitation**
- Advantages of proper bathing for workers. J. L. Mason. *Plumbing* 95:387+ Je 17 '21
- Hygienic installations in modern industries. L: Dejardin. *J Ind Hygiene* 2:374-7 F '21
- Hygienic measures in the mill to promote welfare of employees. *Paper* 28:14-16 Mr 30 '21
- Increasing the output of labor. J. E. Bulard. *Am Mach* 53:591-2 S 23 '20
- Safe practices for factory plumbing. *il Dom Eng* 91:382-4, 482-4, 537-8 My 29, Je 12-19 '20
- Simplified factory wash room equipment. W. K. Jordan. *diags Dom Eng* 91:189-90 My 1 '20
- Solving a factory wash room problem. *diags plan Plumber* 94:533 D 3 '20
- See also* Factories—Cleanliness; Factories—Heating and ventilation; Foundry sanitation
- Factory schools. *See* Corporation schools
- Factory stores. *See* Company stores
- Factory town. W. Osborne. *il Am Mach* 52:625-7 Mr 18 '20
- Factory transportation**
- Carrier for every job. *il Factory* 26:317-18 F 1 '21
- Co-ordinating the industrial plant through intra-factory transportation. W. F. Merrill. *il Ind Management* 61:260-5 Ap 1 '21
- Handling material at the plant of the Greenfield tap and die corporation. P: F. O'Shea. *il Am Mach* 52:880-3 Ap 22 '20
- Inter-plant transportation. *Am Mach* 54:703 Ap 21 '21
- Intra-factory transportation. L. R. Clapp. *Ind Management* 61:195-7 Mr 1 '21
- Making hand trucks work more. *il Factory* 26:1303-6 Je 1 '21
- Material flows steadily with efficient intra-plant trucking. N. G. Shidle. *il plan Automotive Ind* 44:1208-10 Je 9 '21
- Routing of material feature of plant; Youngstown pressed steel co. introduces tunnels under new shops. F. L. Prentiss. *il Iron Age* 107:1741-5 Je 30 '21
- Shop trucking on a bonus basis. R. J. Spence. *Mach* 27:782-3 Ap '21
- Simpler methods of moving materials. *Factory* 24:98+, 502+, 826+, 1092+, 1350+; 25:533-4, 1254+, 1586; 26:114+, 974+, 1462+; 27:396+ Ja, F 15, Mr 15-Ap 1, My 1, Ag 15, O 15, N 15 '20, Ja 1, Ap 15, Je 15, S '21
- Where men are replaced by rollers. *il Factory* 27:624-5 N '21
- See also* Electric trucks, Industrial; Mechanical handling; Trucks
- Factory waste. *See* Trade waste
- Fair practice committees**
- Sales contracts and fair play. *Am Mach* 53:918-19 N 11 '20
- Fairbanks company, Philadelphia, Pennsylvania**
- Personalizing a machinery store. P. B. Findley. *Ptr Ink* 114:81-2 F 17 '21
- Fairmount, West Virginia**
- Bridges**
- Concrete arch bridge of three 250-foot spans. E. H. Harder. *il diags Eng N* 87:472-6 S 22 '21

Fairmount, West Virginia—Bridges—Continued
Three longest consecutive arch spans characterize Fairmont bridge. C: F. Bornefeld. il diag plan Concrete 19:46-51, 76-9 Ag '21

Fairs

How a country fair helped plant teamwork. il Factory 25:226 Jl 15 '20

Fajardo sugar company of Porto Rico

Annual report to the shareholders for 1920. Comm & Fin Chr 111:2530 D 25 '20

Falcon steel company, Niles, Ohio

Falcon steel company operates sheet mill. il plan Blast F & Steel Pl 8:274-80 My '20

Falconry

Feathered hunters who work for man; ancient sport of falconry, a pastime well suited for modern America. T: C. Turner. il Sci Am M 2:318-21 D '20

Fall, Albert Bacon, 1861-

Secretary of the interior. P. Wooton. por Eng & Min J 111:589 Ap 2 '21

Family of products. See Advertising—Family of products

Famous players-Lasky corporation

Consolidated statement of assets and liabilities and profit and loss accounts. Comm & Fin Chr 112:1167 Mr 19 '21

Fanning mills

Fanning mill accessory extracts hemp seed. il Pop Mech 35:849 Je '21

Fans, Mechanical

Automatic, polyphase, brush-shifting motor-driven draft fan installation at Springdale station, West Penn power co. R. A. Jones. il diags Gen Elec R 24:803-9 S '21

Auxiliaries for fans in heating and ventilating work. C: L. Hubbard. diags Dom Eng 91:385-6+, 532-4+ My 29, Je 19 '20

Calculation of blower systems. J: L. Alden. charts Power 53:180-3 F 1 '21

Centrifugal fan showing novel impeller design. il Heat & Ven 18:57 Ap '21

Control of direct-current motors in ventilation service. W: H. Easton. Power 52:970-1 D 21 '20

Controlling factors in fan design. D: Darrin. Heat & Ven 18:49-52 O '21

Developments in centrifugal fan design. F. W. Bailey and A. A. Criqui. diags Am Soc Heat & V E J 27:375-80 My '21; Abstract. Mech Eng 43:542-3 Ag '21; Same. Sci Am M 4:190 Ag '21; Discussion. Am Soc Heat & V E J 27:604-10 Jl '21

Elements of efficient combustion. N. P. Winchell, jr. il Paper 26:21-2 S 1 '20

Fans; definitions. Heat & Ven 16:73-4 D '19

Motor drive for fans and blowers. G. Fox. il Power 53:664-6 Ap 26 '21

Motors for driving ventilating fans. W: H. Easton. il Power 51:759-61 My 11 '20

Side lights on fans and their functions. D: Darrin. chart diags Heat & Ven 18:32-4 Ag '21

Small fans as an aid to bigger business. il plan Sheet Metal Worker 12:526+ S 2 '21

Testing and application of ventilating-fans. W. S. Weeks. il diags Min & Sci P 121:11-15 Jl 3 '20

Theory of the centrifugal fan. W. S. Weeks. il diags Min & Sci P 120:858-62 Je 12 '20

See also Air fans; Blowers; Electric fans; Fans, Mine

Fans, Mine

Centrifugal force in fan action. H: Bock. diags Coal Age 18:951-2 N 4 '20

Do fans operate by centrifugal force? D: W. Evans. il diags Coal Age 18:487-9 S 2 '20

Expansion of spiral fan casing. Coal Age 17:63 Ja 8 '20

Fan equipment for metal-mine fires. T. H. Arnold. il Eng & Min J 111:590-1 Ap 2 '21

Fitting the fan to the needs of the mine. T: Chester. Coal Age 18:1326-9 D 30 '20

Guarantee of work of mine fans. Coal Age 17:63 Ja 8 '20

Kempton fan has inclined evasé opening with bearing on skeleton A-frame. il Coal Age 19:803-4 My 5 '21

Mine fan is driven by a uniflow engine. il Coal Age 19:907-8 My 19 '21

Operating a fan at normal capacity. Coal Age 19:23-4 Ja 6 '21

Power required to drive fan. Coal Age 19:544-5 Mr 24 '21

Problems in mine ventilation. W. S. Weeks. chart diags Min & Sci P 121:117-22 Jl 24 '20

See also Mine ventilation

Fanzolo, Italy

Architecture

Villas of the Veneto; the Villa Emo at Fanzolo. H. D. Eberlein and R. B. C. M. Carrère. il diags plan Arch Forum 34:1-8 Ja '21

Far East

New worlds for old. R: Spillane. il Nation's Business 8:13-15 Mr '20

Post-bellum ferment in the Far East. Comm & Fin Chr 110:912-14 Mr 6 '20

See also China; Electric industries—Far East; Japan; Machine tool industry—Far East; Railroads—Far East

Commerce

Can you sell to the Far East today? P. Thayer. System 39:572+ Ap '21

Problems fundamental to mining enterprise in the Far East. H. F. Bain. il Min & Met 170:5-13 F '21

Trade opportunities in the Far East—the Chinese consortium. T. W. Lamont. Comm & Fin Chr 111:1224-5 S 25 '20

Trading with the Far East. O. P. Austin. (Foreign Commerce Ser. 4) 78p map '20 National bank of New York, 55 Wall st, N.Y.

Economic conditions

Present economic situation in the Far East. G: T. Ladd. Comm & Fin Chr 111:2087-90 sec 1 N 27 '20

Industries and resources

Problems fundamental to mining enterprise in the Far East. H. F. Bain. il Min & Met 170:5-13, 28-37 F-Mr '21

Faraday, Michael, 1791-1867

Four great British electric lights: Faraday—the discoverer; Maxwell—the interpreter; Kelvin—the measurer; Silvanus Thompson—the teacher. L. B. Atkinson. Inst E E J 59:667-76 Je '21

Work of Michael Faraday. R. Hadfield. Electrician 84:172-3 F 13 '20

Faraday society

Discussion on colloids. Engineering 110:580-2, 595-6 O 29-N 5 '20

Faraday's law

Faraday's law at the cathode. J. W. Richards. Am Electrochem Soc Trans v 38 (preprint 7):45-7 O '20; Same. Metal Ind 18:469 O '20; Same. Brass W 17:179 Je '21

Fare collecting. See Street railroads—Fare collecting; Subways—Fare collecting

Farlow, William Gilson, 1844-1919

Sketch. R. Thaxter. por Am J Sci 49:86-95 F '20

Farm accounting

Interest on land values as a factor in farm costs. Annalist 17:230 F 14 '21

System of farm cost accounting. C. E. Ladd and J. S. Ball. U S Agric Farmers' Bul 572: 1-21 '20

Farm buildings

All modern conveniences on the farm. H: F. Thurston. il Dom Eng 92:437-9+ Ag 28 '20

Builds farm to demonstrate value of tile. F. L. Clark. il Brick & Clay Rec 59:502-4 O 4 '21

Farm buildings. F. C. Lewis. (Circ. no. 100) 144p Indiana agricultural experiment station, Lafayette '21

Farm buildings of Arthur Curtiss James, esq., Newport, R. I. W. F. Anderson. il diags plans Arch Forum 34:55-8, pl 22-4 F '21

Group of farm buildings at Lantryville, Ill. il diags plans Bldg Age 42:31-5 Ag '20

Farm buildings—Continued

- Making farm buildings attractive. *il Bldg Age* 43:22 N '21
- Practical and inexpensive farm buildings from willow saplings. *Sci Am* 124:209+ Mr 12 '21
- Project in farm buildings. D. Scoates. *Am Lumberman* 2331:55 Ja 17 '20
- Replace \$250,000,000 farm buildings yearly. E. G. Meredith. *Brick & Clay Rec* 58:645-7 Ap 19 '21
- See also Barns and stables; Farmhouses; Granaries; Silos
- Farm bureau federation, American. See American farm bureau federation
- Farm colonies. See Agricultural colonies
- Farm elevators. See Granaries
- Farm engines
- Manufacturing a farm pump engine. J. V. Hunter. *il diags Am Mach* 52:943-6 Ap 29 '20
- Farm labor
- Agricultural conditions and labour agreements in Denmark and Sweden. *Int Labour R* 2:97-118 Ap '21
- Agricultural labourers of Hungary. *Int Labour R* 1:137-47 Ja '21
- Control of the employment of children in agriculture in Canada and the United States of America. *Int Labour R* 4:170-94 O '21
- Farmer's relation to our national well-being. *Am Arch* 117:317-18 Mr 10 '20
- Hours and wages of agricultural labor in Sweden. *Monthly Labor R* 12:791-4 Ap '21
- How much longer do we eat? F. W. Hersey. *Am Ind* 21:25-7 Ag '20
- Minimum rates of wages of agricultural laborers in England and Wales. *Monthly Labor R* 11:296-7 Ag '20
- Minimum rates of wages of agricultural laborers in Great Britain and Ireland. *Monthly Labor R* 11:111 JI '20
- Results of admissions of Mexican laborers, under departmental orders, for employment in agricultural pursuits. *Monthly Labor R* 11:1095-7 N '20
- Wages and hours of labor of farm workers in Scotland, 1919-20. *Monthly Labor R* 13:362-4 Ag '21
- Wages of agricultural workers in Italy. *Monthly Labor R* 13:130-4 JI '21
- Wages of male farm labor in the United States in specified years, 1866 to 1919. *Monthly Labor R* 11:107-8 JI '20
- Wages of male farm labor in the United States, 1916 to 1920. *Monthly Labor R* 12:568-9 Mr '21
- Who shall work the farms? G. H. Dacy. *il Sci Am* 124:184+, 208+ Mr 5-12 '21
- Consult the Agricultural Index for additional material
- Farm labor, Advertising for
- Advertising must help to speed the back-to-the-farm movement. A. R. Howell. *Ptr Ink* 112:33-6 JI 1 '20
- To-morrow's appeal to the farmer. S. C. Lambert. *Ptr Ink* 113:69-70+ O 28 '20
- Farm lighting plants
- Analysis of the American farm lighting plant industry. G. Wiedeman. *Automotive Ind* 44:393-5+ F 17 '21
- Automatic lighting sets. H. R. Taunton. *Elec R (Lond)* 89:204-5 Ag 12 '21; Discussion. M. Tate. 89:307 S 2 '21
- Comparison of mechanical features and operating principles of farm lighting sets. P. H. Daggett and W. C. Walke. (Country home comforts & conveniences ser. no. 1, pt. 2) Univ of North Carolina Ext Leaflets 3:1-8 O '19
- Complete enclosure feature of Electrion farm light. *il Motor Age* 38:28-9 O 14 '20
- Contractor-dealer finds profits in farm plants. L. B. Robinson. *il Elec R* 79:649-50 O 29 '21
- Designing a lighting plant for the export field. *il Automotive Ind* 42:968 Ap 22 '20
- Electricity in isolated buildings. E. H. Freeman. *il diags Elec R (Lond)* 89:557-60, 633-5 O 28, N 11 '21

- Farm lighting plants at Kansas City show. *il Motor Age* 37:19 F 26 '20
- Giving more power and plenty of safe light; Kohler automatic power and light unit. *il Plumber* 95:205+ Ap 8 '21
- Home-farm power and lighting. 141p American automobile digest, Cincinnati '20
- House-lighting plant uses six-volt auto battery. *il Pop Mech* 35:712 My '21
- How to select your outfit for farm service. *Elec R* 79:659-60 O 29 '21
- Knight engine adapted to two-unit farm lighting system. *diags Automotive Ind* 42:14-17 Ja 1 '20
- Lighting farm buildings by electricity. C. L. Hubbard. *il Bldg Age* 43:43-4+ S '21
- Merritt farm lighting plant is air and water cooled. *diag Automotive Ind* 42:857 Ap 8 '20
- New electric lighting set. *il diags Engineer* 131:298-9 Mr 18 '21
- Novelties in design of the Sunnyhome farm plant. *il diags Automotive Ind* 42:752-3 Mr 25 '20
- 110-volt d.-c. automatic power and light unit. *il Metal Work* 94:7 JI 2 '20
- Present status of the isolated gas-electric generating plant. C. Froesch. *il diags Soc Auto Eng J* 8:28-37; Discussion. 37-42 Ja '21; Abstract. *Automotive Ind* 43:818-19 O 21 '20
- Problem course in electricity; wiring for a farm lighting plant. H. H. Bliss. *diags J Elec* 46:81-3 Ja 15 '21
- Servicing the farm light. *il Motor Age* 37:35+ Ap 1 '20
- Should the contractor-dealer sell farm plants? C. E. Becker. *Elec R* 79:652 O 29 '21
- Two types of Stearns lighting and power plants. *il Elec R* 79:674 O 29 '21
- Woman on the farm; farm lighting set. *il J Elec* 45:467-8 N 15 '20

Specifications

- Farm lighting and power plant specifications. *Automotive Ind* 42:517 F 19 '20
- Motor age farm-lighting specification tables. *Motor Age* 38:52-3 S 23 '20
- Specifications of isolated electric lighting and power plants. 1921; tabulation. G. Wiedeman. *Automotive Ind* 44:394-5 F 17 '21
- Farm loan act. See Agricultural credit; Federal loan act
- Farm loans. See Agricultural credit
- Farm machinery. See Agricultural machinery
- Farm management
- Shortening the route from farm to consumer. J. T. Bartlett. *Sci Am* 123:277 S 18 '20
- See also Farm accounting

Farm papers

- Advertiser's view of the farm paper and the farm market. F. R. Todd. *Ptr Ink* 110:100+ Ja 15 '20
- Milline rate of a piece of cheese. *Ptr Ink* 117:149-50+ O 20 '21

Farm produce

- Agricultural tide has turned and better times are coming on the swell. B. W. Snow. *Ptr Ink* 117:69-70 O 6 '21
- Consult the Agricultural Index for additional material

Advertising

- Advertise merits of shipping point inspection. J. T. Bartlett. *Ptr Ink* 114:77-8 Mr 31 '21
- Inactive farm crops need advertising. F. F. George, jr. *Ptr Ink* 115:134+ My 26 '21

Marketing

- Efficient marketing for agriculture. T. Macklin. 418p Macmillan '21
- Grain, cotton and co-operative marketing. H. M. Robinson. *Comm & Fin Chr* 111:103-7 sec 2 N 20 '20
- Plan for cooperation between farmer and consumer. B. MacKaye. maps *Monthly Labor R* 11:213-33 Ag '20
- Shortening the route from farm to consumer. J. T. Bartlett. *Sci Am* 123:277 S 18 '20

Farm produce—Marketing—Continued

Suggestions for a national marketing program. G: Livingston. *Annalist* 17:732-3 J1 11 '21

See also Marketing, Cooperative; *also* American farm bureau federation, United States grain growers, inc.

Prices

Would have farm prices at 70% above pre-war normal. H: C. Wallace. *Comm & Fin Chr* 112:1097-9 Mr 19 '21

Farm tractors. *See* Tractors

Farm women

Drive against drudgery. A. W. Douglas. *il Nation's Business* 8:51-2 Ag '20

Farm woman tells her own story. *il Dom Eng* 93:161+ O 23 '20

Woman on the farm; farm lighting set. *il J Elec* 45:467-8 N 15 '20

Farmers

Co-operation with farmer needed to steady nation's business. L: E. Pierson. *Ptr Ink* 110:138+ Ja 22 '20

Farm thrift—its significance to advertisers. *Ptr Ink* 112:122+ Ag 5 '20

Farmer and the open shop. M. D. Campbell. *Am Ind* 20:37-8 Je '20

Farmer and the patent system. E. J. Prindle. *Am Ind* 21:19-20+ Mr '21

Farmer's place in America's business. A. Capper. *Ptr Ink* 110:57-8+ Ja 15 '20

Interrelationship of highway transport and back-to-the-farm movement. S. V. Norton. *Good Roads n s* 19:254-6+ My 19 '20

Plain talk with the farmers. E: A. Bradford. *Annalist* 17:755-6 J1 18 '21

Will the farmer buy this fall? J. O'Hara. *Nation's Business* 9:14 S '21

See also Marketing, Cooperative; Special trains, Educational; *also* American farm bureau federation

Advertising

To-morrow's appeal to the farmer. S. C. Lambert. *Ptr Ink* 113:69-70+ O 28 '20

Farmers' educational and cooperative union

Development of the Farmers' union in the United States. *Monthly Labor R* 13:220-1 J1 '21

Farmers' finance corporation (proposed)

Farming cooperation. *Comm & Fin Chr* 112:2466-7 Je 11 '21

Proposed plan. *Comm & Fin Chr* 112:2361 Je 4 '21

Farmers' national council

Association of railway executives takes issue with the Farmers' national council. *Ry Age* 69:1033-4 D 10 '20

Farmhouses

Beautifying the farmstead. F. L. Mulford. *il chart diag*s plans U S Agric Farmers' Bul 1087:1-63 '20

Kind of house Mrs Farmer wants. W: D. Brinckloe. *il plans Bldg Age* 43:26-7 S '21

Planning the farmhouse. W: D. Brinckloe. *plans Arch Rec* 47:558-60 Je '20

Reconstructing the farm buildings of Belgium. *il Am Inst Arch J* 8:251, 261-5 J1 '20

Well arranged Illinois farm. A. Bateman. *diag plan Dom Eng* 94:185-6 Ja 22 '21

What the farm woman wants. C. G. Lewis. *Am Lumberman* 2331:62-3 Ja 17 '20

Consult the Agricultural Index for additional material

Farming. *See* Agriculture

Farms

Engineering factors in irrigated farm appraisals. J. T. Whistler. *Eng N* 84:1100 Je 3 '20

Farming in Death Valley, Cal. J: E. Hogg. *il Pop Mech* 33:339-44 Mr '20

Land classification used by farm-loan engineer appraisers. J. T. Whistler. *Eng N* 85:715-17 O 7 '20

See also Agriculture; Irrigation

Fashion

Fashions, textiles and dyes. L. W. Alwyn-Schmidt. *Color Tr J* 9:1-3 J1 '21

Garment advertising strikes at whims of fashion. C. M. Harrison. *Ptr Ink* 117:33-4+ O 27 '21

Odd buying habits of the American customer. R. Giles. *Ptr Ink* 111:41-2+ Ap 8 '20

Would better merchandising solve of our problems? R. Dickinson. *Ptr Ink* 112:3-4+ S 16 '20

See also Clothing trade—Advertising

Fatigue

Comparison of an eight-hour plant and a ten-hour plant. J. Goldmark and M. D. Hopkins. *J Ind Hygiene* 2:348-51 Ja '21

Discussion of Public health bulletin no. 106, comparison of an eight-hour plant and a ten-hour plant. A. H. Ryan; P. S. Florence. *J Ind Hygiene* 2:466-85 Ap '21

Eliminating monotony from work. J. O. G. Gibbons. *Mech Eng* 43:56 Ja '21

Fatigue. *Ind Management* 60:129 Ag '20

Fatigue and efficiency in an iron and steel works. H. M. Vernon. *il Eng & Ind Management* 5:201-8, 226-9, 287-90, 320-3, 384-5, 461-2, 519-22 F 17-24, Mr 10-17, 31, Ap 21, My 5 '21

Fatigue and efficiency in the iron and steel industry. H. M. Vernon. 99p Great Britain Industrial fatigue research board, London '20; Abstract. *J Ind Hygiene* 3:sup110-11 S '21

Fatigue and error in a mental occupation. J. P. Baumberger. *J Ind Hygiene* 3:149-53 S '21

Fatigue and industrial efficiency. W. N. Polakov. *Ind Management* 58:448-52 D '19

Fatigue and its effect on production. A. Vautrin. *Mech Eng* 42:238-9 Ap '20; Same. *Sci Am M* 1:277-8 Mr '20; Same. *Iron Age* 105:1241 Ap 29 '20

Fatigue in rolling mills. *Iron Age* 107:520 F 24 '21

Fatigue in the boot and shoe industry. J. Loveday and S. H. Munro. *Eng & Ind Management* 5:541-3 My 12 '21

Fatigue study and safety work co-ordinate. F. B. Gilbreth and L. M. Gilbreth. *Safety Eng* 42:167-9 O '21

Fatigue study—the first step in better industrial relations. F. B. Gilbreth and L. M. Gilbreth. *Ind Management* 59:323-4 Ap '20

Fatigue tests at Purdue university. G: H. Shepard. *il Ind Management* 62:281-6 N '21

Hours of work in relation to quality of output. A. H. Ryan and P. S. Florence. *Plumber* 95:302 My 20 '21

How fatigue affects output. *Factory* 24:174+ Ja '20

Human factor in industry. C. H. Northcott. *Ind Management* 62:295-7 N '21

Industrial fatigue. *Engineer* 129:658 Je 25 '20

Industrial fatigue. C: S. Myers. *Eng & Ind Management* 5:129-30+ F 3 '21

Industrial fatigue research. *Eng & Ind Management* 5:285-6 Mr 10 '21

Industrial fatigue—theory and practice. E. A. Pells. *diag Eng & Contr* 52:765-7 D 31 '19

Influence of fatigue on accident frequency. A. Vautrin. *Eng & Contr* 53:749 Je 30 '20

Influence of fatigue on health and longevity. H. M. Vernon. *bibliog J Ind Hygiene* 3:93-8 J1 '21

Influence of hours of work and of ventilation on output in tinsplate manufacture. H. M. Vernon. *Chem & Met Eng* 22:223-5 F 4 '20

Interest in work a vital factor in fatigue studies. H. Tipper. *Automotive Ind* 42:324-5 Ja 22 '20

Mind and work; fatigue study. C: S. Myers. p. 35-69 Putnam '21

Preliminary notes on the boot and shoe industry. 32p Great Britain Industrial fatigue research board, London '20

Prevention of fatigue in industry. R. A. Spaeth. *Ind Management* 59:7-9, 120-2, 215-17, 311-13, 409-11 Ja-My '20

Problem of fatigue. L. F. Fuld. *Ind Management* 58:417-18 N '19

Fatigue—Continued

- Production manager's relation to fatigue studies. H. Tipper. *Automotive Ind* 44:1022-3 My 12 '21
- Reducing fatigue in tool rooms. F. G. Gilbreth and L. M. Gilbreth. *il diag Iron Tr R* 69:1004-6 O 20 '21
- Relieving fatigue by means of toxins; a new method of stimulating animal organisms. M. Claus. *Sci Am M* 2:205-6 N '20
- Repetitive operation. *Am Mach* 53:1102-3 D 9 '20
- Scientific management; conditions of work fatigue. H. Atkinson. *Eng & Ind Management* 6:6-8 J1 7 '21
- Some observations on bobbin-winding. 40p Great Britain Industrial fatigue research board, London '20; Abstract. J. A. Hunter. *il diag Textile World* 59:345+ Ja 15 '21
- Unnecessary fatigue; America's multi-billion enemy. F. B. Gilbreth and L. M. Gilbreth. *il Sci Am M* 1:154-6 F '20; Same. Sibley *J* 34:92-4+ J1 '20
- Wages and working hours are different problems. H. Tipper. *Automotive Ind* 44:232-3 F 3 '21
- See also* Hours of labor; Motion study; Muscular power; Posture; Rest days; Rest periods; Work
- Bibliography**
- Selected references on industrial fatigue with annotations. *Monthly Bulletin* p 223-6 My '20 Carnegie Library of Pittsburgh
- Fatigue in metals**
- Cross-relations of strengths of metals in tension, compression, torsion and transverse loading. G. B. Upton. Sibley *J* 35:129-33 S '21
- Engineering relations of shock and fatigue. W. Rosenhain. *Automotive Ind* 42:1293-6 Je 10 '20
- Failure of metals under internal and prolonged stress. *Engineer* 131:371-2, 396-8, 427-8 Ap 8-22 '21; *Engineering* 111:429-32, 443-5 Ap 8-15 '21; Discussion. *Mech Eng* 43:476-8 J1 '21
- Fatigue and impact fatigue tests of aluminum alloys. W. A. Gibson. *il Am Soc T M Pro v* 20 pt 2:115-32; Discussion. 133-6 '20
- Fatigue of metals. P. Kreuzpointner. *Eng & Min J* 112:216-17 Ag 6 '21
- Fatigue of metals under repeated stress. H. F. Moore. *il diag W Soc E J* 24:331-6; Discussion. 336-40 Je '19
- Fatigue of metals under repeated stresses. H. F. Moore and J. B. Kommers. *il diags Blast F & Steel Pl* 8:368-72 Je '20; Same cond. *Iron Age* 105:1595-8 Je 3 '20; Excerpts. *Soc Auto Eng J* 8:417-18 My '21; Abstract. *Iron Tr R* 66:1615-16 Je 3 '20
- Fatigue of steel. H. F. Moore. *Iron Age* 107:1687 Je 23 '21; Excerpts. *Min & Met* 174:47 Je '21
- Fatigue phenomena in metals. *diags Sci Am M* 1:221-8 Mr '20
- Fatigue strength of carbon spring steel. E. P. Stenger and E. H. Stenger. *Chem & Met Eng* 23:635 S 29 '20
- Hardness and its relation to ductility and fatigue range. W. Rosenhain. *Automotive Ind* 44:604-7 Mr 17 '21
- Improvements in methods of fatigue testing. H. J. Gough. *diags Engineer* 132:159-62 Ag 12 '21; Abstract. *Mech Eng* 43:677-80 O '21
- Information on fatigue failures. *Chem & Met Eng* 24:370-1 Mr 2 '21
- Recoverance. R. G. Guthrie. *Chem & Met Eng* 23:671-2 O 6 '20
- Stress results within elastic limit; abstracts. R. G. Guthrie. *il Iron Age* 106:649-51 S 9 '20; *Iron Tr R* 67:843-5 S 23 '20; *Soc Auto Eng J* 8:65-8 Ja '21
- Tests support theory of fatigue. H. F. Moore. *Iron Tr R* 68:895-6+ Mr 31 '21; Same. *Ry Mech Eng* 95:240-1 Ap '21
- Widney modulimeter. *il Ind Management* 60:254-6 S '20
- Fats.** See Oils and fats
- Fatty acids.** See Acids, Fatty

Faucets

- Making fuller work fool proof. H. A. Call. *il diags Plumber* 94:421-3 O 8 '20

Manufacture

- Manufacture of a brass faucet or compression Bibb cock. P. W. Blair. *il Metal Ind* 18:159-60 Ap '20

Faults (geology)

- Influence of faulting in the Illinois oil fields. H. A. Wheeler. *Eng & Min J* 111:22-4 Ja 1 '21
- Is it true? G. S. Binckley. *Eng & Min J* 109:866-7 Ap 10 '20
- Radial fault explains salt water show in three wells at Homer. P. Wagner. *Nat Pet N* 12:30-1 F 4 '20
- Telluric relations of dislocative fissure veins. C. R. Keyes. *Eng & Min J* 109:965-6 Ap 24 '20
- Vulture mine. W. S. Hutchinson. *il diags Eng & Min J* 111:298-302 F 12 '21

Fauna. See Fresh-water fauna

Fay, Albert H.

- Government officials prominent in mining. P. Wooton. *por Eng & Min J* 112:657 O 22 '21

Federal building loan bill

- Federal building loan bank bill an aid to America's industrial housing problem. L. S. Smith. *Eng & Contr* 54:601-3 D 22 '20

Federal electric company, Chicago

- Federal electric and Walker vehicle plants, Chicago. *il diag plans Am Arch* 119:559-64 My 11 '21

Federal electric railways commission. See United States—Federal electric railways commission

Federal farm land banks

- Benefits to farmers from federal farm loan land banks and joint stock banks claimed to be delusive. E. D. Chassell. *Comm & Fin Chr* 113:1205 S 17 '21

House committee's action on bill to permit deposit of \$50,000,000 in Federal land banks. *Comm & Fin Chr* 112:2697 Je 25 '21

President Harding signs bill to increase deposits in Federal land banks. *Comm & Fin Chr* 113:136-7 J1 9 '21

Senate passes bill to permit deposit of \$50,000,000 of government funds in Federal land banks. *Comm & Fin Chr* 112:2480-1 Je 11 '21

Federal farm loan act

Farm loan act extended to Porto Rico. *Comm & Fin Chr* 112:889 Mr 5 '21

Federal farm loan act. (Circ., no. 4) 29p Federal farm loan bureau, Washington, D.C. '20

U.S. Supreme court upholds validity of federal farm loan act. *Comm & Fin Chr* 112:888-9 Mr 5 '21

Federal farm loan bureau

Land classification used by farm-loan engineer appraisers. J. T. Whistler. *Eng N* 85:715-17 O 7 '20

Federal farm loan system. See Agricultural credit

Federal foreign banking association

First Federal foreign banking association on financing by acceptance. *Comm & Fin Chr* 111:1324 O 2 '20

Opening of the first Federal foreign banking association. *Comm & Fin Chr* 110:2618 Je 26 '20

Federal highway council

Federal highway council discusses transportation. *Eng N* 85:719-20 O 7 '20

Federal highway council plans intensive subgrade study. *Eng N* 85:781 O 21 '20

Federal power commission

Application for preliminary power permits continue to grow. *il map Elec W* 77:585-7 Mr 12 '21

Federal power commission adopts regulations. *Mech Eng* 42:645 N '20

Federal power commission plans detailed organization. *Power* 52:236, 521 Ag 10, S 28 '20

Federal power commission—Continued

- Federal water power commission receives applications for permits. Power 52:443-4 S 14 '20
- First licenses under water-power act granted. Elec W 77:559 Mr 5 '21; Same. Eng N 86:441-2 Mr 10 '21
- Industry begs for water powers. W. Bathon. il map Am Ind 21:7-10 F '21
- Progress made in federal water power development. Eng N 87:313 Ag 25 '21
- Regulations and rules of Federal power commission. Elec W 76:395-6 Ag 21 '20
- Regulations governing water power permits and licenses. Elec W 76:568-9 S 18 '20; Same abr. Power 52:445 S 14 '20
- Resolution urging modification of regulation of Federal water power commission. Comm & Fin Chr 113:1954 N 5 '21
- Water-power applications. Elec W 77:815-16, 1414-15; 78:618-19 Ap 9, Je 18, S 24 '21
- Water-power applications filed in 1920. map Elec W 77:138-9, 369-70 Ja 15, F 12 '21

Federal reserve act

- Digest of the Federal reserve act. 35p Guaranty trust co., New York '20
- Federal reserve act (approved December 23, 1913). 105p Federal reserve board, Washington, D.C. '20
- Federal reserve board and Edge act—text of act. Comm & Fin Chr 110:421-3 Ja 31 '20
- Regulations governing corporations organized under Edge act. Comm & Fin Chr 110:1585-7 Ap 17 '20
- Text of bill signed by President Harding amending Edge act. Comm & Fin Chr 112:2694 Je 25 '21
- What's in a name; opportunities offered by the Edge bill. Nation's Business 8:62 My '20

Federal reserve bank, New York

- Annual report. Comm & Fin Chr 112:1818-19 Ap 30 '21
- Federal reserve bank building in New York; competitions. il plans Am Arch 116:569-74, pl 162-70 N 5-12 '19
- Federal reserve bank of New York; accepted design in recent competition. il plan Arch Forum 31:201-2, pl 95-6 D '19
- Requirements of the building for federal reserve bank as set forth in the program. diags Am Arch 116:574-80, pl 156-61 N 5 '19

Federal reserve banks

- Administration of federal reserve system. J: S. Williams. Comm & Fin Chr 113:1520-1 O 8 '21
- Answer to criticisms against the federal reserve system. W. P. G. Harding. Comm & Fin Chr 113:1310-13 S 24 '21
- Auditing federal reserve banks. F. Oakey. J Account 32:334-41 N '21
- Banking evolution. P. Jay. Comm & Fin Chr 111:147-50 sec 2 N 20 '20
- Battle line of finance. J: Burnam. Nation's Business 9:14-15 N '21
- Criticism of administration of federal reserve system. J: S. Williams. Comm & Fin Chr 113:354-8, 1307-10 Jl 23, S 24 '21
- Criticism of federal reserve policies. J. S. Wannamaker. Comm & Fin Chr 113:1107-8 S 10 '21
- Criticism of federal reserve system. J: S. Williams. Comm & Fin Chr 112:1810-15 Ap 30 '21
- Criticisms of federal reserve policies by John Skelton Williams—defense by Governor Harding. Comm & Fin Chr 113:584-6 Ag 6 '21
- Defense of federal reserve policies before congressional committee. B: Strong. Comm & Fin Chr 113:686-7 Ag 13 '21
- Defense of federal reserve policies before the Joint congressional commission. W. P. G. Harding. Comm & Fin Chr 113:685-6 Ag 13 '21
- Earnings of Federal reserve banks during late year. Comm & Fin Chr 110:2033-4 My 15 '20
- Earnings of federal reserve banks in 1920. Comm & Fin Chr 112:795 F 26 '21
- Federal reserve board's review of system for past year. Comm & Fin Chr 111:446-7 Jl 31 '20

- Federal reserve gold and rediscount policy. A. B. Hepburn and B. M. Anderson, jr. Comm & Fin Chr 113:349-54 Jl 23 '21; Excerpts. Annalist 17:758+ Jl 18 '21
- Federal reserve note issues. C: A. Morss. Comm & Fin Chr 112:323-4 Ja 22 '21
- Federal reserve policy. A. C. Miller. Comm & Fin Chr 112:2482-4 Je 11 '21
- Federal reserve system. E: Elliott. Min & Sci P 121:699-704 N 13 '20
- Federal reserve system. O. Wells. Comm & Fin Chr 111:91-4 sec 2 N 20 '20
- Federal reserve system and development of foreign trade. J. H. Case. Comm & Fin Chr 113:1524-6 O 8 '21
- Financial situation. Comm & Fin Chr 110:102-4 Ja 10 sec 1 '20
- Mechanism of expansion of federal reserve system. Comm & Fin Chr 113:1313-14 S 24 '21
- Naming of federal reserve banks as depository for German indemnity—Germany's resources in United States. Comm & Fin Chr 112:1221-2 Mr 26 '21
- 1920 record of the consolidated federal reserve banks. Annalist 17:166-7 Ja 24 '21
- Operation of the Federal reserve banks during 1920. Comm & Fin Chr 112:110 Ja 8 '21
- Position of reserve system—erroneous views. Comm & Fin Chr 113:1104-5 S 10 '21
- Reserve system's ability to meet credit needs. J. H. Case. Comm & Fin Chr 111:2099-2100 sec 1 N 27 '20
- Senator Owen protests against increase in federal reserve rates—effect on Liberty bonds; answer of Gov. Harding. Comm & Fin Chr 110:1932-4, 2243-4 My 8, 29 '20
- W. P. G. Harding's communication to Senate denying coercive methods to compel state banks to join Federal reserve system; representative Reavis's statement. Comm & Fin Chr 110:514-16 F 7 '20
- Weekly statement. Published in weekly numbers of Commercial and financial chronicle Whys and wherefore of interest rates. W. P. G. Harding. System 39:4-5+ Ja '21

See also Bank officials—Salaries

Federal reserve board

- Bankers protest against Federal reserve board's par clearance ruling. Comm & Fin Chr 110:2034-6 My 15 '20
- Federal reserve board, in answer to criticisms against board. E. Platt. Comm & Fin Chr 111:1137-8 S 18 '20

Federal reserve notes

- How federal reserve notes are issued. Eng & Min J 111:272 F 5 '21

Federal sugar refining company

- Balance sheet April 2, 1921. Comm & Fin Chr 112:2776 Je 25 '21

Federal trade commission

- Cost of coal production in March. Coal Age 18:33-4 Jl 1 '20
- Cost reports of the Federal trade commission: coal; trans-Mississippi states—bituminous. U S Fed Tr Comm no 7 459p '21
- Costs of coal production during April issued. Coal Age 18:345-7 Ag 12 '20
- Federal trade commission and its functions. Automotive Ind 41:974-6 N 13 '19
- Federal trade commission may say "do" instead of "don't." C. H. Claudy. Ptr Ink 110:85-6+ Ja 15 '20
- Federal trade commission publishes coal production costs for January, 1920. Coal Age 17:853-7 Ap 29 '20
- Federal trade commission's cost order held unconstitutional. Coal Age 17:809 Ap 22 '20
- Federal trade commission's report on commercial feeds. Comm & Fin Chr 112:1823-4 Ap 30 '21
- Federal trade commission's report on price readjustments—lower retail costs necessary. Comm & Fin Chr 112:1821-3 Ap 30 '21
- Governmental power over manufacturers. W. Gustin. Chem & Met Eng 22:703-4 Ap 14 '20
- Operation of Federal trade commission. W: B. Colver. Metal Work 92:531-2 O 31 '19
- Proposals by committee of American bar association respecting powers of Federal trade commission. Comm & Fin Chr 111:1435 O 9 '20

Federal trade commission--Continued

- Text of injunction decision against Trade commission. *Coal Age* 17:810-12 Ap 22 '20
- Trade commission procedure and problems. W. B. Colver. *Textile World* 58:2301+ O 2 '20
- Trade commission publishes bituminous coal production costs for February. *Coal Age* 17:1113-14 My 27 '20
- Trade practice submittal a new tool in business. C. H. Claudy. *Ptr Ink* 110:141-2+ Mr 25 '20
- Watching the Federal trade commission wheels go round. C. H. Claudy. *Ptr Ink* 111:159+ Ap 29 '20

Federal warehouse act

- Importance of warehouses. A. F. Lever. *Textile World* 56:2485 O 25 '20

Federated American engineering societies

- Am. Soc. C. E. arguments for and against federation. *Eng N* 85:663-5 S 30 '20
- Birth of a super-engineering organization. L. P. Alford. *Ind Management* 60:53-5 Jl '20
- Civil engineers at New York condemn amendments and proposal to join federation. *Eng N* 85:525-6+ S 9 '20
- Constitution. *Am Mach* 52:1316-19 Je 17 '20; *Min & Met* 163:7-13 Jl '20; *Elec W* 75:1361 Je 12 '20; *Chem & Met Eng* 22:1087-8 Je 9 '20; *Eng & Contr* 53:664-6 Je 9 '20; *Mech Eng* 42:541-3 S '20
- Engineering bulwark; the proposed standing army, for purposes of peace, of the men who know how to do things. R. L. Humphrey. *Sci Am* 123:176+ Ag 21 '20
- Facts about the F. A. E. S. *Am Mach* 53:220 Jl 29 '20
- F. A. E. S. working for patent office relief and New York state reorganization. *Power* 53:487 Mr 22 '21
- Federated engineering societies perfect organization; twenty-one associations represented. *Coal Age* 18:1076 N 25 '20
- Federation opens offices in Washington. *Eng N* 86:527 Mr 24 '21
- Federation will organize paid employment service. *Eng N* 87:581-2 O 6 '21
- Financing the Federated American engineering societies. *Am Inst E E J* 39:924-5 O '20
- Further details regarding the Federated American engineering societies. *Eng & Contr* 54:144-5 Ag 11 '20
- Hoover chosen president of Federated societies. P. Wooton. *Eng & Min J* 110:1052 N 27 '20
- Industrial opportunity of Federated engineering societies. D. S. Kimball. *Eng N* 86:728-9 Ap 28 '21
- Need for the Federated American engineering societies. A. P. Davis. *Eng & Contr* 54:446 N 3 '20; Same. *Am Mach* 53:788d O 21 '20
- Object, name, representation, finances and machinery. *Eng & Min J* 110:175-6 Jl 24 '20
- Organization. *Am Mach* 52:1314-19 Je 17 '20; *Coal Age* 17:1221 Je 10 '20; *Elec Ry J* 55:1213-15 Je 12 '20; *Elec W* 75:1352-3. 1359-60 Je 12 '20; *Eng & Min J* 109:1322-4 Je 12 '20; *Eng N* 84:1134-41 Je 10 '20; *Iron Tr R* 66:1675 Je 10 '20; *Min & Sci P* 120:947-8 Je 26 '20; *Power* 51:978-81 Je 15 '20; *Ry Age* 68:1667-8 Je 11 '20; *Am Gas Eng J* 113:77-8 Jl 24 '20; *Eng & Contr* 54:73 Jl 21 '20; *Mech Eng* 42:422-3 Jl '20; *Min & Met* 163:5-6 Jl '20; *Ry Mech Eng* 94:455-6 Jl '20; *Am Inst E E J* 39:783-5 Ag '20; *Mach* 27:202 O '20
- Progress of the Federated American engineering societies. *Am Mach* 53:185-6 Jl 22 '20
- Purposes of the Federated American engineering societies. *Am Mach* 53:413-15 Ag 26 '20; Excerpts. *Can Eng* 39:239 Ag 12 '20
- Some moot points discussed and some criticisms demolished by the Ad-interim committee. *Min & Met* 164:12-13 Ag '20
- Story of the organization. *Min & Met* 165:8-12 S '20

American engineering council

- American engineering council activities. *Min & Met* 177:35-6 S '21
- American engineering council finds waste in printing industry. *Am Ind* 22:33-5 S '21
- American engineering council reports progress. *Elec Ry J* 57:365 F 19 '21
- American engineering council's committee reports on elimination of waste in building industry. *Eng & Contr* 56:92-4 Jl 27 '21
- American engineering council's report on waste in the metal trades industry. *Am Mach* 55:248a Ag 11 '21
- Appointment of a committee on elimination of waste in industry. *Textile World* 59:1395+ F 19 '21
- Digest minutes of February meeting of executive board at Syracuse, N.Y. *Min & Met* 172:9-10 Ap '21
- Enormous waste in industries. *Sci Am* 124:482 Je 18 '21
- Executive board of American engineering council organized. *Am Mach* 53:1245 D 30 '20
- Federated American engineering societies attacks industrial waste problem. L. W. Wallace. *Am Mach* 54:513-14 Mr 24 '21; Same. *Mech Eng* 43:284-5 Ap '21; Same. *Min & Met* 172:7-8 Ap '21; Excerpts. *Elec W* 77:673 Mr 19 '21; *Eng N* 86:472-3 Mr 17 '21; *Am Inst E E J* 40:345-6 Ap '21
- 1st meeting, Washington, D.C., Nov. 18-20. *Elec Ry J* 56:1112-13 N 27 '20; *Elec W* 76:1085-6 N 27 '20; *Eng N* 85:1057+ N 25 '20; *Iron Age* 106:1411-12 N 25 '20; *Iron Tr R* 67:1466-7 N 25 '20; *Power* 52:876-8 N 30 '20; *Ry Age* 69:933-5 N 26 '20; *Am Inst E E J* 39:1068-73 D '20; *Am Mach* 53:1057-60 D 2 '20; *Chem & Met Eng* 23:1052-6 D 1 '20; *Mech Eng* 52:720-4 D '20; *Min & Met* 168:8-15 D '20; *Power Pl Eng* 24:1202-3 D 15 '20; *Am Arch* 118:758-60 D 8 '20; *Power* 52:1037 D 28 '20
- First report of American engineering council's committee on elimination of waste in industry. *Am Mach* 54:1064d Je 16 '21; *Elec Ry J* 58:173-4 Jl 30 '21
- Hoover resigns as engineers' head. *Iron Age* 107:1058-9 Ap 21 '21; *Mech Eng* 43:354 My '21
- Meeting at Washington, Sept. 30. *Iron Age* 108:877 O 6 '21
- Meeting, St Louis, June 3. *Power* 53:989 Je 14 '21; *Min & Met* 175:10-11 Jl '21
- Meeting, Syracuse, Feb. 14. *Power* 53:327 F 22 '21; *Mech Eng* 43:217 Mr '21
- Officers. *Coal Age* 18:1129 D 2 '20; *Eng & Min J* 110:1072 D 4 '20
- Program of first meeting American engineering council, Washington, D.C., Nov. 18-20. *Elec W* 76:651 S 25 '20
- Report on elimination of waste in industry. *Mech Eng* 43:579-83 S '21
- What can be done to eliminate the wastage of industry. *J Elec* 47:228-9 S 15 '21
- Work of the engineering council. *Ry R* 69:581-2 O 29 '21
- Federated engineers development corporation**
- Giving the inventor his boost; Federation of engineers aims to give best advice and aid. R. Harris. *Am Ind* 21:42-3 Je '21
- Federated Malay states**
- See also Railroads--Federated Malay states
- Commerce**
- Trade in the Malay states. *Am Ind* 21:26 N '20
- Federation of British industries**
- Kin-tongue nations' export rivalry; the Federation of British industries plans worldwide expansion. A. J. Wolfe. *Am Ind* 21:35-6 N '20
- Feeble-minded**
- Labor colonies for the feeble-minded. M. T. Waggaman. *Monthly Labor R* 11:416-23 S '20
- Feed mechanism**
- Automatic feed for die and pivoted stop for stock. R. V. Terry. *diags Mach* 26:662-3 Mr '20

Feed mechanism—Continued

- Electrical speed control for Cleveland auto-matics. il diags Mach 27:81-4 S '20
 Feeding device for press tools. J. Rask. diags Am Mach 54:1094-5 Je 23 '21
 Littell automatic punch-press feeding devices. J. V. Hunter. il Am Mach 54:209-12 F 10 '21
 Magazine feed mechanisms. E. K. Hammond. il diags plans Mach 26:593-601 Mr '20
 Magazine feeds for automatic screw machines. il diags Mach 27:617-22 Mr '21
 Milling machine feed systems. J. Airey. Mech Eng 43:207-8 Mr '21
 New feed device for use on Queen City shapers. il Iron Age 106:1666 D 23 '20
 Oil pressure transmission for control of speeds and feeds. il Iron Age 108:441-2 S 22 '21; Ry Mech Eng 95:659-60 O '21
 Oilgear—a variable speed and feed control system. il diags Am Mach 55:271-4 Ag 18 '21; Abstract. Mech Eng 43:682-3 O '21
 Unusual methods of securing extreme accuracy. A. L. De Leeuw. il Am Mach 52:1094-7 My 20 '20

Feed water

- Boiler feeding by gravitation. diags Engineer 131:491-2 My 6 '21
 Control of salt content in boiler water. C. C. Brown. charts diags Power Pl Eng 25:264-6 Mr 1 '21
 Determining salt concentration at which boilers start priming. R. J. C. Wood. Elec W 77:373-4 F 12 '21
 Eliminating feed-water hammer. G. P. Pearce. il Power 53:1024 Je 21 '21
 Flow of water through condenser tubes. W. L. De Baufre and M. C. Stuart. diags Mech Eng 41:949-51 D '19
 Fuel economy by the adoption of scientific management in power generation and utilization. D. Brownlie. il Eng & Ind Management 6:434-6, 475-8 O 20-27 '21
 Interpretation of boiler-water analyses. J. R. McDermet. Mech Eng 43:319-20+ My '21; Same. Chem Age 29:230-2 Je '21; Excerpts. Power 54:198 Ag 2 '21
 Priming and control of boiler water concentration. G. C. Cook. Power Pl Eng 25:986-8 O 15 '21
 Pure water for locomotives. P. M. LaBach. Ry R 68:456-60 Mr 19 '21
 Simple methods of determining dissolved gas content in boiler-feed water. J. R. McDermet and D. Wertheimer. il Power 52:686-8 N 2 '20
 Two methods of weighing boiler-feed water. diags Heat. & Ven 17:45-6 N '20
 V-notch for measuring blow-down water discharge. Elec R 78:989 Je 18 '21
 Weighing feed water. il diag Power Pl Eng 25:196-7 F 1 '21

See also Boiler scale; Densimeter; Feed water heaters; Feed water heating; Feed water purification; Feed water regulation; Feed water regulators; Pumps, Feed water; Railroads—Water supply

Testing

- Electrical method of detecting surface condenser leakage. W. E. Caldwell. il diags Power 54:217-19 Ag 9 '21
 Feed-water automatic contamination meter. il Power 54:225 Ag 9 '21

Feed water heaters

- Effect of the feed water heater on super-heat and back pressure. E. A. Averill. il diags Ry Mech Eng 95:619-20 O '21
 Feed-water heater and pump for locomotives. il diags Engineering 112:150-1 Jl 22 '21
 Feed water heaters. Ry R 69:332-4 S 10 '21; Same abr. Ry Age 71:536-7 S 17 '21; Same abr. Ry Mech Eng 95:617-18 O '21
 Feed water heating on European locomotives. R. E. Thayer. il diags Ry Age 69:307-12 Ag 20 '20; Same. Ry Mech Eng 94:569-74 S '20
 High pressure steam in small power plants. C. L. Hubbard. il diags Sanitary & Heat Eng 96:199-201, 251-3+ S 23, O 21 '21

- Locomotive feed water heaters; committee report. Ry R 66:873-6 My 29 '20; Ry Age 68:1508-9 My 28 '20; Ry Mech Eng 94:447-8 Jl '20

- Management of the power plant. R. June. il Textile World 57:4236 Je 5 '20
 Notes on the open heater. J. R. Belknap. diag Power 54:588 O 18 '21
 Open type of feed-water heater for locomotives. il diags Engineering 111:42-3 Ja 14 '21
 Réchauffeur-alimentateur pour locomotives type ouvert, système Worthington. C. Dantin. il diag Génie Civil 77:51-3 Jl 17 '20
 Report on feed-water heaters for locomotives. Ry Age 68:1739-43 Je 12 '20; Abstract. Ry R 66:1032-3 Je 19 '20
 Selection of feed water heaters for power plants. R. June. il diag Elec R 79:81-4 Jl 16 '21
 Solubility of air in water and its relation to the performance of feed-water heaters. J. R. McDermet. Power 53:393-4 Mr 8 '21
 What a few changes did. L. P. Alfred. diag Power 53:1064-5 Je 28 '21

Feed water heating

- Developments in locomotive feed water heating. diags Ry R 69:44-6 Jl 9 '21
 Economy of feed water heating and purifying in the water works pumping station. M. F. Stein. il Munic Eng 60:205-8 My '21
 Feed heating for land power stations. K. Baumann. Engineer 130:101-2, 127-30, 150-2 Jl 30-Ag 13 '20
 Feed-water heating. Power 52:791-2 N 16 '20
 Feed water heating on European locomotives. R. E. Thayer. il diags Ry Age 69:307-12 Ag 20 '20; Same. Ry Mech Eng 94:569-74 S '20
 Heat-balance study of Colfax power station. W. P. Gavit. diags Power 53:824-7 My 24 '21
 Heat balance systems. F. C. Chambers and J. M. Drabelle. il diags Elec J 18:233-6 My '21; Excerpts. Power Pl Eng 25:802-4 Ag 15 '21
 Heat balance with house turbine. il plan Power 54:382-3 S 6 '21
 Heating feed water cools the grate. diag Coal Age 18:1036 D 2 '20
 Heating locomotive feedwater in injector practice. il diag Coal Age 18:1241-2 D 16 '20
 Hot water supply for mills. W. G. Starkweather and F. S. Broadhurst. il diags Textile World 59:2671+ Ap 23 '21
 Locomotive feed water heating. Ry Age 70:1235-6 My 27 '21
 Locomotive feedwater heating. T. C. McBride. il diags Ry R 66:1067-72 Je '19 '20; Same cond. Mech Eng 42:283-6+ My '20; Same cond. Ry Mech Eng 94:441-4 Jl '20; Abstracts. Ry Age 69:59-60 Jl 9 '20; Sibley J 34:132-3 S '20

- Mathematical theory of a method of boiler feed-water heating in steam turbine-driven power stations. R. Dowson. diags Engineering 110:593-5, 627-8 N 5-12 '20

- Réchauffage et production d'eau d'alimentation, par la vapeur d'échappement de turbines auxiliaires. diag Génie Civil 79:254-5 S 17 '21

- Utilizing surplus power for feed water heating, by means of a water rheostat. diag J Elec 46:27-8 Ja 1 '21

See also Fuel economizers

- Feed water pumps. *See* Pumps, Feed water

Feed water purification

- Boiler compounds; their nature and use. W. S. Mahlie. Ry Mech Eng 94:71-5 F '20; Abstract. Eng & Contr 53:274-5 Mr 10 '20
 Boiler-feed water made pure by distillation. il Coal Age 17:910-11 My 6 '20
 Boiler feed water purification. M. F. Newman. Blast F & Steel Pl 8:341-2 Je '20
 Boiler feed water purification; new water softening plant installed by American coke and chemical company. Granite City, Ill. il Blast F & Steel Pl 9:128-9 F '21

Feed water purification—Continued

- Boiler feed water purification; with special reference to the advantages of the Zeolite water-softening process. S. B. Applebaum. *Chem & Met Eng* 25:23-6 JI 6 '21; Same. *Eng & Ind Management* 6:202-4, 230-1 Ag 25-S 1 '21; Discussion. W: M. Taylor. *Chem & Met Eng* 25:640-1 O 5 '21
- Boiler feed water treatment. T: G. Estep. *Blast F & Steel Pl* 8:211+ Mr '20
- Boiler feed water treatment and treatment control. E. C. Bashore. *Power Pl Eng* 25:1050-2 N 1 '21
- Boiler water treatment. [Reprint of Engineering Bulletin no. 3] U S Bur Mines Tech Pa 218:1-8 '20
- Boiler water treatment plants. R. June. *Blast F & Steel Pl* 9:564-6, 623-5, 670-2 S-N '21; Same cond. *Textile World* 60:81+, 1376+ JI 2, S 3 '21
- Les corrosions du fer et leur suppression par le dégazage de l'eau. G. Paris. bibliog il diags *Chimie & Ind* 6:11-32 JI '21
- Deaeration of feed water discussed. F. N. Speller. *Power Pl Eng* 24:700 JI 15 '20
- Degassing and purification of boiler feedwater. M. P. Kestner. *Engineer* 131:257 Mr 11 '21; Same. *Engineering* 111:291 Mr 11 '21; Same. *Electrician* 86:299-300 Mr 11 '21; Same. *Elec R (Lond)* 83:341 Mr 18 '21; Same. *Eng & Ind Management* 5:324 Mr 17 '21; Discussion. *Engineer* 131:257-8 Mr 11 '21; *Engineering* 111:285-7 Mr 11 '21
- Le dégazage de l'eau, en vue d'éviter les corrosions de chaudières. diag *Génie Civil* 78:443 My 21 '21
- Distilling plant of the Colfax station. diag *Arch & Bldg* 53:40-1 My '21
- Economy of feed water heating and purifying in the water works pumping station. M. F. Stein. il *Munic Eng* 60:205-8 My '21
- Épuration perfectionnée des eaux pour chaudières. G. Paris. diags *Chimie & Ind* 4:722-30 D '20
- Experiences with water testing equipment. G. C. Wetherbee. *Power Pl Eng* 24:670-1 JI 1 '20
- Feedwater purified by evaporation. *Ry Mech Eng* 94:239-40 Ap '20
- Hay screen for filtering boiler feed water of tug boats. diag *Eng & Contr* 55:504-5 My 18 '21; *Pub Works* 50:450 My 28 '21; *Eng N* 86:869 My 19 '21
- Hot process water softening. G: H. Gibson. il *Power Pl Eng* 24:390-4 Ap 1 '20; Same. *Chem & Met Eng* 22:899-902 My 12 '20; Same abr. *Coal Age* 17:919-23 My 6 '20; Same cond. *Blast F & Steel Pl* 8:325-6 Je '20; Abstract. *Power* 51:429-30 Mr 16 '20
- Lime-barium softener for treatment of boiler feed water. C. A. Mehring. diags *Chem & Met Eng* 21:629-32 N 12 '19
- New boiler feed water system. il *Blast F & Steel Pl* 9:392-4 Je '21
- New water softening plants on the Chesapeake & Ohio Ry. il *Ry R* 69:442-4 O 1 '21
- Operating locomotive boilers using treated water. F. W. Dunning. *Ry Age* 67:1116-17 D 5 '19
- Parker scale-proof locomotive crane boiler. diag *Iron Age* 107:257 Ja 27 '21; *Iron Tr R* 68:293 Ja 27 '21; *Ry Mech Eng* 95:133 F '21; *Sci Am M* 3:282-3 Mr '21; *Génie Civil* 78:555 Je 25 '21
- Power drives for rolling mills. W. O. Rogers. il *Power* 52:254-6 Ag 17 '20
- Preparing Pittsburgh district waters for boilers. il *Power Pl Eng* 24:777-84 Ag 15 '20
- Progress of boiler feed-water purification by evaporation. il *Heat & Ven* 17:54 O '20
- Recent foreign developments in water treatment. J. H. Blakey. il diags *Power Pl Eng* 25:950-2 O 1 '21
- Removing scale before it forms. W: M. Taylor. il *Factory* 26:843-7, 1070-4 Ap 1, My 1 '21
- Separation of dissolved gases from water. J. R. McDermet. il diag *Mech Eng* 42:273-8 My '20; Abstract. *Power Pl Eng* 24:561-6 Je 1 '20; Abstract, with discussion. *Power* 52:112-14 JI 20 '20
- Treating boiler-feed water. D. K. French. *Power* 51:437 Mr 16 '20

- Treatment of feedwater to prevent corrosion in boilers. *Coal Age* 19:369 F 24 '21
- Treatment of water for locomotives. W: M. Barr. *Ry R* 65:953-7 D 27 '19; Same cond. *Ry Age* 67:1158-60 D 12 '19
- Two roads secure excellent results from water treatment. *Ry Age* 71:540 S 17 '21
- Water purification for boiler feed. F. J. Crolus. *Power Pl Eng* 24:1063-6 N 15 '20
- Water purification to eliminate boiler scale and corrosion. M. F. Neuman. il *Paper* 27:170+ N 10 '20
- Water softening as a factor in fuel conservation. C. R. Knowles. *Ry Age* 71:171-2 JI 23 '21
- Water softening by the cold lime-soda process. G: C. Cook. *Power* 54:92-4 JI 19 '21
- Water softening in small plants. *Power Pl Eng* 24:351 Mr 15 '20
- Water softening in small plants. F. F. Vater. *Power Pl Eng* 24:231-3 F 15 '20
- Water-treating plants as economizers of labor. W. R. Toppan. *Ry R* 66:sup64 Je 5 '20
- Water treatment for boilers. J. S. Simsohn. il *Mech Eng* 43:597-600+ S '21
- Water treatment from an investment standpoint. L. F. Wilson. *Ry R* 69:602-4 N 5 '21
- Water treatment—intermittent or continuous. W. R. Toppan. il diags *Ry Age* 71:347-50 Ag 20 '21
- Zero water for boiler feed. L. W. Allison. il diag *Power Pl Eng* 25:501-4 My 15 '21

Cost

- Record of feed water treatment. H. E. Collins. chart *Ind Management* 59:471-2 Je '20

Feed water regulation

- Hand regulation of feed water. A. J. Dixon. diag *Power* 54:388 S 6 '21
- Influence of irregularities in boiler feed. A. F. Brewer. *Power* 54:234 Ag 9 '21
- Scientific boiler feed regulation. R. Moeller. diags *Paper* 27:244+ N 10 '20; Same. *Am Soc Heat & V E J* 27:19-24 Ja '21; Same. *Textile World* 59:217+ Ja 8 '21; Same. *Power Pl Eng* 25:162-4 F 1 '21; Same. *Blast F & Steel Pl* 9:398-400 Je '21

Feed water regulators

- Automatic boiler feed water regulator. il diags *Engineer* 130:352 O 8 '20
- Automatic feed-water regulators for steam boilers. charts diags *Elec R* 78:479-80 Mr 19 '21
- Baldwin automatic boiler feed regulator. diag *Engineer* 132:199 Ag 19 '21
- During a momentary peak load the feed-water supply of a boiler should be automatically curtailed. R. Moeller. diag *Coal Age* 20:595-6 O 13 '21
- Framanco pump regulator. il diags *Power* 51:852 My 25 '20
- Fuel economy by the adoption of scientific management in steam generation and utilisation. D: Brownlie. il diag *Eng & Ind Management* 6:549-52, 559-60 N 10-17 '21
- Kelly boiler-control specialties. diags *Power* 52:59-60 JI 13 '20
- McDonough single-tube feed water regulator. il *Power* 50:813 D 16 '19

Feeding and feeding stuffs

- Conversion of sawdust into cattle feed. E. C. Sherrard. *Chem & Met Eng* 24:160 Ja 26 '21; Same. *Sci Am M* 3:81 Ja '21
- Cooperative experiments upon the protein requirements for the growth of cattle. Nat Research Council Bul 2 pt 4:219-88 Je '21
- Hay cake—a new fodder for cattle and horses. *Sci Am M* 3:254 Mr '21
- Mechanical farm minimizes hand labor; feeding hogs by train. G. H. Dacy. il *Pop Mech* 36:80-1 JI '21
- Mechanical hired men; mechanical system for feeding livestock. il *Sci Am* 124:351+ Ap 30 '21
- Preparation and analysis of a cattle food consisting of hydrolyzed sawdust. E. C. Sherrard and G. W. Blanco. *J Ind & Eng Chem* 13:61-5 Ja '21

Feeding and feeding stuffs—Continued

Sweet potatoes as stock food. *Sci Am* 124:73
Ja 22 '21

See also Alfalfa; Forage plants; Hay; Hay
cake; Silage

Analysis

Application of the Van Slyke method to
hydrolyzed protein extracts of silage crops.
R. E. Neidig and R. S. Snyder. *Am Chem*
Soc J 43:951-9 Ap '21

Prices

Federal trade commission's report on commer-
cial feeds. *Comm & Fin Chr* 112:1823-4 Ap
30 '21

Fehling's solution

Conditions affecting the quantitative determi-
nation of reducing sugars by Fehling solu-
tion. F. A. Quisumbing and A. W. Thomas.
Am Chem Soc J 43:1503-26 Jl '21

Feiker, F. M.

Hoover selects McGraw-Hill executive as
assistant to develop aids to business. *por*
Elec Ry J 57:975 My 21 '21

Feldspar

Feldspar as a pottery material; abstract.
H. F. Staley. *Am Cer Soc J* 3:341-2 Ap
'20

Feldspar in 1918. L. M. Beach. *U S Geol S*
Min Res of U S 1918,pt 2:945-9 '20

Feldspar in 1919. L. M. Beach. *U S Geol S*
Min Res of U S 1919,pt 2:377-8 '21

Feldspar in 1919. J. V. Lewis. *Eng & Min J*
109:238-9 Ja 17 '20

Specifications for commercial feldspar and
flint. A. S. Watts. *Am Cer Soc J* 3:722-6;
Discussion. 726-9 S '20

Uses of feldspar. *Eng & Min J* 110:219 Jl
31 '20

See also Kaolin

Felidae, Fossil

New species of oligocene (White river) fe-
lidae. M. R. Thorpe. *il Am J Sci* 50:207-24
S '20

Fell, William F.

Portrait. *Ptg Art* 37:312a Je '21

Felt, Dorr E., 1862-

Sketch. L. Anson. *por System* 39:206-7 F '21

Felt**Manufacture**

Finishing wool hat bodies. J. A. Wilson. *Tex-*
tile World 56:3201+ N 29 '19

Manufacture of cow's hair felt. J. W. Cox,
jr. *il Textile World* 60:1403+ S 3 '21

True or pressed felt manufacturing. J. A.
Butler. *il Textile World* 60:461, 463 Jl 16
'21

Felt, Roofing

Recovery of waste roofing felt. L. F. Haw-
ley and O. Kress. *Paper* 27:18-19+ O 20
'20

Felts (paper making)

Life and use of felts. W. S. Rooney. *il Paper*
27:84-5+ N 10 '20

Making and using felts. E. N. Huyck. *il*
Paper 26:11-15+ Je 23 '20

Practical hand guide for dryer felts. J.
Goodey. *diag Paper* 27:28 O 6 '20

Woolen paper makers' felts and jackets. J.
W. Cox, jr. *il diags Textile World* 58:3235+,
3889+, 59:23+, 1737+, 1849+, 2431+,
3297+ N 6, D 4 '20, Ja 1, Mr 5-12, Ap 9,
My 14 '21

Cleaning

New felt cleaning device. C. A. Woodcock.
Paper 27:20+ S 29 '20

Fence posts

Fence posts that don't decay. F. W. Hyde.
il Sci Am 123:63 Jl 17 '20

Fence posts, Concrete

Making concrete fence posts on the farm.
H. K. Lane. *diags Pop Mech* 35:283-4 F '21

Semipermanent guard fence built on Federal
aid roads. C. L. McKesson. *il Pub Roads*
4:15-16+ Ag '21; Same. *Eng & Contr* 56:328
O 5 '21

Fences

Fence of wire cloth retains hydraulic fill. R.
R. Lundahl. *il diags Eng N* 87:317 Ag 25
'21

Fences—their design and construction. *il*
diags Bldg Age 42:26-30 Ag '20

See also Fence posts

Advertising

Advertising fills in wide sales gap by chang-
ing custom; Cyclone fence company revives
enclosed lawn idea. G. A. Nichols. *Ptr Ink*
114:97-8+ Mr 24 '21

Building a background of copy and illustra-
tion to emphasize a slogan; Afcco fence.
A. H. George. *Ptr Ink* 115:85-6 Je 9 '21

Fenders

Laying out a fire place fender with a steel
square. *diags Metal Work* 93:360 Mr 19 '20

Fenders, Automobile. *See* Automobile fenders

Fensland oil company

Financial statement for year ended December
31, 1920. *Comm & Fin Chr* 112:1171 Mr 19
'21

Ferguson, Louis Aloysius, 1867-

Portrait. *Elec W* 78:52 Jl 9 '21

Fermentation

Alcoholic fermentation. A. Harden. *J Phys*
Chem 25:264-8 Mr '21

Fermentation process for the production of
acetone, alcohol, and volatile acids from
corncobs. W. H. Peterson, E. B. Fred and
J. H. Verhulst. *J Ind & Eng Chem* 13:757-
9 S '21

Preservatives for fermentable beverage
samples. J. S. McCune and A. N. Thur-
ston. *J Ind & Eng Chem* 12:689-90 Jl '20

Seed-culture methods in the production of
acetone and butyl alcohol by a fermenta-
tion process. H. B. Speakman. *il diags*
plan J Ind & Eng Chem 12:581-7 Je '20

Utilisation de la fermentation alcoolique
comme source de glycérine. K. Schweizer.
Chimie & Ind 6:149-59 Ag '21

See also Enzymes; Yeast

Fernald, Robert H., 1871-

Sketch. *por Power* 51:969-70 Je 15 '20

Ferric oxide. *See* Iron oxides

Ferric sulfate. *See* Iron sulfate

Ferries. *See* Ferry bridges; Ferryboats

Ferrite

Genesis of ferrite. F. Giolitti. *il Chem & Met*
Eng 22:737-9 Ap 21 '20

New occurrence of pro-eutectoid ferrite. C.
Y. Clayton. *il Min & Met* 159:(sec 6) 1-8 Mr
'20

Relationship between dendritic structure and
ferrite mesh. F. Giolitti. *il Chem & Met*
Eng 22:921-9 My 19 '20

Similarity of the magnetic change in cemen-
tite and ferrite. H. G. Movius and H.
Scott. *Chem & Met Eng* 22:1069-70 Je 9
'20

Ferro-alloys. *See* Iron alloys; *also* Ferrocer-
ium; Ferrochromium; Ferromanganese, etc.

**Ferro concrete construction company, Cincin-
nati, Ohio**

New shops and storage yards. P. P. Suiter. *il*
diags Eng & Contr 56:149-50 Ag 17 '21

Ferrocerium

Ferro cerium. A. Hirsch. *Sci Am M* 3:149 F
'21

Ferrocerium and the other pyrophoric alloys.
Sci Am M 4:343 O '21

Ferrocerium, its manufacture and uses. A.
Hirsch. *Iron Age* 106:575-6 S 2 '20

New ferroalloy for deoxidizing molten iron. R.
Moldenke. *Iron Age* 105:324-5 Ja 29 '20

Ferrochromium

Ferroalloy industry meets test. G. F. Crevel-
ing. *Iron Tr R* 66:88 Ja 1 '20

Analysis

Determination of chromium in ferrochro-
mium by electrometric titration. G. L.
Kelley and J. A. Wiley. *J Ind & Eng Chem*
13:1053-4 N '21

Ferromanganese

- Blast-furnace ferromanganese. W. P. Ward. *Min & Met* 177:25-6 S '21
- Course of ferromanganese prices for ten years. *Iron Age* 107:66 Ja 6 '21
- Electric furnace for production of ferromanganese. E. S. Bardwell. *J Elec* 46:120-2 F 1 '21
- Electric practice in making ferroalloys. W. A. Darrah. *Iron Age* 105:1019-21 Ap 8 '20
- Electrolytic production of sodium and potassium permanganates from ferromanganese. R. E. Wilson, W. G. Horsch and M. A. Youtz. *J Ind & Eng Chem* 13:763-9 S '21
- Ferro and spiegel gain in 1920. *Iron Tr R* 68:211 Ja 13 '21
- Ferroalloy industry meets test. G. F. Creveling. *Iron Tr R* 66:79-82 Ja 1 '20
- Ferroalloy year in three phases. *Iron Tr R* 66:107-9 Ja 1 '20
- Ferroalloys market open strong but close weak, 1920. *Iron Tr R* 68:91 Ja 6 '21
- Ferromanganese and spiegeleisen output in the United States. *Iron Age* 106:1260 N 11 '20
- Ferromanganese dumping not sustained. *Iron Age* 108:687-8 S 15 '21
- Ferromanganese practice in Great Britain. P. M. Tyler. *Iron Age* 106:711-13 S 16 '20
- Ferromanganese production in 1920. *Iron Age* 107:440 F 17 '21
- For a duty on foreign ferromanganese. J. J. Howard. *Iron Age* 108:603-5 S 8 '21; Discussion. F. Samuel. 108:749-50 S 22 '21; Correction. 108:794 S 29 '21
- Manganese ore imports in gross tons and British supplies of ore. *Iron Age* 107:1390 My 26 '21
- Manufacture of ferromanganese in the electric furnace. R. M. Keeney and J. Loneragan. *il diag Min & Met* 170:30-1 F '21
- Production of ferromanganese and spiegeleisen during the first quarter of 1920. *Iron Age* 105:1386 My 13 '20
- Production of ferromanganese in the first half of 1920. *Iron Age* 106:582 S 2 '20
- Production of manganese alloys in the blast furnace. P. H. Royster. *U S Bur Mines Bul* 173:108-39 '20
- Proposed duty on ferromanganese. F. Samuel. *Iron Age* 107:524-5 F 24 '21
- Protest manganese tariff rates. *Iron Tr R* 69:155-6 Jl 21 '21
- Specific duty on ferromanganese. *Iron Age* 107:451-2 F 17 '21
- Steel makers oppose duties on manganese. *Iron Age* 108:155-6 Jl 21 '21
- Supplies of ferromanganese; output in 1919. *Iron Age* 105:534 F 19 '20

Ferromanganese-silicon alloys

- Reduction of manganiferous silicate slags. E. F. Kern. *Am Electrochem Soc Trans v* 37 (preprint 15):221-32 Ap '20

Ferromolybdenum

- Metallurgy of ferromolybdenum. *Eng & Min J* 110:1132 D 11 '20

Ferrosilicon

- Electric practice in making ferroalloys. W. A. Darrah. *Iron Age* 105:1170 Ap 22 '20
- Ferroalloy industry meets test. G. F. Creveling. *Iron Tr R* 66:82-3 Ja 1 '20
- Ferrosilicon process for the generation of hydrogen. E. R. Weaver, W. M. Berry and B. L. Bohannon. *diag U S Nat Advisory Com for Aeronautics* 1918:429-68 '20
- Generation of hydrogen by the reaction between ferrosilicon and a solution of sodium hydroxide. E. R. Weaver. *J Ind & Eng Chem* 12:232-40 Mr '20
- Influence of silicon upon the properties of ferrosilicon. A. T. Lowzow. *il diags Chem & Met Eng* 24:481-4 Mr 16 '21
- Properties of ferrosilicon. F. A. Raven. *Am Electrochem Soc Trans v* 37 (preprint 37):577-88 Ap '20
- La résistance aux acides de divers ferrosiliciums. *Génie Civil* 76:214-15 F 21 '20

Ferrotungsten

- Ferroalloy industry meets test. G. F. Creveling. *Iron Tr R* 66:83-4 Ja 1 '20
- Historical notes on tungsten refining in Europe. C. Matignon. *Chem & Met Eng* 23:696-8 O 6 '20

Ferro-uranium

- Metallurgy of ferro-uranium. *Eng & Min J* 111:550 Mr 26 '21

Ferrovanadium

- Development of ferro-vanadium metallurgy. B. D. Saklatwalla. *Am Electrochem Soc Trans v* 37 (preprint 42):689-700 Ap '20

Analysis

- Determination of vanadium and chromium in ferrovanadium by electrometric titration. G. L. Kelly and others. *J Ind & Eng Chem* 13:939-41 O '21

Ferry bridges

- Flying ferries. *Sci Am M* 2:280-1 N '20
- Les ponts transbordeurs à grand débit; étude économique de leur emploi; abstract. J. A. L. Waddell. *diags plans Génie Civil* 78:271-5, 295-8 Mr 26-Apr 2 '21

Ferryboats

- Big steel car ferryboat is stretched 57 feet. *Pop Mech* 35:699 My '21
- Diesel-electric drive for double ended ferry boats and low powered cargo vessels. S. M. Robinson. *Marine Eng* 25:974-8 D '20
- Diesel-electric ferryboat, Poughkeepsie. C. V. S. Wyckoff. *diags plan Marine Eng* 26:750-1 O '21
- Double decked automobile ferry with a Winton Diesel electric drive. R. Z. Dickle. *plans Int Marine Eng* 25:556-8 Jl '20
- Ferry steamer Liscard. *diags plan Engineer* 132:101 Jl 22 '21
- Ferryboat built on motor-boat lines. *il Sci Am* 123:453 O 30 '20
- New ferryboats for Boston harbor. *il diags plans Marine Eng* 26:826-30 N '21
- New type of ferryboat. *il Sci Am* 125:193 S 17 '21
- Something new in ferries. R. G. Skerrett. *il Sci Am* 125:37+ Jl 16 '21
- Substitution of radial for feathering paddle wheels. *diag Int Marine Eng* 25:613-14 Jl '20
- Three electric drive ferryboats to be built for city of New York. *Marine Eng* 26:865 N '21

Fertilization of plants

- Artificial fertilization of flowers. J. Boyer. *il Sci Am* 122:651 Je 12 '20
- See also Sterility in plants

Fertilizers

- Boron in relation to the fertilizer industry. J. E. Breckenridge. *J Ind & Eng Chem* 13:324-5 Ap '21
- Changes in cyanamide when mixed with fertilizer materials. E. J. Pranke. *Chem & Met Eng* 23:1102 D 8 '20
- Changes taking place in cyanamid when mixed with fertilizer materials. R. N. Harger. *J Ind & Eng Chem* 12:1111-16 N '20; Abstract. *Sci Am M* 3:85-6 Ja '21
- Coke plants assure nitrates. G. B. Cramp. *Iron Tr R* 69:874-5 O 6 '21
- Commercial fertilizer. T. R. Harney. *flow sheet il Sci Am M* 1:412-16 My '20
- Current conditions in the fertilizer trade. C. H. MacDowell. *il Chem Age* 29:277-9 Jl '21
- Demolition material as fertilizer. *Sci Am* 123:609 D 18 '20
- Dosage de l'azote ammoniacal dans les engrais complexes à base de cyanamide calcique et de sels ammoniacaux. J. Froidevaux and H. Vandenberghe. *diag Chimie & Ind* 4:612-16 N '20
- Fertilizer association 28th annual meeting. *Oil Paint & Drug Rep* 99:23+ sec 1 Je 27 '21
- Fertilizer industry discussed at a symposium of the Chemical society. *Chem & Met Eng* 24:359-60 F 23 '21
- Fertilizer situation. M. Whitney. *Chem & Met Eng* 22:1021-3 Je 2 '20
- How the fertilizer industry can prevent wastes. C. H. MacDowell. *Chem & Met Eng* 25:445-6 Ag 31 '21
- Meeting of fertilizer division, A.C.S., at Chicago. *Chem & Met Eng* 23:693-4 O 6 '20

Fertilizers—Continued

Meeting of the fertilizer division, American chemical society. Chem & Met Eng 25:605 S 28 '21

Nitrogen consumed in agriculture. D. P. Gaillard. Chem & Met Eng 22:783-5 Ap 28 '20

Outlook for the fertilizer industry. F. K. Cameron. il Chem & Met Eng 24:9-16 Ja 5 '21

Studies of the availability of organic nitrogenous compounds. C. S. Robinson, O. B. Winter and E. J. Miller. J Ind & Eng Chem 3:933-6 O '21

Sulphur as a fertilizer. R. H. Moulton. il Pop Mech 33:94-5 Ja '20

See also Agricultural chemistry; Calcium nitrate; Gypsum; Lime; Nitrates; Phosphates; Potash; Saltpeter, Chile; Sewage irrigation; Snow; *also* American agricultural chemical company

Analysis

Determination of dicyanodiamide and of urea in fertilizers. E. Johnson. J Ind & Eng Chem 13:533-5 Je '21

Determination of nitrate nitrogen in nitrates and fertilizers. H. C. Moore. J Ind & Eng Chem 12:669-73 Jl '20

Dicyanodiamide: a rapid, direct method for its determination in cyanamid and mixed fertilizers. R. N. Harger. il J Ind & Eng Chem 12:1107-11 N '20

Objection to official methods for phosphoric acid determination. H. P. Nelligan. Chem & Met Eng 23:1088 D 1 '20

See also Potash—Analysis; Saltpeter, Chile—Analysis

Bibliography

Fertilizing value of factory wastes. Shoe and Leather Reporter N 4-18, D 2 '20

Law

Enactment of federal fertilizer law is strongly recommended. Oil Paint & Drug Rep 99:27 sec 1 F 28 '21

Fertilizer manufacturers should watch their sales contracts. W. Gustin. Chem & Met Eng 23:1129 D 8 '20

Liability for guaranteed analyses. Chem & Met Eng 22:613-14 Mr 31 '20

Manufacture

Armour fertilizer works. C. H. Jones. il diag plan Chem & Met Eng 24:333-7, 379-84 F 23-Mr 2 '21

Manufacture of phosphorus products in Canada. H. S. Spence. Can Chem & Met 5:128-32 My '21

Transforming explosives into fertilizers. Sci Am 124:33 Ja 8 '21

Prices

Fertilizer materials. *See* weekly numbers of Oil paint and drug reporter

Fessenden, Reginald Aubrey

Epoch making radio inventions of Fessenden. S. M. Kintner. Elec J 18:111-12 Ap '21

Fiber board. *See* Paper board

Fiber pipes. *See* Pipes, Fiber

Fibers

Fiber and some of its products. il Power 54: 60 Jl 12 '21

Molecular structure in fibrous materials. R. O. Herzog and W. Jancke. Sci Am M 4: 227 S '21

New type of condenser for the determination of crude fiber. C. A. Clemens. il diag J Ind & Eng Chem 12:288-9 Mr '20; Discussion. 12:611-12 Je '20

Possibilities of new fibres for pulp and paper making. M. Barbillion. Paper 26:11-12+ Jl 28 '20

Tropical fibres for paper manufacture. A. C. Heiny. il Paper 28:24-5+ Ap 27 '21

See also Cotton; Cotton hull fiber; Flax; Hemp; Jute; Linen; Manila; Paper making materials; Ramie; Saw grass; Silk; Sisal hemp; Textile fibers; Vulcanized fiber; Yucca

Fibers, Bast. *See* Bast fibers

Fibers, Textile. *See* Textile fibers

Fibrin

Comparative hydrolysis of fibrin and gelatin in the presence of various aldehydes. G. E. Holm and R. A. Gortner. Am Chem Soc J 42:632-40 Mr '20

Field glasses

Field glasses that may be worn like spectacles. il Sci Am 125:242 O 1 '21

Relative merits of monocular and binocular field-glasses. E. P. Hyde and others. il J Fr Inst 189:185-223, 331-69 F-Mr '20

Seeing submerged objects; augmenting the visual power of field glasses by the use of analyzers. Sci Am M 3:258-9 Mr '21

Field mice

How meadow mice destroy trees. W. A. Murrill. il Sci Am 123:525+ N 20 '20

Field museum of natural history, Chicago

Field museum of natural history. il Arch & Bldg 53:6-7, pl 1-5 Ja '21

Fifth avenue, New York. *See* New York (city)—Streets

Fifth avenue coach company, New York

Annual report. Elec Ry J 57:100 Ja 8 '21

Figs

Romance of the caprifig. R. P. Crawford. il Pop Mech 34:65-8 Jl '20

Figure of merit. *See* Airplanes—Performance

Files and filing (documents)

Applied indexing. W. A. Amberg. il 42p Amberg file & index co., Chicago

Clipping filing system for the engineer. Eng & Contr 56:357 O 12 '21

Draftsman's own data file. H. V. Walsh. Arch Forum 33:201-3 D '20

Efficient catalog file. R. G. Roesch. Eng N 84:1165-6 Je 10 '20

Filing and finding of correspondence and data. Am Arch 120:96-7 Ag 3 '21

Filing and recording of plans simplified. P. E. Doncaster. Can Eng 40:429-31 My 5 '21; Same abr. Eng & Contr 56:190-1 Ag 24 '21

Filing primer used by Boston school of filing, Illinois school of filing, Philadelphia school of filing (owned and managed by Library bureau). 104p Library bureau, Boston, Chicago '21

Finding the floating file. Ry R 67:640 O 23 '20

5 people do the work of 11. J. W. Rowland. System 39:379-81 Mr '21

Good method of numbering and filing drawings. P. F. O'Shea. Am Mach 53:397 Ag 26 '20

How to systematize the stock room. W. A. Fink. diag Dom Eng 94:340-1 F 12 '21

How we halved our clerical costs. il Factory 26:1193-4 My 15 '21

Indexing and filing. C. E. Curran. Paper 28:17-19 Jl 20; 17-18 Jl 27 '21

Indexing and filing industrial drawings. L. H. Park. Iron Age 107:1447-9 Je 2 '21; Same. Eng & Contr 55:609-11 Je 22 '21

Keeping engineering data for future use. W. H. Kellogg. Mach 27:218-19 N '20

Map filing system of Kingston coal co. diag Eng & Contr 54:197 Ag 25 '20

Method of indexing drawings. M. Kurth. Am Mach 53:1022 D 2 '20

Office records—their filing and indexing. I. Warren. il J Elec 44:22-3, 76-7, 127-8, 168-9, 218-20, 278-9, 315-16, 389-91, 427-8, 517-18, 563-4, 617-18; 45:33-5 Ja 1-Jl 1 '20; [Published also in book form. 88p Journal of electricity and western industry, San Francisco '21]

Pamphlets and clippings in a business library. V. Fairfax. J Elec 45:330-1, 426-8, 484-5, 531-4, 584-5; 46:31-3, 78-80 O 1, N 1 '20-Ja 15 '21

Personnel department filing system. E. J. Bengé. chart Ind Management 59:160-2 F '20

Practical method of filing data for reference. J. M. Taylor. Sci Am M 1:416 My '20

Files and filing (documents)—Continued

Problem and its attempted solution; the filing of papers, as improved by the inventive talent of our patent office. W: I. Wyman. *il Sci Am* 125:146+ Ag 27 '21

Russell system of filing. 34p Boston index card co. '20

Some thoughts on filing systems. D. J. Baker. *il Coal Age* 16:736-40 N 6 '19

Suggestions on office correspondence filing. G. Gibson. *Ry Age* 70:413-16 F 18 '21

System of filing drawings. N. Hall. *Eng N* 85:76 J1 8 '20

Things that live forever, being the story of office equipment from the dawn of thought to the age of art metal. J. Wallen. 71p Roycrofters for the Art metal construction co., Jamestown, N.Y. '21

This saves quite a little expense. L. A. Miller. *il System* 39:196-9 F '21

See also Classification, Dewey decimal; Indexing

Files and rasps

File; its history, making and uses. 72p Henry Disston & sons, Philadelphia '20

Resharpening files. *Power* 51:548 Ap 6 '20

Filing machines

Boston universal filing machine. *il Am Mach* 54:1100-1 Je 23 '21

Filling

Build fill with spreader car. *diag Eng N* 85:329-30 Ag 12 '20

Flood check dams formed by fill behind wire frame; Pratt porous dams. *il diags plan Eng N* 85:506-7 S 9 '20

Gravity track distribution reduces cost of earth fill. D. G. Coombs. *diags Eng N* 85:1249-50 D 23 '20

Plastic fill method cuts cost of earth dike at Taylorsville. *diag plan Eng N* 85:268-9 Ag 5 '20

Plastic fill method of embankment construction; Taylorsville dam. *plan Eng & Contr* 53:302-3 Mr 17 '20

See also Earthwork; Hydraulic filling; Trestles—Filling

Filling stations. *See* Gasoline service stations

Film cutouts

Magazine film cutout; the safety valve of the a-c. series street-lighting system. H. E. Butler. *il Gen Elec R* 24:752-4 Ag '21

Films

On the colours of mixed plates. C. V. Raman and B. Banerji. *Philos Mag* 6th ser 41:338-47, 860-71. pl 4-5 Mr, Je '21

Films, Metallic

Crystalline structures of sputtered and evaporated metallic films. H. Kahler. *Phys R* 18:210-17 S '21

Effect of temperature on the change of resistance of bismuth in a magnetic field. L. F. Curtiss. *diags Phys R* 18:255-74 O '21

Physical properties of thin metallic films. L. R. Koller. *Phys R* 8:221-35 S '21

Filter-cel

Use of filter-cel for industrial filtration processes. G. M. Hickey. *flow sheets J Ind & Eng Chem* 13:990-2 N '21

Filter cloth

Filter cloth and its relation to filtration. A. A. Campbell. *J Ind & Eng Chem* 13:982-4 N '21

Industrial filter media. A. Wright. *J Ind & Eng Chem* 13:984-6 N '21

Filter paper

Hand made filter paper. *Paper* 28:14+ My 4 '21

Bibliography

Filter paper: a reading list. C. J. West. comp. *Paper Trade Journal* 71:34, 36, 38, 40 O 7 '20

Testing

Testing of filter paper. J. Rigaud-Monin. *Paper* 27:12+ D 22 '20

Filter sand. *See* Sand washing

Filters, Selling of

Small business made big in midst of slump. C. P. Russell. *Ptr Ink* 115:97-8+ Ap 14 '21

Filters and filtration

Adsorption in sand filters. J: Don. *Engineering* 111:759-60 Je 17 '21

Alterations to Queen Lane water filters, Philadelphia. J: S. Ely. *plan Eng N* 86:942-3 Je 2 '21

Alumina hydrate in mechanically filtered water. N. J. Howard and F. Hannan. *Can Eng* 38:461-2 My 13 '20

Analytical data essential to run mechanical filters. C. A. Brown. *Eng N* 87:353 S 1 '21

Bacteriological tests and standards in filter plant control. M. F. Stein. *Eng & Contr* 53:424-6 Ap 14 '20

Benefits of the application of chemistry to the operation of a small filter plant. K. Holaday. *Am Water Works Assn J* 7:569-71 J1 '20; *Same. Eng & Contr* 54:240-1 S 8 '20

Building San Pablo filters. *plan Pub Works* 49:193-4 Ag 28 '20

Building the Hartford filter. *il Pub Works* 48:159-62 Mr 6 '20

Candy patent rectangular gravity filter. *diag Eng & Contr* 55:333 Mr 30 '21

Charleston's new filter. *Pub Works* 51:170 Ag 27 '21

Collapse of basin wall and roof at Toledo. *il diags Eng N* 85:537-9 S 16 '20

Compact rapid sand filtration plant at Hawkesbury, Ont. *plan Eng & Contr* 53:148-9 F 11 '20

Control of the operation of rapid sand filter plants. J. W. Ellms. *Munic Eng* 61:148-9 O '21

Detroit's new 350-million gallon filtration plant. T. A. Leisen. *diags Eng N* 84:1194-6 Je 17 '20

Disappearance of floc in filtration plants. C: H. Capen, jr. *Munic J* 48:8-9 Ja 3 '20

Dose of alum for clarification of water by precipitation. J. Morison. *Eng & Contr* 55:462 My 11 '21

Filter plant operation at Grand Rapids. Mich. *Eng & Contr* 54:35 J1 14 '20

Filter underdrain, sand-bed and washwater experience; symposium on mechanical or rapid water filtration plants. *Eng N* 85:934-9, 984-7; 86:234, 371-2 N 11-18 '20, F 3, Mr 3 '21

Filtration as an independent means of water purification. F. P. Leopold. *Pub Works* 50:296-7 Ap 9 '21

Filtration plant for Scarborough township. *diags plans Can Eng* 40:495-8+ My 26 '21; *Same cond. Eng & Contr* 56:125-6 Ag 10 '21

Flint water filter improvements and reconstruction. *il diags plan Eng N* 84:1189-91 Je 17 '20

Further observations on H-ion concentration in natural waters. S. Wolman and F. Hannan. *Chem & Met Eng* 25:502-6 S 14 '21

Gastonia's water improvements. W. A. Hardenbergh. *il diag plan Pub Works* 51:231-3 S 24 '21

Hartford concrete water supply filter. *il Concrete* 16:189-90 Ap '20

Hay screen for filtering boiler feed water of tug boats. *diag Eng & Contr* 55:504-5 My 18 '21; *Pub Works* 50:450 My 28 '21; *Eng N* 86:869 My 19 '21

Increasing the yield of an old filter plant. C: H. Capen. *Eng & Contr* 56:37-8 J1 13 '21

Instructions to employees at pumping stations and filter plants; abstracts. D. R. Gwinn. *Eng N* 85:540 S 16 '20; *Eng & Contr* 54:368-9 O 13 '20

Investigation of perforated-pipe filter underdrains. H. N. Jenks. *il diags Eng N* 86:162-6 Ja 27 '21; *Discussion. 86:735-6 Ap 28 '21*

Kneuper system of water filtration. *il Ry R* 66:490-1 Mr 20 '20

Mechanical filtration plant being built in Cambridge. G: A. Johnson. *Eng N* 87:416-17 S 8 '21

Municipal water works construction at post-war prices. M. R. Scharff. *diag plan Munic Eng* 59:138-40 O '20

New filtration plant for Palm Beach, Florida. *il Eng & Contr* 55:235-6 Mr 9 '21

Filters and filtration—Continued

- New filtration plant of Madras city water-works. J. W. Madeley. diag plan Eng & Contr 53:350-1 Mr 31 '20
- New method of applying alum directly to filter beds at Oshkosh, Wis. R. A. Maddock. Eng & Contr 54:553 D 8 '20
- Operating a mechanical filtration plant. Pub Works 48:563-4 Je 26 '20
- Operating the St Louis filters. Pub Works 50:10-11 Ja 1 '21
- Operation of an American or rapid water filtration plant for twenty years at York, Pa. J. M. Caird. Am Water Works Assn J 7:368-76 My '20
- Operation of the water filtration plants at Evanston, Illinois, and Whiting, Indiana; with discussion. S. A. Greeley. Am Water Works Assn J 8:442-7 Jl '21
- Overcoming difficulties with crustacea in filter beds. H. Rosenthal. Am Water Works Assn J 8:530-1 S '21
- Pressure filters at Lynchburg on gravity supply. R. Messer. il plan Eng N 84:1205-7 Je 17 '20
- Rapid filtration of water. A. C. Houston. il diag Engineer 130:218-20 S 3 '20; Same cond. Eng & Contr 54:309-12 S 29 '20
- Rapid filtration plant at Birmingham. il diag plan Engineer 129:622-4, 626 Je 18 '20
- Report on Milwaukee's water supply. J. W. Ellms. plan Pub Works 49:167-70, 191-3 Ag 21-28 '20
- Residual aluminum compounds in water filter effluents. A. Wolman and F. Hannan. bibliog Chem & Met Eng 24:728-35 Ap 27 '21; Same cond. Eng & Contr 55:473-5 My 11 '21; Abstract. Eng N 86:844-5 My 19 '21
- Results of 15 years' operation of the Indianapolis filters. H. E. Jordan. Eng N 86:218-19 F 3 '21
- Results produced by experimental baffles at Montebello filters of Baltimore water works. J. W. Armstrong. diag plan Munic Eng 60:254+ Je '21; Same abr. Am Water Works Assn J 7:456-60 Jl '20
- Sandwashers for the drifting-sand rapid water filter. W. Gore. diag Eng N 84:1192-4 Je 17 '20; Same. Can Eng 38:563-6 Je 17 '20
- Sir Alex. Houston's recent research work on mechanical filtration. Can Eng 39:581-2 D 2 '20
- Suggestions on mechanical filtration plant operation. Eng & Contr 54:37-8 Jl 14 '20
- Surface shrinkage of rapid filter sand beds. A. Wolman and S. T. Powell. bibliog Eng N 85:210-16 Jl 29 '20; Discussion. 85:438-41, 1081-3 S 2, D 2 '20
- Tuning up anew an eight-year old filtration plant. C. A. Brown. Eng N 87:245-6 Ag 11 '21
- Tuning up the East Chicago filters. H. E. Jordan. Eng N 86:520 Mr 24 '21
- Upkeep problems at St Louis filtration plant. Eng N 83:935-6 N 27 '19
- Watchman sole attendant at filtered-water plant supplying people of Langeloth. D. J. Baker. il diag plans Coal Age 19:750-4 Ap 28 '21
- Water filtration. G. Mitchell. Eng & Contr 56:197-8 Ag 31 '21
- Water filtration experiments and devices. J. W. Ellms. diag Pub Works 49:215-18 S 4 '20
- Water filtration in Madras. J. W. Madeley. Eng & Contr 56:218-19 Ag 31 '21
- Water filtration in the tropics. S. W. Tay. Munic J 47:282 N 8 '19
- Water filtration plant operates on gravity supply. diag Eng & Contr 53:34 Ja 14 '20
- Water-jets and sand blast clean St Louis filters. C. M. Daily. il diag Eng N 84:1198-1200 Je 17 '20; Same cond. Eng & Contr 54:228-9 S 8 '20
- Water purification in Flint, Mich. il Pub Works 48:369-72 My 1 '20
- Water purification of Whiting, Indiana. S. A. Greeley. Munic Eng 60:161-4 Ap '21; Abstract. Eng N 86:730 Ap 28 '21
- Water supply of the service of supplies. A. E. F. J. J. Hinman, jr. Am Water Works Assn J 7:179-87 Mr '20

Weights of forms for filter covering determined from models. P. Thompson. il plan Eng N 87:121 Jl 21 '21

See also Air filters; Filter cloth; Filter paper; Oil filters; Sand washing; Sewage disposal—Filtration; Strainers; Water purification

Cost

Comparative costs of drifting and slow sand filters at Toronto. J. Milne. Eng & Contr 55:138-9 F 9 '21

Filters and filtration (metallurgy)

Filtration and filters. H. B. Faber. Chem & Met Eng 22:17-19 Ja 7 '20

Really new and perfect tank filter. diag Brass W 17:235 Ag '21

Filters and filtration (technical chemistry)

Atkins-Shriver automatic filter press. H. D. Atkins. diag J Ind & Eng Chem 13:1006-7 N '21

Centrifugal filters. H. C. Beckman. J Ind & Eng Chem 13:992-3 N '21

Classification of filter plates and frames and their general usage. D. R. Sperry. il diag Chem & Met Eng 22:493-6 Mr 17 '20

Commercial filtration. J. F. Springer. il diag Color Tr J 5:103-7; 6:5-9, 39-42, 73-6, 107-10, 140-4 O '19, Ja-My '20

L'emploi du vide et de l'air comprimé pour la filtration; filtres à immersion et à succion, système Moore. L. Fabre. il diag plan Génie Civil 76:405-9 My 1 '20

Feeding of filters. J. F. Springer. J Ind & Eng Chem 13:986-9 N '21

Filter aids. C. P. Derleth. J Ind & Eng Chem 13:989-90 N '21

Filtration in the art of paper-making. A. M. Crane. il diag plan Paper 27:182+ N 10 '20

Fundamental laws of filtration with suggestions regarding research work. D. R. Sperry. J Ind & Eng Chem 13:986 N '21

Improved type of filter press. C. D. Burchenal. il diag Chem & Met Eng 25:476-80 S 7 '21

Leaf and rotary suction filters. G. D. Dickey. J Ind & Eng Chem 13:997-9 N '21

Modern leaf type filters. R. C. Campbell. J Ind & Eng Chem 13:1002-4 N '21

Oliver continuous filters. H. A. Morrison. J Ind & Eng Chem 13:1005-6 N '21

Plate and frame filter presses. E. C. Alford. J Ind & Eng Chem 13:1000-1 N '21

Pulp or filter mass filters. E. E. Finch. J Ind & Eng Chem 13:996-7 N '21

Scientific control of the filter station. A. Wright. Chem & Met Eng 22:1015-17, 1077-80, 1119-22, 1165-7, 1201-2 Je 2-30 '20

Study of the fundamental laws of filtration using plant-scale equipment. F. P. Baker. J Ind & Eng Chem 13:610-12 Jl '21

Symposium on filtration at meeting of the Division of industrial and engineering chemistry. Chem & Met Eng 25:545-6 S 21 '21

Les tambours filtrants continus. L. Fabre. il diag Génie Civil 76:525-8 Je 12 '20

Vallez rotary filter. H. A. Vallez. J Ind & Eng Chem 13:1007 N '21

Washing and washing ports in connection with chamber and frame filter presses. E. A. Allott. diag J Ind & Eng Chem 13:976-82 N '21

See also Colloid mill; Filter-cel

Finance

Current new capital flotations of corporate, municipal and foreign government financing; summary. Comm & Fin Chr 112:1216-21 Mr 26 '21 [continued monthly]

Financial organization of society. H. G. Moulton. 789p Univ. of Chicago press '21

Financing for industrial stability. F. C. Schwedtmann. Ind Management 59:320-2 Ap '20

Financing of big business; brief history of Wall street. S. Wexler. Comm & Fin Chr 111:110-13 sec 2 N 20 '20

How Henry Ford met maturing obligations of \$58,000,000; commendations of bankers. Comm & Fin Chr 113:482-5 Jl 30 '21

Finance—Continued

- Modern finance. E. Burns. 64p H. Milford, Oxford univ. press, London, New York '20
 Outlines of public finance. M. H. Hunter. 533p Harper '21
 Passing of provincial finance. Comm & Fin Chr 110:2337-8 Je 5 '20
 Selected readings in public finance. C: J. Bullock. 2d ed. 920p Ginn '20
 Use of money in business. W. R. Basset. Am Mach 53:1069-73 D 9 '20
 Where is the capital for new enterprise?; lower price levels will better credits. G: E. Roberts. Ptr Ink 112:137+; 113:153-4+ S 30-O 7 '20

See also Auditing; Bankruptcy; Banks and banking; Bonds; Budget; Building finance; Building loans; Capital; Commerce; Corporations; Credit; Debts, Public; Foreign exchange; Income; Income tax; Insurance; Interest; Investments; Money; Mining industry and finance; Municipal finance; Panics; Paper money; Prices; Securities; State finance; Stock exchange; Stocks; Tariff; Taxation; Trusts, Industrial; *also* subdivision Finance under special subjects, e.g. Corporations—Finance, Electric railroads—Finance, European war—Finance, Gas companies—Finance, Public utilities—Finance, Railroads—Finance, Roads—Finance, Street railroads—Finance, Waterworks—Finance

Statistics

See Financial statistics

Australia

- Australian situation. M. Sheldon. Am Ind 21: 21 D '20

Canada

- Withdrawal of artificial control of Canadian victory bond prices. Comm & Fin Chr 111: 2272 D 11 '20

See also Banks and banking—Canada

Central America

- Impending finance reforms in Latin America. J. Moritzen. Annalist 17:709+ J1 4 '21

China

- Chinese currency and finance. A. W. Ferrin. U S Bur For & Dom Com 186:1-57 '19

See also China—Consortium, 1920

Europe

- Floating debt of Europe to private creditors in America. B. M. Anderson, jr. Comm & Fin Chr 111:2374-7 D 18 '20
 Les mesures de défense économique prises par les Etats de l'Europe centrale. Génie Civil 76:515-16 Je 5 '20
 Our European account. Sci Am 122:328 Mr 27 '20

France

- L'emprunt 6% et l'aide qu'il apportera à l'industrie pour se procurer des capitaux. Génie Civil 77:416-17 N 20 '20
 Financial conditions in France. H. E. Cooper. Comm & Fin Chr 113:19 J1 2 '21
 France's need for long credits. W: M. Benney. Am Ind 21:35-6 J1 '21
 French lottery scheme—no short cut to wealth. Comm & Fin Chr 111:2177-8 D 4 '20
 Paris Bourse and French finance, with reference to organized speculation in New York. W: Parker. 116p Columbia university, New York '20

Germany

- American farm bureau federation's proposal of credit to Germany—criticisms of the plans. Comm & Fin Chr 111:2178-9 D 4 '20
 German currency circulation and operations of the Reichsbank. Comm & Fin Chr 112: 1360 Ap 2 '21
 Naming of federal reserve banks as depositary for German indemnity—Germany's resources in United States. Comm & Fin Chr 112:1221-2 Mr 26 '21

See also Banks and banking—Germany; German indemnities

Great Britain

- England and America face same readjustment problems. Annalist 17:177 Ja 31 '21
 Industry and finance. A. W. Kirkaldy. supp. vol. 150p Pitman '20
 Nation's financial outlook. A. B. Thornton. 137p P. S. King & son, ltd., London '21
 What national bankruptcy would really mean. Engineering 112:107-8 J1 15 '21
See also Banks and banking—Great Britain

Mexico

- Public finances of Mexico. W. F. McCaleb. 268p Harper '21

See also Banks and banking—Mexico

Oklahoma

- Financial system of the state of Oklahoma. F: F. Blachly. (Bul. no. 3) 44p University of Oklahoma, Norman '21

Rumania

- Roumania's long credits. Am Ind 21:42 J1 '21

South America

- Impending finance reforms in Latin America. J. Moritzen. Annalist 17:709+ J1 4 '21

Spain

- Spanish finance and trade. A. N. Young. il U S Bur For & Dom Com 202:1-199 '20

United States

- Clearings and speculation in 1920. Comm & Fin Chr 112:202-5 Ja 15 '21
 Discounting the future vs. cashing the present. F. H. Sisson. Annalist 17:734 J1 11 '21
 England and America face same readjustment problems. Annalist 17:177 Ja 31 '21
 Failures in 1920. Comm & Fin Chr 112:305-7 Ja 22 '21
 Federal reserve board in year's review on recovery from war conditions. Comm & Fin Chr 113:248 J1 16 '21
 Financial situation. D: R. Forgan. W Soc E J 25:352-7 My 20 '20
 Government expenditures the key to taxes. Comm & Fin Chr 112:2467-8 Je 11 '21
 Government finance—the financial position of the country. D: F. Houston. Comm & Fin Chr 111:94-8 sec 2 N 20 '20
 Government's finances—budget system and economy urged. A. W. Mellon. Comm & Fin Chr 112:982 Mr 12 '21
 High cost of government. F. G. R. Gordon. Am Ind 21:13-14 Je '21
 Immediate refunding of the war debt an invitation to trouble. R. G. Blakey. Annalist 17:566+ My 23 '21
 Our new responsibilities. D. R. Crissinger. Comm & Fin Chr 113:142-6 sec 2 O 29 '21
 Present financial situation as affected by foreign trade. W. Lichenstein. Comm & Fin Chr 112:211-13 Ja 15 '21
 Refunding the war debt, Secretary Mellon's big task. Annalist 17:469-70 Ap 25 '21
 Safeguarding of U.S. interests—taxation problems. D: F. Houston. Comm & Fin Chr 110: 1807-8 My 1 '20
 Securities owned by the United States government. Comm & Fin Chr 112:1692-3 Ap 23 '21
 States' pocket book. S. L. Rogers. Am Ind 21: 43-4 S '20
 Survey of the year in the financial district. Annalist 17:33-5+ Ja 3 '21
 Taxation and public expenditures. C. L. King, ed. (Annals v. 95, no. 184) 314p Am. Acad. of Pol. and Soc. Sci. '21
 Treasury's plans for refunding of government's short dated debt. Comm & Fin Chr 112:2485 Je 11 '21
 Uncle Sam and your pocketbook. J. W. Bishop. Nation's Business 9:36+ My '21
 United States debt and the congressional acts authorizing it. Comm & Fin Chr 112:7-9 sec 2 Je 25 '21
 Watching our biggest spender. Nation's Business 9:37-8 Je '21
 What makes taxes high; government expenditures. R. C. Leffingwell. Comm & Fin Chr 112:2255-7 My 28 '21

Finance—United States—Continued

What shall we do with the gold that is flowing in on us? E: A. Bradford. *Annalist* 17:467-8 Ap 25 '21

Where the United States stands, facing the new year. *Annalist* 17:31 Ja 3 '21

Where Uncle Sam's income goes. G. H. Dacy. *Sci Am* 123:625 D 25 '20

White House statements on accomplishments for financial relief. *Comm & Fin Chr* 113:587-8 Ag 6 '21

See also Banks and banking—United States; Foreign trade financing corporation

Venezuela

Rehabilitation of Venezuela. *Comm & Fin Chr* 110:2128-30 My 22 '20

Finance, International

Adequate foreign financing machinery awaits business' call. *Annalist* 17:616-17 Je 6 '21

Business policies. *System* 40:274+ S '21

Council of league of nations plan for insuring import credits. *Comm & Fin Chr* 112:210, 313-15 Ja 15-22 '21

Domestic bankers and international finance. E. Meyer, jr. *Comm & Fin Chr* 112:2254 My 28 '21

Exporting iron and steel; financing the sale. V. G. Iden. *il Iron Tr R* 69:619-23 S 8 '21

Financing of world trade discussed at London congress of the International chamber of commerce. *Iron Tr R* 69:178-9 Jl 21 '21

Frank A. Vanderlip's proposal for world reserve bank. *Comm & Fin Chr* 113:1934 N 5 '21

Getting us off the dead center. W. H. Booth. *il Nation's Business* 9:20-2 Je '21

International finance should be concern of domestic bankers. E. Meyer, jr. *Comm & Fin Chr* 112:2477 Je 11 '21

International financial relationships. F. I. Kent. *Administration* 1:667-73 My '21

International gold settlement fund like federal reserve's. G. H. Zimmerman. *Annalist* 17:112+ Ja 17 '21

Loan of \$500,000,000 advocated by Henry P. Davison for European relief. *Comm & Fin Chr* 110:2157-8 My 22 '20

Missing link in international finance. E. Meyer, jr. *Comm & Fin Chr* 112:2607 Je 18 '21

Need for an international budget. R. Estcourt. *Annalist* 18:149-50 Ag 15 '21

Need of credits for Europe—League of nation bonds. G: Paish. *Comm & Fin Chr* 110:206-7 Ja 17 sec 1 '20

Problems of future government finance. R. C. Leffingwell. *Comm & Fin Chr* 112:517-20 F 5 '21

Proceedings of the International financial conference, Brussels. 3v. Pub. for the League of nations, Harrison & son, London '20

Proposal of F. J. Wade for cancellation of Europe's debt to U.S. *Comm & Fin Chr* 111:934-6 S 4 '20

Proposed international credit scheme of League of nations. *Annalist* 17:141-2 Ja 24 '21

Russia's lesson to the world. F. I. Kent. *Comm & Fin Chr* 111:113-18 sec 2 N 20 '20

To break the vicious circle. H. Hoover. *Nation's Business* 9:17 F '21

Treasury department's attitude toward international conference on credit situation; secretary Glass on financial aid to Europe. *Comm & Fin Chr* 110:417-18 Ja 31 '20

United States passes Great Britain as world's greatest creditor nation. *Comm & Fin Chr* 111:1706-7 O 30 '20

Urgency of readjustment of international accounts. H. M. Robinson. *Comm & Fin Chr* 112:2695-6 Je 25 '21

Urges long time foreign credits to remedy world conditions. H. Hoover. *Comm & Fin Chr* 112:421-2 Ja 29 '21

See also Banks and banking, International; Credit, International; Loans, Foreign; Money, International; Paper money, International; *also* International financial conference

Finance, Municipal. *See* Municipal finance

Finance, State. *See* State finance

Financial crises. *See* Panics

Financial libraries

Day's work in a bank library. M. Reynolds. *il Special Lib* 12:100-2 My '21

Special service of a banking library. J. B. Foster. *Special Lib* 12:177-9 S '21

Financial statements

Certified financial statements as a basis for credit. J: R. Wildman. *J Account* 30:161-8 S '20

Estimated balance sheet and estimated statement of profit and loss. J. O. McKinsey. *Administration* 2:227-44 Ag '21

Estimated future balance sheets as a basis for loans. G. G. Munn. *Administration* 1:504-8 Ap '21

How to make a financial statement; what to include and what not to. E. J. Buckley. *Metal Work* 92:587+ N 14 '19

Information desired by the banker. J. H. Hill. *J Account* 30:338-43 N '20

Preparation and use of financial statements. 19p Illinois manufacturers' costs assn., 76 W. Monroe St., Chicago '21

Problems for the business executive; accounting problems. H. D. Greeley. *Administration* 1:674-7 My '21

Putting the facts into a statement. J. H. Tregoe. *System* 40:426 O '21

Financial statistics

Emery's bank check barometer, March, 1921. A. T. Emery. 60 numb. l. Emery brothers, Chicago '21

Measuring American business by yardstick of tax returns. C. T. Chenery. *Annalist* 17:253-4 F 21 '21

See also Banks and banking—Statistics

Finger prints

Detection of finger prints on documents; abstracts. C. A. Mitchell. *J Fr Inst* 189:789-90 Je '20; *Sci Am M* 2:180-1 O '20

Finger prints amplified by X-ray photography. *il Pop Mech* 36:436 S '21

Photograph finger prints without camera. *il Pop Mech* 35:192-3 F '21

See also Footprints

Finland**Economic conditions**

Rehabilitated Finland is ready for business. J. Moritzen. *Annalist* 17:374+ Mr 28 '21

See also Prices—Finland

Industries and resources

Finland, outpost of civilization, developing her water power and other natural resources. A. Solitander. *Am Ind* 21:34-5 N '20

Forest resources, lumber industry and lumber export trade of Finland. A. H. Oxholm. *il diags maps U S Bur For & Dom Com* 207:1-144 '21

Papermaking in Finland. A. Solitander. *il Paper* 27:9-11+ O 27 '20

See also Hydroelectric plants—Finland

Finlayson, Adrian C.

Recent civic architecture in Porto Rico, Adrian C. Finlayson, architect. S. Baxter. *il plans Arch Rec* 48:137-58 Ag '20

Fire

See also Combustion; Fires; Flame propagation; Fuel; Heating; Smoke

Fire alarm stations

Central fire alarm station at San Francisco. C. W. Geiger. *il J Elec* 45:432-4 N 1 '20

Fire alarms

Clearing the way for the fire engine. *il Sci Am* 122:219 F 28 '20

Fire alarm system which telephones its message. *il Sci Am* 122:494 My 1 '20

Fire alarm systems in smaller municipalities. *Munic Eng* 61:12-13 Jl '21

Fire apparatus

Effective device combats dangerous dock fires. *il Pop Mech* 36:72 Jl '21

Keeping fire apparatus efficient. H. T. Wade. *il Sci Am S* 88:380-1 D 27 '19

Fire apparatus—Continued

Modern fire-fighting equipment. R. G. Skerrett. *il Sci Am M* 3:329-32 Ap '21

See also Fire boats; Fire engines; Fire extinguishers; Fire hose

Advertising

Advertising to offset influence of political purchasing agents. *Ptr Ink* 113:134+ O 7 '20

Fire boats

Fire float Phoenix for the Bristol corporation. *il diags Engineering* 111:226-7 F 25 '21

Fire floats. *il diags plan Engineer* 129:396-8, 400 Ap 16 '20

Fire brick

Behavior of fire brick in malleable furnace bungs. H. G. Schurecht. *diag Am Cer Soc J* 3:556-9 J1 '20

Blast-furnace refractories. R. M. Howe. *Min & Met* 153:1791-1802 S '19; Same. *Blast F & Steel Pl* 8:187-92 Mr '20; Discussion. *Min & Met* 155:3049-50; 157:(sec 12) 82-3 N '19, Ja '20

Clay-working industries, silica brick, and building operations in the lower cities in 1918. J. Middleton. *U S Geol S Min Res of U S* 1918,pt 2:922-6 '20

Dinas bricks of constant volume. O. Rebuffat. *Engineering* 111:648 My 27 '21

L'emploi des briques siliceuses dans les fours à coke. *Génie Civil* 79:195-6 Ag 27 '21

Exports of fire brick and fire clay. *Brick & Clay Rec* 59:508-10 O 4 '21

Factors influencing the properties of silica bricks; abstract. R. A. Scott. *Am Cer Soc J* 3:335 Ap '20

Fire brick lining for rotary kilns. C. H. Sountag. *Concrete* 17:sup47-8 O '20

Linings for rotary kilns. J. A. Fairchild. *Concrete* 18:sup68 Ap '21

Refractories for electric furnaces. R. M. Howe. *Foundry* 48:911-13 N 15 '20; Same. *Iron Tr R* 67:1541-3 D 2 '20; Same. *Chem & Met Eng* 23:1215-18 D 22 '20

Refractories for oil-fired furnaces and boilers. W. H. Grant. *Am Cer Soc J* 4:390-2 My '21

Refractories; symposium at the 58th meeting of the American chemical society. *Engineering* 109:98-9 Ja 16 '20

Silica brick. D. W. Ross. *Am Cer Soc J* 4:65-7 Ja '21

Silica bricks or fireclay bricks for coke ovens. *Engineering* 110:537 O 22 '20

Silica refractories; factors affecting their quality and methods of testing the raw materials and finished ware. D. W. Ross. *il diag U S Bur Stand Tech Pa* 116:1-84 '19

Study of silica products; abstract. A. Bigot. *Am Cer Soc J* 3:164-5 F '20

Study of spalling. R. M. Howe and R. F. Ferguson. *Am Cer Soc J* 4:32-46 Ja '21

Ueber die möglichkeit der herstellung erstklassiger silikasteine aus felsquarziten. E. Lux. *Stahl & Eisen* 41:258-64, pl 1 F 24 '21; Discussion. 41:792-5 Je 9 '21

Use of plastic clay grog in preventing spalling. R. M. Howe and S. M. Phelps. *Am Cer Soc J* 4:119-26 F '21

Manufacture

Design for a fire brick plant. R. H. Minton. *diags plans Am Cer Soc J* 3:440-7 Je '20

Testing

Furnace for testing firebrick under load at high temperatures. C. H. Lovejoy. *diags Chem & Met Eng* 22:109-10 Ja 21 '20

Machine-made and hand-made silica bricks. W. Emery and L. Bradshaw. *Engineering* 109:877 Je 25 '20

Porosity and volume changes of clay fire bricks at furnace temperatures. G. A. Loomis. *U S Bur Stand Tech Pa* 159:1-29 '20

Test for softening point of fireclay brick. *diags Power* 52:636 O 19 '20

Tests of fire-brick made from ganister, flint clay, and plastic clay mixtures, with special reference to spalling. R. M. Howe and M. Sheppard. *il Am Cer Soc J* 4:206-12 Mr '21

Ueber das verhalten feuerfester steine unter belastung bei hohen temperaturen. K. En-deil. *il diag Stahl & Eisen* 41:6-9 Ja 6 '21

Fire clay

Analyzing firebrick mortar. R. M. Howe. *il Iron Tr R* 66:417-19 F 5 '20; Same. *Blast F & Steel Pl* 8:157-60 F '20; Same. *Gas Age* 45:174-6 F 25 '20; Same. *Chem & Met Eng* 23:232-4 Ag 11 '20; Same. *Foundry* 48:593-5 Ag 1 '20

Cupola daubing clay affects iron. C. Buberl. *Foundry* 49:533-4 J1 1 '21

Effect of wet grinding, screening and electrolytes and dextrine on clays of low plasticity and strength. H. W. Douda. *Am Cer Soc J* 3:885-92 N '20

Exports of fire brick and fire clay. *Brick & Clay Rec* 59:508-10 O 4 '21

Note on the effects of firing temperatures on the strength of fire-clay and stoneware bodies. H. G. Schurecht. *Am Cer Soc J* 4:366-74 My '21

Possible explanation of failure under load at high temperature as displayed by fire clay refractories. A. S. Watts. *Am Cer Soc J* 3:448-52; Discussion. 452-9 Je '20

Properties of American bond clays and their use in graphite crucibles and glass pots. A. V. Bleininger. *il diags U S Bur Stand Tech Pa* 144:1-52 '20

Transverse strength of fire-clay tiles at furnace temperatures. R. F. Geller. *diags plan Am Cer Soc J* 4:608-15 J1 '21

Use of fire clay in laying fire clay brick; abstract. R. M. Howe. *Am Cer Soc J* 3:330-1 Ap '20

See also Fire brick

Testing

Vital factors in the testing of fire-clay refractories and in the interpretation of results. R. M. Howe. *Am Soc T M Pro v* 20 pt 1: 278-90 '20

Fire damp. *See* Firedamp

Fire departments

Public garage operates fire department. E. E. Pierson. *il Pop Mech* 35:749 My '21

See also Firemen

Fire engines

Petrol-electric fire engine. *il diags Engineering* 109:173-5 F 6 '20

Fire escapes

Individual compressed-air fire escape. *il Sci Am* 124:294 Ap 9 '21

Fire extinction

Common baking soda whips stubborn fires. *il Pop Mech* 36:412 S '21

Detailed description of fight against two mine fires. D. Bunting. *diags Coal Age* 20:373-6 S 8 '21

Explosives used to snuff out largest gas well fire ever known, after all other methods failed. *il Am Gas Eng J* 112:164+ F 28 '20; *Mech Eng* 42:212 Ap '20; *Eng & Contr* 53: 191 F 18 '20; *W Soc E J* 25:17-18 F 20 '20

Fighting a dump fire with gunite and carbon dioxide. A. F. Brosky. *Coal Age* 20:256-7 Ag 18 '21

Fire extinguishment. *il diags Power Pl Eng* 24:484-6 My 1 '20

Handling fires in stored coal. H. A. Ward. *il diag Power* 50:563-4 O 7 '19; Same. *Coal Age* 17:54 Ja 8 '20

Mine fires and the inert gas method by which they may be extinguished. J. J. Walsh. *diag Am Soc Heat & V E* 25:417-19 '19

Modern fire-fighting equipment. R. G. Skerrett. *il Sci Am M* 3:329-32 Ap '21

Putting out a pillar of fire. G. F. Paul. *il Sci Am* 122:707 Je 26 '20

Smothering fire with bubbles of gas; how carbon dioxide protects the oil tank against its greatest hazard. J. F. Springer. *il Sci Am* 123:228+ S 4 '20

Steam for extinguishing fires in turbo-generators. J. J. Dougherty. *il diags Elec J* 17: 202-3 My '20

Fire extinction—Continued

Training of private fire brigades. H. C. Weigley. *Safety Eng* 41:52-6 F '21

See also Fire apparatus; Fire boats; Fire engines; Fire extinguishers; Fire protection; Fire service (water supply); Hydrants

Fire extinguishers

Experiment in the use of carbon tetrachloride and foamite firefoam for extinguishing mine fires. A. C. Fieldner and S. H. Katz. *Coal Age* 20:7-9 J1 7 '21

Fire-extinguisher bombs made from old lamp bulbs. *il Elec R* 78:76 Ja 8 '21

Fire extinguisher that operates automatically. *il Sci Am* 124:74 Ja 22 '21

Liquid fire extinguisher works at 40° below zero. *il Pop Mech* 35:904 Je '21

Marine fire extinguisher electrically operated. *il diag Pop Mech* 35:574 Ap '21

New extinguisher subdues twelve fires. *il Pop Mech* 36:565-6 O '21

Poisonous gases from carbon tetrachloride fire extinguishers. A. C. Fieldner and others. *il diags plan J Fr Inst* 190:543-65 O '20; *Abstract. N E L A Bul* 7:909 D '20

Fire hose

Recent progress in standardization of fire-hose couplings and fittings. F. M. Griswold. *Am Water Works Assn J* 7:865-8 N '20; Same. *N E Water Works Assn J* 35:43-5 Mr '21

Simplifying the fire-fighters' job. *il Sci Am* 123:381 O 9 '20

Standardization of fire-hose couplings. *Mech Eng* 42:452 Ag '20; Same cond. *Mach* 27:170 O '20

Fire houses

Branch fire station for the city of Salem, Mass.; views and plans. *Arch Forum* 34: pl 15 Ja '21

Fire and police station for the city of Bridgeport, Conn.; views and plans. *Am Arch* 119: pl 616n-o Je 8 '21

Fire house and town hall at Ambler, Pa. *il plans Bldg Age* 42:38-40 Je '20

Fire station for the city of Boston, Brighton, Mass., and Central fire station, Malden, Mass.; views and plans. *Arch Forum* 33:pl 7-9 J1 '20

Fire station, West Lafayette, Indiana. *il plans Bldg Age* 43:40 J1 '21

Standard handball court of the Fire department buildings of the city of Chicago. C. W. Kallal. *il diags plan Am Arch* 116: 509-14 O 15 '19

Town hall and fire house, Ambler, Pa.; view and plans. *Arch & Bldg* 53:pl 25-6 F '21

Fire insurance. See Insurance, Fire

Fire prevention. See Fire protection

Fire protection

At a word sprays thoroughly drench every square foot in anthracite breakers. D. C. Ashmead. *diags Coal Age* 18:995-8 N 11 '20

Care and maintenance of fire protection systems. C. H. Jenkins. *il Power* 52:124-7, 213-16 J1 27, Ag 10 '20

Combating fires in transformers and oil switches. C. T. Sinclair. *il Elec W* 78:357-9 Ag 20 '21

Efficient handling of fuel oil. A. F. Brewer. *Power* 53:384-5 Mr 8 '21

Engineers say fire demonstrates danger of wooden roofs on tanks. *Nat Pet N* 13:59 Ag 24 '21

Every refinery accident a fire hazard; preventive inspection. A. D. Smith. *Nat Pet N* 12:77+ O 13 '20

Factory fire protection. B: Richards. *W Soc E J* 25:221-33; Discussion. 233-7 Ap 5 '20

Facts and figures on fires and prevention. H. E. Hughes. *il Plumber* 95:101-2 F 25 '21

Fieldmen's manual. 260p Mutual fire prevention bureau, Chicago '21

Fighting fires before they start. *Factory* 24: 136+, 472+, 1008+, 1454+, 1724+; 25:904+, 1053+, 1286+, 1604+; 26:68+, 616+, 1426+; 27:502+ Ja, F 15, Ap 1, My 1, Je 1, S 15, O 1-15, N 15 '20, Ja 1, Mr 1, Je 15, O '21

Fighting log pile fires. *il diags Paper* 26:22, 24-5 My 5 '20

Fire causes and prevention. *Am Gas J* 115: 223-5+ S 10 '21

Fire danger in parked automobiles. J: C. McDonnell. *Eng N* 86:213 F 3 '21

Fire hazards connected with heating and ventilating work. I. H. Woolson. *Am Soc Heat & V E J* 27:286-92 Ap '21

Fire prevention. *Dom Eng* 96:525 S 17 '21

Fire prevention. W: B. Northrop. 30p Bureau of fire prevention publicity, New York '21

Fire prevention and protection. N. L. Devendorf. *N E L A Bul* 7:695-8 O '20

Fire prevention and the insurance companies. *Elec R (Lond)* 88:493-4 Ap 15 '21

Fire prevention day, Oct. 9. *Munic Reference Library Notes v* 7, no 5:21-8 S 29 '20 New York public library, New York

Fire prevention in electrical stations. H. J. Burton. *Elec W* 77:1166 My 21 '21

Fire prevention in pulp wood piles. F. J. Hoxie. *il Paper* 27:13-19 D 15 '20

Fire prevention in rubber spreader and churn rooms. F. J. Hoxie. *India Rubber W* 65:26 O '21

Fire prevention in the mill. H. E. Hughes. *il Sanitary & Heat Eng* 96:37-8+ J1 15 '21

Fire prevention session. *Am Soc Heat & V E J* 27:285-95 Ap '21

Fire protection and the lumber industry. W. Clay. *Am Lumberman* 2342:68 Ap 3 '20

Fire protection for schools. H. W. Forster. *Am Arch* 117:264-5, 289-93, 323-6 F 25-Mr 10 '20

Fire protection for Seattle oil pier. *Eng N* 84:1204 Je 17 '20

Fire protection measures for installing heating equipment. *Metal Work* 94:147-8 J1 30 '20

Fire protection of surface plants. *il Eng & Min J* 109:883 Ap 10 '20

Firefoam protection of extra-hazardous risks in manufactories. D. M. Patterson. *il diag Chem & Met Eng* 25:887-8 N 9 '21

Garage fire record. *il Am Arch* 119:76-7 Ja 19 '21

How the annual insurance cost on large structures can be reduced by proper design. *diags Arch Forum* 32:41-6 Ja '20

Ignitions of combustible materials, especially exposed woodwork, by heat-producing apparatus. C. E. Worthington. *diags Safety Eng* 41:256-63 Je '21

Illinois mines guard their timbered shaft bottoms by fusible-plug sprinklers. D. J. Baker. *il plan Coal Age* 18:719-22 O 7 '20

Inflammable and explosive liquids in shops. *Ry Mech Eng* 94:295-6 My '20

Novel annunciators for fire sprinkler system. *diag Elec Ry J* 54:937 N 15 '19

Oil plants of the future are dependent on fire rules of today. W. C. Platt. *Nat Pet N* 13:33-6 N 2 '21

An ounce of prevention; fire protection methods at the Fisk rubber co. *il Factory* 25:1728-30 D 1 '20

Pooling protection equipment. P. F. O'Shea. *Factory* 26:1428+ Je 15 '21

Precautions taken to protect anthracite breaker from destruction by fire. D. C. Ashmead. *il plan Coal Age* 18:113-15 J1 15 '20

Preventing and controlling factory fires. C. A. Briggs. *il Automotive Ind* 44:565-6 Mr 10 '21

Preventing fire at steel plants. W. F. Mulhall. *il Iron Tr R* 67:655-7 S 2 '20

Prevention of fires. G: W. Elliott. *Am Soc Heat & V E J* 27:292-5 Ap '21

Prevention of fires and explosions in coal-tar chemical works. N: Richardson. *Chem & Met Eng* 23:273-4 Ag 18 '20; Same. *Textile World* 58:1311+ Ag 28 '20

Protecting industries from fire. H: A. Fiske. *Am Ind* 21:17-18 J1 '21

Protecting life by automatic control of fire. H: A. Fiske. *Safety Eng* 41:7-9 Ja '21

Protection of life against fire; exits and fire alarms. *Am Gas J* 115:29-30 J1 9 '21; Same abr. *Sci Am* 124:516+ Je 25 '21

Protection of wooden bridges from fire. *Eng & Contr* 53:102 Ja 28 '20; Same. *Can Eng* 38:247 F 26 '20

Recommendations for reducing fire hazard. *diags Power Pl Eng* 25:626-7 Je 15 '21

Fire protection—Continued

- Safeguarding spreading and mixing fire hazards in rubber mills. diags plan India Rubber W 65:24-5 O '21
- Safeguards against fire. diags Power Pl Eng 24:711-12 J1 15 '20
- Seeing ahead with the N.F.P.A. L. Marshall. Safety Eng 42:19-21 J1 '21
- Spraying wood for preservation and fire prevention. E. Sutermeister. Paper 27:21+ D 22 '20
- Systematic fire prevention. Paper 26:25 S 1 '20
- Three hundred million dollars a year. il Ind Management 61:16-21 F 15 '21
- Township fire protection. Munic Eng 58:193 My '20
- Trends in management; the direction industrial fire prevention is taking. W. E. Mal-lalieu. Factory 27:478-80 O '21
- Trends in management; what the factory fire-prevention points to. F. H. Wentworth. Fac-tory 26:854-5 Ap 1 '21
- 25th annual conference of the National fire protection association, San Francisco, June 14-16. Safety Eng 41:264-6+; 42:2-9 Je-J1 '21
- Use of inert gas for the prevention of explo-sions. E. F. White. il diag Chem & Met Eng 25:513-15 S 14 '21
- Water-spray system for turbo-generator fire protection. F. T. Leilich. il diags Elec W 76:385-6 Ag 21 '20
- Why build houses to be burned up? archi-tects and builders should give more at-tention to the fire hazard. il diag Bldg Age 43:21-3 Mr '21
- See also* Electric plants—Fire protection; Fire apparatus; Fire boats; Fire engines; Fire escapes; Fire extinction; Fire extin-guishers; Fire-resisting materials; Fire ser-vice (water supply); Fireproof construc-tion; Fireproofing; Forest fires; Gasoline handling; Hydrants; Mine fires; Railroads—Fire protection; Sprinkling systems

Bibliography

- Publications on the subjects of fire preven-tion and fire protection available in the files, and Index to subjects covered in the printed records, September, 1920. 88p Na-tional fire protection assn., Boston '20

Laws and regulations

- Protection of life against fire. Power Pl Eng 24:751-3 Ag 1 '20

- Fire protection association, National. *See* Na-tional fire protection association

Fire-resisting materials

- Comparison of the heat insulating properties of some of the materials used in fire-resis-tive construction. W. A. Hull. il diags U S Bur Stand Tech Pa 130:1-40 '19
- Fire prevention advantages of sheet metal. J. Bogenberger. Sheet Metal Worker 11: 285+ O 15 '20
- Fire resistance of building columns as shown by test. R. E. Wilson. il diags Eng N 87: 106-10, 145-6 J1 21-28 '21; Discussion. 87: 292 Ag 18 '21
- Fire resistance of building materials. Sci Am M 3:467 My '21
- Fire tests of building columns. S. H. Ing-berg and others. il diags plans U S Bur Stand Tech Pa 184:1-375 '21; Abstract. Eng & Contr 55:510 My 25 '21
- La résistance à l'incendie des différents genres de piliers et colonnes. P. Calfas. il diags plan Génie Civil 79:261-5, 283-8 S 24-O 1 '21
- Sheet metal for fire protection. Metal Work 94:108 J1 23 '20
- Talc in fire-resistant paint. R. B. Ladoo. Chem & Met Eng 23:689 O 6 '20
- Wire glass as a fire retardant. M. L. Carr. Metal Work 93:452-3 Ap 9 '20
- See also* Concrete construction—Fire re-sistance; Fireproof construction; Refractory materials

Testing

- Laboratory fire tests. Am Lumberman 2345:84 Ap 24 '20
- Tests show that buildings may be rendered fireproof with gunite. B. C. Collier. il diags plan Coal Age 18:939-42 N 4 '20
- Fire service (water supply)**
- Atlantic City's high-pressure fire system. Pub Works 50:4-5 Ja 1 '21
- Committee on private fire protection services. E. V. French. Am Water Works Assn J 8: 218-21 My '21
- Development of the F. M. double check valves as a safeguard for public water sup-plies. H. A. Burnham. diags plans Am Wa-ter Works Assn J 8:222-32 My '21; Same. Can Eng 40:203-6 F 10 '21
- Experiences in metering fire services. F. E. Beck. Eng & Contr 54:145-6 Ag 11 '20
- F. M. double deck valves as safeguards for water supplies. H. A. Burnham. diags plan Can Eng 40:203-6 F 10 '21
- Fighting water shortage in Norfolk. Pub Works 48:97-8 F 14 '20
- Fire fighting efficiency of St Louis water sup-ply. Pub Works 49:155-6 Ag 14 '20
- Method of grading cities on fire service em-ployed by National board of fire under-writers. C. Goldsmith. Munic Eng 59:178+ N '20; Same abr. Eng & Contr 54:47-50 J1 14 '20
- National board of fire underwriters' method of grading cities on fire service. C. Gold-smith. Eng & Contr 54:47-50 J1 14 '20
- Standard schedule for grading cities and towns of the United States with reference to their fire defenses and physical condi-tions. J. S. Caldwell. N E Water Works Assn J 35:1-12; Discussion. 12-18 Mr '21
- Water-supply cross-connection rules of On-tario board of health. Eng N 87:374 S 1 '21
- Water works for fire protection. H. F. Blom-quist. Am Water Works Assn J 7:223-31 Mr '20

***See also* Hydrants**

- Fire stations. *See* Fire houses

Fire walls

- Value of fire walls. Am Arch 120:251 S 28 '21

Firearms

- Cause and prevention of after-corrosion on the bores of firearms. W. J. Huff. il J Ind & Eng Chem 12:862-70 S '20
- Development of non-corrodible gun barrels. F. A. Fahrenwald. 22p Canadian institute of mining and metallurgy, Winnipeg '21
- See also* Guns; Machine guns; Ordnance; Pistols; Projectiles; Rifles

Sights

- Cutting teeth of special rack for sight mech-anism. C. Hardy. il diags Mach 27:74 S '20

Firebrick. *See* Fire brick**Firedamp**

- Firedamp in the gold mines of the Far East Rand. T. N. Dewar. Min & Met 174:28-30 Je '21; Excerpts. Sci Am M 3:569 Je '21
- Le grisou dans les mines de potasse d'Alsace et les mesures de sécurité nécessaires. diags Génie Civil 77:100 J1 31 '20
- How to test for firedamp. diags Coal Age 18: 755 O 7 '20
- Outbursts of methane and carbon dioxide in coal mines and the conditions under which they occur. H. Briggs. Coal Age 20:209-13 Ag 11 '21

Firefoam

- Firefoam protection of extra-hazardous risks in manufactories. D. M. Patterson. il diag Chem & Met Eng 25:887-8 N 9 '21

Fireless cookers

- How to make a fireless cooker. K. Coggeshall. diags Pop Mech 33:448-50 Mr '20

Firemen

- Report on hours and pay of firemen in Great Britain. Monthly Labor R 11:966-7 N '20

Fireplaces

- Dining room fire place in a house on E. 68th street, New York. Am Arch 117:820h Je 30 '20
- English architectural decoration; carved overdoors, chimneypieces. A. E. Bullock. il diags Arch Rec 47:268-82 Mr '20
- Fire place construction. il diag Bldg Age 43:40 Je '21
- Fire place construction affords field for off-season work. diags Bldg Age 43:62 Jl '21
- How modern England heats her homes. il plan Plumber 95:61-2+ F 11 '21
- Information on chimney and fireplace construction desired. diags plans Bldg Age 42:68+ Ap '20
- More heat from the fireplace. il Sci Am 125:199 S 17 '21
- Suggestions for correct designing of open fireplaces. A. Weindorf. il diags plan Bldg Age 43:59-63 Ja '21

See also Mantels

Fireproof construction

- Home building and fire hazards: some facts and an analysis. C. E. Worthington. Safety Eng 42:158-64 O '21
- House built like a battleship. W. Clay. il diags plans Concrete 17:47-8+ Ag '20
- King Edward hotel extension, Toronto. il Can Eng 39:585-7 D 9 '20
- Sheet metal used to protect moving picture films. il Metal Work 94:105-7 Jl 23 '20
- Specifications for slow burning office buildings. Eng & Contr 56:178-9 Ag 24 '21
- 3,000,000 new buildings for housing purposes are called for in the year 1921. C. E. Worthington. diags Safety Eng 41:2-6 Ja '21

See also Concrete construction—Fire resistance; Fire-resisting materials; Fire walls; Steel construction

Fireproofing

- Effect of certain fire-proofing solutions on cotton fabric. R. L. Sibley. J Ind & Eng Chem 13:676-7 Ag '21; Same. Textile World 60:2437 O 29 '21
- Fireproofing fabrics; treatment of sack materials, tent cloths and balloon fabrics. W. Hacker. Sci Am M 3:171-3 F '21
- Non-inflammable timber. Sci Am 123:429 O 23 '20
- What the rubber chemists are doing; fire-proofing airship fabrics. India Rubber W 63:193 N '20

See also Airplanes—Fireproofing

Fires

- Analyses of air from burning buildings. S. H. Katz. Am Soc Heat & V E J 27:62-3 Ja '21
- Building to burn. H. Botsford. il Sci Am 122:159 S 14 '20
- Damage by fire to creosoted trestle, N.C. & St L. Ry. il diag plan Ry R 69:133-5 Jl 30 '21
- Electric fires. Sci Am M 3:475-6 My '21
- Electric fires only 2:57 per cent of all. R. Trautschold. Elec W 77:693-6 Mr 26 '21
- Fire caused by water. Sci Am 123:279 S 18 '20
- Fire chiefs' reports show few electrical fires. Elec W 78:409 Ag 27 '21
- Government aid needed in study of fire waste. Elec W 77:1370-1; 78:221 Je 11, Jl 30 '21
- Housing losses due to fire waste. W. Clay. Concrete 18:sup84 Mr '21
- Investigation of fire in private radio station. T. H. Day. il Elec R 76:80-1 Ja 10 '20
- National ash pile for 1919. Am Ind 20:35 F '20
- Paying the bill for carelessness. W. E. Mal-lalieu. Nation's Business 8:28+ O '20
- Precautions that should be taken to prevent electrical equipment from starting fires. E. V. King. Coal Age 19:1161-2 Je 30 '21
- Radio-station hazards. H. P. Maxim. Elec R 76:287-8 F 14 '20
- Regarding gas as a fire hazard. Gas Age 45:212-16 Mr 10 '20
- Some considerations on fire waste. N. Richardson. Chem & Met Eng 25:397-400 Ag 31 '21

See also Bridges—Fires; Concrete construction—Fire resistance; Fire extinction; Fire protection; Forest fires; Gas fires; Mine fires; Oil fires

Fires at sea

- Marine fire hazard. F: S. Titsworth. Marine Eng 26:405 My '21
- Statistics with reference to marine fire hazard. F: S. Titsworth. Safety Eng 41:159-66 Ap '21

Firestone tire & rubber company, Akron, Ohio

Report for fiscal year ending Oct. 31 1920. Comm & Fin Chr 111:2516 D 25 '20

Fireworks

- Short commercial analytical methods for the determination of purity of important chemicals used in pyrotechnics. H: B. Faber and W: B. Stoddard. J Ind & Eng Chem 12:576-8 Je '20

Firing

- Adapting firing to the fuel. diags Power Pl Eng 25:31-3 Ja 1 '21
- Avoidance of clinker when burning coal with low-fusing ash. T. A. Marsh. Coal Age 17:903-4 My 6 '20
- Boiler house economies. C. McManiman. Coal Age 17:61-2 Ja 8 '20
- Economical firing of steel plant boilers. C: Longenecker. Blast F & Steel Pl 9:308-10 My '21
- Exact data on the running of steam boiler plants. D. Brownlie. pl 3 (supp) Engineering 109:71-4 Ja 16 '20
- Firemen's handbook and guide to fuel economy. C: F: Wade. 84p Longmans '20
- Firing a boiler under varying load. J: O. Berkebile. Coal Age 18:1141 D 2 '20
- Fuel economy in heating service. A. Bement. Heat & Ven 18:36-8 S '21
- Hand-fired-boiler performance in France. C. F. Merriam. Power 54:473-4 S 27 '21
- Hand stoker. il Textile World 57:241 Ja 10 '20
- Influence upon boiler economy of continuous firing of highly-volatile fuel without intervening cleaning. A. R. Beck. diags Am Soc Heat & V E J 27:1-5 Ja '21; Discussion. 27:196-9 Mr '21
- Influences of the initial air temperature on combustion processes in furnaces. J. Hudler. Mech Eng 43:48 Ja '21
- Magazine feed boiler and fuel conservation. C: F. Newport. Am Soc Heat & V E J 26:11-16 Ja '20
- Massachusetts examination questions for firstclass fireman's license. Power Pl Eng 24:912-14 S 15 '20
- Principles underlying the economical firing of boilers. C: Longenecker. Blast F & Steel Pl 9:227-8+ Mr '21
- Simple rules for operating hand-fired boilers when using low B.t.u. coal. W. A. Darter. Power 52:341-2 Ag 31 '20
- Suggestions on storage and hand-firing of soft coal. diags Heat & Ven 17:36-8 S '20
- See also* Boilers—Gas firing; Boilers—Oil firing; Combustion; Fuel; Furnaces; Stokers, Mechanical

First aid in illness and injury

- First aid for electrical injury. J. S. Dean. il Elec J 18:156 Ap '21
- First aid in industrial organizations. Am Ind 20:29-30 D '19
- Indiana holds fifth annual first-aid contest. il Coal Age 18:129-30 Jl 15 '20
- Instructing employees in the elements of first aid. Automotive Ind 43:381 Ag 19 '20
- Tourniquet made like a trouser belt. diag Coal Age 19:183-4 Ja 27 '21
- Treatment of acid and alkali burns. A. K. Smith. Chem & Met Eng 24:748-9 Ap 27 '21
- West Virginia holds initial first-aid meet. il Coal Age 18:637-8 S 23 '20
- What to do in accidents. 61p United States Public health service, Washington, D.C. '20

See also Electricity, Injuries from; Mine rescue work; Respiratory apparatus; Resuscitation

Fish. See Fish as food; Fish trade; Fisheries; Fishes**Fish, Frozen**

- Chemical study of frozen fish in storage for short and long periods. E. D. Clark and L. H. Almy. J Ind & Eng Chem 12:656-63 Jl '20

Fish, Frozen—Continued

Conveying fish in cold storage. diags Eng & Ind Management 5:362-3 Mr 24 '21

Freezing fish a new way. il Sci Am 124:229 Mr 19 '21

Le frigorifique à poissons de Lorient (Morbihan). Verrière and Tayon. il diags plans Génie Civil 77:245-50, pl 4 S 25 '20

Methods of freezing fish. Engineer 130:617 D 17 '20

Preservation of fish frozen in chilled brine. L. H. Almy and E. Field. J Ind & Eng Chem 13:927-30 O '21

Fish as food

Are we abusing our water resources? methods of disposing of organic and mill wastes, and their bearing on the food question. P. W. Claassen. il Sci Am 124:90+ Ja 29 '21

Fish stories that are stranger than fiction. L. Lodian. il Sci Am 125:202+ S 17 '21

Where some of the fish go. J. M. T. Hamilton. Sci Am 124:267 Ap 2 '21; Discussion. T. G. Pearson. 125:219 S 24 '21

See also Fish, Frozen; Sardines

Fish cleaning machine

To clean fish quickly. il Marine R 51:198-9 Ap '21

Fish culture

Saving food fish by the hundred million; how victims of the Mississippi overflow are returned to the main channel. G: H. Dacy. il Sci Am 125:216+ S 24 '21

Uncle Sam's artificial fish; the hatchery work of the United States forest service. S. R. Winters. il Sci Am 124:284 Ap 9 '21

Fish glue. See Glue**Fish oil**

Tuna fish oil. Sci Am 123:301 S 25 '20

Fish patrol, Aerial

Aerial fish patrol. Sci Am 123:89 Jl 24 '20

Fish-scaling. See Enamel and enameling**Fish skins**

Puffer fishes; interesting uses of their skins. E. W. Gudger. il Sci Am M 1:321-4 Ap '20

Fish trade

New development in selling fish by mail. Ptr Ink 110:35-6+ Mr 4 '20

See also Codfish cakes

Fish traps

Fish trap of huge capacity folds into small space. il Pop Mech 33:39 Ja '20

Fish troughs, Concrete

Concrete fish troughs for Alaska hatchery. il Concrete 19:34 Jl '21

Fisher, John Arbuthnot, 1841-1920

Sketch. Engineer 130:63-4 Jl 16 '20

Fisher Body Ohio company

Oversize construction plant demonstrates value in building of Fisher Body Ohio co. plant. il map Eng N 86:82-5 Ja 13 '21

Fisher plan. See Stable money league**Fisheries**

Fisheries of America and their contribution to the nation's food supply. il Americas 7:24-30 Je '21

Fishing through the ice in the Great Lakes. W. Fleming. il Sci Am M 1:142-4 F '20

Mullet fisheries of the Salton sea. J: E. Hogg. il map Pop Mech 34:175-80 Ag '20

Le port de pêche moderne, et sa réalisation à Ymuiden (Hollande). Casanova and Péliissonnier. Génie Civil 78:94 Ja 22 '21

Wanted: a master fisherman. J. O'Hara. il Nation's Business 8:28+ Ag '20

See also Trout

Fishes

Dependence of the fishes on the diatoms; abstract. A. Mann. Sci Am M 4:83-4 Jl '21

Fish that can be drowned; peculiarities of the climbing perch and other amphibious fish. il Sci Am M 2:221-2 N '20

Salvaging stranded food fishes. H. A. Brown. Sci Am 122:133 F 7 '20

Saving food fish by the hundred million; how victims of the Mississippi overflow are returned to the main channel. G: H. Dacy. il Sci Am 125:216+ S 24 '21

See also Aquariums; Betta splendens; Fish as food; Flying fish; New York (city)—Aquarium; Parrot fish; Remora; Sharks; Trout

Habits and behavior

Do fish swim as airplanes fly? M. Tevis. Sci Am 123:469 N 6 '20

Fish that bear their young alive; curious habits of kilifishes, cave-fishes, sharks, rays, etc. il Sci Am M 3:21-2 Ja '21

So-called lung fishes; peculiar African fish that buries itself in the mud during the dry season. il Sci Am M 3:118-20 F '21

Transportation

Tank scows for live fish. il Sci Am 124:269 Ap 2 '21

Fishing

Flying anglers troll for deep-sea fish. J: E. Hogg. il Pop Mech 34:321-2 S '20

Fooling fish with colored nets. Sci Am 125:227 S 24 '21

See also Trout fishing

Fishing, Submarine

Inverted angling from submarines. J: E. Hogg. il Pop Mech 34:591-2 O '20

Fishing boats

Electric drive applied to trawler Mariner. il Int Marine Eng 25:631-5 Ag '20

Mariner: the first electrically operated trawler. J: Liston. il diags Gen Elec R 23:455-63 My '20

Steam trawler Rudyard Kipling. il diags Marine Eng 26:665-8 S '21

Trial trip of gas-electric boat. H. R. Simonds. diags Marine R 50:5-6 Ja '20

Fishing schooner races

Mayflower challenger for International fishing schooner cup. il Sci Am 124:407 My 21 '21

Fishing tackle

Agate guides for fishing rods—a new American industry. R. H. Moulton. il Sci Am 122:189+ F 21 '20

Fiske, Bradley Allen, 1854-

Lifetime of naval invention. Sci Am 122:592 My 29 '20

Romance of invention: inventor of fighting machines and his work in adding to the efficiency of navies. C. H. Claudy. por Sci Am 124:46+ Ja 15 '21

Fisken, John B., 1861-

Sketch. por Elec W 76:464 S 4 '20

Fitch, Walter, sr.

Mine operators of note. G: J. Young. por Eng & Min J 110:949 N 13 '20

Fitchburg, Massachusetts**Sewerage**

Fitchburg sewage treatment plant. Pub Works 49:399-403 O 30 '20; Abstract. Eng & Contr 54:458 N 10 '20

Fits (machinery)

Analysis of machined fits; A.E.S.C. committee. diags Mech Eng 43:132-3 F '21

Chart for determining fit allowances. J. B. Conway. chart Mach 27:17 S '20

Chart for determining pressure for forced fits. J. B. Conway. Mach 27:578 F '21

Fitting by forcing or shrinking. W. S. Standiford. Blast F & Steel Pl 9:218+ Mr '21

Standardization of the limit system in machine construction. P. M. Heldt. Automotive Ind 42:858-61 Ap 8 '20

Study of working fits. Am Mach 53:1008-9 N 25 '20

System of fit allowances. S. B. Austin. Mach 27:452-4 Ja '21

System of fit allowances. H. K. Griggs. Mach 27:887 My '21

Tolerance systems for cylindrical fits. P. M. Heldt. Automotive Ind 44:1274-80+ Je 16 '21

- Fits (machinery)—Continued**
 Les tolérances dans la construction mécanique. C. Reinwald. diags Génie Civil 78: 130-2 F 5 '21
- Fiume**
 President Wilson's opposition to plan of allied premiers for settlement of Adriatic problem. Comm & Fin Chr 110:1144-51 Mr 20 '20
- Five- and ten-cent stores**
 Woolworth's successor and his success. Eng & Contr 53:326-8 Mr 24 '20
- Fixtures**
 When mechanical equipment does and when it does not become fixtures. W. Gustin. Chem & Met Eng 25:31-2 Jl 6 '21
See also Machine tools—Fixtures
- Fixtures, Lighting.** *See* Electric light fixtures; Gas fixtures; Lighting fixtures; Street lighting fixtures
- Fixtures, Machine tool.** *See* Machine tools—Fixtures
- Flagpoles**
 Simple support for the skyscraper's flagpole. diags plans Am Arch 117:358 Mr 17 '20
- Flame projectors**
 Hay flame gun; destruction of locusts and other pests. il Eng & Ind Management 5: 574 My 19 '21
 Incendiaries in modern warfare; flame projectors. A. B. Ray. il diag J Ind & Eng Chem 13:720-2 Ag '21
- Flame propagation**
 Explosion hazard and its prevention. J. F. Shadgen. Iron Age 108:127-30 Jl 21 '21
 Flame characteristics and their influence upon combustion. C. A. French. Automotive Ind 44:1100-2+ My 26 '21
 Flame velocity with mixed gases. Terres and Straube. Gas Age 48:217-18 Ag 27 '21
 Introduction à l'étude de la carburation pyrodynamique du moteur à explosions. Carbonaro. diags Soc Ing Civils Bul 74:185-249 Ap '21
 Nature of flame movement in closed cylinder. C. A. Woodbury, H. A. Lewis and A. T. Canby. il diag Soc Auto Eng J 8:209-18 Mr '21; Discussion. 9:237-42 O '21
 Propagation of flame. Am Gas Eng J 112:511 Je 26 '20
 Propagation of flame in complex gaseous mixtures. W. Payman. Mech Eng 42:240 Ap '20
 Propagation of flame in mixtures of ethylene and air. W. R. Chapman. Chem Soc J 119: 1677-83 O '21
 Propagation of flame in mixtures of methane and air. W. Mason and R. V. Wheeler. Mech Eng 42:239-40 Ap '20
 Turbulence. H. L. Horning. diags Soc Auto Eng J 8:579-87 Je '21; Same. Automobile Eng 11:347-52 O '21; Excerpts. Automotive Ind 44:1142, 1144-7+ Je 2 '21; Discussion. Soc Auto Eng J 9:256-60 O '21
 Velocity of flame propagation in engine cylinders. D. MacKenzie and R. K. Honaman. il diags Soc Auto Eng J 6:119-22 F '20; Discussion. 6:338-9 My '20
- Flames**
 Conductivity of flames containing salt vapors. A. B. Bryan. diags Phys R 18:275-91 O '21
 Flame. C. A. French. diags Soc Auto Eng J 9:182-5; Discussion. 185-8 S '21
See also Combustion; Gas burners; Gas lighting; Oxyacetylene flame
- Flanges**
 Calculation of stresses in winding-drum flanges. J. S. Watts. diag Am Mach 53: 1130-1 D 16 '20
 Dies for flanges and bearing races. J. Bingham. diags Mach 27:225 N '20
 Flanges for friction pulleys. J. S. Watts. diags Am Mach 53:372-3 Ag 19 '20
 Manufacture of broad flanged beams with perfectly uniform flanges. A. Schriever. diags Blast F & Steel Pl 8:437-40 Ag '20
 Wide flange beams by the Sack method. A. Schriever. diags Iron Age 106:448-9, 519-21 Ag 19-26 '20
See also Pipe flanges; Pipe joints
- Flanging machine**
 Armstrong shipyard; hydraulic keel-plate flanging machine. diags Engineering 109: 568 Ap 30 '20
 Manufacturers' methods of reducing costs; the flanging machine. L. Broemel. diag Sheet Metal Worker 12:673-4 O 28 '21
- Flash suppressor.** *See* Electric protective apparatus
- Flashing**
 Criticises soil pipe flashings sharply. J. Troland. Metal Work 93:51-2 Ja 9 '20
 Flashing pattern drafted on the roof. il diag Sheet Metal Worker 12:40 F 18 '21
 Laying copper roofing and gutters. W. Neubecker. diags Sheet Metal Worker 12:465-6 Ag 5 '21
- Cost**
 Accurate plumbing and heating estimates—how made. H. A. Call. Sanitary & Heat Eng 96:163-4+ S 9 '21
- Flashlights, Electric.** *See* Electric flashlights
- Flasks, Foundry.** *See* Foundry flasks
- Flat sours.** *See* Canning and preserving
- Flatirons, Electric.** *See* Electric irons
- Flavones**
 Über die bildung von flavonen und benzal-cumaranonen aus oxy-chalkon-dibromiden. K. v. Auwers and L. Anschütz. Deutsche Chem Gesell Ber 54:1543-60 Jl '21; Abstract. Chem Soc J 120 pt 1:682-3 S '21
 Über die chromone und flavone. S. Ruhemann. Deutsche Chem Gesell Ber 54:912-24 My '21; Abstract. Chem Soc J 120 pt 1:430-1 Je '21
- Flavoring extracts**
 Book of formulas and manufacturers' guide. 150p Dr Chas. D. Camp laboratories, Chicago '21
 Catching the housewife's imagination; the Virginia Dare company does it by cashing in on a popular trade name. H. A. Ballard. Ptr Ink 110:144+ F 12 '20
 Divides product and discovers parts are greater than whole. M. Hussobee. Ptr Ink M 2:37-8+ F '21
See also Vanilla extract
- Advertising**
 Increasing the jobber's profit by reducing his discount; campaign of the Joseph Burnett company. R. Cole. Ptr Ink 117:3-4+ N 3 '21
- Flax**
 Australian flax industry. Chem & Met Eng 22:988-9 My 26 '20
 Concrete flax rettery in Belgium. W. W. Hay. diag Concrete 17:127 O '20
 Flax scutching machine. il diag Engineering 111:614-16 My 20 '21; Pop Mech 36:708 N '21
 Freeman-Sumner flax pulling machine. il Textile World 58:3511 N 20 '20
 New machine ripples flax without damaging straw. il Pop Mech 33:348 Mr '20
 Putting flax on a modern basis. il Sci Am 122:166-7+ F 14 '20
See also Linen
- Flax, Substitutes for**
 Flax fibre substitutes. A. S. Moore. Textile World 58:3631+ N 27 '20
- Fleischmann company**
 Delivering a perishable product to ten million people each day; Fleischmann's yeast. R. Dickinson. il map Ptr Ink M 3:15-16 N '21
- Fleming, Sandford, 1827-1915**
 Engineers and affairs: a worthy prototype. P. Gillespie. Can Eng 40:147-9 Ja 20 '21
- Flexner, Simon, 1863-**
 Incoming president of the A.A.A.S. M. Benjamin. por Sci Am 121:635 D 27 '19
- Flexure**
 Apparatus for delicate flexure tests and some results of such tests. W. J. Francke. diag Am Soc T M Pro v 20 pt 2:372-86 '20; Same. Am Mach 54:48-52 Ja 13 '21; Discussion. Am Soc T M Pro v 20 pt 2:387-91 '20

Flexure—Continued

Determination of values of Young's modulus and Poisson's ratio by the method of flexures. H. Carrington. diags Philos Mag 6th ser 41:206-10 F '21

See also Elasticity; Girders; Strains and stresses; Strength of materials

Flies

Fly and mosquito elimination work in New York city. J. M. Lonergan. Eng & Contr 54:241-4 S 8 '20

Producing flies with horns. R. Merle. il Sci Am M 2:18-19 JI '20

Flight

Aeronautics of the flying fish. R. E. Dowd. diags Aerial Age 12:464-5 Ja 10 '21

Etudes expérimentales sur le vol à voile; abstract. Idrac. Génie Civil 78:445 My 21 '21

How fast do birds fly? Sci Am 125:18, 165 JI 9, S 3 '21

How insects fly. E. Bade. il Sci Am M 4:350-2 O '21

How insects steer themselves while flying. F. Stellwaag. il diags Sci Am M 1:207-11 Mr '20

New theory of flight. Sci Am 125A:24 N '21

Paradoxical windwheels and soaring birds. T. O. Perry. il Sci Am M 1:205-7 Mr '20

Soaring flight of birds. L. Bollee. diags Aerial Age 12:421 D 27 '20

Wave soaring. W. T. Thomas. diags Aerial Age 11:616-17 JI 12 '20

See also Aeronautics

Flint, Charles R.

Fifty years a trader. C: R. Flint. por System 40:152-5+, 558-60+ Ag, N '21

I learn the A-B-C's of foreign trade. il System 40:277-80+ S '21

Some basic truths I learned in two great markets. System 40:419-21+ O '21

Flint, Michigan

Topographic survey of the city of Flint, Michigan. C. S. Elicker. il maps Eng N 84:700-2 Ap 8 '20

Sewerage

Sewage disposal studies at Flint. J. R. Pollock. Eng N 87:272-3 Ag 18 '21

Water supply

Flint water filter improvements and reconstruction. il diags plan Eng N 84:1189-91 Je 17 '20

Water purification in Flint. il Pub Works 48:369-72 My 1 '20

Flint

Specifications for commercial feldspar and flint. A. S. Watts. Am Cer Soc J 3:722-6; Discussion. 726-9 S '20

See also Silica

Floating bodies

La loi d'équilibre de grains solides dans un courant d'eau vertical ascendant. R. Féret. Génie Civil 78:260 Mr 19 '21

Floating cranes. *See* Cranes, Floating

Flocculation

Removal of clay and silica from water. O: M. Smith. il Am Water Works Assn J 7:302-14 My '20; Discussion. W. A. Deane. 7:767-8 S '20

See also Colloids; Deflocculation

Flood control

Costs of concrete, and organization employed on the Taylorville works of Miami conservancy district. il chart plans Eng & Contr 55:152-4 F 16 '21

Design and construction of works in Inter-river drainage district, Butler county, Missouri. A. S. Fry. il Munic Eng 57:244-6 D '19

Design of dams and auxiliary structures of Miami conservancy district. il diags plans Eng N 84:1142-8 Je 10 '20

Economic limits of flood protection. Eng N 87:471 S 22 '21

Effect of flood on flexible concrete block revetment of Miami conservancy district. il Eng & Contr 54:36-7 JI 14 '20

Engineering studies for flood protection. Eng N 86:1019 Je 16 '21

First valley closure of Miami flood protection system completed. Eng N 83:853 N 13 '19

Flood control by small dams. T. Saville. Pub Works 50:51-2 Ja 15 '21; Same. Eng & Contr 55:236-7 Mr 9 '21

Flood control reservoirs on the Minnesota river. diags map Eng N 87:140-3 JI 28 '21

Flood control work in the Miami conservancy district. diags map plans Pub Works 48:91-5 F 14 '20

Flood prevention projects to protect Winnipeg. D. L. McLean. Can Eng 38:335 Ap 1 '20

Flood protection channel project for Dallas, Tex. map Eng N 87:327-8 Ag 25 '21

Flood protection project for Council Bluffs, Iowa. diags map Eng N 85:596-8 S 23 '20

Flood-protection reservoir for Decorah, Iowa. plan Eng N 84:565-6 Mr 18 '20

Hydraulic jump prevents flood-water damage. G: F. Paul. il Pop Mech 36:709-10 N '21

Hydraulics of the Miami flood control project. S. M. Woodward. (Technical reports, pt. vii) 343p Miami conservancy district, Dayton '20

Making the flood dam itself; a simple wire netting structure that gathers mud, boulders and miscellaneous debris to form a barrier. J. F. Springer. il Sci Am 125A:38-9 N '21

Miami valley flood protection rapidly progressing. Eng N 85:978-9 N 18 '20

New river planned for flood protection and drainage along Mississippi. map Eng N 87:481-2 S 22 '21

Ohio's flood insurance; how the Miami valley plans to stop the next inundation before it starts. M. A. Henry. il Sci Am 122:572+ My 22 '20

Overflow channels proposed for Pueblo flood protection. map Eng N 87:570 O 6 '21

Piling up the river bottom into a dike. il Sci Am 123:399 O 16 '20

Present status of flood protection. C. B. Burdick. Eng N 84:15 Ja 1 '20

Principles of channel improvement in Miami valley flood protection. il diags plans Eng N 85:292-8 Ag 12 '20

Progress and costs on Erie, Pa. flood control project. F. Gannett. il Eng N 84:852-4 Ap 29 '20

Reclamation of Derwent Valley river lands, England. diags map Engineer 130:470-3 N 12 '20

Report of the Kaw river flood protection problem. C. E. Smith. Eng N 84:920 My 6 '20

Surveys for flood protection at Columbus, Ohio. R. C. Chaney. plan Eng N 84:966-8 My 13 '20

See also Dams; Dams, Concrete; Reclamation of land; Reservoirs; Rivers—Bank protection; Rivers—Regulation; Sea walls

Flood lighting. *See* Light projection

Flood prevention. *See* Flood control

Floodgates. *See* Gates, Hydraulic

Floods

Amateur radio operators aid flood victims. R. W. Goddard. il Wireless Age 9:27+ O '21

Colorado floods again threaten Imperial valley. Eng N 86:1093 Je 23 '21

Colorado rainfall records and flood estimate. maps Eng N 87:23-4 JI 7 '21

Colorado's cloud-burst; some of the causes and results of the Pueblo flood. map Sci Am 124:494+ Je 18 '21

Disastrous Colorado floods follow great rain-storm. Eng N 86:1008 Je 9 '21

Electrical aspects of the Pueblo floods. A. L. Jones. il Gen Elec R 24:846-52 O '21

Emergency engineering after a Georgia flood. C. E. Wideberg. il Eng N 84:431 F 26 '20

Flood at Pueblo—an emergency in railroad-ing. il Ry R 69:46-9 JI 9 '21

Flood of June, 1921, in the Arkansas river, at Pueblo, Colorado. J. Munn and J. L. Savage. il Am Soc C E Pro 47:167-201, pl 2-4 S '21

Flood prevention projects to protect Winnipeg. D. L. McLean. diag map Can Eng 38:333-5 Ap 1 '20

Floods—Continued

Floods on the lower Rio Grande in New Mexico and Texas. A. J. Henry. Eng N 83:1001-2 D 11 '19

Flood's overwhelming force shown in Pueblo disaster. il Pop Mech 36:216-17 Ag '21

Highest Miami flood since 1913 tests conservancy works. il Eng N 84:944-5 My 13 '20

How manufacturers aided San Antonio trade during the flood. J. R. Sprague. Ptr Ink 117:17-20 O 6 '21

Mississippi river floods of 1920. A. J. Henry. Eng N 85:71 JI 8 '20

Pueblo flood intensified by dam failure. il Eng N 86:1049-50, 1051 Je 16 '21

Pueblo flood relief expedition. Aerial Age 13:489 Ag 1 '21

Relief expedition of airplanes to the Pueblo flood. Aviation 11:108 JI 25 '21

San Antonio flood. il Pub Works 51:318-20 O 22 '21

San Antonio flood damage estimated at ten millions. Eng N 87:494-5 S 22 '21

Sanitation in flooded districts. H. F. Ferguson. Eng & Contr 55:241-2 Mr 9 '21

Spillways in Nova Scotia proven inadequate. K. G. Chisholm. il Can Eng 38:371-2 Ap 15 '20

Terrific rainfall causes floods in Texas. Eng N 87:462 S 15 '21

See also Flood control; Railroads—Damages from floods, etc.; Snow surveys

Floor coverings

Floors and floor coverings. diags U S Agric Farmers' Bul 1219:1-36 '21

Modern floor coverings. E. H. Howard. il Arch Forum 35:29-30, 63-4, 103-4 JI-S '21

See also Carpets; Linoleum; Rugs

Floor lamps. *See* Electric lamps, Floor

Floors

Bloxonend flooring. il Textile World 60:577 JI 23 '21

Creosoted wood-block factory floors. L. T. Ericson. il Am Arch 119:212-14 F 23 '21; Same cond. Mech Eng 43:92-5 F '21; Excerpts. Eng & Ind Management 5:628 Je 2 '21

Dangerous stresses from falling loads on floors. J. W. Ledoux. Eng N 84:873 Ap 29 '20

Design and use of water cooled floors. W. H. Melaney. Blast F & Steel Pl 8:399-400 JI '20

Factory floors for special uses; types recommended by experiences in navy for acid-subjected floors and for different kinds of storehouses and workshops. H. S. Rinker. Eng N 85:54-5 JI 8 '20

Finish and care of hardwood floors. A. A. Kelly. Bldg Age 43:52-3 S '21

Floor treatment. Mech Eng 43:134-5 F '21

Flooring for general railway service. il Ry Age 71:502-3 S 10 '21

Flooring for the home. Bldg Age 42:59-60 Je '20

Floors and floor coverings. diags U S Agric Farmers' Bul 1219:1-36 '21

Floors for paper mills. Paper 27:210 N 10 '20

Improvement in hollow tile floor construction. A. F. Owen. il diags Am Arch 119:26-8 Ja 5 '21

Report on the maintenance and repair of freight house floors. Ry Age 69:762-4 O 29 '20; Eng N 85:979 N 18 '20

Right way to use cross bridging. diag Bldg Age 43:25 S '21

Structural service department; sound deadening floors. S. W. Jones and L. E. Kern. Am Inst Arch J 9:26-7 Ja '21

Timber floor rapidly destroyed by dry rot. W. F. Smith. il Eng N 86:390 Mr 3 '21

Walls and floors—their effects on lighting. V. R. Lansingh. il diags Illum Eng Soc 15:124-31; Discussion. 131-8 no 2 '20

See also Bridges—Floors; Building; Fire-proof construction; Floor coverings; Foundries—Floors; Pavements; Pavements, Mosaic

Testing

Load tests of end joints in maple flooring. C. A. Petry. diags Eng N 85:149 JI 22 '20

Test shows actual live load on school room floor. Eng N 84:924 My 6 '20

Tile and concrete floor shows to advantage under test. il diags plan Am Arch 118:193-9; 119:327-31 Ag 11 '20, Mr 16 '21

See also Floors, Concrete—Testing

Floors, Concrete

Concrete floor finish problems. Concrete 18:112-13 Mr '21

Concrete foundry floors. H. C. Boyden. Iron Age 107:130 Ja 13 '21; Same. Eng & Contr 55:84-5 Ja 26 '21

Concrete foundry molding floors. H. H. Haley. Metal Ind 17:482-4 N '19

Concrete road methods applied to construction of factory floor. il Eng & Contr 55:184 F 23 '21

Design for a reinforced concrete dairy barn loft floor. W. G. Kaiser. il diags plan Concrete 17:161-2 N '20

Factor of safety in concrete floors. R. R. Parker. Eng & Contr 53:90 Ja 28 '20; Same. Concrete 16:79 F '20

Flat-slab floors built without drops or capitals. il diags plan Eng N 86:672-3 Ap 21 '21

Floor job handled like a highway pavement. il Concrete 18:297 Je '21

Small engineering job—a new concrete floor in an old building. E. McCulloh. diags plan Munic Eng 58:16-19 Ja '20

Use special light gypsum blocks in floor construction. A. V. Bekay. il diags plan Eng N 86:544-6 Mr 31 '21

Using 1¾-in. plank for flat slab floor forms. J. E. Gurvin. il diags Eng N 87:400 S 8 '21

Cleaning

Cleaning concrete floors. Concrete 18:288 Je '21

Testing

Floor hardener tests by Bureau of standards. Concrete 16:279-80 Je '20

Hardening and dustproofing cement floors. Am Inst Arch J 9:62-5 F '21

Recommendation for practice in testing floors of concrete buildings. W. A. Slater. Can Eng 38:484-6 My 20 '20

Test of a concrete floor arch. il diags Engineer 130:408-9 O 22 '20

Tile and concrete floor shows to advantage under test. il diags plan Am Arch 118:193-9; 119:327-31 Ag 11 '20, Mr 16 '21; Abstract. (pt. 1). Eng N 84:1118-19 Je 3 '20

Florence, Italy**Architecture**

Villa Frullino near Florence. H. D. Eberlein. il plans Arch Rec 49:18-29 Ja '21

Florida

Florida has an advertising awakening. F. W. Northrup. Ptr Ink 110:173+ F 12 '20

Florists**Advertising**

Advertising to bridge the off season in cut flower sales. Ptr Ink 111:132+ Ap 22 '20

Florsheim, Milton S.

Builders of business. N. M. Clark. por System 40:552-4 N '21

Flotation machines

Allingham's new flotation machine. E. I. Mills. il Eng & Min J 110:243 JI 31 '20

Cement bottoms for pneumatic flotation cells. H. C. McCrae. Eng & Min J 109:837 Ap 10 '20

Fahrenwald flotation machine. F. A. Thomson. diags Min & Sci P 120:871-3 Je 12 '20

Gröndal flotation process introduced into German concentrating plants. diags Eng & Min J 112:215 Ag 6 '21

Initial velocity of bubbles in a pneumatic flotation-cell. M. S. Donaldson. il diags Min & Sci P 120:940-2 Je 26 '20

Flotation oils

Flotation oils. Min & Sci P 121:929-30 D 25 '20

Flotation process

- Agitation in flotation. F: G. Moses. Min & Sci P 123:477-8 O 1 '21
- Ajo test mill. C. A. Mette. flow sheet Eng & Min J 109:1314 Je 12 '20
- Application of the Bradford flotation process to mixed sulphide concentrates. W. D. Green and W. Fagergren. Min & Sci P 121:455-8 S 25 '20
- Colloidal pitch the latest flotation reagent. Eng & Min J 112:56 JI 9 '21
- Concentrating graphite. H. S. Spence. diags Engineer 130:258-60 S 10 '20
- Concentration by flotation. T: A. Rickard, comp. and ed. 692p Wiley '21
- Consumption of reagents used in flotation. T: Varley. Can Chem & Met 5:51-2 F '21; Same. Min & Sci P 122:262-3 F 19 '21; Same. Eng & Min J 111:303 F 12 '21
- Contribution to the study of flotation. H. L. Sulman. Min & Sci P 120:14-16, 47-52, 122-4 Ja 3-10, 24 '20; Abstract. Min & Met 157: (sec 1)41-3 Ja '20
- Contribution to the study of flotation; an analysis of circumstances connected with a paper by H. L. Sulman. Chem & Met Eng 22:397-8 Mr 3 '20
- Differential flotation in Australia. Eng & Min J 109:1179 My 22 '20
- Discussion of flotation at the Idaho school of mines. Min & Sci P 120:459-60 Mr 27 '20
- Drying fine concentrates. Eng & Min J 111:909 My 28 '21
- Effect of addition agents in flotation. M. H. Thornberry and H. T. Mann. il charts Mo U Sch Mines & Met Bul v 4:1-48; v 5:1-68 N '17, N '19
- Experimental flotation of low-grade quick-silver ore. E. G. Stowell and W. H. Coghill. flow sheet Min & Sci P 120:117-21 Ja 24 '20
- Flotation. A. F. Taggart. il diags J Fr Inst 189:485-98 Ap '20
- Flotation at Picher, Okla. V. Loth. flow sheet Eng & Min J 108:950 D 27 '19
- Flotation mill-runs v. laboratory tests. F: G. Moses. Min & Sci P 121:238 Ag 14 '20
- Flotation of graphite. Min & Sci P 121:624 O 30 '20
- Flotation of molybdenite. C: E. Oliver. flow sheet Eng & Min J 109:840 Ap 10 '20
- Flotation of molybdenite at Empire, Col. W. H. Coghill and J. P. Bonardi. Eng & Min J 109:1210-14 My 29 '20
- Flotation of precious metals. A. Del Mar. Min & Sci P 123:497-8 O 8 '21
- Flotation of pyrite. W. S. Morley. Sci Am M 4:92-3 JI '21; Same. Min & Met 176:32-3 Ag '21
- Flotation practice at Mount Lyell. L. V. Waterhouse. diags plan Min & Sci P 123:87-93 JI 16 '21
- Flotation practice of the Swansea lease. L. F. Barber. il Eng & Min J 109:845-6 Ap 10 '20
- Flotation processes. Min & Sci P 121:279 Ag 21 '20
- Flotation tests of Idaho ores. C. A. Wright, J. G. Parmelee and J. T. Norton. il diags U S Bur Mines Bul 205:1-70 '21; Conclusions. Eng & Min J 111:861 My 21 '21
- Froth-flotation at Broken Hill. C. C. Freeman. Min & Sci P 120:833-8 Je 5 '20
- Graphite industry. H. S. Spence. Engineering 110:231-2 Ag '20
- Leaching and concentrating mixed copper ores. A. Crowfoot and K. H. Donaldson. flow sheets il Eng & Min J 110:471-4 S 4 '20
- Mechanism of the surface phenomena of flotation. I. Langmuir. Min & Sci P 121:913-17 D 25 '20
- Nevada consolidated copper co.; concentration of the ore. A. P. Parsons. flow sheet Min & Sci P 123:328 S 3 '21
- Notes on troubles from colloids in flotation. Eng & Min J 108:510-12 S 20 '19; Same abr. Sci Am S 88:390 D 27 '19
- Operations of the Engels copper mining company. A. B. Parsons. flow sheet il plan Min & Sci P 123:183-94 Ag 6 '21
- Present status of flotation. R. Gahl. Eng & Min J 109:197-200 Ja 17 '20
- Remodeled Arizona Hercules concentrator. J. T. Shimmin. flow sheet il diags plan Eng & Min J 109:1115-17 My 15 '20
- Résumé of literature on the theory of flotation, with critical notes. H. R. Adam. Min & Sci P 121:765-70 N 27 '20
- Role of acid and slimes in flotation. B. H. McLeod. Eng & Min J 112:213 Ag 6 '21
- Selective flotation by the Bradford process. Eng & Min J 109:700-7 Mr 20 '20; Discussion. A. H. Heller. 109:1104-5 My 15 '20
- Shattuck-Arizona mill for concentrating silver lead-carbonate ores. G. L. Allen. flow sheet il Eng & Min J 110:759-62 O 16 '20
- Some controlling factors in flotation. R. D. Nevett. Min & Sci P 121:349-52 S 4 '20
- Suggestions for separating colloids from flotation feed. B. R. Bates. Eng & Min J 109:552 F 28 '20
- Surface energies in flotation. F: G. Moses. Eng & Min J 111:7-11 Ja 1 '21
- Surface-energy and adsorption in flotation. A. W. Fahrenwald. il diags Min & Sci P 123:227-34 Ag 13 '21
- Testing ores for flotation. A. W. Fahrenwald. Eng & Min J 112:502 S 24 '21
- Testing ores for flotation. J. M. Hyde. il diags Min & Sci P 121:481-6 O 2 '20
- Theory of flotation. R. S. Dean. Min & Sci P 122:291-2 F 26 '21
- Tidewater mine, on Vancouver island. D. M. Drumheller, jr. il diag Min & Sci P 122:423-4 Mr 26 '21
- Toluidin, a new flotation agent. Eng & Min J 109:846 Ap 10 '20; Same. Sci Am 122:568 My 22 '20
- Treatment tests on ores of Consolidated copper-mines co. R. Linton. flow sheet Min & Met 162:30-1 Je '20
- Use of naphthylamin and xylidin in flotation. E: H. Robie. Eng & Min J 108:730-2 N 1 '19
- See also Flotation machines; Flotation oils

Bibliography

- Bibliography of flotation. H. W. Craver. 62p Engineering societies library, New York (Typew)
- Résumé of literature on the theory of flotation. H. R. Adam. Min & Sci P 121:769-70 N 27 '20

Patents

- Defence of Minerals Separation. A. A. Cook. Min & Sci P 122:89-94 Ja 15 '21
- Federal trade commission hearings at San Francisco in Minerals Separation case. Chem & Met Eng 23:124 JI 21 '20
- Flotation conference of the American mining congress at Denver. Eng & Min J 110:1038-9 N 27 '20; Min & Sci P 121:790-1 D 4 '20
- Miami copper co. not in contempt in flotation case. Eng & Min J 110:179-80 JI 24 '20
- Minerals Separation at Denver. Eng & Min J 110:1070 D 4 '20
- Minerals Separation before the Federal trade commission; excerpt from the record of proceedings. Min & Sci P 121:263-9 Ag 21 '20
- Minerals Separation hearings before Federal trade commission opened in New York. Eng & Min J 109:1037-9 My 1 '20; Same. Min & Sci P 120:710-12 My 15 '20
- Minerals Separation v. Butte & Superior. Min & Sci P 123:492 O 8 '21
- Minerals Separation's position under the patent laws and the anti-trust laws. G. H. Montague. Min & Sci P 121:833-40 D 11 '20
- Mr Sulman and Minerals Separation. Min & Sci P 120:891-2 Je 19 '20
- Objectionable practices of Minerals Separation. G: L. Nye. Min & Sci P 121:873-80 D 18 '20
- Present status of flotation litigation. T. A. Rickard. Min & Sci P 122:119-24 Ja 22 '21
- Proceedings against Minerals Separation before the Federal trade commission. Min & Sci P 120:909-10 Je 19 '20
- Royalties charged by Minerals Separation too high, E. H. Nutter, company's chief engineer, wrote. Eng & Min J 109:1229-31 My 29 '20

Flotation process—Patents—Continued

Western hearings of Minerals Separation case by Federal trade commission. G. H. Montague. Eng & Min J 110:815-18 O 23 '20

Flotation process (coal)

Can coal be cleaned by flotation. Coal Age 17:795, 1155-6; 18:177 Ap 22, Je 3, Jl 22 '20

Froth flotation applied to the separation of coal; abstract. Mech Eng 43:339 My '21

Froth flotation for cleaning coal being tried out in England. Coal Age 19:497 Mr 17 '21

In flotation process fine coal attaches itself to oil and bubbles, thus floating away with froth. E. G. Hill. diags plan Coal Age 19:993-5 Je 2 '21

Laboratory studies of the Trent process. O. P. Hood. J Fr Inst 192:391-2 S '21

Trent process is oil flotation principle applied to powdered coal. Nat Pet N 13:43+ Ag 3 '21

Use of oil in cleaning coal. G. St J. Perrott and S. P. Kinney. il Chem & Met Eng 25: 182-8 Ag 3 '21; Same. Coal Age 20:132-4, 172-5 Jl 28-Ag 4 '21; Same. Am Gas J 115: 143-4+ Ag 13 '21; Abstract. Power 54:196-7 Ag 2 '21; Foreword. O. P. Hood. Iron Age 108:323 Ag 11 '21; Same. Chem & Met Eng 25:182 Ag 3 '21; Same. Coal Age 20:135 Jl 28 '21

Flotilla leader. See Torpedo boat destroyers

Flour

Flour milling and the cereal chemist. R. W. Mitchell. map Chem Age 29:85-9 Mr '21

Government advertises to change nation's flour consumption habits. Ptr Ink 110:136+ F 12 '20

Heat of hydration and specific heat of wheat flour. F. Daniels, B. H. Kepner and P. P. Murdick. J Ind & Eng Chem 12: 760-3 Ag '20

Hygroscopic moisture of flour exposed to atmospheres of different relative humidity. C. H. Bailey. J Ind & Eng Chem 12: 1102-4 N '20

Laboratory control of wheat flour milling. B. R. Jacobs and O. S. Rask. J Ind & Eng Chem 12:899-903 S '20

Microscopical examination of flour. G. L. Keenan and M. A. Lyons. bibliog U S Agric Bul 839:1-32 '20

New German process of preparing flour. Sci Am 125:13 Jl 2 '21

Processes of flour manufacture. P. A. Amos. 2d ed. 280p Longmans '20

Report of the Federal trade commission on commercial wheat flour milling. U S Fed Tr Comm 118p S 15 '20

Studies of wheat flour grades. C. H. Bailey, F. A. Collatz and A. C. Peterson. J Ind & Eng Chem 13:319-21, 916-18 Ap, O '21

What a flour chemist does. Sci Am M 1:188 F '20

See also Potato flour

Testing

La détermination du taux de blutage de la farine par l'action de l'eau oxygénée. Marion. Génie Civil 77:542 D 25 '20

Flour mills

Diesel-driven flour mill. P. Keller. il Power 53:166-8 F 1 '21

Diesel engined flour mill. Power 52:326 Ag 31 '20

Diesel engines in a modern flour mill. il diag Power 52:808-10 N 23 '20

Electric drive for flour and grist mills. W. T. Edgell, jr. il diag Gen Elec R 24:542-6 Je '21

Haling flour industry to Kansas court for shutting down mills. Nation's Business 9: 42+ Ja '21

Low power costs in a small flour mill. F. E. Jones. Power 54:329 Ag 30 '21

Motor drive in a Washington flour mill. il Elec R 76:564 Ap 3 '20

Self-contained flour milling plant. il diags Engineering 111:131-4 F 4 '21

Employees

Descriptions of occupations; cane-sugar refining, flour milling. p 13-17 '18 U.S. Bureau of labor statistics, Washington, D.C.

Flour trade**Advertising**

Flour mill's cook book becomes famous by advertising. M. A. Bartlett. Ptr Ink 112: 87-8 Ag 19 '20

Home market a life saver when export sales vanish; advertising helps a flour manufacturer. R. Walsh. Ptr Ink 111:153+ Je 10 '20

How jiggtime won the New York market in twenty-one days. Ptr Ink 114:17-19 Mr 24 '21

Flow meters

Calibration of carburetor jet flow. Aviation 11:282-4 S 5 '21

Flow meters in refrigerating plants. H. D. Fisher. il diags A S R E J 6:409-28; Discussion. 428-31 My '20

Instrument for measuring the flow of fluids. C. Weber. chart diags Power 50:702-3 N 11 '19

Jacob M. Spitzglass, inventor of the Republic public flow meter. Power 53:1051-2 Je 28 '21

Orifice meter for gases or liquids. J. H. Satterwhite. Gas Age 48:521-2 O 29 '21

Royer flow indicators. il Power 52:461 S 21 '20

Schroeder flowmeter for measuring gasoline feed. il diag Automotive Ind 42:1020 Ap 29 '20

Small flow meters for air, especially orifice meters. E. Buckingham. U S Bur Stand Tech Pa 183:1-15 '21; Abstract. J Fr Inst 191:405-6 Mr '21

See also Gas flow

Flow of fluids. See Air flow; Gas flow; Hydraulics; Steam flow

Flow of water. See Water flow

Flow sheets (metallurgical plants)

Bunker Hill enterprise. T. A. Rickard. flow sheets il diags Min & Sci P 120:485-93, 525-30 Ap 3-10 '20

Flow-sheet conventions. A. G. Wolf. diags Eng & Min J 109:380 F 7 '20

Flow sheet of Como mill. F. Borzynski. Min & Sci P 120:55 Ja 10 '20

Flowers

Flowers that flash. Sci Am M 4:35-6 Jl '21

Why flowers fade. H. Fitting. diags Sci Am M 4:267-70 S '21

Flue blowers. See Locomotives—Flue blowers

Flue dust

Blast-furnace flue dust. R. W. H. Atcherson. diags Min & Met 158:(sec 30) 1-12 F '20; Same cond. Iron Tr R 66:559-63 F 19 '20; Same abr. Blast F & Steel Pl 8:193-7 Mr '20; Abstract. Iron Age 105:609-10 F 26 '20; Abstract. Sci Am M 1:184 F '20

Blast furnace flue dust—100% recovery. G. B. Cramp. diags plan Blast F & Steel Pl 9:648-53 N '21

Cottrell system of dust and fume precipitation; sulphuric acid at the R. N. Cordite factory. il diags Engineering 111:94-7 Ja '21

Development of flue dust briquetting. A. L. Stillman. il diag Blast F & Steel Pl 8:395-8 Jl '20

Direct recovery process for flue dust. G. B. Cramp. diag Blast F & Steel Pl 9:198-202 Mr '21; Same. Iron Age 107:775-8 Mr 24 '21; Same. Sci Am M 3:543-6 Je '21; Same abr. Iron Tr R 68:836-9 Mr 24 '21

Flue dust production and consumption. F. H. Willcox. Blast F & Steel Pl 9:420-1 Jl '21

Improvements in nodulizing at Chrome, N.J. C. L. Colbert. il diags Eng & Min J 112:255-7 Ag 13 '21

See also Blast furnace gas; Blast furnaces; Sintering; Smelting

Flue gas

Both CO₂ and combustible gases in flue should be watched. O. Rodhe. Elec W 77:712-13 Mr 26 '21

Chart to determine value of low flue-gas temperature. W. F. Schaphorst. chart Elec R 77:981-2 D 18 '20

Flue-gas temperature and CO₂ as a guide to furnace operation; with special reference to oil burning. C. C. Phelps. Power 51:725-7 My 4 '20

Heat transfer in flues. L. H. Fry. Engineering 110:265-8 Ag 27 '20; Abstract. Mech Eng 42:628-9 N '20; Discussion. Engineering 110:802-3; 111:137-8 D 17 '20, F 4 '21

Heat transfer in flues—a graphic method of calculation. A. J. V. Umanski. Engineering 111:702-3 Je 10 '21

Novel electrical precipitator. diags Chem & Met Eng 23:1244 D 29 '20

Reading chimney losses direct from CO₂ charts. C. C. Phelps. Power Pl Eng 24:133-6 Ja 15 '20

Simplified apparatus for indicating percentage of CO₂ in flue gases. il diag Int Marine Eng 25:686-7 Ag '20

See also Blast furnace gas; Flue dust

Analysis

Analyzing records of CO₂ and combustible gases. Elec W 77:654 Mr 19 '21

Calculating flue-gas losses. J. R. Darnell. Power 53:156 Ja 25 '21

Calculations from a flue-gas analysis. H. M. Brayton. Power 51:264-6 F 17 '20

Calculations from a flue-gas analysis of loss due to incomplete combustion. H. M. Brayton. chart Power 51:129-30 Ja 27 '20; Discussion. 51:681; 52:911-12 Ap 27, D 7 '20

CO₂ in flue gas when burning oil. diags Power 51:103-4 Ja 20 '20

Combustion and flue gas analysis. diags Eng & Contr 52:566-8 N 12 '19

Duplex mono flue gas analyzer. il chart Ry Mech Eng 95:195-6 Mr '21

Flue-gas analysis as a guide to furnace control. F. F. Uehling. charts diags Elec R 77:802-6 N 20 '20; Same. Blast F & Steel Pl 8:675-7+ D '20; Same abr. Paper 27:154+ N 10 '20; Same abr. Power Pl Eng 24:1183-5 D 15 '20; Abstract. Iron Tr R 67:1409-10 N 18 '20

Flue gas analyzers and recorders. il diags Power Pl Eng 24:91-5 Ja 1 '20

Fuel economy by the adoption of scientific management in steam generation and utilization. D. Brownlie. Eng & Ind Management 6:396, 421-4, 433-4 O 6-20 '21

Graphic records of flue gas analyses. F. D. Harger. chart Power Pl Eng 24:379-80 Ap 1 '20

Increasing stoke-hold efficiency. A. Pohlman. diag Int Marine Eng 24:792; 25:191-2 D '19, Mr '20

Interpretation of flue gas analysis. G. B. Howarth. Blast F & Steel Pl 9:175-8+ F '21

Measurement of CO₂. il diags Power Pl Eng 25:36-8 Ja 1 '21

New burner for blast furnace gas. D. N. Watkins. Blast F & Steel Pl 8:505 S '20

One flue-gas test tank used for three shifts. F. M. Richards. diags Elec W 75:1268 My 29 '20

Records of flue gas analyses with fuel oil. L. J. Goodrich. Power Pl Eng 25:366-7 Ap 1 '21

Sampling tanks versus continuous recorders for determining CO₂. C. C. Phelps. charts Power 51:297-8 F 24 '20

To control combustion on basis of carbon dioxide alone is unsatisfactory. F. D. Harger. il charts Coal Age 19:495-6 Mr 17 '21

Flues

Chimneys and draft. R. L. Emmet. Dom Eng 92:117-18 Jl 17 '20

Chimneys and flues. F. H. Wentworth. il diag Arch & Bldg 52:6-8 Ja '20; Same abr. Am Arch 117:95-6 Ja 21 '20

Flue arrangement for gravity heating. C. L. Hubbard. diags Dom Eng 93:503-5 D 11 '20

Flue hole cutter. A. G. Johnson. diags Ry Mech Eng 94:801 D '20

Flues and smokepipes in connection with heating boilers. E. J. Febrey. Am Soc Heat & V E J 26:809-10 D '20

Proper size and design for flues. diag Am Arch 119:158 F 9 '21; Correction. 119:291 Mr 9 '21

Sizing of ducts and flues for ventilating and similar apparatus. H. Eisert. Am Soc Heat & V E J 26:325-40 Ap '20; Discussion. 26:564-6 Jl '20

See also Chimneys

Fluidity

Fluidities and specific volumes of mixtures of benzyl benzoate and benzene. E. C. Bingham and L. A. Sarver. Am Chem Soc J 42:2011-22 O '20

Fluidities and volumes of some nitrogenous organic compounds. E. C. Bingham, H. S. Van Klooster and W. G. Kleinspehn. diag J Phys Chem 24:1-20 Ja '20

See also Bingham fluidity formula; Viscosity

Fluids

Effect of fittings on flow of fluids through pipe lines. D. E. Foster. Mech Eng 42:616-18 N '20; Same. Power Pl Eng 24:1115-18 D 1 '20; Same cond. Eng & Contr 54:564-5 D 8 '20; Same cond. Power 52:1032-3 D 28 '20; Excerpt. Chem & Met Eng 23:1172 D 15 '20

Fluid discharges as affected by resistance to flow. W. J. Walker. Philos Mag 6th ser 41:286-8; 42:138-9 F, Jl '21

Fluid motion and viscosity. W. L. Cowley. diags Engineering 109:101-2 Ja 23 '20

Measuring flow of fluids. J. M. Spitzglass. diags Power 51:503-7 Mr 30 '20

Use of nozzles for measuring flow. W. Trinks. diags Power Pl Eng 25:1044-5 N 1 '21

See also Air flow; Flow meters; Gas flow; Gases; Hydraulic engineering; Hydraulics; Hydrodynamics; Liquids; Osmosis; Solution (chemistry); Steam flow; Viscosity; Water flow

Flumes

Cement plaster lining for wood irrigation flumes at Waterford, Cal. E. N. Bryan. diag Eng N 85:1090-2 D 2 '20

Coal tar coating for metal irrigation flumes. F. D. Pyle. Eng & Contr 55:40 Ja 12 '21

Durability of metal irrigation flumes. Pub Works 50:77 Ja 22 '21

Flume at Metaline Falls completed. il Concrete 17:sup85 D '20

Flume suspension by cables. D. Lay. diags plan Eng & Min J 109:1307-8 Je 12 '20

Good practice and some features in log-flume construction. V. K. Woods. il diags Eng N 86:768-70 My 5 '21; Abstract. Eng & Ind Management 6:391-2 O 6 '21

Life of flume prolonged by roofing paper lining. il Eng N 84:131 Ja 15 '20

Metal flume inspection on the Uncompahgre project. F. D. Pyle. Eng N 85:1284-5 D 30 '20

Method of replacing old wooden flume with metal structure. il diags Eng & Contr 53:164-5 F 11 '20

Scrubber for cleaning irrigation flumes. il Eng & Contr 55:35 Ja 12 '21

Settled flume restored to level by derrick traveler. il Eng N 84:929 My 6 '20

See also Hydroelectric plants; Irrigation canals; Venturi flumes; Water supply engineering

Flumes, Concrete

Method and cost of constructing 1¼ mile concrete flume with cement gun. R. G. Clifford. il Eng & Contr 53:654-5 Je 9 '20

Reconstruction of the King Hill siphon and flumes. il diags Eng N 84:661-3 Ap 1 '20

Fluoreneglyoxylic ester

Über die reduktion des fluoren-oxalesters. W. Wislicenus and H. Weitemeyer. Deutsche Chem Gesell Ber 54:978-9 My '21

Fluorenone carboxylic acid

Beitrag zur konstitution des fluoranthens; synthese der isodiphensäure und der fluorenon-1-carbonsäure. F. Mayer and K. Freitag. Deutsche Chem Gesell Ber 54:347-57 F '21

Fluorescein

Use of fluorescein in tracing water underground. H. Stabler. Eng & Contr 55:377 Ap 13 '21; Excerpts. Eng N 86:639 Ap 14 '21

Fluorescence

Cold light; luminescence, fluorescence and phosphorescence. J. J. Birch. Sci Am M 2:355-6 D '20

Degradation of gamma-ray energy. A. H. Compton. diags Philos Mag 6th ser 41:749-69 My '21

Dissociation of iodine vapor and its fluorescence. S. Landau and E. Stenz. J Fr Inst 190:593-4 O '20

Fluoremetry, quantitative analysis by comparative fluorescence; preliminary report. L. J. Desha. Am Chem Soc J 42:1350-63 Jl '20

Time interval between the adsorption and emission of light in fluorescence. R. W. Wood. Engineering 112:433-4 S 23 '21

X-ray fluorescence of certain organic compounds. H. S. Newcomer. Am Chem Soc J 42:1997-2007 O '20

Fluorescent screens. See Radiography**Fluorides**

Chemistry and crystallography of some fluorides of cobalt, nickel, manganese and copper. F. H. Edmister and H. C. Cooper. Am Chem Soc J 42:2419-34 D '20

Use of fluorides in solutions for nickel deposition. W. Blum. il Am Electrochem Soc Trans v 39 (preprint 21):227-47 Ap '21; Same. Brass W 17:121-7 My '21; Same. Chem & Met Eng 24:1109-15 Je 22 '21

See also Fluorspar

Fluorine

Über die darstellung von fluor aus geschmolzenem kaliumbifluorid. F. Meyer and W. Sandow. diag Deutsche Chem Gesell Ber 54:759-66 Ap '21

Fluorite. See Fluorspar**Fluorspar**

Boulder county fluorspar. G. G. Hibbs. Eng & Min J 109:494-5 F 21 '20

Effect of fluorspar additions on the phosphates in basic slag. F. Bainbridge. il diags Iron & Steel Inst C S M 10:1-40 '20

Fluorspar and cryolite in 1920. H. W. Davis. diag U S Geol S Min Res of U S 1920, pt 2: 65-80 '21

Fluorspar in 1919. Iron Age 106:4 Jl 1 '20; Iron Tr R 67:240 Jl 22 '20; Eng & Min J 110:993 N 20 '20

Fluorspar in 1920. Iron Age 108:72 Jl 14 '21

Fluorspar in 1920. R. B. Ladoo. Eng & Min J 111:156 Ja 22 '21

Fluorspar industry active in Germany. Eng & Min J 111:473 Mr 12 '21

Fluorspar mining in the United States. il Iron Age 107:303-5 F 3 '21

Fluorspar output gain is 34 per cent. Iron Tr R 68:835 Mr 24 '21

Fluorspar production and imports increased in 1920. Eng & Min J 111:473 Mr 12 '21

Mining and milling of fluorspar. J. M. Blayney, jr. il Eng & Min J 111:222-5 Ja 29 '21

Optical fluorite. Eng & Min J 110:866; 111: 869 O 30 '20, My 21 '21

Our mineral supplies; fluorspar. E. F. Burchard. U S Geol S Bul 666:175-82 '19

Ueber die verwendung von flusspat im Martinofen. S. Schleicher. Stahl & Eisen 41:357-64 Mr 17 '21

Uses of fluorspar. Eng & Min J 109:1416 Je 26 '20

Fluorsulfonic acid

Über das gleichgewicht: fluorwasserstoff—schwefelsäure—fluorsulfonsäure. W. Traube and E. Reubke. Deutsche Chem Gesell Ber 54:1618-26 Jl '21

Flush valve. See Water closets**Flux**

Investigation of brass foundry flux. C. W. Hill, T. B. Thomas and W. B. Vietz. Metal Ind 18:498-502 N '20; Abstract. Min & Met 165:18 S '20; Abstract (Die wichtigsten fluss- und reduziermittel in der metallgießerei). Stahl & Eisen 41:890-2 Je 30 '21

Welding various metals and the fluxes used. E. Viall. il Am Mach 52:223-30 Ja 29 '20

See also Solder and soldering

Flux, Magnetic. See Magnetic flux**Fly, J. M.**

Sketch. P. N. Sholars. por System 39:209-10 F '21

Fly paper

Gas in the manufacture of fly paper. G. Shadwell. Am Gas Eng J 112:362 My 8 '20

Flying-boat school. See Aviation schools**Flying boats**

Acetylene welded flying boat carries ten tons. il Sheet Metal Worker 11:336 N 12 '20

Adapting an F-5L flying boat to air transport. P. G. Zimmermann. il Aviation 9:87-8 S 1 '20

Aeromarine model 40 flying boat. P. G. Zimmermann. il Aviation 7:526-8 Ja 15 '20

Aeromarine pioneering. il Aviation 11:392-4 O 3 '21

Beardmore flying boat, WB-9. Aerial Age 12:398 D 20 '20

Caproni flying boat Epoca. diags Aviation 10: 455, 471 Ap 11 '21

Dornier giant flying boats. E. Hildesheim. il Aviation 8:432-4 Jl 1 '20

Fairey flying boat. Aerial Age 13:182 My 2 '21

Fairey Titania. Aerial Age 13:110 Ap 11 '21

Flying boat construction. D. Nicolson. il diags plan Aeronautical J 25:385-412; Discussion. 413-20 Ag '21

Flying boat service on Lake George. S. E. Parker. Aviation 10:713 Je 6 '21

Flying boats start with passengers for Havana. Aerial Age 12:223 N 1 '20

Flying boats—the form and dimensions of their hull. G. S. Baker. il diags Engineering 109: 323-7 Mr 5 '20

Forms of hulls of flying boats; abstract. M. Blanchard. Aerial Age 12:302 N 22 '20

French and Italian hydro-aeroplanes at Monaco. C. G. Grey. il Engineering 109:655-8 My 14 '20

Giant Caproni tandem triplane. il diags Aerial Age 13:103-4 Ap 11 '21

Loening model 23 flying yacht reaches 19,500 ft. altitude with four on board. il diags Aviation 11:248-50 Ag 29 '21; Aerial Age 13:613 S 5 '21

Loening monoplane flying boat. il Aerial Age 13:613 S 5 '21

Longest seaplane flight made by flying boat Santa Maria. W. W. Wyman. Aerial Age 14:173 O 31 '21

Oertz flying boats. il Aerial Age 11:440-1+ Je 7 '20

Radio compass and automatic pilot developed for naval flying boats. J. B. Kean. il diag Pop Mech 34:485-7 O '20

Supermarine flying boats. il diags Aerial Age 10:570-2 Ja 26 '20

25-ton triple-tandem triplane; gigantic Caproni flying boat. W. H. Hunt. il Pop Mech 35:655-7 My '21

Untold story of N. C. flying boats. Sibley J 33:109 D '19

Vickers-Saunders Valentia. Aerial Age 13:86 Ap 4 '21

Vought flying boat, model VE-10. il diags plan Aviation 7:301-3 N 1 '19

See also Seaplanes

Model testing

Aeromarine model 40 hull test. il diags Aviation 9:115-18 S 15 '20

Sand test of flying boat controls. il diags Aviation 9:350-2 N 29 '20

Test of aeromarine model 40 wing structure. il diag Aviation 9:291-4 N 15 '20

Flying boats—Continued

Terminology

Flying boat construction. D: Nicolson. *Aeronautical J* 25:407-12 Ag '21

Flying fields. See Aviation fields

Flying fish

Aeronautics of the flying fish. R. E. Dowd. *diags Aerial Age* 12:464-5 Ja 10 '21

Habits and habitats of flying fish. M. Tevis. *il diags Sci Am M* 1:504-8 Je '20

Flying machines

Evolution of the "heavier than air" flying machine. C. F. D. Marshall. *Engineer* 129: 83 Ja 23 '20

Flying machine on the Alberto Wick principle. *Aerial Age* 13:112 Ap 11 '21

Leonardo Da Vinci as aviation engineer. A. A. Hopkins. *il diags Sci Am M* 3:355-9 Ap '21

New Langley controversy. G. Brewer. *il Aviation* 11:532; Discussion. C: M. Manly; C: D. Walcott. 532-5 N 7 '21

Rotary wings that fly without flapping. H: S. White. *il Pop Mech* 36:15-16 Jl '21

Soaring and gliding experiments in Germany. S. Y. Beach. *il Aviation* 11:13-14 Jl 4 '21

What did Newcomb say? E. E. Slosson. *Flying* 9:642-3 N '20

See also Aeronautics; Airplanes; Aviettes; Flying boats; Helicopters; Ornithopter; Seaplanes

Flywheel explosions

Flywheel accident at the Kentucky utilities company. *il Locomotive* 33:163-4 Ap '21

Flywheel and governor accidents. *diags Power Pl Eng* 25:238-9 F 15 '21

Flywheel explosion at Scotia, Cal. *il Locomotive* 33:34-6 Ap '20

Flywheel explosions, 1919. *Locomotive* 33:23-4 Ja '20

Flywheel explosions during 1920. *Locomotive* 33:185-6 Ap '21

Peculiar flywheel accident. E. E. Clock. *Power* 51:514 Mr 30 '20

Sawmill flywheel explosion. *il Power* 53:188 F 1 '21

Two recent flywheel accidents. *il diag Locomotive* 33:130-3 Ja '21

Unusual flywheel accident. *il diags Locomotive* 33:14-16 Ja '20

Flywheels

Changing flywheel from belt to rope drive. R. J. Nagle. *diag Power* 52:294 Ag 24 '20

Few facts and a little fancy. *Sci Am* 125: 129 Ag 20 '21

Flywheel effect for synchronous motors connected to reciprocating compressors. R. E. Doherty. *il diags A S R E J* 6:159-77 N '19; Same abr. *Gen Elec R* 23:653-61 Ag '20; Abstract. *Mech Eng* 42:410-11 Jl '20

Flywheel safety. A. C. Waldron. *Power Pl Eng* 25:968-9 O 1 '21

Increasing the energy of a power press flywheel. D. A. Hampson. *diags Mach* 27:325 D '20

Method of checking a flywheel design. C. McGrath. *diags Power* 53:1014-16 Je 21 '21

Motor-flywheel drive for merchant mill. J. B. Varela. *diags Am Mach* 53:660-3 O 7 '20; Discussion. T. A. Bryson. 53:1009 N 25 '20

Safe speed of flywheel. *Mach* 27:280 N '20

Steam-engine operation and maintenance—loose flywheels. H. Hamkens. *diags Power* 52:21-2 Jl 6 '20

Manufacture

Machining Nash flywheels. E: K. Hammond. *il diags Mach* 27:954-9 Je '21

Fog

Fog and smoke. W. D. Bancroft. *Sci Am M* 2:74-8 Jl '20

Siphon controls ingenious fog filter and recorder. *il Pop Mech* 33:201 F '20

Fog, Artificial

Laying the dust with fog; the nebulizer—a device for artificially producing mist. D. McClure. *il diags Sci Am M* 3:419-20 My '21

Fog signals

Fog signalling on railways. *il Engineer* 132: 47 Jl 8 '21

Radio fog signal and radio direction finder system. *Elec W* 78:434-5 Ag 27 '21

Wireless fog signals for New York harbor. *Elec R* 78:546 Ap 2 '21

Fohr, Franz, 1838-1919

Sketch. W. R. Ingalls. *por Eng & Min J* 108: 828-9 N 22 '19

Fokker, Anthony H. G.

Portrait. *Aviation* 9:325 N 22 '20

Folding beds. See Beds, Folding

Folds (geology)

Measurements of folded beds. D. F. Hewett. *diags Econ Geol* 15:367-85 Jl '20

Studies in minor folds. C: E. Decker. The University of Chicago press '20

Folliculitis

Oil folliculitis. C. G. Page and L. D. Bushnell. *J Ind Hygiene* 3:62-74; Bibliography. 74-5 Je '21

Follow up systems

Altogether too much money spent on follow-up. E. T. Gundlach. *Ptr Ink* 115:104+ Ap 28 '21

How long should a mail-order inquirer be followed up? *Ptr Ink* 115:73-4 Ap 14 '21

How the inquiry can be turned into an order. D. Kirkland. *Ptr Ink M* 2:77-8 D '20

How to make follow-up letters fit the prospect. C. M. Harrison. *Ptr Ink* 115:97-8+ Ap 28 '21

No harm if children do get hold of advertiser's samples. *Ptr Ink* 116:97-8 S 1 '21

Overdoing the follow-up. A. L. Townsend. *Ptr Ink* 116:85-6+ Ag 18 '21

Sort of follow-up that builds good feeling. J: T. Bartlett. *Ptr Ink* 112:73-4+ Ag 26 '20

Time to strive for better follow-up. H. J. Buckley. *Ptr Ink* 113:81-2+ O 7 '20

See also Advertising, Mail; Commercial correspondence; Sales letters

Food

Chemistry and the food industry. C. L. Alsberg. *Chem & Met Eng* 23:1005-7 N 24 '20

Food products; their source, chemistry, and use. E. H: S. Bailey. 2d ed., rev. 551p Blackiston '21

Food versus feed; the benefits to be derived from eating skim milk instead of giving it to the barnyard stock. A. L. Dahl. *il Sci Am* 121:632+ D 27 '19

Foods and food values. A. P. Sy. 42p (Univ. of Buffalo studies. vol. 2, no. 1. Monographs in chemistry: no. 1) The University, Buffalo '21

Latin foods in old New York. L. Lodian. *il Sci Am* 124:170+ F 26 '21

Strange things to eat; selections from the Cosmopolitan larder of New York. L. Lodian. *il Sci Am* 122:302+ Mr 20 '20

Vegetable oils, with special regard to the manufacture of food products. H. Tefft. *Can Chem & Met* 5:102-4 Ap '21

What chemistry can do in the food industry. R. S. Hiltner. *Cem & Met Eng* 24:243-4 F 9 '21

Work of the food chemist. L. M. Tolman. *Sci Am M* 1:188-9 F '20

See also Bakers and bakeries; Beverages; Biscuits; Bread; Breakfast food; Butter; Buttermilk; Canned food; Coloring matter; Cost of living; Drying (food); Eggs; Farm produce; Fish as food; Flavoring extracts; Flour; Food preservatives; Food supply; Fruit; Gelatin; Meat; Milk; Nutrition; Oleomargarine; Olives; Potatoes; Proteins; Rice; Sirups; Soy beans; Sugar; Vegetables; Vitamines; Whale meat

Analysis

Detecting poisons in food substances. E. Kohn-Abrest. *Sci Am M* 3:325-8 Ap '21

Foods under the microscope. L. A. Hausman. *il Sci Am M* 3:513-16 Je '21

Food—Analysis—Continued

Procédé pour déceler la présence de la saccharine et de l'acide benzoïque dans les aliments et pour les doser. J. Grossfeld. *Chimie & Ind* 5:579 My '21

Food, Cost of. See Cost of living**Food distribution**

Electricity in food distribution. C. M. Heintz. *il J Elec* 44:54-5 Ja 15 '20

How the railroads keep New York supplied with food. *Ry R* 67:770-1 N 20 '20

See also Farm produce—Marketing

Food drafts

Fighting the famine with drafts. J. M. Oskison. *Nation's Business* 8:21 Mr '20

Food-draft system of the American relief administration. E. Rickard. *Min & Sci P* 121:739-40 N 20 '20

Food industry

Growing western food industries demand foreign markets. H. Oehlmann. *il J Elec* 47:141-2 Ag 15 '21

Industrial waste of food products. G. A. Menge. *Chem & Met Eng* 25:435-6 Ag 31 '21

Manhattan—experimental territory for foreign trade. L. Lodian. *il Ptr Ink M* 2:18+ My '21

See also Meat industry and trade

Advertising

Is rolled oats only rolled oats? G. A. Nichols. *Ptr Ink* 116:87-8 Ag 4 '21

Knowing before we go ahead; experimental kitchens. P. W. Hanna. *il System* 40:168-9+ Ag '21

See also Flour—Advertising; also Beech-nut packing company

Food inspection

Advertise merits of shipping point inspection. J. T. Bartlett. *Ptr Ink* 114:77-8 Mr 31 '21

Food laws and legislation

Amendment to pure food act would put packer's name on label. *Ptr Ink* 110:161-2+ Mr 18 '20

Food preservation

Technically trained men, the need of the food-preservation industries. W. V. Cruess. *Chem & Met Eng* 25:435 Ag 31 '21

See also Canned food

Food preservatives

Quantities of preservatives necessary to inhibit and prevent alcoholic fermentation and the growth of molds. M. C. Perry and G. D. Beal. *J Ind & Eng Chem* 12:253-5 Mr '20

See also Eggs—Preservation

Food substitutes

German war substitutes. A. Belter. *Sci Am M* 2:333-4 D '20

Food supply

Food as a national interest. V. Kellogg. *Sci Am M* 1:174-5 F '20

See also Milk supply

Russia

Food crisis in soviet Russia. L. Pasvolsky. *Annalist* 17:712; 18:105 Jl 4, Ag 1 '21

Foot

Development of the human foot. H. Klaatsch. *Sci Am M* 4:266 S '21

Tertiary man in Flanders fields; fossil footprints that show the evolution of the human foot. W. Freudenberg. *Sci Am M* 3:303-5 Ap '21

Foot-candle meter

Direct-reading foot-candle meter. *il Automotive Ind* 43:1315 D 30 '20

Foot-candle meter and its part in better lighting. W. M. Rosborough. *il J Elec* 45:63-5 Jl 15 '20

Footings, Column. See Column footings**Footprints**

Footprints in place of fingerprints. *il Sci Am* 122:35 Ja 10 '20

Footprints, Fossil

Fossil footprints of Texas. *il diags Sci Am* 124:333+ Ap 23 '21

Forage plants

Searching the world for new food plants; a 9,000-mile trip through Africa in quest of new fruits, nut plants and forage crops. *il Sci Am M* 3:516-18 Je '21

See also Alfalfa; Corn; Hay; Kudzu

Foran, George Jesse, 1862-1921

Sketch. *por Power Pl Eng* 25:639 Je 15 '21

Force and energy

Force-transformation, proper time, and Fresnel's coefficient. F. Slate. *Philos Mag* 6th ser 41:652-64 Ap '21

Relation of radiant energy to matter, space and time. J. D. Ross. *diags Am Inst E E J* 39:985-94 N '20

Sources of power known and unknown. O. Lodge. *Sci Am M* 1:108-12 F '20; Same *abr. Eng & Contr* 53:345-7 Mr 31 '20

Storage and the supply of energy. *Engineering* 111:142-3 F 4 '21

Ultimate source of energy. A. D. Little. *Gas Age* 48:349-51 S 24 '21

See also Dynamics; Electromotive force; Mechanics; Muscular power; Pressure; Surface energy

Ford, Henry

Ford and the railroads. *Ry R* 69:307 S 3 '21

Henry Ford's experiment in cutting out freight solicitors. S. C. Lambert. *Ptr Ink* 116:17-20 Ag 25 '21

How Henry Ford met maturing obligations of \$58,000,000; commendations of bankers. *Comm & Fin Chr* 113:482-5 Jl 30 '21

See also Detroit, Toledo & Ironton railroad

Ford institute of technology. See Ford motor company**Ford motor company**

Boiler equipment at River Rouge plant of the Ford motor company. G. T. Ladd. *il diags Eng Soc W Pa* 37:115-36 Ap '21; Same *cond. Blast F & Steel Pl* 9:219-23 Mr '21; Discussion. *Eng Soc W Pa* 37:149-57 Ap '21

Ford turns the corner. J. H. Van Deventer. *Ind Management* 62:129-30 S '21

Ford's mechanical roustabouts; photographs. *Ind Management* 61:14-17 Mr 15 '21

How Ford built Liberty motors. F. H. Colvin. *il Am Mach* 51:1037-41 D 18 '19

Linking education with factory profits. T. P. Hickey. *il Factory* 25:1394-6, 1594-5, 1726-7 N 1-D 1 '20

Making ore pile part of automobile plant. F. L. Prentiss. *il map Iron Age* 105:1295-1302 My 6 '20

New Ford foundry plant at River Rouge. L. B. Breedlove. *il diags plan Iron Age* 108:787-93 S 29 '21

New Ford plant at River Rouge, Mich. *diag Mech Eng* 42:641+ N '20

New Ford plant power house at River Rouge. *diags plan Power* 53:332-5 Mr 1 '21

L'usine sidérurgique de la Ford motor co. à Detroit (Michigan, E-U.). *il plan Génie Civil* 76:505-8 Je 5 '20

What I learned about business from Ford. J. Couzens. *il System* 40:261-4+ S '21

Foreign advertising. See Advertising, Foreign**Foreign bodies**

X-ray and microphone probe used together in surgery. *il diag Pop Mech* 33:688 My '20

Foreign commerce corporation of America

Announcement by J. P. Morgan & co. of formation of Foreign commerce corporation of America. *Comm & Fin Chr* 110:26 Ja 3 sec 1 '20

Foreign exchange

Address delivered at a meeting of the New York state society of certified public accountants, December 8, 1919. G. E. Roberts. *J Account* 29:321-34 My '20

American exports not increasing by leaps and bounds. *Automotive Ind* 43:832-3 O 21 '20

Foreign exchange—Continued

- Beating the dollar exchange. Nation's Business 9:54+ F '21
- Calling by President Wilson of International financial conference urged. R. L. Owen. Comm & Fin Chr 110:311-12 Ja 24 '20
- Can Germany make exchange help foot her bills? W. F. Wamsley. Annalist 17:713 JI 4 '21
- Dollar currency in international trade and credit. G. E. Roberts. Comm & Fin Chr 113:132-3 JI 9 '21
- Effect on United States of pegging of exchange. A. B. Hepburn. Comm & Fin Chr 110:2137-8 My 22 '20
- Exchange see-saw. W. R. Benét. il Nation's Business 8:14-15 Ja '20
- Fall in foreign exchange. S. Fish. Comm & Fin Chr 110:1028-9 Mr 13 '20
- Foreign exchange. H. A. Finney. J Account 31:451-66 Je '21
- Foreign exchange. D. L. Morrow. Comm & Fin Chr 111:1801-2 N 6 '20
- Foreign-exchange arbitrage in joint accounts. A. L. Gareis. J Account 31:329-35 My '21
- Foreign exchange before, during, and after the war. T. E. Gregory. 116p H. Milford, Oxford univ. press., London, New York '21
- Foreign exchange problem. S. Stern. 124p Columbia trust co., New York '21
- Foreign exchange situation. B. M. Anderson, jr. Textile World 58:2295+ O 2 '20
- Foreign exchange situation calls for urgent action. L. W. Alwyn-Schmidt. Ind Management 59:97-9 F '20
- Foreign exchange stabilization a universal problem. J. Moritzen. Annalist 18:223 S 5 '21
- Foreign regulations of transactions in exchange. Comm & Fin Chr 111:1613-14 O 23 '20
- Foreign trade and foreign exchange. R. H. Tingley. Am Ind 20:39-40 Ap '20
- French explanation of exchange market. Comm & Fin Chr 112:2592 Je 18 '21
- Hope that by flooding U.S. with European gold foreign exchange would be stabilized, has failed. J. Oakwood. Annalist 18:221 S 5 '21
- How much have exchange losses cut Europe's bill to us? G. E. Putnam. Annalist 17:176+ Ja 31 '21
- How to make money in foreign exchange and foreign bonds. W. J. Greenwood. 129p Financial books co., New York '21
- How we finance exports despite foreign exchange. S. C. Dobbs. System 39:340+ Mr '21
- International dealings in securities. T. York. Administration 2:519-32 O '21
- International exchange. F. I. Kent. Soc Auto Eng J 7:326 O '20
- International exchange. E. L. S. Patterson. 274p Alexander Hamilton institute, New York '21
- International trade banking plan advocated. D. R. Crissinger. Comm & Fin Chr 113:20-3, 242-3 JI 2, 16 '21
- Need for an international budget. R. Estcourt. Annalist 18:149-50 Ag 15 '21
- No government interference. R. Bean. Annalist 18:195 Ag 29 '21
- Norwegian exchange drops. Am Ind 21:40 O '20
- Premium on dollar exchange a heavy burden to South American countries. F. O'Malley. Americas 7:32-4 F '21
- Problems in foreign exchange. M. J. Shugrue. 173p Appleton '20
- Problems of foreign exchange. H. G. P. Deans. J Account 31:30-47 Ja '21
- Profitable uses for foreign money. S. H. Bunnell. Iron Age 105:1099-1100 Ap 15 '20
- Rates of exchange on continental centres. Published in monthly Bank and quotation section of Commercial and financial chronicle
- Rumors of government intervention to prevent foreign exchange speculation denied. Comm & Fin Chr 113:469 JI 30 '21
- Selling foreign funds at a sacrifice. S. H. Bunnell. Iron Age 105:803-4 Mr 18 '20
- Speculative craze in foreign currency. T. B. Pratt. Annalist 18:321+ O 3 '21

Weekly foreign exchange rates—1920; tabulation. Annalist 17:36-7 Ja 3 '21

World value of the dollar. W. C. Miller, jr. Annalist 17:711 JI 4 '21

Would have banks of issue take steps toward stabilization of currencies. H. Hoover. Comm & Fin Chr 113:1823-4 sec 1 O 29 '21

See also Letters of credit; Money, International

Foreign investments. See Investments, Foreign

Foreign labor. See Immigrants in the United States

Foreign language press

Problem of the foreign language newspaper. F. C. Butler. Am Arch 117:816-17 Je 30 '20

Foreign loans. See Loans, Foreign

Foreign trade. See Export trade

Foreign trade convention, National. See National foreign trade convention

Foreign trade financing corporation

Bankers and manufacturers form Foreign-trade financing corporation. Am Mach 53:1210-11 D 23 '20

Billion for foreign trade credits. J. McHugh and J. P. Bird. Am Ind 21:29-31 F '21

Chief function of Foreign trade financing corporation. J. McHugh. Comm & Fin Chr 112:1086-7 Mr 19 '21

Corporate bond of union—the \$100,000,000 foreign financing corporation. Comm & Fin Chr 112:505-6 F 5 '21

Foreign trade financing corporation. W. Lichtenstein. Comm & Fin Chr 112:1687-8 Ap 23 '21

Foreign trade situation one to tax even Harding's ability. Annalist 17:139-40 Ja 24 '21

Formation of Foreign trade financing corporation commended. J. S. Drum. Comm & Fin Chr 112:20-1 Ja 1 '21

Future of our foreign trade. W. E. Edge. Am Ind 21:41-2 Mr '21; Excerpts. Am Mach 54:437 Mr 10 '21

Hundred million Foreign trade financing corporation. Comm & Fin Chr 111:2264-5, 2377 D 11-18 '20

Long-term credit—the invisible bridge over the export barrier. F. W. Gehle. Coal Age 19:670 Ap 14 '21

Need for the creation of the organization. J. McHugh. Comm & Fin Chr 111:2377-9 D 18 '20

Plans of Foreign trade financing corporation. J. McHugh. Comm & Fin Chr 112:421 Ja 29 '21

Presidency to be offered W. P. G. Harding of Federal reserve board. Comm & Fin Chr 112:318-19 Ja 22 '21

Purposes of the Foreign trade finance corporation definitely stated. G. E. Quisenberry. Automotive Ind 44:1044-5 My 19 '21

Solution of present difficulties seen in Foreign trade financing corporation. W. C. Redfield. Comm & Fin Chr 112:1688-9 Ap 23 '21

To create long-term credits. J. McHugh. Nation's Business 9:32 Mr '21

Trade financing corporation not to thaw out frozen credits. J. McHugh. Annalist 17:446 Ap 18 '21

Urgency of Foreign trade financing corporation. C. H. Sabin. Comm & Fin Chr 111:2278 D 11 '20

Foremen

Best foreman I ever knew. W. A. Ahern. Ind Management 62:124-5 Ag '21

Building both citizens and team-workers thru the foreman. Factory 26:491+ F 15 '21

Duties of the foreman. Eng & Ind Management 5:11-12 Ja 6 '21

Educating apprentice track foremen. W. L. Whitlock. Elec Ry J 55:380 F 21 '20; Same. Eng & Contr 53:467-8 Ap 21 '20

Field of the foreman in industry. C. W. Clark. Ind Management 59:18-20 Ja '20

Foreman. G. M. Basford. diag plans Ry R 68:319-25 F 26 '21; Same abr. Ry Age 70:459-62 F 25 '21; Same. Ry Mech Eng 95:151-4 Mr '21; Discussion. Ry R 68:326 F 26 '21

Foremen—Continued

- The foreman. H. Godfrey. (Pub. no. 1314) 6p
Reprinted from the Annals of the Am.
Acad. of Pol. and Soc. Sci., Philadelphia
S '19
- The foreman. K. G. Smith and T. Diamond.
W Soc E J 26:sup168-9 Ag '21
- Foreman and his development. C. W. Clark.
Ind Management 60:105-9 Ag '20
- Foreman and his job. F. H. Colvin. Am Mach
54:81-2, 175-6, 271-2, 379-80, 459-61, 551-2,
646-8, 740-1, 814-15, 903-4, 1002-4, 1073-5;
55:16-17 Ja 20, F 3, 17, Mr 3, 17, 31, Ap 14,
28, My 12, 26, Je 9, 23, Jl 7 '21
- Foreman and his job. Ed. by H. Diemer and
others. 53p La Salle ext. univ., Chicago '21
- Foreman and industrial democracy. J. Cal-
der. Iron Age 105:951-4 Ap 1 '20
- Foreman and job analysis. H. Diemer and
others, eds. 66p La Salle extension univer-
sity, Chicago '21
- Foreman and the personnel department. C.
W. Rice. Sibley J 34:122-7 S '20
- Foreman and training. H. Diemer and others,
eds. 79p La Salle extension university, Chi-
cago '21
- Foreman; his qualifications and training. L.
E. Gardner. Ry Mech Eng 95:459-61 Jl '21
- Foreman of the future. D. R. Kennedy. Ad-
ministration 2:459-63 O '21
- Foremanship; the standard course of the
United Y.M.C.A. schools. Young men's
Christian associations, New York '21
- Foremanship training—a field often neglected
in industry. G. H. Jensen. J Elec 47:346-7
N 1 '21
- Foremen built to order. Factory 24:802-4 Mr
15 '20
- Foremen that industry needs today. J. M.
Voorhees. Ind Management 60:436 D 1 '20
- Foremen that were bosses are now leaders;
foremanship as a science at the Interna-
tional harvester co. A. H. Young. Factory
25:1035-7 O 1 '20
- Gang leaders in railway work. Ry R 68:753-
4 My 14 '21
- Improving foremanship. 42p (Bul. 61. Trade
and industrial ser. 17) U.S. Federal board
for vocational education, Washington '21
- Industrial democracy and the foreman. J.
Calder. Iron Age 104:1265-6 D 18 '19
- Leadership. H. Diemer and others, eds. 62p
La Salle extension university, Chicago '21
- Making of better foremen. Factory 24:965-6
Ap 1 '20
- Man-to-man talks. C. A. Eaton. Textile
World 57:633+ Ja 31 '20
- Methods to develop foremen; development
course of the International harvester co.
M. C. Evans. Foundry 48:1001-4 D 15 '20
- My ideas for foremanship. S. Setala. Factory
24:959 Ap 1 '20
- Neglected element in labor relations—the
foreman. H. Tipper. Automotive Ind 43:
982-3 N 11 '20
- New foreman for the new day. F. H. Rindge,
jr. Ind Management 61:109-11 F 1 '21
- Practical development for foremen. J. W.
Cary. India Rubber W 65:10-12 O '21
- Practical methods of training foremen. S. G.
Taylor. Ind Management 62:23-6 Jl '21
- Practical plans to carry on safety work. Iron
Age 105:1025-7 Ap 8 '20
- Practical talk to foremen. G. D. Halsey. Ind
Management 60:196-9 S '20
- Programs of apprenticeship and special train-
ing in representative corporations. J. V. L.
Morris. il Am Mach 55:131-3 Jl 28 '21
- Qualifications for foremanship. C. W. Clark.
Ind Management 59:199-202 Mr '20
- Reason why: the foreman is selected from
outside the department. W. J. Hiscox. Elec-
trician 86:252-3 F 25 '21
- Responsibilities of foremen with reference to
safety. J. H. Mallon. Elec Ry J 56:875 O
23 '20
- Selecting foremen. J. Mitchell. Ry Mech
Eng 95:209-10 Ap '21
- Selling the straw boss. G. R. Harris. Ptr Ink
111:157-8 Je 17 '20
- Shop committee and the foreman. M. J. Mac-
Namara. Ind Management 60:102-3 Ag '20

- Successful foreman. W. P. Elliott. Ry Mech
Eng 94:786-7 D '20
- Suggestions to foremen. J. F. Spencer. Elec
Ry J 56:548 S 18 '20
- Training foremen. J. Calder. il Factory 25:
355-8 Ag 1 '20
- Training foremen for executives. J. Calder.
Ind Management 60:145-9 Ag '20
- Training foremen in production methods. J.
Calder. Iron Age 107:32-4 Ja 6 '21
- Training leaders for foremanship classes. D.
J. MacDonald. Am Mach 55:249-51 Ag 18
'21
- Training the foremen of industry. D. R. Ken-
nedy. Ind Management 59:67-70 Ja '20
- Trends in management; is there any move-
ment toward organizing foremen? A. D.
McKillop. Factory 27:52-3 Jl '21
- Unostentatious foreman. L. L. Thwing. Am
Mach 54:810 My 12 '21
- What are we going to do with the boss? E.
S. Cowdrick. Ind Management 60:194-6 S '20
- Worker's opinion of company dependent upon
actions of minor executives. H. Tipper. Au-
tomotive Ind 42:374-5 Ja 29 '20
- Working force. H. Diemer and others, eds.
67p La Salle extension university, Chicago
'21

See also Forewomen; Mine foremen

Foremen's meetings

- Getting more out of shop conferences. Fac-
tory 24:112+, 1368+, 1742+; 26:634+, 898+
Ja, My 1, Je 1 '20, Mr 1, Ap 1 '21

Forest fire patrol, Aerial

- Aerial protection against fires in the great
national forests. il Paper 26:26-7+ My 19
'20
- Airplane patrol for Northwest's forests. map
Am Lumberman 2328:45 D 27 '19
- Airplanes and forest fires. P. G. Redington.
il map J Elec 45:366-7 O 15 '20; Same.
Aviation 9:389 D 6 '20
- Canadian government purchases ten aero-
marine navy flying boats for forest patrol
work. Aerial Age 12:536 Ja 31 '21
- Dirigibles superior for forest fire prevention.
Aerial Age 13:570 Ag 22 '21
- Forest fire patrol work. Aerial Age 13:621 S 5
'21; Same. Aviation 11:343 S 19 '21
- Forestry from the air. S. Frost. il Paper
28:13-14 My 18 '21
- Night air patrols to combat forest fires.
Aerial Age 13:388 Jl 4 '21
- 90 de Haviland-4B's to be utilized in forest
patrol operations in California and Oregon.
Aerial Age 13:78 Ap 4 '21
- Patrol of Oregon forests by De Havilands
during fire season of 1920. C. H. Babb.
Flying 9:695 D '20
- Winged patrols for our expansive forests. R.
F. Hammatt. il Sci Am 122:387+ Ap 10
'20
- Year of the aerial forest fire patrol. H. H.
Arnold. il Flying 10:13-16 F '21; Excerpts.
Aviation 10:45-7 Ja 10 '21

Forest fires

- Better protection wanted against forest fires.
Ptr Ink 113:107-8+ D 16 '20
- Forest detectives. G. H. Dacy. il Pop Mech
36:211-13 Ag '21
- Forest service and light-burning experi-
ments. H. S. Graves. Am Lumberman 2337:
76-7 F 28 '20
- Forewarnings about forest fires. G. H. Dacy.
il Sci Am 123:495+ N 13 '20
- Light burning in California forests. C. P.
Fryer. Sci Am 123:543 N 27 '20
- Need for prevention of costly forest fires. L.
Rothschild. Paper 27:11+ S 29 '20
- Nonsmoldering gun wads reduce forest fires.
Pop Mech 34:762 N '20
- Opposing views regarding light burning or
Piute forestry for fire protection set forth.
Am Lumberman 2333:61 Ja 31 '20
- Wireless in forest fire fighting. S. R. Win-
ters. il Wireless Age 8:11-12 O '20

See also Forest fire patrol, Aerial

Forest mensuration

- Timber surveying and cruising. G. C. Graeter.
Eng N 87:447 S 15 '21

Forest patrol. See Forest fire patrol, Aerial

Forest planting

Making a forest to order; preparing the soil for the trees. H: Vendelmans. *il Sci Am* 124:232+ Mr 19 '21

Forest products

Progress in dendro-chemistry. H. O. Chute. Paper 27:16-19+ O 13 '20

See also Gums and resins; Lumber; Rubber; Timber; Turpentine; Wood; Wood pulp; Wood waste

Forest products laboratory. *See* United States—Forest products laboratory

Forest rangers

See also Forest fire patrol, Aerial

Forest recreation

New profession; the recreation engineer and his part in making our vacations worth while. A. G. Vestal. *il Sci Am* 125:196+ S 17 '21

See also Appalachian trail

Forest reserves

See also Forest recreation; National parks and reserves

Forest taxation

Forest taxation. H. H. Chapman. *Am Lumberman* 2328:61-3 D 27 '19

Forestry laws and legislation

Advertising's concern with the paper situation. *Ptr Ink* 113:33-4+ N 25 '20

Forestry campaign strong throughout country as Snell bill is re-introduced in Congress. Paper 28:30 My 11 '21

Forestry legislation. G: Ostrander. Paper 28:17-19, 28-9 Ag 17 '21

Hearings on Snell forestry bill. Paper 27:9-10+ Ja 19 '21

House to take action on new forestry bill. Paper 27:9-12+ D 29 '20

Forests and forestry

Does normal forest growth overcome natural destruction. Paper 26:21-2 Je 30 '20

Factors controlling distribution of forest types. G. A. Pearson. *Sci Am M* 3:270 Mr '21

First annual forestry week, Syracuse. *Am Lumberman* 2344:67-8a Ap 17 '20

Forestry with the A. E. F. *J Elec* 43:505-6 D 1 '19

Insects in their relation to forestry. R. W. Shufeldt. *il Sci Am S* 88:320-1 N 29 '19

Performance of a culled acre. C. D. Howe. *il Paper* 27:11-15 F 9 '21

Practice of silviculture. R. C. Hawley. 353p Wiley '21

Private co-operation on reforestation. A. Cary. *il Am Lumberman* 2324:54-5 N 29 '19

Private forestry. J. K. Johnson. Paper 28:9-10+ Ag 24 '21

Reforestation with special reference to financial return. H. Andrews. *Am Lumberman* 2348:58-9 My 15 '20

Relation of water resources to forestry. T. Saville. *Pub Works* 49:188-91 Ag 28 '20

Research—an aid to forest perpetuation. *il Sci Am M* 2:360-3 D '20

Some lessons from another field for forest engineers. D: T. Mason. *Am Lumberman* 2347:66-7 My 8 '20

Squint at the broad field of forest engineering. J: B. Woods. *Am Lumberman* 2333:48-9 Ja 31 '20

Tropical forests. H. N. Whitford. *Sci Am M* 3:267-70 Mr '21

Where are our ties coming from? H. Von Schrenk. *Eng & Contr* 54:393-6 O 20 '20

See also Conservation of resources; Forest fires; Landscape gardening; Lumber; Lumber trade; Lumbering; Pine; Timber; Tree planting; Trees; Wood; Woodlots

Study and teaching

Short summer course in forestry. J. K. Johnson Paper 28:19+ Ap 13 '21

Alaska

Alaska:—a real solution of the paper shortage. L: Rothschild. Paper 27:9-10 S 15 '20

Alaskan forests offer solution to pulp and paper shortage. W. B. Greeley. *il Paper* 26:17-18 Je 2 '20

Are Alaskan pulp-wood lands a practical possibility. Paper 26:9+ Je 30 '20

Paper from American trees. W. B. Greeley. *Nation's Business* 9:39-40 Mr '21

Regional development of pulpwood resources of the Tongass national forest. C. G. Smith. (Bul. 950) 40p U.S. Dept. of agric., Washington '21

Canada

Canadian pulpwood resources. D. M. LeBourdais. *il Paper* 27:19+ S 29 '20

New Brunswick timber surveys and cruises. *Eng N* 84:320 F 12 '20

Central America

Our tropical timber trade. S: J. Record. *il Sci Am* 124:444+ Je 4 '21

Timbers of tropical America and railway tie supply. A. W. Buel. *Eng N* 85:1139-41 D 9 '20

Finland

Forest resources, lumber industry and lumber export trade of Finland. A. H. Oxholm. *il diags maps U S Bur For & Dom Com* 207:1-144 '21

France

Studies in French forestry. T. S. Woolsey. 550p Wiley '20

Louisiana

25,000 boys recruited to reforest a state. H. H. Dunn. *il Pop Mech* 35:737-40 My '21

New York (state)

Timber resources of New York state. A. B. Recknagel. *Am Lumberman* 2340:65 Mr 20 '20

Panama Canal Zone

Appearances, characteristics and uses of the various woods of the Panama Canal Zone. T. W. Braddy. *Am Lumberman* 2339:64-5 Mr 13 '20

Russia

Forest and timber industries in Russia. C. Fraboni. *il Am Lumberman* 2339:66 Mr 13 '20

South America

Our tropical timber trade. S. J. Record. *il Sci Am* 124:444+ Je 4 '21

Timbers of tropical America and railway tie supply. A. W. Buel. *Eng N* 85:1139-41 D 9 '20

Sweden

Forestry operations in Sweden. Paper 29:19-21 O 19 '21

Swedish forests, lumber industry, and lumber export trade. A. H. Oxholm. *il maps plan U S Bur For & Dom Com* 195:24-62 '21

United States

Bill to be introduced into Congress to relieve paper situation. *Ptr Ink* 113:17-20 D 9 '20

Capper report on forestry and lumbering. E. T. Allen. *Am Lumberman* 2353:60 Je 19 '20

Changes in timber ownership from 1913-1918; report of the Forest service. *Am Lumberman* 2352:62-3 Je 12 '20

Committee recommends forest policy. *Am Lumberman* 2330:56-7+ Ja 10 '20

Decreasing forests found throughout the Northeast. Paper 27:11+ O 20 '20

Details of forest service report in response to Capper resolution. *Am Lumberman* 2355:65-8 Jl 3 '20

Electricity basic in development of timber resources. D. T. Mason. *map J Elec* 46:429-30 My 1 '21

Forest depletion and forestry policy. *Eng N* 85:1128 D 9 '20

Forest service report summarized. *Am Lumberman* 2351:50-1 Je 5 '20

Forestry work by the National research council's committee. *Am Lumberman* 2350:68-9 My 29 '20

Forests and national prosperity. W. B. Greeley. *Am Ind* 21:13-16 O '20

Forests and forestry—United States—Cont.

Forests of the United States as a source of liquid fuel supply. R. C. Hawley. *J Ind & Eng Chem* 13:1059-60 N '21

Guarding our timber treasures. *Am Ind* 22:33-4 O '21

How a state may grow a timber supply. G. H. Dacy. *il Sci Am* 123:199 Ag 28 '20

In the wake of the woodsman. H. A. Mount. *il Sci Am* 123:122+ Ag 7 '20

Insect ravages in our forests. S. R. Winters. *il Sci Am* 124:48+ Ja 15 '21

National forestry program in the United States. R. S. Kellogg. *Paper* 27:9-10+ Ja 26 '21

Newspapers must educate their readers to demand reforestation legislation. T. F. McPherson. *Ptr Ink* 113:17-20 D 30 '20

Paperless nation in fifty years? *Ptr Ink* 113:10+ N 18 '20

Permanence of the paper industry. H. P. Baker. *Paper* 28:13-14+ J1 13 '21

Planks for posterity; task facing Colonel Greeley, our new chief forester. J. B. Morrow. *Nation's Business* 8:36+ N '20

Protecting our forests and industry. C. L. Pack. *Am Ind* 21:10-12 My '21

Tragedy of our American forests. *Sci Am* 123:540 N 27 '20

Urges treatment of trees as forest crops for woodpulp. *Paper* 29:15-16 S 14 '21

What can be done to prevent destruction of our forests? *il Paper* 26:11-14+ J1 7; 11-13 J1 14; 13-15 J1 21; 17-19 J1 28 '20

What forest conservation means to national prosperity. W. B. Greeley. *Paper* 26:13-15+ Ag 11 '20

Where shoe factories promote farm forestry. H. O. Cook. *il Am Lumberman* 2328:47+ D 27 '19

Wood pile—the foundation of the paper industry. H. P. Baker. *Paper* 27:16+ Ja 19 '21

Washington

Tornado destroys great forest in Olympic Peninsula. F. R. Pierce. *il Pop Mech* 35:559-62 My '21

Wisconsin

Madison section of the Society of American foresters discuss better forestry in Wisconsin. *Am Lumberman* 2350:67 My 29 '20

Forewomen

New place of women in industry; forewomen. I. M. Tarbell. *Ind Management* 61:135-7 F 1 '21

Forge, W. Irving, Inc.

Another hobby that became a business; history of the W. Irving Forge, inc. *il Ptr Ink M* 2:57+ Ap '21

Forge shops

Allis-Chalmers forge shop. *il Chem & Met Eng* 21:576-7 O 29 '19

Allis-Chalmers heavy forging plant in Wisconsin. *il diags plan Iron Age* 104:1315-19 D 25 '19

Building a forge shop for custom work. E. L. Shaner. *il plan Iron Tr R* 68:1788-90 Je 30 '21

Bulletin board education in forge shop. J. H. Lloyd. *Iron Age* 107:209-10 Ja 20 '21; Same. *Eng & Ind Management* 5:608-9 My 26 '21

Cutting costs in a drop forge shop. F. L. Prentiss. *il diags plan Iron Age* 108:385-8 Ag 18 '21

Drop-forge plant lay-out and equipment. *il diags plan Mach* 27:1039-44 J1 '21

Efficiently arranged forge shop. *il plan Elec Ry J* 56:878-9 O 23 '20

Eliminating unproductive time in industry. *chart Eng & Ind Management* 6:205-7 Ag 25 '21

Forge plant for 75mm projectiles. T. W. Towler. *il plan Blast F & Steel Pl* 9:168-71 F '21

Forge shop and other railroad shop tools. F. A. Stanley. *il diags Am Mach* 55:354-6 S 1 '21

Forge shop of Duff manufacturing co. in Pittsburgh. *il Iron Tr R* 67:298-300+ J1 29 '20; Same cond. *Iron Age* 106:253-7 J1 29 '20

How to save stock in the forge shop. E. T. Lanham. *il chart Am Mach* 51:1009-10 D 11 '19

Modern drop forge plant completed; Pittsburgh knife and forge company's new plant at Coraopolis, Pa. E. C. Cook. *il plan Blast F & Steel Pl* 9:479-84 Ag '21

Shop of the Kropp forge co., Cicero, Ill., well planned for material handling. G. L. Lacher. *il plan Iron Age* 107:1159-62 My 5 '21

Storms drop forging co. plant. *plan Iron Age* 105:1110-11 Ap '15 '20

See also Blacksmith shops

Safety devices and measures

Accident prevention in the forge shop. G. A. Kuechenmeister. *il Iron Age* 106:73-5 J1 8 '20

Forgeability

Forgeability of iron-nickel alloys. T. D. Jensen. *il Min & Met* 157:(sec 9) 1-12 Ja '20; Same. *Blast F & Steel Pl* 8:231-4 Ap '20

Forges

Construction of ducts for forge exhaust and blast systems. *il diags plans Heat & Ven* 17:35-9 D '20

Gas-fired forge. *diag Pop Mech* 34:937 D '20

Forging

American drop forge association 7th annual convention, Atlantic City, N.J., June 17-19. *Iron Age* 105:1787-9 Je 24 '20; *Iron Tr R* 66:1817-18 Je 24 '20

American drop forge association annual convention, Chicago. *Iron Age* 107:1762-5 Je 30 '21

Application of gas to forging. *Am Gas Assn Commercial sec v* 2:104-14 '20; Same. *Iron Age* 107:703, 745-6 Mr 17 '21; Same. *Am Gas Eng J* 113:308, 312-14 O 16 '20; Same cond. *Gas Age* 46:451-2 N 25 '20; Discussion. *Am Gas Assn Commercial sec v* 2:115-18 '20

Automotive demands give strong impetus to drop forging development. *Automotive Ind* 44:1066-8 My 19 '21

Connecting-rod forgings for the Liberty motor. H. A. Carhart. *il Am Mach* 52:89-92 Ja 8 '20

Design and making of drop-forging dies. *il diags Mach* 27:1141-4; 28:33-6 Ag-S '21

Elementary forge practice. R. H. Harcourt. 154p Manual arts press, Peoria, Ill. '20

Forging mechanic's hand tools. J. V. Hunter. *il diags Am Mach* 52:557-9 Mr 11 '20

Forging round and shaped pieces under the steam hammer. A. S. Hesse. *diags Am Mach* 52:185-8 Ja 22 '20

Fuel economy of a drop forge plant. N. A. Crague and C. H. L. Thompson. *diags Iron Age* 107:1521-5 Je 9 '21

Heating by fuel oil for manufacturing processes. C. C. Hermann. *Ind Management* 61:199-202 Mr 1 '21

Investigation of various forging operations carried out under hydraulic presses; abstract. E. Schneider. *il diag Chem & Met Eng* 24:269-71 F 9 '21; Same. *Am Mach* 54:467-9 Mr 17 '21

Making brass forgings; methods developed by the Mueller metals co., Port Huron, Mich. E. K. Hammond. *il diags Mach* 27:309-14 D '20

Modern drop-forging practice. F. R. Daniels. *il diags Mach* 28:213-17 N '21

Modern method of forging garden forks. P. H. Schweissguth. *diags Engineer* 131:414 Ap 15 '21

Old shaft forging of malleable iron. *il diag Iron Age* 105:7 J1 1 '20

Technical advances in forging during 1919. H. Freeman. *il Blast F & Steel Pl* 8:111-12+ Ja '20

See also Blacksmithing; Chains—Manufacture; Dies; Eyebars; Forge shops; Forges; Forging machinery; Ironwork; Steel forgings; Welding

Forging—Continued

Cost

- Air-operated forging hammers. *il* Iron Age 108:144 J1 21 '21
 Analysis of costs of drop-forging. R. T. Herdegen. Iron Age 108:325-6 Ag 11 '21

Forging machinery

- Ajax upsetting forging machine. *il* Mach 26: 571-2 F '20; Ry Mech Eng 94:115-16 F '20; Am Mach 52:584-5 Mr 11 '20
 Beatty vertical bulldozer. *il* Am Mach 54: 1098 Je 23 '21; Iron Age 107:1453 Je 2 '21
 Forging machinery on the E. P. & S. W. F. G. Lister. *diags* Ry R 69:501-4 O 15 '21
 Special railroad machine-forging tools. J. V. Hunter. *il* Am Mach 54:67-8 Ja 13 '21

Forgings, Steel. See Steel forgings

Forks

- Spoon and fork blanks; defects in manufacture and their causes in English practice. J. A. Morton. *il* Metal Ind 18:272-3, 316-17 Je-J1 '20
 Story of the knife and fork. A. F. Saunders. *il* Metal Ind 18:79-80 F '20

Form letters. See Commercial correspondence

Formaldehyde

- Action of hydrogen phosphide on formaldehyde. A. Hoffman. Am Chem Soc J 43:1684-8 J1 '21
 Condensation of formaldehyde with ortho-nitrophenol. J. B. Fishman. Am Chem Soc J 42:2288-97 N '20
 Distillation of aqueous solutions of formaldehyde. J. A. Wilkinson and I. A. Gibson. Am Chem Soc J 43:695-700 Ap '21
 Formaldehyde method for determining ammonium nitrate. J. T. Grissom. J Ind & Eng Chem 12:172-3 F '20
 Die kondensation zwischen formaldehyd und acetone. A. Müller. Deutsche Chem Gesell Ber 54:1142-8 Je '21
 Photocatalysis; the synthesis of formaldehyde and carbohydrates from carbon dioxide and water. E: C: C. Baly, I. M. Heilbron and W: F. Barker. Chem Soc J 119:1025-35 J1 '21
 Preparation of formaldehyde. M. D. Thomas. Am Chem Soc J 42:867-82 My '20
 Process of producing formaldehyde; patent. Chem & Met Eng 25:668 O 5 '21
 Solubility of metals in acids containing formaldehyde. R. C. Griffin. J Ind & Eng Chem 12:1159-60 D '20
 Über die einwirkung monomolekularen formaldehyds auf Grignardsche verbindungen. K. Ziegler. Deutsche Chem Gesell Ber 54: 737-40 Ap '21

Formaldehyde aniline

- Vulcanization tests on hexamethylene tetramine, formaldehyde aniline and aldehyde ammonia. C. S. Williams. India Rubber W 65:101-6 N '21

Formaldehyde compounds

- Über neue stickstoffhaltige peroxydverbindungen des formaldehyds. C. von Girsewald and H. Siegens. Deutsche Chem Gesell Ber 54:492-8 Mr '21

Formamidines

- Reactions of the formamidines; some thiazolidone derivatives. F. B. Dains, R. Irvin and C. G. Harrel. Am Chem Soc J 43:613-18 Mr '21

- Reactions of the formamidines; the synthesis of 5-phenyl-4-pyrazole carboxylic acid. F. B. Dains and W. S. Long. Am Chem Soc J 43:1200-2 My '21

Formates

- Compound formation and solubility in systems of the type, formic acid:metal formate. J. Kendall and H. Adler. Am Chem Soc J 43: 1470-81 J1 '21

- Studies in conductivity; transference numbers of the formates of sodium, potassium and calcium in anhydrous formic acid. H. I. Schlesinger and E. N. Bunting. Am Chem Soc J 41:1934-45 D '19

Formic acid

- Entropy changes at low temperatures; formic acid and urea: a test of the third law of thermo-dynamics. G. E. Gibson, W. M. Latimer and G. S. Parks. Am Chem Soc J 42:1533-42 Ag '20

- Studies in conductivity; the behavior of mixtures of two salts containing a common ion in anhydrous formic acid solution. H. I. Schlesinger and F. H. Reed. Am Chem Soc J 41:1921-34 D '19

Forming tools

- Combination press tools. F. W. Curtis. *diags* Am Mach 55:150 J1 28 '21
 Design of circular forming tools having top rake. E. H. Smiley and J. H. Davis. *diags* Mach 27:366-9 D '20
 Heat treatment of forming tools for wheel lathes. F. D. Kenney. *il* *diags* Ry Mech Eng 94:800-1 D '20
 Metal cutting tools; form tools. A. L. DeLeeuw. *diags* Am Mach 55:4-9 J1 7 '21
 Radius turning fixture for tool-room. O. S. Marshall. *il* Mach 28:207 N '21
 Tables for depth of steps on straight forming tools measured at right angles to the front face, corresponding to various differences between radii on the work. Mach 27: 560-4 F '21

- Tools for manufacturing a musical instrument. C. R. Baggett. *diags* Am Mach 55: 373-5 S 8 '21

See also Ring tools

Formosa

See also Hydroelectric plants—Formosa

Forms (law)

- Book of forms of contracts and conveyancing. W: H. Corbin. 2d ed., rev. 908p Soney & Sage co., Newark, N.J. '21

- Preparation of contracts and conveyances, with forms and problems. H: W. Ballantine. 226p Macmillan '21

Formylphenylacetic ester

- Isomerism of formylphenylacetic esters; alkylation of formylphenylacetic ester; abstract. W: Wislicenus and R. v. Schrötter. Chem Soc J 120 pt 1:672-3 S '21

Fort Deseret. See Deseret, Fort

Fort Hall Indian reservation, Idaho

- Geography, geology, and mineral resources of the Fort Hall Indian reservation. G. R. Mansfield and W. B. Heroy. *il* maps U S Geol S Bul 713:1-152 '20

Fort Smith (Arkansas) spelter company

- Award in the Fort Smith (Arkansas) spelter company case. E. T. Gundlach. Monthly Labor R 11:1300-4 D '20

Fortification

- Le démantèlement des fortifications de la base navale allemande d'Héligoland. *il* map Génie Civil 79:49-53 J1 16 '21

- German defenses on the coast of Belgium. H. W. Miller. *il* chart *diags* plans Mech Eng 42:319-33 Je '20

See also Intrenchments; Mines, Military

Forums

- Civic forum for New York city. *il* *diag* plans Am Arch 117:10-13 Ja 7 '20

Forums, Industrial

- Better understanding through factory forums. L. Etherington. *il* Factory 24:58-9 Ja '20
 Factory forum as a promoter of human relationships. G: W. Coleman. Ptr Ink 112: 105-6+ J1 8 '20

Fossil footprints. See Footprints, Fossil

Fossils. See Paleontology

Foundation soils

- Earth in foundations considered as an elastic solid. L. White. *il* *diag* Eng N 85:1268-70 D 30 '20; Discussion. 86:89, 439, 565 Ja 13, Mr 10, 31 '21

- Foundations, their selection, design and construction. *il* *diags* plan Am Arch 117:533-6 Ap 28 '20

- New reverse-reading scale weighs sub-soil's hardness. *il* Pop Mech 35:196 F '21

Foundation soils—Continued

- Progress report of the special committee to codify present practice on the bearing value of soils for foundations. *Am Soc C E Pro* 47:9-10 F '21; Same *abr. Eng & Contr* 55:412-14 Ap 27 '21; *Abstract. Pub Works* 51:185-7 S 3 '21
- Resistance of soft clay to penetration by pyramids and piles. A. S. E. Ackermann. *Eng N* 83:946 N 27 '19
- Selecting the foundation types. C. E. Fowler. *il Eng & Contr* 55:248-51 Mr 16 '21
- Some experiences in foundation failures. R. B. Evans. *il Can Eng* 38:237-8 F 26 '20
- Le tassement des sables servant de base à des constructions. *Génie Civil* 76:477-8 My 22 '20

See also Roads—Subgrades

Testing

- Determining bearing power of clay soil. *diags Can Eng* 39:553-4 N 25 '20
- Determining character of subsoil with sounding rods. G. E. Horr. *diags Eng N* 87:539 S 29 '21
- New machine for measuring the bearing value of soils. *diags plan Eng & Contr* 54:417-18 O 27 '20

Foundations

- Analysis of the continuous three-column foundation. C. A. Ellis. *diags Eng N* 85:680-2 O 7 '20; Discussion. A. Smith. 85:958 N 11 '20
- Building foundations. J. R. Worcester. *Arch Forum* 33:83-4, 213-16 S, D '20
- Cellular flat slabs lighten concrete building; Noyes-Buick automobile building on Commonwealth ave., Boston. O. S. Hussey. *il diags plans Eng N* 85:776-80 O 21 '20
- Concrete foundations for small houses. *diags Bldg Age* 43:24 J1 '21
- Concrete job mechanical; building the substructure for the New York county court house. *il diags plan Pub Works* 50:5-8, 26-9 Ja 1-8 '21; Same. *Eng & Contr* 55:75-8 Ja 26 '21
- Correction of foundation troubles. C. E. Smith. *il Engineering* 110:226-8 Ag 13 '20; Excerpt. *Eng & Contr* 53:716 Je 23 '20
- Deep substructure of assay office built in quicksand by caisson-inclosure method. T. K. Thomson. *il diags plan Eng N* 84:165-9 Ja 22 '20
- Distribution of soil pressure as related to foundations. D. E. Moran. *diags Eng N* 86:366-70 Mr 3 '21; Discussion. C. Terzaghi. 87:77-8 J1 14 '21
- Earth foundations and science. *Eng N* 84:213 Ja 29 '20
- Foundation of multiple concrete ring girders for New York court house. C. S. Proctor. *il diags plan Eng N* 86:494-7 Mr 24 '21
- Foundation problems in erecting Standard Oil building. R. H. Chambers. *il diags Eng N* 87:732-5 N 3 '21
- Foundation troubles of Portland City grain elevator. *il diags plan Eng N* 84:176-9 Ja 22 '20
- Foundation work for the Harbour View building. Broad and Front streets, New York. *il Arch & Bldg* 53:27-9, pl 43-4 Ap '21
- Foundations for King Edward hotel, Toronto. R. E. W. Hagarty. *il plan Can Eng* 39:273-5 Ag 26 '20
- Foundations of the Hotel Pontchartrain, Detroit; study of the utilization of old foundations for new buildings. *il Am Arch* 120:127-31 Ag 17 '21
- Foundations, their selection, design and construction. *il diags plan Am Arch* 117:533-6; 118:386-8, 579-86, 795-800 Ap 28, S 22, N 3, D 15 '20
- Groundwater pumping and hydraulic excavation for beach hotel foundation. *il diag plans Eng N* 86:52-5 Ja 13 '21
- Houses built on sand; how the New York Assay office foundations were laid. J. F. Springer. *il Sci Am* 121:638+ D 27 '19
- How and when to use stone for foundation work. J. Upton. *diags Bldg Age* 43:43 Ag '21

- Interesting features in foundation and roof construction. *il diags plans Am Arch* 118:291-5 S 1 '20
- Large hotel built on sand without use of piling. *il Pop Mech* 35:166 F '21
- N.Y. stock exchange foundations. *il diags plan Pub Works* 51:83-7 J1 30 '21
- Novel method in foundation work proves economical; excavation carried below water level for Ambassador hotel annex, Atlantic City, N.J., without use of compressed air. *il Am Arch* 118:513-16 O 20 '20
- Ordinary foundations. C. E. Fowler. 4th ed. 531p Wiley '20
- Pile bearing and soil pressure. J. C. Meem. *Eng N* 86:185 Ja 27 '21
- Power house foundations. E. M. Lurie. *il diags plan Power Pl Eng* 24:167-73 F 1 '20
- Reinforcing foundation walls to avoid cracks. B. G. Best. *il diags Concrete* 19:97-9 S '21
- Selecting the foundation types. C. E. Fowler. *il Eng & Contr* 55:248-51, 274-7 Mr 16-23 '21
- Settling foundations of the municipal elevator at Portland, Oregon. *Pub Works* 48:240 Mr 27 '20
- Shoring and underpinning the Central warehouse, Chicago. *il diags plan Am Arch* 119:592-4 My 25 '21
- Special problems in foundations of the Cunard building. C. S. Proctor. *diags Arch Forum* 35:21-2 J1 '21
- La station radiotélégraphique Lafayette à Croix-d'Hins, près Bordeaux; fondations en béton armé des pylônes de l'antenne. H. de la Noë. *il diags Génie Civil* 79:32-5 J1 9 '21
- Steel foundations for 30,000-kilowatt horizontal turbo-generators at Detroit Edison co. J. R. James. *il diags plan Power* 52:646-9 O 26 '20
- Uniform pressure on building foundation beds. R. Fleming. *Eng N* 85:219-23 J1 29 '20
- See also Bridges—Foundations and piers; Building; Caissons; Cellars; Cofferdams; Column footings; Concrete piling; Dams—Foundations; Dredging machinery; Foundation soils; Machinery—Foundations; Pavements—Foundations; Piers; Piles and pile driving; Roads—Foundations; Shoring and underpinning; Walls*

Failures

- Foundation failure. L. S. White. *Engineer* 131:667 Je 24 '21

Founders

- Advocates a school for foundrymen. H. R. Atwater. *Foundry* 48:870-1 N 1 '20
- Increased cost of producing stoves; some of the new factors influencing the Conference of manufacturers and molders in Atlantic City. *Metal Work* 93:147-50 Ja 30 '20
- Training men in the molding art. R. R. Clarke. *Foundry* 48:11-13 Ja 1 '20

See also Foundries—Employees; Shoes, Foundry; also International molders' union

- Founding.** *See Aluminum founding; Brass founding; Copper founding; Foundry practice; Iron founding; Molding machines*

Foundries

- All ready for Columbus convention. *il Foundry* 48:709-16+ S 15 '20
- American malleable cast iron. H. A. Schwartz. *il charts Iron Tr R* 68:1175-80 Ap 28 '21
- Choosing correct plant equipment. J. J. Wilson. *il Foundry* 48:984-8 D 15 '20
- Converging lines make Columbus an industrial hub. D. M. Avey. *il Iron Tr R* 67:915-18 S 30 '20
- Designing a model steel foundry. O. L. Merkt. *il diags plans Blast F & Steel Pl* 8:100-2 Ja '20
- Detroit steel casting company plant. H. M. Lane. *il Blast F & Steel Pl* 9:522-4 S '21
- Fitting the foundry to the product. P. Dwyer. *il Foundry* 48:523-9 J1 1 '20
- Foundry building at an R. A. F. depot, England. J. B. Nelson. *diags plan Am Mach* 55:283 Ag 18 '21
- Foundry design needs study. J. H. Hopp. *Foundry* 49:345-7 My 1 '21; Excerpt. *Iron Age* 107:432 F 17 '21

Foundries—Continued

- Foundry maintained on repair ship; the U.S.S. Prometheus. R. F. Nourse. il diags Foundry 49:23-5 Ja 1 '21
- Foundry practice in Far East. C. C. Lee. il diag Foundry 48:233-6 Mr 15 '20
- Foundry production and the structure of the plant. plan Automotive Ind 42:919-20 Ap 15 '20
- Foundry that perseverance built; Bay Shore foundry co., Pensacola, Fla. F. H. Colvin. il diag Am Mach 52:999-1000 My 6 '20
- Gas engine shop has many novel features; Hercules gas engine co., Evansville, Ind. P. Dwyer. il plan Foundry 48:779-84 O 1 '20
- German foundries face big tasks. H. C. Estep. il chart diag map Foundry 48:295-300 Ap 15 '20
- German foundries must conserve. H. Hermanns. il diags plans Foundry 48:551-8 Jl 15 '20
- Hawaiian plant makes heavy work. F. J. McGrail. il diags plan Foundry 49:669-74+ S 1 '21
- Innovations increase unit output. H. E. Diller. il diags Foundry 48:599-607 Ag 1 '20
- International harvester co.'s foundries in France rebuilt. H. C. Estep. il plan Foundry 48:169-76 Mr 1 '20
- Make marine cylinders in new shop; practice pursued at the Boston navy yard. H. R. Simonds. il Foundry 49:1-4 Ja 1 '21
- Making government castings at Erie. P. Dwyer. il Foundry 47:895-901 D 15 '19
- Making ore pile part of automobile plant. F. L. Prentiss. il map Iron Age 105:1295-1302 My 6 '20
- Many equipment features in Hercules foundry, Evansville, Ind. G. L. Lacher. il plan Iron Age 106:123-30 Jl 15 '20
- Modern corerom. D. S. Barrows. diags plans Brass W 17:17-18 Ja '21
- Modern foundry buildings. O. D. Conover. Iron Age 107:578 Mr 3 '21
- Modern foundry for aluminum castings. F. L. Prentiss. il diag Iron Age 105:535-9 F 19 '20
- Modern two-cupola foundry at North Tonawanda, N.Y. il Iron Age 106:1042-3 O 21 '20
- Navy foundry at Norfolk, Va., covers wide range. S. W. Brinson. il diags plans Foundry 49:335-41 My 1 '21
- Das neue gusswerk der oesterreichischen waffenfabriksgesellschaft (automobilabteilung) in Steyr. C. Irresberger. il diags Stahl & Eisen 41:105-10, 288-93, 401-6 Ja 27, Mr 3, 24 '21
- New acid steel foundry at Alliance, Ohio; Machined steel casting co. il diags plan Iron Age 105:457-60 F 12 '20
- New Ford foundry plant at River Rouge. L. B. Breedlove. il diags plan Iron Age 108:787-93 S 29 '21
- New foundry is model of efficiency; Peerless foundry co. il diag plan Foundry 48:345-9 My 1 '20
- Ohio company starts steel foundry. H. E. Diller. il diag Foundry 48:146-50 F 15 '20; Same. Iron Tr R 66:490-4 F 12 '20
- Old firm erects modern foundry; Long & Allstatter co., Hamilton, O. il plan Foundry 48:461-6 Je 15 '20
- Plant building problems; shop used for making concrete mixers to be converted to malleable iron foundry. il diag Iron Age 107:1101 Ap 28 '21
- Plant for casting automobile cylinders. il diag plan Iron Age 105:23-6 Ja 1 '20
- Rebuilding a war-zone plant; International harvester co.'s factory near Lille, France. H. C. Estep. il plan Iron Tr R 66:479-88 F 12 '20
- Rehabilitate shop in record time; Bryan pattern & machine co. il Foundry 48:897-901 N 15 '20
- Rigid frame construction for Machinery & foundries, ltd., Brockville, Ont. il diags plans Can Eng 40:391-5 Ap 21 '21
- Toledo company building new plant. il plan Iron Age 106:439-42 Ag 19 '20

Well house foundry, Leeds. il plans Engineer 132:164, 166-8, 170 Ag 12 '21

See also Brass foundries; Foundry management; Foundry practice; *also* other headings beginning Foundry

Accounting

See Foundry accounting

Drying rooms

Die Voith'sche trockenkammerfeuerung für minderwertige brennstoffe. H. Adämmer. il diags Stahl & Eisen 41:399-401 Mr 24 '21

Electric equipment

- Arc welding equipment in the foundry. W. W. Reddie. il Elec J 18:96-9 Mr '21
- Core baking in electrically heated ovens. J. L. Jones. il chart Metal Ind 18:450-1 O '20; Same. Iron Age 106:1385-7 N 25 '20; Same. Elec R 78:132-4 Ja 22 '21
- Electric core oven. il Iron Age 106:850 S 30 '20
- Electric heating in the iron industry. W. S. Scott. Iron Age 107:384-5 F 10 '21
- Electrical apparatus in the foundry. F. D. Egan. il diag plan Foundry 49:646-51 Ag 15 '21
- Electrically heated pattern plates on molding machines. J. M. Strait. il Elec R 76:272-3 F 14 '20
- Electricity applied to foundry ovens. W. S. Scott. Foundry 49:659 Ag 15 '21
- Electricity plays important part in Connecticut steel foundry. il diags Iron Tr R 66:846-9 Mr 18 '20
- Electricity shop's sole heat source; steel foundry utilizes current for annealing castings and baking molds and cores as well as for melting. H. E. Diller. il Foundry 49:87-91 F 1 '21
- Electrifying the foundry core room. J. L. Jones. il Elec W 76:1203-4 D 18 '20
- Experience with electric core baking. A. D. Dauch. il plan Elec W 76:168-70 Jl 24 '20
- Foundry applies electricity to many operations. H. R. Simonds. il diags Foundry 48:301-3 Ap 15 '20
- Foundry is electrically operated. H. E. Diller. Iron Tr R 68:559-63 F 24 '21
- Tests conducted of electrically heated core ovens. il Iron Age 105:193-5 Ja 15 '20
- See also* Electric furnaces, Foundry; Electric furnaces, Iron founding

Employees

- House publication attracts apprentices. il Foundry 48:442-3 Je 1 '20
- Immigrants needed by industry. Iron Tr R 66:840-2 Mr 18 '20
- Training men for foundry duties. C. C. Schoen. Foundry 48:59-61 Ja 15 '20; Same. Iron Age 105:263-4 Ja 22 '20
- See also* Founders; Foundry management

Equipment and supplies

- Accentuates use of follow board. P. Dwyer. il Foundry 49:585-90 Ag 1 '21
- Anordnung und bemessung von entstaubungsanlagen für gussputzereien. W. Kaempfer. diags Stahl & Eisen 41:110-13 Ja 27 '21
- Application of gas to core baking. A. A. Schuetz. il diag Am Gas Assn Commercial sec v 2:201-10 '20; Same cond. Am Gas Eng J 113:407-8 N 13 '20; Same cond. Foundry 49:657-9 Ag 15 '21
- Audible signals in foundries. V. Karapetoff. diags Sibley J 33:101-3 D '19
- Chains and slings for foundry use. J. Horner. diags Foundry 49:614-16 Ag 1 '21
- Changes make casting plant efficient. G. H. Manlove. il plan Iron Tr R 69:293-5+ Ag 4 '21
- Chemist controls all iron mixtures. il Foundry 49:59-62 Ja 15 '21
- Chicago steel foundry company completes revision of foundry. G. H. Manlove. il plans Foundry 49:426-9 Je 1 '21
- Choosing correct plant equipment. J. J. Wilson. il Foundry 48:984-8 D 15 '20

Foundries—Equipment and supplies—*Cont.*

Cupola metal conveyed by electric trucks; new plant of Elmira foundry co. il plans Iron Age 106:827-30 S 30 '20

Demand induces change in output; special equipment for the production of automobile and gas engine castings on a large scale. il plan Foundry 48:545-50 JI 15 '20

Design of furnaces and ovens is factor in cutting costs in new open-hearth plant. il diags Iron Tr R 66:915-20 Mr 25 '20

Efficient handling of heavy castings in tractor plant. N. G. Shidle. il Automotive Ind 43:1328-30 D 30 '20

Equipment features malleable shop; new foundry of the American chain co., York, Pa. H. E. Diller. il Iron Tr R 69:935-42+ O 13 '21; Same. Foundry 49:805-13 O 15 '21

Equipment shows trend of trade. il Foundry 48:807-14 O 15 '20; Iron Tr R 67:1007-11 O 7 '20

Exhibition of the American foundrymen's association, and some of its features. Iron Age 106:993-5 O 14 '20

Foundry conveyor equipment offers ideas for adaptation elsewhere. N. G. Shidle. il plan Automotive Ind 43:1274-7 D 23 '20

Foundry equipment in modern plants. J. J. Wilson. il plan Iron Age 106:1392-7 N 25 '20

General fire extinguisher co. builds foundry to make fittings. il Foundry 49:684-8 S 1 '21

Hand-labor minimized at modern foundry. J. E. McDonald. il Iron Age 107:429-31 F 17 '21

Handling materials in a remodeled foundry; Murphy iron works, Detroit. il Iron Age 108:76-8 JI 14 '21

How Ford cylinder blocks are cast. P. Dwyer. il plans Foundry 49:751-8 O 1 '21; Same. Iron Tr R 69:739-46 S 22 '21

How machine castings are made. il Foundry 48:379-83 My 15 '20

Increased foundry production by conveyors. il Iron Age 106:831-3 S 30 '20

Inventor installs his own devices; suspended-type molding machines and uses trucks and pouring device. il Foundry 49:98-103 F 1 '21

Keep foundry equipment repaired. D. McLain. Foundry 49:232-4 Mr 15 '21

Labor-saving foundry of Lycoming motors corporation, Williamsport, Pa., innovations planned. E. A. Hunger. diags plans Iron Age 106:1031-5 O 21 '20; Abstract. Génie Civil 78:61-2 Ja 15 '21

Lansing shop shows advanced ideas; with layout. P. Dwyer. il diag Foundry 48:831-8 O 15 '20

Layout of foundry is flexible; new electric steel plant in Philadelphia. H. E. Diller. il plan Iron Tr R 67:1737-42 D 23 '20

Machinery at the steel works of the Société Normande de métallurgie, Caen, France. il diags (supp) Engineering 109:284, 293-4 F 27 '20

Malleable jobbing work equipment in new shop of the Temple malleable iron and steel co. il diag Foundry 49:171-5+ Mr 1 '21

Material handling features Ohio foundry. il Iron Age 105:1009-11 Ap 8 '20

Mechanical aids in the foundry; photographs. Ind Management 61:26-7, 30-1 Mr 15 '21

Melting changes bring lower costs. il Foundry 48:253-8 Ap 1 '20

New charging machine in Rundle foundry. G. L. Lacher. il diags plan Iron Age 107:4-8 Ja 6 '21

Novel core oven solves warping problem. S. B. Phelps. Metal Ind 18:503 N '20; Same. Foundry 49:77 Ja 15 '21; Same. Iron Age 107:450 F 17 '21

Organizing for an increased output. K. V. Wheeler. il Foundry 48:85-7 F 1 '20

Pennsylvania firm extends foundry; Birdsboro steel foundry & machine co. il Iron Tr R 69:39-40 JI 7 '21; Same. Foundry 49:660-1 Ag 15 '21

Plan shop with view to extensions. il plans Foundry 48:757-63 O 1 '20

Pouring head and skim gate. diags Foundry 48:1000 D 15 '20

Pulleys predominate in unique shop. P. Dwyer. il diag Foundry 49:293-9 Ap 15 '21

Rebuilding an old English foundry; W. Richards & son. H. C. Estep. il Foundry 48:889-94 N 15 '20

Safety core room is served by elevator. il Foundry 48:914 N 15 '20

Self-propelled trucks reduce costs. R. J. Wean. il Foundry 48:576-7+ JI 15 '20

Small motors are made in new plant; the Evinrude motor co., Milwaukee. il Foundry 49:627-30 Ag 15 '21

Steel foundry has special operating features; National steel foundries, Milwaukee, Wis. il plan Iron Age 108:991-5 O 20 '21

Steel foundry rearranged and enlarged. G. L. Lacher. il plans Iron Age 107:1470-4 Je 2 '21

Suspended molding machine effects savings. il diags Iron Age 105:665-6 Mr 4 '20

Transportation is factor in increasing output of steel foundry. H. E. Diller. il plan Iron Tr R 67:774-9+ S 16 '20

Who and what to see at the Columbus convention. Foundry 48:717-24 S 15 '20; Iron Age 106:837-44 S 30 '20; Iron Tr R 67:927-35 S 30 '20

See also Casting machines; Converters; Crucibles; Cupola furnaces; Electric furnaces, Foundry; Fire brick; Foundries—Electric equipment; Foundries—Safety devices and measures; Foundry flasks; Foundry ladles; Foundry machinery; Foundry vibrators; Molding machines; Riddles; Sand, Foundry; Sand blast

Floors

Concrete foundry floors. H. C. Boyden. Iron Age 107:130 Ja 13 '21; Same. Eng & Contr 55:84-5 Ja 26 '21

Concrete foundry molding floors. H. H. Haley. Metal Ind 17:482-4 N '19

Heating and ventilation

Fan furnace heating of a large foundry. il Sheet Metal Worker 12:461-3 Ag 5 '21

Three types of fan blast heating. il diag Metal Work 93:638-40 My 21 '20

Layout

Builds shop where roads converge; steel foundry at McKeesport, Pa. il Foundry 48:725-31 S 15 '20

Changes make casting plant efficient. G. H. Manlove. il plan Iron Tr R 69:293-5+ Ag 4 '21

Chicago steel foundry company completes revision of foundry. G. H. Manlove. il plans Foundry 49:426-9 Je 1 '21

Costs dictate changes in molding. P. Dwyer. il plan Foundry 40:501-9 JI 1 '21

Cultivate idea men in foundries. R. R. Clarke. diags plans Foundry 48:384-8 My 15 '20

Foundry conveyor equipment offers ideas for adaptation elsewhere. N. G. Shidle. il plan Automotive Ind 43:1274-7 D 23 '20

Foundry equipment in modern plants. J. J. Wilson. il plan Iron Age 106:1392-7 N 25 '20

Foundry layout which lowers the labor turnover. il plan Automotive Ind 42:1263-5 Je 3 '20

Layout of foundry is flexible; new electric steel plant in Philadelphia. H. E. Diller. il plan Iron Tr R 67:1737-42 D 23 '20

Plan shop with view to extensions. il plans Foundry 48:757-63 O 1 '20

Steel foundry has special operating features; National steel foundries, Milwaukee, Wis. il plan Iron Age 108:991-5 O 20 '21

Steel foundry rearranged and enlarged. G. L. Lacher. il plans Iron Age 107:1470-4 Je 2 '21

Transportation is factor in increasing output of steel foundry. H. E. Diller. il plan Iron Tr R 67:774-9+ S 16 '20

Lighting

Effective lighting for core room. H. S. Rich. Elec W 77:884-5 Ap 16 '21

Proper lighting means efficiency. J. Brakes, jr. diag Iron Tr R 67:1061-2+ O 14 '20

Management

See Foundry management

Foundries—Continued

Safety devices and measures

- Co-operative methods for preventing foundry accidents. R. A. Salisbury. Eng & Ind Management 6:151-2 Ag 11 '21
- How to sell the shop safety idea. il Foundry 49:822-3 O 15 '21
- Personal element in a safety program for the foundry. M. F. Gartland. Chem & Met Eng 22:323-5 F 18 '20
- Plants vie for trophy in safety work. il Iron Tr R 68:285 Ja 27 '21
- Protects workers in converter shop. H. L. Campbell. il Foundry 48:371+ My 1 '20; Same. Iron Tr R 66:1548-9 My 27 '20
- Safe foundry practice. The travelers insurance company, Hartford, Conn. '20
- Safe shoes reduce hot-metal burns. il Foundry 49:51-3 Ja 15 '21
- Safety campaigns apply to foundries. Foundry 49:779-80 O 1 '21
- Safety prize statuette to be awarded to the plant of the Carnegie steel co. making the best record in 1921. il Iron Age 107:205 Ja 20 '21
- Safety work must be well planned. R. A. Salisbury. Foundry 48:895-6 N 15 '20; Same. Iron Age 106:1268-9 N 11 '20

Standards

- Steel foundries need standard patterns. K. V. Wheeler. Foundry 48:963-4 D 1 '20

Statistics

- Growth marks reconstruction era; number of foundries in the United States and Canada. maps Foundry 48:853-8 N 1 '20; Same cond. Iron Tr R 67:1336-8 N 11 '20

Foundry accounting

- Accounting for a cast iron pipe foundry. A. K. Fischer. J Account 29:180-90 Mr '20
- Advantages of uniformity in costs. C. E. Knoeppel. Foundry 48:133-5 F 15 '20
- Changing losses to profits in a New England casting plant. H. R. Simonds. il Iron Tr R 68:1237-43 My 5 '21
- Chart assists salesmen in setting prices. Foundry 49:62-3 Ja 15 '21; Same. Iron Tr R 68:282 Ja 27 '21
- Estimates should parallel cost-keeping method. Automotive Ind 41:930-1 N 6 '19
- Production, cost and profit control. W. G. Scott. Metal Ind 17:514-16 D '19
- Profiting. W. L. Churchill. Metal Ind 18:125-7 Mr '20
- Standard foundry cost system. Foundry 48:407-13, 438-42, 474-80 My 15-Je 15 '20
- This helps us to secure contracts. B. Fleeger. Factory 27:623-4 N '21

Foundry costs

- Cost factor in foundry production. J. P. Glynn. Mach 28:94 O '21
- Cost of synthetic gray iron low. R. C. Gosrow. Foundry 49:242-3 Mr 15 '21; Correction. 49:311 Ap 15 '21
- Costs show further increase. Foundry 48:485 Je 15 '20
- Cuts cost of iron mixture with scrap. H. E. Diller. Foundry 49:511 Jl 1 '21
- Electric melting in an oil furnace. W: J. Reardon. diags Metal Ind 18:207-10 My '20

See also Foundry accounting

Foundry flasks

- Adjustable flask guide is easily applied. il Foundry 49:329 Ap 15 '21
- Cast steel flask clamps. G: W. Childs. diag Foundry 49:350a My 1 '21
- Fabricating steel foundry flasks. il Iron Tr R 67:305-8 Jl 29 '20; Same. Foundry 48:631-4 Ag 15 '20
- Foundry flask stand of improved design. H. J. Bayly. Foundry 49:554-5 Jl 15 '21
- How a long steel flask is assembled. G: W. Childs. diags Foundry 48:923-4 N 15 '20
- How rolled steel flasks are made. il Foundry 49:691-5 S 1 '21; Same. Iron Tr R 69:881-5 O 6 '21

Foundry Industry

Advertising

- Advertising to raise the standards of an industry; the American malleable castings association. J: P. Wilder. Ptr Ink 117:53-4+ O 20 '21

Foundry ladles

- Drying 100-ton ladles. A. E. Dynan. il Iron Age 107:394 F 10 '21
- Inventor installs his own devices; suspended-type molding machines and uses trucks and pouring device. il Foundry 49:103 F 1 '21
- Ladle nozzles made in the core room. il Foundry 48:199+ Mr 1 '20
- One-man ladle for the efficient foundry. il Sci Am 123:600 D 11 '20
- Tipping gear for a 30-ton ladle. H. Scott. diag Foundry 49:266a Ap 1 '21

Stoppers

- Proved design for ladle stopper. diags plans Foundry 49:219-22 Mr 15 '21

Foundry machinery

- Adaptable moulding and core-making machines. il diags plans Engineering 111:164-6 F 11 '21
- Coremaking machines. W: H. Parry. Metal Ind 19:107 Mr '21
- Testing machines as related to the foundry. T. Y. Olsen. il Mach 53:525-30 S 16 '20
- Trend in German practice shown at recent meeting of the Iron foundries association. H. Hermanns. il diag Foundry 49:92-3 F 1 '21
- Woodison compressed air core machine. il Iron Age 106:1472 D 2 '20; Metal Ind 18:569 D '20
- See also Casting machines; Molding machines

Exhibitions

- Equipment shows trend of trade. il Foundry 48:807-14 O 15 '20; Iron Tr R 67:1007-11 O 7 '20
- Exhibition of the American foundrymen's association, and some of its features. Iron Age 106:993-5 O 14 '20
- Foundry show in Belgium, Sept. 18 to Oct. 10. Iron Tr R 69:1094 O 27 '21
- Who and what to see at the Columbus convention. Foundry 48:717-24 S 15 '20; Iron Age 106:837-44 S 30 '20; Iron Tr R 67:927-35 S 30 '20

Foundry management

- American malleable cast iron. H. A. Schwartz. il charts Iron Tr R 68:1175-80 Ap 28 '21
- Application of time study in the foundry. J. F. Blank. Iron Age 108:958-9 O 13 '21
- Apply premium system to foundries. H. C. Barker. Foundry 49:611-12 Ag 1 '21
- Applying engineering to foundry work. A. W. Bowie. Foundry 49:307-8 Ap 15 '21
- Castings engineer. W: H. Parry. Metal Ind 19:320 Ag '21
- Changing losses to profits in a New England casting plant. H. R. Simonds. il Iron Tr R 68:1237-43 My 5 '21
- Chart shows the percentage of scrap. Foundry 49:661-2 Ag 15 '21
- Chemist controls all iron mixtures. il Foundry 49:59-62 Ja 15 '21
- Common labor responds to incentives. J. D. Town. Ind Management 60:422-4 D 1 '20
- Cultivate idea men in foundries. R. R. Clarke. diags plans Foundry 48:384-8 My 15 '20
- Economical control and handling of patterns in a large foundry. W. D. Jones. Am Mach 51:1043-4 D 18 '19
- Efficiency in foundry cleaning rooms. L. M. Krull. Mach 27:972 Je '21
- Foundry design needs study. J. H. Hopp. Foundry 49:345-7 My 1 '21; Excerpt. Iron Age 107:432 F 17 '21
- Foundry of the Homer furnace co. reduces unit cost of manufacture. G. L. Lacher. il Iron Age 105:191-3 Ja 15 '20; Same. Metal Work 93:109-11 Ja 23 '20
- Foundry turnover and production difficulties met by better conditions. diag chart Automotive Ind 42:705-7 Mr 18 '20
- Importance of inspecting castings. Metal Ind 18:120 Mr '20

Foundry management—Continued

- Improved core output from smaller space by providing improved working conditions for girl core-makers. *il* Iron Age 108:927-9 O 13 '21
- Increasing production to meet shorter day. P. R. Ramp. Iron Age 104:1261-3 D 18 '19
- Job shop adopts specialty methods. R. R. Clarke. *diags* Foundry 49:275-9 Ap 1 '21
- Keep foundry equipment repaired. D. McLain. Foundry 49:232-4 Mr 15 '21
- Keeping a perpetual stock inventory. A. S. Keast. Iron Tr R 66:225 Ja 15 '20
- Making government castings at Erie. P. Dwyer. *il* Foundry 47:895-901 D 15 '19
- New England pattern shop is unique; Bethlehem shipbuilding corp., Fore River plant, Quincy, Mass. H. R. Simonds. *il* Foundry 49:127-32 F 15 '21
- Pattern design affects operating costs. R. Bates. *diags* Foundry 49:745 S 15 '21
- Percentage of defective castings too high. H. W. Ramp. Iron Age 108:131-2 J1 21 '21
- Permanent employment is assured. P. Dwyer. *il* *diag* Foundry 48:1-5 Ja 1 '20
- Plan reports and records. M. McKune. Metal Ind 17:516-17 D '19
- Premium system in the pattern shop. J. H. Klee. Foundry 48:92 F 1 '20
- Production, cost and profit control. W. G. Scott. Metal Ind 17:514-16 D '19
- Production processes for the straight run automotive foundry. J. E. Schipper. *il* Automotive Ind 42:1010-14 Ap 29 '20
- Scientific management in an iron foundry. Eng & Contr 52:746-7 D 31 '19
- Some notes on foundries and production. Lord Weir. Engineering 110:687-9 N 19 '20
- Speed is essential in repair jobs. M. E. Duggan. *diags* Foundry 48:962-3 D 1 '20
- Time studies in the foundry. A. G. Peter. Ind Management 62:244-50 O '21
- Time study underlies bonus system. H. E. Diller. Foundry 48:682-6 S 1 '20
- Training executives for foundries. B. W. Benedict and R. E. Kennedy. *il* chart *diag* Foundry 48:902-7 N 15 '20
- Utilization of scrap and residues in metal foundries. C. Diegel. Metal Ind 19:196-7, 247-8 My-Je '21
- See also* Foundries—Employees; Foundries—Safety devices and measures; Foundry accounting; Foundry practice; Pattern numbering; Pattern storage

Foundry practice

- Accelerating cylinder production. *il* Foundry 48:311-18 Ap 15 '20
- Accentuates use of follow board. P. Dwyer. *il* Foundry 49:585-90 Ag 1 '21
- Adapt ingot foundry to castings. H. E. Diller. *il* *diag* Foundry 48:503-8 J1 1 '20
- Adapting a skip hoist to the cupola. *il* Foundry 48:6-10 Ja 1 '20
- Advantages of straight drag core prints. H. N. Tuttle. *il* *diags* Foundry 47:878-9 D 1 '19
- Air required in baking cores made with linseed oil. A. A. Grubb and U. S. Jamison. Chem & Met Eng 25:793-5 O 26 '21
- Aluminum rolling-mill practice; melting furnaces—ingot pouring. R. J. Anderson and M. B. Anderson. Chem & Met Eng 22:545-50 Mr 24 '20
- Annular cracks; various theories accounting for their formation. R. R. Clarke. *diags* Metal Ind 19:193-4, 243-4 My-Je '21
- Automobile castings made in green sand. Foundry 48:327-8 Ap 15 '20
- Bell models made of loam on arbors. *il* *diags* Foundry 49:211-15 Mr 15 '21
- Bill describes the making of ingot mold rigging. P. Dwyer. *diag* Foundry 48:493-5 Je 15 '20
- Bill learns how to sweep a drum. P. Dwyer. Foundry 49:149-51 F 15 '21
- Binder fundamentals. Brass W 17:176-7 Je '21
- Brass foundry practice at Messrs. Vickers, Ltd., Barrow-in-Furness. H. B. Weeks. Engineering 110:389-90 S 17 '20; Same. Metal Ind 18:504-6, 550-1 N-D '20; Excerpts. Foundry 49:5-7 Ja 1 '21
- British adopt centrifugal casting. G. Williams. *il* *diags* Foundry 48:213-18 Mr 15 '20

- British shop casts big ingot mold. *il* Foundry 49:565-6 J1 15 '21
- Builds shop where roads converge; steel foundry at McKeesport, Pa. *il* plan Foundry 48:725-31 S 15 '20
- Casting a 60,000 h.p. hydraulic turbine. Sci Am 124:189 Mr 5 '21
- Casting of gas retorts. J. W. Mellor and W. Emery. *il* Engineering 109:803 Je 11 '20
- Casting of light aluminum alloys. R. J. Anderson. bibliog *il* Iron Age 107:433-6 F 17 '21
- Casting of metals. T. Turner. Engineer 131:492-3 My 6 '21; Abstract. Engineering 111:558 My 6 '21; Discussion. 111:621 My 20 '21
- Casting of nickel brass. W. J. Reardon. *diag* Metal Ind 18:161 Ap '20
- Casting shop costs; how the pit-fire methods can be improved and cost cut. Metal Ind 18:549 D '20
- Checking troubles in steel castings. R. B. Farquhar, jr. *il* *diags* Foundry 49:475-83 Je 15 '21
- Chill-cast bearings. *diags* Foundry 48:920 N 15 '20
- Chrobaltic cast milling cutters. E. K. Hammond. *il* Mach 26:354-8 D '19
- Clay machinery presents problems. *il* Foundry 49:791-6 O 15 '21
- Cleaning and dressing castings. F. W. Wilson. *diags* Engineering 111:725-7 Je 10 '21
- Comment on pratique la fonderie. J. Duponchelle. 485p Dunod, Paris '21
- Construction and repair of sugar machinery. F. A. Stanley. *il* *diags* Am Mach 54:677-82 Ap 21 '21
- Continuous foundry for pipe fittings. H. M. Lane. *il* Iron Age 108:519-24 S 1 '21
- Continuous shop is highly efficient. P. Dwyer. *il* *diags* Foundry 48:625-30 Ag 15 '20
- Conveyors speed foundry's work. H. E. Diller. *il* *diags* Foundry 48:51-8 Ja 15 '20
- Core making practice in Britain. *il* *diags* Foundry 49:69-71 Ja 15 '21
- Core oils as a profitable specialty for jobbers in certain territories. J. R. Battle. Nat Pet N 13:75+ Ja 26 '21
- Corebox gives chance to show ingenuity. W. E. Duggan. *diags* Foundry 49:662 Ag 15 '21
- Costs dictate changes in molding. P. Dwyer. *il* plan Foundry 49:501-9 J1 1 '21
- Cylinder cores made in green sand. *il* plan Foundry 48:861-6 N 1 '20
- Demand induces change in output; special equipment for the production of automobile and gas engine castings on a large scale. *il* plan Foundry 48:545-50 J1 15 '20
- Efficient method of charging cupolas and small copper blast furnaces. A. W. Carroll. *il* Min & Met 168:44-5 D '20
- Electric furnaces for steel foundries. W. E. Moore. *il* *diags* plan Elec J 16:360-6 S '19; Same cond. Elec R 75:1012-15 D 20 '19; Foundry 47:892-4 D 15 '19; Iron Tr R 65:1581-2 D 11 '19; Mech Eng 41:874-6 N '19
- Elevated, midway, and subway gating. W. H. Parry. *diags* plans Am Mach 55:209-10 Ag 11 '21
- English foundry makes rail chairs. H. C. Estep. *il* *diag* plans Foundry 48:733-40 S 15 '20
- Fabricating steel foundry flasks. *il* Iron Tr R 67:305-8 J1 29 '20; Same. Foundry 48:631-4 Ag 15 '20
- Fittings and flanges of cast steel. E. F. Cone. *il* Iron Age 105:393-5 F 5 '20
- Formerei von auto-zyylinderblöcken. C. Irresberger. *il* *diags* Stahl & Eisen 41:1217-22, 1329-33 S 1, O 27 '21
- Forms for cores made of plaster. Paris. J. McGinnis. *il* Metal Ind 18:352 Ag '20
- Foundry conveyor equipment offers ideas for adaptation elsewhere. N. G. Shidle. *il* plan Automotive Ind 43:1274-7 D 23 '20
- Foundry standardizes nickel alloy. H. D. Diller. *il* Foundry 48:209-12 Mr 15 '20
- Foundrywork. B. Shaw and J. Edgar. 115p Pitman '21
- From the foundry to the speedway: castings for motorcycle frames. H. R. Simonds. *il* Foundry 49:459-62 Je 15 '21

Foundry practice—Continued

- Gas engine shop has many novel features; Hercules gas engine co., Evansville, Ind. P. Dwyer. il plan Foundry 48:779-84 O 1 '20
- Good rigging essential in sweep molding. G: Boys. diags plan Foundry 49:368-9 My 1 '21
- Handling rush work in English shops. J. Pearson. Foundry 48:550 JI 15 '20
- Hawaiian plant makes heavy work. F. J. McGrail. il diags plan Foundry 49:669-74+ S 1 '21
- Heavy sugar-machinery operations. F. A. Stanley. il Am Mach 54:308-9 F 24 '21
- Hollow ware made in an old shop. P. Dwyer. Foundry 49:253-9, 300-2 Ap 1-15 '21
- How a gap-press frame was molded. M. H. Potter. diags Foundry 48:700-1 S 1 '20
- How cylinders are made in England. H. C. Estep. il plan Foundry 48:933-9 D 1 '20
- How Ford cylinder blocks are cast. P. Dwyer. il plans Foundry 49:751-8 O 1 '21; Same. Iron Tr R 69:739-46 S 22 '21
- How machine castings are made. il Foundry 48:379-83 My 15 '20
- How pattern shop practice affects core-room and foundry methods. J. Nall. diags Mach 26:551-3 F '20
- How rolled steel flasks are made. il Foundry 49:691-5 S 1 '21; Same. Iron Tr R 69:881-5 O 6 '21
- How to make sash weight castings. J. H. Anderson. diags Foundry 49:592-4 Ag 1 '21
- How treatments affect gear bronze. A. B. Wilson. il Foundry 48:915-19 N 15 '20
- Improved method of making steel gear and wheel blanks. G: A. Richardson. il diags Am Mach 54:981-4 Je 9 '21
- Iron foundry assists pattern shop. H. E. Diller. il Foundry 47:887-91 D 15 '19
- Job shop adopts specialty methods. R. R. Clarke. diags Foundry 49:275-9 Ap 1 '21
- Labor-saving methods in the foundry. P: F. O'Shea. il Am Mach 53:763-4 O 21 '20
- Large cores for turbine castings. il Iron Age 108:202-3 JI 28 '21
- Loam molding presents difficulties. G: Boys. il diag Foundry 49:776-9 O 1 '21
- Long lathe castings demand skill. il diag Foundry 48:283-7 Ap 1 '20
- Making a big job in a small shop; replacing the flywheel on a road engine. G: Boys. diags Foundry 49:449-50 Je 1 '21
- Making a green-sand smokestack mold. R. C. Brown. diag Foundry 49:619 Ag 1 '21
- Making cast iron washers in quantity. P. Dwyer. diag Foundry 48:79 Ja 15 '20
- Making castings for ice machines. il Foundry 49:419-25 Je 1 '21
- Making castings used in ship construction. B. Shaw and J. Edgar. diags plans Foundry 47:297-300+, 336-9, 388-92, 417-20, 474-8, 523-7, 540-4, 597-600, 647-50, 705-8, 738-41, 785-8, 832-5, 870-3, 902-5; 48:71-4 My 15-D 15 '19, Ja 15 '20
- Making railway castings in Manchuria. C: C. Lee. diags Iron Tr R 66:928-9 Mr 25 '20
- Making rubber mold castings. P. Dwyer. il Foundry 48:43-8 Ja 15 '20
- Malleable jobbing work equipment in new shop of the Temple malleable iron and steel co. il diag Foundry 49:171-5+ Mr 1 '21
- Manufacture of household appliances. J. V. Hunter. il Am Mach 52:1173-4 Je 3 '20
- Melts gray iron with natural gas. il Foundry 49:139-42 F 15 '21
- Metal castings; a group of papers on the usefulness and limitations of various types of castings contributed by the A.S.M.E. subcommittee on foundry practice. il Mech Eng 42:427-40 Ag '20; Same abr. (Eisen-, stahl- und metallguss). Stahl & Eisen 41:408-13, 585-8, 729-30 Mr 24, Ap 28, My 26 '21
- Methods for molding smoke stacks. H. N. Tuttle. diags Foundry 48:181-3 Mr 1 '20
- Methods of casting manganese-bronze test bars as a check on melts of small castings. E. H. Dix, jr. il Metal Ind 19:315-17 Ag '21; Same. Foundry 49:734-6 S 15 '21
- Meticulous care of the Chinese; enamels, metalwork casting and forging. Brass W 17: 273-4 S '21
- Modern methods of casting propellers. il Marine Eng 26:696-9 S '21
- Molding a drum with deep sand pockets. E. A. Dixie. il Am Mach 52:1056-7 My 13 '20
- Molding a large planer machine bed. J: McMahon. diag Foundry 49:94+ F 1 '21
- Molding an annealing barrel. M. E. Duggan. diags Mach 27:58 S '20
- Molding an arbor or sand-bar for a cope mold. M. E. Duggan. diags Mach 28:232 N '21
- Moulding bronze propellers. C. T. Cleve. Metal Ind 18:10 Ja '20
- Molding cylinders in an Austrian shop. C: Irresberger. il diags Foundry 49:383-90 My 15 '21
- Molds car wheels on jolt machines. il diag Foundry 49:709-13 S 15 '21
- Monel metal; properties, methods of melting and casting, uses, etc. A. Bregman. il diags Metal Ind 19:9-10, 64-5 Ja-F '21
- New, improved method of casting propellers. il Pop Mech 36:40-1 JI '21
- New method of casting brass and aluminum in a vacuum. R. E. Search. Metal Ind 18: 175 Ap '20
- Novel foundry for making railway brasses. il Foundry 47:866-8 D 1 '19
- Oil wells create a castings market; establishment of foundries specializing in well-boring machinery. il Foundry 49:545-50 JI 15 '21
- Old timer gives some reminiscences. G: Boys. Foundry 49:683 S 1 '21
- One-piece coreboxes find ready favor. M. E. Duggan. diags Foundry 48:522 JI 1 '20
- Operating a pipe fittings foundry. il Foundry 49:725-31 S 15 '21
- Operations in a New Orleans foundry engaged in the production of sugar machinery. F. A. Stanley. il Am Mach 53:441-2 S 2 '20; Same. Chem & Met Eng 23:914 N 10 '20
- Pattern making students make metal core-box. il Foundry 47:879 D 1 '19
- Petroleum-blended core oils save on cost over straight linseed product. J: R. Battle. Nat Pet N 13:87+ Mr 2 '21
- Piston rings cast centrifugally. H. E. Diller. il Foundry 48:127-32 F 15 '20
- Plow points made on quantity basis. il Foundry 48:847-52 N 1 '20
- Pointers on casting monel metal. R. Traut-schold. il Foundry 48:649-51 Ag 15 '20
- Position of tensile tests in the foundry. W. A. Gibson. diag Iron Age 105:725-8 Mr 11 '20
- Pouring temperatures; how they affect casting shrinkage and solidity. R. R. Clarke. diags Metal Ind 19:147-8 Ap '21; Same abr. Foundry 49:731-2 S 15 '21
- Precise inspection of large and irregular curves. E. O. Brower. diags Am Mach 54: 60-6 Ja 13 '21
- Problems encountered in gas engine castings. P. Dwyer. il Foundry 48:980-3 D 15 '20
- Producing small nonferrous castings. R. H. Sullivan. Metal Ind 19:108-11 Mr '21; Same. Foundry 49:490-3 Je 15 '21
- Propeller wheel mold standardized; Thacher process. E. Touceda. il Foundry 49:431-5 Je 1 '21; Excerpts. Iron Age 107:1310-12 My 19 '21; Min & Met 172:37-8 Ap '21; Sci Am M 3:381-2 Ap '21
- Propellers cast in British shop. W. J. Lambert. il diags Foundry 49:351-5, 391-6 My 1-15 '21
- Proper metal for piston ring pots. A. Harley. Foundry 48:435 Je 1 '20
- Pulleys predominate in unique shop. P. Dwyer. il diag Foundry 49:293-9 Ap 15 '21
- Putting more than brass into valves; Jenkins valves. il Plumber 95:129-31 Mr 11 '21
- Quantity production of intricate parts. H. R. Simonds. il Foundry 49:743 S 15 '21
- Reservoir-to pour large mold. il Foundry 48: 877-8 N 1 '20
- Rigging for speed in blower work. H. R. Simonds. il Foundry 49:359-63 My 1 '21
- Rigging heavy repetition work. P. Dwyer. il diag Foundry 48:469-72 Je 15 '20
- Les roues en fonte trempée; fabrication, propriétés et usages. E. P. Polushkin. il diags Génie Civil 78:173-7 F 19 '21

Foundry practice—Continued

- Sand plays part in poor castings. R. J. Doty. Foundry 49:95-7 F 1 '21
- Scientific methods needed in foundries. J: E. Stead. Foundry 48:750 S 15 '20
- Scrap should prove object lesson. F. H. Hurren. diags Foundry 49:262-4 Ap 1 '21
- Shop methods of casting locomotive bearings. J. V. Hunter. il diags Am Mach 54: 590-2 Ap 7 '21
- Simple rig for molding iron sash weights. J. M. Fackler. diags Foundry 49:451 Je 1 '21
- Six propeller blades made in one mold. J. L. Sendner. il Foundry 48:183 Mr 1 '20
- Speed marks auto parts molding. D. M. Avey. il diag Foundry 47:852-7 D 1 '19
- Steel castings made in green sand. W. H. Roesner. il diags Foundry 49:552-4 Jl 15 '21
- Steel foundry cleaning problems. A. W. Gregg. Foundry 48:944-5 D 1 '20
- Steel foundry starts operations; Vulcan iron works, Wilkes-Barre, Pa. il diags Foundry 48:187-91, 221-6 Mr 1-15 '20
- Suggested changes in risers and heads. B. Shaw. diags Foundry 49:281-2 Ap 1 '21
- Tire molds are made as specialties. il plan Foundry 48:93-8 F 1 '20
- Total tonnage handled in the manufacture of castings. M. Sklovsky. Foundry 49:312-14 Ap 15 '21
- Tractor wheel molding simplified. H. N. Tuttle. diags Foundry 48:350-2 My 1 '20
- Typical foundry problems. W: J. Reardon. diags Metal Ind 18:9-10 Ja '20
- Waste in melting alloyed metals. E. H. Schulz and H. Winkler. Metal Ind 17:521-2 D '19
- Where risers are used to advantage. M. H. Potter. diags Foundry 48:77-8 Ja 15 '20
- See also* Aluminum bronze; Aluminum founding; Annealing; Brass founding; Bronze; Cast iron; Chilled iron; Copper founding; Cupola furnaces; Die casting; Electric furnaces; Foundries; Foundry machinery; Iron founding; Iron metallurgy; Molding machines; Molds; Pattern making; Pickling (metals); Pig iron; Steel castings; Type and type founding

Repair of castings

- Burning of flange upon a 16-inch elbow. T. Nelson. diag Foundry 49:116-17 F 1 '21

Study and teaching

- Advocates a school for foundrymen. H. R. Atwater. Foundry 48:870-1 N 1 '20

Tables, calculations, etc.

- Control of centrifugal casting by calculation. R. F. Wood. diags Mech Eng 43:727-8+ N '21
- How do you determine your mold weights? J. B. Conway. chart Am Mach 54:743-4 Ap 28 '21
- Precise inspection of large and irregular curves. E. O. Brower. diags Am Mach 54: 60-6 Ja 13 '21

Foundry practice, Ancient

- Ancient bronze baffles founders; Chinese war drum cast at the beginning of the Christian era is a molding enigma. il Foundry 48:667-70 S 1 '20

Foundry records

See also Stores systems

Foundry research

- Awards for industrial service. Foundry 48: 800 O 15 '20
- British industry strong and confident. O. Stubbs. Foundry 49:820-1 O 15 '21
- Research to aid foundry industry. J. H. Andrews. Foundry 49:409-10 My 15 '21

See also British gray and malleable cast iron research association

Foundry riddles. See Riddles**Foundry sand. See Sand, Foundry****Foundry sanitation**

- Requirements for a sanitary and healthful shop. Metal Work 94:247-8 Ag 20 '20

Foundry shoes. See Shoes, Foundry**Foundry vibrators**

- Movement to standardize foundry vibrators. Foundry 49:813 O 15 '21

Foundry waste. See Metal waste**Fountain pen ink sacks**

- Fountain pen ink sacks; manufacture. il India Rubber W 61:294 F '20

Fountain pens**Advertising**

- Advertising when sales are scarce raises year's total business. G. A. Nichols. Ptr Ink 113:69-70+ N 25 '20

Fountains

- Berne—city of mediæval fountain statutes. Am Arch 117:580+ My 12 '20
- Douglas memorial fountain at Nacozari. L. Cauldwell. il Eng & Min J 111:942-4 Je 4 '21

See also Drinking fountains

Fourdrinier machine

- Fabrikoid apron for the paper machine. il Paper 28:18-19 My 4 '21
- Fourdrinier machine. il diags Paper 27:63-7 N 10 '20

Fourdrinier machine wire

- Life and use of Fourdrinier wires. C: Hayden. Paper 27:15 S 29 '20
- Life of Fourdrinier wires. J. D. Watson. il Paper 27:81-3 N 10 '20
- Manufacture and care of Fourdrinier machine wires. H. Lindsay. Paper 26:19-20 Jl 7; 16+ Jl 14 '20

Fourier's series

- Study of the errors involved in solving for the constants of Fourier's series by a calculation method. W. Mason. Phys R 17: 315-21 Mr '21

Fourth dimension

- New concepts of the past century. Sci Am 123:276+ S 18 '20
- Time—the fourth dimension of space. A. H. Halloran. J Elec 44:267-9 Mr 15 '20

Fractures. See Strength of materials**Framing (building)**

- Details of heavy timber framing. diags Eng N 84:1016-18 My 20 '20
- Erection derrick falls with steel framework of school. diags Eng N 85:1294 D 30 '20
- Heavy timber framing used for Seattle transit pier shed. il diags Eng N 86:509-10 Mr 24 '21
- Large timber frame to support concrete truss forms. R. C. Mitchell. il diags plan Eng N 86:380-1 Mr 3 '21

See also Roofs

Framing of pictures. See Picture frames and framing**Framingham, Massachusetts**

- Nation's healthiest town. R. H. Moulton. il Pop Mech 34:885-8 D '20

Water supply

- Changes in cleanness coefficient of Sudbury river aqueduct. F: I. Winslow. Eng N 86: 1132 Je 30 '21

France

- City gates of France. J. P. Sims. il plan Arch Rec 47:323-32 Ap '20
- Engineering conditions in France. Engineer 130:138-9, 154-5 Ag 6-13 '20
- Ports of France and their future. F. Miltoun. il Marine R 50:285-7 My '20

See also Churches—France; Electric plants (central stations)—France; Electricity supply—France; Finance—France; Gas industry—France; Hydroelectric plants—France; Labor and laboring classes—France; Merchant marine—France; Railroads—France; Reconstruction (European war)—France; Roads—France; Waterways—France

Army

- Le service de l'intendance pendant la guerre 1914-1918; le problème de la réunion des ressources nécessaires aux armées. Laporte. Génie Civil 77:515-16 D 18 '20
- Les transformations de l'armée. A. Ranc. Chimie & Ind 5:88-95 Ja '21

France—Continued

Colonies

Les richesses des colonies françaises et leur mise en valeur par la métropole. Génie Civil 76:349-52 Ap 10 '20

Commerce

Chemical industry and trade of France. O. P. Hopkins. J Ind & Eng Chem 13:6-13 Ja '21

Farm implements and machinery in France and North Africa. H. L. Groves. U S Bur For & Dom Com 191:1-36 '20

France: a market for American products. J. A. M. de Sanchez. Ptr Ink 113:25-7+ O 23 '20

France's recovery better than trade reports show. W. R. Harper. Annalist 17:611-12 Je 6 '21

Import and export schedule of France. U S Bur For & Dom Com misc ser 102:1-56 '20

La semaine du commerce extérieur. M. Lambert. Chimie & Ind 6:105-10 Jl '21

Trade agreement between France and Canada. Engineer 131:260 Mr 11 '21

See also Coal trade—France; Shipping—France; Wool trade—France

Description and travel

Twentieth-century troglodytes. il Sci Am M 2:130-2 O '20

Economic conditions

Coal famine enfeebling France; an industrial resumé. F. Miltoun. Iron Tr R 66:1328-9 My 6 '20

Conditions in France. M. Britton. Am Mach 52:1371-3 Je 24 '20

La crise de l'édition en France. A. B. des Chaumes. Génie Civil 77:88-91 Jl 31 '20

Decline in wholesale and retail prices in France. Comm & Fin Chr 112:1232 Mr 26 '21

Economic development of France and Germany, 1815-1914. J. H. Clapham. 420p University press, Cambridge '21

Europe coming back, says Dwight W. Morrow. Ptr Ink 115:19-20 My 26 '21

How the republic is recovering from wounds left by the war. A. C. Bedford. Nation's Business 9:21-2 Ja '21

Industrial conditions in France. Mach 27:794 Ap '21

Industrial situation in France. Eng N 85:876-7 N 4 '20

Le nouveau prix de l'argent les nouvelles charges imposées à l'industrie. A. Lainé. Génie Civil 77:396-8 N 13 '20

Situation économique de la France. R.-P. Duchemin. Chimie & Ind 6:233-9 Ag '21

See also Housing problem—France; Labor and laboring classes—France; Prices—France; Trade unions—France; Wages—France

Finance

See Finance—France

Industries and resources

Art of the apothecary. J. Boyer. il Sci Am M 1:159-64 F '20

French Hog Island; growth of industry during the war. C. E. Carpenter. il Am Mach 54:766-9 My 5 '21

French industrial conditions. A. L. Valentine. Mach 26:409-10 Ja '20

French industries. Chem & Met Eng 24:462 Mr 16 '21

French works facing new trials. F. Miltoun. il Iron Tr R 66:7-12 Ja 1 '20

Industrial machinery in France and Belgium. C. P. Wood. bibliog il map U S Bur For & Dom Com 204:1-61 '20

Institut et exposition des matières premières françaises et coloniales. E. Barbet. Chimie & Ind 3:669-74 My '20

International harvester co.'s foundries in France rebuilt. H. C. Estep. il plan Foundry 48:169-76 Mr 1 '20

L'introduction, en France, de l'industrie de la laque d'Extrême-Orient. M.-Y. Lemaire. Génie Civil 78:195-6 F 26 '21

Notes on French industries. Chem & Met Eng 23:956 N 17 '20

Position of the metallurgical industries of northern and eastern France. L. Guillet. Iron Age 108:796-800 S 29 '21

La production des industries françaises avant la guerre et leur capacité de production dans l'avenir. Génie Civil 76:14-18, 45-7, 71-5 Ja 3-17 '20

Rebirth of French industry. Am Mach 53:1068j D 2 '20

Rebuilding a war-zone plant; International harvester co.'s factory near Lille, France. H. C. Estep. il plan Iron Tr R 66:479-88 F 12 '20

La réorganisation industrielle de la France et les conditions de son expansion économique. Génie Civil 77:95-8, 114-16, 135-7 Jl 31-Ag 14 '20

See also Automobile industry and trade—France; Cement industry and trade—France; Chemical industries—France; Coal mines and mining—France; Forests and forestry—France; Hydroelectric plants—France; Iron industry and trade—France; Iron works—France; Machinery industry and trade—France; Metallurgical plants—France; Oil industries—France; Petroleum—France; Petroleum industry and trade—France; Reconstruction (European war)—France; Steel industry and trade—France; Steel works—France; Sugar industry and trade—France; Textile industry and trade—France; Wine

Navy

French naval programme. Engineer 131:671-2 Je 24 '21

Future naval policies. Engineering 112:318 Ag 26 '21

Politics and government

See also Taxation—France

Reconstruction

See Reconstruction (European war)—France

Roads

See Roads—France

Franchises. See Municipal franchises; Public utilities—Franchises; Street railroads—Franchises

Francis, Charles

Portrait. Ptg Art 37:528a Ag '21

Franco-Italian labor treaty

New Franco-Italian labor treaty. Monthly Labor R 10:351-7 F '20

Francqui, Emile

Restorer of Belgium. J: W. Harrington. Annalist 18:441 N 7 '21

Franklin, Benjamin

Benjamin Franklin, and what printing did for him. H: L: Bullen. Inland Ptr 68:201-4 N '21

Power of printing. H: L: Bullen. Inland Ptr 64:437-8 Ja '20

Franklin brick and tile company

Time and cost records broken in hollow ware factory of new type. il plan Brick & Clay Rec 58:999-1015 Je 14 '21

Franklin institute

First aid for inventors; Franklin institute and the committee through which it assists meritorious patents. W: A. McGarry. il Sci Am 123:502+ N 13 '20

Franklin printing company

Illustration of the kind of publicity many printers may find it advantageous to use. Ptg Art 37:48a-k Mr '21

Frary metal

Electrolytically-produced calcium-barium-lead alloys comprising Frary metal. W: A. Cowan, L. D. Simpkins and G. O. Hiers. il diags Am Electrochem Soc Trans v 40 (pre-print 17):237-58 S '21

Fraser river, British Columbia

Age of the recent delta of Fraser river, British Columbia, Canada. W. A. Johnston. Am J Sci 5th ser 1:450-3 My '21

Fraud

Stalking the wildcat stocks. H. F. Driver. Nation's Business 8:15-16 Ap '20

See also Advertising, Fraudulent; Bribery, Commercial; Competition, Unfair

Fraudulent advertising. *See* Advertising, Fraudulent

Frazil ice. *See* Hydroelectric plants—Ice protection

Free energy

Determination of the equilibrium between chlorine, water, hydrochloric acid and chloric acid; the free energy of the chlorate ion. A. R. Olson. *diag* Am Chem Soc J 42:896-904 My '20

Entropy changes at low temperatures; formic acid and urea: a test of the third law of thermodynamics. G. E. Gibson, W. M. Latimer and G. S. Parks. Am Chem Soc J 42:1533-42 Ag '20

Free energy of dilution and the transference numbers of lithium chloride solutions. D. A. MacInnes and J. A. Beattie. *diags* Am Chem Soc J 42:1117-28 Je '20

Free energy of potassium hydroxide in aqueous solution and the activities of its ions. Ming Chow. *diags* Am Chem Soc J 42:488-97 Mr '20

Thermodynamic investigation of reactions involving silver sulfide and silver iodide. A. A. Noyes and E. S. Freed. Am Chem Soc J 42:476-87 Mr '20

Vapor pressures and free energies of the hydrogen halides in aqueous solution; the free energy of formation of hydrogen chloride. S. J. Bates and H. D. Kirschman. Am Chem Soc J 41:1991-2001 D '19

Free harbors

Free port vs. customs drawbacks. R. H. Tingley. Am Ind 20:32-3 F '20

Free ports and free zones for the United States. H. M. Robinson. Comm & Fin Chr 113:151-3 sec 2 O 29 '21

Free zones in ports. W. Fawcett. Marine Eng 26:449-51 Je '21

How a free port operates; cities in northern Europe can help United States in trading with Russia. C. D. Snow. Nation's Business 9:22-3 O '21

Our merchant fleet and free ports. Sci Am 124:222 Mr 19 '21

Free ports. *See* Free harbors

Free publicity. *See* Press agents

Free trade and protection

See also Dumping (commercial policy); Free harbors; Mercantile system; Tariff

Free trade

Report of the proceedings of the International free trade conference, London, October, 1920. 139p Cobden club, Westminster '21

Freeboard. *See* Load line

Freedom of the press

District court of appeals upholds exclusion of radical papers from the mails—N.Y. Call and Milwaukee Leader regain second-class privileges. Comm & Fin Chr 112:2497-8 Je 11 '21

Freeland, William Hugh, 1864-1919

Sketch. W. Y. Westervelt. *por* Eng & Min J 109:32 Ja 3 '20

Freemasons

Grand Lodge hall; a home for aged members of the Masonic order in Pennsylvania. *il* plans Arch Forum 32:231-4, pl 81-4 Je '20

Freezing

Anti-freezing solutions. O. B. Zimmerman. Soc Auto Eng J 9:307-12 N '21

Degree of temperature to which soils can be cooled without freezing. G. Buoyoucos. A S R E J 7:401-3 Mr '21

Freezing action of water distorts steel column and base. C. P. Bohland. *il* Eng N 86: 935 Je 2 '21

Shaft sinking through quicksand under heavy pressure by freezing process. L. Sauvester. *diags* Eng & Contr 56:204-7 Ag 31 '21

To prevent freezing in tender hose. S. W. Williams. *diags* Ry R 67:796 N 20 '20; Correction. 67:833 N 27 '20

Use of calcium chloride to prevent freezing in fire apparatus. Am Gas Eng J 112:12 Ja 3 '20

What to know about anti-freeze solutions. Motor Age 36:22-3 D 11 '19

See also Fish, Frozen; Frost; Hydroelectric plants—Ice protection; Ice; Refrigeration and refrigerating machinery; Water meters—Freezing; Water pipes—Freezing; Waterworks—Ice protection

Freezing points

Artificial frost for testing fruit. *il* Sci Am 124:431 My 28 '21

Compound formation and solubility in systems of the type sulfuric acid; metal sulfate. J. Kendall and A. W. Davidson. Am Chem Soc J 43:979-90 My '21

Cryoscopy of milk. J. Hortvet. *il* J Ind & Eng Chem 13:198-208 Mr '21

Effect of finely divided material on the freezing points of water, benzene and nitrobenzene. F. W. Parker. Am Chem Soc J 43:1011-18 My '21

Estimating impurities by means of the melting point curve. W. P. White. *diags* J Phys Chem 24:393-416 My '20

Freezing point curve of the system: orthocresol:naphthalene. F. H. Rhodes and F. E. Hance. J Phys Chem 25:491-4 Je '21

Freezing points of alcohol-water mixtures. Automotive Ind 44:564 Mr 10 '21

Freezing points of mixtures of sulfuric and nitric acids. W. C. Holmes. J Ind & Eng Chem 12:781-3 Ag '20

Studies on the nitrotoluenes. J. M. Bell and others. J Ind & Eng Chem 11:1025-9, 1128-30; 13:59-61 N-D '19, Ja '21

Freight, Perishable

How the New York Central inspects perishables. F. S. Welsh. Ry Age 71:117-18 Jl 16 '21

Perishable freight division of the A. R. A. organized. Ry R 67:103 Jl 17 '20

Freight accounting. *See* Railroads—Accounting

Freight and freightage

Some phases of the transportation problem. F. B. James. 58p Byrne & co., Washington, D.C. '21

See also Bills of lading; Demurrage; Electric railroads—Freight; Freight cars; Freight handling; Freight ships; Railroads—Freight; Railroads—Rates; Shipment of goods; Stowage; Tonnage; Transportation

Claims

Law of loss and damage claims. H. C. Lust. 2d ed 630p Traffic law book company, Chicago '19

See also Railroads—Claims

Freight car service

Annual report of the car service section, U.S.R.A. Ry Age 68:949-54 Mr 19 '20

August breaks freight traffic record. Ry Age 69:843-4 N 12 '20

Bad order car situation presents serious problem. M. J. Gormley. Ry Age 71:719-20 O 15 '21; Discussion. J. E. Muhlfeld. 71:815-16 O 29 '21

Bad order cars reached maximum in August. Ry Mech Eng 95:635-8 O '21

Car loading decreases. Ry Age 69:931-2 N 26 '20

Car record office of the A. E. F. G. W. Wright. Ry Age 68:1927 Je 18 '20

Car service conditions. D. Willard. Ry Age 68:1685-6 Je 11 '20

Car service division reports reduced loadings. Ry Age 69:705-7 O 22 '20

Car service under private and under government operation. Ry Age 69:838 N 12 '20

Car surpluses and shortages, 1917 to date. Ry Age 71:209 Jl 30 '21

Coal order modified and extended. Ry Age 69:103-8 Jl 16 '20

Coal shortage is explained by the railroads. D. Willard. Coal Age 18:299-300 Ag 5 '20

Freight car service—Continued

- Commerce commission unmoved by arguments for modification of order no. 7. Coal Age 18:116-18 J1 15 '20
- Commission issues emergency car service orders. Ry Age 68:1525-31 My 28 '20
- Commission limits reconsignment. Ry Age 69:243-4 Ag 6 '20
- Commission on car service. Ry Age 68:1087-8, 1158-9, 1250, 1932-3; 69:17-19, 156-8 Ap 2-9, 23, Je 18, J1 2, 23 '20
- Commission points to records made by railroads showing improvement in efficiency. Ry Age 69:753-6 O 29 '20
- Compensation for excess empty movement of cars. Ry Age 69:453 S 10 '20
- Concerning the utilization of freight cars. W. C. Kendall. Ry Age 67:1059-62 N 28 '19
- Concerted efforts to relieve freight congestion. Ry Age 68:1559-60 Je 4 '20
- Congestion and car shortage, some practical observations. Ry R 67:498-9 O 2 '20
- Control of freight cars. C: E. Lee. Ry Age 68:1304-6 Ap 30 '20; Same cond. Ry R 66:1008-9 Je 12 '20
- Curing our transportation ills. O. W. Stiles. Am Ind 21:11-12+ Mr '21
- Delaware and Hudson's new car service rules. Ry Age 71:73-5 J1 9 '21
- Difficulties experienced by the states in the matter of rail transportation. S. E. Bradt. Pub Roads 3:16-18 Ja '21; Same. Munic Eng 60:8-10 Ja '21; Same. Good Roads n s 21:131-2 Mr 2 '21; Discussion. M. W. Watson. Pub Roads 3:18-21 Ja '21; Same. Munic Eng 60:5-8 Ja '21
- Expect Commerce commission to give data on assigned cars. Coal Age 17:1269-70 Je 17 '20
- Expediting the release of cars in company service. Ry Age 67:971-2 N 14 '19
- Figures show continuance of heavy freight traffic. Ry Age 69:615-16 O 8 '20
- Freight car efficiency. O. O. Carr. Ry R 67:274-5 Ag 21 '20
- Freight car loading. See weekly numbers of Railway age
- Freight car situation. C. B. Aitchison. Ry Age 69:835-6 N 12 '20
- Freight car situation. M. J. Gormley. Ry R 69:265-7 Ag 27 '21
- Freight service continues to show improvement. Ry Age 69:405-6 S 3 '20
- Freight situation at New York. Ry Age 68:1472 My 21 '20
- Freight traffic growing rapidly. Ry Age 69:491-3 S 17 '20
- Freight traffic still showing increased movement. Ry Age 69:455-6 S 10 '20
- Getting freight cars back to their home roads. Ry R 66:338-9 F 28 '20
- Growth and results of car service activities. il Ry Age 68:81-4 Ja 2 '20
- Heavy freight traffic continues. Ry Age 69:805-6 N 5 '20
- How to help the car shortage. Nation's Business 8:82+ O '20
- Increasing car mileage. L. R. Smith. Ry Age 70:368 F 11 '21
- Increasing the miles per car per day; prize essays. A. G. Smart and others. Ry Age 69:824-8, 873-6 N 12-19 '20
- Intensive methods of speeding up operations; New York railroad club meeting discusses program for increased car efficiency. Ry Age 69:525-7 S 24 '20
- I. C. C. commodity statistics. Ry Age 71:114 J1 16 '21
- Is one million carloads weekly the limit? Ry Age 69:641 O 15 '20
- Making the cars go 'round. C: E. Lee. Nation's Business 8:58+ Je '20
- Minority report on the \$300,000,000 car fund. L. F. Loree; C. J. Pearson. Ry Age 68:1937-9 Je 18 '20
- More efficient use of freight cars. Ind Management 60:289 O '20
- New mine ratios and car distribution rules. Ry Age 68:258-60 Ja 16 '20
- 1920 set record for freight movement. Ry R 68:449+ Mr 19 '21
- Open-top car service orders supported by coal operators. J. D. A. Morrow. Ry R 67:99-100 J1 17 '20
- Operating statistics for December and 1920; tabulation. Ry Age 70:510 Mr 4 '21
- Our next job is to simplify raw material movement. A. R. Howell. Ptr Ink 112:33-6 Ag 5 '20
- Plans of the railway executives to improve service. Ry R 67:318-19 Ag 28 '20
- Present difficult transportation problem. D. Willard. Ry Age 69:71-3 J1 9 '20; Same cond. Ry R 67:90-1 J1 17 '20
- Production is limited by lack of freight cars. il Ry Age 68:27-32 Ja 2 '20
- Public utilities given assigned cars for coal. Coal Age 18:190-1 J1 22 '20
- Railroad situation—causes and remedies. S: O. Dunn. Coal Age 18:453-6 Ag 26 '20
- Railroads co-operating with farmers in crop movement. Ry R 67:335-6 Ag 28 '20
- Railroads handling larger freight tonnage. Ry Age 69:367-8 Ag 27 '20
- Railroads make good. H. Elliott. Nation's Business 9:13-14 Ja '21
- Railway executives form a plan to improve freight service. Ry R 67:129 J1 24 '20
- Railway executives plan for improving situation. Ry Age 69:55-6 J1 9 '20
- Reducing road freight overtime. V. Parvin. Ry Age 71:565 S 24 '21
- Reorganization of car service commission. Ry Age 68:705-11 Mr 5 '20
- Reorganization of car service division, A.R.A. Ry Age 71:253-4 Ag 6 '21
- Review of the transportation conditions. Ry Age 69:321-3 Ag 20 '20
- Routing of freight traffic. Ry R 66:888-90 My 29 '20
- Statistics show increased efficiency. Ry Age 69:569-70 O 1 '20
- Suggestions for increasing the freight car supply. Ry Age 69:446 S 10 '20
- Transportation as a factor in irregularity of coal mine operation. S. L. Yerkes. Min & Met 159:(sec 3) 41-7 Mr '20; Same. Coal Age 17:439-42 Mr 4 '20
- Transportation conditions. Ry Age 69:247, 281-4, 538-40; 70:63-8 Ag 6-13, S 24 '20, Ja 7 '21
- Trends in management; what can the manufacturer expect of the railroad situation? F. Zimmerman. Factory 25:1234-6 O 15 '20
- Truth about the car situation. J. E. Rhodes. Ry R 67:159-60 J1 31 '20
- U.S. Chamber of commerce urges better use of equipment. Ry R 67:397 S 11 '20
- Unscrambling railway equipment. Ry R 66:512-13 Mr 27 '20
- Utilities see in assigned cars the only solution of their fuel difficulties. P. Wooton. Coal Age 18:1059-60 N 18 '20
- What the highway departments may expect in service in 1921 from the railroads. A. G. Gutheim. Pub Roads 3:21-3 Ja '21
- Work of the local committees on car service. Ry Age 69:61-3 J1 9 '20
- See also Coal—Transportation; Demurrage; Freight cars—Interchange; Private car lines; Railroads—Management; Railroads—Statistics; Railroads—Trains; Refrigerator cars

Bibliography

List of references on the increased use of the freight car. 24p '20 U.S. Library bureau of railway economics, Washington, D.C. (Typew)

Car load

- Acute situation which may become a desperate one. Ry Age 68:1228 Ap 23 '20
- Average loading of thirty tons per car. Ry R 67:372-3 S 4 '20
- Effect of car weight and speed on coal consumption. G: S. Chiles. Ry R 69:575-8 O 29 '21
- How to increase the average loading of cars; suggestions from railway officers. Ry Age 70:287-90 Ja 28 '21
- Increasing car loading of mutual interest to shipper and railway. J: M. Glenn. Ry Age 69:1052 D 17 '20

Freight car service—Car load—Continued

- Less-car-load shippers co-operate in car loading. Ry Age 69:1169-70 D 31 '20
 Methods of increasing the car load. Ry Age 70:839-41 Ap 1 '21
 Record train loading features Virginian operation. il maps Ry Age 70:1203-8 My 27 '21
 Shippers' views on increased loading of cars. Ry Age 70:379-82 F 11 '21
 Two opposing views on maximum car loading. R. W. Poteet; H. L. Goemann. Ry Age 70:494 Mr 4 '21

Freight cars

- Bad freight car situation. Ry Age 70:1255-6 Je 3 '21
 Canadian Pacific 60-ton hopper bottom box cars. il Ry Age 69:785-6 N 5 '20
 Car conditions need permanent improvement. Ry Age 70:1314-17 Je 10 '21
 Cause of present condition of freight cars; suggestions for improvement. J. C. Fritts. diags Ry R 68:162-6 Ja 29 '21; Same cond. Ry Age 70:293-6 Ja 28 '21; Same cond. Ry Mech Eng 95:97-9+ F '21
 Check on rough handling of cars. il Ry Age 71:444 S 3 '21
 Chemist in a freight car. H. J. Force. Ry Age 71:815 O 29 '21
 Convertible railroad car. C. N. Winter. il Sci Am 122:95 Ja 24 '20
 Convertible stock car. il Ry Mech Eng 93:679-80 N '19; Same. Ry Age 67:1065-6 N 28 '19
 Damage to freight cars on industry tracks and in loading and unloading. Ry R 67:853-5 D 4 '20
 Drop loops to support stakes inside gondola cars. W. J. Knox. diags Ry Mech Eng 94:584 S '20
 Elimination of rough handling. B. J. Blair. Ry Age 71:864-5 N 5 '21
 Hartend general service car, and Hart door gear. il diags Ry Mech Eng 94:51-2 Ja '20; Ry Age 68:445-6 F 6 '20; Ry R 66:130-1 Ja 24 '20
 Hopper-bottom box car for coal and grain. il Pop Mech 35:496-7 Ap '21
 Immediate freight car requirements and how they are to be supplied. Am Lumberman 2342:55 Ap 3 '20
 Insulation of freight and passenger cars. W. N. Allman. Ry Mech Eng 95:444-8 Jl '21
 Lamont six-wheel truck for freight cars. il diags plans Ry Age 70:729-31 Mr 18 '21; Same. Ry Mech Eng 95:254-6 Ap '21
 Making the box car a dump car as well. il Sci Am 124:269 Ap 2 '21
 Real operating economy in the use of high-capacity cars on Norfolk & Western railway. il diags Ry R 68:629-35 Ap 23 '21
 Refitted box cars for offices, Midland Valley R. R. diags plan Ry R 65:957 D 27 '19
 Reform needed in switching operation and the handling of the individual car. C. E. Rochambeau. Ry R 68:30-1 Ja 1 '21
 Report of car construction committee. Ry Age 71:362-6 Ag 20 '21; Same. Ry Mech Eng 95:572-6 S '21
 Report on the depreciation of freight cars. Ry Age 68:1843-4 Je 16 '20; Ry R 66:1042-3 Je 19 '20
 70-ton hopper car that can be repaired in any shop. H. Idoine. diags plan Ry R 68:894-9 Je 11 '21
 Standardized containers and sectionalized freight cars. R. H. McLain. il Gen Elec R 24:366-8 Ap '21
 Thawing frozen hopper cars. E. A. Miller. diags Ry Mech Eng 95:638 O '21
See also Air brakes; Car doors; Car heating; Car painting; Car roofs; Car wheels; Coal cars; Container cars; Draft gears; Dump cars; Freight car service; Grain doors; Loading and unloading; Refrigerator cars; Tank cars

Central ownership

- Shipper's view on the evolution of transportation and its effect on steam railways; abstracts. G. C. Conn. Ry R 69:440-1 O 1 '21; Ry Age 71:636-7, 655 O 1-8 '21

Suggested remedy for the freight car situation; central control. W. S. Moseley. Ry Age 71:249-50 Ag 6 '21

Design

- Factors to be considered in freight car designing. A. H. Lake, jr. Ry Mech Eng 95:495-6 Ag '21
 100-ton coal cars for the Chesapeake & Ohio. il diags plan Ry Age 71:567-70 S 24 '21; Same. Ry Mech Eng 95:627-30 O '21

Equipment

See also Draft gears

Failures

- Car failures caused by improper brake maintenance. E. H. Wood. Ry R 67:775-7 N 20 '20
 Transfers and adjustments of lading for mechanical defects. J. M. Getzen. Ry Mech Eng 94:705-6; Discussion. 706-15 N '20

Inspection

See Car inspection

Interchange

- Car inspectors and foremen propose changes in rules at Chicago meeting, March 3-4. Ry Mech Eng 95:233-8, 304-8, 375-8, 441-4 Ap-Jl '21
 Changes in rules of interchange. Ry Mech Eng 94:709-14 N '20
 Chief interchange car inspectors' and car foremen's association 19th annual meeting. Ry Mech Eng 93:593-5, 649-53 O-N '19; Ry Age 67:1121-2 D 5 '19
 How pooling equipment increased car maintenance cost. Ry R 69:147 Jl 30 '21
 Inspecting cars in interchange. Ry Mech Eng 93:722-3 D '19
 Inspection of freight equipment. L. K. Sillcox. Ry Mech Eng 94:464-8 Jl '20
 New plan for the settlement of per diem accounts. H. E. Sanders. Ry Age 71:154 Jl 23 '21
 Preparation of A.R.A. bills and repair cards. L. Martin. Ry R 66:765-7 My 8 '20
 Recommended changes in the rules of interchange. Ry Age 71:359-61 Ag 20 '21; Same. Ry Mech Eng 95:569-71 S '21
 Report of the arbitration committee; recommended changes in the rules of interchange. Ry Age 68:1844-7 Je 16 '20

Loading rules

See Freight car service—Car load; Railroads—Freight

Manufacture

- Reinforcing top chord angles on gondola cars. N. McLeod. diags Ry Mech Eng 94:221 Ap '20
 Use of wood in freight-car construction. H. S. Sackett. Am Mach 54:20-1 Ja 6 '21; Same. Ry Mech Eng 95:105-6 F '21; Same cond. Mech Eng 43:90-2 F '21

Painting

See Car painting

Repair

- Around the freight car yards and shops. il Ry R 68:66-8, 259-61, 375-6 Ja 8, F 12, Mr 5 '21
 Bad order cars reached maximum in August. Ry Mech Eng 95:635-8 O '21
 Bolster attachments for metal draft arm. diags Ry Mech Eng 95:130-1 F '21
 Business of owning cars. Ry Age 71:329-31 Ag 20 '21
 Economics of freight car maintenance. L. K. Sillcox. Ry R 65:682-4 N 8 '19; Same. Ry Age 67:1227-31 D 26 '19; Same. Ry Mech Eng 93:657-60 N '19
 Effect on cost of repairs of changes in the percentage of freight cars at home. Ry Mech Eng 95:170 Mr '21
 Freight car repairs on the E. P. & S. W. A. M. Dow. il diags Ry Mech Eng 94:281-4 My '20
 Good, bad, and indifferent work on the repair tracks. Ry R 69:627-9 N 5 '21

Freight cars—Repair—Continued

- Modernizing freight car repair facilities. G. E. Lemmerich. il diags plan Ry Age 68:608-13 F 27 '20; Same. Ry Mech Eng 94:143-8 Mr '20; Same. Ry R 66:375-80 Mr 6 '20
- Railroad shop vs. the contract shop; analysis and comparison of costs of repairing 50 similar cars in railway and in contract shops. il Ry Mech Eng 95:631-5 O '21
- Rebuilding the old wooden cars. Ry R 69:345-6 S 10 '21
- Reduce the number of bad order cars. Ry R 67:393-4 S 11 '20
- Relative effect of time and service on car deterioration. Ry Mech Eng 95:238 Ap '21
- Repairing cars in train yards. O. E. Sitterly. Ry Mech Eng 94:776; Discussion. 776-7 D '20
- Ripping off bottom of sills for application of steel underframes. il Ry R 69:125-6 J1 23 '21
- Robbing cars to repair others. il Ry R 68:467-70 Mr 19 '21
- Saving money in car repairs. A. F. O'Brien. Ry Mech Eng 95:298 My '21
- Straightening car ends with a pull jack. A. H. Anderson. il Ry Mech Eng 95:239 Ap '21
- Upkeep of freight car equipment. J. W. Senger. Ry R 67:445-6 S 18 '20; Same, with discussion. Ry Mech Eng 94:703-4 N '20
- See also Freight cars—Interchange; Freight cars, Steel—Repair; Railroads—Shops

Roofs

See Car roofs

Standards

- Standard freight cars practically completed. Ry Mech Eng 93:724 D '19

Statistics

- Car building in first seven months of 1920. Ry Age 69:511-12 S 24 '20
- Car lines almost only buyers of freight cars. il Ry Age 68:128-32 Ja 2 '20
- Purchases of freight cars increase in 1920. Ry Age 70:144-50 Ja 7 '21; Excerpt. Ry Mech Eng 95:78-9 F '21

Testing

- New Norfolk & Western 100-ton coal cars. J. A. Pilcher. il diags Ry Mech Eng 95:293-8, 367-70 My-Je '21; Excerpts. Ry Age 70:923-8 Ap 15 '21

Weight

- Effect of car weight and speed on coal consumption. G. S. Chiles. Ry R 69:575-8 O 29 '21

Freight cars, Concrete

- Concrete railway cars in Hungary and Austria. E. L. Heidenreich. il Concrete 18:247-8 My '21

- Gondola cars of reinforced concrete. E. L. Heidenreich. Concrete 18:247 My '21

- Test of Austrian reinforced concrete railway car. il Eng & Contr 54:334 S 29 '20

Freight cars, Interchange of. See Freight cars—Interchange**Freight cars, Private. See Private car lines****Freight cars, Steel**

- Copper in steel and the corrosion of cars. A. R. Surface. il Sci Am 124:185 Mr 5 '21
- Course of instruction in steel freight car design. 2d ed L. W. Wallace. 35p Murphey-Bivins co. press, Lafayette, Ind. '20
- 50-ton steel general service car. il diags Engineering 110:604-5, 608, pl 66 N 5 '20
- Forty-ton box cars for the Cuba railroad. diags plans Ry Age 69:140-2 J1 23 '20; Same. Ry Mech Eng 94:523-5 Ag '20
- Les nouveaux wagons en acier de 109 tonnes de capacité, du Virginian railway (États-Unis). il diags Génie Civil 79:241-3 S 17 '21
- Old powder car, N. C. & St L. Ry. il Ry R 66:971-2 Je 12 '20
- Steel car problem, Canadian club topic. Ry R 68:407-10 Mr 12 '21

Virginian railroad operating economies effected by using 120-ton cars. il diags plan Ry Age 70:401-5 F 18 '21; Same. Ry Mech Eng 95:163-70 Mr '21; Same cond. Iron Tr R 68:162-3 Ja 13 '21

Cost

- Cost of reproduction new of steel freight cars. Ry Age 70:553-6 Mr 11 '21

Repair

- Modern equipment facilitates repair of steel cars. H. R. Simonds. il Iron Tr R 67:1746-9 D 23 '20
- Repair and maintenance of steel freight cars. S. Lynn. Ry Age 70:563-5 Mr 11 '21; Same. Ry Mech Eng 95:299-301 My '21
- Repair of steel freight cars. J. V. Hunter. il Am Mach 54:281-3 F 17 '21
- Requirements for a modern car repair shop. H. H. Dickinson and P. Schioler. plans Ry Age 71:890-3 N 5 '21
- Steel car repairs. Ry R 69:378-80, 516-17, 551-2 S 17, O 15-22 '21
- Freight claim prevention congress**
A. R. A. institutes claim prevention campaign. Ry Age 69:887-90 N 19 '20
- Freight claims. See Railroads—Claims**
- Freight congestion**
Commission asked to exercise emergency powers. Ry Age 68:1467-71 My 21 '20
- Motor truck's part in the terminal congestion problem. R. E. Fulton. il Am Lumberman 2355:86 J1 3 '20; Same. Textile World 58:1525+ S 4 '20
- Municipal freight terminals. O. W. Stiles. Ry R 67:233-5 Ag 14 '20
- See also Freight car service; Freight handling
- Freight handling**
Acceleration of freight handling at terminals. H. M. Harding. Ry R 66:792-5 My 15 '20
- Application of power-driven machinery to the horizontal transference of miscellaneous freight. J. A. Jackson. il Gen Elec R 24:325-30 Ap '21
- Auto truck body as a standard freight container. C. Tompkins. Ry R 66:1015-16 Je 12 '20
- Better freight handling methods of mechanical equipment. O. W. Stiles. il Eng N 86:151-3 Ja 27 '21
- Carloads of safes; portable steel compartments. il Sci Am M 3:353-4 Ap '21
- Comparison of cargo transportation by land and water routes. W. T. Donnelly. il Marine Eng 25:899-903 N '20
- Container car in express service on N.Y.C. lines. il Ry Age 70:315-16 F 4 '21; Same. Ry Mech Eng 95:171-2 Mr '21
- Containers the ultimate answer. J. C. Bonner. Elec Ry J 57:219-20 Ja 29 '21
- Cost of inefficiency at our terminals. H. Frost. Int Marine Eng 25:768-9 S '20
- Cost of waste. H. Frost. Ry R 66:741-3 My 1 '20; Excerpts. Int Marine Eng 25:768-9 S '20
- Cranes speed up handling of canal freight. il Iron Tr R 67:1351-2 N 11 '20; Same. Marine R 50:667 D '20
- Developments in material handling methods. Ry Age 70:107-8 Ja 7 '21
- Discussion on material-handling problems of ports. Mech Eng 43:283 Ap '21
- Electric auto-mechanical freight handling. Z. W. Carter. Ry R 66:282-4 F 21 '20
- Electrifying facilitates port operation. C. S. McDowell. il Elec W 77:365-7 F 12 '21
- Expediting the movement of l.c.l. freight. il diag Ry Age 69:219-22 Ag 6 '20
- Freight distribution at New York. Eng N 85:822-3 O 28 '20
- Freight handling at marine terminals. A. K. West. il diags Int Marine Eng 25:598-600 J1 '20
- Freight-handling devices at the port of Seattle. G. Gordon. il diag Ry R 69:261-4 Ag 27 '21
- Freight-handling equipment at the port of Seattle. G. F. Nicholson. il Eng N 84:37-9 Ja 1 '20

Freight handling—Continued

- Fundamental factors of freight handling. D. B. Rushmore. Gen Elec R 24:301-5 Ap '21
- General cargo transferring speed per linear foot. il Marine Eng 26:779 O '21
- Handling l.c.l. freight in interchange by motor trucks. Ry Age 69:1007 D 10 '20
- How electricity helps solve the package freight handling problem. F. T. Smith. il Int Marine Eng 25:1-6 Ja '20
- How one road plans to reduce loss and damage; steps taken by Chicago, Rock Island & Pacific. Ry Age 70:895-6 Ap 8 '21
- Impact and its relation to damage claims. J. A. Pilcher. Ry Age 71:77-9 Jl 9 '21
- Industrial trucks in C. P. R. general store house. il Ry Age 68:1160-1 Ap 9 '20
- Lightening the stevedore's load. C. W. Geiger. il Sci Am 122:267+ Mr 13 '20
- Local distribution of freight and food products. C. Hine. Ry R 68:287-9 F 19 '21
- La manutention mécanique dans les gares il diags plan Génie Civil 76:571-4 Je 26 '20
- Mechanical box car loader and unloader. il Ry R 68:606-8 Ap 16 '21
- Mechanical freight handling at the port of Astoria. C. W. Geiger. il diags plan Ry R 68:271-4 F 19 '21
- Mechanical handling of freight. Eng & Contr 56:148 Ag 17 '21
- Mechanical loading of ships. H. J. Smith. il diags Engineering 111:117-20, 149-51, 184-6 Ja 28-F 11 '21; Excerpts. Engineer 131:103-5 Ja 28 '21; Excerpts. Eng & Ind Management 5:420-4, 529-33 Ap 7, My 5 '21; Discussion. Engineering 111:111-12 Ja 28 '21; Engineer 131:91, 126-7 Ja 28-F 4 '21
- Motorized freight transfer cuts terminal costs; abstracts. B. F. Fitch. il diags plans Eng N 84:508-11 Mr 11 '20; Textile World 57:1995+ Mr 13 '20
- Need for organization by material handling machinery manufacturers: an opportunity. F: Stadelman. Gen Elec R 24:298-300 Ap '21; Same. Eng & Ind Management 5:701-3 Je 16 '21
- New container car for store-door delivery freight service. il Eng N 86:557-8 Mr 31 '21; Ry Age 70:905-6 Ap 8 '21
- New Haven freight transfer facilities at Cedar Hill. il plan Ry Age 71:751-4 O 22 '21
- New York's freight handling problem. C: D. Hine. Eng N 85:856 O 28 '20
- Les nouvelles installations de déchargement du port de Bordeaux. H: Martin. il diags plans Génie Civil 77:1-8, pl 1 Jl 3 '20
- Plan for expediting l.c.l. business in Chicago. diags plan Ry Age 69:52-4 Jl 9 '20
- Port development and the central station. C: K. Nichols. Gen Elec R 24:287-8 Ap '21
- Power distribution for docks. E. Pragst. il Gen Elec R 24:346-51 Ap '21
- Problem of better harbor freight handling methods. Eng N 86:641-3 Ap 14 '21
- Problem of freight distribution. Sci Am 123:4 Jl 3 '20
- Sea ports: their organization and administration. C. Tomkins. Gen Elec R 24:290-2 Ap '21
- Shunt-less freight terminal. il Sci Am 122:42+ Ja 10 '20
- Simplify freight transfer by new system. il Pop Mech 33:872 Je '20
- Some notes on cargo handling. L. B. Chapman. Marine Eng 25:927-9 N '20
- Stacking elevator simplifies freight handling. il Eng N 83:855 N 13 '19
- Standardized containers and sectionalized freight cars. R. H. McLain. il Gen Elec R 24:366-8 Ap '21
- Store door delivery to relieve congestion. A. E. Beck. Ry Age 69:1127 D 24 '20
- Terminal facilities to increase foreign trade. G: F. Nicholson. il J Elec 46:126-7 F 1 '21
- Terminal handling of package freight. H. Frost. Ry R 67:616-18 O 23 '20
- Twenty miles a day; inadequate terminal facilities and their part in our freight congestion. J: Lathrop. Sci Am 125:148 Ag 27 '21

- Unit freight handling system; interchangeable metal container. il Ry Mech Eng 94:730-1 N '20; Same. Eng & Contr 54:597 D 15 '20; Same abr. Ry Age 69:515-17 S 24 '20
- Unit system of freight transportation. C: N. Winter. il Sci Am 123:595 D 11 '20
- Wasteful handling of freight at terminals. H. Frost. Ry R 66:304 F 21 '20

See also Coal handling; Containers; Cranes, derricks, etc.; Dumping appliances; Electric railroads—Freight; Electric trucks, Industrial; Freight houses; Freight ships; Freight tunnels; Grain handling; Hoisting machinery; Loading and unloading; Lumber handling; Merchant marine; Motor trucks in freight service; Ore handling; Railroads—Terminals; Terminals; Wharves

Bibliography

- Bibliography on freight handling. R. F. Emerson. Gen Elec R 24:371-80 Ap '21

Cost

- Solution of the freight house problem. W. G. Bridgeman. Ry Age 69:643-4 O 15 '20

Freight houses

- Development of air rights in connection with city freight houses. E. J. Noonan. W Soc E J 26:192-4 My '21; Same. Eng & Contr 55:590 Je 15 '21
- Double-deck freight station in six-story building. diags plans Eng N 85:732-6 O 14 '20
- Freight house improvements of M. K. & T. at Dallas, Tex. diags plans Ry R 69:361-4 S 17 '21
- Operating a modern freight house efficiently. W. E. Phelps. il diag plan Ry Age 70:187-90 Ja 14 '21
- Report on the maintenance and repair of freight house floors. Ry Age 69:762-4 O 29 '20; Eng N 85:979 N 18 '20
- Simplified check for large freight houses. C. J. Casteel. Ry Age 71:379 Ag 20 '21
- Solution of the freight house problem. W. G. Bridgeman. Ry Age 69:643-4 O 15 '20

Freight rates

- Boost coastwise rates. Marine R 50:541 O '20
- Buffalo companies ask lower freight rates. L. W. Moffett. Iron Age 108:1133-4 N 3 '21
- Fair principles of freight rate making and their effect on our national marine terminal problem. J: Meigs. Gen Elec R 24:293-7 Ap '21
- Ocean freight rates. Published in monthly numbers of Marine review
- Ore cut step to rate revision. A. J. Hain. Iron Tr R 69:927-8 O 13 '21
- Rate decreases trouble British. C. Maughan. Marine R 50:590-2 N '20
- Rates for cross country trucking. T. Brown. Good Roads ns 19:307-8 Je 16 '20
- Water shipment the answer to western freight rates. C. K. Chapin. il J Elec 47:226-7 S 15 '21
- What has happened to lake cargo rates and why they should be revised downward. W. P. Ellis. Coal Age 19:763-6 Ap 28 '21

See also Railroads—Rates

Freight ships

- British frozen meat cargo steamer Tairoa. diags plans Marine Eng 26:583-7 Ag '21
- British standard ship of 3,150 tons d. w. F: C. Coleman. il diags plans Int Marine Eng 25:275-6a Ap '20
- Can duplex craft speed up transportation? R. G. Skerrett. il Sci Am 122:479+ My 1 '20
- Le cargo-boat en béton armé Cochinchine, de 2 500 tonnes. C. Dantin. il diags Génie Civil 77:265-8 O 2 '20
- Cargo steamers for the Paris, Lyons and Mediterranean railway. diags Engineering 112:333-40, 348, pl 19 S 2 '21
- Cargo vessel Elizabeth Stoner. il Engineer 131:626 Je 10 '21
- Control of an induction motor propelled cargo boat. R. Stearns. il diags Gen Elec R 24:150-5 F '21
- Conversion of gunboats to cargo vessels. il diags Engineering 110:46-7, 50 Jl 9 '20

Freight ships—Continued

- Designs ship for Hawaii trade. *il* Marine R 51:433-4 O '21
- Develops ships to serve tropics. *il* Marine R 51:278-9 Je '21
- Downey shipbuilding corporation delivers ship for private account. V. G. Iden. *il* diags plans Marine R 50:140-3 Mr '20
- E. D. Kingsley craft built for coast service by Canadian car & foundry co. *diag* Marine R 50:209 Ap '20
- Economical cargo ships—model experiments. A. J. C. Robertson. Marine Eng 25:990-6; Discussion. 1007 D '20
- Electrically driven freighter proves success. Elec R 79:589-90 O 15 '21
- First electric-driven freighter the Eclipse. *il* plan Marine R 50:582-4 N '20; Same. Elec R 77:807-8 N 20 '20; Same. Power Pl Eng 24:1134-6 D 1 '20
- Freighters built with twin-cylinder hulls. *il* Pop Mech 33:185-6 F '20
- From cruiser to merchantman. *il* Engineer 129:270 Mr 12 '20
- From cruiser to tramp; German cruiser Gefion made over into freighter Adolf Sommerfeld. *il* Sci Am 124:351 Ap 30 '21
- Functions of the merchant ship. N. Hill. Marine Eng 25:812-13 O '20
- Further notes on the dimensions of cargo steamers. J. Anderson. Engineering 109:460-2 Ap 2 '20; Same. Int Marine Eng 25:496-9 Je '20; Discussion. Engineering 109:438 Ap 2 '20
- Lake bulk freighter Horace S. Wilkinson. *il* diags plans Marine Eng 25:804-9 O '20
- Merchant shipbuilding corporation designs ships for Shawmut line. *diags* plans Marine R 50:197-200 Ap '20
- Modern cargo vessel. W. Gatewood. *il* J Fr Inst 191:331-56 Mr '21; Excerpts. Marine Eng 26:381-4 My '21
- Ore and coal carriers Chilore and Lebores. *diags* Marine Eng 26:364-7+ My '21
- Our deep-sea freighters. R. G. Skerrett. *il* *diag* Sci Am 123:126+ Ag 7 '20
- Propulsive efficiency of single-screw cargo ships. W. McEntee. *diags* Int Marine Eng 24:796-9; Discussion. 829-30 D '19
- Reducing trade routes with submarine freighters. R. G. Skerrett. *il* Sci Am 123:150+ Ag 14 '20
- Refrigerator and cargo steamer City of Pekin. *diags* plans Marine Eng 26:657-61 S '21
- Salvaging torpedo boats for peaceful uses. W. A. McGarry. *il* Sci Am 124:185+ Mr 5 '21
- Ship for foreign buyer; Chester yard is completing large freighter for Dutch company. *plan* Marine R 50:412-13 Jl '20
- 6,300-ton deadweight freighter. *diags* plans Marine Eng 25:885-90 N '20
- Steamship Eudunda launched at Australian naval dockyard. *il* Int Marine Eng 25:550-2 Jl '20
- Steamship Manulani inaugurates new service. *il* Marine Eng 26:707-8 S '21
- Steel cargo steamer of 1,260 tons deadweight. *diag* Int Marine Eng 25:50 Ja '20
- Successful motor-driven concrete tramp. *il* Int Marine Eng 25:113-14 F '20
- 10,500-ton deadweight cargo carrier. *diags* plans Int Marine Eng 25:714-16 S '20
- La transformation des canonnières anglaises en navires de commerce par allongement de la coque. *diags* Génie Civil 77:337-8 O 23 '20
- Trials at the first steamer completed by the Australian government. *il* Int Marine Eng 25:10-12 Ja '20
- Twin screw cargo ship Eastern Merchant. C. Ano. *il* *diags* plans Int Marine Eng 25:547-50 Jl '20
- See also* Lighters; Merchant marine; Tank ships

Cost of operation

- Cargo motorships vs. steamships. C. E. Lucke. Int Marine Eng 25:759-63, 837-41 S-O '20
- Economical cargo ships. A. J. C. Robertson. Int Marine Eng 24:799-805 D '19; Same. Marine R 50:12-15 Ja '20; Discussion. Int Marine Eng 24:827 D '19

Detachable power plant

Detachable stern serves as power plant for several freighters. *il* Pop Mech 33:321 Mr '20

Navires à pousseurs, système Constan. F. Payy. *diags* Génie Civil 76:152-4; 77:540, pl 3 F 7, D 25 '20

Freight solicitors. *See* Railroads—Management

Freight terminals. *See* Railroads—Terminals; Terminals

Freight trains. *See* Railroads—Trains

Freight tunnels

Freight tunnel system as a terminal distribution agency. J. R. Bibbins and E. J. Noonan. W Soc E J 26:198-201 My '21; Same *abr.* Eng & Contr 55:584 Je 15 '21

Freight yards. *See* Railroads—Yards

French, Lester Gray, 1869-1921

Sketch. *por* Mech Eng 43:416-18 Je '21

French language

Dictionaries

French-English dictionary for chemists. A. M. Patterson. 384p Wiley '21

French river

Advantages of improved French river waterway. A. Langlois. *il* *diags* map Can Eng 39:559-61 N 25 '20

Frequency changers

Emergency operation of frequency changer set. H. W. Fales. Elec W 75:326-7 F 7 '20

Frequency problem in the steel industry. B. G. Lamme. Am Inst E E J 40:294-300 Ap '21; Same. Elec R 78:603-8 Ap 16 '21; Same.

Iron Tr R 69:92-5+ Jl 14 '21; Same *abr.* Elec W 77:921-3 Ap 23 '21; Same *cond.*

Power Pl Eng 25:520-1 My 15 '21; Abstract. Iron Age 107:1389-90 My 26 '21

Frequency transformation. *diag* Wireless Age 7:20-1 Ja '20

Induction motors operating at 18,000 r.p.m. *il* Power 52:144 Jl 27 '20

Induction-type frequency changer. H. S. Smith. *diags* Elec J 17:342-4 Ag '20

Starting a frequency changer. E. W. Middleton. *diag* Power 51:975 Je 15 '20

Parallel operation

Operation of synchronous motor-generator frequency changers. M. W. Smith. *il* *diags* Power 52:610-12 O 19 '20

Parallel operation and synchronizing of frequency converters. O. E. Shirley. *il* Gen Elec R 23:136-9 F '20

Paralleling synchronous frequency changers. E. B. Shand. *diags* Elec W 75:592-5 Mr 13 '20

Frequency meters

Frequency-bridge; an apparatus for accurate determination of frequency, by means of a null method. E. Velander. *diags* Am Inst E E J 40:835-9 N '21

Measurement of frequency and speed; some Everett-Edgumbe instruments. *il* *diags* Elec R (Lond) 88:491-3 Ap 15 '21

Mechanical frequency-meter of telephonic range. A. E. Kennelly and C. Manneback. J Fr Inst 192:349-59 S '21

New deflectional frequency meter. C. L. Lipman. *il* *diags* Electrician 87:458-9 O 7 '21

Regulation of frequency for measurement purposes. B. H. Smith. *il* *diags* Am Inst E E J 40:115-18 F '21

Switchboard-meter connections—common types of alternating-current instruments. E. A. Reinman. *diags* Power 54:625-8 O 25 '21

Fresh-water fauna

Effect of mineral salts on fresh-water fauna. Sci Am M 2:331-2 D '20

Fresnel's coefficient

Force-transformation, proper time, and Fresnel's coefficient. F. Slate. Philos Mag 6th ser 41:652-64 Ap '21

Fresno, California

Rapid transit

New franchise grant presented at Fresno. Elec Ry J 58:215 Ag 6 '21

Fretwork

Fretwork; fretcutting, inlaying and overlaying. J. C. S. Brough. 231p Evans brothers, London '20

Freund, Martin, 1863-1920

Sketch. L. Spiegel. por Deutsche Chem Gesell Ber 54:sup53-73; Bibliography. sup73-9 My '21

Frick, Henry Clay, 1849-1919

Appreciation. R. A. Walker. Iron Age 104:1213 D 11 '19

Sketch. por Coal Age 16:835 N 27 '19; Eng & Min J 108:903 D 13 '19; Iron Age 104:1144-5 D 4 '19; Iron Tr R 65:1501+ D 4 '19

Friction

Friction and fuel. W: N. Berkeley. Power 53:390-2 Mr 8 '21

Friction and lubrication. R. M. Deeley. diag Engineer 131:78 Ja 21 '21; Same. Sci Am M 3:319-20 Ap '21; Same cond. Mech Eng 43:265 Ap '21

Friedel-Crafts' reaction

Friedel-Crafts' reaction; migration of halogen atoms in the benzene nucleus. M. Copisarow. Chem Soc J 119:442-7 Ap '21

Friedel and Crafts' reaction—nitro-phthalic anhydrides and acetylaminophthalic anhydrides with benzene and aluminum chloride. W. A. Lawrance. Am Chem Soc J 42:1871-9 S '20

Frits

Lead question in ceramic industries; abstract. L. Petrik. Am Cer Soc J 3:1010-11 D '20

Solubility and fusibility of some feldspar frits. H. H. Sortwell. Am Cer Soc J 4 pt 1:446-50 Je '21

Solubility of boric acid frits. G: Blumen-thal, jr. Am Cer Soc J 3:152-4 F '20

Froghoppers

Spittle insect. il Sci Am 125:205 S 17 '21

Frogs

Action of X-rays upon fertilized frog's ova. W. M. Baldwin. Sci Am M 2:364 D '20

Frost

Prevention of frost on show windows. G. E. Sampson. il Pop Mech 33:125 Ja '20

See also Ice; Thawing

Frost protection

Blower protects citrus orchards from frost. il Pop Mech 36:678 N '21

Frozen fish. See Fish, Frozen**Fructose**

Crystalline chlorotetracetyl fructose and related derivatives. D. H. Brauns. Am Chem Soc J 42:1846-54 S '20

Specific rotation of fructose. W. C. Vosburgh. Am Chem Soc J 42:1696-1704 Ag '20

Fruit

Effect of high temperatures on fruits. Sci Am M 2:272 N '20

More combination fruits and nuts. il Sci Am 125:119 Ag 13 '21

Preservation of raw fruits governed by respiration. il Pop Mech 33:254 F '20

Proper time of day to gather fruit. Sci Am M 1:464 My '20

Searching the world for new food plants; a 9,000-mile trip through Africa in quest of new fruits, nut plants and forage crops. il Sci Am M 3:516-18 Je '21

See also Apples; Canning and preserving; Citrus fruit; Drying (fruit and vegetables); Prunes

Analysis

Chemical method for the detection in fruit of a prior frozen condition. W: M. Dehn and M. C. Taylor. J Ind & Eng Chem 12:977-9 O '20

See also Fruit products—Analysis

Testing

Artificial frost for testing fruit. il Sci Am 124:431 My 28 '21

Transportation

Motor trucks in orchards. A. L. Dahl. il Sci Am 123:567+ D 4 '20

Salvaging torpedo boats for peaceful uses. W: A. McGarry. il Sci Am 124:185+ Mr 5 '21

Water shipment the answer to western freight rates. C. K. Chapin. il J Elec 47:226-7 S 15 '21

Fruit, Ripening of

Composition of gases in ripening fruits; abstract. J. R. Magness. Sci Am M 3:177-8 F '21

Fruit culture

Cover crops for our orchards. H. A. Crafts. il Sci Am 123:567+ D 4 '20

See also Citrus fruit; Fumigation

Fruit handling

Better fruit packing with less work. il Sci Am 124:374+ My 7 '21

Electricity in fruit packing. il J Elec 44:303-4 Ap 1 '20

Mechanical stevedore that handles bananas. il Sci Am 123:549+ N 27 '20

See also Fruit wrappers

Fruit juices

Acidimetry of red wines and fruit juices. A. M. Macmillan and A. Tingle. J Ind & Eng Chem 12:274-6 Mr '20

Analysis

Detection of methyl anthranilate in fruit juices. F: B. Power. Am Chem Soc J 43:377-81 F '21

Fruit picking machines

Gravity-operated machines assist fruit pickers. il Pop Mech 33:182 F '20

Fruit products

Research chemist in the fruit-products industry. H. A. Noyes. Chem Age 29:385-6 S '21

Analysis

Insoluble solids in jams, preserves, and marmalades. C. A. Clemens. J Ind & Eng Chem 12:48-9 Ja '20

Fruit trade

Water shipment the answer to western freight rates. C. K. Chapin. il J Elec 47:226-7 S 15 '21

See also California fruit growers' exchange

Advertising

Big business behind fruit industry. W. Brindley. Ptr Ink 116:87-8 Jl 14 '21

What advertising has done for the California fruit growers. D. Francisco. Ptr Ink 111:33-6+ Je 10 '20

Fruit trees

Propping fruit trees with staples and wires. J. T. Bartlett. Sci Am 123:416 O 16 '20

Fruit wrappers

Utilitarian fruit wrappers. Sci Am 123:152 Ag 14 '20

Fuchs, Fernando Carlos

Sketch. por Eng & Min J 109:807 Ap 3 '20

Fuel

Alternative fuels. Engineering 110:543-4 O 22 '20

Alternatives to coal for power production. P. E. Rycroft. il diags Electrician 86:783-7 Je 24 '21

American malleable cast iron. H. A. Schwartz. il maps Iron Tr R 68:1453-60 My 26 '21

Calorimetry of solid fuel. il diags Eng & Ind Management 5:706-8, 737-9; 6:62-4 Je 23-30, Jl 21 '21

Copra meal as fuel. C: W. Geiger. Power Pl Eng 24:336-7 Mr 15 '20

Energy resources of the world and their utilization. E. Owen. Chem Age 29:284-9 Jl '21

Evaluation of generator fuels. E: F. Pohlmann. Gas Age 47:276-7; Discussion. W. A. Dunkley. 277-8 Ap 11 '21

Fuel and its conservation; discussion at the 1920 annual meeting of the A. S. M. E. Mech Eng 43:22-31+ Ja '21

Fuel blending; the Sandwich system. E. W. L. Nicol. diags Sci Am S 88:334-5 D 6 '19

Fuel—Continued

- Fuel conservation opinions; what leading consumers of fuel have to say about the present and the future. A. C. Lescarboursa. *Sci Am* 124:368+, 386+ My 7-14 '21
- Fuel efficiency in power production in different states. R. S. McBride. *Power* 51:386 Mr 9 '20; Discussion. H: Misostow. 51:735-6 My 4 '20
- Fuel in Argentina. V. L. Havens. *il Power* 52:649-50 O 26 '20
- Fuel problems of the future. G: T. Beilby. *Engineering* 112:26-30 Jl 1 '21; Same cond. *Engineer* 132:20-2 Jl 1 '21; Abstract. *Electrician* 87:15 Jl 1 '21
- Fuel production and utilization. H. S. Taylor. 297p Baillière, Tindall and Cox, London '20
- Fuel requirements of steel mills analyzed. F. E. Leahy. *Iron Age* 108:811-13 S 29 '21
- Fuel situation—past and present. C: Longenecker. *Blast F & Steel Pl* 8:166-7 F '20
- Fuel symposium at the 60th A. C. S. meeting, Chicago. *Chem & Met Eng* 23:792-3 O 20 '20
- Fuel symposium; papers presented before the division of Industrial and engineering chemistry at the 60th meeting of the American chemical society, Chicago, Ill., Sept. 6-10, 1920. *J Ind & Eng Chem* 13:14-58 Ja '21
- Fuels of the future. S. W. Parr. *W Soc E J* 26:330-5 S '21
- Future developments in the use of fuel. H. Kreisinger. *il Coal Age* 16:829-32 N 27 '19
- Graphical representation of the composition and properties of fuels. K. Schreiber. *Chem & Met Eng* 21:578-90 O 29 '19
- Industrial power and fuel consumption in superpower zone. *Chem & Met Eng* 25:470, 708-9 S 7, O 12 '21
- Manufacture of smokeless fuel. *il diags Engineering* 112:596-601, pl 35-7 O 28 '21
- Manufacturers seek to escape tyranny of fuel. E. F. Ross. *il chart maps Iron Tr R* 66:65-9 Ja 1 '20
- Motor-fuel symposium; Chemical society of Washington, Dec. 9. *Power* 52:1034 D 28 '20
- Phases of the Canadian fuel and power problem. L: Simpson. *Can Chem & Met* 5:163-4 Je '21
- Power generated by public utilities. *Power Pl Eng* 24:328-9 Mr 15 '20
- Problem of future fuels. *J Elec* 46:603-5 Je 15 '21
- Selection of fuel for industrial heating. *Chem & Met Eng* 25:116-18 Jl 20 '21
- Seven methods of utilizing anthracite slush and what success has been attained with each method. J: Griffen. *Coal Age* 20:490-2 S 29 '21
- Utah coals and the fuel supply of Salt Lake City. O. Monnett. *il Power* 52:247-9 Ag 17 '20
- Utilization refinement of fuels. F. P. Coffin. *Gas Age* 48:176-8 Ag 20 '21
- What fuel means to America. H: Misostow. *Power* 54:561-3 O 11 '21
- What of the coal question. D: H. Cuyler. *Bldg Age* 42:52-3 D '20

See also Airplane engines—Fuel; Alcohol as fuel; Anthracite; Automobile engines—Fuel; Bagasse as fuel; Blast furnace gas; Briquetting (fuel); Carbocoeal; Charcoal; Cinders; Coal; Coal, Pulverized; Coal dust as fuel; Coke; Coke-oven gas; Combustion; Culm; Firing; Fuel, Colloidal; Fuel economizers; Fuel economy; Furnaces; Gas, Natural; Gas and oil engines—Fuel; Gas as fuel; Gasoline; Heating; Kerosene; Lignite; Liquid fuel; Locomotives—Fuel; Molasses as fuel; Oil as fuel; Peat; Peat, Pulverized; Pitch as fuel; Shale as fuel; Smoke; Waste fuel; Wood as fuel

Analysis

- Gas and fuel analysis for engineers. A. H. Gill. 9th rev. ed. 160p Wiley '20
- Technical gas and fuel analysis. A. H. White. 2d ed. McGraw-Hill '20

Bibliography

List of references to the periodical literature of fuel (coal, lignite, gas and petroleum). Library Association Record p. 158-71 My '20

Cost

- Coal vs. oil performance chart. L. C. Lichty. charts *Power Pl Eng* 24:651-2 Jl 1 '20; Same. *Ind Management* 60:351-2 N '20
- Comparative cooking values of coal, gas, various fluid fuels and electricity. B. L. Steele. *Elec W* 75:1272 My 29 '20
- Costs of coal and fuel oil compared by chart. F. H. Daniels. *Elec W* 76:739 O 9 '20
- Determining average fuel cost in combination coal and oil. *Elec W* 76:640 S 25 '20
- Estimating relative values of coal, oil and gas as fuels. L. C. Lichty. charts *Power Pl Eng* 24:1026-30 N 1 '20
- Relative economy of oil, gas, coal and electric heated furnaces. W. H. Lyman and S. A. Moulton. *Ry Mech Eng* 94:667-8 O '20
- See also* Heating, Industrial—Cost

Testing

- Fuel research board's report. diags *Engineer* 129:421 Ap 23 '20
- Sawmill refuse, powdered coal, and oil fuels. D. Corbet. *diag Am Inst E E J* 39:715-32 Ag '20; Abstracts. *Elec W* 76:183-5 Jl 24 '20; *Power Pl Eng* 24:934-7 O 1 '20
- La valeur d'usage des combustibles. E. Dammour. *Génie Civil* 77:56-7 Jl 17 '20
- Fuel, Colloidal**
- Chemists discuss colloidal fuel and new problems in the carbonization of coal. *Coal Age* 18:692-4 S 30 '20
- Colloidal chemistry and a colloid mill. H. Plauson. *Engineering* 110:429-30 O 1 '20
- Colloidal fuel. *Engineer* 130:537 N 26 '20
- Colloidal fuel; abstracts. L. W. Bates; H. O'Neill. *Engineering* 110:676-7 N 19 '20; *Power Pl Eng* 25:368-9 Ap 1 '21
- Colloidal fuel applied to bar-heating furnaces. J. C. Marble. *il diags Engineering* 112:124-5 Jl 15 '21
- Colloidal fuel as developed by the Submarine defense association of New York. *Power Pl Eng* 25:55-6 Ja 1 '21
- Colloidal fuel formula found. *Gas Age* 48:191 Ag 20 '21
- Colloidal fuel: latest phases of its practical development. L. W. Bates. *Nat Pet N* 12:65 D 8 '20
- Colloidal fuel, the new and important fuel developed by Lindon W. Bates. *Am Gas Eng J* 111:533-4 D 6 '19
- Colloidal fuels, their preparation and properties. S. E. Sheppard. *il J Ind & Eng Chem* 13:37-47 Ja '21
- Many solid fuels can be mixed with oils to form liquids or jellies. L. W. Bates. *Coal Age* 17:991 Mv 13 '20
- Merits of colloidal fuel explained by its inventor. *Nat Pet N* 12:93+ Ap 28 '20
- Pulverised coal and colloidal mixtures. L. C. Harvey. *Eng & Ind Management* 6:310-12 S 15 '21
- Solid fuel in liquid form. R. G. Skerrett. *il Sci Am* 121:604-5 D 20 '19

Fuel, Liquid. *See* Liquid fuel

Fuel, Pulverized. *See* Coal, Pulverized; Lignite, Pulverized

Fuel cells

- Problem of the fuel cell. E. K. Rideal and U. R. Evans. *Elec R (Lond)* 88:835 Je 24 '21

Fuel chain

- Electricity direct from coal. W. N. Polakov. *Ind Management* 62:220-2 O '21

Fuel economizer explosions

- Economiser explosion. *Engineer* 130:398 O 22 '20
- Economizer explosions. *Power* 51:568-9 Ap 6 '20

Fuel economizers

- L'amélioration du rendement calorifique des chaudières par l'emploi de l'économiseur. *Génie Civil* 76:377-8 Ap 17 '20
- Boiler and furnace design. D. S. Jacobus. *Power* 53:758-9 My 10 '21

Fuel economizers—Continued

- Boilers and economizers. D. S. Jacobus. Power 53:10-11 Ja 4 '21
- Economizers. W. F. Wurster. il diags plans Am Soc Heat & V E J 26:811-18 D '20; Abstract. Power 53:160 Ja 25 '21; Discussion. Am Soc Heat & V E J 27:214 Mr '21
- Economizers in steel mill power plants. J. L. Larew. Blast F & Steel Pl 8:353-5 Je '20
- Fuel economiser for petrol engines, made by Lancashire ordnance accessories co., ltd., Stockport. diags Engineering 111:585 My 13 '21
- Fuel savings by the economizer. S. B. R. Patel. Power 51:308 F 24 '20
- More miles to the gallon of gas. il Sci Am 122:699 Je 26 '20
- Practice in the installation and use of economizers. diags Elec R 76:638-40 Ap 17 '20
- Present tendencies in construction and application of economizers. Power 54:154-6 Jl 26 '21
- Savings due to economizer. R. G. Bohn. Power Pl Eng 24:367-70 Ap 1 '20
- Fuel economy**
- Back to first principles in fuel economy. W. La Fontaine. diags Heat & Ven 17:33-6 S '20
- British fuel research board already accumulating much data on low temperature carbonization. Am Gas Eng J 112:381-4+ My 15 '20
- British household fuel and lighting orders. Metal Work 92:398-9 O 3 '19
- Chart to determine value of low flue-gas temperature. W. F. Schaphorst. chart Elec R 77:981-2 D 18 '20
- Coal conservation in the United Kingdom. D. Clerk. Engineering 109:543-5, 591-3 Ap 23-30 '20; Same cond. Engineer 129:418-20 Ap 23 '20
- Coal-saving in the chemical industry; abstract. D: Brownlie. Chem & Met Eng 23: 939-40 N 10 '20
- Comparative fuel economies effected by automatic temperature regulation and manual control with divided radiation. diags Heat & Ven 17:53 S '20
- Conservation of coal. E. Ludlow. Min & Met 159:(sec 3) 64-9 Mr '20; Same. Coal Age 17: 442-5 Mr 4 '20; Same abr. Iron Tr R 66:708-9 Mr 4 '20
- Conservation of fuel and by-product manufacture. J. R. L. Allott. Can Chem & Met 5:172-4 Je '21
- La consommation de charbon dans la grosse métallurgie; le bilan thermique d'une aciérie Thomas produisant 300 000 tonnes par an. Génie Civil 77:499-503 D 18 '20
- Le contrôle de la chauffe et les appareils de mesure servant à ce contrôle. P. Frion. Génie Civil 78:240-1 Mr 12 '21
- La crise des combustibles et ses remèdes. A. M. Witz. Génie Civil 76:449-53 My 15 '20
- La crise du charbon; moyens pris pour atténuer la crise des combustibles. C: Berthelot. maps Chimie & Ind 3:229-43 F '20
- Current views on electricity generation and its relation to coal economy. J. E. Sayers. Inst E E J 59:47-51 D '20
- L'économie des combustibles; examen des procédés susceptibles de la réaliser présentés à la Société des ingénieurs civils de France. Génie Civil 77:295-8 O 9 '20
- Les économies de combustible dans l'industrie sidérurgique. diag Génie Civil 76:533-4 Je 12 '20
- Economies in pumping-station operation at St Louis. il diags Power 52:599-601 O 12 '20
- Economies of operation are emphasized by committee on prime movers. diags Elec R 76:862-4 My 22 '20
- Efficient burning of oil fuel. A. F. Brewer. Ind Management 60:17-22 Jl '20
- England's fuel and light rationing orders. Metal Work 92:701 D 12 '19
- Executive officer and fuel economy. Ry R 65:959-61 D 27 '19
- Fifty ways of saving coal. Paper 27:148+ N 10 '20
- Flue-gas analysis as a guide to furnace control. F. F. Uehling. charts diags Elec R

- 77:802-6 N 20 '20; Same. Blast F & Steel Pl 8:675-7+ D '20; Same abr. Paper 27: 154+ N 10 '20; Same abr. Power Pl Eng 24: 1183-5 D 15 '20; Abstract. Iron Tr R 67:1409-10 N 18 '20
- Fuel and its conservation; discussion at the 1920 annual meeting of the A. S. M. E. Mech Eng 43:22-31+ Ja '21
- Fuel and power conservation on the Pacific coast. A. J. Dickie. Mech Eng 42:710 D '20
- Fuel and power situation. F. K. Lane. Power 51:60-2 Ja 13 '20
- Fuel conservation. D: M. Myers. Mech Eng 43:24-6 Ja '21; Same. Eng & Contr 55:34-5 Ja 12 '21; Same. Power 53:80-1 Ja 11 '21
- Fuel conservation effort should be continued. Ry Age 68:85-6 Ja 2 '20
- Fuel conservation increases. Power Pl Eng 24:1090 N 15 '20
- Fuel conservation opinions; what leading consumers of fuel have to say about the present and the future. A. C. Lescarbours. Sci Am 124:368+, 386+ My 7-14 '21
- Fuel conservation, present and future; with discussion. H. C. Porter. J Ind & Eng Chem 13:47-51 Ja '21
- Fuel economy. J. Cadman. Engineer 132:326-7 S 23 '21
- Fuel economy and the human factor. C: F. Wade. Power 53:750 My 10 '21
- Fuel economy as applied to heating trades. D: H. Cuyler. Metal Work 92:602-3 N 21 '19
- Fuel economy by the adoption of scientific management in steam generation and utilisation. D: Brownlie. Eng & Ind Management 6:393-4+, 421-4, 433-6, 475-8, 516-18+, 549-52, 559-62, 593-4, 626-30+, 653-6, 685-7 O 6-D 15 '21
- Fuel economy chief topic of discussion at S.A.E. annual session. Nat Pet N 13:25-6 Ja 19 '21
- Fuel economy in cupola practice. H. J. Yates. Iron Age 105:412 F 5 '20
- Fuel economy in heating service. A. Bement. Heat & Ven 18:36-8 S '21
- Fuel economy in idle mills. G: H. Perkins. chart Textile World 59:206 Ja 8 '21
- Fuel economy on the D. and H. is a live issue. il chart Ry R 68:776-9 My 21 '21
- Fuel economy paramount in the S.A.E. meeting. P. M. Heldt. il diags Automotive Ind 43:1-6 Jl 1 '20
- Fuel economy; third report of the committee appointed for the investigation of fuel economy. Engineer 130:196+ Ag 27 '20
- Fuel efficiency. Engineering 111:232-3 F 25 '21
- Fuel practice in occupied German territory. W. J. Jones, R. C. Harding and P. S. J. Cooper. Iron Age 104:1066-7 N 27 '19
- Fuel saving in an ice-making plant. C. T. Baker. Power 50:765 N 25 '19
- Fuel saving in bleaching, dyeing and finishing. L. Loeb. il diags plan Textile World 59:1103-5+ F 5 '21
- Fuel saving in relation to capital necessary. J. Harrington. Mech Eng 43:725-6 N '21
- Fuel supply of the world. L. P. Breckenridge. chart Coal Age 19:60-3 Ja 13 '21; Same cond. Mech Eng 43:22-3 Ja '21; Excerpt. Power Pl Eng 25:98-9 Ja 1 '21; Excerpt. Min & Met 170:43-5 F '21; Excerpt. Sci Am M 3:188-9 F '21; Abstract. Power 52: 996-7 D 21 '20
- Fuel symposium of the American chemical society. Chem & Met Eng 23:658-60 O 6 '20; Power 52:520-1, 560 S 28-O 5 '20; Power Pl Eng 24:950-1 O 1 '20
- Fuels of the Pacific coast. C. H. Delany. il J Elec 45:564-5 D 15 '20
- Fuels—their utilization and conservation. C: Longenecker. Blast F & Steel Pl 9:144-6 F '21
- Handful of coal-saving plans. N. A. Wagner. System 39:63+ Ja '21
- How meters make coal saving a game. W: E. Dixon. charts Factory 25:1711-15, 1888-90 D 1-15 '20
- How two plants have trimmed their coal bills. Factory 26:42-5 Ja 1 '21

Fuel economy—Continued

- Improved operating conditions save \$13,585 in fuel per year. O. Craig. Power 52:585-8 O 12 '20
- Improvements in Portland cement burning. R. W. Lesley. il diags Concrete 16:sup24-7; Discussion. S. B. Newberry. sup27 F '20
- Industry prepares to save fuel. E. L. Shaner. diags Iron Tr R 68:17-24 Ja 6 '21
- Instruments essential in saving fuel in the gas industrial plant. F. W. Sweet. Am Gas Eng J 114:54+ Ja 15 '21
- Irish centre (Dublin): chairman's address. R. Tanham. Inst E E J 58:19-23 D '19
- Last stand of the reciprocating steam engine. A. H. Armstrong. il diags map Am Inst E E J 39:209-18 Mr '20; Same. Gen Elec R 23:249-62 Ap '20; Same cond. Elec R 76:395-9 Mr 6 '20; Ry Age 68:521-7 F '20 '20; Ry R 66:463-8 Mr 20 '20
- Less coal, more power, by eliminating waste. F. W. Fischer. Factory 25:868-9 S 15 '20
- Limiting the fuel for domestic heating. K. Meier. Am Soc Heat & V E 25:177-83; Discussion. 183-4 '19
- Locomotive feedwater heating. T. C. McBride. il diags Ry R 66:1067-72 Je 19 '20; Same cond. Mech Eng 42:283-6+ My '20; Same cond. Ry Mech Eng 94:441-4 Jl '20; Abstract. Ry Age 69:59-60 Jl 9 '20
- Locomotive operation and fuel economy. R. Collet. Ry R 66:49-53 Ja 10 '20; Same. Ry Mech Eng 94:65-9; Discussion. 69-70 F '20
- Make the heater buy the family shoes. A. J. Casey. Metal Work 92:429 O 10 '19
- National fuel economy and the government super-power station scheme. D. Brownlie. Electrician 85:20-2 Jl 2 '20
- New fuel conservation program. D. M. Myers. Gas Age 46:301-3 O 25 '20; Excerpt. Heat & Ven 17:37 O '20
- Practical propaganda for fuel conservation on the Delaware & Hudson. Ry Age 70:843-5 Ap 1 '21
- La production et l'utilisation de la vapeur; rapports de la Commission d'utilisation des combustibles. Génie Civil 78:252-4 Mr 19 '21
- Progress in fuel matters features annual S.A.E. meeting. H. Chase. Automotive Ind 44:101-3 Ja 20 '21
- Pulverized coal an effective means of fuel economy. Concrete 18:sup46-7 Mr '21; Same abr. Elec R 78:134 Ja 22 '21
- Reducing coal consumption. J. L. Young. Power Pl Eng 25:289 Mr 1 '21
- Reducing the fuel consumption of power plants. W. N. Allman. Ry Mech Eng 95:88-91, 154-5 F-Mr '21
- Des remèdes à la crise des calories. A. Grebel. Chimie & Ind 4:255-62 Ag '20
- Saving coal by reducing power costs; instrument board of measuring and recording instruments for regulating engine-room activities. il Sci Am 124:245+ Mr 26 '21
- Saving fuel by decreasing air waste. N. A. Craigue. il diag Ind Management 61:418-21 Je '21
- Saving 32% of the coal pile. P. F. O'Shea. il Factory 27:626-8 N '21
- Stopping fuel waste in a modern boiler room. W. M. McNeill. Power Pl Eng 24:1025 N 1 '20
- Suggestions for fuel saving in steam generating stations. Eng & Contr 53:162-3 F 11 '20
- Symposium of articles on fuel economy in the power plant. Power Pl Eng 25:2-93 Ja 1 '21
- Thrift in the use of coal; abstracts. G. O. Smith. Coal Age 18:999-1001 N 11 '20; Am Gas Eng J 113:358-60 O 30 '20; Iron Age 106:1122-4 O 28 '20; Iron Tr R 67:1214-15 O 28 '20; Gas Age 46:389 N 10 '20; Power 52:716-18 N 2 '20; Power Pl Eng 24:1087-8 N 15 '20
- Thrift in using power. See monthly numbers of Factory
- Two ways to save coal. il Factory 24:63-4 Ja '20
- Ultimate boiler capacity limited by design and operation. J. Harrington. diags Elec R 77:596-9 O 16 '20
- Ultimate boiler capacity limited by fuel conditions. J. Harrington. Elec R 78:129-31 Ja 22 '21
- Water-power and the coal problem. W. T. Taylor. Electrician 84:444-5 Ap 23 '20
- Zweckmässige wärmewirtschaft und ihre wirkung auf die organisation der industriellen kalkulation. M. R. Lehmann. Stahl & Eisen 41:65-8 Ja 13 '21
- See also Boiler plants; Boilers—Gas firing; Boilers—Oil firing; Combustion; Exhaust steam; Firing; Fuel chain; Fuel economizers; Furnaces; Insulation (heat); Locomotives—Fuel; Temperature—Regulation; Waste heat
- Fuel oil.** See Oil as fuel
- Fuelizer**
- Fuelizer to overcome low grade fuel difficulties. il Motor Age 37:36 Mr 11 '20
- Packard fuel feeding device for automobile engines. il Eng & Contr 54:637-8 D 29 '20
- Packard fuelizer. il Aviation 8:106 Mr 1 '20
- Packard fuelizer. L. M. Woolson. il diags Soc Auto Eng J 8:240-3; Discussion. 243-8+ Mr 21
- Fullagar engine.** See Cammellaird-Fullagar engine
- Fuller brush company, Hartford, Connecticut**
- Why our business is good now! A. C. Fuller. Ptr Ink M 3:11-12 Je '21
- Fuller work.** See Plumbing
- Fullerphone**
- Fullerphone, and its application to military and civil telegraphy. A. C. Fuller. diags Inst E E J 57:sup29-36; Discussion. 37-49 '19
- Fuller's earth**
- Apparatus for treating Fuller's earth; patent. Chem & Met Eng 22:41 Ja 7 '20
- Fuller's earth cooling device for small refineries. diags Nat Pet N 12:49+ Ap 14 '20
- Fuller's earth in 1920. J. Middleton. U S Geol Pet N 13:68-9 Je 24 '21; Same. Eng & Min J 112:410 S 10 '21
- Fuller's earth in 1919. J. Middleton. diag U S Geol S Min Res of U S 1919,pt 2:257-64 '21
- Fuller's earth in 1920. J. Middleton. U S Geol S Min Res of U S 1920,pt 2:39-40 '21
- Fuller's earth output. Eng N 85:493 S 9 '20
- Fulling**
- Evolution of the fulling mill. O. Fiske. Textile World 56:3367 D 13 '19
- Fumaric acid**
- Applications of maleic and fumaric acids and their salts in the textile industry. J. H. Carpenter. J Ind & Eng Chem 13:410-13 My '21
- Fumaric acid; patent. Chem & Met Eng 23:1133 D 8 '20
- Notiz über ein vorkommen von fumarsäure und von inosit. L. Zechmeister and P. Szécsi. Deutsche Chem Gesell Ber 54:172-3 Ja '21
- Fumes, Smelter.** See Smelter fumes
- Fumigation**
- Rubber tents in tree fumigation. il India Rubber W 64:555-6 My 1 '21
- Functions, Algebraic**
- Extension of Heaviside principle to operator functions. A. Press. Electrician 86:349-50 Mr 25 '21
- Heaviside unity and unit impulse functions. A. Press. Electrician 87:376-7 S 23 '21
- Functions, Besselian.** See Bessel's functions
- Functions, Exponential**
- Alignment chart for circular and hyperbolic functions of a complex argument in rectangular coordinates. V. Bush. chart diag Am Inst E E J 39:658-9 Jl '20
- Electrical characteristics of transmission circuits. W. Nesbit. diags Elec J 17:257-63, 299-311 Je-Jl '20
- Tables of complex hyperbolic and circular functions. A. E. Kennelly. 2d ed., rev. and enl. 240p Harvard university press, Cambridge '21

Functions, Hypergeometric

- Asymptotic formula for the hypergeometric function ${}_0\Delta_4(z)$. D. Wrinch. *Philos Mag* 6th ser 41:161-73 F '21
- Generalized hypergeometric function with n parameters. D. Wrinch. *Philos Mag* 6th ser 41:174-86 F '21

Fungi

- Artist's bracket fungus. W. A. Murrill. *il Sci Am* 122:365 Ap 3 '20
- Difference between molds and wood destroyers. *Sci Am M* 3:404 My '21
- Fungi on frozen meat. *Sci Am* 125A:57 N '21
- Fungoid growth in sewers. E. E. Finch. *Eng & Contr* 53:368 Mr 31 '20
- Guarding against fungi in wood and wood pulp. O. Kress, C. J. Humphrey and C. A. Richards. *il Paper* 26:13-15 My 12; 23-5 My 19; 21-2 My 26 '20
- Singular phenomena in the kingdom of plants; curious vegetable deformities. J. Bergner. *il Sci Am M* 1:121-3 F '20
- Some enemies of the potato. R. B. Harvey. *il diag Sci Am M* 2:120-2 O '20
- Some vegetable parasites. C. G. Nicholson. *il Sci Am* 122:87+ Ja 24 '20
- See also* Bacteriology; Molds (botany); Saccharomycetes; Sclerotinia cinerea; Stink-horn

Funnels

- Developing patterns for a scalene funnel. *diags plans Metal Work* 92:455-6 O 17 '19

Fur

- Appearance of the fur hairs of various mammals. *Sci Am M* 3:286 Mr '21
- Detection of imitation furs by microscope. L. A. Hausman. *il diags Sci Am M* 3:130-2 F '21
- Durability of furs and fabrics. L. A. Hausman. *il diags Sci Am M* 4:252-4 S '21
- Furs & furriery. C. J. Rosenberg. 356p Pitman '20

Fur-bearing animals

See also Coyotes

Fur dyeing. *See* Dyes and dyeing—Fur**Fur making machine**

- Rubber-set fur, or artificial fur. *diags India Rubber W* 64:900-1 S '21

Fur trade

- Commercializing the coyote. J. L. Von Blon. *il Sci Am* 122:246+ Mr 6 '20
- Fur—the great industry of luxury. N. B. Kastl. *il Am Ind* 22:17-20 S '21
- Fur trade of America. A. C. Laut. 341p Macmillan '21
- Petersen's fur traders' lexicon. M. Petersen. Petersen & Chandless, New York '20

Advertising

- Funsten brothers & co. combat foreign competition with facts about domestic product. *Ptr Ink* 113:126+ D 2 '20

Furfural

- Condensation of water solutions of fur-fural with aniline. J. P. Montgomery and E. S. Ernst. *Chem & Met Eng* 25:335 Ag 24 '21
- Determination of pentosans in plant materials. E. Heuser. *Paper* 28:22-5+ Mr 30; 28-32+ Ap 27; 26-7 My 4 '21
- Preparation and technical uses of furfural. K. P. Monroe. *J Ind & Eng Chem* 13:133-5 F '21
- Production of furfural by the action of superheated water on aqueous corn cob extract. F. B. LaForge. *J Ind & Eng Chem* 13:1024-5 N '21
- Some synthetic resins from furfural. G. H. Mains and M. Phillips. *Chem & Met Eng* 24:661-3 Ap 13 '21

Furnace doors

- Handling the heating-furnace doors. J. Gaudel. *il diag Sci Am* 123:35 Jl 10 '20
- Insulating brick lighten oven doors. *il diag Foundry* 49:364-5 My 1 '21
- Lewis hoist for furnace doors. *il Iron Age* 105:1796 Je 24 '20; *Foundry* 48:497 Je 15 '20; *Iron Tr R* 66:1767-8 Je 17 '20

Furnace industry

- Advancement for furnace industry welfare. *Metal Work* 94:364 S 17 '20
- Commercial side of furnace industry. E. Norris. *Metal Work* 93:802-3 Je 18 '20
- Comprehensive survey of furnace outlook. *Sheet Metal Worker* 11:432-3 D 24 '20
- Conditions in warm air furnace industry. A. W. Williams. *Metal Work* 93:561-4 Ap 30 '20
- Do you know—England is a field for furnace enterprise. *Metal Work* 93:519-20 Ap 23 '20
- Industrial side of furnace industry. W. D. Cover. *Metal Work* 93:615-16 My 14 '20
- More furnace trade abroad? *Metal Work* 94:1-2, 184+ Jl 2, Ag 6 '20
- Path that leads to money in the bank. *il Metal Work* 94:350+ S 17 '20
- Research work to help furnace industry. *Metal Work* 92:755-7 D 26 '19
- Vital question to the furnace industry. *Metal Work* 93:647-9+ My 21 '20

Furnace pipe. *See* Furnaces, Warm air—Pipes and fittings

Furnaces

- La carbonisation du bois par l'échappement des moteurs à explosion. L. Tissier. *il Chimie & Ind* 5:136-42 F '21
- Combination heating and cooking furnace. R. Veitch. *il Sci Am* 122:137 F 7 '20
- Construction of a novel testing furnace. S. F. Walton. *diags Am Cer Soc J* 3:833-6 O '20
- Design and operation of glass house furnaces. F. J. Denk. *diags Am Cer Soc J* 4:224-36 Mr '21
- Design of a natural-gas furnace for annealing optical glass. D. E. Sharp. *diags Am Cer Soc J* 4:597-607 Jl '21
- Design of a test furnace for a brick plant. *il diags Brick & Clay Rec* 59:362-3 S 6 '21
- De Waters safety latch. *il diags Power* 50:803 D 16 '19
- High temperature testing furnace. W. M. Hepburn. *diag Am Cer Soc J* 4:755-8 S '21
- House furnace efficiency with and without tank heater coils. E. Newsome. *Am Gas J* 115:193-4 Ag 27 '21; *Same. Gas Age* 48:271-2 S 3 '21
- Laboratory furnace for deformation temperature of refractories. L. R. Office. *il diags Chem & Met Eng* 25:162 Jl 27 '21
- Melting glass with atmospheric burners. J. E. Bullard. *Gas Age* 47:74-5 Ja 25 '21
- New gas furnace effects great economies. *plan Pop Mech* 33:860 Je '20
- New salt cake and hydrochloric acid furnace; internally oil-fired rotary. N. A. Laury. *diags Chem & Met Eng* 25:834-6 N 2 '21
- Possibilities of furnace explosions due to banked fires. W. H. De Muth. *Elec R* 76:121 Ja 17 '20
- Preliminary report on standard performance specifications for underfired oven furnaces. *il diags Am Gas Assn Commercial sec v* 1:367-80; *Discussion.* 380-8 '19
- Using waste heat from industrial furnaces. *il Metal Work* 92:427-8, 467-8 O 10-17 '19
- See also* Blast furnaces; Boilers; Coke ovens; Crucibles; Cupola furnaces; Draft; Electric furnaces; Fire brick; Firing; Foundry practice; Fuel; Fuel economy; Grates; Heating; Heating, Industrial; Kilns; Mechanical draft; Metallurgy; Oil burners; Open hearth process; Puddling furnaces; Refractory materials; Refuse incinerators; Smelting

Furnaces, Air

- Air furnace is fired automatically. *il Foundry* 49:515-17 Jl 1 '21; *Same. Iron Tr R* 69:1082-4 O 27 '21
- Air furnaces for big castings. H. E. Diller. *il Foundry* 48:973-7 D 15 '20
- American malleable cast iron; air furnace melting. H. A. Schwartz. *il diags Iron Tr R* 68:1662-8 Je 16 '21

Furnaces, Blast. *See* Blast furnaces

Furnaces, Boiler

- Adapting the furnace to the fuel; combustion requirements, grates, combustion space and arches. *il diags Power Pl Eng* 25:26-30 Ja 1 '21
- Automatic control of furnaces. *il plan Elec Ry J* 55:1006-7 My 15 '20
- Boiler and furnace design. D. S. Jacobus. *Power* 53:758-9 My 10 '21
- Boiler furnaces for gas, oil and pulverized coal; plant of Morris & co., Oklahoma City. *il diags Power Pl Eng* 24:1109-12 D 1 '20
- Burning low-grade coals of the Southwest. W. M. Park. *diags Elec W* 75:947-8 Ap 24 '20; Same. *Coal Age* 17:1092-4 My 27 '20
- Design of hog-fuel furnace. G. L. Baldwin. *diag Power* 52:989 D 21 '20
- L'emploi des combustibles liquides dans les foyers industriels. *diag Génie Civil* 78:215-16 Mr 5 '21
- Excess furnace air supply. C. E. Anders. *il Power* 52:794 N 16 '20
- Firing boiler furnaces. A. C. Waldron. *diags Power Pl Eng* 25:822-3 Ag 15 '21
- Grateless, smokeless, automatic furnace for steam power production at the mines. *il Blast F & Steel Pl* 9:229 Mr '21
- New furnace instrument. *il Power Pl Eng* 25:197-8 F 1 '21
- New type British stoker; the Zenith patent furnace. C. H. S. Tupholme. *Power Pl Eng* 25:993 O 15 '21
- Preheated air to burn volatile. *diag plan Power* 52:220 Ag 10 '20
- Principles of combustion in the steam boiler furnace. A. D. Pratt. 7-114p *The Babcock & Wilcox co., New York* '20
- Redesigned boiler furnace reduced coal consumption. F. W. Dean. *Power* 53:944 Je 7 '21
- Remodeling ignition arches. T. A. Marsh. *il Elec W* 76:823-4 O 23 '20
- Remodeling stokers and furnaces adds to capacity. T. A. Marsh. *diags Elec W* 77:196-7 Ja 22 '21
- Strange idea for saving fuel. R. A. Cultra. *diag Power* 53:278 F 15 '21
- Turbine boiler furnace. *diag Power* 52:958 D 14 '20; *Mech Eng* 43:263-4 Ap '21; *Sci Am M* 3:379 Ap '21
- "Turbine" forced-draught furnace. *il diag Engineering* 110:639-40 N 12 '20
- Ultimate boiler capacity limited by furnace conditions. J. Harrington. *chart diags Elec R* 77:794-6 N 20 '20
- Vortical process of combustion. *il diag Power* 53:875-6 My 31 '21
- See also Boilers*

Furnaces, Brass melting

- Asset made of a building obstacle; shop of the H. Mueller mfg. co., St Louis. *il plan Foundry* 49:197-201+ Mr 1 '21
- Brass melting furnaces. *diags Metal Ind* 19:4 Ja '21
- Brass melting in gas furnaces. E. F. Davis. *il Gas Age* 45:90-3, 196-8, 284+, 367-9 Ja 26, F 25, Mr 25, Ap 26 '20
- Cost of melting non-ferrous metals; disadvantages of electric furnace. *Metal Ind* 19:166 Ap '21; *Discussion*. 19:240-1, 358-9 Je, S '21
- Furnace linings a factor to be considered in determining whether to use gas or oil for brass melting. H. H. Smith. *Am Gas Eng J* 112:158-9 F 28 '20
- Importance of selecting proper capacity melting furnace. T. H. A. Eastick. *Brass W* 17:301 O '21
- Melting brass with fuel oil. S. D. Rickard. *diags plan Metal Ind* 18:460-3, 507-10 O-N '20; *Discussion*. 18:563-4 D '20
- Type of natural draft melting furnace. C. Vickers. *diags plan Brass W* 17:197-201 JI '21
- See also Electric furnaces, Brass melting*

Furnaces, Cupola. See Cupola furnaces.**Furnaces, Electric. See Electric furnaces****Furnaces, Enameling**

- Porcelain enameling furnaces. C. G. Armstrong. *il Chem & Met Eng* 24:486-8 Mr 16 '21
- Porcelain enameling furnaces. F. A. J. Fitzgerald. *Chem & Met Eng* 24:593 Ap 6 '21
- See also Electric furnaces, Enameling*

Furnaces, Heat treating

- American malleable cast iron; annealing practice. H. A. Schwartz. *il diags plan Iron Tr R* 69:233-8 JI 28 '21
- Annealing steel castings with fuel oil. R. R. Hillman. *Iron Age* 107:247-9 Ja 27 '21
- Bedienungsvorrichtungen für wärm- und glühöfen. *diags Stahl & Eisen* 41:533-8, 617-24, 648-56 Ap 21, My 5-12 '21
- Bellevue annealing furnace. *il Am Mach* 54:484 Mr 17 '21
- Bellis heat-treating demonstrated at Geometric tool co. *Am Mach* 54:888d My 19 '21
- Building a forge shop for custom work. E. L. Shaner. *il plan Iron Tr R* 68:1788-90 Je 30 '21
- Car and car-and-ball furnaces. *il diags Mach* 27:873-5 My '21
- Le four Kunitz et le four Amco pour le traitement thermique des métaux. *diags Génie Civil* 78:276-7 Mr 26 '21
- Furnaces used in heat-treating steel. S. P. Rockwell. *il diags Mach* 26:749-53 Ap '20
- Gallaudet electric heat-treating furnace. *il Aviation* 11:457-8 O 17 '21
- Gas fired furnaces for heat treating. P. J. Lafore. *Gas Age* 47:163-4 F 25 '21; Same. *Am Gas J* 114:225-6 Mr 12 '21
- Gas fired heat treating. J. F. Springer. *diag Gas Age* 46:275-7 O 11 '20
- Heat-treating gas furnaces; abstract. H. M. Thornton. *diag Mech Eng* 42:353 Je '20
- Heat treatment equipment; furnaces for carbonizing, annealing and forging operate most successfully with gas fuel. *il Gas Age* 46:533-5 D 25 '20
- Heating by fuel oil for manufacturing processes. C. C. Hermann. *Ind Management* 61:199-202 Mr 1 '21
- Heating furnaces and annealing furnaces. W. Trinks. *il diags Blast F & Steel Pl* 8:118-21, 142-4, 203-4, 234-8, 288-91, 327-30, 410-14, 448-51, 509-11, 560-3, 626-30, 671-5; 9:109-13, 141-3, 206-8, 267-72, 305-8, 377-81 Ja '20-Je '21
- New automatic moving floor heat treating furnace. *diags Iron Age* 106:644 S 9 '20
- New heat-treating furnace of the automatic and of the semi-cylindrical type. *il Iron Age* 108:665 S 15 '21
- Regenerative furnaces for heat-treating. *Chem & Met Eng* 25:800-1 O 26 '21
- Relative economy of electric, oil, gas and coal-fired furnaces. T. F. Baily. *Ry Mech Eng* 95:507-8 Ag '21
- Sale of gas furnaces for heat-treating steel and forging. J. B. Redd. *Am Gas J* 115:364-5 O 22 '21
- Screw stock heat treated with oil; application of the Mirco system to ferrous and non-ferrous material by the Bridgeport screw co. *il Iron Age* 108:660-1 S 15 '21
- Small heat-treating furnace with new elements and control. *Elec W* 78:626 S 24 '21
- Steel heat-treating furnaces with flues in the doors. *il Sci Am* 124:311 Ap 16 '21
- Turret furnace for heat-treating. *il Chem & Met Eng* 25:712 O 12 '21
- See also Electric furnaces, Heat treating*

Furnaces, Hot air. See Furnaces, Warm air**Furnaces, Iron-pot**

- Iron-pot melting practice for aluminum alloys. R. J. Anderson. *Metal Ind* 19:189-90, 246-7, 285-7, 360-2, 397-9 My-JI, S-O '21

Furnaces, Metallurgical

- Betriebserfahrungen mit dem Maerzofen. H. Czirn-Terpitz. *Stahl & Eisen* 41:444-6 Mr 31 '21
- Case hardening with gas. H. M. Crawford. *diag Gas Age* 46:204-5 S 10 '20
- Chauffage à l'huile lourde des fours métallurgiques. A. Gouvy. *diags Chimie & Ind* 3:143-56 F '20

Furnaces, Metallurgical—*Continued*

- Chloridizing and leaching as practiced in Sweden. N. Ostman. diags Eng & Min J 111:422 Mr 5 '21
- Concrete hearths. Eng & Min J 110:802-3 O 23 '20
- Conditions du chauffage industriel à l'huile lourde. E. Chabanier. diags Chimie & Ind 3:566-75 My '20
- Constitution of gas atmospheres in aluminum-alloy melting furnaces. R. J. Anderson and J. H. Capps. il diags Chem & Met Eng 25:54-60 Jl 13 '21
- Crucible furnaces for melting. E. F. Davis. il diag Gas Age 46:72-3 Jl 26 '20
- Determining the heating and cooling curves of metals. S. R. Winters. il Sci Am 122:595 My 29 '20
- Determining the influence of excess gas on fuel consumption in gas-fired oven furnace. O. Lellep. Am Gas Eng J 113:397-8+ N 13 '20; Abstract. Gas Age 46:375 N 10 '20
- Electric melting in an oil furnace. W. J. Reardon. diags Metal Ind 18:207-10 My '20
- L'emploi des fours oscillants pour la fabrication de l'acier. il diag plan Génie Civil 76:545-8 Je 19 '20
- Fours métallurgiques à flammes multiples; système Chantraine. diags Génie Civil 76:336-7 Ap 3 '20; Same (Chantraine metallurgical furnaces). Sci Am M 2:92-3 Jl '20; Abstract. Mech Eng 42:405-6 Jl '20
- Gas furnaces for melting non-ferrous metals. M. A. Combs. il Chem & Met Eng 24:515-16 Mr 23 '21
- Gases in aluminum furnaces and their analysis. R. J. Anderson and J. H. Capps. il Chem & Met Eng 24:1019-21 Je 8 '21
- Gaskill oil-fired furnace. il diags Iron Age 105:823-4 Mr 18 '20
- German furnaces fired with tar-oil. O. Kuenschner. diags Foundry 49:770-1 O 1 '21
- Handling gas fired crucibles. E. F. Davis. il diag Gas Age 46:162-3 Ag 25 '20
- Heating furnace fuel progress during 1919. A. E. Blake. Blast F & Steel Pl 8:121-4 Ja '20
- High frequency inductive heating. E. F. Northrup. il diag Foundry 49:573-5 Jl 15 '21
- High-temperature oil-fired laboratory furnace. H. K. Najarian. diags plan Eng & Min J 109:1413 Je 26 '20
- Indirect-fired cyanide furnace. W. H. Addis. il diag Am Mach 52:487-8 Mr 4 '20
- Industrial application of powdered fuel. J. F. Shadgen. Iron Age 107:839-42 Mr 31 '21
- Industry prepares to save fuel. E. L. Shaner. diags Iron Tr R 68:17-24 Ja 6 '21
- Iron-pot melting practice for aluminum alloys. R. J. Anderson. Metal Ind 19:189-90, 246-7, 285-7, 360-2, 397-9 My-Jl, S-O '21
- Kunitz moving-floor furnace. il Am Mach 54:247-8 F 10 '21
- Largest crucible furnace at Sheffield, England, has forty-eight fires. il Pop Mech 36:57-8 Jl '21
- Melting furnaces. T. H. A. Eastick. Metal Ind 18:319-20 Jl '20
- Melting iron with powdered coal. il diags Foundry 48:136-9+ F 15 '20; Same. Iron Tr R 66:627-9 F 26 '20
- Metallurgical use of pulverized fuel. C. F. Herington. il Iron Age 107:965-9 Ap 14 '21
- Monarch continuous revolving non-crucible metal melting furnace. il Metal Ind 17:498 N '19
- New method of charging reverberatory furnaces. J. O. Ambler. diags Eng & Min J 111:226 Ja 29 '21
- New type oil-fired assay-furnace. E. K. Craig. diag plan Min & Sci P 122:184 F 5 '21
- Nine-hearth roasting furnace. J. M. Samuel. Eng & Min J 112:491 S 24 '21
- Operation of the Case oil-fired assay-furnace. F. Borzynski. diags Min & Sci P 120:713-14 My 15 '20
- Patching the roofs of copper reverberatory furnaces. G. J. Young. diags Eng & Min J 110:822 O 23 '20
- Production of zinc oxide; patent. diag Chem & Met Eng 22:330 F 18 '20
- Pyritic smelting of refractory sulphides in a Knudsen furnace. E. H. Robie. il diags plan Eng & Min J 111:304-7 F 12 '21
- Refractories and their relation to furnaces. Blast F & Steel Pl 9:53-4+ Ja '21
- Refractory furnace insurance. F. W. Reisman. Gas Age 46:262-3 O 11 '20
- Reverberatory furnace for treating converter slag at Anaconda. F. Laist and H. J. Maguire. il diag plan Min & Met 157:(sec 13) 1-12 Ja '20; Abstract. Chem & Met Eng 22:231-2 F 4 '20
- Roasting zinc concentrates in suspension. C. H. Fulton and J. B. Read. il diags Eng & Min J 110:405-8 Ag 28 '20
- Rotary oil-fired furnace of new design by Tate-Jones & co. il diag plan Iron Age 105:1448-50 My 20 '20; Génie Civil 77:378-9 N 6 '20
- Schwartz furnace atmosphere when melting complex bronzes. R. J. Anderson and J. H. Capps. Chem & Met Eng 25:103 Jl 20 '21
- Semi-producer furnace. il diag Iron Age 105:733 Mr 11 '20
- Sheet, pair and annealing furnaces. C. F. Poppleton. diags Iron Age 106:714-17, 770-2 S 16-23 '20
- Small steel castings. Engineer 132:140 Ag 5 '21; Same. Chem & Met Eng 25:755-6 O 19 '21
- Soft metal melting by gas. G. C. Shadwell. il Metal Ind 18:18-20, 121-4 Ja, Mr '20
- Sullivan drill-steel furnace for oil or gas fuel. il diag Min & Sci P 120:555-6 Ap 10 '20
- Use of a modified Rosenhain furnace for thermal analysis. H. Scott and J. R. Freeman, jr. il diags U S Bur Stand Sci Pa 348:317-23 '19
- Wayne tilting non-crucible type oil-burning furnace. il Am Mach 53:856 N 4 '20
- Zinc-oxide plant of the Utah zinc company. A. B. Parsons. flow sheet il diags plan Min & Sci P 121:759-64 N 27 '20
- See also Blast furnaces; Cupola furnaces; Electric furnaces; Furnaces, Heat treating; Metallurgy; Open hearth process; Puddling furnaces; Smelting
- Furnaces, Open hearth.** See Open hearth process
- Furnaces, Recuperative and regenerative**
- Experimental comparison of a preheated air furnace with a direct fired furnace. O. Lellep. diags Am Gas J 115:247-52, 260-3 S 17 '21
- Fuel saving in modern gas producers and industrial furnaces. W. B. Chapman. il diags Mech Eng 43:717-21 N '21
- Recuperation and regeneration pay. H. O. Loebell. il Gas Age 48:447-55 O 15 '21
- Regenerative furnaces installed at Harrison, N.J. E. C. Kreutzberg. il Iron Tr R 69:680-3 S 15 '21
- Der Siemens-regenerativ-gas-stossofen mit flammenteilung. A. Sprenger. diags plans Stahl & Eisen 41:749-53 Je 2 '21
- Furnaces, Warm air**
- Aid national own your own home movement; whole-souled co-operation by tin roofing and furnace heating trade. il diags plans Sheet Metal Worker 12:397-9 Jl 8 '21
- Bad furnace setting in country houses. diags Metal Work 92:571-2 N 14 '19
- Basic troubles and corrective formula; exposure of fallacies in attempt to arrive at heating capacities of warm-air furnaces. Sheet Metal Worker 12:527-8 S 2 '21
- Boiler and radiator field must wake up! Dom Eng 95:504-6 Je 11 '21
- Changes that would help furnace trade. il Sheet Metal Worker 11:367+ N 26 '20
- Circulating furnace heating system effective. il plans Metal Work 93:549-51 Ap 30 '20
- Common sense of furnace heating. Metal Work 94:182-4 Ag 6 '20
- Details of a \$3500 furnace heating system. il plans Sheet Metal Worker 12:217-19 Ap 29 '21

Furnaces, Warm air—Continued

- Facts about warm-air furnace efficiency. A. C. Willard. Metal Work 94:342-4, 397-9 S 10, 24 '20; (cont in) Sheet Metal Worker 11:245-6+, 283-4 O 1-15 '20
- Fan furnace heating of a large foundry. il Sheet Metal Worker 12:461-3 Ag 5 '21
- Fan-furnace system of heating. D. H. Cuyler. diags plans Metal Work 92:457-9 O 17 '19
- Furnace research work to be continued. Metal Work 93:557-61 Ap 30 '20
- Furnaces after twenty-five years service; details of a church installation. il plan Sheet Metal Worker 12:663-4+ O 28 '21
- Good furnace and good range make the home. il diags plans Metal Work 93:41-4 Ja 9 '20
- Handelan furnace heating system. diag Sheet Metal Worker 11:393 D 10 '20
- Heating equipment for the low-cost house. C. L. Hubbard. diags plan Bldg Age 42:59-60 Jl; 42-4 Ag '20
- Heating government houses in a hurry; how return-air furnace equipment was installed. il plans Sheet Metal Worker 11:449-52 Ja 7 '21; Discussion. 12:109-10 Mr 18 '21
- Help on a furnace heating problem. plans Sheet Metal Worker 12:593-4 S 30 '21
- How to purchase and install a warm-air furnace. G. Harms. Sheet Metal Worker 12:154-5 Ap 1 '21
- Ideas of an expert on furnace heating. W. E. Hopkin. Metal Work 93:455-6 Ap 9 '20
- Installation of warm air furnace. A. Ohnemus. Sheet Metal Worker 12:500-2 Ag 19 '21
- Instruction course for custodians and janitors. E. S. Hallett. Heat & Ven 18:40-1 O '21
- Investigation of warm-air furnaces and heating systems. A. C. Willard, A. P. Kratz and V. S. Day. il diags plans Ill U Eng Exp Sta Bul 120:1-137 '21
- Make heating equipment work and save coal. Sheet Metal Worker 11:280 O 15 '20
- Make the heater buy the family shoes. A. J. Casey. Metal Work 92:429 O 10 '19
- Makes the furnace that warms his home. il plans Sheet Metal Worker 12:143-4+ Ap 1 '21
- Making furnaces do their work well. il Metal Work 92:719-21 D 19 '19
- Mechanical hot blast heater for foundry or shop. il diag Iron Age 106:16 Jl 1 '20; Same. Metal Work 94:271-2 Ag 27 '20
- Modern heating equipment. L. W. Millis. diags Am Soc Heat & V E J 27:739-43 O '21
- Need for better furnace heating systems. J. D. Hoffman. Metal Work 92:490-3 O 24 '19
- Need of correct furnace installation. G. Harms. Sheet Metal Worker 12:357-9 Je 24 '21
- New data warm-air furnace heating. Sheet Metal Worker 12:301-2 My 27 '21
- Other kind of furnace work. diags Sheet Metal Worker 12:39-40 F 18 '21
- Overhead down feed furnace system. il diag plans Sheet Metal Worker 12:431-2 Jl 22 '21
- Pipeless or pipe heaters as profit makers. plans Metal Work 93:178-9 F 6 '20
- Remodeling furnace job in a costly house. il plans Sheet Metal Worker 12:523-5 S 2 '21
- Revival of furnace heating with pipes. Metal Work 92:558-60 N 7 '19
- Small blowers in combination with furnaces. F. R. Still. diags Sheet Metal Worker 12:400-2 Jl 8 '21
- Sound advice from a furnace expert. diags Sheet Metal Worker 11:428-9 D 24 '20
- Steam generator in furnace moistens air of house. il Pop Mech 33:110 Ja '20
- Truth about lasting power of furnaces. C. H. Pierce. diags Metal Work 94:315-16 S 3 '20
- Twenty-three and one-half years average service of six furnaces. il Sheet Metal Worker 12:319-21 Je 10 '21
- Using fans in warm-air furnace heating. diags Sheet Metal Worker 12:284+ My 27 '21
- Utilizing prestige to increase furnace heating business. F. K. Chew. il Sheet Metal Worker 12:285-6 My 27 '21

- Warm air furnace of the future. R. W. Menk. Metal Work 94:139-41 Jl 30 '20
- Warm air gives 100 per cent satisfaction in colonial home. il diags Metal Work 93:478-80 Ap 16 '20
- What constitutes a good furnace. H. W. Locke. Metal Work 92:522-3 O 31 '19

Pipeless furnace

- Economical heating plant for small house. E. Bliss. il Bldg Age 43:60-1 O '21
- Engineering essential to the proper installation of pipeless heaters. plan Sheet Metal Worker 12:254 Mr 13 '21
- Installation of warm air furnace. A. Ohnemus. Sheet Metal Worker 12:500-2 Ag 19 '21
- Modification of pipeless installations. Metal Work 92:521-2 O 31 '19
- One-register furnaces. A. M. Daniels. il diags plans U S Agric Farmers' Bul 1174:1-12 '20; Excerpts. Am Inst Arch J 9:223-4 Je '21
- Pipeless furnace construction patents. Sheet Metal Worker 12:79 Mr 4 '21
- Pipeless furnaces installed half century ago. diags Sheet Metal Worker 12:187+ Ap 15 '21

Advertising

- Pipeless furnace brings great advertising awakening. G. A. Nichols. Ptr Ink 114:157-8+ Mr 17 '21

Pipes and fittings

- Actual experiences in furnace heating. diags plan Sheet Metal Worker 11:492-4 Ja 21 '21
- Careless installing of warm air plants. diags Sheet Metal Worker 11:399-400 D 10 '20
- Design of discharge outlets and diffusers in fan blast heating of shops. diags plan Heat & Ven 17:43-4 Ap '20
- Facts about warm-air furnace efficiency. A. C. Willard. Metal Work 94:397-9 S 24 '20
- Figures to help you sell air cell covering. Sheet Metal Worker 11:372-3 N 26 '20
- Furnace served 37 years, still good. il plans Sheet Metal Worker 12:1-3 F 4 '21
- Heating equipment for the low-cost house. C. L. Hubbard. diags plans Bldg Age 42:42-4 Ag '20
- How to determine size in furnace heating. Sheet Metal Worker 11:498-9 Ja 21 '21
- Jump method for elbow making. L. S. Bonbrake. diags Metal Work 92:668-9 D 5 '19
- Large residence effectively heated. il plans Metal Work 93:22-5 Ja 2 '20
- New method of piping for furnace heating. diags Sheet Metal Worker 12:561-2 S 16 '21
- Perplexities of furnacemen removed. Sheet Metal Worker 11:337-8 N 12 '20
- Sheet metal contractors rules for the installation of warm-air heating apparatus. Am Soc Heat & V E J 27:745-9 O '21
- Standardized furnace methods suggested. G. Keils. Sheet Metal Worker 12:253 My 13 '21

Rating

- New basis for rating and comparing warm-air furnaces. A. C. Willard. Sheet Metal Worker 11:394-5 D 10 '20; Same. Am Arch 119:155-7 F 9 '21
- Rating warm-air furnaces. Sheet Metal Worker 12:81-2 Mr 4 '21

Testing

- Emissivity of heat from various surfaces. V. S. Day. diags Am Soc Heat & V E J 26:supl-XIX S '20; Same. Ill U Eng Exp Sta Bul 117:1-31 '20
- Good versus bad inside pipeless casings. E. C. Anderson. Sheet Metal Worker 11:314+ O 29 '20
- Inside casings of pipeless furnaces. Metal Work 94:109 Jl 23 '20
- Interesting results in warm air furnace testing. diag Metal Work 93:480-1 Ap 16 '20
- Proposed furnace testing codes for both pipeless and piped furnace systems as developed in the warm air furnace research work at the University of Illinois. A. C. Willard and A. P. Kratz. il diags Am Soc Heat & V E J 27:124-32 Mr '21

Furnaces, Warm air—Testing—Continued

Report of progress in warm air furnace testing at the University of Illinois. A. C. Willard. *il diags plan Am Soc Heat & V E J* 26:127-48 Mr '20; Same. *Metal Work* 93:300-2, 328-30, 358-9, 390-1 Mr 5-26 '20; Abstract. *Heat & Ven* 17:45-6 Mr '20

Furniture

Artistic bamboo furniture. H: Marcelle. *diags Pop Mech* 33:789-92 My '20

Authentic precedent in colonial interiors. *il Arch Forum* 34:219-22, pl 93 Je '21

Built-in furniture. *il diags Bldg Age* 42:28-32 Ap '20

Built-in furniture. C: A. Byers. *il Bldg Age* 43:33-6 My '21

Classic factor in furniture design. W. A. Dyer. *il Arch Rec* 47:357-70 Ap '20

Decorating and furnishing the low-cost house. *Bldg Age* 42:30-4 F; 27-9+ Mr; 41-4 Ap; 48-52+ My; 32-7 Je; 36-8 O '20

French furniture under Louis XVI and the empire. R. de Felice. 142p Stokes '21

Furnishing of community buildings with limited funds; the Chester club, Chester, Pa. *il Arch Forum* 34:107-8, pl 47-8 Mr '21

Furniture of William Savery. W. A. Dyer. *il Arch Rec* 49:249-52 Mr '21

Household that packs into a trunk. *il Sci Am* 123:419 O 23 '20; *Pop Mech* 34:655 N '20

Industrial art—a peace emergency. R: F. Bach. *Arch & Bldg* 53:58+ Jl '21

Industrial arts exhibit at the Metropolitan museum, New York, Dec. 15, 1920 to Jan. 30, 1921. *il Arch Forum* 34:67-8 F '21

Interior decoration. C. S. Johnson. *il diag Arch Forum* 32:157-60 Ap '20

Interior decoration. M. Price. *il Arch Forum* 32:101-6 Mr '20

See also Beds, Folding; Chairs; Office furniture

Manufacture

Engineering in furniture factories. B. A. Parks. *il Mech Eng* 43:85-90 F '21

Prices

Cost of living in the United States—furniture and house furnishings. *Monthly Labor R* 10:27-34 Ja '20

Furniture, Metallic

Furniture made from tin shop waste. F. N. Parks. *il diags Metal Work* 92:518-19 O 31 '19

Furniture industry

Furniture markets of Argentina, Uruguay, Paraguay, and Brazil. H. E. Everley. *il U S Bur For & Dom Com* 183:1-130 '19

Western furniture manufacturing centers in Portland. W. C. Heston. *il J Elec* 47:184-5 S 1 '21

Why the buyers strike. J. Henle. *Ptr Ink* 115:101-4+ My 5 '21

Accounting

Accounts of instalment furniture dealers. H: G. Greenfeld. *J Account* 30:125-34 Ag '20

Advertising

Changing the product to fit the need. R. C. Erskine. *Ptr Ink* 115:101-2+ Je 16 '21

Furunculosis

How to treat skin affections of employees. W. C. Allen. *Ind Management* 61:180-1 Mr 1 '21

Fusain

Does fusain cause mine and bin fires, spoil coke and aid explosions? F. S. Sinnatt. H. Stern and F. Bayley. *Coal Age* 18:384-8 Ag 19 '20; Abstract. *Mech Eng* 42:405 Jl '20

Fused silica. See Silica, Fused

Fusel oil

Fusel oil from sulphite alcohol. R. Sieber. *Paper* 27:21+ D 1 '20

Fuses. See Blasting

Fuses, Electric. See Electric fuses

Fusion

Alkali fusions; fusion of phenylglycine-*o*-carboxylic acid for the production of indigo. M. Phillips. *J Ind & Eng Chem* 13:759-62 S '21

Alkali fusions; the fusion of sodium-benzene *m*-disulfonate with sodium hydroxide for the production of resorcinol. M. Phillips and H. D. Gibbs. *J Ind & Eng Chem* 12:857-60 S '20

Alkali fusions; the fusion of sodium *p*-cymene sulfonate with sodium hydroxide for the production of carvacrol. H. D. Gibbs and M. Phillips. *diag J Ind & Eng Chem* 12:145-9 F '20

Relations entre les réactions métallurgiques et les lois physico-chimiques. L. Guillet. *Génie Civil* 78:151-3, 169-73, 190-2 F 12-26 '21

Fusion, Latent heat of

Latent heat of fusion. W. C. McC. Lewis. *Sci Am S* 88:371 D 20 '19

Latent heats of fusion of nickel and monel metal. W. P. White. *il diag Chem & Met Eng* 25:17-21 Jl 6 '21

Fustic

Distinction between fustic and quercitron. *Color Tr J* 9:166 O '21

Use of organic dyestuffs in the manufacture of lakes: chlorophyll, turmeric, cutch and fustic. B. DePuyster. *Color Tr J* 5:175-8 D '19

G**Gages**

Adjustable thread snap gauge. *il diag Engineering* 110:551 O 22 '20

Applications of Prestwich fluid gages. *il Mach* 26:788 Ap '20; *Am Mach* 52:695-6 Mr 25 '20

Bath micrometer plug gage. *il Mach* 27:795-7 Ap '21

Brake shoe and brake beam equipment: committee report; abstracts. *il diags Ry Age* 71:369-76 Ag 20 '21; *Ry Mech Eng* 95:579-86 S '21; *Ry R* 69:234-7 Ag 20 '21

Brush pilot gage. *il Mach* 26:986 Je '20; *Automotive Ind* 42:1255 Je 3 '20

Built-up angle gage. *il Sci Am* 122:46+ Ja 10 '20

Calculating the size of a gage plug by triangulation. C. E. Pearce. *diag Am Mach* 55:400-1 S 8 '21

Capstan dial gauge. *il Engineering* 111:322 Mr 18 '21

Change in the accepted sizes of N.P.L. end standards. *Engineer* 130:351 O 8 '20; Same. *Engineering* 110:474 O 8 '20

Delco inspection system; description of the methods used in the tool and gage designing department of the Dayton engineering laboratories co. E. Oberg. *il diags Mach* 27:1032-5, 1127-30; 28:43-7 Jl-S '21

Dimensions for snap gage frames. J. B. Conway. *diags Mach* 26:1123 Ag '20

L'étude des calibres industriels au Bureau international des poids et mesures. A. Pérard. *il diags Génie Civil* 78:477-80, 500-3 Je 4-11 '21

Figuring diameter on three-surface tangent plug. W: F. L. Dobbins. *diags Am Mach* 52:148-9 Ja 15 '20

Finding dimensions of profile gages. W. G. Holmes. *diags Am Mach* 54:567, 614-15 Mr 31-Apr 7 '21

Flush-pin depth gage for internal grooves. G. F. Bahr. *diag Mach* 27:277 N '20

Flush-pin gages. J: E. Collins. *diags Mach* 26:555-6 F '20

Formulas for gear plug gage. F. W. Shaw. *diag Am Mach* 52:306 F 5 '20

Future of gages in manufacturing. F. O. Wells. *Ind Management* 59:193-6 Mr '20

Gage for calipering driving wheels and tires. E. A. Miller. *diags Ry Mech Eng* 95:242 Ap '21

Gage for measuring dovetail tongues. J: T. Clark. *diags Mach* 26:353 D '19

Gages—Continued

- Gage for setting threading tool. H. Moore. diags Mach 27:965 Je '21
- Gauge for sheet metal shears. diag Sheet Metal Worker 12:545 S 2 '21
- Gage for testing accuracy of milled surface. C. W. Oviatt. diags Mach 27:976 Je '21
- Gauges and standards for manufacturing brass goods. P. W. Blair. il Metal Ind 17:460-2; 18:77-8 O '19, F '20
- Gages and the ordnance department. E. C. Peck. Am Mach 52:105-7 Ja 8 '20
- Gages for chisel shanks. N. McDougall. diags Am Mach 55:68-9 Jl 14 '21
- Gages for piston rod crosshead fits. diags Ry R 66:550 Ap 3 '20
- Gages in interchangeable manufacturing. E. Buckingham. il diags Mach 26:1040-6, 1112-17 Jl-Ag '20
- Gauging with dial instruments. il Engineer 131:76-7 Ja 21 '21
- Handy defect gage. diags Ry R 69:589-90 O 29 '21
- Hilger interference gauge. il Engineer 131:157 F 11 '21
- Increased production by the use of proper gages. G. T. Trundle, jr. Am Mach 52:80-1 Ja 8 '20
- Indicating and contour gages. J. E. Collins. diags Mach 26:732-6 Ap '20
- Indicating gages. E. V. Christensen. diags Mach 27:1061 Jl '21
- Indicator gage for internal grooves. M. Slutzky. diags Mach 26:562 F '20
- Inspection gage for generator bracket. L. Lannen. il Mach 27:973 Je '21
- Internal and external length gages. D. R. Gallagher. diag Mach 26:849 My '20
- Late-design angle gauges give precise results. il Pop Mech 35:756 My '21
- Limit gauges. Engineering 110:643-4 N 12 '20
- Limit gauging; Thomas Hawksley lecture before the Institution of mechanical engineers. R. Glazebrook. diags Engineer 130:473-4 N 12 '20; Discussion. 131:450-1 Ap 29 '21
- Locomotive driving wheel quartering gage. il diag Ry Mech Eng 95:658-9 O '21
- Maintenance of jigs and gauges. Engineering 111:130 F 4 '21
- Master wheel and tire gage for railway shops. J. H. Vincent. il diags Am Mach 54:33 Ja 6 '21
- Meldrum-Gabrielson adjustable limit snap gages. il Mach 28:159 O '21
- Micrometer height gage. E. F. Tuttle, jr. diag plan Am Mach 52:1226 Je 10 '20
- National screw thread commission report. Mech Eng 42:341-3 Je '20; Am Mach 53:543-6 S 16 '20; Soc Auto Eng J 7:320 O '20
- New cylindrical plug and thread gages of the Pratt & Whitney co. il Iron Age 108:545 S 1 '21
- New light on internal measurements. J. Bath. il diags Am Mach 54:1110-13 Je 30 '21
- New type of thread gages. B. M. W. Hanson. il diags Mach 28:110-11 O '21
- Pratt & Whitney gages. il Mach 28:70-1 S '21; Am Mach 55:325 Ag 25 '21
- Pratt & Whitney trus-form snap gages. il Mach 27:1076 Jl '21; Am Mach 54:1144 Je 30 '21; Iron Age 107:1752 Je 30 '21
- Precision depth gage. J. B. Conway. diags Mach 26:558-9 F '20
- Precision gages. M. E. Kanek. Am Mach 53:884-6 N 11 '20; Discussion. 54:66, 521 Ja 13, Mr 24 '21
- Precision type of planer tool-setting gage. G. Youngquist. diags Mach 26:1121-3 Ag '20
- Principles of limit gauging. A. A. Remington. diags Engineering 111:441-3, 480-2 Ap 15-22 '21; Discussion. 111:537 Ap 29 '21
- Problem in gage design. W. W. Johnson. diags Mach 28:238 N '21
- Profile-curvature gage. W. Souder. il Am Mach 53:732 O 14 '20
- Radius and position gage problem. C. Guerrer. diag Am Mach 52:368 F 12 '20
- Reading limit-gage. il Sci Am 125:31 Jl 9 '21
- Renewable-end plug gauges. il Engineering 110:210 Ag 13 '20
- Rogers adjustable limit gage. il Mach 26:876-7 My '20; Ry Mech Eng 94:554 Ag '20
- Spline gage. H. G. Thayer. diags Am Mach 51:1109-10 D 25 '19
- Splitting hairs with close-limit tools. A. Longville. il Sci Am 123:243+ S 11 '20
- Standard inspection gages. O. H. Gerlat. diags Am Mach 52:205 Ja 22 '20
- Starting right on the gage question; standard nomenclature of gages and gaging operations. diags Am Mach 55:220-1 Ag 11 '21
- Taper, profile, and concentricity gages. J. E. Collins. il diags Mach 26:654-6 Mr '20
- Tapered ring gages. V. E. Ayre. diags Mach 26:971 Je '20
- Vertical gauge projecting apparatus; National physical laboratory. il diags Engineering 109:273-6 F 27 '20
- Wickman adjustable thread snap gage. il Am Mach 53:1161 D 16 '20
- Working facts about American wire gage. R. P. Beck. Coal Age 18:235 Jl 29 '20
- See also Draft gages; Micrometers; Pressure gages; Strain gages; Water gages

Manufacture

- Artificial seasoning of gage steels. Eng & Contr 54:605 D 22 '20; Same. Am Mach 53:1258 D 30 '20; Same. Sci Am M 3:80 Ja '21
- Elements of gagemaking. C. A. Macready. diags Am Mach 47:491-3, 661-4, 1112-18; 48:149-52; 49:329-34, 511-19; 51:1033-6, 1101-3; 53:167-9, 253-5 S 20, O 18, D 27 '17, Ja 24, Ag 22, S 19 '18, D 18-25 '19, Jl 22, Ag 5 '20
- Grinding a keyway gage for a tapered hole. J. B. Gray. diag Mach 27:656 Mr '21
- Grinding attachment for a milling machine; with a complete set of drawings for its construction. J. Finlay. il diags Am Mach 53:114-16 Jl 15 '20
- Hardening of screw gauges. W. J. Lineham. diags Engineering 109:593-7 Ap 30 '20; Same. Am Mach 53:547-51, 604a-d S 16-23 '20; Abstract. Sci Am M 2:160 O '20; Discussion. Engineering 109:575-7 Ap 30 '20; Engineer 129:443-4 Ap 30 '20
- How precision gage-blocks are made. F. D. Jones. il diags Mach 26:697-708 Ap '20
- Lapping and measuring small cylindrical plugs. H. F. Pusep. diags Am Mach 52:787-9 Ap 8 '20
- Making some difficult duplicate gages. E. A. Dixie. diags Am Mach 50:162 Ja 23 '19; Discussion. 50:706, 1245; 51:461-2; 52:93 Ap 10, Je 26, S 4 '19, Ja 8 '20
- Making special snap gages. J. Teckeer. diags Am Mach 52:83-5 Ja 8 '20
- Making Whitworth thread gages. C. E. Allen. il diags Mach 26:1157-60 Ag '20
- Manufacture of hardened screw gauges. il Engineer 130:310-11 S 24 '20
- Modern lapping practice. E. K. Hammond. il diags Mach 27:209-17 N '20
- Position gauges: their jigs, construction and calculations. A. G. Robson. diags Engineer 129:157-60 F 13 '20
- Precision gauge manufacture. A. G. Robson. diags Engineer 131:312-14 Mr 25 '21
- Precision gauges and their jigs. A. G. Robson. diags Engineer 129:574-6 Je 4 '20
- Precision thread grinder. diags Mach 26:1170 Ag '20
- Quantity production of combination limit plug gages. il diags Mach 27:59-61 S '20
- Stellite, a new gage material. H. L. Van Keuren. Am Mach 52:1045-7 My 13 '20
- Thread gage standards. J. E. Collins. il diags Mach 26:427-33 Ja '20
- Tools used in the manufacture of the P & W adjustable limit snap-gage. E. Sheldon. il Am Mach 55:428-31, 456-60 S 15-22 '21

Testing

- Calculations for inspecting special profile gages. V. E. Ayre. diags Mach 27:37 S '20
- Calibration and dimensional changes of precision gage blocks. C. G. Peters and H. S. Boyd. il diags Am Mach 53:627-32, 674-9 S 30-O 7 '20
- Checking up the slip gage. diag Sci Am 124:193 Mr 5 '21

Gages—Testing—Continued

- How precision gage-blocks are made. F. D. Jones. *il* diags Mach 26:705-8 Ap '20
- Inspecting tapered flat gages. V. E. Ayre. diags Mach 26:736 Ap '20
- Inspection of a triple-tapered chamber check. V. E. Ayre. diags Mach 26:648 Mr '20
- Inspection of tapered plugs. V. E. Ayre. diags Mach 26:541-2 F '20
- Keeping an accurate check on gages. J. E. Schipper. *il* Automotive Ind 43:1225-7 D 16 '20
- Measuring balls and plugs by light-wave method. H. L. Van Keuren. *il* diags Mach 27:14-16 S '20
- Optical flat—a practical measuring tool. H. L. Van Keuren. *il* diags Am Mach 53:107-12 Jl 15 '20
- Precision is aid to production. H. L. Van Keuren. *il* Iron Tr R 67:378-80 Ag 5 '20
- Precision measuring and inspection devices; optical methods developed at the British national physical laboratory. R. J. Whibley. *il* diags plan Mach 27:135-9, 242-5 O-N '20; Discussion. 27:258 N '20
- Use of wires for inspecting special gages. V. E. Ayre. diags Mach 26:816 My '20
- Van Keuren reference gages. *il* Mach 27:87-8 S '20
- Vérification pratique, par les franges d'interférences, des blocs de précision Hoke. *il* diag Génie Civil 77:276-8 O 2 '20
- Work of the Bureau of standards. *il* Mach 26:505-8 F '20

Gaging

- Depth indicator for liquids in tanks. Engineering 110:772 D 10 '20
- Forseille liquid level gage. *il* Power 51:170 F 3 '20
- Liquid measuring gauge. *il* Paper 27:116 N 10 '20
- Measuring liquids in ships' tanks. *il* Marine Eng 25:841-3 O '20
- Outfit for measuring the level of liquids. S. W. Tay. diags Pub Works 50:478 Je 4 '21
- Pneumercator gauge. Paper 26:147 Ap 21 '20
- See also* Oil measurement

Gallic acid

- Derivatives of gallic acid; gallic acid (and the cresotic acids) and chloral. R. L. Alimchandani and A. N. Meldrum. Chem Soc J 119:201-9 F '21

Gallium

- Further studies concerning gallium. T. W. Richards and S. Boyer. Am Chem Soc J 43:274-94 F '21
- Separation of gallium from indium and zinc by fractional crystallization of the cesium-gallium alum. P. E. Browning and L. E. Porter. Am Chem Soc J 43:126 Ja '21

Gallium acetylacetone

- Researches on residual affinity and co-ordination; gallium acetylacetone and its analogues. G. T. Morgan and H. D. K. Drew. Chem Soc J 119:1058-66 Jl '21

Gallium ferrocyanide

- Use of gallium ferrocyanide in analysis. L. E. Porter and P. E. Browning. Am Chem Soc J 43:111-14 Ja '21

Galliver, George A.

- Builders of business. P. F. O'Shea. System 40:555-6+ N '21

Gallotannin

- Gallotannin. M. Nierenstein, C. W. Spiers and A. Geake. Chem Soc J 119:275-86 Mr '21

Galvanized iron. See Iron, Galvanized**Galvanizing**

- Application of gas to galvanizing. D. A. Flynn. *il* Am Gas Assn Commercial sec v 2:54-61; Discussion. 62-5 '20
- Cadmium as a substitute for zinc in galvanizing. Pop Mech 34:904 D '20
- Continuous sheet galvanizing furnace. A. E. Blake. *il* Blast F & Steel Pl 8:124-5+ Ja '20
- Corrugated metal culverts. J. L. G. Stuart. Can Eng 40:170-1 Ja 27 '21
- Dry galvanising plant. Engineer 129:510 My 14 '20

Electro sherardizing. *il* diag Mach 26:649-52 Mr '20

English galvanizing practice. A. J. Franklin. *il* Metal Ind 18:73-6 F '20

Exhausting fumes from galvanizing kettles. diags Pop Mech 36:297 Ag '21

Galvanizing plant handles large work. A. H. Myers. *il* diags plan Iron Age 105:181-7 Ja 15 '20; Abstract. Chem & Met Eng 22:567 Mr 24 '20

Galvanizing sheets of steel. C. A. Davis. Blast F & Steel Pl 9:441 Jl '21

L'installation d'une petite usine de galvanisation. diags Génie Civil 79:114 Jl 30 '21

Installing a small galvanizing plant. J. R. Wemlinger. diags plan Iron Age 107:123-5 Ja 13 '21; Same. Brass W 17:95-8 Ap '21

Metallographical study of galvanised steel. Y. Taji. *il* diag Engineering 109:327-9 Mr 5 '20

New method of testing galvanized coatings. A. S. Cushman. *il* diags Am Soc T M Pro v 20 pt 2:411-21; Discussion. 422-5 '20

Seventy-five per cent of galvanizing in Chicago done by gas. D. A. Flynn. Am Gas Eng J 113:393-4+ N 13 '20; Same cond. Gas Age 46:370-1 N 10 '20

Sheet mill of Chapman Price steel co. in Indiana. E. F. Ross. *il* plan Iron Tr R 68:1653-5 Je 16 '21

60 years progress in galvanizing. C. F. Poppleton. *il* diag Iron Tr R 68:1170-4 Ap 28 '21

Temperature and time very important factors in sherardizing—reasons why gas furnaces have many advantages over other methods of heating in this process. C. A. Drum. *il* Am Gas Eng J 111:593-8 D 27 '19

Testing of galvanized culverts for serviceability. L. G. Carmick. Can Eng 39:222-3 Ag 5 '20

Testing of galvanizing improved. A. S. Cushman. diags Iron Tr R 67:445-7 Ag 12 '20; Abstract. Iron Age 106:722 S 16 '20

Workshop sherardizing unit. *il* Engineering 110:290 Ag 27 '20

Galvanometers

Acoustical galvanometer for the measurement of small alternating currents. F. R. Watson and L. B. Ham. diags Phys R 18:178-84 S '21

Converting a magnetic compass into an efficient galvanometer. R. W. Crawford. diags Coal Age 18:172-3 Jl 22 '20

Electrical expression of human emotion. A. D. Waller. Electrician 86:202 F 11 '21; Same. Sci Am M 3:340 Ap '21

Galvanometer. E. F. Northrup. *il* Chem & Met Eng 22:944-5 My 19 '20

Les galvanomètres à vibration du Bureau of standards de Washington. diags Génie Civil 78:533-4 Je 18 '21

Making the most of the vibration galvanometer. S. R. Winters. *il* Sci Am 125:115 Ag 13 '21

New form of vibration galvanometer. P. G. Agnew. diags U S Bur Stand Sci Pa 370:37-44 '20; Same. Am Inst E E J 39:158-61 F '20; Abstract. Elec W 75:491 F 28 '20

Some notes on the electro-cardiograph. R. S. Whipple. *il* diags Inst E E J 57:sup13-26; Discussion. 26-8 '19

When the heart tells its story. M. A. Henry. *il* Sci Am 122:676+ Je 19 '20

See also Electric measurements; Ohmmeter

Gambler

Analysis of catechu and gambier. R. Sansone. Color Tr J 6:78-9 Mr '20

Gamboge

Use of organic dyestuffs in the manufacture of lakes; gamboge, indigo and logwood. B. De Puyster. Color Tr J 6:43-6 F '20

Games

Use of artificial light as an aid to various games and sports. J. S. Dow. *il* Illum Engr 14:149-57; Discussion. 157-62 Je '21

Gamma rays

Absorption of gamma rays by magnetized iron. A. H. Compton. Phys R 17:38-41 Ja '21

Gamma rays—Continued

- Degradation of gamma-ray energy. A. H. Compton. diags Philos Mag 6th ser 41:749-69 My '21
- Practical methods for the determination of radium: alpha-ray method, gamma-ray method, miscellaneous. S. C. Lind. il diag J Ind & Eng Chem 12:469-72 My '20
- Scattering of X- and γ -rays. J. A. Gray. diags J Fr Inst 190:633-55 N '20
- Wave-length of hard gamma rays. A. H. Compton. diag Philos Mag 6th ser 41:770-7 My '21

Gang bonus system. See Bonus system

Ganister

- Ganister, its production and uses. Eng & Min J 112:537 O 1 '21

Gantries. See Cranes, derricks, etc.

Gantt, Henry Laurence. 1861-1919

- Appreciation. H. B. Cheney. Ind Management 60:406 D 1 '20
- Appreciation. H. Emerson and others. por Ind Management 58:489-91 D '19
- Installing Gantt production methods. W. Clark. Ind Management 59:443-8 Je '20
- Principles of industrial philosophy. W. N. Polakov. Mech Eng 43:249-52; Discussion. 253-4 Ap '21
- Sketch. por Mech Eng 42:79 Ja '20

Gantz, Joseph

- Portrait. Ptg Art 37:34a Mr '21

Garages

- Accomplishments in garage architecture. il Motor Age 37:12-13 My 13 '20
- Drainage of public and private garages. W. Hutton. il diags Dom Eng 90:526-7 Mr 13 '20
- Every automobile its own elevator. R. G. Skerrett. il Sci Am 124:65+ Ja 22 '21
- Garage building by the sheet metal worker. il Metal Work 93:611-12 My 14 '20
- Garage fire record. il Am Arch 119:76-7 Ja 19 '21
- Keeping cars safe from harm; protection of cars in the Commodore-Biltmore garage is secured by conservative design. il diags Motor Age 37:16-18 Ap 29 '20
- Laying out and designing of garage for oil distributing plant. F. A. Bean. Nat Pet N 12:91+ N 17 '20
- Long-span concrete roof arches for Chicago garage. il diags Eng N 86:167-9 Ja 27 '21
- Novel concrete arches for garage roof supports. G. E. Warren. il diags Concrete 16:210-12 My '20
- Place of the garage in architecture. T. Wilder. il Motor Age 37:7-9 My 6 '20
- Plenty of money in the small town garage business. il Motor Age 38:16-17 S 16 '20
- Ramp construction which saves space. H. F. Blanchard. diag Motor Age 37:18 Mr 11 '20
- Selecting the site. T. Wilder. il Motor Age 37:7-9 Ap 8 '20
- Three-story garage that needs no elevators. il Sci Am 122:63 Ja 17 '20
- What good roads have done for California. F. M. Loomis. il Motor Age 37:7-9+ My 13 '20
- When is a ramp desirable? T. Wilder. diags Motor Age 38:7-9+ S 9 '20
- See also Automobile service stations; Gasoline handling

Accounting

- Automobile cost accounting. Am Gas Eng J 113:344+ O 30 '20

Advertising

- Garage owners ring cash register with cooperative advertising. Ptr Ink 117:41-2 O 13 '21

Designs and plans

- Automotive architecture; planning and building problems. plans Motor Age 38:30-1 Jl 22; 30-1 Jl 29; 34-5 Ag 5; 34-5 Ag 12; 38-9 Ag 19; 37-8 Ag 26; 38-9 S 2; 38-9 S 9; 38-9 S 16; 38-9 S 23; 34-5 S 30; 34-5 O 7; 34-5 O 14; 32-3 O 21 '20

- Building for Transport service co., inc., Long Island City, N.Y. il diags plans Am Arch 119:429-33 Ap 6 '21

- Chauffeur's cottage and garage for Edward C. Gude, White Plains, N.Y. il plans Bldg Age 42:44-5 O '20

- Garage and chauffeur's quarters at Wynnewood, Pa.; views and plans. Bldg Age 42:50 Ja '20

- Garage of W. A. Bostwick, Lawrence Park West, N.Y. Am Arch 120:278 O 12 '21

- Garage planning. plans Motor Age 36:31-5 D 4; 34-6 D 11; 37-9 D 18; 30-1 D 25 '19; 37:44-5 Ja 1; 41-3 Ja 8; 49-51 Ja 15; 39-41 Ja 22; 112-13 Ja 29; 37-8 F 5; 57-8 F 12; 38-9 F 19; 48-9 F 26; 40-1 Mr 4; 42-3 Mr 11; 38-9 Mr 18; 40-1 Mr 25; 58-61 Ap 1; 42-3 Ap 8; 40-1 Ap 15; 40-1 Ap 22; 42-3 Ap 29; 46-7 My 6; 36-7 My 13; 38-9 My 20; 42-3 My 27; 34-5 Je 3; 32-3 Je 10; 34 Je 17; 34-5 Je 24; 38:36-7 Jl 1; 34-5 Jl 8; 32-3 Jl 15 '20

- Garages for the small home. il diags plans Bldg Age 43:41-2 Jl '21

- Hotel LaSalle garage, Chicago, Illinois. plans Am Arch 118:236, 238-9 Ag 25 '20

- Housing the motor car. il plans Bldg Age 42:69-70 My '20

- Long span concrete arches used in garage. il diags plan Am Arch 117:743-7 Je 9 '20

- Public garage at Santa Barbara, Cal. il diags plan Bldg Age 42:22-5 Ag '20

- Successful house and garage unit. Arch & Bldg 53:50+, pl 92a Je '21

- Towerlike garage contains spiral driveways. il plan Pop Mech 33:221 F '20

Equipment and supplies

- Concrete pit for the garage repair man. il Sci Am 124:393 My 14 '21

- Demand for low-cost garage machinery. J. A. Glatly. il Mach 28:180-1 N '21

- Pits for draining customers' cars boost motor oil trade. il Nat Pet N 13:22-3 F 23 '21

Merchandizing

- Dissolving frozen credits with a cash sale plan for manufacturer and dealer. R. Cole. Ptr Ink 117:57-8+ O 27 '21

Heating and ventilation

- Better work through ventilation. T. Wilder. diags Motor Age 38:7-9 Jl 1 '20

- Cast iron boilers used in connection with fan system. il diag Plumber 95:1-3+ Ja 14 '21

- Do's and don'ts in heating garages. diags Heat & Ven 18:48-9 Je '21

- Garage heating. F. Grant. diags Dom Eng 89:475-7 D 6 '19

- Garage heating apparatus. diags Dom Eng 90:330-2+ F 14 '20

- Garage heating problem. diag Dom Eng 96:153 Jl 23 '21

- Gas unit system for a garage. D. H. Cuyler. diag plan Metal Work 92:764-5 D 26 '19

- Heating system for cottage and garage. diags Dom Eng 96:523-4 S 17 '21

- Heating systems for garages. diags Dom Eng 96:98-100 Jl 16 '21

- Heating the small garage. R. E. Barton. diags Arch Forum 32:35-6 Ja '20

- Information about garage heating. diags Dom Eng 93:514-15 D 11 '20

- Problem in garage heating. diags Dom Eng 91:153+ Ap 24 '20

- Sheet metal heater house for garage. il Sheet Metal Worker 12:77 Mr 4 '21

- Two-pipe, gravity steam heating system in one-story garage building. diags Dom Eng 89:531-2 D 13 '19

Lighting

- Motor-house lighting from a car. Elec R (Lond) 88:304 Mr 11 '21

Management

- Courtesy engineer meets you at the door; Auto electric & service corp., Detroit. il Motor Age 37:12-14 My 20 '20

- Finding the hidden profits in your repair shop. il Motor Age 37:10-12 Mr 11 '20

- How Morris Adler talks to his employees. il Motor Age 37:14-15 Mr 25 '20

Garages—Management—Continued

- Making the shop profitable with system; the X. R. Gill co. il Motor Age 37:18-20 My 27 '20
 Off the main street but making good; the Worthington garage. il Motor Age 37:15+ Je 10 '20
 Signal board speeds battery service. J: A. Ford. il Pop Mech 35:512-15 Ap '21
 Simple record of each car; the Beverly garage, Staunton, Va. il Motor Age 37:15-16 My 20 '20
 There's money right in your back yard. il Motor Age 38:18 Jl 8 '20

Safety devices and measures

- Oil room continues as a menace. Motor Age 37:36 Ja 22 '20

Garages, Concrete

- Concrete cantilever construction in Chicago garage. diags plan Eng N 85:609-11 S 23 '20
 Construction joints in concrete girders of 62½ ft. span. il diags plan Eng N 87:348-50 S 1 '21; Discussion. 87:620-1 O 13 '21
 New system of concrete construction making use of standard wood forms. il Bldg Age 42:23-5 D '20

Garages, Cooperative

- Cooperative garage plan proves quite practicable. il Pop Mech 35:808-9 Je '21
 Duluth adopts system of community garages. il Pop Mech 36:745 N '21

Garages, Electric

- Report of committee on garage and rates. plans N E L A Bul 7:652-5 S '20

Garages, Municipal

- Municipal garage to help solve New Orleans traffic. Motor Age 37:27 Mr 4 '20

Garages, Portable

- Business of making portable steel buildings. il Sheet Metal Worker 11:241-4 O 1 '20

Garbage. See Refuse disposal**Garden apartments. See Apartment houses****Garden cities**

- La cité-jardin Heyplaat de la Rotterdamsche Droogdok Maatschappij à Rotterdam. C. Lemaire. il plans Génie Civil 78:165-9 F 19 '21

- Electricity, small dwellings and garden cities. J. S. Whybrew. plans Electrician 86:408-10 Ap 8 '21

- Garden city and English housing laws. L. S. Smith. il Eng & Contr 54:510-13 N 24 '20

- Housing in Great Britain; garden cities. Monthly Labor R 11:363-5 Ag '20

- La maison heureuse. G. Benoît-Lévy. 73p Editions des Citésjardins de France, Paris '21

- Reserving productive area within and around cities. T: Adams. diags Am Inst Arch J 9:316-19 O '21

- Spanish linear city. E. E. Wood. il Am Inst Arch J 9:169-74 My '21

- Unpopulating London. J: I. Bright. diags Am Inst Arch J 8:354-6 O '20

See also City planning

Garden forks

- Modern method of forging garden forks. P. H. Schweissguth. diags Engineer 131:414 Ap 15 '21

Garden ornaments and furniture

- Concrete garden furniture. D. MacKay. il diags Pop Mech 35:795-8, 946-8; 36:147-9, 309-10, 469-71 My-S '21

- Sculpture in the garden; photographs. Arch Rec 49:423-32 My '21

- Simple furnishings for the home grounds. R. Brown. il Pop Mech 35:783-4 My '21

Garden theaters. See Theaters, Open-air**Gardening**

See also Electrohorticulture; Fruit culture; Gardens; Landscape gardening; Nurseries (horticultural)

Gardens

- Garden of a house at Oyster Bay, L. I. Am Arch 117:188f F 11 '20

- Garden woodwork that adds beauty to the grounds. il Bldg Age 43:31-2 Jl '21

- Gardens of Robert Goellet, at Glenmere, Chester, N.Y. il plan Arch Rec 49:272-81 Mr '21

- Water in the garden; photographs. A. Perrett. Arch Rec 49:331-9 Ap '21

See also Back yards; Landscape gardening; Water gardens

Lighting

- Garden illumination. il J Elec 45:67-8 Jl 15 '20

Gardens, Factory

- Cultivating good will in employees' gardens. il Factory 26:972-3 Ap 15 '21

- Garden production—a stimulus to shop production. il Factory 26:848-50 Ap 1 '21

Gardens, Sunken. See Sunken gardens**Garland, Mahlon M., 1856-**

- Government officials who influence mining. P. Wooton. por Eng & Min J 109:919 Ap 17 '20; Same. Coal Age 17:977 My 13 '20

Garment center realty company, inc.

- Garment center realty buildings, Seventh avenue, 36th to 38th streets, New York city. Arch & Bldg 52:82-3, pl 101-3 S '20

Garment cutting

- Reducing the waste in underwear mills. G: H. Goldsmith. diags Textile World 59:467+ Ja 22 '21

Garment factories

- Garment center realty buildings, Seventh avenue, 36th to 38th streets, New York city. Arch & Bldg 52:82-3, pl 101-3 S '20

See also Clothing trade

Garment workers

- Adjustment of labor disputes in the garment industries in Cleveland. Monthly Labor R 11:53-7 Jl '20

- Wage advance of 15 per cent awarded to garment workers by Governor Smith's special labor board. Comm & Fin Chr 110:621-2 F 14 '20

- Wage decision of referees in Cleveland ladies' garment industry. Monthly Labor R 12:1177-83 Je '21

See also Clothing trade

Garnet

- Electric furnace reduction of garnet. M. deK. Thompson and J: Davenport. Chem & Met Eng 22:596 Mr 31 '20

Garnett machine. See Carding machines**Garrett Biblical institute, Evanston, Illinois**

- Garrett Biblical institute, Evanston; views and plans. Am Arch 118:508c-e O 20 '20

Gas

- City gas of the future. R. B. Harper. W Soc E J 26:1-15 Ja '21

- Composition of coal gas obtained at different temperatures. L. Vignon. Chem & Met Eng 23:748 O 13 '20

- Current views on electricity generation and its relation to coal economy. J. E. Sayers. Inst E E J 59:47-51 D '20

- Desiderata in the qualities of town's gas. J: S. G. Thomas. Engineering 112:78-9; Discussion. 46-7 Jl 8 '21

- Enrichment of artificial gas with natural gas. J. B. Garner. J Ind & Eng Chem 13:58 Ja '21

- Flame velocity with mixed gases. Terres and Straube. Gas Age 48:217-18 Ag 27 '21

- Gas from vegetable waste. Am Gas Eng J 113:404 N 13 '20

- Gas in relation to the housing problem. Illum Engr 13:283-4 O '20

- Gas v. electricity. R. C. Black. Engineer 129:498-9 My 14 '20

- Gas v. electricity; discussion. Elec R (Lond) 88:366-8 Mr 18 '21

- Heat efficiency of less rich gas. W. Bertelsmann. Gas Age 48:354-6 S 24 '21

- How shortage in supply of natural gas can be augmented by artificial. E. G. Pratt. Nat Pet N 12:81+ O 13 '20

- Natural gas shortage supplied. J. H. Tausig. il chart diag Gas Age 45:379-81 My 10 '20

- Producer gas. J. E. Dowson and A. T. Larter. 4th ed. 361p Longmans '20

Gas—Continued

Report of the Illuminating engineering society committee on progress. Illum Eng Soc 15:428-32 no 7 '20

Status of manufactured and natural gas compared. Chem & Met Eng 23:695-6 O 6 '20

Thermal efficiency of the generation and use of gas and electricity. D. Clerk. diags Inst E E J 58:765-7; Discussion. 767-79 S '20

Thermal efficiency of the generation and use of gas and electricity; with discussion. D. Clerk. diags Electrician 84:688-90, 695-6 Je 25 '20

Thermal gas utilization discussed. G. I. Vincent. Gas Age 48:242 Ag 27 '21

See also Acetylene; Blast furnace gas; Coke-oven gas; Distillation; Flue gas; Gas analysis; Gas and oil engines; Gas appliances; Gas as fuel; Gas burners; Gas industry; Gas lighting; Gas manufacture and works; Gas producers; Gases; Mine gases; Oxyacetylene flame; Petroleum

Analysis

See Gas analysis

History

Early history of the gas industry; developments in manufacture of wrought-iron pipe for gas. R. B. Verdery. Am Gas J 114:514-15 Je 11 '21; Same. Gas Age 48:180-1 Ag 20 '21

Laws and regulations

British gas law prophetic. N. H. Humphrys. Gas Age 46:234-5 S 25 '20

British gas legislation in 1920. N. H. Humphrys. Gas Age 46:91-2 Ag 10 '20

Gas composition restriction act. N. H. Humphrys. Gas Age 47:283-4 Ap 11 '21

Larceny of water, gas and electricity. J. Simpson. Munic J 48:28-30 Ja 17 '20

New Orleans city commission adopts new gas ordinance. Am Gas Eng J 113:sup17 O 23 '20

Nouvelles règles fixant les qualités exigées du gaz d'éclairage et nouvelles méthodes de fabrication. P. Lauriol. Génie Civil 77:328-9 O 23 '20

Public necessity supplants contract; full text of decision by Chancellor W. B. Garvin, dated Sept. 3, referring to the contract between the Chattanooga (Tenn.) gas co. and the Chattanooga coke & gas co. Gas Age 48:378-82 O 1 '21

See also Gas—Standards; Gas, Natural—Laws and regulations; Gas companies—Regulation; Gas rates

Proportional mixing

Determining the influence of excess gas on fuel consumption in gas-fired oven furnace. O. Leliep. Am Gas Eng J 113:397-8+ N 13 '20; Abstract. Gas Age 46:375 N 10 '20

Report of A. G. A. sub-committee on proportional mixing. il diag Am Gas Assn Commercial sec v 2:235-43 '20

Report of committee on proportional mixing. il diags Am Gas Assn Commercial sec v 1:278-334; Discussion. 334-43 '19

Test on the ratiometer. C. C. Krausse and J. C. Smallwood. Gas Age 46:375 N 10 '20

Rates

See Gas rates

Standards

Adoption of reduced B.t.u. J. B. Jones. Am Gas Eng J 114:136-7 F 12 '21; Same. Gas Age 47:98-9 F 10 '21

B.t.u. indicator found useful. Gas Age 48:323 S 17 '21

California gas standards. il chart Gas Age 46:1-5 Jl 10 '20

Change in gas standard explained to U.G.I. employees. P. H. Gadsden. Am Gas Eng J 113:293-6 O 9 '20

Development of B.t.u. standards. A. I. Phillips. Gas Age 47:509-11 Je 25 '21

Facts regarding gas standards. J. B. Klumpp. Gas Age 46:506-12 D 25 '20

Gas by the farm therm. Engineer 130:509-10 N 19 '20

Gas of the future discussed. J. C. Dickerman. Gas Age 46:93-5 Ag 10 '20

Gas oil situation reviewed. O. Fogg. Gas Age 45:296-7 Ap 10 '20

Gas progress related to B.t.u.'s. A. I. Phillips. Gas Age 47:327-30 Ap 25 '21

Illinois standards of service. A. S. B. Little. Gas Age 46:96-9 Ag 10 '20

Incombustibles in gas. Engineering 112:351 S 2 '21

Is one heat unit worth as much to the consumer as another? E. C. Jones. Am Gas Eng J 111:578-80, 583-4 D 20 '19

Massachusetts low B.t.u. gas tests. L. J. Willien. Gas Age 46:515-17 D 25 '20

New gas standard for Indiana. Am Gas Eng J 112:374 My 8 '20

New gas standards for London. N. H. Humphrys. Gas Age 45:539-40 Je 25 '20

New unit; gas by the therm. Gas Age 46:264-5 O 11 '20

Nouvelles règles fixant les qualités exigées du gaz d'éclairage. et nouvelles méthodes de fabrication. P. Lauriol. Génie Civil 77:328-9 O 23 '20

Organization and plans of the joint committee on efficiency and economy of gas of the railroad commission of the state of California. Am Gas Eng J 112:515-18 Je 26 '20

Projet de loi sur le débenzolage du gaz d'éclairage. Génie Civil 79:17-18 Jl 2 '21

Quality of gas in Great Britain. M. Meredith. Am Gas J 114:390-1 Ap 30 '21

Reducing the B.t.u. standard. A. F. Davey. Am Gas J 114:316+ Ap 9 '21; Same. Gas Age 47:303-4 Ap 11 '21

Report of A.G.A. committee on calorific standards. Am Gas Assn General Sessions sec v 2:149-226; Discussion. 227-8 '20

Right kind of gas to supply. T. Goulden. Gas Age 48:209-11 Ag 20 '21

Seattle's gas problems. C. K. Poe. Am Gas Eng J 114:67-8 Ja 15 '21

Some forethought in gas engineering. E. L. Rieha. Am Gas J 114:511-13+ Je 11 '21; Excerpts. Gas Age 47:472-7 Je 10 '21

Standards for gas service. U S Bur Stand Circ 32:1-140 '20

State and city B.t.u. requirements. Gas Age 45:217-19 Mr 10 '20

Therm quality—price standard. N. H. Humphrys. Gas Age 46:424-5 N 25 '20

Testing

See Gas testing

Toxicology

Carbon monoxide, illuminating gas, and benzol: their effect on blood coagulation time. H. S. Forbes and L. Hompe. bibliog J Ind Hygiene 3:213-16 N '21

First aid for persons overcome by gas. 5th ed. 39p United gas improvement co., Philadelphia '21

Gas, Compressed

Disposal of old compressed-gas cylinders. il diags Mach 26:745 Ap '20

Use of compressed gas in foreign countries. Chem & Met Eng 23:979 N 17 '20

Gas, Natural

Absorption as applied to recovery of gasoline left in residual gas from compression plants. W. P. Dykema and R. O. Neal. il diags plan U S Bur Mines Tech Pa 232:1-40 '20; Excerpts. Nat Pet N 12:41-2+ Mr 24; 35+ Ap 7 '20

Absorption gasoline. Engineering 109:760-1 Je 4 '20

Carbon black produced from natural gas in 1920. E. G. Sievers. U S Geol S Min Res of U S 1920.pt 2:145-9 '21; Excerpts. Gas Age 47:466-7 Je 10 '21; Chem Age 29:261-2 Jl '21; Chem & Met Eng 25:333-4 Ag 24 '21

Casinghead men find return of gas to producer growing burden. J. B. Gambrell, jr. Nat Pet N 13:67+ Ap 27 '21

Chemical industries likely to lose natural gas supply. R. S. McBride. diag map Chem & Met Eng 23:743-4 O 13 '20

Gas, Natural—Continued

- Chemistry of natural gas. J. B. Garner. Gas Age 45:545-6 Je 25 '20
- Controlling a gas well. S. S. Langley. diag plans Eng & Min J 108:775 N 8 '19
- Economic aspects of natural gas. E. G. Sievers. il diag Gas Age 47:355-9 My 10 '21
- Effects of gasoline removal on the heating value of natural gas. D. B. Dow. U S Bur Mines Tech Pa 253:1-20 '20
- Employ charcoal in absorption process. G. G. Oberfell and G. A. Burrell. Nat Pet N 12:54+ My 19 '20
- Enrichment of artificial gas with natural gas. J. B. Garner. J Ind & Eng Chem 13:58 Ja '21
- Experimental studies of subsurface relationships in oil and gas fields. R. V. Mills. il Econ Geol 15:398-421 Jl '20; Discussion. 15:680-2; 16:52-60 D '20-Ja '21
- Future of natural gas. Gas Age 45:437-41 My 25 '20
- Gas in the big sand draw anticline, Fremont county, Wyoming. A. J. Collier. diag maps U S Geol S Bul 711—E:75-83 '20
- Gas leak stopped with hemp. F. B. Tough. Gas Age 48:9-10 Jl 11 '21
- Gasoline by the charcoal absorption process. G. A. Burrell, G. G. Oberfell and C. L. Voress. flow sheet Chem & Met Eng 24:156-60 Ja 26 '21; Excerpts. Sci Am M 3:252-4 Mr '21
- Gasoline from natural gas. J Ind & Eng Chem 12:547-9, 735-8, 852-7, 1011-15 Je, Ag-O '20
- Gasoline from natural gas. H. Botsford. il Sci Am 122:359+ Ap 3 '20
- Gasoline from natural gas. C. E. Reese. diag Gas Age 45:382-4 My 10 '20
- Gasoline from natural gas; hydrometer for small amounts of gasoline. R. P. Anderson and C. E. Hinckley. diag J Ind & Eng Chem 13:144-5 F '21
- Great natural gas industry. O. F. Schuette. Gas Age 45:392-5 My 10 '20
- Helium-bearing natural gas. G. S. Rogers. diag maps U S Geol S Prof Pa 121:1-113, pl 1-4 '21
- Helium: its history, properties and commercial development. R. B. Moore. J Fr Inst 191:187-9 F '21
- Leakage of natural gas. H. D. Hancock. Gas Age 47:411-14 My 25 '21
- Manufacture of carbon black from natural gas. R. O. Neal. Sci Am M 1:438-9 My '20; Same. Gas Age 45:445-6 My 25 '20; Same. Nat Pet N 12:97+ My 12 '20
- Natural-gas gasoline production. E. G. Sievers. Gas Age 47:414-15 My 25 '21
- Natural gas man has to face many distributing problems. A. B. Macbeth. Am Gas Eng J 113:510-11 D 18 '20
- Present status of natural gas. H. J. Hoover. Gas Age 47:407-9 My 25 '21
- Probable life of natural gas. W. I. Moyer. map Gas Age 45:462-5 My 25 '20
- Robbing gas is benefit to country. Nat Pet N 12:88+ Mr 10 '20
- Role of bed-rock in the distribution of the hydrocarbons. M. M. Monte-Flores. diag Min & Met 167:(sec 6) 1-3 Ja '20
- Sulphur Springs meeting convinces commissioners. Gas Age 46:228-9 S 25 '20
- Technical examination of crude petroleum, petroleum products and natural gas. W. A. Hamor and F. W. Padgett. 591p McGraw-Hill '20
- \$10,000,000 industry built on natural gas otherwise unsalable. il Nat Pet N 12:75+ N 17 '20
- Use of natural gas for power in gas engines. F. H. Bivens. diag Gas Age 44:493-4 D 1 '19
- Valuation factors of casing-head gas industry. O. U. Bradley. Min & Met 164:27-8 Ag '20
- Water displacement in oil and gas sands. R. H. Johnson. Min & Met 157:(sec 7) 1-4 Ja '20; Same. Eng & Min J 109:516-17 F 21 '20

When appliances work best; information on natural gas domestic appliances. R. F. Earhart. diag Gas Age 45:571-2+ Je 25 '20; Same cond. Mech Eng 42:287-8+ My '20; Abstract. Sibley J 34:132 S '20

See also Electricity in petroleum industry

Bibliography

Bibliography of petroleum and allied substances, 1917. E. H. Burroughs. U S Bur Mines Bul 180:1-170 '20

Conservation

- Air pollution and wastefulness; decision of the U.S. Supreme court relating to the gas carbon black industry of Wyoming. F. Dannerth. Chem & Met Eng 25:104 Jl 20 '21
- Conservation of natural gas in Canada. Gas Age 45:442-4 My 25 '20
- Conservation of natural gas urged. Am Gas J 114:468+ My 28 '21
- Demand limiting meter and engineering problems involved in the application of the three part rate as a basis of selling gas service. H. D. Hancock. diag Am Gas Assn Technical sec v 2:7-31; Discussion. 31-8 '20
- Effect of rates on service. H. L. Montgomery. Gas Age 47:439-43 My 25 '21
- Every effort being made to conserve supply of natural gas in Ohio and Penn. Am Gas Eng J 113:sup17 O 30 '20
- Gas appliance investigation. Sci Am M 2:273 N '20
- How shortage in supply of natural gas can be augmented by artificial. E. G. Pratt. Nat Pet N 12:81+ O 13 '20
- Important conference to save natural gas. Gas Age 45:83-4 Ja 26 '20
- Increased price, rationing and conservation of natural gas. H. G. Franklin. Metal Work 93:384-5 Mr 26 '20
- Losses at oil wells. Engineering 109:220-1 F 13 '20
- Natural-gas curtailment. R. S. McBride. diag map Eng & Min J 110:417-18 Ag 28 '20
- Natural gas for 25 years; rules agreed upon at special meeting in Pittsburgh for conservation to save dwindling supply. E. C. Jennings. Gas Age 46:154-5 Ag 25 '20
- Natural gas in East exhausting. E. C. Jennings. Gas Age 46:484-5 D 10 '20
- Natural gas waste in Kansas. R. C. Morley. Gas Age 45:385-7 My 10 '20
- Plans to save natural gas supply, announced by National committee. E. C. Jennings. Gas Age 45:416-17 My 10 '20
- Question of natural gas. Sci Am 122:621 Je 5 '20
- Restricted use of natural gas; Pittsburgh chamber of commerce makes recommendation. Am Gas J 114:321 Ap 9 '21
- Saving the natural gas. Mech Eng 42:643-4 N '20
- Suggestions for saving gas adopted by Natural gas conservation committee. Am Gas Eng J 113:sup18 Jl 10 '20
- Warns against waste of gas. O. F. Schuette. Gas Age 45:562 Je 25 '20
- Waste and correct use of natural gas in the home. S. S. Wyer. diag U S Bur Mines Tech Pa 257:1-21 '20; Excerpt. Gas Age 46:231-3 S 25 '20
- Wasteful use of natural gas. S. S. Wyer. Gas Age 47:360-2 My 10 '21

Laws and regulations

- Courts interpret natural gas law. Gas Age 48:178-9 Ag 20 '21
- If the Steptoe act be upheld. E. C. Jennings. Gas Age 46:112-13 Ag 10 '20
- Impending natural gas laws. Gas Age 46:385-6 N 10 '20
- Legal aspects of natural gas supply. J. Simpson. Gas Age 47:421-3 My 25 '21
- Natural gas legal decisions. Gas Age 45:450-4 My 25 '20
- Natural gas legislation; an outline of bills now before legislatures in ten states. E. C. Jennings. Gas Age 47:108 F 10 '21
- Natural gas rate decisions. Gas Age 46:141-3 Ag 25 '20

- Gas, Natural—Laws and regulations —*Cont.*
 Steptoe law threatens house and mill supply. E: C. Jennings. map Gas Age 46:316-17 O 25 '20
 Steptoe natural gas hearings. E: C. Jennings. Gas Age 45:475-6 My 25 '20
 Wyoming enacts new carbon law. Oil Paint & Drug Rep 99:9 sec 2 Mr 7 '21

Taxation

- In preparing tax report of natural gas wells, valuation most difficult point to ascertain. R. H. Johnson. Am Gas Eng J 112:442+ Je 5 '20

Testing

- Testing natural gas for carbon black. R. O. Neal. il diags Chem & Met Eng 22:358-9 F 25 '20
 Truck compressor tests natural gas. il Sci Am 124:54 Ja 15 '21
 Use of motor cars for testing gas produced from oil wells. F. I. Thompson. Nat Pet N 13:45 My 18 '21

Transportation

- Pipe lines for transporting natural gas. C. E. Brock. il diags Mech Eng 42:445-7 Ag '20
 Texas man decries practice of ripping city streets to install gas in homes. M. P. Cullinan. Am Gas Eng J 113:497-8 D 11 '20

California

- Natural gas burning steam plant; Midway steam plant of the San Joaquin light & power corporation. il diag J Elec 46:339-40 Ap 1 '21

Canada

- Oil and gas in western Canada. 27p Department of the Interior, Canada '20

Indiana

- Petroleum and natural gas in Indiana. W: N. Logan. 279p Fort Wayne print. co., Fort Wayne '20

Kansas

- Oil and gas resources of Kansas. R. C. Moore. 2v il diags maps Kansas Geol S Bul 6 '20

Louisiana

- Louisiana natural gas and carbon black manufacture. Chem Age 29:371-2 S '21

Montana

- Geology and oil and gas prospects of the Huntley field, Montana. E. T. Hancock. il diags maps U S Geol S Bul 711—G:105-48 '20
 Oil and gas in Montana. J. P. Rowe. map Eng & Min J 110:412-17 Ag 28 '20

North Dakota

- Possibilities of oil and gas in North Dakota. A. G. Leonard. Eng & Min J 109:1077-8 My 8 '20

Oklahoma

- Economic aspects of the natural gas situation in Oklahoma. C. C. Osborn. Nat Pet N 12:91+ Ag 25 '20
 Oklahoma natural gas supply. C. C. Osborn. Gas Age 46:221-2 S 25 '20

Pennsylvania

- Gas wells bring wealth to obscure district. il Pop Mech 33:735-6 My '20

Texas

- Lone star gas co. typical of successful natural gas enterprise. Am Gas Eng J 113:380 N 6 '20
 Natural-gas resources available to Dallas and other cities of central north Texas. E. W. Shaw and P. L. Ports. maps U S Geol S Bul 716—D:55-89 '20

United States

- Gas situation of the Philadelphia company's natural gas properties in West Virginia and Pennsylvania. S: S. Wyer. 28p Samuel S. Wyer, Columbus, O. '20
 Mid-continent gas survey. W. F. Kerr. Gas Age 47:392-3 My 10 '21

- Natural gas and natural-gas gasoline in 1918. E. G. Sievers. U S Geol S Min Res of U S 1918 pt 2:1393-1437 '20; Excerpt. Gas Age 46:89-90 Ag 10 '20; Summary. Power 52:207 Ag 10 '20
 Official natural gas data. E. G. Sievers. map Gas Age 45:534-9 Je 25 '20
 Oil and gas rights on the public domain and on private lands. R. S. Morrison and E. D. De Soto. 1115p Bender-Moss co., San Francisco '20

Wyoming

- Gas in the Big Sand Draw anticline, Fremont county, Wyoming. A. J. Collier. diags map U S Geol S Bul 711:75-83 '20

Gas, Oil

- Lampblack, by-product from oil gas manufacture, a readily marketed domestic fuel. E. L. Hall. il Am Gas Eng J 112:77-80 Ja 31 '20
 New producer oil gas plant. F. C. Binnall. il diags Gas Age 47:47-51 Ja 25 '21; Same cond. J Ind & Eng Chem 13:242-6 Mr '21
 Oil gas a possible way out even with eastern gas companies. W. S. Yard. il Am Gas Eng J 113:387-90+ N 13 '20; Same. Gas Age 46:413-17 N 25 '20
 Oil-gas generator. A. N. Capron. diags Pop Mech 34:770-1 N '20
 Thermal efficiency of oil-gas sets. E. L. Hall and S. H. Graf. il diags Gas Age 48:409-18 O 8 '21; Same. Am Gas J 115:318-22, 328-35 O 8 '21

See also Gas oil [for oil used in the manufacture of oil and water gas]

Gas, Water

- Air purge system in water gas sets. G. H. Smith. diag Gas Age 46:502-5 D 25 '20
 Automatic control; one operator can handle two machines easily. S. A. Goodman. Am Gas J 114:516 Je 11 '21
 Bituminous coal as generator fuel. W. W. Odell. Gas Age 46:501 D 25 '20
 Bituminous coal water gas. C. E. Reese. Gas Age 45:169-73 F 25 '20
 Blue gas in domestic appliances. R. A. Carter. Gas Age 48:171-2 Ag 20 '21
 Blue gas in domestic appliances. A. J. Huston. Gas Age 47:377 My 10 '21
 Blue water-gas. Engineering 112:547 O 14 '21
 Catalytic methane from blue gas. M. Meredith. Gas Age 47:7-8 Ja 10 '21
 Centrifugal separator for tar. il diag Gas Age 47:512-13 Je 25 '21
 Chicago tests of water gas sets. C. E. Reese. il Gas Age 47:1-6 Ja 10 '21
 Combination coal and water gas. R. Baker. il diags Gas Age 47:129-31 F 25 '21
 Comparison of generator fuels and gas oil in the production of carbureted water-gas. R. B. Harper. Am Gas Assn General Sessions sec v 2:209-11 '20
 Cooling water gas in circulating washer-coolers. G: Wehrle. Am Gas J 114:553-4+ Je 25 '21
 Diminution of waste heat losses in water gas operation. H. L. Nickerson. Am Gas Eng J 112:159-61 F 28 '20; Same. Gas Age 45:253-5 Mr 25 '20
 Gas heating and the manufacture of coke ovens and water gas. Heat & Ven 17:52 O '20
 Gazogène spécial pour la production de faibles quantités de gaz à l'eau. diag Génie Civil 78:137 F 5 '21
 Heating furnaces and annealing furnaces. W. Trinks. diag Blast F & Steel Pl 8:203-4 Mr '20
 How can we increase our water gas set capacities? J. H. Taussig. Am Gas J 114:537-8+ Je 18 '21; Same. Gas Age 48:317-18 S 17 '21
 L'introduction du gaz à l'eau dans le gaz de ville. A. Grebel. il diags Génie Civil 76:305-12 Mr 27 '20
 Investigation of scrubbing apparatus and cooling systems. R. A. McNeas. Am Gas J 115:393-4 O 29 '21
 Making and use of blue water gas. F. H. Wagner. il Gas Age 46:336-9 N 10 '20

Gas, Water—Continued

- Manufacture of water gas. G: E. Wagner. *Am Gas J* 114:274+ Mr 26 '21; Same. *Gas Age* 47:271-4 Ap 11 '21
- Nouvelles règles fixant les qualités exigées du gaz d'éclairage, et nouvelles méthodes de fabrication. P. Lauriol. *Génie Civil* 77:329 O 23 '20
- Research upon steaming verticals. *Gas Age* 48:206-9 Ag 27 '21
- Sampling device for the investigation of water gas operation. R. A. Carter, jr. *il charts diag Am Gas Assn Technical sec v* 1:189-91; Discussion. 191-204 '19
- Testing water in tar emulsions. W. W. Odell and E. W. Thiele. *diag Gas Age* 47:234-6 Mr 25 '21; Same. *Am Gas J* 114:252, 257-8 Mr 19 '21
- Use of bituminous coal as water-gas generator fuel. W. W. Odell. *Chem & Met Eng* 24:60 Ja 12 '21
- Water-gas. A. E. Blake. *il diag Eng Soc W Pa* 36:575-97; Discussion. 598-610 D '20
- Water-gas apparatus and the use of central district coal as generator fuel. W: W. Odell. *il diags U S Bur Mines Tech Pa* 246:1-27 '21; Excerpts. *Gas Age* 47:424-6, 517-19 My 25, Je 25 '21
- Water gas operating suggestions. F. C. Hill. *Gas Age* 48:108-9 Ag 6 '21
- Western mechanical man to operate water-gas sets. W. W. Hackney. *il Am Gas J* 115:294+ S 24 '21; Same. *Gas Age* 48:540 O 29 '21
- What goes on in a water-gas machine? M. E. Benesh. *diag Am Gas J* 115:275-8+ S 24 '21
- Gas Age-Record (periodical)**
- Consolidation of the Gas age and the Gas record. *Gas Age* 48:89-96 Ag 6 '21
- Gas analysis**
- Analysis of sulphur burner gases and sulphite acid. A. Sander. *diag Paper* 27:18-19+ D 8 '20
- Die apparate für technische gasanalyse. K. Aschof. *il diags Stahl & Eisen* 41:1406-13 O 6 '21
- Application of the interferometer to gas analysis. J. D: Edwards. *U S Bur Stand Tech Pa* 131:1-19 '19; Same. *Chem & Met Eng* 21:560-5 O 29 '19
- Application of the thermal conductivity method to the automatic analysis of complex mixtures of gases. E. R. Weaver and P. E. Palmer. *diag J Ind & Eng Chem* 12:894-9 S '20
- Automatic methods of gas analysis depending upon thermal conductivity. G. A. Shakespeare; E. R. Weaver. *J Ind & Eng Chem* 12:1027-8 O '20
- Automatic methods of gas analysis depending upon thermal conductivity. E. R. Weaver and others. *il diags J Ind & Eng Chem* 12:359-66 Ap '20
- Die bestimmung von teer, staub und wasser in generatorgas. E. Jenkner. *diags Stahl & Eisen* 41:181-3; Discussion. 183-5 F 10 '21
- Chemical control of gas operation. F. J. Kennedy. *diags Gas Age* 46:342-5 N 10 '20
- Convenient method for the preparation of a hydrochloric acid solution of cuprous chloride for use in gas analysis. F. C. Krauskopf and L. H. Purdy. *J Ind & Eng Chem* 12:158-61 F '20
- Determination of nitrogen oxides in processes for nitrogen fixation. G. B. Taylor. *Chem & Met Eng* 23:1112 D 8 '20
- Gas analysis by absorption and titration. R. S. Tour. *diag Chem & Met Eng* 23:1104-6 D 8 '20
- Gas and fuel analysis for engineers. A. H. Gill. 9th rev. ed. 160p Wiley '20
- Gas control by machine. *il Sci Am* 123:303 S 25 '20
- Improved apparatus for determining light oil in gas. E. H. Bird. *il diag Chem & Met Eng* 22:705-6 Ap 14 '20
- Improved Orsat apparatus for gas analysis. G. W. Jones and F. R. Neumeister. *il diags Chem & Met Eng* 21:734-6 D 10 '19
- Indicators for carbon dioxide and oxygen in air and flue gas. L. H. Milligan, D. O. Crites and W. S. Wilson. *il diags U S Bur Mines Tech Pa* 238:1-22 '20
- New forms of combustion apparatus for use in gas analysis. E. R. Weaver and P. G. Ledig. *diags J Ind & Eng Chem* 12:368-70 Ap '20
- Nouvel appareil pour l'analyse industrielle des gaz. G. Andoyer. *diags Génie Civil* 79:174-5 Ag 20 '21
- Quantitative determination of traces of dichloro-ethylsulfide (mustard gas) in air. M. Yablick, G. St J. Perrott and N. H. Furman. *diag Am Chem Soc J* 42:266-74 F '20
- Technical gas and fuel analysis. A. H. White. 2d ed. McGraw-Hill '20
- Test on sulphur content of clean, cold producer gas. C. F. Kaufmann. *Chem & Met Eng* 22:544 Mr 24 '20
- Weight buret for gas analysis. E. R. Weaver and P. G. Ledig. *diags Am Chem Soc J* 42:1177-85 Je '20
- See also Air—Analysis; Flue gas—Analysis*
- Gas and oil engines**
- A. W. small internal-combustion engine. *il diags Engineering* 111:10-11, 16 Ja 7 '21
- Adjustment of valve-timing mechanism. E. E. Snow. *diags Power* 51:968 Je 15 '20
- Advantages of large gas engines for central power stations. W. Crooke. *diags Electrician* 85:547-9 N 5 '20
- Application of gas in laundries. *Am Gas Eng J* 112:200-1 Mr 13 '20
- Bergsund original surface-ignition-type engine. *diag Mech Eng* 42:295 My '20; *Sci Am M* 1:523 Je '20
- Blackstone cold starting oil engine. *il diags Engineering* 110:42-3 Jl 9 '20
- British oil-engine progress. J. L. Chaloner. *Power* 53:564 Ap 5 '21
- Burt single sleeve-valve engine. *il (supp) diags Engineer* 130:154, 155-6, 158 Ag 13 '20
- Calculation of low-pressure indicator diagrams. E. C. Kemble. *U S Nat Advisory Com for Aeronautics* 1918:644-54 '20
- Clearance in internal-combustion engines. A. H. Stuart. *Engineering* 109:782 Je 11 '20
- Cockerill blast-furnace gas engines. H. Hubert. *il diags Engineer* 130:495-8 N 19 '20; Discussion. *Engineer*-130:558 D 3 '20
- Combustion process in the oil engine. *diags Mech Eng* 42:627-8 N '20
- Comparative costs of central-station and oil-engine power. *Elec W* 76:483-4 S 4 '20
- Cylinder actions in gas and gasoline engines. D. Clerk. *Automotive Ind* 44:1096-9 My 26 '21
- Developing a high-compression automotive engine. F. C. Ziesenheim. *diags Soc Auto Eng J* 9:5-19 Jl '21; Discussion. 9:268-75 O '21
- Development of the internal combustion engine. T. B. Murray. *Sci Am M* 1:350-6 Ap '20
- Diagram to determine horsepower of gasoline engines. C. E. Launsbery. *Eng N* 85:892-3 N 4 '20
- Dual-combustion oil engine. W. J: Walker. *diags Power* 54:134-6 Jl 26 '21
- Efficiencies of internal-combustion engines. *diags Power* 53:1020 Je 21 '21
- English build large gas blowing engines. *il Blast F & Steel Pl* 8:30-1 Ja '20
- Future internal-combustion engines. C. A. Norman. *diags Sci Am S* 88:346, 354-5, 374-5 D 13-20 '19
- Gas-engine crankshaft alignment. W: P. Flint. *il diags Power* 53:788-9 My 17 '21
- Gas engine in iron and steel works. T. B. Morley. *il diags Electrician* 86:99-102 Ja 21 '21
- Gas-engine piston without rings. S. H. Bunnell. *il diags Iron Age* 108:81-2 Jl 14 '21
- Gas engines for textile mills. J. G. Walthew. *il Electrician* 84:266-8 Mr 5 '20
- Gasoline-engine drive for centrifugal pumps. T. M. Heermans. *il Power* 53:376-7 Mr 8 '21

Gas and oil engines—*Continued*

- Gasoline engine—its development and care. Y. Adams. Plumber 95:229-301; 96:10-13 My 20, Jl 1 '21
- Gasoline motors for bridge motive power. il Ry R 68:471 Mr 19 '21
- Gasoline motors on construction work. J. Napier. Can Eng 38:497-8 My 27 '20
- Glasgow air-cooled sleeve-valve engine. il diags Engineering 112:538 O 14 '21
- Hamworthy two-cycle engine. il diags Engineering 109:792, 794 Je 11 '20
- High speed internal combustion engine for research. H. R. Ricardo. il diags Engineering 110:325-30, 361-2 S 3-10 '20; Abstract. Power 52:609 O 19 '20
- Hvid engine; its relation to the fuel problem. E. B. Blakely. il diags Sci Am M 1:69-72 Ja '20; Abstracts. Mech Eng 41:918-20 D '19; Power 51:38-9 Ja 6 '20; Power Pl Eng 24:196-8 F 1 '20; Excerpts. Min & Met 160:26-7 Ap '20
- Ingersoll-Rand P-R oil engine. il diags Power 52:133-4 Jl 27 '20
- Internal-combustion cable ploughing engine. diags Engineering 110:506-7 O 15 '20
- Internal combustion engine. Am Gas Eng J 113:144-6 Ag 21 '20
- Internal-combustion engines as prime movers for refrigeration plants. W. H. Motz. il diags Power 54:58-60 Jl 12 '21
- Internal combustion engines, their theory, construction and operation. R. C. Carpenter and H. Diederichs. 3d ed. 597p Van Nostrand '20
- Internal combustion engines vs. central station power. R. E. Fisher, W. W. Shuhaw and C. Ingalls. J Elec 44:353-5 Ap 15 '20
- Internal-combustion engines with large cylinders. J. McKechnie. Engineering 112:132-4; Discussion. 123-4 Jl 15 '21
- Large gas engines. F. K. de la Saulx. Engineer 132:46-7 Jl 8 '21
- Looking into the cylinder of a gasoline engine in operation. Sci Am M 3:556-7 Je '21
- Moteur Clayton and Shuttlesworth, au pétrole brut. diags Génie Civil 77:442 N 27 '20
- Moteur compound à explosion, système Pourcel. diags Génie Civil 77:299 O 9 '20; Translation. Power Pl Eng 25:134 Ja 15 '21
- Les moteurs à gaz et machines soufflantes de grande puissance, système Galloway. il diags Génie Civil 79:141-5 Ag 13 '21
- New crude oil engine. il diags Engineer 129:278-80 Mr 12 '20
- New English gas engine; Premier. diags Power 52:177 Ag 3 '20
- New generating apparatus; Dodge heavy oil engines. Paper 27:115 N 10 '20
- New universal type of heat engine; Pratt engine. diags Can Eng 39:310-11+ S 2 '20
- Oil engine for peak loads. E. C. Fawcett. il Power 53:669 Ap 26 '21
- Oil engine installation in New Mexico. T. M. Robie. il Eng & Min J 109:755-7 Mr 27 '20
- Oil engine progress. Eng & Ind Management 5:291-4 Mr 10 '21
- Oil engines. L. H. Morrison. Power 53:17-18 Ja 4 '21
- 120-h.p. three-cylinder vertical gas engine. diags Engineer 130:567 D 3 '20
- Operating the Hvid engine. C: Labbe. Power Pl Eng 24:299 Mr 1 '20
- Practical brake-horsepower formula for internal-combustion engines. H. Lemp. diags Gen Elec R 22:808-9 O '19; Same. Mech Eng 41:959-60 D '19; Abstract. Automotive Ind 42:807 Ap 1 '20
- Premier single-crank four-cylinder vertical gas engine. il (supp) diags Engineer 129:526-7 My 21 '20
- Pressure injection and the air injection oil engines. H. Shultz. Power 52:940-1 D 14 '20
- Problems and probable field of the oil engine. P. Rieppel. Mech Eng 43:197-8 Mr '21; Same. Sci Am M 3:281-2 Mr '21
- Production of power from internal-combustion engines. F. W. Burstall. il diags Elec-trician 86:781-3 Je 24 '21
- Rebuilding an old oil engine into a modern type. E. J. Kates. il diags Power 53:971-2 Je 14 '21
- Recent advances in surface-ignition oil engines. diags Power 52:62 Jl 13 '20
- Record two-stroke engine. il diags Engineer 131:270-1 Mr 11 '21
- Rising importance of oil-injection type of internal-combustion engine. C: E. Lucke. diags Mech Eng 43:653-8+ O '21; Same cond. Power 54:411-14, 521-4 S 13, O 4 '21
- Rotary motor has cylinders on its perimeter. il Pop Mech 36:679 N '21
- Silent record internal-combustion engine. il diags Engineering 111:565 My 6 '21; Same cond. Mech Eng 43:480-1 Jl '21; Same cond. Sci Am M 4:90 Jl '21
- Solid-injection oil engine. E. J. Kates. il diags Power 52:1008-10 D 28 '20
- Solid injection oil engine, made by Vickers co., of England. Power 51:1036-7 Je 29 '20
- Solid injection type of oil engine. il Power Pl Eng 24:790-1 Ag 15 '20
- Some experience in the development of the oil engine. F. B. Leopold. il Am Water Works Assn J 8:412-25 Jl '21; Same. Munic Eng 61:70-4+ Ag '21
- Some Lincolnshire oil engines. F. H. Livens. diags Engineering 110:159-62 Jl 30 '20; Same. Engineer 130:108-9, 140-2 Jl 30-Ag 6 '20; Discussion. Engineering 110:135 Jl 30 '20
- Steinbecker oil engine. diags Power 52:584 O 12 '20; Génie Civil 78:180 F 19 '21
- Stevens rotary valve engine. diags Automotive Ind 44:1438 Je 30 '21
- Super-compression and other means for improving the economy of internal combustion engines. A. E. L. Charlton. diags Engineering 112:69-71; Discussion. 71-2 Jl 8 '21
- Temperature entropy diagrams for gas and oil engine cycles. G. B. Petter. diags Engineering 111:669-70 Je 3 '21
- 260-B. H. P. solid injection crude oil engine, constructed by Messrs. Ruston and Hornsby, limited, engineers, Lincoln. il diags Engineering 110:7-10 Jl 2 '20; Abstract. Mech Eng 42:521-2 S '20
- Two-stroke crude oil engine with electric starter. il diags Engineering 111:656-7 My 27 '21
- Wolseley hopper-type petrol paraffin engine. il Engineering 111:269 Mr 4 '21
- See also* Acetol; Airplane engines; Airship engines; Automobile engines; Cammellaird-Fullagar engine; Carbureters; Cylinders (engines); Diesel engines; Gas turbines; Locomotives, Gas and oil; Magnetos; Motor boats; Motor cars (railroad); Motor ships; Motor truck engines; Spark plugs; Still engine; Tractor engines; Tractors

Cooling

- Cooling of cylinders and pistons of marine Diesel engines. L: R. Ford. diags Power 53:426-9 Mr 15 '21
- Ignition and cooling in gasoline engines—reports of the National advisory committee for aeronautics. Mech Eng 43:121-3 F '21
- Use flywheel as radiator for stationary engine. il Pop Mech 33:180 F '20

See also Automobile engines—Cooling

Design

- Design of connecting rods for internal-combustion engines. J: L. Bogert. diags Engineering 109:114 Ja 23 '20
- Factors of design in the construction of gas engines. E. W. Roberts. Automotive Ind 42:1320-2 Je 10 '20
- Thermodynamic cycles in relation to internal combustion engines. W: J. Walker. diags Engineer 130:666-9 D 31 '20; Same. Engineering 110:847-50 D 24 '20; Abstract. Mech Eng 43:408-9 Je '21; Discussion. Engineer 130:640-1, 655-6 D 24-31 '20; Engineering 110:827-9 D 24 '20
- Vertical tandem gas engines; constructed by the National gas engine company, ltd. il diags Engineering 110:860-1 D 31 '20

Gas and oil engines—*Continued*

Equipment

Twin strainer and water separator for gasoline-engine fuel line. H. H. Parker. diag Power 52:708 N 2 '20

Exhaust

La carbonisation du bois par l'échappement des moteurs à explosion. L. Tissier. il Chimie & Ind 5:136-42 F '21

See also Automobile engines—Exhaust

Failures

Gas and oil engine accidents. C. A. Joerg. diags Power Pl Eng 25:1061-4 N 1 '21
Gas-engine crankshaft failures. W. P. Flint. il Power 53:739 My 10 '21

Fuel

Application of liquid fuel to heavy oil engines; abstracts. A. J. Wilson. Engineering 109:19-20 Ja 2 '20; Mech Eng 42:465-6 Ag '20

Belgian experiments on palm oil as motor fuel. Chem & Met Eng 24:400-1 Mr 2 '21

Combustion of fuels in the internal-combustion engine. T. Midgley, jr. il diags Soc Auto Eng J 7:489-97; Discussion. 497-9 D '20

Composite fuels and the internal combustion engine. J. E. Pogue. Nat Pet N 12:23-4 Ja 21 '20

Device for automatically regulating the supply of fuel and injection air in heavy-oil engines; abstract. M. Lindemann. diags Mech Eng 43:402-3 Je '21

Economical utilization of liquid fuel. C. A. Norman. Mech Eng 43:739-40 N '21

Effect of fuel consumption on oil-engine reliability. R. Miller. Power 53:272-3 F 15 '21

L'emploi des huiles végétales comme combustible pour les moteurs semi-Diesel. Génie Civil 78:535 Je 18 '21

Engine design for maximum power and economy of fuel. C. A. Norman. Soc Auto Eng J 7:182-5 Ag '20; Discussion. 7:449, 450-1 N '20

Experiments with semi-Diesel engines using vegetable oils as fuel. E. Normand. diag Marine Eng 26:629-30 Ag '21

Fuel for internal-combustion engines. Engineering 109:150 Ja 30 '20

Fuel oil in Diesel engines. C. J. Hawkes. diag Engineering 110:749-52, 786-8 D 3-10 '20; Abstract. Mech Eng 43:42-4 Ja '21; Abstract. Power 53:240-1, 286 F 8-15 '21

Fuel production statistics. chart Soc Auto Eng J 7:311-12 O '20

Internal combustion engine: heat value of gases. M. Meredith. Am Gas J 114:425-6 My 14 '21

Kerosene as fuel in high-speed engines. L. F. Seaton. il Mech Eng 41:881-2 N '19; Same cond. Power 51:154-5 Ja 27 '20

Motor-fuel symposium; Chemical society of Washington, Dec. 9. Power 52:1034 D 28 '20

New engine fuel; tetra-hydronaphthalene. A. Gradenwitz. Sci Am 125A:27 N '21

Petrol engine efficiency. Engineering 111:652-3 My 27 '21

Proper selection of fuel for the oil engine. A. F. Brewer. Power 52:972-4 D 21 '21

Recent patents on mixed fuels. Sci Am 123: 593 D 11 '20

Solid fuel for the gas engine. R. Howard. diag Sci Am 124:151+ F 19 '21

Some of the factors involved in fuel utilization. P. S. Tice. Soc Auto Eng J 7:190-4 Ag '20

Use of natural gas for power in gas engines. F. H. Bivens. diag Gas Age 44:493-4 D 1 '19

Vegetable oils as fuel for internal combustion engines. R. E. Mathot and T. d'Althoff. Engineer 131:255-6 Mr 11 '21; Same abr. Sci Am 124:347 Ap 30 '21

Vegetable oils for internal combustion engines. R. E. Mathot. Engineer 132:138-9 Ag 5 '21

See also Acetylene; Airplane engines—Fuel; Automobile engines—Fuel; Carbureters; Gasoline; Oil as fuel; Tractor engines—Fuel

Gearing

Tappet clearance compensating gear. il diags Engineering 111:352 Mr 25 '21

History

Ancestors of the Liberty motor; origin and development of the internal combustion engine. C. W. Mitman. il Sci Am M 3: 247-50 Mr '21

Ignition

Battery-ignition systems. J. H. Hunt. il diags Soc Auto Eng J 7:537-45; Discussion. 545-8 D '20

Behavior of semi-Diesel engines; explanation of the causes of preignition. diags Power 52:858-60 N 30 '20

Calorimeter for determining the heat of ignition sparks. H. A. Thornburg and E. B. Weaver. il diag Automotive Ind 45:523-4 S 15 '21

Care and operation of gas-engine igniters. E. Pagett. diags Power 53:312-14 F 22 '21

Cylinder actions in gas and gasoline engines. D. Clerk. diags Soc Auto Eng J 8: 523-39 Je '21; Discussion. 9:253-6 O '21

Detonation in internal-combustion engines. H. T. Tizard. Eng & Ind Management 5: 515-18 My 5 '21

Diminutive ignition apparatus. Automotive Ind 45:612 S 29 '21

Gasoline engine—its development and care. Y. Adams. diags Plumber 96:10-13 Jl 1 '21

Ignition and cooling in gasoline engines—reports of the National advisory committee for aeronautics. Mech Eng 43:121-3 F '21

Ignition failures in Diesel engines. L. R. Ford. Power 54:67-8 Jl 12 '21

Ignition from the engineman's viewpoint. G. E. A. Hallett. il Soc Auto Eng J 7:475-9 N '20; Same, without il. Aviation 9:354-6 N 29 '20; Discussion. Soc Auto Eng J 8: 307-13 Ap '21

Internal-combustion engines; ignition problems in semi-Diesel and Diesel oil engines. C. E. Lucke. diags Power 54:479-83 S 27 '21

Introduction à l'étude de la carburation pyrodynamique du moteur à explosions. Carbonaro. diags Soc Ing Civils Bul 74:185-249 Ap '21

Nature of flame movement in closed cylinder. C. A. Woodbury, H. A. Lewis and A. T. Canby. il diag Soc Auto Eng J 8:209-18 Mr '21; Discussion. 9:237-42 O '21

Preignition and spark-plugs. S. W. Sparrow. diags Soc Auto Eng J 6:129-32 F '20; Discussion. 7:62-3 Jl '20

Principles of electric spark ignition in internal combustion engines. J. D. Morgan. 88p C. Lockwood and son, London '20

Velocity of flame propagation in engine cylinders. D. Mackenzie and R. K. Honaman. il diags Soc Auto Eng J 6:119-22 F '20; Discussion. 6:338-9 My '20

See also Airplane engines—Ignition; Automobile engines—Ignition; Magnetos

Lubrication

Carbonisation of lubricating oils in internal-combustion engines. F. H. Garner. diag Inst Pet Tech J 7:98-126; Bibliography. 139-48 Ap '21; Abstract. Engineering 111:82-3 Ja 21 '21; Abstract. Power 53:743-4 My 10 '21; Same. Eng & Ind Management 5:656-7 Je 9 '21; Same. Soc Auto Eng J 9:54 Jl '21; Discussion. Inst Pet Tech J 7:126-38 Ap '21

Development of oil specifications. W. F. Parish. Soc Auto Eng J 7:313-15 O '20

Dilution of crankcase oil. W. F. Parish. charts Soc Auto Eng J 8:231-4; Discussion. 234-7+ Mr '21

- Gas and oil engines—Lubrication—*Continued*
 Dilution of motor lubricants, causes and possible remedies. G. A. Kramer. Nat Pet N 12:31-4 Ja 28 '20; Same. Soc Auto Eng J 6:123-8 F '20; Discussion. 6:335-8 My '20
 Effect of usage on lubricants for internal combustion engines. J. R. Battle. Nat Pet N 12:51+ Ja 28 '20
 Engine lubrication. F. H. Floyd. Soc Auto Eng J 7:126 Ag '20
 Lubrication control in conformity with engine load. F. C. Ziesenheim. diag Automotive Ind 42:1342-3 Je 10 '20
 Lubrication of internal-combustion engines. W. F. Osborne. Power 51:590-3 Ap 13 '20
 Proper lubrication for oil engines. P. P. Talaty. Power 53:439 Mr 15 '21
 Tests of lubricants for the internal combustion engine. F. C. Ziesenheim. Automotive Ind 42:960-2 Ap 22 '20
 Tests on lubricating oil for two-stroke-cycle semi-Diesel engines. T. M. Robie. Power 53:588-90 Ap 12 '21
 Troubles with a gas-engine oiling system. E. Pagett. diags Power 54:101-2 Jl 19 '21
See also Diesel engines—Lubrication; Tractor engines—Lubrication

Bibliography

- Carbonisation of lubricating oils in internal-combustion engines. F. H. Garner. diag Inst Pet Tech J 7:98-126; Bibliography. 139-48; Discussion. 126-38 Ap '21

Manufacture

- Broaching gas-engine tappet-guide holes. J. V. Hunter. il Am Mach 53:321-2 Ag 12 '20
 Machining the gas engine for a lighting unit. J. V. Hunter. il Am Mach 52:765-7, 995-8 Ap 8, My 6 '20
 Manufacture of single-cylinder gasoline engines. J. V. Hunter. il Am Mach 52:1079-83, 1237-9 My 20, Je 10 '20
 Manufacturing a farm pump engine. J. V. Hunter. il diags Am Mach 52:943-6 Ap 29 '20
 Problems encountered in gas engine castings. P. Dwyer. il Foundry 48:980-3 D 15 '20

Repair

- Gas-engine troubles. G. Grow. diags Power 54:167-8 Ag 2 '21

Specifications

- Problems involved in developing engine gasoline specifications. E. W. Dean. Soc Auto Eng J 9:131-2 Ag '21
See also Gas and oil engines, Marine—Specifications

Temperature

- Measurements of temperature in the pistons of oil engines. E. W. Riehm. diags Mech Eng 43:741 N '21
 Measuring temperatures in internal-combustion engines. P. Ferretti. Aerial Age 13:522 Ag 8 '21
 Specific heat and dissociation in internal-combustion engines. H. T. Tizard and D. R. Pye. Engineering 110:325 S 3 '20; Same. Automotive Ind 43:764-5 O 14 '20; Same cond. Power 52:803 N 16 '20; Abstract. Engineer 130:257 S 10 '20

Testing

- Distribution of frictional losses in internal-combustion engines. E. P. Taylor. Mech Eng 43:740-1 N '21
 Experimental separation of engine losses develops interesting results. J. E. Schipper. il diag Automotive Ind 42:1338-41 Je 10 '20
 Gas-steam unit shows 72.4 per cent thermal efficiency at Ford works. L. D. Royer. il diags Power 51:532-5 Ap 6 '20
 Sonoscope for ascertaining the exact positions of defects in internal-combustion engines. diags Engineer 131:302 Mr 18 '21

- Test of an oil engine. H. R. Sankey. Engineer 120:506 N 19 '20; Same. Engineering 110:669 N 19 '20; Same abr. Power 53:44 Ja 4 '21
See also Gas and oil engines, Marine—Testing

Water injection

- Water injection in crude oil engines. Engineer 130:631 D 24 '20
 Water injection in gasoline engines. Sci Am 124:113 F 5 '21

Waterproofing

- Successfully submerging a gasoline engine. L. H. Campbell, jr. il Soc Auto Eng J 6:251-3 Ap '20

Gas and oil engines, Marine

- Adapting truck and tractor engines to motor-boat use. J. Van Blerck. il Soc Auto Eng J 6:378-80 Je '20
 British marine engine practice. M. W. Bourdon. Automotive Ind 44:382+ F 17 '21
 40-B.h.p. marine two-cycle hot-bulb oil engine. diags Engineering 110:569, pl 65 O 29 '20
 High-compression marine oil engine brought out by Plenty and son, limited. il diags Engineer 130:224-6 S 3 '20
 Marine and stationary internal-combustion engines. il Engineering 109:310 Mr 5 '20
 Marine engine as Great Britain has developed it. M. W. Bourdon. diags Automotive Ind 42:951-4 Ap 22 '20
 Marine engine exports, 1912 to 1919; tabulation. Automotive Ind 42:212-13; 44:382-3 Ja 15 '20, F 17 '21
 Marine motors built in U. S. A. Automotive Ind 42:198 Ja 15 '20
 Marine oil engine construction and motorship building in Europe. Int Marine Eng 25:38+ Ja '20
 Modern marine oil engines. il diag plan Engineer 131:633-4, 644; 132:2-3, 14, 55-7, 68, 109-11, 120, 136-7, 174-6 Je 17, Jl 1, 15, 29, Ag 12 '21
 Le moteur à pétrole à double piston; Cammellaird-Fullagar. il diags Génie Civil 76:285-8 Mr 20 '20
 Motor boat and marine and stationary engine exhibition at Olympia. Engineer 129:302-3, 320-2, 345-8 Mr 19-Ap 2 '20
 Motor-boat exhibition at Olympia. il diags Engineering 109:372-5, 406-8 Mr 19-26 '20
 New Cammellaird-Fullagar opposed piston type of marine oil engine. il diags Int Marine Eng 25:327-9 Ap '20
 New model of marine engine has piston type valves. il diag Automotive Ind 43:123 Jl 15 '20
 Observations on marine oil engines. D. M. Shannon. Engineering 111:398 Ap 1 '21
 Oil engine for the ship Neppo. il diags plan Engineering 111:646, 647+ My 27 '21
 Oil engines of the motor ship Narragansett. il Engineering 109:623-4 My 7 '20
 Piston and rings for heavy oil engines. W. D. Forbes. Marine Eng 25:1002-3+ D '20
 Present-day types of heavy oil engines; their limitations and possibilities. Int Marine Eng 25:318-22 Ap '20
 Reciprocating engine crosshead design applied to heavy oil engines. W. D. Forbes. Marine Eng 25:924-6 N '20
 Review of problems involved in the production of motorship machinery. H. C. Verhey. Int Marine Eng 25:667-71 Ag '20
 Silencers for internal-combustion marine engines. diags Engineering 111:422 Ap 8 '21
 Six-cylinder hot bulb engine. il diags Engineer 131:212-14 F 25 '21
 Six-cylinder 90-B.H.P. paraffin marine motor. il diags Engineering 109:820-1 Je 18 '20
 Six-cylinder petrol or paraffin marine motors. il Engineering 111:168-9, pl 7 F 11 '21
 60-B.h.p. hot bulb marine engine at the Glasgow exhibition. diags Engineering 110:729 D 3 '20
 Still oil engine for marine propulsion. il Engineering 112:344-5 S 2 '21
 Trial trip of the motor tanker Narragansett. il Engineer 129:501-2 My 14 '20

Gas and oil engines, Marine—*Continued*
 Volund heavy oil engine. Marine Eng 26:
 470-1 Je '21

See also Diesel engines, Marine; Motor ships

Specifications

Individual models of the British marine engine builders. M. W. Bourdon. *il* Automotive Ind 42:1098-1105 My 13 '20

Marine engine specifications for 1921; tabulation. Automotive Ind 44:378-81 F 17 '21

Specifications of British marine engines; tabulation. M. W. Bourdon. Automotive Ind 44:386 F 17 '21

Specifications of marine motors; tabulation. Automotive Ind 42:199-209 Ja 15 '20

Testing

Comparative trials of Still and Sulzer engines. W: Denny. *diags* Engineer 130:90 JI 23 '20; Same. Engineering 110:98-100 JI 16 '20; Same. Marine Eng 25:832-4 O '20; Discussion. Engineer 130:90-1 JI 23 '20; Engineering 110:101-2 JI 23 '20

Simple brake-test apparatus. J. C. Smallwood. *diags* Power 53:31-2 Ja 4 '21

Some experimental work in connection with Diesel engines. C. J. Hawkes. *il diags* Engineering 110:127-31, pl 16 JI 23 '20; Abstract. Engineer 130:93-5 JI 23 '20; Discussion. Engineering 110:101-2 JI 23 '20; Engineer 130:90-1 JI 23 '20

Gas appliances

Appliance merchandising debate. Gas Age 47:444-9 My 25 '21

Buy gas appliances now. C. W. Pierson. Gas Age 45:118-19 F 10 '20

Chain stores for gas appliances. A. P. Post. Gas Age 47:297-9 Ap 11 '21

Gas appliance investigation. Sci Am M 2:273 N '20

Increased output through industrial appliance sales. L. B. Crossman. Am Gas Eng J 114:141-2 F 12 '21; Same. Gas Age 47:206-7 Mr 10 '21; Discussion. Am Gas Eng J 114:145 F 12 '21

Money in appliance sales. *il* Gas Age 46:36-7 JI 10 '20

National retail prices. A. P. Post. Gas Age 47:491-3 Je 10 '21

Pioneering the sale of gas appliances. C. E. Shaffner. Am Gas J 114:491-2 Je 4 '21

Vitreous oil now available for lamps and appliances. *il* Gas Age 47:351-2 Ap 25 '21

See also Gas burners; Gas cooking; Gas industry; Gas industry—Merchandizing; Gas ovens; Gas stoves; Gas water heaters

Specifications

Report of A.G.A. committee on standardization of gas appliance specifications. Am Gas Assn General Sessions sec v 2:119-48 '20

Testing

Central gas appliance testing laboratory idea eminently correct and if properly handled can be made to function successfully from the start. H. M. Riley. Am Gas Eng J 113:385-6, 401-4 N 13 '20

Gas as fuel

Advance of gas fuel in the heating industry. D: H. Cuyler. Heat & Ven 17:49-50 S; 34-5 O; 35-7 N; 33-5 D '20; 18:34-6 Ja '21; Discussion. 18:45-6 Ap '21

Advantages of gas for expanding locomotive tires an entering wedge for business in railroad shops. R. G. Monroe. Am Gas Eng J 113:304-7 O 16 '20; Excerpt. Gas Age 46:319 O 25 '20

Advantages of gas fuel in the heat treatments of metals. R. G. Logue. Am Gas Eng J 113:283-6 O 9 '20

Annealing with gas. W. A. Ehlers. *il* Sci Am 122:488+ My 1 '20

Application of gas to asphalt melting. C. H. Kallstedt. *il diag* Am Gas Assn Commercial sec v 2:86-103 '20

Application of gas to brass melting. A. L. Palmer. Am Gas Assn Commercial sec v 2:192-200 '20; Excerpts. Foundry 49:270-1 Ap 1 '21; Excerpts. Brass W 17:223-4 Ag '21

Application of gas to core baking. A. A. Schuetz. *il diag* Am Gas Assn Commercial sec v 2:201-10 '20; Same cond. Am Gas Eng J 113:407-8 N 13 '20; Same cond. Foundry 49:657-9 Ag 15 '21

Application of gas to drying. H. M. Crawford. *il diags* Am Gas Assn Commercial sec v 2:218-27 '20

Application of gas to forging. Am Gas Assn Commercial sec v 2:104-14 '20; Same. Iron Age 107:703, 745-6 Mr 17 '21; Same. Am Gas Eng J 113:308, 312-14 O 16 '20; Same cond. Gas Age 46:451-2 N 25 '20; Discussion. Am Gas Assn Commercial sec v 2:115-18 '20

Application of gas to galvanizing. D. A. Flynn. *il* Am Gas Assn Commercial sec v 2:54-61; Discussion. 62-5 '20

Application of gas to japanning. W. J. Hampton. Am Gas Assn Commercial sec v 2:211-17 '20; Same abr. Am Gas Eng J 113:509-10 D 18 '20; Same abr. Metal Ind 19:278-9 JI '21; Excerpts. Gas Age 46:449 N 25 '20

Application of gas to the smoking, curing and preparation of meat and fish products. W. T. Hudson. *diags* Am Gas Assn Commercial sec v 2:151-61; Discussion. 162-4 '20

Application of gas to varnish boiling. P. Dorchester. Am Gas Assn Commercial sec v 2:81-5 '20

Application of manufactured gas in the vitreous enamel industry. C. C. Krausse. *diags* Am Gas Assn Commercial sec v 2:119-41; Discussion. 141-50 '20

Application of producer gas to periodic muffle kilns. F. B. Ortman. Am Cer Soc J 4:669-72 Ag '21

At least fifty per cent of extracts require heat in their production. G. C. Shadwell. *il* Am Gas Eng J 112:101-4 F 7 '20

Bleaching operations that offer field for gas. G. C. Shadwell. Am Gas Eng J 113:1-4 JI 3 '20

Blue gas in domestic appliances. A. J. Huston. Gas Age 47:377 My 10 '21

Brass melting in gas furnaces. E: F. Davis. *il* Gas Age 45:90-3, 196-8, 284+, 367-9 Ja 26, F 25, Mr 25, Ap 26 '20

Business to be secured in honey bottling and manufacture of artificial honey. G. C. Shadwell. Am Gas Eng J 112:237 Mr 27 '20

Case hardening with gas. H. M. Crawford. *diag* Gas Age 46:204-5 S 10 '20

Chart for industrial fuel gas engineers. E. J. Stephany. Gas Age 45:241 Mr 10 '20

Chemistry of fuels used in steel plants. Blast F & Steel Pl 8:452-3+ Ag '20

Coal or gas in continuous kilns. Am Gas Eng J 112:484-5 Je 19 '20

Coal shortage brings gas to front in English coal problem. Am Gas Eng J 113:513-14 D 18 '20

Composition of certain special cements and solders into the manufacture of which gas enters. G. C. Shadwell. Am Gas Eng J 113:121-2+ Ag 14 '20

Composition of industrial fuel gases. Chem Age 29:359-60 S '21

Conservation of fuel as it affects the gas industry. J. E. Bullard. Am Gas Eng J 114:71-2 Ja 22 '21

Conservation of fuel in the copper and brass industry. T: H. A. Eastick. Brass W 17:102 Ap '21

Conserving coal through the use of gas. W. A. Ehlers. *il* Coal Age 19:397-400 Mr 3 '21

Crucible furnaces for melting. E: F. Davis. *il diag* Gas Age 46:72-3 JI 26 '20

Curing meat with manufactured gas. J: P. Walsh. *il* Gas Age 48:203-4 Ag 20 '21

Determining requirements of industrial equipment. Am Gas J 114:273, 277-81 Mr 26 '21; Same. Gas Age 47:253-6 Mr 25 '21

Determining the influence of excess gas on fuel consumption in gas-fired oven furnace. O: Lellep. Am Gas Eng J 113:397-8+ N 13 '20; Abstract. Gas Age 46:375 N 10 '20

Develop small industrial gas consumers. H. M. Crawford. Gas Age 44:515-17 D 1 '19

Gas as fuel—Continued

- Diminishing supply of hard woods makes better market for gas in curing meats and fish. W. T. Hudson. Am Gas Eng J 113:324-6+ O 23 '20; Excerpts. Gas Age 46:446-7 N 25 '20
- Domestic and industrial gas uses. Gas Age 47:162-5 F 25 '21; Same. Am Gas J 114:224-8 Mr 12 '21
- Estimating relative values of coal, oil and gas as fuels. L. C. Lichty. charts Power Pl Eng 24:1026-30 N 1 '20
- Experience with gas rivet heating in the Pacific coast. L. Balliet. Eng N 87:21-2 JI 7 '21
- Experimental comparison of a preheated air furnace with a direct fired furnace. O. Lel-lep. diags Am Gas J 115:247-52, 260-3 S 17 '21
- Falls' meat markets find gas most satisfactory means of refrigeration. F. M. Reilly. il Am Gas Eng J 112:303-4 Ap 17 '20
- Firing steam boilers without flame. W: A. Bone and P. St G. Kirke. il diags Sci Am M 1:248-51 Mr '20
- Fuel in the copper and brass industry; its application to melting furnaces. T: H. A. Eastick. Brass W 17:57-8 F '21
- Fuels for brass melting. Metal Ind 18:409 S '20
- Furnace linings a factor to be considered in determining whether to use gas or oil for brass melting. H. H. Smith. Am Gas Eng J 112:158-9 F 28 '20
- Future fuel for the treatment of steel. H. O. Loebell. Ry Mech Eng 94:666-7 O '20
- Gas and its relation to record music. Am Gas Eng J 112:322 Ap 24 '20
- Gas and the composition and treatment of alloys and eutectics. G. C. Shadwell. Am Gas Eng J 113:177-80, 186-8 S 4 '20
- Gas applied to baking industry. T. King. il Gas Age 48:38-41 JI 11 '21
- Gas as an aid in manufacture of solders. G. C. Shadwell. il Am Gas Eng J 113:101-4, 111-13 Ag 7 '20
- Gas as used in feather gilding—silvering and kindred processes. G. C. Shadwell. Am Gas Eng J 112:461-4, 470-2 Je 12 '20
- Gas fired drying apparatus. J. F. Springer. Gas Age 47:318-21 Ap 25 '21
- Gas fired heat treating. J. F. Springer. diag Gas Age 46:275-7 O 11 '20
- Gas for brass foundries. H. H. Smith. Gas Age 45:240 Mr 10 '20
- Gas for china firing. O. F. Schnette. Gas Age 45:566 Je 25 '20
- Gas for metallurgical furnaces. Gas Age 46:467-8 D 10 '20
- Gas for rivet heating. T. King. Gas Age 45:568 Je 25 '20
- Gas furnaces for cooking candy. J. Beveridge. Am Gas J 115:389 O 29 '21
- Gas furnaces for melting non-ferrous metals. M. A. Combs. il Chem & Met Eng 24:515-16 Mr 23 '21
- Gas has various uses in browning and bluing of metals. G. C. Shadwell. il Am Gas Eng J 111:553-7 D 13 '19
- Gas heating in the shipyards. M. Meredith. Gas Age 47:449 My 25 '21
- Gas in the manufacture of fly paper. G. Shadwell. Am Gas Eng J 112:362 My 8 '20
- Gas the industrial fuel of the future. H. H. Clark. Am Gas Eng J 113:354-5 O 30 '20; Excerpts. Gas Age 46:392 N 10 '20
- Great future for industrial gas. W: A. Ehlers. il Gas Age 47:494-9, 531-4 Je 10-25 '21; Excerpts. Am Gas J 114:379-80+ Ap 30 '21
- Heat treating metals with gas. J. F. Springer. il Gas Age 46:198-202 S 10 '20
- Heat treatment equipment; furnace for carbonizing, annealing and forging operate most successfully with gas fuel. il Gas Age 46:533-5 D 25 '20
- Heating furnace fuel progress during 1920. A. E. Blake. Blast F & Steel Pl 9:179-80+ F '21
- Heating furnaces and annealing furnaces. W. Trinks. diags Blast F & Steel Pl 8:142-4, 203-4 F-Mr '20
- High pressure brass melting. E: F. Davis. il Gas Age 45:563-5 Je 25 '20
- How to carbonize with gas. Gas Age 46:127-8 Ag 10 '20
- Hurry heating of hot water for sports pavilion. J: Y. Dunlop. il diags Sanitary & Heat Eng 96:99-100 Ag 12 '21
- In the gilding of all articles from statuary to the edges and lettering of books gas may well have a considerable part. G. C. Shadwell. Am Gas Eng J 112:397-9 My 22 '20
- Industrial combustion of gaseous fuel; abstract. A. Grebel. Chem & Met Eng 25:75 JI 13 '21
- Industrial fuel sales. Am Gas Assn Commercial sec v 2:10-13 '20
- Internal heating by gas. J. F. Reynolds. diag Gas Age 46:327-8 O 25 '20
- Low temperature carbonization. F. P. Coffin. il Gas Age 48:54-7 JI 25 '21
- Make ice with gas in summer. W. F. Schaphorst. il Gas Age 45:120-2 F 10 '20
- Making asphalt pavement with gas. H. L. Smith. il Gas Age 48:167-8 Ag 13 '21
- Manufacture of lime for chemical and metallurgical purposes. R: K. Meade. diags Chem & Met Eng 23:929-32 N 10 '20
- Manufactured gas process of extracting oil from shale results in maximum yield of oil and the by-product, sulphate of ammonia. E. G. Church. il Am Gas Eng J 112:117-19 F 14 '20
- Manufactured gas to supply the heat for the extraction of oil from shale. H. J. Gifford. Am Gas Eng J 112:7-8, 11-12 Ja 3 '20
- Ninety per cent of non-ferrous alloys melting business rightfully belongs to gas company. A. L. Palmer. Am Gas Eng J 113:425-6+ N 20 '20; Same abr. Gas Age 46:445-6 N 25 '20
- No field in which neglect of simple economics is more prevalent than in field of heat insulation. I. Lundgaard. Am Gas Eng J 112:441-2 Je 5 '20; Same. Gas Age 45:479-80 My 25 '20
- No single expedient will solve fuel problem. L. W. Alwyn-Schmidt. Am Gas Eng J 113:261-2+ O 2 '20
- Obstacles in the path of gas heating. D: H. Cuyler. Heat & Ven 18:39-41 Je '21
- Only gas in Baltimore's Sun. T. King. il Gas Age 45:488-9 My 25 '20
- Practically all work done in garage repair shop that requires heat can be done with gas. H. L. Wolfe. Am Gas Eng J 113:449-50 N 27 '20; Excerpt. Gas Age 46:318 O 25 '20
- Preliminary report on standard performance specifications for underfired oven furnaces. il diags Am Gas Assn Commercial sec v 1:367-80; Discussion. 380-8 '19
- Principles of gas combustion. O. L. Kowalke. il diags W Soc E J 25:113-22 F 20 '20; Abstract. Chem & Met Eng 22:320-1 F 18 '20; Discussion. W Soc E J 25:122-3 F 20 '20
- Producer gas as a fuel for automotive vehicles. P. M. Heldt. Automotive Ind 45:461-4, 507-11 S 8-15 '21
- Producer gas as fuel for the glass industry. F. J. Denk. Am Cer Soc J 3:94-113 F '20; Discussion. 918-21 N '20
- Producer gas-fired boiler installation in France. J: H. Bartlett, jr. il diag Chem & Met Eng 23:1033-5 N 24 '20; Same. Am Gas Eng J 113:321-4 O 23 '20; Same cond. Iron Age 106:1261-2 N 11 '20
- Recuperation and regeneration pay. H: O. Loebell. il Gas Age 48:447-55 O 15 '21
- Refrigeration a gas-using prospect. il Gas Age 48:1-2 JI 11 '21
- Report of committee on proportional mixing. il diags Am Gas Assn Commercial sec v 1:278-334; Discussion. 334-43 '19
- Report of Industrial fuel committee. Am Gas Assn Commercial sec v 1:236-56; Discussion. 257-64 '19
- Seventy-five per cent of galvanizing in Chicago done by gas. D. A. Flynn. Am Gas Eng J 113:393-4+ N 13 '20; Same cond. Gas Age 46:370-1 N 10 '20
- Soft metal melting by gas. G. C. Shadwell. il Metal Ind 18:18-20, 121-4 Ja, Mr '20
- Some principles underlying gas and fuel supply. R. S. McBride. Gas Age 44:529-32 D 15 '19

Gas as fuel—Continued

- Special fuels; gaseous fuels, their source of supply, chemical composition and systems of burning. diags Power Pl Eng 25:49-51 Ja 1 '21
- Steam generator and air heater gas man's entering wedges in seeking industrial business in celluloid industries. G. C. Shadwell. Am Gas Eng J 113:213-16 S 18 '20
- Surface combustion. A. E. Blake. il diags Eng Soc W Pa 36:145-68; Discussion. 175-204 Ap '20
- Symposium on gas-firing. Engineering 109:646 My 14 '20
- Taking all factors into consideration gas can be proved least expensive as well as most economical fuel for asphalt melting. C. H. Kallstedt. Am Gas Eng J 113:345-8+ O 30 '20
- Temperature and time very important factors in sherardizing—reasons why gas furnaces have many advantages over other methods of heating in this process. C. A. Drum. il Am Gas Eng J 111:593-8 D 27 '19
- Use of gas in automobile and tire repair shops. H. L. Wolfe. il diags Am Gas Assn Commercial sec v 2:179-91 '20
- Use of gas in connection with bronzing processes. G. C. Shadwell. Am Gas Eng J 112:63-6+ Ja 24 '20
- Use of gas in connection with gilding on common china and other substances. G. C. Shadwell. Am Gas Eng J 112:437-40 Je 5 '20
- Use of gas in making casein, celluloid, adhesives, dental cements, etc. G. C. Shadwell. Am Gas Eng J 113:341-2, 351-2 O 30 '20
- Use of gas in railroad shops. R. G. Munroe. il Am Gas Assn Commercial sec v 2:32-45 '20; Excerpts. Ry Mech Eng 95:458 Jl '21
- Use of gas in soldering includes variety of industries. G. C. Shadwell. Am Gas Eng J 113:61-2+ Jl 24 '20
- Use of gas in the artificial leather and kindred industries. G. C. Shadwell. il Am Gas Eng J 112:120-3 F 14 '20
- Use of gas in the manufacture of pins. G. C. Shadwell. Am Gas Eng J 112:487-8 Je 19 '20
- Use of gas in the meat-packing industries of Baltimore. il Am Gas Eng J 113:307-8 O 16 '20
- Use of gas in the newspaper plants of Boston. W. W. Cummings. Am Gas Assn Commercial sec v 2:14-29 '20; Same abr. Am Gas Eng J 113:491-2, 496-7 D 11 '20; Excerpts. Gas Age 46:450-1 N 25 '20; Discussion. Am Gas Assn Commercial sec v 2:29-31 '20
- Use of low pressure gas in drilling effects big saving. J. B. Gambrell, jr. diags Nat Pet N 12:63-4 D 8 '20
- Using gas for brass melting. E. F. Davis. il diag Gas Age 45:481-4 My 25 '20
- Value of gas for steel treating. F. F. Cauley. il Gas Age 46:372-3 N 10 '20
- Value of gas for steel treating. F. F. Cauley. il diag Am Gas Assn Commercial sec v 2:165-78 '20
- Vital factors affecting central station industrial gas business. Am Gas J 115:366-7, 375-9 O 22 '21; Same. Gas Age 48:505-8, 534-7 O 22-29 '21
- Waste and correct use of natural gas in the home. S. S. Wyer. diags U S Bur Mines Tech Pa 257:1-21 '20
- What a woman says about gas. L. M. French. Am Gas J 115:297+ O 1 '21
- Where gas enters in the enamel industry. G. C. Shadwell. Am Gas Eng J 113:21-4+ Jl 10 '20
- Where gas fits in for varnish boiling. P. Dorchester. Am Gas Eng J 113:303-4 O 16 '20; Same abr. Gas Age 46:447-8 N 25 '20
- Why not by-product producer gas? R. H. Fernald. Mech Eng 42:708 D '20
- Your printer as a customer. I. Ginsberg. Am Gas J 115:203 S 3 '21
- See also Blast furnace gas; Coke-oven gas; Coke ovens; Gas and oil engines; Gas burners; Gas cooking; Gas heating; Gas ovens; Gas producers; Gas stoves

Gas black. See Carbon black**Gas burners**

- Advance of gas fuel in the heating industry. D. H. Cuyler. il diag Heat & Ven 17:35-7 N '20
- Application of gas to internal heating. J. F. Reynolds. diags plan Am Gas Assn Commercial sec v 2:66-79; Discussion. 80 '20
- Application of gas to varnish boiling. P. Dorchester. Am Gas Assn Commercial sec v 2:81-5 '20
- Baltimore sells 80,000 thrift lights. C. W. Pierson. Gas Age 46:203 S 10 '20
- Boiler furnaces for gas, oil and pulverized coal, plant of Morris & co., Oklahoma City. il diags Power Pl Eng 24:1109-12 D 1 '20
- Burner tube and burner ports. W. M. Berry and others. il Gas Age 47:120-1 F 10 '21
- Design and application of atmospheric burners. T. King. Am Gas J 115:359-63+ O 22 '21
- Design of atmospheric burners. W. M. Berry and others. il Gas Age 46:376-7 N 10 '20
- Design of atmospheric gas burners; abstract. W. M. Berry and others. J Fr Inst 192:526-30 O '21
- Design of injecting tubes. W. M. Berry and others. diags Gas Age 47:75-6 Ja 25 '21
- Gas burner saved money. A. C. McHugh. diags Power 53:424-5 Mr 15 '21
- High-grade talc for gas burners. J. S. Diller, J. G. Fairchild and E. S. Larsen. Econ Geol 15:665-73 D '20
- Home-made gas burner for a heating boiler. diags plan Am Gas J 115:76-7 Jl 23 '21
- Internal heating by gas. J. F. Reynolds. diag Gas Age 46:327-8 O 25 '20
- Natural gas burners improved. I. V. Brumbaugh and G. B. Shawn. il diags Gas Age 47:535-40; 48:30-7, 73-84 Je 25-Jl 25 '21
- New burner for blast furnace gas. D. N. Watkins. il diags Blast F & Steel Pl 8:499-505 S '20
- Principles governing air injection. W. M. Berry and others. Gas Age 47:26-7 Ja 10 '21
- Report of committee on atmospheric burner design; with discussion. diags Am Gas Assn Commercial sec v 1:265-77 '19
- Report of committee on proportional mixing. il diags Am Gas Assn Commercial sec v 1:278-334; Discussion. 334-43 '19
- Silent aerated flames. H. Davis. Illum Engr 13:286 O '20
- Soft metal melting by gas. G. C. Shadwell. il diags Metal Ind 18:121-4 Mr '20
- Special fuels. diags Power Pl Eng 25:49-51 Ja 1 '21
- Summary report of A.G.A. sub-committee on improvement of atmospheric burners. Am Gas Assn Commercial sec v 2:228-34 '20
- Use of low pressure gas in drilling effects big saving. J. B. Gambrell, jr. diags Nat Pet N 12:63-4 D 8 '20
- When appliances work best. R. F. Earhart. diags Gas Age 45:571-2+ Je 25 '20; Same cond. Mech Eng 42:287-8+ My '20
- You must understand burners. D. W. Chapman. diags Gas Age 45:485-7 My 25 '20

Testing

- Burner orifice tests. W. M. Berry and others. il Gas Age 46:524-5 D 25 '20
- Keeping check on gas burner performance. il Sci Am 124:245+ Mr 26 '21
- Gas cleaning. See Blast furnace gas; Electric precipitation; Gas purification**
- Gas companies**
- Character as a commercial asset. N. H. Humphrys. Gas Age 48:347-8 S 24 '21
- Gas companies will not again have the control they have had of the movement of gas-burning merchandise to their consumer. C. W. Person. Am Gas Eng J 112:319-20+ Ap 24 '20

Gas companies—Continued

Peterson explains the need of competition in selling; opposes combination gas and electric companies. S. G. Addison. Am Gas Eng J 112:89-90 Ja 31 '20

See also Gas industry; Gas lighting; *also* names of companies, e.g. Consolidated gas company of New York; General gas and electric company; Peoples gas light and coke company, Chicago

Accounting

Accounting for gas merchandise sales. W. A. Sauer. Am Gas Assn Accounting sec v 1: 43-58; Discussion. 59-68 '19

Bookkeeping without books. H. B. Lohmeyer. il Am Gas Assn Accounting sec v 1:70-87; Discussion. 88-111 '19

Continuous inventory of fixed capital. Am Gas J 115:341-2+ O 15 '21

Mechanical bookkeeping of consumers' accounts. F. C. Ingram. Am Gas J 115:349-51 O 15 '21

Office work in a small company. P. B. Murphy. Am Gas Eng J 114:159-60+ F 19 '21

Proper cost distribution turns losses to gains in merchandise department. J. J. Flautt. Am Gas Eng J 113:477-8 D 4 '20

Report of committee to arrive at scientific basis for establishing new business costs and proper method for determining sales prices of appliances and jobbing work. Am Gas Assn Commercial sec v 1:144-53; Discussion. 153-6 '19

2d annual convention of Accounting section of American gas association, New York, Nov. 15-20, 1920. Am Gas Assn Accounting sec v 2:1-146 '20

Small community accounting methods. G. H. Clarke. Am Gas J 115:186+ Ag 27 '21

Uniform system of accounts for gas corporations. Rev. ed. 100p M. B. Brown printing & binding co., New York '21

Advertising

See Gas industry—Advertising

Complaints

Meeting the public in the commercial office. J. H. Ghegan. Am Gas J 115:31-2 Jl 9 '21

Turning complaints into profits. J. E. Bullard. Gas Age 46:206+ S 10 '20

Employees

Being a good customer of the university; fellowships in chemical engineering. O. L. Kowalke. Am Gas J 114:317-18 Ap 9 '21

British plan of profit sharing. T. Sington. Am Gas J 115:165-6 Ag 20 '21

Encourage employees to think. J. E. Bullard. Gas Age 47:119 F 10 '21

Tracing the gas industry's labor problem to its source. W. A. Fairservis. Am Gas Eng J 113:277-8+ O 9 '20

Finance

Baltimore company emphasizes future requirements. Am Gas Eng J 114:185-6 F 26 '21

Earning possibilities not always the main lure of an investor to an industry. L. W. Alwyn-Schmidt. Am Gas Eng J 113:81-2+ Jl 31 '20

Element of security of investment should not have weight it has had in determining percentage that constitutes reasonable rate of return. S. E. Mulholland. Am Gas Eng J 112:359-61, 364+ My 8 '20

Financing service extensions. H. A. Doering. Gas Age 48:373-4 S 24 '21

Indianapolis gas company carries plea to court of public opinion. Am Gas Eng J 114:10, 13-15, 138-40+, 179+, 267-70+, 333-5, 343-5, 427-30, 434-6 Ja 1, F 12, 26, Mr 26, Ap 16, My 14 '21

Investment bankers report on gas. O. B. Wilcox. Gas Age 46:251-2 O 11 '20

Lack of easily accessible information on financial standing a handicap to gas industry financing. L. W. Alwyn-Schmidt. Am Gas Eng J 113:235-6+ S 25 '20

Norfolk city gas rate report. A. M. Taylor. Gas Age 45:507-10 Je 10 '20

Only portion of future margin between cost and selling price can come from increased rates. H. S. Whipple. Am Gas Eng J 112: 238-40 Mr 27 '20

Popular ownership of gas companies carries great possibilities for good-will building. Am Gas Eng J 114:48-9+ Ja 15 '21

Report of subcommittee on gas securities, Investment bankers' association of America. Am Gas Eng J 113:381-2 N 6 '20

Story of Galena's failure. Gas Age 46:135-7 Ag 25 '20

To catch up with construction programs back from three to five years gas industry will require millions of new investments within near future. P. E. Nicholls. Am Gas Eng J 111:551-2+ D 13 '19

Using the trade acceptance to finance installment sales. G. E. Messmore. Am Gas Eng J 112:321-2 Ap 24 '20

See also Gas companies—Valuation of property; Gas industry

Management

Baltimore Consolidated meets public halfway and gains hearty co-operation; thrift lights. il Am Gas Eng J 113:165-6 Ag 28 '20

Benefits to be attained by perfectly balanced load throughout the year. L. W. Alwyn-Schmidt. Am Gas Eng J 112:357-8+ My 8 '20

Brooklyn utility to have consumer and employee on directorate. Elec W 77:381-2 F 12 '21

Efficiency in office management. E. Johnston. Am Gas J 114:381-2 Ap 30 '21; Same. Gas Age 47:346-7 Ap 25 '21

Everybody won this gas fight. W. B. Powell. Nation's Business 9:28-9 Ag '21; Same. Gas Age 48:405-6 O 1 '21

Gas companies like banks are community builders. L. W. Alwyn-Schmidt. Am Gas Eng J 112:481-3 Je 19 '20

Gas sales association of New England devotes good part of season's second meeting to devise means of getting friendship of consumer; with discussion. R. Buckminster. Am Gas Eng J 112:203-4, 214-16 Mr 13 '20

Gas workers' government; Peoples gas and coke company frame a co-operative labor management. Gas Age 47:25 Ja 10 '21

Getting more out of the existing plant. L. W. Alwyn-Schmidt. Am Gas Eng J 112:177-9 Mr 6 '20

Job order systems; report of 1920 A.G.A. committee. Am Gas Assn Accounting sec v 2:65-85; Discussion. 85-8 '20

Management policy in gas sales. D. J. Young. Gas Age 46:326 O 25 '20

Necessity of a commercial department. A. F. Timberlake. Am Gas J 114:519-20 Je 11 '21; Same. Gas Age 48:199-200 Ag 20 '21

Office work in a small company. P. B. Murphy. Am Gas Eng J 114:159-60+ F 19 '21

One gas meter or forty? M. E. Crain. Gas Age 45:429 My 10 '20

Peoples gas light & coke company offers workers chance to aid in running its offices. Am Gas Eng J 113:529-30 D 25 '20

Relation of commercial department to utility. W. J. Reagan. Am Gas J 115:9-10 Jl 2 '21

Report of committee on the relations between the selling and the installation departments. Am Gas Assn Commercial sec v 1:80-94; Discussion. 94-6 '19

Report of the committee on relations with architects, contractors and builders; with discussion. Am Gas Assn Commercial sec v 1:191-223 '19

Standardization of procedure and records in gas service to consumers. W. H. Barton. Am Gas Eng J 113:531-4 D 25 '20

Three-part rate reduces average rate per thousand from eighty cents to seventy-five cents. H. L. Doherty. Am Gas Eng J 112: 421-2+ My 29 '20

Trucks for gas rescue service work. Sci Am 124:274 Ap 2 '21

Gas companies—Management—Continued

- Ways and means of putting non-profitable consumers on a profitable basis. Am Gas Assn Commercial sec v 2:324-32 '20
- Why business is good in Boston. R. O. Jasperson. il Gas Age 48:243-7 S 3 '21
- Work completion schedules. il Am Gas Assn Commercial sec v 2:333-53; Discussion. 353-63 '20

See also Gas companies—Employees

Public relations

- Advertising builds public confidence. C. B. Wyckoff. Gas Age 48:441-4 O 8 '21
- Are managers to blame? N. L. Clay. Gas Age 46:78-9 JI 26 '20
- Brooklyn utility to have consumer and employee on directorate. Elec W 77:381-2 F 12 '21
- Candor on part of gas company holds public goodwill in face of all efforts at burrowing under. W. A. Fairservis. Am Gas Eng J 112:377-8+ My 15 '20; Same cond. (How Ralph Elsmen won out). Gas Age 45:434+ My 10 '20
- Citizens gas company of Indianapolis combats possible effects of near-sighted policy by re-education of its consumers. Am Gas Eng J 114:50-3+ Ja 15 '21
- Consumer's viewpoint. Am Gas J 114:309-10+ Ap 9 '21
- Duty the gas company owes its public. J. E. Bullard. Am Gas J 115:100-1 JI 30 '21
- Efforts of gas companies to secure genuine good-will not always successful. G. I. Vincent. Am Gas Eng J 114:27-9+ Ja 8 '21
- Gas service declared essential. G. M. Barnard. Gas Age 47:370-1 My 10 '21
- Getting good-will for the gas man; campaign conducted under leadership of American gas association has pointed out a path for public utility companies to follow. Ptr Ink 114:81-2+ Ja 13 '21
- How moving pictures can be used to build good will. H. Levey. il Gas Age 44:512-14 D 1 '19
- In good-will campaign American gas association hopes to win for the gas industry that degree of confidence its services merit. C: W. Person. Am Gas Eng J 112:283-4 Ap 10 '20
- Keep out of lawsuits—make sales instead. J. E. Bullard. il Gas Age 44:464-5 N 15 '19
- Making it so when the consumer pays his bill he will do so not only with thought of gas used, but also of huge amount of capital invested to bring that gas to him. W. A. Fairservis. Am Gas Eng J 112:197-8 Mr 13 '20
- Moving pictures as an educational factor in building good-will. L. Lee. Am Gas Eng J 113:143-4 Ag 21 '20
- Newspapers create public opinion, but, also, they reflect it. J: F. Weedon. chart Am Gas Eng J 112:317-18+ Ap 24 '20
- Only way to fight municipal ownership is by arousing public. J: Walter. Am Gas Eng J 114:89-90+ Ja 29 '21
- People slowly being brought to see that utility companies are just like other concerns and cannot do business at a loss. Am Gas Eng J 113:421-4 N 20 '20
- Politics and gas—they won't mix. S. H. Summers. Am Gas Eng J 114:177-8+ F 26 '21
- Public relations and service. T. J. Spragle. Gas Age 45:404 My 10 '20
- Report of A.G.A. emergency committee. Am Gas Assn General Sessions sec v 2:60-72; Discussion. 72-81 '20
- Report of the Public policy committee of the Pacific coast gas association. C. O. G. Miller. Gas Age 46:305-6 O 25 '20
- Satisfaction helps rate increases. F. Batt. Gas Age 47:99 F 10 '21
- Talking business more effective than fighting. J. E. Bullard. Am Gas J 114:265-6 Mr 26 '21
- Tell the people the exact truth. C: W. Hoy. Gas Age 45:399-401 My 10 '20
- Tell the public—tell it first. L. Carraway. Gas Age 47:348 Ap 25 '21; Same. Am Gas J 114:358+ Ap 23 '21

"Tell the public the story" brings results; Citizens gas company of Indianapolis carries campaign to its consumers. Am Gas Eng J 114:138-40+ F 12 '21

Value of newspaper publicity. B. J. Mullaney. Gas Age 45:306-7 Ap 10 '20

What advertising did for one small town gasman. C. B. Wyckoff. Am Gas J 115:253-4, 258-60 S 17 '21

What the rise in oil costs, coal costs, etc., represents translated into thousands of cubic feet of gas. C: W. Hoy. Am Gas Eng J 112:299-300 Ap 17 '20

Winning public good will; how Ralph Elsmen works. J. G. Donley, jr. Gas Age 45:527-8+ Je 10 '20

See also Gas companies—Regulation

Rates

See Gas rates

Records

Standardization of procedure and records in gas service to consumers. W. H. Barton. Am Gas Eng J 113:531-4 D 25 '20

Value of written records in connection with valuations. R. E. Crossman. Am Gas J 115:343-5 O 15 '21

Regulation

Adequate service—sufficient rate. W: M. Smith. Gas Age 46:289-95 O 25 '20

Although attacking service charge, committee recommends minimum bill; report made to the president of the Stamford (Conn.) Chamber of commerce. Am Gas Eng J 114:76 Ja 22 '21

Gas oil situation reviewed. O. Fogg. Gas Age 45:296-7 Ap 10 '20

Illinois standards of service. A. S. B. Little. Gas Age 46:96-9 Ag 10 '20

Indianapolis gas company carries plea to court of public opinion. Am Gas Eng J 114:10, 13-15 Ja 1 '21

Plan for gas utility control. W. S. Blauvelt. Gas Age 47:372-6 My 10 '21

Priority list of gas patrons and extensive program of improvements features of proposed ordinance in Indianapolis. Am Gas Eng J 113:481-2 D 4 '20

Publicity brings showdown; East Ohio gas company carries campaign to residents of Cleveland. Am Gas J 114:559-61 Je 25 '21

Satisfactory service at low rates. W. S. Blauvelt. Gas Age 46:357-9 N 10 '20

Standards for gas service. U S Bur Stand Circ 32:1-140 '20

State and city B.t.u. requirements. Gas Age 45:217-19 Mr 10 '20

Steptoe law threatens house and mill supply. E: C. Jennings. map Gas Age 46:316-17 O 25 '20

Steptoe natural gas hearings. E: C. Jennings. Gas Age 45:475-6 My 25 '20

Would merge New York city gas companies. W: A. Prendergast. Am Gas J 115:339-40 O 15 '21

See also Gas—Standards; Gas rates

Safety committees

Functions of a safety committee in a gas company should not be limited. Am Gas Eng J 114:25-6 Ja 8 '21

Salesmen

American gas association sub-committee moves for radical changes in sales organizations. G. M. Karshner. Am Gas Eng J 113:163-4+ Ag 28 '20; Same abr. Gas Age 46:246+ S 25 '20

Compensation of salesmen. Am Gas Assn Commercial sec v 2:303-12 '20

Constructive salesmanship. J. E. Bullard. Gas Age 46:267 O 11 '20

Developing and paying for sales. Am Gas J 115:298-300+ O 1 '21

Modern salesmen needed in the gas industry. F. V. McCormick. il Am Gas J 115:117-18+ Ag 6 '21

Put pep into industrial gas sales. H. H. Clark. il Gas Age 48:311-16 S 17 '21

Gas companies—Salesmen—Continued

Report of committee on selecting, training and compensating salesmen. Am Gas Assn Commercial sec v 1:46-53; Discussion. 53-6 '19

Salesmen on straight commission. S. Smith. Gas Age 48:125-6 Ag 6 '21

Service

Committee on maintenance of customers' equipment. Am Gas Assn Commercial sec v 1:68-75; Discussion. 75-9 '19

Peterson philosophizes on service. S. G. Addison. Am Gas Eng J 113:153-4 Ag 21 '20

Valuation of property

Appraisal of gas property for rate making. F. Batt. Gas Age 44:538-41 D 15 '19

Chicago rate case valuation. A. S. B. Little. Gas Age 46:174-80 S 10 '20

Value of written records in connection with valuations. R. E. Crossman. Am Gas J 115:343-5 O 15 '21

Gas compressors

Steam-driven high-pressure four-stage gas compressor. il diags Engineering 110:800-2, 829-31, pl 73 D 17-24 '20; (Compresseurs à gaz à haute pression à quatre et à six étages). diags Génie Civil 78:192-4 F 26 '21

Gas conservation. See Gas, Natural—Conservation

Gas consumption

Estimating the consumption of the domestic and industrial fields. L. W. Alwyn-Schmidt. Am Gas Eng J 112:501-2+ Je 26 '20

Per capita use of electricity, gas and water. Pub Works 51:325 O 22 '21

Gas containers

New use for gas containers. il India Rubber W 63:249 Ja '21

Gas cooking

Gas company tells customers how to reduce gas bills. F. H. Williams. Am Gas Eng J 113:333 O 23 '20

Gas in hotel kitchens and restaurants. L. T. Joyce. Gas Age 47:162-3 F 25 '21; Same. Am Gas J 114:224-5 Mr 12 '21

Gas stoves for the canning season. W. B. Stoddard. il Am Gas Eng J 112:389-90 My 15 '20

Getting and keeping the hotel business. R. V. Howes. Am Gas Assn Commercial sec v 1:344-52; Discussion. 352-64 '19

Making employes contented; how the Rocky Mount mill employes learned to use and prefer gas. J. M. Baird. il Gas Age 45:370-3 Ap 26 '20

Record meal from one range. J. E. Bullard. il Gas Age 46:119-20 Ag 10 '20

When appliances work best. R. F. Earhart. diags Gas Age 45:571-2+ Je 25 '20; Same cond. Mech Eng 42:287-8+ My '20

See also Gas ovens; Gas stoves

Cost

Electricity loses cooking test to gas. C. W. Pierson. il Gas Age 45:53-5 Ja 10 '20

Gas coolers. See Gas washers

Gas distribution

Condensation and compression losses through high pressure and low temperatures in gas distribution. J. W. Lansley. Gas Age 47:191-2 Mr 10 '21

Demand limiting meter and engineering problems involved in the application of the three part rate as a basis of selling gas service. H. D. Hancock. diag Am Gas Assn Technical sec v 2:7-31; Discussion. 31-8 '20

Denver's gas-pressure system. G. Wehrle. Am Gas J 114:245-6+ Mr 19 '21

Dust deposits in mains and services. C. R. Henderson. Am Gas Assn Technical sec v 1:342-8 '19

Effective homemade drip car. C. C. Bahr. il Gas Age 46:85-6 Ag 10 '20

Equalizing the cost of service by reorganization of the distributing system. L. W. Alwyn-Schmidt. Am Gas Eng J 111:529-32 D 6 '19

Experience in Philadelphia in the use of 1200 pounds pressure to remove stoppages in piping. R. B. Duncan. il Am Gas Assn Technical sec v 1:349-57; Discussion. 357-62 '19

Gas connections under pressure. H. N. Osler. Am Gas J 115:177-8 Ag 27 '21; Same (with il). Gas Age 48:251-3 S 3 '21

Important points gained by exact knowledge of profitable distribution radius. L. W. Alwyn-Schmidt. Am Gas Eng J 112:123-4+ F 14 '20

Increasing the radius of profitable distribution by a relocation of the generating plant. L. W. Alwyn-Schmidt. diag Am Gas Eng J 112:97-9 F 7 '20

Leakage of natural gas. H. D. Hancock. Gas Age 47:411-14 My 25 '21

Notes on a distribution system. G. Wehrle. Am Gas J 115:383-5 O 29 '21

Peoria distribution system. J. A. Brown. Am Gas J 114:271-2+ Mr 26 '21; Same. Gas Age 47:236-8 Mr 25 '21

Regulating pressures from transmission or pumping mains into distribution mains. G. T. Macbeth. il diags Am Gas Assn Technical sec v 1:281-92 '19; Same. Gas Age 44:443-5 N 15 '19; Discussion. Am Gas Assn Technical sec v 1:293-307 '19

Solution of gas distribution problems at Alton, Ill. C. E. Reese. Gas Age 44:523-8 D 15 '19

Use of governors and regulators in gas distribution. W. M. Henderson. il diag Am Gas Eng J 113:279-82 O 9 '20; Same. Gas Age 46:469-76 D 10 '20

See also Gas flow; Gas governors; Gas mixers; Gas pipes

Cost

Analysis of service charge items. F. C. Freeman. Gas Age 48:282-6 S 10 '21

Gas engineering

Examination papers in gas engineering. Am Gas J 114:536+ Je 18 '21

See also Gas and oil engines; Gas distribution; Gas heating; Gas lighting; Gas manufacture and works

Safety devices and measures

Accident hazards in laying mains. R. S. Carter. Gas Age 46:256-7 O 11 '20; Same. Am Gas Eng J 113:327-8 O 23 '20

Accidents to employees when off company premises can be prevented. F. A. Tewksbury. Am Gas Eng J 113:487-8, 494-5 D 11 '20

Study and teaching

University and gas plant co-operate, Baltimore gas company and Johns Hopkins university. T. King and J. C. Smallwood. Gas Age 46:384 N 10 '20

University of Michigan gas course. J. G. Ames. il Gas Age 48:45-9 Jl 25 '21

Tables, calculations, etc.

Tables for gas engineers. A. W. H. Grieve. Gas Age 45:256-7 Mr 25 '20

See also Gas flow

Gas explosions. See Coal mines and mining—Accidents and explosions; Explosions

Gas fires

Explosives used to snuff out largest gas well fire ever known, after all other methods failed. il Am Gas Eng J 112:164+ F 28 '20; Mech Eng 42:212 Ap '20; Eng & Contr 53:191 F 18 '20; W Soc E J 25:17-18 F 20 '20

Gas burns in distribution mains. C. D. Jenkins and E. H. Barber. il diags Gas Age 48:319-22 S 17 '21

Regarding gas as a fire hazard. Gas Age 45:212-16 Mr 10 '20

Gas fitting

British fitting rules. Gas Age 46:86 Ag 10 '20

Gas piping for new dwelling houses in Great Britain. T. Sington. Am Gas Eng J 113:508, 512 D 18 '20

Time required to install gas appliances and piping. A. G. Drury. Dom Eng 93:564-7, 618-19 D 18-25 '20

Gas fitting—Continued

Veterans become gas fitters. R. T. Fisher. *il* Gas Age 47:309-10 Ap 11 '21

See also Gas fixtures; Pipe fitting; Plumbing

Gas fixtures

N. Y. Welsbach fixture campaign. W: C. McCoy. *il* Gas Age 46:442-4 N 25 '20

Period styles in gas lighting fixtures. *il* Am Gas Eng J 112:33-4 Ja 10 '20

Selling lighting effects. *il* Am Gas Eng J 112:128-30 F 14 '20

Specifications

Specifications for gas fixtures just issued by American gas association. Am Gas Eng J 114:31, 35-7 Ja 8 '21; Same. Am Gas Assn Manufacturers' sec v 2:55-64 '20; Same. Am Gas Assn General Sessions sec v 2:137-47 '20

Gas flow

Burner orifice tests. W. M. Berry and others. *il* Gas Age 46:524-5 D 25 '20

Design and application of atmospheric burners. T. King. Am Gas J 115:359-63+ O 22 '21

Device for measuring the flow of gases. C. R. Hayward. *diag* Chem & Met Eng 24:780 My 4 '21

Effect of fittings on flow of fluids through pipe lines. D. E. Foster. Mech Eng 42:616-18 N '20; Same. Power Pl Eng 24:1115-18 D 1 '20; Same cond. Eng & Contr 54:564-5 D 8 '20; Same cond. Power 52:1032-3 D 28 '20; Excerpt. Chem & Met Eng 23:1172 D 15 '20

Efflux of gases through small orifices. E. Buckingham and J. D. Edwards. *diag* U S Bur Stand Sci Pa 359:573-615 '20

Flow meters. J. M. Spitzglass. Am Gas Assn Technical sec v 2:239-43 '20

Flow of gas calculation chart. E. T. Anderson. Gas Age 47:322 Ap 25 '21

Gas flow measurement. N. D. Lambert. *il* *diags* Am Gas J 115:93-7+ J1 30 '21

Gas measurements with plain orifices. A. H. Blaisdell. *chart* *diag* Power 50:801-3 D 16 '19

Jacob M. Spitzglass, inventor of the Republic flow meter. Power 53:1051-2 Je 28 '21

Measuring flow of fluids. J. M. Spitzglass. *diags* Power 51:503-7 Mr 30 '20

Measuring furnace gas. D. L. Ward and R. S. Reed. *diag* Iron Age 107:902 Ap 7 '21; Abstract. Min & Met 170:33 F '21

Measuring the flow of gases. Chem & Met Eng 24:956 Je 1 '21

Les méthodes de mesure des grands volumes de gaz; l'appareil Murgue. Génie Civil 78:70 Ja 15 '21

Null-deflexion constant current type of hot-wire anemometer, for use in the determination of slow rates of flow of gases, together with an investigation of the effect of the free convection current upon such determinations. J. S. G. Thomas. *diag* Philos Mag 6th ser 41:716-32 My '21

Resistance of absorption tower packing to gas flow. F. C. Zeisberg. Chem & Met Eng 21:765-7 D 24 '19

Thermal effect produced by a slow current of air flowing past a series of fine heated platinum wires, and its application to the construction of hotwire anemometers of great sensitivity, especially applicable to the investigation of slow rates of flow of gases. J. S. G. Thomas. *diags* Philos Mag 6th ser 41:240-58 F '21

See also Air flow; Fluids

Gas generators

Gas generating apparatus for hydrogen sulfide. A. W. Bull. *diags* Chem & Met Eng 24:749-50 Ap 27 '21

See also Gas producers

Gas governors

Koppers gas governor. *il* *diags* Gas Age 48:439-40 O 8 '21

Savage high pressure governor. *diags* Gas Age 46:28 J1 10 '20

Use of governors and regulators in gas distribution. W. M. Henderson. *il* *diag* Am Gas Eng J 113:279-82 O 9 '20; Same. Gas Age 46:469-76 D 10 '20

See also Gas distribution

Gas heaters

Featuring heaters for spring. W: B. Stoddard. *il* Am Gas J 114:303-4 Ap 2 '21

Gas heating supplants coal; Geist automatic gas heater. L. N. Yetter. *il* Gas Age 45:153 F 10 '20

Hot wave gas house heater. *il* Gas Age 47:78 Ja 25 '21; Same. Am Gas Eng J 114:24 Ja 8 '21

Improved air heater. M. Meredith. Gas Age 47:112-13 F 10 '21

Radiant heat and heaters. C. H. Sharp. *diags* Am Gas Assn Commercial sec v 1:130-41; Discussion. 141-3 '19

See also Gas water heaters

Gas heating

Advance of gas fuel in the heating industry. D: H. Cuyler. *il* *diag* Heat & Ven 17:35-7 N; 33-5 D '20

Application of gas to space heating. T. King. *il* *diags* Am Soc Heat & V E J 27:421-34 My '21

Best appliances for central heating jobs are gas-fired boilers for hot water and steam and gas-fired hot air furnaces for hot air systems. P. M. Spies. Am Gas Eng J 112:247-9 Mr 27 '20

Block rates promote heating. D. C. Seewir. *il* Gas Age 45:103-7 F 10 '20

Constant temperature rooms. E. G. Hastings. *diag* J Ind & Eng Chem 13:1056-7 N '21

Gas and electric heat. A. Herz. Gas Age 45:374-5 Ap 26 '20

Gas as an evaporative medium for heating buildings. D: H. Cuyler. *diags* Dom Eng 90:225-7 Ja 31 '20

Gas combustion chart. Mr Grebel. *chart* Chem & Met Eng 21:641 N 12 '19

Gas for heating. G: S. Barrows. Am Soc Heat & V E 25:325-8; Discussion. 328-32 '19

Gas for house heating. Am Soc Heat & V E J 26:XXVII-XXXIII Ap '20

Gas heating efficiency. W. N. Booth. Gas Age 48:324 S 17 '21

Gas heating for the hatching and rearing of chickens. J: Y. Dunlop. *diags* Plumber 95:297-8 My 20 '21

Gas unit system for a garage. D: H. Cuyler. *diag* plan Metal Work 92:764-5 D 26 '19

Gas used for heating. *il* *diag* Plumber 95:174-5+ Mr 25 '21

Gas versus electricity. D. M. Watson. Engineer 132:379-80 O 7 '21

House heating with gas in place of coal. W. Lambert. *il* Sci Am 122:13+ Ja 3 '20

Making gas house-heating commercially possible. *il* Heat & Ven 17:55-6 My '20

Multiple occupancy heating. H. E. Branch. *il* Gas Age 45:145-8 F 10 '20

Municipal welfare and gas heating. D: H. Cuyler. Heat & Ven 18:37-8 My '21

Obstacles in the path of gas heating. D: H. Cuyler. Heat & Ven 18:39-41 Je '21

Report of A.G.A. heating committee. Am Gas Assn Commercial sec v 2:247-70 '20

Report of heating committee. *charts* Am Gas Assn Commercial sec v 1:157-76; Discussion. 177-87 '19

Residence heating by gas. G: W. Allen. *il* Gas Age 46:241-3 S 25 '20

Residence heating with gas; symposium. Gas Age 45:308-10 Ap 10 '20

Secondary rates make house heating with gas a success in Baltimore. T. King. *il* Gas Age 45:108-12 F 10 '20

This 17 room house is heated by gas. W: T. Rasch. *il* Gas Age 44:328-9 O 1 '19; Same. Metal Work 92:527-8 O 31 '19; Same. Am Soc Heat & V E J 26:supI-IV Ja '20

Use of gas for house heating. P. H. Woodruff. *il* Pop Mech 33:819-24 Je '20

See also Gas heaters; Gas water heaters

Gas heating—Continued

Cost

Comparaison du chauffage au gaz et a l'électricité. A. Grebel. Génie Civil 79:249-52 S 17 '21

Develop warm air heating. F. R. Hutchinson. il Gas Age 45:142-4 F 10 '20; Same abr. Metal Work 93:412-13 Ap 2 '20

Heating with gas at sixty cents. E. M. Pater-son. Gas Age 45:150-1 F 10 '20

Gas heating, Industrial

Advance of gas fuel in the heating indus-try; gas-fired industrial equipment. D: H. Cuyler. diag plan Heat & Ven 18:34-6 Ja '21

Unsold market for gas (industrial). C. A. Munroe. Am Gas Assn General Sessions sec v 1:108-12; Discussion. 112-28 '19

See also Gas as fuel

Cost

Report of committee on unit cost data. Am Gas Assn Commercial sec v 1:389-98; Dis-cussion. 399-402 '19

Tables, calculations, etc.

Determining requirements of industrial equip-ment. Am Gas J 114:273, 277-81 Mr 26 '21; Same. Gas Age 47:253-6 Mr 25 '21

Water gas challenges producer gas. B. M. Herr. Gas Age 47:189-90 Mr 10 '21

Gas holders

Adding holder section while operating. W. D. Birbeck. il Gas Age 45:18-19 Ja 10 '20

Another fifteen million gas holder. il Gas Age 48:375-7 O 1 '21

Big gas holder for Baltimore. A. W. Hawks, jr. il Gas Age 47:469-70 Je 10 '21

Building the biggest steel gas holder. il Pop Mech 33:33 Ja '20

Denver's gas-pressure system. G: Wehrle. Am Gas J 114:245-6+ Mr 19 '21

Gas burns in distribution mains. C: D. Jenkins and E. H. Barber. il diags Gas Age 48:319-22 S 17 '21

Gas holders lawful structures. Eng N 84:325 F 12 '20

Gas making vs. gas storage capacity. J. M. Dickey. Gas Age 48:457-8 O 15 '21; Same. Am Gas J 115:317+ O 8 '21

Gas storage holder requirements. G: Wehrle. Gas Age 46:346-8 N 10 '20

Mammoth holder of Astoria light, heat & power co. goes into service. il Am Gas J 115:273-4+ S 24 '21

Modern gas holder, Chicago. C: W. Person. il diag Sci Am 122:187+ F 21 '20

Start work on new gas holder; second largest to be in Baltimore. il Am Gas J 114:567-8 Je 25 '21

10,000,000-feet gas holder. Pub Works 48:246 Mr 27 '20

Failures

Crown of full gas holder ruptured by unknown cause. Eng N 87:296 Ag 18 '21

Repair

Repairing holder guide frame. C: O. Pratt. il diags plan Gas Age 45:261-2 Mr 25 '20

Gas hose. See Gas tubing

Gas ignition. See Electric ignition; Gas and oil engines—Ignition; Inflammable mixtures

Gas industry

Ancestor worship. J. H. Vernon. Am Gas J 114:445-6 My 21 '21

Attitude toward house heating. E. D. Car-penter. Am Gas Eng J 113:161-2 Ag 28 '20

Big publicity for gas. F. W. Parsons. Gas Age 46:19 Jl 10 '20

Bright future for the gas company worker assured. E. D. Carpenter. Am Gas Eng J 112:137-8 F 21 '20

Can the gas industry manufacture an over supply of by-products? L. W. Alwyn-Schmidt. Am Gas Eng J 112:1-3 Ja 3 '20

Complete fuel service by utilities. C. R. Bellamy. il Gas Age 47:416-20 My 25; Dis-cussion. 48:2-4 Jl 11 '21

Electric competition over-rated. J. E. Bul-lard. Gas Age 47:56 Ja 25 '21

Emergency gas conference. Gas Age 45:493-9 Je 10 '20

European influences affect gas industry in other parts of the world. L. W. Alwyn-Schmidt. Am Gas Eng J 113:441-2+ N 27 '20

Gas industry; a diagnosis and prescription. R. S. McBride. il diags Chem & Met Eng 23:622-7 S 29 '20; Excerpts. Gas Age 46:249-50 O 11 '20

Gas industry vitally interested in equalizing coal demand over twelve months of the year. L. W. Alwyn-Schmidt. Am Gas Eng J 112:257-9 Ap 3 '20

Great fundamental economic question which finally must settle all rate controversies not yet touched upon. L. W. Alwyn-Schmidt. Am Gas Eng J 113:361-2+ N 6 '20

How should new business be viewed today. M. L. Kane. Am Gas Eng J 113:207-8 S 11 '20; Excerpts. Gas Age 46:238-9 S 25 '20

I don't want my son to be a gas man. J. E. Bullard. Am Gas J 115:230+ S 10 '21

Labor-saving devices that may with profit be used in the gas industry. G: A. Neal. Am Gas Eng J 112:342-4 My 1 '20; Same. Gas Age 45:404-5 My 10 '20

Meeting the public commercially. C. H. B. Chapin. Gas Age 48:69-72 Jl 25 '21

Modern commercial activities. G: A. Neal. Gas Age 47:390-1 My 10 '21

More democracy needed in the gas business. H. L. Doherty. Gas Age 44:437-42 N 15 '19

Municipal ownership a menace that must be overcome for the good of the gas industry. J: Walter. Am Gas Eng J 113:485-6 D 11 '20

Natural gas vs. electricity. Am Gas J 115:226-7 S 10 '21

Natural law, statute law and gas service; what the three mean to the industry. W. S. Blauvelt. Am Gas J 114:373-4, 385-7 Ap 30 '21

Need for greater stress on the chemical phases emphasized by by-product possibilities that are becoming manifest. G: B. Cortelyou. Am Gas Eng J 113:431-3 N 20 '20; Same cond. (Mission of American gas association). Gas Age 46:408-9 N 25 '20

Need of radical readjustments in gas rates. G: H. Priest. Am Gas Eng J 112:139-44+ F 21 '20; Same. Gas Age 45:247-50, 291-3 Mr 25-Ap 10 '20

No single expedient will solve fuel problem. L. W. Alwyn-Schmidt. Am Gas Eng J 113:261-2+ O 2 '20

Period of prosperity not far in the distance is the opinion gathered from viewpoints of company executives assembled in New York. W. A. Fairservis. Am Gas Eng J 113:419-20+ N 20 '20

Problems of the gas industry. B. Rahn. Am Gas J 114:311-12 Ap 9 '21; Same. Gas Age 47:284-5 Ap 11 '21

Put your shoulder to the wheel. S. Summers. Am Gas J 114:289-90+ Ap 2 '21

Talk on Wisconsin conditions and general problems. B. Rahn. Gas Age 45:342-3 Ap 26 '20

Technical section, A.G.A., making headway. Am Gas J 114:463-4 My 28 '21

Tempered copper and the gas industry. I. Ginsberg. Am Gas J 115:280+ S 24 '21

Tendency to view gas as the main commer-cial product to be obtained from coal. H. B. Coho. Am Gas Eng J 112:241-4+ Mr 27 '20

Two cubic feet of 300 B.t.u. gas at same price as one cubic foot of 600 B.t.u. gas to advantage of consumer. H. L. Doherty. Am Gas Eng J 111:535-6, 538-42 D 6 '19

Unsold market for gas. C. E. Bartlett. Am Gas Assn Manufacturers' sec v 1:46-63; Dis-cussion. 63-94 '19

Use of gas in educational institutions. W. L. Powers. Am Gas Assn Commercial sec v 2:46-53 '20; Same. Am Gas Eng J 113:395-7 N 13 '20; Same cond. Gas Age 46:477-8 D 10 '20

Western view of gas problems. H: S. Whipple. Gas Age 45:303-5 Ap 10 '20

What the gas business needs. H: L. Doherty. Am Gas Assn General Sessions sec v 1:156-73; Discussion. 173-4 '19

See also Gas, Natural; Gas appliances;

Gas Industry—Continued

Gas as fuel; Gas companies; Gas cooking; Gas distribution; Gas heating; Gas lamps; Gas lighting; Gas rates

Advertising

- Ads that sell. J. E. Bullard. Gas Age 46: 388 N 10 '20
 Advertising is proved science. Am Gas J 115:305-7 O 1 '21
 Apportioning the advertising. W: B. Stoddard. il Gas Age 47:23 Ja 10 '21
 Balancing an advertising campaign. L. W. Alwyn-Schmidt. Am Gas J 114:207+ Mr 5 '21
 Clinching the sale by advertising. L. W. Alwyn-Schmidt. il Am Gas J 114:401-2+ My 7 '21
 Company advertising manager. G. W. Allen. Gas Age 45:48-9 Ja 10 '20
 Dealing with the winter's problems now. Am Gas J 115:234-6 S 10 '21
 Featuring preparedness; visualizing comfort has proved a successful method of advertising gas heaters and ranges. W: B. Stoddard. il Am Gas Eng J 111:585-6 D 20 '19
 Gas furnace sales increased 500 per cent. R. A. Hartley. il Gas Age 45:154-6 F 10 '20
 Gas publicity in the South. W: B. Stoddard. il Gas Age 47:73 Ja 25 '21
 Getting results from newspaper publicity. J: P. Lucas. Am Gas Assn Commercial sec v 2:272-9 '20
 Good ads for gas companies. Gas Age 45:316-17 Ap 10 '20
 Helpful hints for educating people to use of gas by publicity, suggestion and comparison. W: B. Stoddard. il Am Gas Eng J 112: 150-2 F 21 '20
 History of by-product gas business. Am Gas J 115:140-2+ Ag 13 '21
 Home canning as a sales opportunity. W: B. Stoddard. Am Gas J 115:229-30 S 10 '21
 Increased output through industrial appliance sales. L. B. Crossman. Am Gas Eng J 114: 141-2, 145 F 12 '21
 Must study subject to successfully advertise gas business. J: H. Hartog. Am Gas Eng J 113:507-8 D 18 '20
 Novel contests and souvenirs of general appeal. E. A. Dench. Am Gas Eng J 113:405-6+ N 13 '20
 Peterson advocates permanent advertising to children. S. G. Addison. Am Gas Eng J 113:67-8 Jl 24 '20
 Peterson begins three-point advertising campaign. S. G. Addison. Am Gas Eng J 113: 133-4 Ag 14 '20
 Peterson gives the consumers practical information. S. G. Addison. Am Gas Eng J 112: 168-9 F 28 '20
 Reaping profits from the sale of cooking utensils. W: Stoddard. il Gas Age 44:510-11 D 1 '19
 Report of A.G.A. emergency committee. Am Gas Assn General Sessions sec v 2:60-72; Discussion. 72-81 '20
 Report of plan and scope committee of the advertising section of the A. G. A. Am Gas Assn General Sessions sec v 1:145-50; Discussion. 151-6 '19
 Selling fall styles in spring. J: H. Hartog. Am Gas Eng J 112:188-9 Mr 6 '20
 Simple trick of writing newspaper ads. Am Gas Eng J 112:54-6 Ja 17 '20
 Some hot weather business. F. Farrington. Am Gas Eng J 112:368-9 My 8 '20
 System for advertising men. G: W. Allen. il Gas Age 45:237-40, 324-6, 430-2 Mr 10, Ap 10, My 10 '20
 Turning coal shortage into gas heater sales. E. A. Dench. Dom Eng 89:478 D 6 '19; Excerpts. Am Gas Eng J 111:543-4 D 6 '19
 Use the force of advertising to increase gas sales. G. D. Mantle. Gas Age 44:567-8+ D 15 '19
 Using the movie program for advertising. E. A. Dench. Am Gas Eng J 112:13-14 Ja 3 '20
 Why it pays to be a little more than fair with the customer. A. A. Higgins. Am Gas Eng J 112:162-4 F 28 '20

Bibliography

Technical books of the gas industry. Brown's Directory of American gas companies p. 367-85 '20

Directories

Classified directory manufacturers of gas equipment. Am Gas Assn Manufacturers' sec v 2:65-97 '20

Exhibitions

Gas convention for 1920. il diag Gas Age 46: 311-13 O 25 '20
 Gas exhibit at the American gas association convention at high pressure. il Gas Age 46:365-9, 432-6 N 10-25 '20; Am Gas Eng J 113:436-40+ N 20 '20

Merchandizing

- Arranging the appliance store. J. E. Bullard. Gas Age 45:242+ Mr 10 '20
 Better gas merchandising. W: Gould. Gas Age 47:300-1 Ap 11 '21
 Building a list of new customers. C. E. Shaffner. Am Gas J 114:211-12 Mr 5 '21
 Condition of gas field makes possible now active campaign to sell gas consuming appliances. Am Gas Eng J 114:1-2 Ja 1 '21
 Count up the appliances installed but not in use. E. Dean. Am Gas Eng J 112:199-200 Mr 13 '20
 Develop small industrial gas consumers. H. M. Crawford. Gas Age 44:515-17 D 1 '19
 Developing the field for gas in domestic and commercial heating. C. M. Grow. Am Gas Eng J 113:289-92 O 9 '20; Excerpts. Gas Age 46:324 O 25 '20
 Filling in the valleys of gas and appliance sales; introd. by W: Gould. Am Gas Assn Commercial sec v 2:313-20; Discussion. 320-3 '20
 Gas appliance will come to the fore if the prospective building boom is used. J: Walter. Am Gas Eng J 114:7-8 Ja 1 '21
 Gas sales association of New England holds annual meeting. Am Gas Eng J 112:507-8+ Je 26 '20
 Gas stoves and appliances for Christmas. W: B. Stoddard. il Am Gas Eng J 113:331-3 O 23 '20
 Gas water heaters—when and where they should be used. H. J. Long. Am Gas J 114:534-6 Je 18 '21
 Getting the local retail dealer in line with the gas company one method of increasing sales. Am Gas Eng J 114:3-5 Ja 1 '21
 How gas appliances are boosted in the South. W. B. Stoddard. Gas Age 44:560-1 D 15 '19
 How gas lighting may be saved. il Gas Age 46:353-6 N 10 '20
 How to sell gas for industrial purposes. C. M. Robert. Gas Age 44:471-2+ N 15 '19
 In spite of the fact that gas has been in use over 100 years, many people have a wrong impression about it. S. G. Addison. Am Gas Eng J 112:107-8 F 7 '20
 Industrial prospects that the small company may sell. J. H. Gumz. Am Gas Eng J 112: 263-4 Ap 3 '20
 Investigations show campaigns are successful in achieving results. H. J. Pettengill, jr. Am Gas Eng J 113:366, 373-5 N 6 '20; Excerpt. Gas Age 46:329 O 25 '20
 Is he a lazy salesman? Am Gas Eng J 112: 287-9 Ap 10 '20
 Looking ahead to sell gas appliances. C. E. Schaffner. Am Gas Eng J 113:239-40 S 25 '20
 Make appliance sales pay. J. A. Forney. Gas Age 46:38+ Jl 10 '20; Same. Am Gas Eng J 113:33-4 Jl 10 '20
 Making industrial gas consumers. L. W. Alwyn-Schmidt. Am Gas Eng J 112:41-3 Ja 17 '20
 Merchandising. Am Gas Assn Commercial sec v 1:105-15; Discussion. 115-29 '19
 Merchandising gas appliances under present conditions. J. P. Hanlan. Gas Age 47:111 F 10 '21
 Merchandising methods scored. W: Gould. Gas Age 47:160-1 F 25 '21; Same. Am Gas J 114:215+ Mr 5 '21
 Modern commercial activities. G: A. Neal. Am Gas J 114:375-6 Ap 30 '21

Gas industry—Merchandizing—Continued

- Must fight electrical men for business if industry is to continue to advance. S. J. Ballinger. Am Gas Eng J 113:489-91 D 11 '20
- Need of immediate action in going after industrial business. J. W. Smith. Am Gas Eng J 112:341-2 My 1 '20
- \$1 broom or \$50 cleaner? H. M. Crawford. Gas Age 45:427-8 My 10 '20
- One way for gas companies to increase earnings. J. E. Bullard. Am Gas Eng J 112:131-2 F 14 '20
- Petersen tells how to sell all gas kitchens. S. G. Addison. Am Gas Eng J 113:47-8 JI 17 '20
- Profitable year-round campaigns. B. A. Duvall. Gas Age 48:541-2 O 29 '21
- Put pep into industrial gas sales. J. E. Bullard. Gas Age 48:496-8 O 22 '21
- Recommendations made by the Manufacturers' sub-committee to the Sales development committee. Am Gas Assn Commercial sec v 1:57-65; Discussion. 65-7 '19
- Report of committee on filling in the valleys in gas and appliance sales. Am Gas Assn Commercial sec v 1:32-40; Discussion. 41-5 '19
- Report of committee on special sales campaigns. Am Gas Assn Commercial sec v 1:10-26; Discussion. 27-31 '19
- Salesman's power; how he can build for the company in his everyday selling. S. H. Summers. Am Gas J 114:201-2+ Mr 5 '21
- Sell appliances for profit in 1920. A. P. Post. Gas Age 45:50-2 Ja 10 '20
- Sell the best gas appliances possible always. H. W. Hunter. Gas Age 44:562-3 D 15 '19
- Special sales campaigns. Am Gas Assn Commercial sec v 2:281-8; Discussion. 289-94 '20
- Toast with gas. W. B. Stoddard. Am Gas Eng J 114:38-9 Ja 8 '21
- Using and misusing gas. S. Brown. Am Gas Eng J 112:229-31 Mr 20 '20
- Using gas to beat the h.c.l. J. E. Bullard. Gas Age 45:524-6 Je 10 '20
- Valleys in gas appliance sales. W. Gould. Gas Age 46:378 N 10 '20
- With the price of gas such as to return a profit on its manufacture profit on the appliance idea will be adopted only if it actually promotes the aggregate sale. E. D. Carpenter. Am Gas Eng J 113:41-2 JI 17 '20

Statistics

- Census gas statistics for 1919. Gas Age 47:507-8 Je 25 '21
- Latest gas statistics. O. F. Schuette. Gas Age 46:283 O 11 '20
- Manufactured-gas statistics—1918. R. S. McBride. Gas Age 48:488-90, 517-20 O 22-29 '21
- Statistics of the artificial gas industry. Gas Age 46:482-3 D 10 '20

Europe

- European gas industry faces many difficulties. L. W. Alwyn-Schmidt. Am Gas Eng J 113:123-5 Ag 14 '20
- How European gas companies are helping out in solution of economic problems. L. W. Alwyn-Schmidt. Am Gas Eng J 112:465-7 Je 12 '20
- Schemes that were held fanciful begin to be considered seriously as solution of Europe's fuel and power problems. L. W. Alwyn-Schmidt. Am Gas Eng J 113:27-8+ JI 10 '20
- War, though officially terminated, still holds Europe in its grip. L. W. Alwyn-Schmidt. Am Gas Eng J 111:575-7 D 20 '19

France

- Congrès de la société technique du gaz. diags plans Génie Civil 76:574-6 Je 26 '20
- L'état actuel et l'avenir de l'industrie gazière: la récupération du benzol. diags Génie Civil 78:409-14 My 14 '21

Germany

- Troubles of European gas companies very similar to those in this country. L. W. Alwyn-Schmidt. Am Gas Eng J 112:400-2 My 22 '20

Great Britain

- Accumulation of industrial business has effect in complicating coal supply problem of British gas companies. L. W. Alwyn-Schmidt. Am Gas Eng J 112:281-2+ Ap 10 '20
- Applying the gas regulation act. N. H. Humphrys. Gas Age 47:134-5 F 25 '21
- British finances. N. H. Humphrys. Gas Age 45:340-1 Ap 26 '20
- British gas industry in 1919. N. H. Humphrys. Gas Age 45:251-3 Mr 25 '20
- British gas industry in 1920. N. H. Humphrys. Gas Age 47:52-3 Ja 25 '21
- British gas industry; its difficulties and recent experiences. T. Sington. Am Gas J 114:247-8 Mr 19 '21
- British gas legislation in 1920. N. H. Humphrys. Gas Age 46:91-2 Ag 10 '20
- Coal stoppage in Great Britain. N. H. Humphrys. Gas Age 47:470-1 Je 10 '21
- English readjustment conditions in gas supply. N. H. Humphrys. Gas Age 44:447-8 N 15 '19
- European gas industry organizes coal supply. L. W. Alwyn-Schmidt. Am Gas Eng J 112:379-80+ My 15 '20
- 57th annual general meeting of the Institution of gas engineers, Westminster, June 1-3. Engineering 109:763-4, 787-8, 819 Je 4-18 '20
- Industrial troubles in England. N. H. Humphrys. Gas Age 46:260-1 O 11 '20
- Troubles of European gas companies very similar to those in this country. L. W. Alwyn-Schmidt. Am Gas Eng J 112:400-2 My 22 '20

Japan

- Gas industry in Japan. Am Gas Eng J 112:99-101 F 7 '20

Michigan

- Address on Michigan gas affairs. E. C. Campbell. Gas Age 46:217-18 S 25 '20

New Jersey

- Plans outlined for work of New Jersey association. E. R. Cutcheon. Am Gas Eng J 114:144+ F 12 '21

New York

- Early history of gas in New York. Am Arch 118:436-7 O 6 '20
- Heat, light and power for New York. Gas Age 47:264-5 Mr 25 '21

See also Consolidated gas company of New York

Pacific coast

- Pacific coast sales situation. J. H. Hartog. Am Gas Eng J 114:115-16 F 5 '21

United States

- Extreme gravity of gas companies' situation impressed on those in attendance at Emergency conference. Am Gas Eng J 112:417-18 My 29 '20
- Federal regulation of coal industry recommended as only solution of vital problem of supply. Am Gas Eng J 113:465-6+ D 4 '20
- How the A. G. A. helped gas industry. O. H. Fogg. Gas Age 46:333-5 N 10 '20

Gas lamps

- Progress in gas lamps and lighting appliances; report by the committee on progress. Illum Engr 14:11; Discussion. 16 Ja '21
- Ukay inverted gas lamp. il Illum Engr 13:19-20 Ja '20

See also Gas mantles

Cleaning

- Proper maintenance of lighting installations necessary. C. E. Blood. Am Gas J 114:409-10 My 7 '21

Testing

- Carroll lighting company, Wilkes-Barre, Pa., testing new gas lamps. Am Gas Eng J 114:21 Ja 1 '21
- Testing of gas lamps. R. H. Maurer. il Gas Age 47:307-8 Ap 11 '21

Gas lands. See Oil lands

Gas light company, Galena, Illinois
Story of Galena's failure. Gas Age 46:135-7
Ag 25 '20

Gas lighting

Allumeur-extincteur automatique de becs de gaz, système Bernard et Barbé. diags plan Génie Civil 78:254-6 Mr 19 '21
Campaign based on relatively expensive fixture to bring back to gas lighting its merited prestige. J. E. Bullard. il Am Gas Eng J 111:549-51 D 13 '19
Church lighting a neglected opportunity. J. E. Bullard. il Am Gas Eng J 112:21-3 Ja 10 '20
Combination gas and electric lighting for a high school. W. F. Norton. il Am Gas Eng J 112:219-23 Mr 20 '20; Same. Gas Age 45:278-80 Mr 25 '20
Early uses of gas-lighting on festive occasions. Illum Engr 12:343-4 D '19
Easy hot weather business; gas lighted tennis and golf courts. C. W. Pierson. plans Gas Age 46:123-4 Ag 10 '20
Gas lamps installed close to sprinkler system quiet suspicion that their heat may flood store. J. E. Bullard. il Am Gas Eng J 112:297-8+ Ap 17 '20
Gas lighting. Am Gas Assn Commercial sec v 2:371-94; Discussion. 394-405 '20
Gas lighting. A. J. Smith. Am Gas Eng J 114:157-8+ F 19 '21
Gas lighting and the business field. C. E. Blood. Am Gas J 114:203-4+ Mr 5 '21
Gas lighting, past, present and future. H. Lyon. Gas Age 47:68-9 Ja 25 '21
Gas lighting with holophane reflectors in a boot factory. il Illum Engr 13:293 O '20
How about gas lighting in 1930? Gas Age 45:94-7 Ja 26 '20
How gas lighting may be saved. il Gas Age 46:353-6 N 10 '20
Light can be used for selling goods in very much the same manner as type is used for selling goods. J. E. Bullard. Am Gas Eng J 112:61-2 Ja 24 '20
N.Y. Welsbach fixture campaign. W. C. McCoy. il Gas Age 46:442-4 N 25 '20
Obtaining and holding commercial gas lighting from the company's point of view. C. A. Pepper. Am Gas Eng J 112:261-2 Ap 3 '20; Excerpt. Gas Age 45:326 Ap 10 '20
One hundred years of gas lighting. W. R. Andrews. Sci Am 123:544 N 27 '20
1085 gas lamps installed in Providence school after thorough investigation. J. E. Bullard. Am Gas Eng J 114:8-9 Ja 1 '21
Recent developments in gas street lighting. F. V. Westermaier. il Illum Eng Soc 15:175-82; Discussion. 182-4 no 3 '20
Report of the Illuminating engineering society committee on progress. Illum Eng Soc 15:428-32 no 7 '20
Report of the Illumination committee. Am Gas Assn Commercial sec v 1:224-31; Discussion. 231-5 '19
Sales of gas for lighting can be important part of business. T. H. Piser. Am Gas Eng J 114:94-5+ Ja 29 '21; Excerpt. Gas Age 47:116-17 F 10 '21
Selling lighting effects. il Am Gas Eng J 112:128-30 F 14 '20
See also Acetylene lamps; Gas fixtures; Gas lamps; Gas mantles; Gas meters

History

Infancy of illuminating gas. R. Howard. il diags Sci Am M 4:239-44 S '21

Gas lighting, Incandescent

La production de l'oxyde de carbone par les becs à incandescence. A. Kling and D. Florentin. Chimie & Ind 6:305-8 S '21

Gas lighting fixtures. See Gas fixtures

Gas mains. See Gas pipes

Gas mantles

British gas mantle industry. Chem Age 29:138-9 Ap '21

Gas lighting, past, present and future. H. Lyon. Gas Age 47:68-9 Ja 25 '21

Gas mantle; abstract. Sci Am M 2:86 Jl '20

Incandescent gas-mantle industry; its raw materials and by-products. (Tariff information ser. 14) 31p '20 U.S. Tariff commission, Washington, D.C.

Monograph on illumination. G. A. Hoadley. il diags Illum Eng Soc 15:400-3 no 7 '20

Gas manufacture and works

Applications of electrical power on modern gas undertakings. H. C. Widlake. diags Inst E E J 58:704-18 Ag '20; Abstract. Electrician 86:77-9 Ja 14 '21
Automatic gas making for towns and isolated consumers. il Pub Works 51:347 O 29 '21
Boiler fuel economies in gas works operation. F. C. Armbruster. Gas Age 44:533-7 D 15 '19
British fuel research board already accumulating much data on low temperature carbonization. Am Gas Eng J 112:381-4+ My 15 '20
By-product coke oven and its place in the gas industry. A. H. Harris, jr. il Am Gas Assn Technical sec v 1:56-77; Discussion. 77-100 '19
Carbon monoxide and the gas supply. Engineering 112:318-20 Ag 26 '21
Carbonization: report of A.G.A. 1920 committee; Progress division. il diags Am Gas Assn Technical sec v 2:84-138 '20
Carrying on by means of improved plant against highly adverse conditions. A. A. Dion. il Am Gas Eng J 113:181-4 S 4 '20; Same. Gas Age 46:209-12 S 25 '20
Chemical control of gas operation. F. J. Kennedy. diags Gas Age 46:342-5 N 10 '20
Chicago tests of water gas sets. C. E. Reese. il Gas Age 47:1-6 Ja 10 '21
Coal replaces oil in gas making. Coal Age 17:715 Ap 8 '20
Combination coal and water gas. R. Baker. il diags Gas Age 47:129-31 F 25 '21
Complete fuel service by utilities. C. R. Bellamy. il Gas Age 47:416-20 My 25; Discussion. 48:2-4 Jl 11 '21
Corncobs used in gas manufacture. Am Gas Eng J 112:sup18 Je 26 '20
Depreciation: cause and remedy. C. E. Reese. Gas Age 46:13-16 Jl 10 '20
End of use of oil in gas making. J. C. Dickerman. Am Gas Eng J 113:25-6+ Jl 10 '20
Equalizing the cost of service by reorganization of the distributing system. L. W. Alwyn-Schmidt. Am Gas Eng J 111:529-32 D 6 '19
L'état actuel et l'avenir de l'industrie gazière; la récupération du benzol. diags Génie Civil 78:409-14 My 14 '21
Evaluation of generator fuels. E. F. Pohlmann. Gas Age 47:276-7; Discussion. W. A. Dunkley. 277-8 Ap 11 '21
Extensions at Bridgeton, N.J. J. B. Jones. il Gas Age 46:499 D 25 '20
Gas industry; a diagnosis and prescription. R. S. McBride. il diags Chem & Met Eng 23:622-7 S 29 '20
Gas making vs. gas storage capacity. J. M. Dickey. Gas Age 48:457-8 O 15 '21; Same. Am Gas J 115:317+ O 8 '21
Gas making with cheap oxygen. E. A. W. Jefferies. Am Gas Eng J 114:180-4+ F 26 '21; Same abr. Gas Age 47:145-8 F 25 '21; Discussion. F. C. Freeman. Gas Age 47:150 F 25 '21
Gas ovens for small plants. A. MacArthur. il diag Gas Age 47:229-33 Mr 25 '21
Gas progress related to B.t.u.'s. A. I. Phillips. Gas Age 47:327-30 Ap 25 '21
Gas works auxiliaries; report of A.G.A. 1920 committee. Am Gas Assn Technical sec v 2:210-21 '20
Gas works expedients. Am Gas Eng J 113:199-202 S 11 '20
Gasification of powdered coal. A. E. Bourcoud. diags Chem & Met Eng 24:600-4 Ap 6 '21
Gasworks engineering in 1920. Engineer 131:12 Ja 7 '21
Harrogate gasification plant. F. H. Robinson. diag Gas Age 47:462-4 Je 10 '21
How can we increase our water gas set capacities? J. H. Taussig. Am Gas J 114:537-8+ Je 18 '21; Same. Gas Age 48:317-18 S 17 '21
How the Pueblo company restored gas service. G. Wehrle. map Am Gas J 114:555-6+ Je 25 '21
Inclined retorts at Charlotte. S. B. Russell. il diag Gas Age 45:287-91 Ap 10 '20

Gas manufacture and works—Continued

- Industrial gas users offered a better insight to gas business. F. W. Steere. *Am Gas Eng J* 112:301-2, 307-11 Ap 17 '20
- Infancy of illuminating gas. R. Howard. *il diags Sci Am M* 4:239-44 S '21
- L'influence de la carburation artificielle du gaz d'éclairage sur les cristallisations de naphthalène dans les canalisations. C. Abder-Halden. *diag Chimie & Ind* 3:19-23 Ja '20; Abstract (Influence of artificial carburation of coal gas on the crystallization of naphthalene in gas pipings). *Chem & Met Eng* 22:990 My 26 '20
- Institution of gas engineers' annual general meeting. *Engineering* 112:546-7, 560-4 O 14-21 '21
- L'introduction du gas à l'eau dans le gaz de ville. A. Grebel. *il diags Génie Civil* 76:305-12 Mr 27 '20
- Keeping up condition of the plant. E. M. Osborne. *il Gas Age* 48:129-33 Ag 13 '21
- Making of better producer gas. A. C. Liscom. *charts Power* 52:334-7 Ag 31 '20
- Making the gas plant a show place; Providence gas plant. J. E. Bullard. *il Gas Age* 48:115-16 Ag 6 '21
- Manufacture of water gas. G. E. Wagner. *Am Gas J* 114:274+ Mr 26 '21; Same. *Gas Age* 47:271-4 Ap 11 '21
- Modern development of fuel gasification. H. Hermanns. *il diags Blast F & Steel Pl* 8: 617-24 N '20
- Modern developments in the manufacture and utilisation of coal gas. F. J. West and T. A. Tomlinson. *Engineer* 130:567 D 3 '20
- Need and value of the chemist to the small gas plant. H. Vittinghoff. *Am Gas Assn Technical sec v* 1:399-404 '19; Same. *Gas Age* 45:16-17 Ja 10 '20; Discussion. *Am Gas Assn Technical sec v* 1:405-14 '19
- New producer oil gas plant. F. C. Binnall. *il diags Gas Age* 47:47-51 Ja 25 '21; Same cond. *J Ind & Eng Chem* 13:242-6 Mr '21
- New type of Congdon standpipe. R. C. Congdon. *il Gas Age* 47:460-1 Je 10 '21; Same. *Am Gas J* 114:543-4 Je 18 '21
- Notes on operating a by-product producer gas plant for power and heating. W. H. Patchell. *diags Inst E E J* 58:417-21 Je '20; Same. *Engineering* 109:529-31 Ap 16 '20; Same cond. *Mech Eng* 43:50-1 Ja '21; Discussion. *Inst E E J* 58:437-63 Je '20
- Numerous changes in city gas of the future. R. B. Harper. *Am Gas Eng J* 114:91-3 Ja 29 '21
- Oil gas a possible way out even with eastern gas companies. W. S. Yard. *il Am Gas Eng J* 113:387-90+ N 13 '20; Same. *Gas Age* 46:413-17 N 25 '20
- Oxygen in gas production. H. J. Hodsman and J. W. Cobb. *Am Gas Eng J* 113:5-8, 11-14 Jl 3 '20
- Procédé de distillation du bois, par réduction, employé en Suisse, pendant la guerre, par de petites usines à gaz; abstracts. *Génie Civil* 77:439-40 N 27 '20; *Chem & Met Eng* 24:132 Ja 19 '21
- Producer gas plant of the Providence gas company. E. H. Bauer. *Am Gas Assn Technical sec v* 2:182-97 '20
- Progress in coal carbonization since 1916. J. A. Brown. *il Gas Age* 44:475-85 D 1 '19
- Progress in gas making. *Engineering* 112:363 S 9 '21
- Le XLIVe congrès de la Société technique du gaz (Tours, 14-16 juin 1921). *diags Génie Civil* 79:12-16 Jl 2 '21
- Rebuilding small coal gas plant at Valdosta, Georgia. *Gas Age* 45:258-9 Mr 25 '20
- Remainderless gasification process. J. Buijs. *diag Gas Age* 48:205-6 Ag 27 '21
- Report of carbonization committee. *il diags Am Gas Assn Technical sec v* 1:8-55 '19
- Research upon steaming verticals. *Gas Age* 48:206-9 Ag 27 '21
- Résultats de la distillation de la tourbe et du bois pour la fabrication du gaz d'éclairage. *Génie Civil* 76:457-8 My 15 '20
- Results secured at St Thomas, Ontario. R. Christie. *Am Gas J* 115:184-6 Ag 27 '21; Same. *Gas Age* 48:279-81 S 10 '21
- Scientific control of combustion. H. T. Ringrose. *il diags Iron & Steel Inst J* 103:63-71 no 1 '21; Same. *Engineer* 131:511-12 My 13 '21; Same abr. *Engineering* 111:565-6 My 6 '21; Same. *Eng & Ind Management* 5:538-40 My 12 '21; Discussion. *Iron & Steel Inst J* 103:72-3 no 1 '21
- Some forethought in gas engineering. E. L. Rieha. *Am Gas J* 114:511-13+ Je 11 '21; Excerpts. *Gas Age* 47:472-7 Je 10 '21
- Standards for gas service. *U S Bur Stand Circ* 32:1-140 '20
- Substitutes for human senses have wide variety and make for economy in gas supply. S. S. Amdursky. *Am Gas Eng J* 113: 367-70+ N 6 '20
- Testing by full-sized plant. *Gas Age* 46:45-50 Jl 26 '20
- Thermal efficiency of oil-gas sets. E. L. Hall and S. H. Graf. *il diags Gas Age* 48:409-18 O 8 '21; Same. *Am Gas J* 115:318-22, 328-35 O 8 '21
- Trend of progress in gas supply. F. W. Steere. *il Gas Age* 45:388-91 My 10 '20
- Use of bituminous coal as water gas generator fuel. *Am Gas Eng J* 113:450+ N 27 '20
- Utilisation of waste heat in gasworks. G. E. Stewart. *Engineering* 112:77-8 Jl 8 '21; Discussion. *Gas Age* 48:212-14 Ag 27 '21; *Engineering* 112:45-6 Jl 8 '21
- Value of the chemist in the gas industry. W. H. Gartley. *Am Gas Assn General Sessions sec v* 1:47-54; Discussion. 55-9 '19
- Value of the chemist in the large gas plant. E. J. Murphy. *Am Gas Assn Technical sec v* 1:394-8 '19
- War conditions and coal carbonization progress. N. H. Humphrys. *Gas Age* 44:543-4 D 15 '19
- Water-gas. A. E. Blake. *il diag Eng Soc W Pa* 36:575-97; Discussion. 598-610 D '20
- Water gas operating suggestions. F. C. Hill. *Gas Age* 48:108-9 Ag 6 '21
- What goes on in a water-gas machine? M. E. Benesh. *diag Am Gas J* 115:275-8+ S 24 '21
- See also* Gas—Standards; Gas, Water; Gas companies; Gas power plants; Gas producers; Gas retorts; Gas testing

Accidents

- Accident prevention; report of A.G.A. 1920 committee. *Am Gas Assn General Sessions sec v* 2:229-43 '20

By-products

- Ammonia from coal distillation. *Sci Am M* 4:309-11 O '21
- Bituminous coal product chemicals. E. C. Reese. *chart diags Gas Age* 48:137-41 Ag 13 '21
- By-product research in the industry. F. W. Sperr, jr. *il Gas Age* 45:1-5 Ja 10 '20
- By-products of supreme importance. M. Meredith. *Am Gas Eng J* 114:133-4 F 12 '21
- Developing the by-product business. R. Buckmaster. *Am Gas J* 115:385-6 O 29 '21
- Dyes from gas works. *Am Gas Eng J* 113: 113 Ag 7 '20
- L'extraction des différents produits de la distillation de la houille; procédés et installations de la Société du gaz de Paris. A. Grebel. *il diag Génie Civil* 77:148-53, 165-70 Ag 21-28 '20
- Fractional condensation of tar. *diags Gas Age* 45:220-2 Mr 10 '20
- Gas by-products as chemical raw materials. R. S. McBride. *Am Gas J* 114:529-31+ Je 18 '21; Same. *Gas Age* 47:455-9 Je 10 '21
- Gas works and benzole. T. Singleton. *Am Gas Eng J* 113:205-7 S 11 '20
- Gewinnung von urteer bei gaserzeugern und seine verarbeitung. K. Linck, J. Jaworski and F. Frank. *diags Stahl & Eisen* 41:325-33, 364-70 Mr 10-17 '21
- Mixture of benzol, xylol, toluol and gasoline, properly made far superior as motor fuel to ordinary run of gasoline. R. E. Krueger. *Am Gas Eng J* 112:337-8, 348-50 My 1 '20

Gas manufacture and works—By-products

—Continued

Récupération de l'acide cyanhydrique et du sulfure de carbone du gaz de fours à coke et du gaz de ville. Minot. il diag Chimie & Ind 6:135-40 Ag '21; Same cond. Am Gas J 115:386-8+ O 29 '21

Regional power development and the low temperature distillation of coal. C. M. Garland. Am Inst E E J 39:455-7 My '20; Same cond. Power 51:824-5 My 18 '20

Rochester by-product activity. R. E. Krueger. il Gas Age 45:59-65 Ja 26 '20

Sulphate of ammonia plant at Leamington gas works. il diags plan Engineering 112:135-7, pl 7 JI 22 '21

Tendency to view gas as the main commercial product to be obtained from coal. H. B. Coho. Am Gas Eng J 112:241-4+ Mr 27 '20

Waste prevention in the electrical industry. E. V. Chambers. il Electrician 86:619-22 My 20 '21; Abstract. Sci Am M 4:87 JI '21

See also Alcohol; Ammonia; Ammonium sulfate; Benzol; Carbocoal; Coal tar; Lamp-black; Potassium ferrocyanide

Costs

Bituminous coal water gas. C. E. Reese. Gas Age 45:169-73 F 25 '20

Blue gas in domestic appliances. R. A. Carter. Gas Age 48:171-2 Ag 20 '21

Gas making with cheap oxygen. E. A. W. Jefferies. Am Gas Eng J 114:180-4+ F 26 '21; Same abr. Gas Age 47:145-8 F 25 '21; Discussion. F. C. Freeman. Gas Age 47:150 F 25 '21

Generator fuels. R. B. Harper. Gas Age 46:505 D 25 '20

Heat units, cost and price. Gas Age 46:87-8 Ag 10 '20

High cost of making gas. L. W. Alwyn-Schmidt. Am Gas Eng J 112:82-4 Ja 31 '20

How costs vary with B.t.u. content. Am Gas Eng J 113:92 JI 31 '20

New producer oil gas plant. F. C. Binnall. il diag Gas Age 47:50 Ja 25 '21; Same. J Ind & Eng Chem 13:244-5 Mr '21

Employees

Descriptions of occupations; coal and water gas, paint and varnish, paper, printing trades, rubber goods. p 15-17 '19 U.S. Bureau of labor statistics, Washington, D.C.

Patents

Gas manufacture. diag Chem & Met Eng 25:339 Ag 24 '21

Safety devices and measures

Accident prevention. Am Gas Assn General Sessions sec v 1:60-86 '19

Accident prevention in gas industry. F. M. Smith. Am Gas J 114:251+ Mr 19 '21; Same. Gas Age 47:278-9 Ap 11 '21; Discussion. E. S. Beaumont. Gas Age 47:279-80 Ap 11 '21

Accident prevention in gas works. J. J. O'Connor. il Gas Age 48:255-6 S 3 '21

Ein neuer explosionsschutz für gasführende leitungen. A. Krämer. diags Stahl & Eisen 41:16-17 Ja 6 '21

Preventing accidents in gas plants. J. F. Conner. Chem & Met Eng 22:421 Mr 3 '20

Waste disposal

Disposal of waste from gas plants; report of A.G.A. 1920 committee. diags plan Am Gas Assn Technical sec v 2:413-56 '20; Same. Gas Age 46:349-52 N 10 '20; Same. Am Gas Eng J 113:363-6 N 6 '20; Discussion. Am Gas Assn Technical sec v 2:457-64 '20

Report of the committee on disposal of waste from gas plants. L. J. Willjen, jr. Am Gas Assn Technical sec v 1:274-5; Discussion. 275-80 '19

Gas manufacture and works, Municipal

Municipal ownership of gas plant at Omaha, Neb. Munic Eng 58:189 Ap '20

Gas masks

Ammonia-gas masks. Gas Age 48:109 Ag 6 '21

Anti-dimming compositions. Sci Am M 1:187-8 F '20

Army gas mask of no value in carbon monoxide or oxygen deficiency. G: S. Rice. Coal Age 18:1036-7 D 2 '20

Gas laboratory of the U.S. Bureau of mines. Sci Am 123:7 JI 3 '20

Gas mask, developed by Bureau of mines, absorbs carbon monoxide from inspired air. G. H. Burrell. il Coal Age 20:635-6 O 20 '21

Gas mask for carbon monoxide perfected. G. H. Burrell. Gas Age 48:238 Ag 27 '21; Same. Blast F & Steel Pl 9:515 Ag '21; Same cond. Coal Age 20:56-7 JI 14 '21

Gas-mask is worse than useless in fighting mine-fires. E. D. Bullard. Min & Sci P 121:546 O 16 '20

Improved gas mask for the navy. il Sci Am 124:371 My 7 '21; Pop Mech 35:675 My '21

Industrial use of gas masks ineffective. Metal Work 92:615-16 N 21 '19

Peace-time uses of the gas mask; recent work of the Industrial gas laboratory of the U.S. Bureau of mines. S. H. Katz. il Sci Am M 2:37-40 JI '20

Using army gas masks in industry. A. C. Fieldner and S. H. Katz. Iron Tr R 66:218-19 Ja 15 '20

Using army gas masks in industry. A. C. Fieldner and S. H. Katz. Iron Tr R 66:218-19 Ja 15 '20

Gas measurement

Measuring gases containing water vapor. T: G. Estep. Chem & Met Eng 25:329-31 Ag 24 '21

Portable cubic foot gas outfit. S. R. Winters. il Gas Age 48:237-8 Ag 27 '21

Gas merchandising. See Gas industry—Merchandising

Gas meters

Checking up the gas meter in New York city. W: R. Andrews. il Sci Am 123:252+ S 11 '20

Consumers' meters committee, 1920; testing, handling and minor repairing of dry gas meters. il diags Am Gas Assn Technical sec v 2:320-80; Discussion. 380-7 '20

Demand limiting meter. H: L. Doherty. il Gas Age 47:500-2 Je 10 '21

Deposits in meters; statement of 1920 A.G.A. sub-committee. Am Gas Assn Technical sec v 2:260-3; Discussion. 264-6 '20

Financial conditions of gas companies dependent upon meter efficiency. R. E. Davis. Am Gas Eng J 113:505-6+ D 18 '20

Fluid meter for low pressure gas and air. il Iron Age 105:471-2 F 12 '20

Gas flow measurement. N. D. Lambert. il diags Am Gas J 115:93-7+ JI 30 '21

High capacity meters. E. J. Turley. Am Gas J 115:228 S 10 '21

Is the gas meter accurate? il Sci Am 125:135 Ag 20 '21

Life of coal-gas meters. Engineering 112:342 S 2 '21

Life of gas meters. Engineering 112:563 O 21 '21

New style meter connection. A. J. Le Tarte. il diags Gas Age 46:51-2 JI 26 '20

Old-age meter changes. C. R. Miller. Am Gas J 115:323-4+ O 8 '21

One gas meter or forty? M. E. Crain. Gas Age 45:429 My 10 '20

Orifice meter and gas measurement. W. C. Brown and M. B. Hall. 112p Foxboro co., Foxboro, Mass. '21

Orifice meter for gases or liquids. J. H. Satterwhite. Gas Age 48:521-2 O 29 '21

Reduced meter travel in the gas meter repair shop. M. D. Anderson. diags Gas Age 47:305-6 Ap 11 '21

Report of the consumers meters committee. Am Gas Assn Technical sec v 1:155-69; Discussion. 170-8 '19

Solving low pressure complaints. E. J. Turley. Gas Age 48:273 S 3 '21

See also Gas flow

Testing

Periodical meter testing of vital importance to consumers as well as to the gas company. F. J. Murmann. Am Gas Eng J 114:32 Ja 8 '21

Gas mixers

Report of committee on proportional mixing. il diags Am Gas Assn Commercial sec v 1:278-334; Discussion. 334-43 '19

See also Gas—Proportional mixing

Gas oil

- Address on the gas oil situation. R. L. Welch. Gas Age 46:398-9 N 25 '20
- Facts regarding gas standards. J. B. Klumpp. Gas Age 46:506-12 D 25 '20
- Gas manufacturers propose means for meeting gas oil shortage. Nat Pet N 12:41 Je 2 '20
- Gas oil committee of American gas association outlines oil situation. Am Gas Eng J 112:443-5 Je 5 '20
- Gas oil situation. R. L. Welch. Am Gas Assn General Sessions sec v 2:31-45; Discussion. 45-52 '20
- Gas oil situation analyzed. J. B. Klumpp. map Gas Age 45:503-6 Je 10 '20
- Gas oil situation; report by the A.G.A. Gas oil committee. Am Gas Assn Technical sec v 2:390-407 '20; Same cond. Am Gas Eng J 114:161-3 F 19 '21; Discussion. Am Gas Assn Technical sec v 2:408-12 '20
- Government bureau sees little hope for gas companies in oil situation even in future. N. A. C. Smith. Am Gas Eng J 112:419-20+ My 29 '20; Same. Gas Age 45:500-2 Je 10 '20
- Market for gas oil for varied uses is constantly growing. Van H. Manning. Nat Pet N 12:65+ Je 9 '20
- Special committee of A.G.A. reports on gas oil situation. Am Gas Eng J 112:329-30 Ap 24 '20

See also Gas, Oil

Gas ovens

- American direct-fired coal ovens ideal for converting to gas. R. V. Howes. Am Gas Eng J 113:302, 310-12 O 16 '20; Abstract. Gas Age 46:448 N 25 '20
- Gas in biscuit baking. il Am Gas Eng J 112:201-2 Mr 13 '20

See also Gas retorts

Gas pipes

- Accident hazards in laying mains. R. S. Carter. Gas Age 46:256-7 O 11 '20; Same. Am Gas Eng J 113:327-8 O 23 '20
- British fitting rules. Gas Age 46:86 Ag 10 '20
- Casting pipe specials in green sand. E. A. V. Linzey. diags plans Engineer 130:226 S 3 '20
- Cement joints economical in cast iron gas pipes. W. M. Henderson. Pub Works 48:214 Mr 20 '20; Same. Eng & Contr 53:433-4 Ap 14 '20
- Construction features of new 18½-mile gas-welded pipeline of Midway gas co. of Taft, Calif. il Eng & Contr 55:376 Ap 13 '21
- Electrolysis surveys and their significance; report of 1920 A.G.A. electrolysis committee. bibliog il diags Am Gas Assn Technical sec v 2:273-312; Discussion. 313-19 '20
- General precautions in gas-piping work. Power 52:196 Ag 3 '20
- Laying submerged gas main. D. L. Hill. diag Gas Age 46:213-15 S 25 '20; Same. Can Eng 39:657-8+ D 30 '20; Same abr. Am Gas Eng J 113:220+ S 18 '20
- Midway gas company's new gas-welded pipeline. il Gas Age 47:453-4 My 25 '21
- Pipe lines for transporting natural gas. C. E. Brock. il diags Mech Eng 42:445-7 Ag '20
- Piping of buildings for gas. H. M. Crawford. Gas Age 46:306 O 25 '20; Same. Am Gas Eng J 113:530+ D 25 '20
- Practice in natural gas piping. A. G. Drury. Gas Age 45:455 My 25 '20
- Regulating pressures from transmission or pumping mains into distribution mains. G. T. Macbeth. il diags Am Gas Assn Technical sec v 1:281-92 '19; Same. Gas Age 44:443-5 N 15 '19; Discussion. Am Gas Assn Technical sec v 1:293-307 '19
- Report of cast iron pipe joints committee. Am Gas Assn Technical sec v 1:242-54 '19
- 12-inch submarine gas main. W. F. Miller. il plan Gas Age 47:239-42 Mr 25 '21; Same. Am Gas J 114:324-6 Ap 9 '21

See also Gas distribution; Gas fitting; Gas flow

Repair

- Reclaiming old natural gas mains. il Gas Age 47:369 My 10 '21

- Repairing an unusual break in a gas pipe crossing the Neponset river. H. N. Cheney. Am Gas Eng J 112:149 F 21 '20; Same. Gas Age 45:255-6 Mr 25 '20
- Welded joints on a steel gas main. il Eng N 86:731 Ap 28 '21

Standards

- Cast iron pipe standards; statement of 1920 A.G.A. committee. Am Gas Assn Technical sec v 2:266; Discussion. 266-72 '20

Gas pipes, Concrete

- Reinforced concrete gas mains. L. H. Thomas. Gas Age 48:218 Ag 27 '21

- Gas plants. See Gas manufacture and works; Gas power plants

Gas power

- Power gas from sewage. J. D. Watson. diags Engineering 112:456 S 23 '21; Same cond. Mech Eng 43:740 N '21; Same cond. Munic Eng 61:162-3 N '21; Abstract. Engineer 132:351 S 30 '21; Discussion. Engineering 112:431 S 23 '21

Gas power plants

- Notes on operating a by-product producer gas plant for power and heating. W. H. Patchell. diags Inst E E J 58:417-30 Je '20; Same. Engineering 109:529-31, 562-4 Ap 16-23 '20; Same cond. Mech Eng 43:50-1 Ja '21; Abstract. Electrician 84:348 Mr 26 '20; Discussion. Inst E E J 58:437-63 Je '20; Abstract. Electrician 84:349 Mr 26 '20
- Phelps Dodge installing two 2,000-B.hp. Diesel oil engines at Moctezuma plant, at Nacozari. C. Legrand. il Eng & Min J 111:801-2 My 7 '21
- Production of power from blast-furnace gas. S. H. Fowles. diag Inst E E J 58:431-6 Je '20; Same. Engineering 109:443-5 Ap 2 '20; Discussion. Inst E E J 58:437-63 Je '20
- Why not use more producer gas for power? Power 53:235, 479, 713, 982; 54:270 F 8, Mr 22, My 3, Je 14, Ag 16 '21

Gas producers

- Appareil Chapman pour le brassage des combustibles dans les gazogènes. J. Arnoul de Grey. il Génie Civil 78:417-20 My 14 '21
- Automatic regulation of producer gas. il Iron Age 107:855 Mr 31 '21
- Die bestimmung von teer, staub und wasser in generatorgas. E. Jenkner. diags Stahl & Eisen 41:181-3; Discussion. 183-5 F 10 '21
- By-product ovens—natural gas. C. J. Ramsburg and others. Gas Age 45:456-61 My 25 '20; Same, without tables. Am Gas Eng J 112:423-4+ My 29 '20
- Fuel saving in modern gas producers and industrial furnaces. W. B. Chapman. il diags Mech Eng 43:717-21 N '21
- Gas-producer plant. diag Chem & Met Eng 24:1156 Je 29 '21
- Gas producer practice at western zinc plants. G. S. Brooks and C. C. Nitchie. il chart diags Min & Met 153:sup2721-73 S '19; Excerpts. Am Gas Eng J 111:469-70, 472-8 N 15 '19; Discussion. Min & Met 157:(sec 12) 54-6 Ja '20
- Gas producers for bituminous coal. H. W. Seldon. Blast F & Steel Pl 9:586-7 O '21
- Gasification of powdered coal. A. E. Bourcoud. diags Chem & Met Eng 24:600-4 Ap 6 '21
- Le gazogène à fusion des cendres. A. Fichet. diags Génie Civil 79:329-32 O 15 '21
- Le gazogène autoépurateur Pineau, à refoulement vertical du charbon de bas en haut. diag Génie Civil 76:319 Mr 27 '20
- Gazogène pour la combustion des déchets de cotonniers. diag Génie Civil 77:299 O 9 '20
- Gazogène spécial pour la production de faibles quantités de gaz à l'eau. diag Génie Civil 78:137 F 5 '21
- Gewinnung von urteer bei gaserzeugern und seine verarbeitung. K. Linck, J. Jaworski and F. Frank. diags Stahl & Eisen 41:325-33, 364-70 Mr 10-17 '21
- Hampden wood-fuel gas-producer. E. Huntley. diags Min & Sci P 123:424-6 S 24 '21
- Industrial gas users offered a better insight to gas business. F. W. Steere. Am Gas Eng J 112:301-2, 307-11 Ap 17 '20
- Making of better producer gas. A. C. Liscom. charts Power 52:334-7 Ag 31 '20

Gas producers—Continued

- Modern development of fuel gasification. H. Hermanns. *il diags Blast F & Steel Pl* 8:617-24 N '20
- New mechanical gas producer. *diag Iron Age* 108:948 O 13 '21
- New mechanical gas producer manufactured by the W. R. Miller co., Pittsburgh. *diag Iron Tr R* 67:382-3 Ag 5 '20
- Novel gas producer evades high cost of gasoline. *il Pop Mech* 35:846 Je '21
- Operation of a gas producer. J. S. McClimon. *il Chem & Met Eng* 21:633-5 N 12 '19
- Operation of a modern gas producer. H. N. Trumbull. *diag Blast F & Steel Pl* 8:512-15 S '20; *Excerpts. Power* 52:482 S 21 '20
- Producer-gas. *Min & Sci P* 122:252-3, 384 F 19, Mr 19 '21
- Producer gas as a fuel. *il Marine R* 50:617 N '20
- Producer gas as a fuel for automotive vehicles. P. M. Heldt. *Automotive Ind* 45:461-4, 507-11 S 8-15 '21
- Producer gas as fuel for the glass industry. F. J. Denk. *Am Cer Soc J* 3:94-113 F '20; *Discussion. 918-21 N '20*
- Producer gas dust arrester. W. H. Spear. *diags Gas Age* 47:187-9 Mr 10 '21
- Producer gas for motor vehicles. D. J. Smith. *Engineering* 109:59-64, 92-5 Ja 9-16 '20; *Same cond. Engineer* 129:122-4 Ja 30 '20; *Abstract. Mech Eng* 42:176-8 Mr '20; *Abstract. Sci Am M* 1:274-6 Mr '20
- Producer gas from harvest waste. S. R. Winters. *il Sci Am* 123:523 N 20 '20
- Producer gas practice. J. Stewart. *il diags Automobile Eng* 11:254-7 Jl '21
- Production of gas by the destructive distillation of straw. H. E. Roethe. *il Power* 52:853-4 N 30 '20
- Recent by-product coke oven developments. J. Becker and F. W. Sperr, jr. *il diags Blast F & Steel Pl* 8:330-7 Je '20
- Report of A.G.A. carbonization committee; Producer division. flow sheet *diags Am Gas Assn Technical sec v* 2:150-201; *Discussion. 202-7 '20*
- Smith type G mechanical gas producer. *il Power* 52:572-3 O 12 '20; *Power Pl Eng* 24:984-6 O 15 '20
- Solid fuel for the gas engine; with diagrammatic cross-section of gas producer. R. Howard. *Sci Am* 124:151+ F 19 '21; *Discussion. M. von Bernewitz. 124:469 Je 11 '21*
- Suction gas-producer plant for motor vehicles. *il diags Engineering* 111:739-41 Je 17 '21
- Tar disposal in a producer-gas plant. *diag Sci Am M* 1:16-17 Ja '20
- Trend of progress in gas supply. F. W. Steere. *il Gas Age* 45:388-91 My 10 '20
- Two suggestions on a national problem. *diag Min & Sci P* 121:225-6, 545-6, 724 Ag 14, O 16. N 20 '20
- Why not by-product producer gas? R. H. Fernald. *Mech Eng* 42:708 D '20
- Why not use more producer gas for power? *Power* 53:235; 479, 713, 982; 54:270 F 8, Mr 22, My 3, Je 14, Ag 16 '21
- See also Gas and oil engines; Gas manufacture and works*

Gas pumps. See Pumps

Gas purification

- Activated carbon converts H_2S into S; a new method for the production of sulphur and for the purification of coal-gas. A. Engelhardt. *Gas Age* 48:275-9 S 10 '21
- Adapting electrical cleaning to blast furnace gases; abstracts. N. H. Gellert. *Am Gas J* 114:465-7, 473-6 My 28 '21; *Gas Age* 47:367-9 My 10 '21; *Iron Age* 108:329-34 Ag 11 '21; *Iron Tr R* 69:102-5 Jl 14 '21; *Chem & Met Eng* 25:287-8 Ag 17 '21
- Alkalinity tests in purification. C. H. Stone. *Gas Age* 46:299-301 O 25 '20
- Design for tar extractor. C. E. Reese. *diags Gas Age* 46:41-4 Jl 26 '20
- L'épuration électrique des fumées et des gaz dans le service des poudres pendant la guerre. A. Delasalle. *il diags Chimie & Ind* 4:291-316 S '20

- Experiments towards ridding Halifax gas of unusual amount of sulphur. E. R. Hamilton. *Am Gas Eng J* 113:202+ S 11 '20
- Gas purification in the medium-size gas plants of Illinois. W. A. Dunkley and C. E. Barnes. 71p Illinois mining investigations, Urbana, Ill. '20
- Increasing capacity of purifiers. G. Wehrle. *il Gas Age* 47:41-2 Ja 25 '21
- Investigation of scrubbing apparatus and cooling systems. R. A. McNeas. *Am Gas J* 115:393-4 O 29 '21
- Liquid purification of gases. L. M. Goldsmith. *diags plans Gas Age* 45:161-5 F 25 '20
- Liquid purification of gases. C. E. Reese. *diags Gas Age* 45:344-6 Ap 26 '20
- Nitrogen and argon gas-purifying equipment. *il Chem & Met Eng* 25:74-5 Jl 13 '21
- Oil gas a possible way out even with eastern gas companies. W. S. Yard. *il Am Gas Eng J* 113:387-90+ N 13 '20; *Same. Gas Age* 46:413-17 N 25 '20
- Plant for liquid purification of gas. *il diags plan Gas Age* 48:510-13 O 29 '21
- Purification of gases for electric bulbs. *il Pop Mech* 36:684 N '21
- Purification; report of 1920 American gas association committee. *Am Gas Assn Technical sec v* 2:39-73; *Discussion. 73-83 '20*
- Removal of sulphur compound. E. C. Brenner. *Am Gas J* 114:339-40+ Ap 16 '21; *Same. Gas Age* 47:315-18 Ap 25 '21
- Removal of sulfur from illuminating gas. W. W. Odell and W. A. Dunkley. *Min & Met* 153:sup2301-11 S '19; *Excerpts. Am Gas Eng J* 111:362 O 18 '19; *Discussion. Min & Met* 157:(sec 12) 60-3 Ja '20
- Removing sulphur by oil. M. Meredith. *Gas Age* 47:199 Mr 10 '21
- Revivification in place. O. B. Evans. *Am Gas Assn Technical sec v* 1:205-30; *Discussion. 231-41 '19*
- Some conditions affecting the usefulness of iron oxide for city gas purification. W. A. Dunkley. *diag Ill U Eng Exp Sta Bul* 119:1-59 '21; *Excerpt (Choice of oxide). Gas Age* 48:11-13 Jl 11 '21
- Sulphur removal by oil washing. E. R. Hamilton. *Am Gas J* 115:182-3+ Ag 27 '21; *Same. Gas Age* 48:248-50 S 3 '21
- Theory of gas-scrubbing towers with internal packing. W. B. VanArsdel. *Chem & Met Eng* 23:1115-16 D 8 '20
- See also Blast furnace gas; Electric precipitation*

Testing

- Testing cleanness of producer gas. H. F. Smith. *Power Pl Eng* 25:417-18 Ap 15 '21

Gas ranges. See Gas stoves

Gas rates

- Adjusting rates in period of change. L. R. Dutton. *Gas Age* 47:242-4 Mr 25 '21
- Adoption of the service charge. *Gas Age* 48:133-6 Ag 13 '21
- Advantages of three-charge system. J. E. Bullard. *Am Gas J* 114:338+ Ap 16 '21
- Allegheny gas men confer at Pittsburgh. E. C. Jennings. *Gas Age* 46:236-7 S 25 '20
- Analysis of service charge items. F. C. Freeman. *Gas Age* 48:282-6 S 10 '21
- Appraisal of gas property for rate making. F. Batt. *Gas Age* 44:538-41 D 15 '19
- Basis for rate making discussed. F. Irvine. *Gas Age* 47:140-3 F 25 '21
- Block rates promote heating. D. C. Seewir. *il Gas Age* 45:103-7 F 10 '20
- Boston sliding scale gas rate standard raised by commission. *Eng N* 86:955 Je 2 '21
- Cities cannot fix rates. *Gas Age* 45:295-6 Ap 10 '20
- Citizens gas company of Indianapolis continues to wage fair-rate battle. *Am Gas J* 114:313-15 Ap 9 '21
- Confiscatory rates are not legal. *Gas Age* 48:287-8 S 10 '21
- Conservation of natural gas in Canada. *Gas Age* 45:442-4 My 25 '20
- Contractual obligations of utility corporations under their franchises. R. C. Dawes. *Am Gas Eng J* 113:447-8+ N 27 '20

Gas rates—Continued

Customers petition for rate increase; Dome gas company, of Sullivan, Ind. Am Gas J 115:98-9 JI 30 '21

Demand limiting meter. H: L. Doherty. il Gas Age 47:500-2 Je 10 '21

Demand limiting meter and engineering problems involved in the application of the three part rate as a basis of selling gas service. H. D. Hancock. diag Am Gas Assn Technical sec v 2:7-31; Discussion. 31-8 '20

Despite small increases rates are still too low. Am Gas Eng J 114:57 Ja 15 '21

Develop big consumers. S. B. Cushing. Gas Age 45:327-8+ Ap 10 '20; Same cond. Am Gas Eng J 112:264+ Ap 3 '20

Doherty 3-part rate. Gas Age 45:79-80 Ja 26 '20

Effect of rates on service. H. L. Montgomery. Gas Age 47:439-43 My 25 '21

Emporia, Kansas, got its rate increase. C. B. Wyckoff. Gas Age 47:132-4 F 25 '21

Gas rate rights judicially defined; some recent court decisions. Gas Age 47:197-9 Mr 10 '21

Gas service costs in rate making. L. R. Dutton. bibliog Gas Age 48:384-90 O 1 '21

Governor Miller demands gas rate remedy in special message. Am Gas Eng J 114:97+ Ja 29 '21

Great fundamental economic question which finally must settle all rate controversies not yet touched upon. L. W. Alwyn-Schmidt. Am Gas Eng J 113:361-2+ N 6 '20

Holds gas rates increase necessary; expert reports in Georgia railway & power company. Am Gas J 114:532-3. Je 18 '21

Law as to increasing rates. Gas Age 48:382-3 O 1 '21

Legal decisions affecting rates. J. Simpson. Gas Age 45:77-8 Ja 26 '20

Method of expressing rates; gas and electric rate structures compared. E. L. Wilder. Gas Age 48:157-9 Ag 13 '21

Natural gas rate decisions. Gas Age 46:141-3 Ag 25 '20

Natural gas waste in Kansas. R. C. Morley. Gas Age 45:385-7 My 10 '20

Need of radical readjustments in gas rates. G: H. Priest. Am Gas Eng J 112:139-44+ F 21 '20; Same. Gas Age 45:247-50, 291-3 Mr 25-Apr 10 '20

New York consolidated gas company reduces rates. Am Gas J 114:450+ My 21 '21

New York state legislature to appoint committee to investigate gas rates and standards. Am Gas Eng J 114:45-6 Ja 15 '21

Norfolk city gas rate report. A. M. Taylor. Gas Age 45:507-10 Je 10 '20

Norfolk sets the pace in dealing equitably with the utilities. F. C. Miles. Am Gas Eng J 112:277-80, 289-92 Ap 10 '20

\$1 gas ordered by U.S. courts for New York. Am Gas Eng J 113:15-16 JI 3 '20

Platteville asks higher rates. Gas Age 46:55-6 JI 26 '20

Principles governing rate making. F. C. Freeman. Gas Age 47:151-4 F 25 '21

Profit of twenty-five per cent not grossly inequitable, says court in deciding case of Kings county lighting company. Am Gas Eng J 114:47-8 Ja 15 '21

Proper basis for service charge. Gas Age 48:5-6 JI 11 '21

Rate increase allowed in the city of Stevens Point, Wis. Am Gas J 114:438-9 My 14 '21

Recent gas rate making decisions. J: Simpson. Gas Age 48:101-2 Ag 6 '21

Recent increases in rates and the reasons. Gas Age 44:542-3 D 15 '19

Retail prices of gas in the United States. Monthly Labor R 10:1371-3 Je '20

Satisfactory service at low rates. W. S. Blauvelt. Gas Age 46:357-9 N 10 '20

Schenectady gas rate reduced. Gas Age 47:464-5 Je 10 '21

Selling the service charge. J. E. Bullard. Am Gas J 115:279-80 S 24 '21

Service charge. A. Parshall. Am Gas J 114:223, 234 Mr 12 '21

Service charge as a part of gas rate. W: L. Ransom. Am Gas J 115:25-8+ JI 9 '21; Excerpts. Gas Age 48:102-4 Ag 6 '21

Service charge for gas companies. P. Golsan. Gas Age 48:455-7 O 15 '21

60-cent gas rate abolished; Citizens gas company of Indianapolis wins after bitter battle. Am Gas J 114:427-30, 434-6 My 14 '21

Sliding scale issue of Boston gas rate controversy. Am Gas Eng J 114:43-4 Ja 8 '21

Status of private property and the future of individual enterprise now being fought out in numerous court rooms. W: L. Ransom. Am Gas Eng J 113:443-6, 454-6 N 27 '20

Tentative rates for Vincennes fixed by Indiana commission. Am Gas Eng J 113:248-50 S 25 '20

Therm quality—price standards. N. H. Humphrys. Gas Age 46:424-5 N 25 '20

3-part charge for gas service. R. G. Griswold. Gas Age 45:395-9 My 10 '20

Three-part rate reduces average rate per thousand from eighty cents to seventy-five cents. H: L. Doherty. Am Gas Eng J 112:421-2+ My 29 '20

Vital factors affecting central station industrial gas business. Am Gas J 115:366-7, 375-9 O 22 '21; Same. Gas Age 48:505-8, 534-7 O 22-29 '21

Would remove control of commissions over rates charged industrial users. M. Dellplain. Am Gas Eng J 112:339-40 My 1 '20; Same. Gas Age 45:402-4 My 10 '20

Gas research

Industrial research laboratories; name and address of the company and address of the laboratory. R. S. McBride. Gas Age 48:173-5 Ag 20 '21

Gas retorts

Casting of gas retorts. J. W. Mellor and W. Emery. il Engineering 109:803 Je 11 '20

Chester's new retort house; some novel features of this new installation of horizontal retorts. R. G. Porter. il Am Gas Assn Technical sec v 2:84-95 '20

Inclined retorts at Charlotte. S. B. Russell. il diags Gas Age 45:287-91 Ap 10 '20

John West, well beyond 80, establishes a separate American unit of his world-wide business. Am Gas Eng J 112:497-8 Je 19 '20

Revolving retorts. Gas Age 48:325 S 17 '21

Vertical retorts in small gas works. W. T. Gardner. Am Gas Eng J 113:64 JI 24 '20

West's establish American firm. Gas Age 45:561 Je 25 '20

See also Gas manufacture and works

Steaming

Action of steam and gases on yields of ammonia from carbonization of oil shales and coal. A. J. Franks. Chem & Met Eng 23:1149-54 D 15 '20

Carbonisation in horizontal retorts; abstract. G. M. Gill. Engineering 112:561-2 O 21 '21

Progress to date on steaming retorts—all types. L. J. Willien, jr. diags Am Gas Assn Technical sec v 1:101-44; Bibliography and discussion. 144-54 '19

Research upon steaming verticals. Gas Age 48:206-9 Ag 27 '21

Steaming in vertical gas retorts. Engineer 132:200 Ag 19 '21

Steaming in vertical retorts; abstract. G: Beilby. Engineering 112:560-1 O 21 '21

Steaming results at Meriden; yields from steaming with Woodall-Duckham vertical retorts. il Gas Age 47:13-14 Ja 10 '21

Steaming retorts discussed. N. H. Humphrys. il Gas Age 45:65-6 Ja 26 '20

Steaming Woodall-Duckham retorts. M. G. Welsh. Gas Age 45:73 Ja 26 '20

Gas revivification. See Gas purification

Gas sampling

Gases in aluminum furnaces and their analysis. R. J. Anderson and J. H. Capps. il Chem & Met Eng 24:1019-21 Je 8 '21

Sampling device for the investigation of water gas operation. R. A. Carter, jr. il charts diag Am Gas Assn Technical sec v 1:180-91; Discussion. 191-204 '19

Gas separators

J. N. liquid gas separator. diag Gas Age 47:148-50 F 25 '21

Gas storage. See Gas holders

Gas stoves

Advantages of thermostatic regulators on ranges. B. S. Pederson. Gas Age 44:520+ D 1 '19

Arguments to use in selling gas ranges. Am Gas J 115:3-4 J1 2 '21

Gas stove that retains its heat. il Sci Am 124:394 My 14 '21

Gas stoves for the canning season. W: B. Stoddard. il Am Gas Eng J 112:389-90 My 15 '20

Method of venting gas ranges. J. E. Nason. Am Gas J 115:191-2 Ag 27 '21; Same. Gas Age 48:274 S 3 '21

Specifications

Standard gas range specifications. diags Am Gas Assn Manufacturers' sec v 2:38-54 '20; Same. Am Gas Assn General Sessions sec v 2:121-37 '20; Same (without appendix). Gas Age 46:520-3 D 25 '20

Gas testing

California gas standards. il chart Gas Age 46:1-5 J1 10 '20

Massachusetts low B.t.u. gas tests. L. J. Wil-
lien. Gas Age 46:515-17 D 25 '20

Organization and plans of the joint commit-
tee on efficiency and economy of gas of the
railroad commission of the state of Cali-
fornia. Am Gas Eng J 112:515-18 Je 26 '20

Recording gas calorimeter. H. N. Packard.
il diags Am Gas Assn Technical sec v 2:
465-75; Discussion. 475-80 '20

Standard calorimeter setting. C: D. Jenkins.
diags plan Gas Age 45:245-6 Mr 25 '20

Testing by full-sized plant. Gas Age 46:45-50
J1 26 '20

See also Gas—Standards

Gas torch

Autogenous welding; preparing and using
the torch. il diag Motor Age 38:34-5 Ag 19
'20

Cutting and welding torch for shop use. il
diag Ry Mech Eng 94:490-1 J1 '20

Instruction on automobile radiator repair.
R: H. Terpenning. diag Sheet Metal Worker
11:397-8 D 10 '20

Modern welding and cutting. E. Viall. il Am
Mach 52:603-9, 769-72, 1343-6; 53:54-9 Mr
18, Ap 8, Je 24, J1 8 '20

See also Gasoline torch; Metal cutting;
Oxyacetylene flame; Welding, Oxyacetylene

Gas traps

Gas traps advantageous in conserving oil and
gas. W. L. Hamilton. diags Nat Pet N 12:
50-2+ Ja 21 '20

High and low pressure gas traps of various
types. W. L. Hamilton. diags Nat Pet N 12:
73-4+ F 11 '20

Use of gas traps governed by local condi-
tions. W. L. Hamilton. Nat Pet N 12:83+
Mr 17 '20

Gas tubing

Gas-tubing tests. S. R. Winters. il Sci Am
123:499+ N 13 '20

Tests on flexible gas tubing. R. S. McBride
and W. M. Berry. il diags U S Bur Stand
Tech Pa 133:1-37 '19

Gas turbines

Development of the Holzwarth gas tur-
bine since 1914. H. Holzwarth. diags Mech
Eng 42:292-3 My '20; Same. Sci Am M 1:
476-8 My '20

Gas and oil turbine. Am Gas Eng J 113:243-4
S 25 '20

Gas and oil turbine. W. Schüle. diag Elec W
78:679 O 1 '21

Gas turbine. Engineer 132:321-2 S 23 '21

Gas-turbine combustion chambers. G. B.
Warren. il diag Power 53:1059-60 Je 28 '21

Gas turbines. A. J. Page. Automotive Ind 42:
323 Ja 22 '20

General Electric turbo supercharger for air-
planes. S. A. Moss. il diag Aviation 8:146-51
Mr 15 '20; Same. Gen Elec R 23:476-85 Je
'20

German development of the gas turbine since
1914. il Power 52:442-3 S 14 '20

Internal-combustion turbine. Engineering
111:361-2 Mr 25 '21

New gas turbine. Engineer 131:143, 145 F 11
'21

Oil fuel turbine. diag plan Power Pl Eng 25:
956 O 1 '21

Possibilities of an aeronautical gas turbine.
C. A. Norman. chart diag Automotive Ind
41:914-17 N 6 '19

Present state of the gas turbine. H. O.
Herzog. Power 53:602 Ap 12 '21

Gas warfare. See Gases in warfare

Gas washers

Cooling water gas in circulating washer-
coolers. G: Wehrle. Am Gas J 114:553-4+
Je 25 '21

See also Tar extractors

Gas water heaters

Featuring hot water heaters. il Sanitary &
Heat Eng 96:247-8 O 21 '21

Gas-burning instantaneous water heater.
diag Pop Mech 33:936 Je '20

Gas sales association of New England dis-
cusses ways and means of promoting the
sale of water heaters. F. K. Wells. Am Gas
Eng J 112:403-4, 413-16 My 22 '20

Gas water heater as auxiliary to furnace.
diag Pop Mech 33:300 F '20

Gas water heaters in unusual service. F. A.
Lemke. Metal Work 92:731-2 D 19 '19

Gas water heaters—when and where they
should be used. H. J. Long. Am Gas J
114:534-6 Je 18 '21

Letters of a plumber to his helper; improper
working of gas water heaters. W: Hutton.
Metal Work 94:102-3 J1 23 '20

Necessity of a prospect list in developing gas
water heater business. F. A. Lemke. il
Dom Eng 90:53-4 Ja 10 '20

People need hot water—you need business
—what's the answer? Dom Eng 94:441-2 F
26 '21

Selling gas hot water service. M. B. Webber.
Gas Age 48:341-2 S 17 '21

Testing automatic water heaters. R. K. Pot-
ter. il Gas Age 48:123-4 Ag 6 '21

Unusual uses for gas water heaters. W: Hut-
ton. diags Dom Eng 90:379-80+ F 21 '20

Venting of gas water heaters. G: Hobbs.
diags Gas Age 48:309-10 S 10 '21

Water heater installations. J. C. D. Clark and
F. K. Wells. Gas Age 47:217-18 Mr 10 '21

When does a lien arise and when is it lost, for
work done on a gas water heater? Dom Eng
90:439-40 F 28 '20

Gas wells. See Gas, Natural

Gases

Absorption of gases in spray systems and
towers. E. M. Baker. Chem & Met Eng 22:
122-4 Ja 21 '20

Determining gases in steel and the deoxida-
tion of steel. J. R. Cain. Min & Met 152:
1309-22 Ag '19; Discussion. 155:3027-32; 156:
3119-21; 157:(sec 12) 77-81 N '19-Ja '20

Dynamical method for raising gases to a
high temperature. W. H. Watkinson. diags
Engineer 130:198 Ag 27 '20; Same cond. Mech
Eng 42:637 N '20

Entropy of gases. R: C. Tolman. Am Chem
Soc J 42:1185-93 Je '20

Gas adsorption by charcoal. Engineering 109:
250-1 F 20 '20

Gases obtained in molten steel. H: D. Hib-
bard. Blast F & Steel Pl 9:51-3, 139-40,
193-5+ Ja-Mr '21

Influence of colloids on the rate of reactions
involving gases; decomposition of hydroxyl-
amine in the presence of colloidal platinum.
A. Findlay and W: Thomas. Chem Soc J
119:170-6 F '21

Methods for the production and measurement
of high vacua. S. Dushman. Gen Elec R
24:58-68, 244-52, 436-43, 669-80, 810-18, 890-
900 Ja, Mr, My, J1, S-O '21

Molecular energy in gases. J. A. Ewing. En-
gineering 109:842-4 Je 18 '20

Nomographic chart for gases. T. B. Morley.
Engineering 112:302-4 Ag 26 '21

Permeability of rubber to gases. J. D. Ed-
wards and S. F. Pickering. U S Bur Stand
Sci Pa 387:327-62 '20; Same. Chem & Met
Eng 23:17-21, 71-5 J1 7-14 '20; Excerpt. India
Rubber W 63:28-9 O '20

Gases—Continued

Pressure-volume-temperature relations of gases. C. C. Phelps. *Power* Pl Eng 24:624-5 Je 15 '20

Principle of similitude and the entropy of polyatomic gases. R. C. Tolman. *Am Chem Soc J* 43:866-75 Ap '21

Problems of temperature radiation of gases. Megh Nad Saha. *Philos Mag* 6th ser 41:267-78 F '21

Relations between gases and steel. H. M. Ryder. *il diags Elec J* 17:161-5 Ap '20

Storage of gas for reserve. A. A. Fries. *Chem & Met Eng* 23:250 Ag 11 '20

See also Acetylene; Adsorption; Air; Air separation process; Argon; Blast furnace gas; Calorene; Chemistry; Chlorine; Coke-oven gas; Electric discharges; Firedamp; Flue gas; Fluids; Gas; Gas analysis; Gases in warfare; Helium; Hydrogen; Inflammable mixtures; Ionization, Gaseous; Joule-Thomson effect; Mine gases; Nitrogen; Osmosis; Oxygen; Ozone; Vapor pressure; Water vapor

Liquefaction

Separation of air into oxygen and nitrogen. F. E. Norton. *diags Chem & Met Eng* 23:511-18 S 15 '20

See also Chlorine, Liquid; Hydrogen, Liquid; Liquid air; Oxygen, Liquid

Gases, Asphyxiating and poisonous

Army experts solidify and can poison gases. *Pop Mech* 35:242 F '21

Effect of the inhalation of gases. G. A. Welsh. *J Ind Hygiene* 2:328-32 Ja '21

Emploi des pulvérisations liquides pour l'assainissement de l'air souillé par certains gaz toxiques. A. Desgrez, H. Guillemard and A. Savès. *Chimie & Ind* 4:814-17 D '20

Poisonous gases from carbon tetrachloride fire extinguishers. A. C. Fieldner and others. *il diags plan J Fr Inst* 190:543-65 O '20

Les propriétés absorbantes de l'humus à l'égard de certains gaz nocifs. M. C. Moureu. *Génie Civil* 76:159-60 F 7 '20

See also Arsine; Carbon dioxide; Carbon monoxide; Chloropicrin; Firedamp; Gas; Gases in warfare; Mine gases; Mustard gas; Phosgene; Tear bombs

Gases, Cutting. *See* Calorene; Oxyacetylene flame; Oxyhydrogen flame

Gases, Kinetic theory of

Production and measurement of high vacua. S. Dushman. *Gen Elec R* 23:493-502 Je '20

Gases, Offensive

Removal of offensive gases in the sulphate pulp mill. C. G. Schwalbe. *Paper* 28:13-15 Ag 17 '21

Gases in warfare

Absorbing poisonous gases with earth. *Sci Am M* 2:149 O '20

Chemical disarmament. V. Lefebure. *Chem & Met Eng* 24:5-7 Ja 5 '21

Chemical warfare. A. A. Fries. *J Ind & Eng Chem* 12:423-9 My '20

Chemical warfare in future wars. *il Aviation* 10:693-4 My 30 '21

French gas warfare. *J Ind & Eng Chem* 12:505-6 My '20

Les gaz de combat, et leur emploi dans la guerre européenne, de 1915 à 1918. D. Florentin. *Génie Civil* 76:409-11, 427-32 My 1-8 '20

Humanity of poisonous gas. A. A. Fries. *J Fr Inst* 189:125-6 Ja '20

Poison gas versus poison gas; the story of the first degassing chamber. A. A. MacFarlan. *il Pop Mech* 33:693-4 My '20

Repelling poisonous gases; a fanning system that was used to clear the trenches after a gas attack. *il diags Sci Am M* 2:235-6 N '20

See also Arsenic trichloride; Mustard gas; Phosgene

Bibliography

Chemical warfare. C. J. West. *Special Libraries* 10:225-36 N '19 (Reprinted by Arthur D. Little, Inc., Cambridge, Mass.)

Gaskets

Gasket-cutting attachment for drilling machine. H. A. Pearson. *diags Mach* 27:171 O '20

Metal gaskets should not be so large as to extend to the flange bolts. T. R. Morris. *diags Coal Age* 18:171 Jl 22 '20

Gasoline

Absorption as applied to recovery of gasoline left in residual gas from compression plants. W. P. Dykema and R. O. Neal. *il diags plan U S Bur Mines Tech Pa* 232:1-40 '20; Excerpts. *Nat Pet N* 12:41-2+ Mr 24; 35+ Ap 7 '20

Absorption gasoline. *Engineering* 109:760-1 Je 4 '20

Absorption of gasoline from casinghead gas by activated charcoal. H. R. Auerswald. *diags Mech Eng* 43:601-2+ S '21; Excerpt. *Gas Age* 48:377 O 1 '21

Air trouble in gasoline recovery. O. J. Sieplein. *Gas Age* 47:364-5 My 10 '21

Bessemer manual of gasoline recovery by the compression method. R. T. Zook. 455p The Bessemer gas engine co., Grove City, Pa. '20

Casinghead gasoline impossible for altitude work. *Automotive Ind* 42:1207 My 27 '20

Charcoal method of gasoline recovery. *Sci Am M* 3:70 Ja '21

Chart for blending casinghead and naphtha to a desired gravity. *Nat Pet N* 12:63 Jl 14 '20

Condensation temperatures of gasoline- and kerosene-air mixtures. R. E. Wilson and D. P. Barnard. *diags J Ind & Eng Chem* 13:906-12 O '21; Same. *Soc Auto Eng J* 9:313-19 N '21

Court decision expected to stimulate use of absorption process. J. B. Gambrell, jr. *Nat Pet N* 13:21-2 Jl 15 '21

Easy money from peat; methyl alcohol and gasoline out of peat and money out of the pockets of investors. *diag Chem & Met Eng* 24:213-15 F 2 '21

Economic aspects of natural gas. E. G. Sievers. *il diag Gas Age* 47:355-9 My 10 '21

Employ charcoal in absorption process. G. G. Oberfell and G. A. Burrell. *Nat Pet N* 12:54+ My 19 '20

Evaporation of gasoline from crude petroleum. *il Sci Am M* 2:211 N '20

Fuel problem from the refiner's viewpoint. R. L. Welch. *Soc Auto Eng J* 7:291-2; Discussion. 292-4 S '20

Gas oil as a source of gasoline. H. H. Hill. *Gas Age* 46:348-9 N 10 '20

Gasoline and other motor fuels. C. Ellis and J. V. Meigs. 709p Van Nostrand '21

Gasoline by the charcoal absorption process. G. A. Burrell, G. G. Oberfell and C. L. Voress. flow sheet *Chem & Met Eng* 24:156-60 Ja 26 '21; Excerpts. *Sci Am M* 3:252-4 Mr '21

Gasoline cracking processes with list of inventors, patent numbers and dates. F. W. Padgett. *Chem & Met Eng* 23:908-13 N 10 '20

Gasoline explosion at Memphis. *il Ry Age* 70:416 F 18 '21; *Ry R* 68:276-7 F 19 '21

Gasoline from natural gas. R. P. Anderson. *J Ind & Eng Chem* 12:547-9, 852-7, 1011-15 Je, S-O '20

Gasoline from natural gas. H. Botsford. *il Sci Am* 122:359+ Ap 3 '20

Gasoline from natural gas. C. E. Reese. *diag Gas Age* 45:382-4 My 10 '20

Gasoline from natural gas; hydrometer for small amounts of gasoline. R. P. Anderson and C. E. Hinckley. *diag J Ind & Eng Chem* 13:144-5 F '21

Gasoline from natural gas—use of charcoal in determining the gasoline content of natural gas. R. P. Anderson and C. E. Hinckley. *diags J Ind & Eng Chem* 12:735-8 Ag '20

Gasoline problem. V. H. Manning. *Chem & Met Eng* 23:79-80 Jl 14 '20

Gasoline produced from fuel oils by new impact process. *il Pop Mech* 36:649-50 N '21

Gasoline situation. R. L. Welch. *Soc Auto Eng J* 7:353-5 O '20

Gasoline—Continued

- High gasoline recovery is claimed for new cracking process. diags Nat Pet N 12:30-2 Ap 14 '20
- How many miles to the gallon? Sci Am 123:216 S 4 '20
- Interior department threatens reduction of gasoline supply. J. B. Gambrell, jr. Nat Pet N 12:67-8 N 17 '20
- Internal-combustion engine gasoline survey. N. A. C. Smith. Soc Auto Eng J 7:300-1 S '20; Same. Automotive Ind 43:575+ S 16 '20; Abstract. Gas Age 46:138 Ag 25 '20
- Kerosene blend is not acceptable in jobbers' experience. Nat Pet N 12:27-8 Ag 11 '20
- Little change in character of motor fuel over past year. Nat Pet N 13:24 F 23 '21
- Mid-continent gasoline. C. K. Francis. Chem & Met Eng 23:291-3 Ag 18 '20
- Motor fuel final boiling points rising, Mines bureau survey shows. Nat Pet N 12:25-6 Ag 25 '20
- Motor fuels. E. W. Dean. il J Fr Inst 189:269-302 Mr '20; Same. Soc Auto Eng J 6:107-17 F '20; Abstracts. Aviation 7:436 D 15 '19; Engineer 130:64-5 Jl 16 '20
- Motor gasoline from heavier hydrocarbons; particulars regarding its preparation by various cracking processes. F. W. Padgett. Mech Eng 42:400-2+ Jl '20; Abstract. Sci Am M 2:171 O '20
- Natural gas and natural-gas gasoline in 1918. E. G. Sievers. U S Geol S Min Res of U S 1918 pt 2:1403-37 '20
- Natural-gas gasoline. Sci Am 123:570 D 4 '20
- Natural gasoline has found true place in the oil industry. W. M. Welch. Nat Pet N 13:33-4+ O 19 '21
- New process for the production of aircraft fuels. A. J. Paris, jr., and W. F. Paris. Sci Am M 1:133-4 F '20; Same. Aerial Age 10:497-8 Ja 12 '20
- Possible fuel savings in automotive engines. H. C. Dickinson and S. W. Sparrow. il chart diags Soc Auto Eng J 8:3-9 Ja '21
- Power characteristics of fuels for aircraft engines. H. C. Dickinson and others. U S Nat Advisory Com for Aeronautics 1918:560-89 '20
- La production de l'essence par la décomposition pyrogénée ou cracking des huiles lourdes de pétrole. C: Dantin. Génie Civil 78:51-5 Ja 15 '21
- Production of gasoline. Power 52:788-9 N 16 '20
- Production of motor gasoline from heavy oil hydrocarbons. F. W. Padgett. Chem & Met Eng 23:521-5 S 15 '20
- Pyrolysis of some hydrocarbons. F: Denig. il Chem & Met Eng 25:751-3 O 19 '21
- Quality of gasoline marketed in the United States. H. H. Hill and E. W. Dean. U S Bur Mines Bul 191:1-262 '20; Abstract. Oil Paint & Drug Rep 99:9 sec 2 Ja 3; 12 sec 2 Ja 17; 12 sec 2 Ja 31 '21
- Relation of Baumé gravity to volatility in gasoline. Power 53:43 Ja 4 '21
- Saving gas. H. W. Stone. Sci Am 123:397 O 16 '20
- Solubility of water in gasoline and in certain other organic liquids, determined by the calcium chloride method. C: W. Clifford. J Ind & Eng Chem 13:631-2 Jl '21
- Some comparisons of steam and fire distillations of gasoline. P. A. Moore. Nat Pet N 13:77+ F 16 '21
- Some gasoline precautions. Sci Am 123:636 D 25 '20
- Volatility of internal-combustion engine gasoline. F. A. Howard. diag Soc Auto Eng J 8:145-8 F '21; Same. Nat Pet N 13:65+ Ja 26 '21; Abstract. Mech Eng 43:196-7 Mr '21; Discussion. Soc Auto Eng J 8:451-66 My '21
- When is gasoline not gasoline? J. B. Dillon. Am Gas J 115:102 Jl 30 '21
- Work out new blend in evolution of casing-head industry. J. B. Gambrell, jr. charts Nat Pet N 12:27-30 Jl 28 '20
- See also Automobile engines—Fuel*

Analysis

- Calcium chloride method for the determination of water in gasoline and in certain other substances. C: W. Clifford. diag J Ind & Eng Chem 13:628-31 Jl '21
- Iodine numbers of unsaturated hydrocarbons and cracked gasolines. W. F. Faragher, W. A. Gruse and F. H. Garner. J Ind & Eng Chem 13:1044-9 N '21

Bibliography

- Select bibliography of the extraction of gasoline from natural gas. In Technical examination of crude petroleum, petroleum products and natural gas, by W: A. Hamor and F. W. Padgett. p. 547-9 McGraw-Hill '20

Cost

- Casinghead men find return of gas to producer growing burden. J. B. Gambrell, jr. Nat Pet N 13:67+ Ap 27 '21

Measurement

- Simple device to measure gasoline. diag Nat Pet N 12:104 Jl 21 '20

Prices

- Casinghead men move to amend method of computing royalty. J. B. Gambrell, jr. Nat Pet N 13:19-20 Ap 20 '21
- Fluctuations of Chicago tank wagon market. Nat Pet N 13:41 Mr 16 '21
- It's time for the jobber to shoulder his share of the load. H. G. James. Nat Pet N 13:29+ My 11 '21
- Refiners are checked on one product moving at profit. J. B. Gambrell, jr. Nat Pet N 13:35 My 4 '21
- Representative western refiners give views on present conditions. Nat Pet N 13:36 My 4 '21
- Tank wagon markets cut three cents in Indiana territory. Nat Pet N 13:17-18 Ap 27 '21

Specifications

- Natural gasoline association adopts standards for raw and blended products. Nat Pet N 13:23 Jl 22 '21
- Official specifications of natural gasoline and motor natural gasoline as adopted by the Association of natural gasoline manufacturers, July, 1921. Nat Pet N 13:24 Jl 29 '21

Statistics

- Gasoline and kerosene gallonage first six months of 1921. Nat Pet N 13:32 Ag 10 '21
- Gasoline consumption by states in 1920. Soc Auto Eng J 8:276 Mr '21
- Gasoline production in November. Soc Auto Eng J 8:269-70 Mr '21
- Institute estimates 1920 gasoline consumption at 4 billion gallons. Nat Pet N 13:83 F 23 '21
- Million gallons daily capacity of 160 natural gasoline plants. Nat Pet N 13:37 Je 17 '21
- Natural-gas gasoline industry in 1919. Oil Paint & Drug Rep 100:11 sec 2 Jl 25 '21
- Natural-gas gasoline production. E. G. Sievers. Gas Age 47:414-15 My 25 '21
- Refinery output of gasoline, fuel oil for May exceeded same month in 1920. Nat Pet N 13:19 Jl 29 '21
- Semi-annual motor gasoline survey completed by U.S. Bureau of mines. Oil Paint & Drug Rep 99:12 sec 2 F 28 '21
- Third semi-annual gasoline survey by the U.S. Bureau of mines. Soc Auto Eng J 8:365 Ap '21

Taxation

- U.S. Supreme court upholds state taxation of gasoline. W. J. O'Leary. Pub Roads 4:12+ S '21
- Young association urged to fight unjust taxation. T. J. Gay. Nat Pet N 13:37-8 O 19 '21

Testing

- Durability of electric heaters for gasoline distillation. W. A. Jacobs and E. W. Dean. Chem & Met Eng 23:343-4 Ag 25 '20; Same abr. Elec R 77:80 Jl 17 '20

Gasoline—Testing—Continued

Testing of motor fuels. il diags Automotive Ind 45:768-72 O 20 '21

Transportation

See also Tank cars; Tank ships; Tank trucks

Gasoline, Substitutes for

Acetol new gasoline substitute. Eng N 85:924 N 11 '20

Alcohol minor factor in motor fuel field, investigating Solon is told. Nat Pet N 12:25-6 J1 7 '20

Fuel gas made from straw interests government. Pop Mech 34:658 N '20

Gasoline substitute makes good showing. Power 51:94 Ja 20 '20

Gasoline substitutes in foreign lands. Nat Pet N 12:50+ Ag 11 '20

Possible use of substitutes for gasoline. Power 53:447-8 Mr 15 '21

Quality of gasoline marketed in the United States. H. H. Hill and E. W. Dean. U S Bur Mines Bul 191:1-262 '20; Abstract. Oil Paint & Drug Rep 99:12 sec 2 Ja 31 '21

Utilization of augmentary substances as measure of oil economy. W: A. Hamor. Nat Pet N 12:83-4+ O 27 '20

See also Benzol-alcohol mixture

Gasoline economizers. See Fuel economizers

Gasoline engines. See Gas and oil engines

Gasoline filling stations. See Gasoline service stations

Gasoline handling

Methods of handling and storing fuel oil and gasoline. C: L. Hubbard. il diags Ind Management 59:20-3 Ja '20

No more gasoline fires. C. A. Mayer. il Factory 27:329 S '21

Protecting gasoline tank trucks from fire thru static electricity. F. A. Bean. Nat Pet N 13:32 S 28 '21

Safety first in handling gasoline. I. E. Pearce. il Am Mach 52:1098 My 20 '20

Salesmen urged to emphasize danger of gasoline fires and explosions. J: R. Battle. Nat Pet N 12:107+ N 24 '20

See also Gasoline pumps; Gasoline service stations; Oil handling

Gasoline in sewers

Elimination of dangerous elements, gasoline, volatile oils etc., from public sewer systems. A. E. Smith. Dom Eng 97:55-6 O 8 '21

Gasoline industry

Fuel production statistics. chart Soc Auto Eng J 7:311-12 O '20; Same. Nat Pet N 12:29+ S 1 '20

Great natural gas industry. O. F. Schuette. Gas Age 45:392-5 My 10 '20

How a big oil company works out its selling policy. J. A. Corey. Nat Pet N 12:44+ My 12 '20

Material factors in the gasoline outlook. J. E. Pogue. Automotive Ind 43:374-9 Ag 19 '20

Puts the golden rule in phraseology the jobber knows. H. H. Ragle. Nat Pet N 13:35-6+ O 19 '21

Valuation factors of casing-head gas industry. O. U. Bradley. Min & Met 164:27-8 Ag '20

Why is gasoline high? il Sci Am 122:415+ Ap 17 '20

See also Producers' consolidated oil company; Public service oil corporation; Pure oil company

Advertising

Charleston oil company puts real message in picture form in its motor fuel advertising copy. il Nat Pet N 13:59-60+ J1 22 '21

Indiana standard sells high test gas where lessees demand it. il Nat Pet N 13:17-19 Ag 17 '21

Arkansas

Successful business from small beginning; Gay oil company, Little Rock, Ark. il Nat Pet N 13:35+ Mr 23 '21

California

Real gasoline famine hits California. D: Beecroft. Motor Age 37:21 Je 3 '20

Canada

Shell entrance as marketer in Canada not far advanced as yet. L. E. Smith. Nat Pet N 13:19-20 S 7 '21

Florida

Florida's winter creates oil outlet keenly competed for. Nat Pet N 13:75 O 19 '21

Georgia

Favored prices and unfair competition fail to hold gallonage in Georgia. Nat Pet N 13:23+ J1 8 '21

United States

Inquiries for gasoline fuel oil hearten Mid-Continent refiners. Nat Pet N 13:78+ J1 8 '21

Lack of organization has held back casing-head industry. J. B. Gambrell, jr. Nat Pet N 12:41-2+ Ag 18 '20

Oil jobbers provide tourist camp ground along Dixie highway. W. K. Halbert. Nat Pet N 13:51+ O 5 '21

Promoters put men into oil business on basis of price cutting. W. K. Halbert. Nat Pet N 13:17-18 N 2 '21

Gasoline locomotives. See Locomotives, Gas and oil

Gasoline pumps

Blames faulty installations for alleged shortage of gasoline pumps. V. B. Guthrie. Nat Pet N 13:21 Ag 17 '21

Check on the accuracy of the gasoline pump. il Sci Am 124:454 Je 4 '21

Favored prices and unfair competition fail to hold gallonage in Georgia. Nat Pet N 13:23+ J1 8 '21

Gasoline pumps from the standpoint of safety. A. R. Small. U S Bur Stand misc pub 43:59-64 '21

Improved gasoline pump has cash-register features. il Pop Mech 35:858 Je '21

Kansas administration playing politics with gasoline pumps. P. Truesdell. Nat Pet N 13:17-19 Ag 3 '21

Kansas deputy oil inspector admits misleading statements. P. Truesdell. Nat Pet N 13:23-4 Ag 17 '21

Keep pumps accurate, don't let state inspectors get toehold. Nat Pet N 13:20 Ag 17 '21

Square deal gas pump. il Sci Am 125:226 S 24 '21

Text of bill now in Georgia assembly to stop giving away gasoline pumps. Nat Pet N 13:27 J1 8 '21

Trade body's gasoline pump decisions reversed by U.S. court. Nat Pet N 13:35-6+ My 18 '21

Gasoline service stations

Advertising a free service nationally to establish new outlets. R. Cole. Ptr Ink 113:17-20+ N 4 '20

Burglary precautions among features of Denver filling stations. il Nat Pet N 12:30-2 O 20 '20

Chattanooga service station. W. K. Halbert. Nat Pet N 13:41-2 O 12 '21

Co-operative service stations promotion rather than operating success. Nat Pet N 12:35-8 Je 23 '20

Drive-in filling station of Shreveport, La. il Nat Pet N 13:45+ Mr 16 '21

Erection and financing of filling stations. H. C. Wurster. Nat Pet N 13:41-2 Mr 30 '21

Erection, operation and maintenance of filling stations. L. B. Hancock. Nat Pet N 13:35-6 Mr 30 '21

Filling station begins appeal to motorist half mile away. il Nat Pet N 13:39 S 14 '21

Filling station layout for varied shaped lots. Nat Pet N 12:111 F 18 '20

Finds drainage pit best trade puller for service stations. il Nat Pet N 13:63+ J1 29 '21

Gulf refining company builds service stations in the South. il Nat Pet N 13:45 O 12 '21

Gasoline service stations—Continued

- Laying out drives for service stations; installing pumps and tanks. F. W. Bean. *il Nat Pet N* 12:41-2+ *Ja* 28 '20
- New ways to make compressed air serve in operating service stations. *il Nat Pet N* 12:36+ *Ag* 25 '20
- Old co-operative service station act now showing in Ohio. W. K. Halbert. *il map Nat Pet N* 13:19-22 *My* 11 '21
- Planning a drive-in filling station—free air service. F. W. Bean. *Nat Pet N* 12:33+, 41+ *Mr* 10, *Ap* 21 '20
- Pneumatic gasoline-measuring and storage system. R. Odiorne. *diags Pop Mech* 36:443-4 *S* '21
- Portable, all-glass filling station success, Rochester co. finds. *il Nat Pet N* 13:33 *Ag* 31 '21
- Service stations and oil distribution in Dominion of Canada. H. L. Wood. *il Nat Pet N* 12:42-3+ *D* 29 '20
- Short measure charged at Cleveland service stations. P. Truesdell. *Nat Pet N* 13:19-20 *O* 5 '21
- See also* Producers' consolidated oil company

Automobile accessories

- Will oil jobbers of future add auto accessories to line? *Nat Pet N* 13:33-4 *Mr* 30 '21

Gasoline storage. See Oil storage**Gasoline torch**

- Getting good service from torches and pots. F. G. Moon. *Sheet Metal Worker* 11:457-8+ *Ja* 7 '21; *Discussion*. 12:366, 571 *Je* 24, *S* 16 '21

Gasoline tractors. See Tractors**Gastonia, North Carolina****Water supply**

- Gastonia's water improvements. W. A. Hardenbergh. *il diag plan Pub Works* 51:231-3 *S* 24 '21

Gates, Hydraulic

- Discharge coefficients for canal head gates. J. S. Longwell and J. Hinds. *diags plan Eng & Contr* 52:552-5 *N* 12 '19
- Experience with automatic crest gates of Wissota dam in flood. *Eng N* 85:589 *S* 23 '20
- Floodgates proposed for control of Savannah river. E. C. Garvin. *map Eng N* 83:873-4 *N* 13 '19
- Gate-opening indicator made in station. R. S. Daniels. *diag Elec W* 77:150 *Ja* 15 '21
- Ground water control on drainage project in Florida. F. Teichman. *diag Eng N* 87:406-7 *S* 8 '21
- High-pressure outlet gate for deep reservoir. *il Pop Mech* 35:360-1 *Mr* '21
- Pond-level control for hydro plants. E. Stafford. *il Elec W* 75:662-5 *Mr* 20 '20
- Radial gate for irrigation canals. S. Hess. *il Sci Am* 122:457 *Ap* 24 '20
- Structural design of caisson gates for dry docks. E. E. Halmos. *diag Eng N* 84:89-91 *Ja* 8 '20
- Temporary wooden gates till steel is cheaper. *il Pop Mech* 36:681 *N* '21
- Wasting surplus water at hydroelectric plants; various kinds of gates used to regulate the overflow. L. W. Wyss. *il diag Power Pl Eng* 24:1126-8 *D* 1 '20

Gateways

- City gates of France. J. P. Sims. *il plan Arch Rec* 47:323-32 *Ap* '20
- Gateway to Thomas Cowles house, Farmington, Conn. *il Am Arch* 118:860-a *D* 29 '20
- Italian gateways; reproduced from photographs by Robert M. Blackall. *Am Arch* 120:152p *Ag* 31 '21
- Main entrance to the cemetery of the Gate of heaven; views. *Am Arch* 120:2281-m *S* 28 '21

Gating. See Pattern making**Gattermann, Ludwig, 1860-1920**

- Sketch. P. Jacobson. *por Deutsche Chem Gesell Ber* 54:sup115-41 *Je* '21

Gauging. See Gaging**Gayley, James, 1855-1920**

- Sketch. *por Eng & Min J* 109:613 *Mr* 6 '20; *Iron Age* 105:684-5 *Mr* 4 '20; *Iron Tr R* 66:722-3+ *Mr* 4 '20

Gazetteers

- Gazetteer of streams of Texas. G. A. Gray. *U S Geol S Water-supply Pa* 448:1-267 '19

Gear cutting

- Backlash in hobbled spur gears. C. G. Olson. *il diags Mach* 28:222-4 *N* '21
- Cutting gears having a prime number of teeth. H. Daut. *il diag Mach* 27:889 *My* '21
- Cutting rolling mill driving gears. F. R. Daniels. *il Mach* 28:1-4 *S* '21
- Cutting the teeth of a pinion up to a shoulder. R. B. Miga. *diags Am Mach* 52:956 *Ap* 29 '20
- Cutting triple gears with accurate tooth alignment. C. C. Marsh. *il diags Mach* 26:309-13 *D* '19.
- Development of gear-cutting. *Engineering* 109:382-3 *Mr* 19 '20
- Flywheel starter ring-gears. F. H. Colvin. *il diags Am Mach* 53:513-15 *S* 9 '20
- Gear production and the method involved in the cutting. R. Trautschold. *il diags Automotive Ind* 42:658-64 *Mr* 11 '20
- Gould & Eberhardt method of hobbing worms. *il Automotive Ind* 45:171-2 *Jl* 28 '21; *Same abr. Am Mach* 55:141-2 *Jl* 28 '21
- Herringbone gears for machine tools. N. Trbojevich. *il diags Mach* 26:1164-9 *Ag* '20
- How the racks on the ram of the Greenerd arbor press are cut. A. Ferber. *il Am Mach* 54:918 *My* 26 '21
- Involute teeth. R. Gardner. *diags Engineering* 110:659 *N* 19 '20
- Maag system of gearing. *il diag Engineer* 131:283-5, 403-4 *Mr* 18, *Ap* 15 '21; *Abstract. Mech Eng* 43:403-4 *Je* '21
- Metal cutting tools. A. L. DeLeeuw. *il diags Am Mach* 55:461-4 *S* 22 '21
- Methods of gear design and gear-cutting. G. Muffly. *diags Soc Auto Eng J* 9:219-28; *Discussion*. 228-31+ *O* '21
- Milling a 99-tooth spiral gear. G. Warming-ton. *diags Mach* 27:1132 *Ag* '21
- Milling intermittent gears on an automatic. J. B. Amstutz. *diags Mach* 27:1148 *Ag* '21
- Milling intermittent gears on an automatic screw machine. J. J. McNiff. *diags Mach* 26:753 *Ap* '20
- New method of manufacturing worms. *il Mach* 27:1150-1 *Ag* '21
- Odontograph for laying out 20-degree gear teeth. J. L. Williamson. *diag Mach* 27:929 *Je* '21
- Some examples of fast gear cutting. S. A. Hand. *il diags Am Mach* 54:503-4 *Mr* 24 '21
- Supplement to Frederick W. Taylor's *On the art of cutting metals*. C. G. Barth. *Ind Management* 60:218-25 *S* '20
- See also* Splines
- Gear cutting machines**
- British gear-shaping machine. *il diag Mach* 26:789-90 *Ap* '20
- Brown double helical gear generator. *il Engineer* 130:291-2, 302 *S* 24 '20
- Cincinnati 16-in. gear hobbing machine. *il Am Mach* 53:138-9 *Jl* 15 '20; *Ry Mech Eng* 94:612 *S* '20
- L'exposition de machines-outils de l'Olympia, à Londres (4-25 septembre 1920). *il Génie Civil* 77:367-70 *N* 6 '20
- Garrison automatic gear-grinding machine. *il Am Mach* 55:366-7 *S* 1 '21
- Gear-cutting machines. V. Gartside. *il Electrician* 86:632-5 *My* 20 '21
- Gear production and the method involved in the cutting. R. Trautschold. *il diags Automotive Ind* 42:658-64 *Mr* 11 '20
- Gleason 8-inch spiral bevel gear generator. *diag Mach* 27:802-3 *Ap* '21
- Gould & Eberhardt gear-cutting machine adapted to station milling. *il Mach* 27:884 *My* '21
- Gould & Eberhardt old-style gear-cutting machine engaged in cutting teeth in large gear. *il Mach* 27:20 *S* '20

Gear cutting machines—*Continued*

- Hercules 24-in. gear-hobbing machine. *il Am Mach* 53:1254-5 D 30 '20; *Mach* 27:484-5 Ja '21; *Iron Tr R* 68:161-2 Ja 13 '21
- Hob-grinding attachment. R. A. Wilson. *il diags Am Mach* 53:908-9 N 11 '20
- Influence of the automobile on gear cutting and gear-cutting machinery. H: J. Eberhardt. *Mech Eng* 43:530-1 Ag '21
- Maag system of gearing. *il diag Engineer* 131:283-5, 403-4 Mr 18, Ap 15 '21; *Abstract. Mech Eng* 43:403-4 Je '21
- Machines displayed at the Machine tool and engineering exhibition, Olympia. *il Engineering* 110:363-6 S 17 '20
- Metal cutting tools. A. L. DeLeeuw. *il diags Am Mach* 54:897-902 My 26 '21
- New principle used in machine for producing spur gears. *il Automotive Ind* 45:374-6 Ag 25 '21
- Newark no. 5 automatic gear-hobbing machine. *il Am Mach* 54:157-8 Ja 27 '21; *Iron Age* 107:259-60 Ja 27 '21; *Mach* 27:581-3 F '21
- Principles of Maag gearing. *il diags Mach* 28:48-52 S '21
- Reinecker turbine reduction-gear hobbing machines. *il Am Mach* 54:416-17 Mr 10 '21
- Smith and Coventry's spiral bevel gear planer. *il diags plan Engineer* 130:232-3 S 3 '20
- Stevenson multiple gear shaper. *il diag Am Mach* 55:154-6 Jl 28 '21; *Mach* 27:1153-6 Ag '21; *Engineer* 132:128 Jl 29 '21; *Iron Age* 108:197-200 Jl 28 '21; *Iron Tr R* 69:302-3 Ag 4 '21; *Engineering* 112:539-40, 542 O 14 '21; *Pop Mech* 36:742-4 N '21
- Sykes double helical gear generator. *il diags Engineering* 111:520-2 Ap 29 '21; *Abstract. Mech Eng* 43:481 Jl '21

Manufacture

- Machining the gear-shaper saddle. D. T. Hamilton. *il Am Mach* 53:293-7 Ag 12 '20
- Making a hobbing machine for precision work. S. Colley. *il diags Am Mach* 53:491-4 S 9 '20
- Gear manufacturers association, American. *See American gear manufacturers association*
- Gear testing machines
- Fixtures for testing automobile gears. *il Mach* 27:270-3 N '20
- Gear-testing machine. G. Wirrer. *il diags Mach* 26:633-5 Mr '20
- Involute gear tooth testing machine. *il diags Mach* 27:31-3 S '20
- Machine for testing efficiency of spur gears. *diags Mach* 27:79-80 S '20
- Odontometer for testing gear teeth. E. Buckingham. *il diags Mach* 27:1029-31 Jl '21
- Spur and bevel gear testing machine at the National physical laboratory. T. E. Stanton. *diags Engineering* 109:334-5 Mr 12 '20
- Gearing
- Action of the epicyclic gear train. M. W. Davidson. *diags Am Mach* 54:181-2 F 3 '21
- American gear manufacturers' association fall meeting. *Iron Age* 106:1205-7 N 4 '20
- American gear manufacturers assn. 4th annual convention marks progress in standardization work. *Iron Age* 105:1311-14 My 6 '20; *Mach* 26:925 Je '20
- Annual meeting of American gear manufacturers assn. marks progress in standardization work. P. M. Heldt. *Automotive Ind* 42:1048-50 My 6 '20
- Anti-friction nut and screw gearing. *diags Sci Am M* 1:153 F '20
- Application and maintenance of rawhide gearing. O. N. Stone. *Am Mach* 52:950 Ap 29 '20
- Backlash in gearing and methods of its measurement. *il diags Automotive Ind* 42:1058-60 My 6 '20
- Bearing loads on gear transmissions. P. M. Heldt. *diag Automotive Ind* 41:1167+ D 11 '19
- Carey oil transmission system. *diags Engineer* 130:284 S 17 '20; *Abstract. Mech Eng* 42:696 D '20
- Drives used in limited space. M. A. Saller. *il diag Power Pl Eng* 25:379-80 Ap 1 '21
- Duralumin for gears. R. W. Daniels. *Iron Age* 108:1020-1 O 20 '21

- Gear teeth sizes from the standpoint of durability. J. Jandasek. *diags Automotive Ind* 42:1305-8, 1402-6+ Je 10-17 '20
- Geared-head transmission for lathes. *il Mach* 27:164 O '20
- Gears and pinions for electric railway service; rules adopted at American gear manufacturers' association in Boston. *Mach* 26:553-4 F '20; *Excerpt. Elec Ry J* 54:889-90 N 15 '19
- Gears from a purchaser's standpoint; abstracts. D. G. Stanbrough. *Mach* 26:1083-4 Jl '20; *Iron Age* 105:1498 My 27 '20; *Automotive Ind* 43:270-2 Ag 5 '20
- Gears made from cotton have many advantages. Sibley J 34:74 Je '20
- High-speed turbine gears; abstracts. G. Stoney. *Engineer* 128:534 N 28 '19; *Mech Eng* 42:61-2 Ja '20; *Power* 51:116-17 Ja 20 '20; *Blast F & Steel Pl* 8:168-70 F '20
- How floating frame gears work. W: H. Easton. *il Marine R* 50:38-9 Ja '20
- Measuring involute gear teeth. *diags Engineer* 132:270 S 9 '21
- Merchant ship propulsion gears. A. A. Ross. *il diags Gen Elec R* 24:131-6 F '21
- Methods of gear design and gear-cutting. G. Muffly. *diags Soc Auto Eng J* 9:219-28; *Discussion*. 228-31+ O '21
- Mutilated gear feed. W: Gumprich. *diags Am Mach* 53:250-2 Ag 5 '20
- Principles of Maag gearing. *il diags Mach* 28:48-52 S '21
- Problem in change gearing. J. Crommell. *Am Mach* 52:832 Ap 15 '20
- Reduction gearing on steamships. *diags Engineering* 109:599-601 My 7 '20
- Reduction gears for ship propulsion; abstracts. R. Warriner. *diags Engineering* 111:786-9 Je 24 '21; *Marine Eng* 26:532-8 Jl '21
- Reinforced suspension for sheet-steel gear cases. *il Elec Ry J* 54:1004-5 D 20 '19
- Research work on gears needed. R. J. Chapman. *Am Mach* 53:27 Jl 1 '20
- Resilient steel gears. *Sci Am M* 3:74 Ja '21
- Shock absorber for intermittent gears. F. Erwin. *il Am Mach* 52:329-30 F 12 '20
- Skew gear design. F. E. Lindsay. *diags Engineer* 131:652 Je 17 '21
- Speed-reduction gear regulates speed of machine to fit need. *il Coal Age* 18:171 Jl 22 '20
- Standardized, interchangeable gearing. A. O. Gates. *il Textile World* 60:857+ Ag 6 '21
- Steels recommended by the gear manufacturers' association. *Mach* 28:134 O '21
- Tool industry enters new period in gear-making. H: J. Eberhardt. *Iron Trade R* 68:1594-5 Je 9 '21
- Turbo-reduction gears in practice. H. C. Dinger. *Int Marine Eng* 25:577-82 Jl '20
- Use of gears and high speed motors in textile mills. G: S. Sharman. *il diags Electrician* 86:168-71 F 4 '21
- Williams internal gear. R. Trautschold. *diags plan Am Mach* 51:255-8 Ag 7 '19; *Abstract. Ind Management* 58:257 S '19; *Discussion. Am Mach* 51:527-8, 936-8, 1083-4; 52:295-C S 11, N 27, D 25 '19, F 5 '20
- See also Automobiles—Gearing; Chain gear; Gear cutting; Gear testing machines; Motor trucks—Gearing; Planing machines—Gearing; Power transmission; Steam turbines; Marine—Gearing; also American gear manufacturers' association*

History

- Early traces of the toothed wheel. H. H. Manchester. *diags Am Mach* 53:1126-8, 1179-82 D 16-23 '20

Manufacture

- Design and manufacture of non-metallic gears. F. R. Daniels. *il diags Mach* 27:1005-11 Jl '21; *Excerpts. Mech Eng* 43:610-11 S '21
- Electric furnaces for hardening gears. *il Iron Age* 106:394 Ag 12 '20
- How spur gear patterns are made. J. Horner. *diags plan Foundry* 48:645-8, 687-91 Ag 15-S 1 '20; *Same (Zahnradmodelle). Stahl & Eisen* 41:579-83, 724-6 Ap 28, My 26 '21
- How treatments affect gear bronze. A. B. Wilson. *il Foundry* 48:915-19 N 15 '20

Gearing—Manufacture—Continued

- Improved method of making steel gear and wheel blanks. G: A. Richardson. *il* diags *Am Mach* 54:981-4 *Je* 9 '21
- Machine for molding a special gear. K. J. Van Sickle. *diags Am Mach* 52:357-8 *F* 12 '20
- Machining change gears. D. T. Hamilton. *il Am Mach* 53:681-2 *O* 7 '20
- Making gears on quantity basis; new plant of the Dittmer gear & mfg. corp. J: D. Knox. *il Iron Tr R* 66:1679-82+ *Je* 10 '20
- New gear grinder works on the generating principle. *il diags Automotive Ind* 45:665-7 *O* '21
- New system of gear grinding and gear inspection. P. M. Heldt. *diags Automotive Ind* 44:1430-1 *Je* 30 '21
- Quantity production in a gear shop; Dittmer gear & mfg. corporation. F. R. Daniels. *il diags Mach* 27:763-6, 863-7 *Ap-My* '21
- Three pattern making kinks. *diags Am Mach* 54:1054-5 *Je* 16 '21
- Use of special fixtures in grinding operations. E. Sheldon. *il Am Mach* 54:545-8 *Mr* 31 '21
- See also* Gear cutting; Gear cutting machines

Patents

- Conrad patents, the noiseless gear, using bakelite micarta, void for lack of invention. W. Gustin. *Chem & Met Eng* 25:795-6 *O* 26 '21

Standards

- Adopted standards of design for composition gearing. charts *diags Mach* 26:476-7 *Ja* '20
- American gear manufacturers association 5th annual convention, Cincinnati. P. M. Heldt. *diags Automotive Ind* 44:945-9 *My* 5 '21; *Mach* 27:950 *Je* '21
- American gear manufacturers' association semi-annual meeting, Rochester, N.Y. *Iron Age* 108:1001-6 *O* 20 '21; *Iron Tr R* 69:1026-7 *O* 20 '21; *Mach* 28:200-1 *N* '21
- American gear manufacturers' inspection standards. *Mach* 28:22 *S* '21
- Gear makers hear much discussion of standards at semi-annual meeting of the American gear manufacturers' association. P. M. Heldt. *Automotive Ind* 43:901-4 *N* 4 '20
- Progress in standardization of gears adopted by American gear manufacturers association at the Cincinnati meeting. *Iron Age* 107:1183-6 *My* 5 '21

Tables, calculations, etc.

- Angles of approach, recess and contact of involute gears. A. B. Cox. *diags Am Mach* 54:559-61 *Mr* 31 '21
- Calculation of diametral pitch and face width of pinions. H. Bow. *Mach* 27:355 *D* '20
- Chart for determining proportions of gear teeth. J. H. McManus and L. J. Ehlinger. *Power* 51:541 *Ap* 6 '20
- Derivation of a formula to determine number of teeth in contact of two meshing gears. A. B. Cox. *diags Am Mach* 53:899-902 *N* 11 '20
- Gearing calculations by the compressive stress method. J. Jandasek. *diags Automotive Ind* 45:512-15, 564-8 *S* 15-22 '21
- Horsepower chart for gear teeth. W: W. Gaylord. *chart Mach* 27:62-3 *S* '20
- Interference of involute spur-gear teeth. A. B. Cox. *diag Am Mach* 53:707-8 *O* 14 '20
- Long and short addendum bevel gear teeth. *diags Mach* 28:23-4 *S* '21
- Simplified gear calculation. G. T. Johnson. *Mach* 27:934 *Je* '21
- Slip of involute gear teeth; gear efficiency increased and wear decreased by using large numbers of teeth. A. B. Cox. *diags Am Mach* 54:913-17, 951-5 *My* 28-*Je* 2 '21
- Strength of gear teeth. S. J. Berard. *diags Am Mach* 51:925-7 *N* 27 '19

Terminology

- Spiral gears again. J. C. O'Brien. *Am Mach* 52:913 *Ap* 22 '20

Testing

- Device for inspecting gears. F: Franz. *diag Am Mach* 55:609 *O* 13 '21

- Inspection of involute gear hobs. C. G. Olson. *il diags chart Mach* 28:138-40 *O* '21
- Kavle correct involute contour indicator. *il Am Mach* 52:698 *Mr* 25 '20

See also Gear testing machines

Gearing, Bevel

- Chordal thickness of tooth and corrected pitch depth of bevel gears. C. W. Mapes. *diags Mach* 27:169-70 *O* '20
- How to make bevel gear patterns. J. Horner. *diags Foundry* 49:34-5+ *Ja* 1 '21
- Long and short addendum bevel gear teeth. *diags Mach* 28:23-4 *S* '21
- Measuring an involute bevel gear from the true pitch cone. F. E. Lindsay. *diags Engineer* 129:581 *Je* 4 '20
- Recommended practice for bevel gearing. *Mach* 26:327 *D* '19
- Roughing-out bevel gears on a shaping machine. W. H. Addis. *il Am Mach* 52:341-2 *F* 12 '20

Gearing, Herringbone

- Herringbone gears for machine tools. N. Trbojevich. *il diags Mach* 26:1164-9 *Ag* '20

Gearing, Non-metallic

- Condensite celoron a non-metallic gear material. *Automotive Ind* 44:921 *Ap* 28 '21
- Design and manufacture of non-metallic gears. F. R. Daniels. *il diags Mach* 27:1005-11 *Jl* '21; *Excerpts. Mech Eng* 43:610-11 *S* '21
- Non-metallic gear material. *Sci Am* 125:83 *Jl* 30 '21

See also Bakelite micarta

Gearing, Spiral

- Chart for selecting spiral gears. C. W. Mapes. *Mach* 27:569-71 *F* '21
- Experience and practice in mechanical reduction gears in warships. H. B. Tostevin. *il diags plans Engineering* 109:472-3, 474-80, 482 *Ap* 9 '20; *Same abr. Int Marine Eng* 25:745-51, 826-9 *S-O* '20; *Same cond. Engineer* 129:368-9, 405-7 *Ap* 9-16 '20; *Abstract. Mech Eng* 42:357-8 *Je* '20
- Helical gear. W. H. Phillips and G. H. F. Holy. *il Elec Ry J* 58:22-3 *Jl* 2 '21
- Helical gearing for railway motors. W. H. Phillips. *il Elec Ry J* 54:934-5 *N* 15 '19
- How spur gear patterns are made. J. Horner. *diags plan Foundry* 48:645-8, 687-91 *Ag* 15-*S* 1 '20; *Same (Zahnradmodelle). Stahl & Eisen* 41:579-83, 724-6 *Ap* 28, *My* 26 '21
- Mechanical gears, of double reduction, for merchant ships. R. J. Walker and S. S. Cook. *diag Engineer* 131:327-8 *Mr* 25 '21; *Same. Engineering* 111:369-70 *Mr* 25 '21; *Same. Marine Eng* 26:394-7 *My* '21; *Discussion. Engineer* 131:314 *Mr* 25 '21; *Engineering* 111:347-8 *Mr* 25 '21
- Milling a 99-tooth spiral gear. G: Warming-ton. *diags Mach* 27:1132 *Ag* '21
- More about the spiral gear. G: A. Perry. *il Am Mach* 52:848 *Ap* 15 '20
- Pinions and shafts for double helical gears. W: J. Kearton. *diags Engineer* 129:186-8 *F* 20 '20
- Spiral gears again. J. C. O'Brien. *Am Mach* 52:913 *Ap* 22 '20
- Tooth contour of the helical gear. *diags Elec Ry J* 58:168 *Jl* 30 '21
- What is a spiral gear? S. Copeland. *Am Mach* 52:852-3 *Ap* 15 '20

Gearing, Spur

- Backlash in hobbled spur gears. C. G. Olson. *il diags Mach* 28:222-4 *N* '21
- Grinding gear wheel teeth. *il Engineer* 132:112-13 *Jl* 29 '21
- Horsepower chart for spur gears. E. R. Mudiman. *Am Mach* 55:69 *Jl* 14 '21
- Machine for testing efficiency of spur gears. *diags Mach* 27:79-80 *S* '20
- Spur gear erosion. F. W. Lanchester. *diags Engineering* 111:733-4 *Je* 17 '21; *Abstract. Automotive Ind* 45:233 *Ag* 4 '21
- Strength of spur gears. *chart Mach* 27:400 *D* '20

Standards

- Backlash standards for spur gears. C: H. Logue. *diags Am Mach* 53:1040-1 *D* 2 '20

Gearing, Worm

David Brown & son improved worm gear; abstract. diags Mech Eng 42:116-17 F '20; Same. Sci Am M 1:177 F '20

Effect of lubricants upon worm-gear efficiency. J. H. Hyde. Eng & Ind Management 5:46-8 Ja 13 '21

Efficiency of worm-gearing. W. S. Atkinson. diags Mach 27:315-16 D '20

Electric-elevator machinery—worm gears and their lubrication. M. A. Myers. il diags Power 52:136-8 Jl 27 '20

Gould & Eberhardt method of hobbing worms. il Automotive Ind 45:171-2 Jl 28 '21; Same abr. Am Mach 55:141-2 Jl 28 '21

Method of preventing interference in worm gearing. Automotive Ind 45:626 S 29 '21

New method of manufacturing worms. il Mach 27:1150-1 Ag '21

Proposed worm gear standards of the A. G. M. A. J. C. O'Brien. diags Automotive Ind 43:62-5 Jl 8 '20

Story of the Hindley worm gears. H. Fleckenstein. Automotive Ind 41:1005+ N 20 '19

Thread forms for worms and hobs. B. F. Waterman. diags Mech Eng 41:872-3 N '19; Same. Am Mach 52:951-3 Ap 29 '20

Worm gearing. Engineer 128:643 D 26 '19

Gears. See Gearing

Gebhardt, G. F., 1874-

Sketch. por Power 51:1008-9 Je 22 '20

Gehlenite

Binary system åkermanite-gehlenite. J. B. Ferguson and A. F. Buddington. Am J Sci 50:131-40 Ag '20

Gelatin

Colloidal adsorption. A. Mutscheller. diag Am Chem Soc J 42:2142-60 N '20

Comparative hydrolysis of fibrin and gelatin in the presence of various aldehydes. G. E. Holm and R. A. Gortner. Am Chem Soc J 42:632-40 Mr '20

Determination of the jellying power of gelatins and glues by the polariscope. C. R. Smith. diag J Ind & Eng Chem 12:878-81 S '20

Elastic properties of gelatin jellies. S. E. Sheppard and S. S. Sweet. Am Chem Soc J 43:539-47 Mr '21

Gelatin as an emulsifying agent. H. N. Holmes and W. C. Child. Am Chem Soc J 42:2049-56 O '20

General chemistry of gelatine. J. Loeb. Chem & Met Eng 22:949 My 19 '20

Gold number of commercial gelatins. F. A. Elliott and S. E. Sheppard. J Ind & Eng Chem 13:699-700 Ag '21

Jelly strength of gelatins and glues. S. E. Sheppard, S. S. Sweet and J. W. Scott. jr. il diag J Ind & Eng Chem 12:1007-11 O '20

Liquefaction of gelatin by salts. T. R. Briggs and E. M. C. Hieber. J Phys Chem 24:74-5 Ja '20

Making various objects from gelatine. P. Hoffmann. diags Sci Am M 4:261-5 S '21

Osmosis and swelling of gelatin. C. R. Smith. Am Chem Soc J 43:1350-66 Je '21

Properties and constitution of glues and gelatines. R. H. Bogue. diags Chem & Met Eng 23:5-12, 61-6, 105-8 Jl 7-21 '20

Properties of elastic gels. E. Hatschek. Engineering 110:574 O 29 '20

Les propriétés de la gélatine. L. Meunier. Chimie & Ind 5:642-50 Je '21

Setting and melting points of gelatins. S. E. Sheppard and S. Sweet. diags J Ind & Eng Chem 13:423-6 My '21

Viscosity of gelatin solutions. C. E. Davis, E. T. Oakes and H. H. Browne. Am Chem Soc J 43:1526-38 Jl '21

Zone of maximum colloidalilty; its relation to viscosity in hydrophile colloids, especially karaya gum and gelatin. J. Alexander. Am Chem Soc J 43:434-40 Mr '21

Gels. See Colloids

Gelso-Iino

New textile from the bark of the silkworm mulberry. Sci Am M 2:152 O '20

Gem fountain corporation

Even doughnut holes, this man finds, can be advertised. Ptr Ink 112:53-6 Ag 19 '20

Gems

Ancient gem engraving; engraved gems of the Metropolitan museum of art. A. A. Hopkins. il Sci Am M 3:168-70 F '21

Color given to gem stones by exposure to radium. Pop Mech 36:435 S '21

Gems and precious stones in 1919. B. H. Stoddard. bibliog U S Geol S Min Res of U S 1919, pt 2:165-80 '21

See also Precious stones, Artificial

Genelite

Genelite: a new bearing material. Min & Met 175:39-40 Jl '21; Same. Sci Am M 4:317 O '21

Genelite: an improved bearing alloy. E. G. Gilson. il Gen Elec R 24:949-51 N '21

New self-lubricating bearing material. il Automotive Ind 45:15 Jl 7 '21; Sci Am 124:467 Je 11 '21; Pop Mech 36:198 Ag '21; Chem & Met Eng 25:207 Ag 3 '21; Elec R (Lond) 89:315 S 2 '21

General American tank car corporation

Official statement to the New York stock exchange in connection with the listing of its common stock. Comm & Fin Chr 110:2090-3 My 15 '20

General chemical company

Consolidation. Comm & Fin Chr 111:1379-82 O 2 '20

General contractors association, American.

See American general contractors association

General electric company

Annual report for the fiscal year ended Dec. 31, 1919. Elec R 76:617 Ap 10 '20

28th annual report, 1919. Comm & Fin Chr 110:1435-6 Ap 3 '20

29th annual report—for the year ended December 31, 1920. Comm & Fin Chr 112:1420-1 Ap 2 '21

Coal-handling at Erie works plant of General electric co. H: J. Edsall. il Power 50:814-16 D 16 '19

Features of new steam power plant at the Erie works of the General electric company. A. R. Smith. il diags plan Gen Elec R 22:907-13 N '19

General electric company's school of marine engineering. J. L. Booth. il Gen Elec R 24:105-7 F '21

Helping the dealer who does not sell your goods. R. Cole. Ptr Ink 112:25-7+ Ag 19 '20

Notable power developments in 1919 by General electric company. B. R. Connell. Elec R 76:33-4 Ja 3 '20

Power plant for General electric company Erie works. il diags plans Power Pl Eng 24:1015-20 N 1 '20

Programs of apprenticeship and special training in representative corporations. J. V. L. Morris. il Am Mach 53:565-8 S 23 '20

Requirements of the engineering industries and the education of engineers; the Schneider plan as applied to the cooperative plan between the General Electric and M.I.T. M. W. Alexander and D. C. Jackson. Mech Eng 43:391-5+ Je '21

Save and have; how the war on waste at the General Electric's largest plant is conducted. H. D. Winney. il Ind Management 62:216-20 O '21

Training the college mind toward G. E. A. P. Cooke. Ptr Ink 112:89+ S 16 '20

General gas and electric company, New York

Annual report for the year ended December 31, 1919. Comm & Fin Chr 110:1538-40 Ap 10 '20

General motors acceptance corporation

Financing the dealer's stock in trade. J. H. Newmark. Ptr Ink 114:73-4+ Mr 24 '21

Keeping up dealer-morale. R. W. Johnson. Ptr Ink 114:121-2 Mr 24 '21

General motors corporation, Detroit, Michigan

Automobile gear making centralized; new works of General motors corporation. il Iron Age 106:245-50 Jl 29 '20

- General motors corporation, Detroit, Michigan**
—*Continued*
Condensed comparative consolidated balance sheet of General motors corporation and subsidiary companies as of December 31, 1920 and 1919. *Automotive Ind* 44:779 Ap 7 '21
Condensed consolidated balance sheet as of June 30, 1921. *Comm & Fin Chr* 113:860 Ag 20 '21
Conserving labor and material; illustrated in moving a reinforced concrete building. *il diag Am Arch* 116:731-4 D 10 '19
General motors to spend five millions in advertising. *G. A. Nichols. Ptr Ink* 116:3-4+ S 29 '21
Morgans-duPonts now hold control. *Automotive Ind* 43:1086+ N 25 '20
Report for the fiscal year ended December 31, 1920. *Comm & Fin Chr* 112:1634-6 Ap 16 '21
\$12,533,909 profit for General motors. *Automotive Ind* 45:347 Ag 18 '21
General staff college library. See **United States**
—**General staff college library**
- Generalizations**
Generalizations and their relative value. *H. P. Gillette. Eng & Contr* 53:32-4 Ja 14 '20
- Generators, Electric.** See **Electric generators**
- Geneva, Switzerland**
Geneva; introduction to Monsieur Bétant's paper. *G. C. Whipple. N E Water Works Assn J* 35:19-21 Mr '21
- Bridges**
Le pont Butin, sur le Rhône, près de Genève. *diag Génie Civil* 78:42 Ja 8 '21
- Water supply**
Water supply of Geneva, Switzerland. *A. Bétant. il diags map N E Water Works Assn J* 35:22-30 Mr '21
- Geneva movement**
Mutilated gear feed. *W. Gumprich. diags Am Mach* 53:250-2 Ag 5 '20
- Gentian violet**
Gentian violet—its selective bactericidal action. *M. L. Crossley. Am Chem Soc J* 41:2083-90 D '19
- Geochemistry**
Chemistry of the earth's crust. *H. S. Washington. diags map J Fr Inst* 190:757-815 D '20
Data of geochemistry. *F. W. Clarke. U S Geol S Bul* 695:1-832 '20
Geophysical chemical problems. *Sci Am M* 3:277 Mr '21
Sunset-midway oil field, California; geochemical relations of the oil, gas, and water. *G. S. Rogers. diags maps U S Geol S Prof Pa* 117:1-103 '19
See also **Geology**; **Mineralogy**; **Rocks**—**Analysis**; **Soil analysis**
- Geodynamics**
Post-glacial warping of Newfoundland and Nova Scotia. *R. A. Daly. map Am J Sci* 5th ser 1:381-91 My '21
See also **Earthquakes**
- Geographical names.** See **Names, Geographical**
- Geography**
Geography in industry and business. *J. P. Goode. Sci Am M* 2:127-9 O '20
See also **Anthropogeography**; **Gazetteers**; **Latitude**; **Surveying**; **Triangulation**
- Study and teaching**
Geology and geography in the United States. *E. B. Mathews and H. P. Little. (Reprint & Circ. Ser. 17) 22p Ap '21* 20c National research council, 1701 Massachusetts av, Washington, D.C.
- Geography, Commercial**
Geography in industry and business. *J. P. Goode. Sci Am M* 2:127-9 O '20
Geography of commerce & industry. *R. S. Bridge. 264p Hodder and Stoughton, Ltd., London '20*
- Markets of the world; a series of economic maps & statistical abstracts. *General drafting co., inc., First national bank of Boston, Boston, Mass. '20*
Principles of economic geography. *R. N. R. Brown. 208p Pitman '20*
Source book for the economic geography of North America. *C. C. Colby. 418p Univ. of Chicago press, Chicago '21*
See also **Commercial products**; **Natural resources**
- Geologic climate.** See **Paleoclimatology**
- Geological chemistry.** See **Geochemistry**
- Geological research**
Profession of ore-hunting. *A. Locke. Econ Geol* 16:243-78 Je '21; *Discussion. Min & Sci P* 123:527-8 O 15 '21
- Geological society of America**
Annual meeting, Boston, Dec. 29-31. *Eng & Min J* 109:69 Ja 10 '20
- Geological surveys**
Function and ideals of a national geological survey. *F. L. Ransome. Eng & Min J* 109:279-80 Ja 24 '20
Mine geological surveying. *G. J. Mitchell. map Eng & Min J* 111:423-5 Mr 5 '21
See also **Geology**—**Maps**; **Protractors**
- Geological time**
Graphical representation of geologic time. *A. Hollick. Sci Am* 122:37 Ja 10 '20
- Geologists**
Geologist as engineer. *Eng & Min J* 109:373-4 F 7 '20
Geologists as expert witnesses. *F. L. Ransome. Econ Geol* 15:339-49 Je '20; *Excerpt. Min & Sci P* 121:666 N 6 '20
Geologists as witnesses in mining litigation. *C. K. Leith. Econ Geol* 15:674-80 D '20
Geologists in the courts. *Min & Sci P* 120:593-4 Ap 24 '20
Systematic prospecting. *W. H. Grant. il Eng & Min J* 109:928-31 Ap 17 '20
Two professions of mining geology. *A. Locke. Min & Sci P* 120:161-2 Ja 31 '20
See also **Society of economic geologists**
- Salaries**
Increase of Washington salaries. *Eng & Min J* 109:783 Ap 3 '20
- Geologists, State.** See **State geologists**
- Geology**
Agricultural geology. *F. V. Emerson. 319p Wiley '20*
Aids to identification of geological formations. *J. A. Udden. 69p University of Texas, Austin '19*
Application of engineering geology to controlling the quality of road building aggregates. *H. S. Mattimore. Good Roads n s* 21:193-4+ Ap 6 '21; *Same abr. Eng & Contr* 56:342-3 O 5 '21
Application of geology in war behind lines and at front. *A. H. Brooks. Eng & Min J* 109:764 Mr 27 '20
Economic aspect of economic geology. *C. A. Porter. Min & Sci P* 122:161-2 Ja 29 '21
Economic aspects of geology. *C. K. Leith. 457p Holt '21*
Economic geology and highway construction. *E. F. Bean. Econ Geol* 16:215-21 Ap '21
Elements of engineering geology. *H. Ries and T. L. Watson. 365p Wiley '21*
Elements of geology. *W. H. Norton. 464p Ginn '21*
Genetic problems affecting search for new oil regions. *D. White. Min & Met* 158:(sec 21) 1-20 F '20
Geologic conclusions from geodetic data. *W. Bowie. Sci Am M* 4:271-2 S '21
Laboratory method for the examination of well cuttings. *E. A. Trager. Econ Geol* 15:170-6 Mr '20
Method for projecting structure through an angular unconformity. *C. S. Corbett. Econ Geol* 14:610-18 D '19
Movement of rock masses. *C. K. Leith. Sci Am M* 3:465-6 My '21

Geology—Continued

Need of quantitative methods in applied geology. C: H. White. *Min & Sci P* 122: 601-5 Ap 30 '21

Notes on crossings. H. C. Hoover. *diags Min & Sci P* 120:743-4 My 22 '20

Physical geology. L: V. Pirsson and C: Schuchert. 470p Wiley '20

Political and commercial geology series; the tungsten resources of the world. F. L. Hess. *map Eng & Min J* 108:715-22 N 1 '19

Primary (hypogene) sulphate minerals in ore deposits. B. S. Butler. *diag Econ Geol* 14: 581-609 D '19

Relation of economic geology to the general principles of geology. R. A. F. Penrose, jr. *Econ Geol* 16:47-51 Ja '21

Scientific byproducts of applied geology. G: O. Smith. *Eng & Min J* 111:66-7 Ja 8 '21

Structural and field geology. J. Geikie. 4th ed., rev. 454p Van Nostrand '20

Textbook of geology. A. W. Grabau. D. C. Heath & co., Boston; New York '20

Textbook of geology. P. Lake and R. H. Rastall. 3d ed. 508p Edward Arnold, London '20

See also Abrasives; Asbestos; Asphalt; Coal; Copper ores; Earth; Earthquakes; Erosion; Eskar; Faults (geology); Folds (geology); Gas, Natural; Geochemistry; Geological research; Geological surveys; Geological time; Glacial period; Graphite; Gypsum; Isostasy; Limestone; Metals; Mineral waters; Mineralogy; Mines and mineral resources; Moraines; Mountains; Ocean; Oil shales; Ore deposits; Paleobotany; Paleogeography; Paleontology; Peat; Petroleum; Phosphates; Potholes; Quarries and quarrying; Ripple marks; Rock tanks; Rocks; Salt; Salt domes; Sand; Shale; Soils; Sulfur; Terraces (geology); Volcanoes

Bibliography

Bibliography of North American geology for 1918, with subject index. J: M. Nickles. *U S Geol S Bul* 698:1-148 '19

Maps

Applied geology at Butte. T. A. Rickard. *diag maps Min & Sci P* 123:427-31 S 24 '21

Geological and topographical maps, their interpretation and use. A. R. Derryhouse. 2d ed. 133p E. Arnold, London '19

Method of recording geology in development work. C. E. Wuensch. *diag Min & Sci P* 122: 233-4 F 12 '21

Nomenclature

Nature of paleozoic crustal instability in eastern North America. C: Schuchert. *map Am J Sci* 50:399-414 D '20

Study and teaching

Geology and geography in the United States. E: B. Mathews and H. P. Little. (Reprint & Circ. Ser. 17) 22p Ap '21 20c National research council, 1701 Massachusetts av, Washington, D.C.

Alabama

Oil possibilities in northern Alabama. D. R. Semmes. *map Min & Met* 159:(sec 5) 1-10 Mr '20

Alaska

Geology of the ore deposits of Kennecott. A. M. Bateman and D. H. McLaughlin. *il diags maps plans Econ Geol* 15:1-80 Ja '20

Arizona

Geology of the Muddy mountains, Nevada, with a section to the Grand Wash Cliffs in western Arizona. C. R. Longwell. *bibliog il diags Am J Sci* 5th ser 1:39-62 Ja '21

Origin of rock tanks and charcos. K. Bryan. *il diags maps Am J Sci* 50:188-206 S '20

Australia

Geology of the gold occurrences of Victoria. N. R. Junner. *il diags Econ Geol* 16:79-123 Mr '21

Brazil

Economic geology of Brazil by J. C. Branner. Review by B: L. Miller. *il map Eng & Min J* 109:798-802 Ap 3 '20

Geology of Brazil. F. L. Garrison. *Min & Sci P* 121:581-2 O 23 '20

California

Geology and petroleum resources of northwestern Kern county. W. A. English. *chart maps U S Geol S Bul* 721:1-45 '21

Canada

Athabaska series; geological survey of Canada. F. J. Alcock. *Am J Sci* 50:25-32 Jl '20

Bibliography

Annotated catalogue of and guide to the publications of the Geological Survey, Canada, 1854-1917. W. F. Ferrier. (*Geol. S.* 1723) 544p maps '20 Canada. Dept. of mines, Ottawa

Florida

Primary traverse in Florida 1917. R. B. Marshall. *il U S Geol S Bul* 709—B:23-41 '19

Great Britain

Geology of the British Empire. F: R: C. Reed. 480p Edward Arnold, London '21

Gulf coastal plain

Llanoria, the paleozoic land area in Louisiana and eastern Texas. H. D. Miser. *map Am J Sci* 3:61-89 Ag '21

Hawaiian Islands

Hawaiian petrology. S. Powers. *maps Am J Sci* 50:256-80 O '20

Idaho

Geology of the Yellow Pine cinnabar-mining district, Idaho. E. S. Larsen and D. C. Livingston. *maps U S Geol S Bul* 715—E: 73-83 '20

Triassic and jurassic formations in southeastern Idaho and neighboring regions. G: R. Mansfield. *diags map Am J Sci* 50: 53-64 Jl '20

Wasatch and Salt Lake formations of southeastern Idaho. G: R. Mansfield. *map Am J Sci* 49:399-406 Je '20

Illinois

Devonian formations of Illinois. T. E. Savage. *il Am J Sci* 49:169-82 Mr '20

Kansas

Comanchean and Dakota strata of Kansas. W. H. Twenhofel. *Am J Sci* 49:281-97 Ap '20

Kentucky

Contributions to Kentucky geology. W. R. Jillson. 266p (Kentucky. Department of geology and forestry. Ser. 5, bul. 4) Department of geology and forestry, Frankfort '20

Economic papers on Kentucky geology. W. R. Jillson. 304p Kentucky geological survey, Frankfort '21

Maryland

Late lower cretaceous at Federal Hill, Maryland. E: W. Berry. *il Am J Sci* 50:48-52 Jl '20

Massachusetts

Geology of the igneous rocks of Essex county. C: H. Clapp. *il diags maps U S Geol S Bul* 704:1-132 '21

Mexico

General geology of the Catorce mining district; abstracts. C. L. Baker. *Eng & Min J* 112:488-9 S 24 '21; *Min & Met* 177:53 S '21; *Sci Am M* 4:284-5 S '21

Geology of the El Tigre district. R. T. Mishler. *il diags map plan Min & Sci P* 121: 583-91 O 23 '20

Ore deposits of Mexico. S. J. Lewis. *diags maps Min & Sci P* 120:412-20, 443-50, 933-9; 121:16-20, 375-83 Mr 20-27, Je 26-Jl 3, S 11 '20

Geology—Mexico —Continued

Permian of Coahuila, northern Mexico. E. Böse. *Am J Sci* 5th ser 1:187-94 F '21

Michigan

Correlation of formations of Huronian group in Michigan. R. C. Allen. *diags Min & Met* 153:sup2579-94 S '19; Discussion. 156:3113-15 D '19; 157:(sec 12) 1-6 Ja '20

Minnesota

Economic geology and stratigraphy of the Gunflint iron district, Minnesota. T. M. Broderick. *map diags Econ Geol* 15:422-52 JI '20

Missouri

Devonian of central Missouri. D. K. Greger. *Am J Sci* 49:265-6 Ap '20
Devonian of central Missouri; the Cooper limestone. D. K. Greger. *il Am J Sci* 50:20-4 JI '20

Montana

Geology and oil and gas prospects of the Huntley field. E. T. Hancock. *il diags maps U S Geol S Bul* 711:105-48 '20

Nevada

Geology of the Muddy mountains, Nevada, with a section to the Grand Wash Cliffs in western Arizona. C. R. Longwell. *bibliog il diags Am J Sci* 5th ser 1:39-62 Ja '21
Limestone ores of Manhattan, Nevada. H. G. Ferguson. *diags maps Econ Geol* 16:1-36 Ja '21

New Mexico

Contributions to the stratigraphy of eastern New Mexico. C. L. Baker. *Am J Sci* 49:99-126 F '20
Geology of Alamosa Creek Valley, Socorro county, New Mexico, with special reference to the occurrence of oil and gas. D. E. Winchester. *il map U S Geol S Bul* 716—A:1-15 '20
Notes on the Manzano group. W. T. Lee. *Am J Sci* 49:323-6 My '20
Notes on the tertiary intrusives of the lower Pecos valley. D. R. Semmes. *il diag map Am J Sci* 50:415-30 D '20
Radium ore discovered in White Signal district, N.M. F. I. Leach. *Eng & Min J* 109:989 Ap 24 '20

New York (city)

Geology of New York city revealed in core boring exhibit. M. E. Zipser. *diags Eng N* 85:60-2 JI 8 '20

New York (state)

Geology of the Catskill Portland cement region. R. W. Jones. *diag Concrete* 16:sup 69-71 My '20
Origin of Adirondack magnetite deposits. W. J. Miller. *Econ Geol* 16:227-33 Ap '21

Newfoundland

Post-glacial warping of Newfoundland and Nova Scotia. R. A. Daly. *map Am J Sci* 5th ser 1:381-91 My '21

North America

Bibliography of North American geology for 1918, with subject index. J. M. Nickles. *U S Geol S Bul* 698:1-148 '19

North Carolina

See also Kaolin

North Dakota

Possibilities of oil and gas in North Dakota. A. G. Leonard. *Eng & Min J* 109:1077-8 My 8 '20

Nova Scotia

Mississippian formations of the Horton-Windsor district, Nova Scotia. W. A. Bell. *bibliog map Am J Sci* 5th ser 1:153-73 F '21

Oklahoma

Geology of cement oil fields. F. G. Clapp. *Min & Met* 158:(sec 27) 1-9 F '20
Geology of the cement oil field, Caddo county. F. Reeves. *diags map U S Geol S Bul* 726—B:41-85, pl 6-12 '21

Structure and oil and gas resources of the Osage reservation. M. I. Goldman. *maps U S Geol S Bul* 686—W:329-52 '20

See also Petroleum—Oklahoma

Ontario

Stratigraphy and geologic relations of the paleozoic outlier of Lake Timiskaming. G. S. Hume. *bibliog diag map Am J Sci* 50:293-309 O '20
Veins of Cobalt. W. L. Whitehead. *il diags map Econ Geol* 15:103-35 Mr '20

Pennsylvania

How the grand push determined present character of Pennsylvania coals. G. H. Ashley. *maps Coal Age* 17:1307-10 Je 24 '20

Peru

Huancavelica mercury deposits. J. T. Singewald, jr. *il map Eng & Min J* 110:518-22 S 11 '20

Texas

Further notes on the structure near Robert Lee, Coke county, Texas. J. W. Beede. *diag map Texas U Bul* 1847:1-7 Ag 20 '18
Geology and mineral resources of Bexar county. E. H. Sellards. *il maps Tex U Bul* 1932:1-197 '19
Geology and mineral resources of Crockett county with notes on the stratigraphy, structure, and oil prospects of the Central Pecos valley. R. A. Liddle and T. M. Prettyman. *diags maps Texas U Bul* 1857:1-97 '18
Geology and mineral resources of Medina county. R. A. Liddle. *il diags maps Texas U Bul* 1860:1-177, pl 1-9 '21
Geology of Coke county. J. W. Beede and W. P. Bentley. *il diags maps Texas U Bul* 1850:1-80 '18
Geology of Tarrant county. W. M. Winton and W. S. Adkins. *il maps (supp) Tex U Bul* 1931:1-117 '19
On the underground position of the Ellenburger formation in North Central Texas. E. H. Sellards. *map Texas U Bul* 1849:1-29 '18

See also Petroleum—Texas; Salt domes

Wyoming

Anticlines near Maverick Springs, Fremont county. A. J. Collier. *il maps U S Geol S Bul* 711—H:149-66 '20

Geometrical drawing

Device for generating logarithmic spirals, its construction and operation. H. G. Allen. *il Sibley J* 34:52 Ap '20

See also Circles; Graphic methods; Mechanical drawing

Geometry

New concepts of the past century. *Sci Am* 123:276+ S 18 '20

That parallel postulate; the dividing line between Euclidean and non-Euclidean geometry. *Sci Am* 123:565+ D 4 '20

See also Angles; Arcs; Circles; Cube, Duplication of; Ellipse; Trisection of angles

Geometry, Analytic

Analytic geometry. C. I. Palmer and W. C. Krathwohl. 347p McGraw-Hill '21

First course in analytical geometry, plane and solid. C. N. Schmall. 2d ed., enl. 338p Van Nostrand '21

Plane and solid analytic geometry. W. F. Osgood and W. C. Graustein. 614p Macmillan '21

Geometry, Descriptive

Cours de géométrie descriptive. S. Bloch. 2v Hachette, Paris '21

Descriptive geometry. F. E. Giesecke and A. Mitchell. 3d ed. 139p F. E. Giesecke, Austin, Tex. '21

Descriptive geometry problems. F. G. Higbee. Wiley '21

Elements of descriptive geometry. 2d ed. G. F. Blessing and L. A. Darling. 231p Wiley '20

Geometry, Plane

Modern geometry. C. V. Durell. 145p Macmillan, London '20

Geophone

- Geophone in mining operations. Eng & Min J 109:1054-5 My 8 '20
 New uses found for the geophone. A. Leighton. Coal Age 17:802-4 Ap 22 '20; Same abr. Eng & Contr 53:470 Ap 21 '20
 Possibilities of the geophone in locating mine fire areas. L. D. Tracy and A. Leighton. diags Coal Age 17:40-2 Ja 8 '20
 Use of the geophone for mine rescue work. Monthly Labor R 10:1013-14 Ap '20
 Use of the geophone for mine signalling. M. Meredith. Coal Age 17:312 F 12 '20

Geophysics

- Survey of research problems in geophysics. (Reprint & Circ. Ser. 11) p 545-601 n.d. 60c
 National research council, 1701 Massachusetts av, Washington, D.C.
See also Atmospheric electricity; Auroras; Geodynamics; Gravity; Magnetism, Terrestrial; Meteorology

Georgia**Industries and resources**

- See also* Gold mines and mining—Georgia; Mines and mineral resources—Georgia

Georgia cotton growers' co-operative association

- Plans for a co-operative cotton growers association in Georgia. Comm & Fin Chr 112:1577-8 Ap 16 '21

Geotropism

- Why roots grow downward; the modern statolith theory of the geotropic action of roots. H. Van Guttenberg. diags Sci Am M 3:311-14 Ap '21

Gerhardt, Charles, 1816-?

- Sketch. A. Haller. Chimie & Ind 6:404-7 S '21

German indemnities

- All allied indebtedness will be paid. T: W. Lamont. Comm & Fin Chr 112:886-8 Mr 5 '21

- Allies' demands on Germany for indemnity payments by March 23—Germany's answer. Comm & Fin Chr 112:1356-8 Ap 2 '21

- Allies indemnity demands on Germany. Comm & Fin Chr 112:520-2 F 5 '21

- Allies' refusal of Germany's indemnity proposals. Comm & Fin Chr 112:989-94 Mr 12 '21

- British parliament passes German reparations bill. Comm & Fin Chr 112:1463-4 Ap 9 '21

- Can Germany make exchange help foot her bills? W. F. Wamsley. Annalist 17:713 Jl 4 '21

- Current taxation must provide for German indemnity. B. M. Anderson, jr. Annalist 17:448-9 Ap 18 '21

- Economic problem of the age—how Germany will pay. B. Dorland. Annalist 17:257+ F 21 '21

- Federal reserve board on German reparations settlement. Comm & Fin Chr 112:2692-3 Je 25 '21

- German credits proposed in New York on account of reparations. Comm & Fin Chr 113:235-6 Jl 16 '21

- German indemnity and its possible effects on the United States. Americas 7:1-5 Mr '21

- German indemnity payments and exchange—international clearing house advocated. T. Tittoni. Comm & Fin Chr 113:899-900 Ag 27 '21

- German new indemnity proposals. Comm & Fin Chr 112:1828-30 Ap 30 '21

- German reparations and world commerce. J. A. M. de Sanchez. Ptr Ink 115:129-30+ My 12 '21

- Germany accepts entente terms on reparations following formation of a new cabinet. Comm & Fin Chr 112:2048 My 14 '21

- Germany cannot meet reparation demands of allies. J. M. Keynes. Comm & Fin Chr 112:699-700 F 19 '21

- Germany's ability to pay indemnity. B. M. Baruch. Comm & Fin Chr 112:1567 Ap 16 '21

- Germany's appeal to United States to mediate reparations question and declination by United States. Comm & Fin Chr 112:1704 Ap 23 '21

- Germany's rejection of allies' indemnity terms. Comm & Fin Chr 112:522-3 F 5 '21

- Germany's view of the economic effects of the Paris reparation demands. Comm & Fin Chr 112:1678-80 Ap 23 '21

- Great Britain and Belgium to get first billion marks paid by Germany. Comm & Fin Chr 113:789 Ag 20 '21

- Lloyd George insists that Germany must pay and disarm. Comm & Fin Chr 112:618-20 F 12 '21

- Plan for German reparation. T: W. Lamont. Comm & Fin Chr 112:2029 My 14 '21

- Proposal respecting German reparation payment. R. McKenna. Comm & Fin Chr 113:232-4 Jl 16 '21

- Reparations; how much can Germany pay? B. M. Baruch. Nation's Business 9:12-13 My '21

- Schedule of reparation demands on Germany. Comm & Fin Chr 112:1935-6 My 7 '21

- Treaty whereby Germany pledges equivalent of 7,000,000,000 marks to France in building materials. Comm & Fin Chr 113:1931 N 5 '21

- Die undurchführbarkeit des diktats der feinde, unter besonderer berücksichtigung der 26prozentigen ausfuhrabgabe. G. Rasch. Stahl & Eisen 41:789-92 Je 9 '21

- U.S. to stand with allies on German reparation demands. Comm & Fin Chr 112:1468-9 Ap 9 '21

- What the reparations mean to us. Nation's Business 9:11-12 Jl '21

- German silver. *See* Nickel silver

Germanium

- Atomic weight of germanium. J: H. Müller. diags Am Chem Soc J 43:1085-95 My '21

Germantown, Pennsylvania**Architecture**

- Ledge stone house. E. S. Wills. il Am Arch 117:67-73, pl 16-24 Ja 21 '20

Germany

- See also* Electric plants (central stations)—Germany; Hydroelectric plants—Germany; Railroads—Germany; Street railroads—Germany

Aeronautics, Military

- See also* European war—Aerial operations

Commerce

- Bogy of German competition. J. H. Collins. il Ptr Ink M 3:15-16+ S '21

- Export of foreign tools to Germany. Am Mach 53:1115 D 9 '20

- German exports exceed imports in April and May. Eng N 85:911 N 4 '20

- German foreign trade uncertain. Iron Tr R 68:1244-5 My 5 '21

- Germany—crushed or powerful? J. W. Evans. il Nation's Business 8:54+ F '20

- Is the German trade menace a real one?—some opinions. Nation's Business 8:55+ N '20

- See also* Aeronautics, Commercial—Germany; Cotton trade—Germany; Merchant marine—Germany; Shipping—Germany

Economic conditions

- Business conditions in Germany. Am Mach 54:888g-h, 972-3, 1104b-c; 55:120c-d, 288d-e My 19, Je 2, 23, Jl 21, Ag 18 '21

- Business conditions in Germany. M. P. Moseley. Administration 2:485-7 O '21

- Cost of living in Germany, 1914 to 1919. Monthly Labor R 10:923-4 Ap '20

- Cost of living in Germany, 1916 to 1918. Monthly Labor R 10:114-17 Ja '20

- La crise économique en Allemagne. C. F. von Siemens. Génie Civil 77:489-90 D 11 '20

- Economic development of France and Germany, 1815-1914. J. H. Clapham. 420p University press, Cambridge '21

Germany—Economic conditions—Continued

- General conditions in Germany. E. J. Mehren. *il Eng N* 85:517-20 S 9 '20
- German banking and industrial concentration. *Comm & Fin Chr* 112:413-14 Ja 29 '21
- German industrial conditions resulting from the failure of the London conference. H. O. Herzog. *Am Mach* 54:707-8 Ap 21 '21
- German industrialist's views on socialisation. F. Deutsch. *Engineering* 109:703-4, 734-5 My 21-28 '20
- German industry is profiting from forced co-operation. *Annalist* 17:399-400 Ap 4 '21
- German manufacturers slow to accept changed conditions. H. O. Herzog. *Am Mach* 54:160e-f Ja 27 '21
- Germany revolves on reparations. *Am Ind* 21:47 Jl '21
- Germany's economic recovery. *Textile World* 58:3845+ D 4 '20
- Germany's industrial position. C. J. Housman. *Comm & Fin Chr* 112:1464-5 Ap 9 '21
- Germany's post-war industrial problems. *Engineering* 110:83-4 Jl 16 '20
- How American firms are faring in Germany. *Ptr Ink* 110:133-4+ Mr 25 '20
- Industrial and economic situation in Germany. *Engineering* 111:141-2 F 4 '21
- Industrial conditions in Germany. *Mach* 27:730-1, 960; 28:317 Ap, Je, D '21
- Industrial situation in Germany in 1920. J. W. F. Thelwall and C. J. Kavanagh. *Elec R (Lond)* 88:139 F 4 '21
- Industry in Germany is setting rapid pace. B. G. Dawes. *il Nat Pet N* 13:27-8 O 12 '21
- Organization of employers and workers in Germany. *Monthly Labor R* 12:613-15 My '21; Same. *Chem & Met Eng* 24:889-90 My 18 '21
- Post-war progress in Germany. H. A. Holz. *Chem & Met Eng* 23:268-9 Ag 18 '20
- Present conditions in Germany. J. S. Lawrence. *Textile World* 57:4211+ Je 5 '20
- Trend toward combination in the German industries—a critical study of the Stinnes' policy. C. A. Heise. *Am Mach* 54:80g-h Ja 13 '21
- Trust mania in Germany. F. Simpich. *il Nation's Business* 9:16-18 My '21
- Unemployment situation in Germany. *Monthly Labor R* 12:632-6 Mr '21

See also Banks and banking—Germany; Cooperation—Germany; Finance—Germany; Housing problem—Germany; Labor and laboring classes—Germany; Mining industry and finance—Germany; Prices—Germany; Trade unions—Germany; Wages—Germany

Economic policy

- Les mesures de défense économique prises par les états de l'Europe centrale. *Génie Civil* 76:515-16 Je 5 '20

Finance

See Finance—Germany

Industries and resources

- Association of German industries. *Automotive Ind* 42:1335 Je 10 '20
- Eight great combinations practically control German industry. *Annalist* 17:445-6 Ap 18 '21
- German industries. *Engineering* 111:225 F 25 '21
- German iron and steel in reconstruction. H. C. Estep. *il Iron Tr R* 69:25-30 Jl 7 '21
- German machine industry. *Iron Age* 106:142 Jl 15 '20
- German machine trade conditions. *Am Mach* 53:1208-9 D 23 '20
- German steel and iron in 1920. H. C. Estep. *map Iron Tr R* 66:1059-63, 1131-9, 1189-93, 1263-7 Ap 8-29 '20
- German's economic position as a world nation. R. E. Thayer. *il Ry Age* 68:1134-7, 1199-1203 Ap 9-16 '20
- German's view of the industrial situation in Germany. *Am Mach* 52:365-8 F 12 '20
- Germany's dominant industrial issues—the Silesian plebiscite and coal-mine control. *Eng N* 86:115-18 Ja 20 '21

- Germany's power resources. *map Power* 53:140-2 Ja 25 '21

Hauptübersicht der geschäftsergebnisse der reinen erwerbsgesellschaften nach gewerbe-gruppen. *Stahl & Eisen* 41:136-7 Ja 27 '21

Industrial concentration in Germany. *Engineer* 130:429-30 O 29 '20

Industrial notes from Germany. *Mach* 27:324-5 D '20

Metal supply problem in Germany. C. A. Heise. *Iron Age* 106:1295-7, 1328-30 N 11-18 '20

Railway situation in Germany. R. E. Thayer. *il diags plan Ry Mech Eng* 94:331-8 Je '20

Reconstruction of the Krupp works at Essen. *Am Mach* 54:624c-d Ap 7 '21

Restrictive measures on the shutdown of industrial plants in Germany. *Am Mach* 53:1205 D 23 '20

Substitute metals in electrotechnical industries in Germany. A. Feckinghaus. *Chem & Met Eng* 21:740-1 D 10 '19

What engineers are doing in Germany. E. J. Mehren. *il Eng N* 85:562-5 S 16 '20

See also Aircraft industry—Germany; Automobile industry and trade—Germany; Building trades—Germany; Cement industry and trade—Germany; Chemical industries—Germany; Coal mines and mining—Germany; Cotton trade—Germany; Dye industry—Germany; Electric industries—Germany; Electricity supply—Germany; Gas industry—Germany; Iron industry and trade—Germany; Krupp works; Machine tool industry—Germany; Machinery industry—Germany; Mines and mineral resources—Germany; Paper industry and trade—Germany; Petroleum—Germany; Shipbuilding—Germany; Steel industry and trade—Germany; Sugar industry and trade—Germany; Textile industry—Germany; Water power—Germany

Occupation by allies

British railway traffic establishment in Rhineland. A. L. Stead. *Engineer* 131:90-1 Ja 28 '21

German government's protest against occupation of Ruhr district. *Comm & Fin Chr* 112:994 Mr 12 '21

Politics and government

Formation of a new cabinet in Germany following the return of Ebert government to power. *Comm & Fin Chr* 110:1492-5 Ap 10 '20

Germicides. *See* Disinfection and disinfectants

Germination

Where age improves germination. *Sci Am* 123:453 O 30 '20

Geysers

See also Hot springs

Gherardi, Bancroft, 1873-
Portrait. *Elec W* 77:692 Mr 26 '21

Giant's Causeway, Ireland
Giant's Causeway. *il Sci Am* 125:225 S 24 '21

Gilbert, Alfred C.
Gilbert, maker of scientific toys. R. Cole. *il Ptr Ink M* 2:25-6+ Ja '21

Gilbert, Cass, 1859-
Cass Gilbert visits England. *Am Arch* 118:213 Ag 18 '20

Gilboa dam. *See* New York (city)—Water supply

Gild socialism

Chaos and order in industry. G. D. H. Cole. 292p Methuen & co., ltd., London '20

Guild politics; a practical programme for the Labour party & the co-operators. G. R. S. Taylor. 136p C. Palmer, London '21

Guild socialism; a critical examination. G. C. Field. 158p W. Gardner, Darton & co., London '20

Guild socialism; a plan for economic democracy. G. D. H. Cole. 202p Stokes '21

Industrial ideals. V. Gollancz. 63p Oxford univ. press '20

Gild socialism—*Continued*

- National guilds and the state. S. G. Hobson. 406p G. Bell and sons, ltd., London '20
Social movements. S. Zimand. p. 190-205 H. W. Wilson co. '21

Bibliography

- Guild socialism—a bibliography. S. Zimand. 7p (25c) '20 Bureau of industrial research, New York City (Reprinted from the Library Journal, March 15)

Gilding

- Gas as used in feather gilding—silvering and kindred processes. C. C. Shadwell. Am Gas Eng J 112:461-4, 470-2 Je 12 '20

- In the gilding of all articles from statuary to the edges and lettering of books gas may well have a considerable part. G. C. Shadwell. Am Gas Eng J 112:397-9 My 22 '20

- Use of gas in connection with gilding on common china and other substances. G. C. Shadwell. Am Gas Eng J 112:437-40 Je 5 '20

See also Electroplating; Gold plating; Metal coloring

Gilds

- Labor unrest in China. Ta Chen. Monthly Labor R 13:288-92 Ag '21

See also Building gild committee, Manchester, England; Building gilds; Gild socialism; Guild of builders (London) limited

Gillette safety razor company

- Annual report for the year ended December 31, 1919. Comm & Fin Chr 110:773-4 F 21 '20

- Annual report for the year ended December 31 1920. Comm & Fin Chr 112:664-5 F 12 '21

- Clever plan back of sensational Gillette announcement. J. P. Wilder. Ptr Ink 115:3-4+ My 12 '21

Service policy

- Bringing back the buyer who went astray in following instruction. H: Burwen. Ptr Ink 111:144-5+ My 27 '20

Gilsonite

- Gilsonite. Min & Sci P 121:244 Ag 14 '20

Gin poles

- Stumps pulled and piled by gin poles. J. L. Crane, jr. il Eng N 85:1153-4 D 9 '20; Discussion. H. M. Burwell. 86:133 Ja 20 '21

Girders

- Analysis of the continuous three-column foundation. C: A. Ellis. diags Eng N 85: 680-2 O 7 '20

- Calcul des poutres à treillis double avec membrures parallèles et montants verticaux sur les appuis seulement. L. Légens. diags Génie Civil 79:326-8 O 15 '21

- Calcul des poutres à treillis double avec montants verticaux sur les appuis seulement. B. de Fontviolant. diags Génie Civil 78:29-33 Ja 8 '21

- Calculating the size of timber beams and steel girders. E. I. Freese. diag Bldg Age 42:48-52 Ag '20

- Charts for designing T beams. E. Owen. diags Concrete 15:231-3 D '19

- Common errors in detailing steelwork for buildings. E: Godfrey. diags Eng N 83:730-3 O 16 '19; Discussion. 83:961-2; 84:99-101, 342 N 27 '19, Ja 8, F 12 '20

- Concrete-beam diagram with top and bottom steel. A. G. Hayden. diags Eng N 84:634-5 Mr 25 '20

- Concrete T-beam diagram permits direct designing and checking. A. V. Karpov and V. T. Givotovsky. diag Eng N 87:520-1 S 29 '21

- Concrete T-beams designed as truss. J: B. Hitchings, jr. diags Eng N 86:233 F 3 '21

- Concrete trusses and cantilever girders in theatre. il diags plans Eng N 85:604-5 S 23 '20

- Construction joints in concrete girders of 62½-ft. span. il diags plan Eng N 87: 348-50 S 1 '21; Discussion. 87:620-1 O 13 '21

- Criticism of the ordinary methods of designing reinforced concrete beams. J. W. Pearl. diag Eng & Contr 52:616-17 N 26 '19

- Design of a long-span reinforced concrete girder. A. E. Wynn. diags plans Engineering 109:777-8 Je 11 '20

- Design of reinforced concrete beams. E: F. Hammel. diags Bldg Age 43:47-9 N '21

- Design of simple reinforced concrete structural members. H. W. Barker. diags Concrete 18:250-1, 285-7; 19:73-4 My-Je, Ag '21

- Designing the reinforced concrete T-beam. E. A. Kunz. diag Bldg Age 42:26-8 D '20

- Detail drawing of plate girder carrying col. 34 above third floor level, the Metropolitan annex, New York city. Am Arch 118:833 D 22 '20

- Détermination rapide des dimensions à donner aux poutres en béton armé. H: Kampmann. Génie Civil 76:470-2 My 22 '20

- Diagram for effect of flange holes in beams and channels. H: Kercher. Eng N 86:799-800 My 12 '21

- Diagrams for reactions and bending moments of beams. R. Burnham. Eng N 83:956-7 N 27 '19

- Economical design of timber beams. E. I. Freese. Bldg Age 41:389+ D '19

- Effect of repeated reversals of stress on double-reinforced concrete beams. W. A. Slater, G. A. Smith and H. P. Mueller. il diags U S Bur Stand Tech Pa 182:1-51 '21

- Errors of approximate rules for I-beam capacities. E. Piercy. Eng N 84:686 Ap 1 '20

- Expansion rollers under large concrete girders in Roosevelt road viaduct, Chicago. M. Grodsky and F. W. Shaw. diags Eng & Contr 55:284-5 Mr 23 '21

- Extension du théorème des cinq moments au cas général des poutres continues à appuis élastiques. P. Sonier. Génie Civil 77:36-7 Jl 10 '20

- Figuring the carrying capacity of an I beam. diags Power Pl Eng 25:736-7 Jl 15 '21

- Graphical and mechanical analyses of frames. F. E. Richart and W. M. Wilson. diags Eng & Contr 53:700-2 Je 23 '20

- Graphical method for determining the proportions of reinforced concrete T-beams. G. I. Cope. Engineering 111:215 F 25 '21; Same. Min & Met 172:44-5 Ap '21; Same. Eng & Contr 55:635 Je 29 '21

- Handling 90-ton sections of emergency canal dam. il Pub Works 51:187-8 S 3 '21

- Highway bridge construction; unloading and hauling steel girder spans. Pub Works 50: 393-4 My 7 '21

- How to handle and erect bridge girders without special equipment. il diags Pub Works 51:78-9, 97-8, 116-18, 151-3, 171-2, 206-8, 224-6 Jl 23-Ag 6, 20-27, S 10-17 '21

- Moments for continuous beams of uniform live load. H. M. Gibb. Eng N 86:807-8 My 12 '21

- Moments in columns and girders of building frames due to vertical loads. W. M. Wilson and F. E. Richart. diag Eng & Contr 53: 93-4 Ja 28 '20

- Rectangular beam design diagram. A. V. Karpov, C. E. Givotovsky and V. T. Givotovsky. Concrete 19:153-4 O '21

- Reinforcement for diagonal tension in reinforced concrete beams. E: Godfrey. diags Concrete 17:15-20 Jl '20; Discussion. 17:43-6+, 116-19 Ag, O '20

- Reinforcing steel I-beams for bending. diags Can Eng 39:225-6 Ag 5 '20

- Self-checking string polygon; new graphical method in which paralleling is replaced by measurement. T. Bleckmann. diags Eng N 85:880-1 N 4 '20

- Shearing stresses in timber trestle stringers. Eng N 87:179, 419 Jl 21, S 8 '21

- Short cuts to accurate calculations. E. I. Freese. diag Am Arch 118:416-18 S 29 '20

- Simple designing of double reinforced concrete beams. R. R. Martel. diag Eng N 84:880 Ap 29 '20

- Simple formulas for bond stress limits in concrete beams. C: E. Sharp, jr. Eng N 85: 859 O 28 '20

- Steel construction; plate girders. C: L. Shedd. diags Arch Forum 34:207-9 Je '21

- Steel design for buildings. C: L. Shedd. Arch Forum 35:25-8, 99-102, 145-6, Jl, S-O '21

Girders—Continued

Steel framing of narrow building. diags plan
Eng N 84:913-14 My 6 '20

Stray points in structural steel design. R.
Fleming. diags Eng N 84:1040-2 My 27 '20

See also Bridges; Bridges—Load; Build-
ing; Flexure; Roofs; Steel construction;
Strains and stresses; Trusses

Testing

Field beam tests by Reclamation service.
W. H. Fisher. Concrete 16:236-7 My '20;

Same. Eng & Contr 53:714-15 Je 23 '20

Tests on built-up timbers. Eng N 87:316 Ag
25 '21

Glacial period

Glacial and genial epochs; an astronomical
explanation of the glacial periods. F. J. B.
Cordeiro. Sci Am M 2:197-8 N '20

Glacier national park

From the mountains of Montana to the Te-
tons of Wyoming. L. Jeffers. il map Sci Am
122:364+ Ap 3 '20

Glaciers

See also Eskar; Moraines

Glare

Glare. O. L. Johnson. il Elec J 17:198 My
'20

Glare measurements. W. Harrison. diag
Illum Eng Soc 15:34-43; Discussion. 43-5 no
1 '20; Abstract. Illum Engr 13:229 Ag '20

Lighting for comfort in homes and public
places. H. T. Spaulding. il Elec R 79:385-7
S 10 '21

White Mazda lamp. E. A. Anderson. il diags
Gen Elec R 23:711-14 Ag '20

See also Glarimeter; Lighting

Glarimeter

Polarization method of measuring the gloss
of paper and similar surfaces. L. R. Inger-
soll. il diags Illum Eng Soc 16:152-8 no 6
'21; Abstracts. Paper 27:18+ F 9 '21; J Fr
Inst 192:238 Ag '21

Glasgow, Scotland

See also Electric plants (central sta-
tions)—Glasgow

Rapid transit

Glasgow has first deficit. Elec Ry J 56:516-
17 S 11 '20

Streets

Stone block paving in Glasgow. il Eng N 85:
322-3 Ag 12 '20

Glass

Calculation of the relative expansion of
glass; abstract. L. Springer. Am Cer Soc
J 3:924-5 N '20

Ceramic industries pocket book. A. B.
Searle. 267p Pitman '20

Coloring and thermoluminescence of glass
produced by radium radiation. S. C. Lind.
J Phys Chem 24:437-41; Discussion. 441-3
Je '20

Coloring of glass. Min & Sci P 122:806; 123:
8, 54, 150 Je 11, Jl 2-9, 30 '21

Composition of lead glasses. R. J. Montgom-
ery. Am Cer Soc J 3:900-12 N '20

Density of soda-magnesia glasses; abstract.
S. English and W. E. S. Turner. Am Cer
Soc J 3:927 N '20

Development of various types of glass. C. J.
Peddle. Am Cer Soc J 3:pt 1,681-3 Ag '20

Dissolved gases in glass. E. W. Washburn,
F. F. Footitt and E. N. Bunting. il diags
Ill U Eng Exp Sta Bul 118:1-32 '20; Ab-
stract. Chem & Met Eng 24:663-4 Ap 13
'21

Filtering by means of spun glass. Sci Am
123:593 D 11 '20

Glass. Engineer 131:125-6 F 4 '21

Glass and its unstudied problems in automo-
tive construction. W. C. Hirsch. Automot-
ive Ind 43:426-9 Ag 26 '20

Glass and some of its properties; abstract.
H. Jackson. Am Cer Soc J 3:506-7 Je '20

Glass division of the American ceramic
society. Chem & Met Eng 24:421-2 Mr 9
'21

Heat expansion of soda-lime glasses; ab-
stract. S. English and W. E. S. Turner.
Am Cer Soc J 3:592-3 Jl '20

Influence of lime on the value of Young's
modulus of elasticity for the soda-lime
glasses; abstract. J. R. Clarke and W. E.
S. Turner. Am Cer Soc J 3:587 Jl '20

Magnesia-soda glasses; abstract. J. H.
Davidson, F. W. Hodkin and W. E. S.
Turner. Am Cer Soc J 3:586 Jl '20

Measurements on the thermal dilatation of
glass at high temperatures. C. G. Peters
and C. H. Cragoe. diags U S Bur Stand
Sci Pa 393:449-87 '20

Mechanics of the weathering of glass. F. R.
v. Bichowsky. il Am Cer Soc J 3:309-12
Ap '20

Music from glass. J. F. Springer. il Sci Am
123:598+ D 11 '20

Non-shattering glass. il Sci Am 122:339 Mr
27 '20; Mach 26:833 My '20

On Cornu's method of determining the elastic
constants of glass. H. T. Jessop. diags
Philos Mag 6th ser 42:551-68, pl 18-19 O '21

Phenomena of rupture and flow in solids. A.
A. Griffith. Am Cer Soc J 4 pt 1:513-14 Je
'21

See also Cut glass; Glass, Optical; Glass
blowing and working; Glass manufacture;
Glass trade; Glassware; Plate glass; Silica,
Fused; Stained glass; Windows

Devitrification

Devitrification of glass, a surface phenom-
enon; the repair of crystallized glass ap-
paratus. A. F. O. Germann. Am Chem Soc
J 43:11-14 Ja '21

Testing

Selection of glass for the manufacture of
ampuls. G. E. Ewe. J Fr Inst 189:649-53
My '20

Simple expansibility test for determining the
welding properties of glasses. D. E. Sharp.
diag Am Cer Soc J 4:219-23 Mr '21

Glass, Colored

Glass colors; abstract. R. J. Montgomery.
Am Cer Soc J 3:1007 D '20

Ultra-violet and visible transmission of vari-
ous colored glasses. K. S. Gibson, E. P. T.
Tyndall and H. J. McNicholas. il U S Bur
Stand Tech Pa 148:1-27 '20

Glass, Optical

Certain relations between chemical compo-
sition and refractivity in optical glasses.
F. E. Wright. Am Cer Soc J 3:783-832 O
'20

Characteristics of striæ in optical glass.
T. T. Smith, A. H. Bennett and G. E.
Merritt. il diags U S Bur Stand Sci Pa
373:75-91 '20

Composition of barium glass. R. J. Mont-
gomery. Am Cer Soc J 4:536-45 Jl '21

Influence of strain on the properties of op-
tical glass; abstract. J. Berndt. Am Cer
Soc J 3:1005-6 D '20

Optical glass and its future as an American
industry. A. L. Day. J Fr Inst 190:453-72
O '20

Twenty-three types of optical glass. R. J.
Montgomery. Am Cer Soc J 3:404-10 My
'20

Manufacture

Design of a natural-gas furnace for anneal-
ing optical glass. D. E. Sharp. diags Am
Cer Soc J 4:597-607 Jl '21

Making it easy to trace materials. L. E.
Dodd. il diags Factory 27:330-2 S '21

Making lenses in America. il Sci Am 125:258
O 8 '21

Manufacture and uses of rolled optical glass.
H. S. Roberts and J. C. Hostetter. diags
Am Cer Soc J 3:750-61 S '20

Note on the motion of the stirrers used in
optical glass manufacture. E. D. William-
son and L. H. Adams. il diags Am Cer Soc
J 3:pt 1,671-7 Ag '20

Optical glass stirred by new machine. il Pop
Mech 35:407 Mr '21

Our mechanical eyes; glass for optical pur-
poses, and how it is made. J. F. Springer.
il diags Sci Am 123:106+ Jl 31 '20

Glass, Optical—Continued

Testing

Practical test for the resistance of optical glass to weathering. F. R. v. Bichowsky. *il Am Cer Soc J* 3:296-304; Discussion. 304-8 Ap '20

Glass, Plate. See Plate glass

Glass, Stained. See Stained glass

Glass blowing and working

Le soufflage du verre dans les laboratoires scientifiques et industriels. H. Vigreux. *il diags Chimie & Ind* 6:160-8 Ag '21

Le soufflage du verre soudure interne. H. Vigreux. *diags Chimie & Ind* 4:334-6 S '20

See also Bottles

Glass factories

New factory of the Monongah glass company. E. W. Tillotson. *il diags plan Am Cer Soc J* 4:3-24 Ja '21

Glass manufacture

American glass industry; machinery employed in making bottles, window-glass and plate glass. R. G. Skerrett. *il Sci Am M* 4:45-51 Jl '21

Ancient and modern methods of glass manufacture. H. L. Dixon. *Am Cer Soc J* 4:85-96 F '21

Annealing of glass. L. H. Adams and E. D. Williamson. *il diags J Fr Inst* 190:597-631, 835-70 N-D '20

Annealing temperatures of magnesia-soda glasses; abstract. S. English and W. E. S. Turner. *Am Cer Soc J* 3:585 Jl '20

Choice of glass batches containing lime. W. E. S. Turner. *Am Cer Soc J* 3:379-83 My '20

Concerning the annealing and characteristics of glass. A. Q. Tool and J. Valasek. *bibliog diags U S Bur Stand Sci Pa* 358:537-71 '20

Czechoslovak glass situation. *Chem & Met Eng* 23:57 Jl 14 '20

Design and operation of glass house furnaces. F. J. Denk. *diags Am Cer Soc J* 4:224-36 Mr '21

Electric heating in ceramics. W. S. Scott. *Chem & Met Eng* 24:400 Mr 2 '21

Electrically heated glass annealinglehr. E. F. Collins. *diags Am Cer Soc J* 4:335-49 My '21; Abstract. *Chem & Met Eng* 25:119 Jl 20 '21; Same. *Elec R* 79:204-5 Ag 6 '21

Expansion of glass at high temperatures. W. B. Pietenpol. *Chem & Met Eng* 23:876-7 N 3 '20

Experimental manufacture of gas-free glass. *Pop Mech* 35:894 Je '21

Factory method for measuring the viscosity of pot made glass during the process of manufacture together with some discussion of the value of viscosity data to the manufacturer. E. W. Washburn. *il diags Am Cer Soc J* 3:735-45; Discussion. 745-9 S '20

Fifty years of glass making, 1869-1919. 94p Macbeth-Evans glass co., Pittsburgh '20

Glass industry of North America; abstract. W. E. S. Turner. *Am Cer Soc J* 3:421-2 My '20

Glass sands of Kentucky. C. H. Richardson. Kentucky geological survey, Frankfort '20

Glass tubes by machine. *il Sci Am* 125:222-3 S 24 '21

How glass factory molds are made. P. Dwyer. *il Foundry* 48:585-90 Ag 1 '20

How plate glass is made. R. Howard. *il Sci Am* 123:14+ Jl 3 '20

Importance of analysis in purchasing raw materials for the glass industry. A. Silverman. *Am Cer Soc J* 3:26-34 Ja '20

Irish glass. M. S. D. Westropp. 206p H. Jenkins. London '20

Load conditions in the glass industry; a user but not buyer of electric power. C. W. Fick. *diags Gen Elec R* 24:539-42 Je '21

Machine-made window glass. R. G. Skerrett. *il Sci Am* 124:370+ My 7 '21

Machinery for glass manufacture. *il Engineer* 131:204-6, 208 F 25 '21

Making satisfactory glass from American clays. S. R. Winters. *il Sci Am* 125:21 Jl 9 '21

Making window glass. *Sci Am* 122:383 Ap 10 '20

Manufacture of mother-of-pearl glass; abstract. O. Schwarzbach. *Am Cer Soc J* 3:928 N '20

Method for determining the annealing temperature of glass; abstract. J. T. Littleton and E. H. Roberts. *Am Cer Soc J* 3:1008 D '20

Modern glass manufacture; American methods of making cut glass. J. F. Springer. *il Sci Am M* 1:30-2 Ja '20

Portable belt conveyor for conveying molten glass. *il Eng & Ind Management* 5:759 Je 30 '21; *Pop Mech* 36:239 Ag '21

Producer gas as fuel for the glass industry. F. J. Denk. *Am Cer Soc J* 3:94-113 F '20; Discussion. 918-21 N '20

Progress in the manufacture of English chemical and scientific glassware. J. H. Davidson. *Can Chem & Met* 5:165-6 Je '21

Putting the glass industry on a scientific basis. E. W. Tillotson. *il Chem & Met Eng* 23:461-5 S 8 '20; Same. *Sci Am M* 2:351-4 D '20

Sheet and plate glass manufacture. E. H. Bostock. *Am Cer Soc J* 3:35-9 Ja '20

Some experiments on glass for lamp-working purposes; abstract. J. D. Cauwood, J. H. Davidson, F. W. Hodkins and W. E. S. Turner. *Am Cer Soc J* 3:588-9 Jl '20

Use of phonolite in glass manufacture; abstract. *Am Cer Soc J* 3:930 N '20

Waste in the glass industry. E. W. Tillotson, jr. *Chem & Met Eng* 25:437-8 Ag 31 '21

See also Glass, Optical; Glass blowing and working; Glass factories; Glass pots; Silica, Fused

Study and teaching

Training of the glass-works chemist. A. Silverman. *Chem & Met Eng* 25:332 Ag 24 '21

Glass pots

Art of pot making. C. O. Grafton. *il Am Cer Soc J* 3:pt 1,653-62; Discussion. 662 Ag '20

Lining for glass pots. S. R. Scholes. *Am Cer Soc J* 3:498-500 Je '20

Manufacture and treatment of glass melting pots. W. K. Brownlee and A. F. Gorton. *Am Cer Soc J* 4:97-112 F '21

Properties of American bond clays and their use in graphite crucibles and glass pots. A. V. Bleining. *il U S Bur Stand Tech Pa* 144:40-52 '20

Glass spinning

Glass spinning and weaving. R. R. Henderson. *il diags Pop Mech* 33:467-70 Mr '20

Glass trade

Tables and ready-reckoners

Plate and sheet glass calculator. S. S. Lindsay. 101p The Pittsburgh plate glass company, Pittsburgh, Pa. '20

Glass walls. See Walls, Glass

Glassware

Colored hollow glassware; abstract. *Am Cer Soc J* 3:583-4 Jl '20

Cords and surface-markings in glassware. F. E. Wright. *diag Am Cer Soc J* 4:655-61 Ag '21

Glassware and posts for street-lighting service. C. H. Shepherd. *il Elec R* 79:51-5 Jl 9 '21

Present status of American glassware. E. C. Sullivan. *Chem & Met Eng* 22:29-30 Ja 7 '20

See also Cut glass; Lamp globes; Optical instruments

Glassware guild, Illuminating. See Illuminating glassware guild

Glaucanite

Action of lime on greensand. R. N. Shreve. *J Ind & Eng Chem* 13:693-5 Ag '21; Abstract. *Chem & Met Eng* 24:831 My 11 '21

Physical and chemical character of New Jersey greensand. G. R. Mansfield. *il Econ Geol* 15:547-66 N '20

Glaucanite—Continued

Potash in New Jersey greensands. G. R. Mansfield. *Min & Met* 169:28-9 Ja '21; Same, without tables. *Sci Am M* 3:94 Ja '21

Putting green sand to work; how the hitherto untouched glauconite deposits will insure our future potash requirements. R. N. Shreve. *il Sci Am* 125:40+ Jl 16 '21

Glazes

Data on the development of terra cotta glazes. E. C. Hill. *Am Cer Soc J* 3:13-25 Ja '20

Effect of glaze composition on the crazing of terra cotta; with discussion. E. C. Hill. *Am Cer Soc J* 4:25-31 Ja '21

Experiments in aventurine glazes. H. G. Schurecht. *Am Cer Soc J* 3:971-7 D '20

Glaze study involving some interesting colors produced by nickel oxide. J. D. Whitmer. *Am Cer Soc J* 3:pt 1,662-70 Ag '20

High fire porcelain glazes; abstracts. H. H. Sortwell. *il Am Cer Soc J* 4:718-30 S '21; *J Fr Inst* 192:530-2 O '21

Nickel oxide in glazes. J. D. Whitmer. *Am Cer Soc J* 4:357-65 My '21

Notes on terra cotta slips with reference to the use of asbestos and chlorite mica. H. Wilson. *Am Cer Soc J* 3:114-33 F '20

Physical properties of stoneware glazes. R. Rieke. *Am Cer Soc J* 3:847-8 O '20

Physical properties of whiteware glazes. R. Rieke. *Am Cer Soc J* 4:76-7 Ja '21

Use of substitutes for tin oxide in glazes. R. H. Minton. *Am Cer Soc J* 3:6-12 Ja '20

See also Enamel and enameling; Frits

Glencoe, Illinois

Community center developments; the North shore suburbs of Chicago. plan *Am Arch* 118:271, 273, 274, 279 S 1 '20

Glidden, Charles Jasper, 1857-

Sketch. *Aviation* 11:75 Jl 18 '21

Glidden company

How one big advertiser handles its branch organization; the Glidden plan. O. A. Hasse. *Ptr Ink* 115:3-4+ Ap 28 '21

Gliders

Airplane-type ski glider. F. D. Burke. *diags Pop Mech* 33:307-10 F '20

How to build a glider for ten dollars. G. D. White. *diags Pop Mech* 33:952-3 Je '20

Man-carrying gliders. J. F. McMahon. *Aerial Age* 11:161 Ap 12 '20

Model gliders. J. F. McMahon. *diags Aerial Age* 11:25 Mr 15 '20

Gliding. *See* Aeronautics

Globe fish. *See* Puffers

Gloucester, Massachusetts**Rapid transit**

Transportation by motor bus in Gloucester. *il map Elec Ry J* 58:773-7 O 29 '21

Glove trade

Getting the dealer to understand your line. M. Hussobee. *il Ptr Ink M* 3:34+ Je '21

Gloves

Combination woven and knit articles. W. Davis. *diags Textile World* 58:529+ Jl 24 '20

Gloves and the glove trade. B. E. Ellis. 146p *Pitman* '21

See also Linemen's gloves

Cleaning

Glove cleaning and dyeing. O. S. Bagger. *Sci Am M* 4:276-7 S '21

Gloves, Rubber

Repairing rubber gloves and mittens. *il diags India Rubber W* 64:647-8, 731-4 Je-Jl '21

Glucal

Über die ungesättigten reduktionsprodukte der zuckerarten und ihre umwandlungen; über das glucal-problem. M. Bergmann and H. Schotte. *Deutsche Chem Gesell Ber* 54: 440-55 Mr '21

Glucinum sulfate

System potassium sulphate-glucinum sulphate-water at 25°. H. T. S. Britton and A. J. Allmand. *Chem Soc J* 119:1463-70 S '21

Gluckstadt, Emil

Emil Gluckstadt, Danish banker who will aid Austria an international figure. *J. Moritzen. Annalist* 17:423 Ap 11 '21

Glucosan

Glucosane. *Am J Sci* 50:392-3 N '20

Glucosan. A. Pictet and P. Castan. *Paper* 28: 20-1 My 25 '21

Glucose

Canadian starch and glucose industry. *Chem & Met Eng* 23:1171 D 15 '20

Glucose. A. Pictet. *Paper* 28:18-19 Je 8 '21

Glucose; patent. *diag Chem & Met Eng* 23: 796 O 20 '20

Manufacture of starch, glucose and by-products. R. H. Williams. *Can Chem & Met* 5: 195-6 Jl '21

United States export trade in corn sirup and corn sugar. *Chem & Met Eng* 24:485 Mr 16 '21

Use of glucose as a discharge for indigo blue. A. Scheunert and N. Wosnessensky. *Color Tr J* 8:47 F '21

Glucosides

Glucosides; glycyrrhizin. P. Karrer and others. *Chem Soc J* 120 pt 1:259-63 Ap '21

Glucosidomannose

Über die ungesättigten reduktionsprodukte der zuckerarten und ihre umwandlungen; neue anhydrozucker; synthese einer glucosidomannose; struktur der cellobiose. M. Bergmann and H. Schotte. *Deutsche Chem Gesell Ber* 54:1564-74 Jl '21; *Abstract. Chem Soc J* 120 pt 1:648-9 S '21

Glue

Comparison of five different types of glue. *Chem & Met Eng* 24:165 Ja 26 '21

Detection and determination of glue in rubber goods. S. W. Epstein and W. E. Lange. *India Rubber W* 61:216-17 Ja '20

Effect of heat on glue. *Sci Am* 124:392 My 14 '21

Effects of oils and heat on glues. *Chem & Met Eng* 23:16 Jl 7 '20

Factors influencing the viscosity of glue. F. J. Crupi. *Chem & Met Eng* 24:575-6 Mr 30 '21

Failure of casein glue joints in ash. L. J. Bradford. *diags Aerial Age* 12:346-7+ D 6 '20

Flexible glue and the consumer. W. Stetter. *Inland Ptr* 66:502 Ja '21

Glue, gelatine, and their allied products. T. Lambert. 2d ed. 153p C. Griffin & Co., Ltd., London '20

Glueing turpentine barrels. *Chem & Met Eng* 23:932 N 10 '20

Glues and glued joints. *Am Inst Arch J* 9: 61-2 F '21

Glues used in airplane parts. S. W. Allen and T. R. Truax. *il diags U S Nat Advisory Com for Aeronautics* 1919:387-408 '20

Gluing leather, canvas, etc., to loose leaf metals. E. R. Mason. *Inland Ptr* 66:181-2 N '20

Jelly strength of gelatins and glues. S. E. Sheppard, S. S. Sweet and J. W. Scott, jr. *il diag J Ind & Eng Chem* 12:1007-11 O '20

Notes on casein glue. *Chem & Met Eng* 22:304 F 18 '20

Outstanding causes of waste in the glue industry. R. H. Bogue. *Chem & Met Eng* 25: 443-4 Ag 31 '21

Properties and constitution of glues and gelatines. R. H. Bogue. *Chem & Met Eng* 23:5-12, 61-6, 105-9, 154-8, 197-203 Jl 7-Ag 4 '20

Removal of glue stains. *Chem & Met Eng* 25: 241 Ag 10 '21; Same. *Elec Ry J* 58:243 Ag 13 '21; Same. *Paper* 28:16 Ag 17 '21; Same cond. *Sci Am* 125:136 Ag 20 '21

Studies of technical casein. W. M. Clark and others. *J Ind & Eng Chem* 12:1162-73 D '20

Waterproof glue. *Automotive Ind* 41:933 N 6 '19

Glue—Continued

- Waterproof glues. H: A. Gardner. *Am Arch* 117:265-6 F 25 '20
 When to heat wood before gluing. *Ry Mech Eng* 94:525 Ag '20

See also Adhesives; Mucilage

Bibliography

- Glues used in airplane parts. S. W. Allen and T. R. Truax. U S Nat Advisory Com for Aeronautics 1919:390, 395-6 '20
 Properties and constitution of glues and gelatines. R. H. Bogue. *Chem & Met Eng* 23:201 Ag 4 '20

Manufacture

- Efforts to eliminate wastes in the glue industry. T. R. Tennant. *Chem & Met Eng* 25:443 Ag 31 '21
 Influence of the method of manufacture on the use of casein in glue making. S: Buttermann. *J Ind & Eng Chem* 12:141-4 F '20
 Manufacture and properties of fish glue. D. K. Tressler. *Chem Age* 29:173-5 My '21; Excerpts. *Sci Am M* 4:86 Jl '21
 L'organisation scientifique appliquée à une fabrique de colles animales. V: Cambon. *diag Chimie & Ind* 5:96-102 Ja '21

Testing

- Determination of the jellying power of gelatins and glues by the polariscope. C. R. Smith. *diag J Ind & Eng Chem* 12:878-81 S '20
 Determination of the tensile strength of glue. G: Hopp. *il J Ind & Eng Chem* 12:356-8 Ap '20
 Glue analysis. C: R. McKee. *Sci Am M* 3:469-70 My '21
 Glues used in airplane parts. S. W. Allen and T. R. Truax. *diags U S Nat Advisory Com for Aeronautics* 1919:401-8 '20
 Overheating reduces strength of animal glue. *Eng & Contr* 53:715 Je 23 '20
 Testing water resistant plywood glues. C. H. Teesdale and R. A. Colgan. *il diags Aviation* 7:264 O 15 '19

Glutaconates

- Experiments on the synthesis of the polyacetic acids of methane; conditions controlling synthesis by the cyanoacetic ester method. C. K. Ingold and E: A. Perren. *Chem Soc J* 119:1582-1601 O '21

Glutaconic acid

- Chemistry of the glutaconic acids; simultaneous occurrence of 1:2- and of 1:3-addition to nascent glutaconic ester. C. K. Ingold and J. F. Thorpe. *Chem Soc J* 119:492-501 Ap '21

Glutaric acids

- Conditions underlying the formation of unsaturated and of cyclic compounds from halogenated open-chain derivatives; products derived from α -halogenated glutaric acids. C. K. Ingold. *Chem Soc J* 119:305-29 Mr '21
 Formation and stability of spiro-compounds; ketones derived from open-chain and cyclic glutaric acids. G: A. R. Kon. *Chem Soc J* 119:810-30 Je '21
 Eine methode zum abbau der säuren der glutarsäure-reihe. A. Windaus and F. Klänhardt. *Deutsche Chem Gesell Ber* 54:581-7 Ap '21

Glycerides

- α -monosodium glyceroxide: its structure and application. A. Fairbourne and H. Toms. *Chem Soc J* 119:1035-40 Jl '21
 Synthese von α,β -diglyceriden und unsymmetrischen triglyceriden. M. Bergmann, E. Brand and F. Dreyer. *Deutsche Chem Gesell Ber* 54:936-65 My '21; Abstract. *Chem Soc J* 120 pt 1:444-7 Je '21
 Zur bestimmung der konstitution von glyceriden. A. Grün and F. Wittka. *Deutsche Chem Gesell Ber* 54:273-89 F '21; Abstract (Elucidation of the constitution of glycerides). *Chem Soc J* 120 pt 1:220-2 Ap '21

Glycerin

- Absorption spectra of the nitric esters of glycerol. E. Q. Adams. *Am Chem Soc J* 42:1321-7 Jl '20

- Glycerine from sugar. *Sci Am* 125A:49 N '21
 Need of a new table for specific gravity and per cent of glycerol. L. W. Bosart. *J Ind & Eng Chem* 13:944-5 O '21

Resistance of solutions of copper sulphate in glycerine. A. Gilmour. *diags Philos Mag* 6th ser 41:544-8 Mr '21

United States foreign trade in glycerine. *Chem & Met Eng* 22:225-7 F 4 '20

Utilisation de la fermentation alcoolique comme source de glycérine. K. Schweizer. *Chimie & Ind* 6:149-59 Ag '21

Glycerol. See Glycerin

Glycine

- Umwandlung von malonsäure in glykokoll und von methyl-malonsäure in α -alanin. T. Curtius and W. Sieber. *Deutsche Chem Gesell Ber* 54:1430-7 Jl '21

Glycine anhydride

- Über die kondensation von glycin-anhydrid mit aldehyden. Eine neue synthese von *d,l*-phenyl-alanin und *d,l*-tyrosin. T. Sasaki. *Deutsche Chem Gesell Ber* 54:163-8 Ja '21

Glycols

- Ethylene and propylene chlorhydrins and glycols from oil gas. B: T. Brooks. *diag Chem & Met Eng* 22:629-33 Ap 7 '20

Glycylcholine

- Aminoacylcholine esters; glycylcholine. H. W. Dudley. *Chem Soc J* 119:1256-60 Ag '21

Glyoxal

- Darstellung von glyoxal durch einwirkung von acetylen auf goldchlorid bezw. goldbromid. K. Kindler. *Deutsche Chem Gesell Ber* 54:647-9 Ap '21
 Über die einwirkung von alkalien auf glyoxal. B. Homolka. *Deutsche Chem Gesell Ber* 54:1393-6 Je '21

Glypho-cinematograph

- Motion pictures shown in relief; the glypho-cinematograph for producing stereoscopic effects. J. L. Pech. *diags Sci Am M* 3:531-2 Je '21

Gneiss

- Alkali gneiss from the pre-Cambrian of New Jersey. N. E. A. Hinds. *Am J Sci* 5th ser 1:355-64 Ap '21

Goelet, Robert

- Gardens of Robert Goelet, esq., at Glenmere, Chester, N.Y. *il plan Arch Rec* 49:272-81 Mr '21

Goff, Darius Lee, 1840-

- Darius Lee Goff's place in textile history. *Textile World* 59:2661+ Ap 23 '21

Gofio

- Gofio—a delicacy from the Canary Islands. *Sci Am M* 4:105 Ag '21

Goggles

- Goggle requirements. W. H. Wilmer and C. Berens, jr. *Aviation* 10:43-4 Ja 10 '21
 Goggles for locomotive enginemen. G. J. Soderberg. *il Safety Eng* 41:102-4 Mr '21

Gold

- Decline in United States gold and silver production. *Eng & Min J* 110:1211 D 25 '20
 Electric furnaces for silver, gold and metals of low melting point. J. Herlenius. *il Chem & Met Eng* 25:457-8 S 7 '21
 Gold and silver; 1918, 1919. *Eng & Min J* 109:109 Ja 17 '20
 Gold and silver production and movement in 1919. *Comm & Fin Chr* 110:2019-23 My 15 '20
 Gold and silver production and movement in 1920. *Comm & Fin Chr* 113:225-9 Jl 16 '21
 Gold and silver production of the world for twenty years. H. N. Lawrie. *Eng & Min J* 111:141-2 Ja 22 '21
 Gold conference of the American mining congress. *Eng & Min J* 110:1041-2 N 27 '20
 Gold; its place in the economy of mankind. B: White. (Common commodities and industries series) 131p Pitman '20
 Gold problem. F. A. Govett. *Min & Sci P* 120:830-2 Je 5 '20
 Gold production of the world. *Min & Sci P* 120:665-6 My 8 '20

Gold—Continued

- Interesting experiment; gold and mercury. Min & Sci P 120:929; 121:115-16, 226 Je 26, JI 24, Ag 14 '20
- On magnetic double refraction of gold colloids. Y. Björnsthål. diags Philos Mag 6th ser 42:352-68, pl 13 S '21
- Our lagging gold production. A. L. Dahl. il Sci Am 123:628+ D 25 '20
- Outlook for gold. Min & Sci P 123:49-50 JI 9 '21
- Price of gold. A. Moline. Min & Sci P 120:929-30 Je 26 '20; Discussion. 121:115, 617 JI 24, O 30 '20
- Production of gold and silver in the United States during the calendar year 1920. Min & Sci P 122:132 Ja 22 '21
- Record gold tribute. Eng & Min J 111:770 Ap 30 '21
- Relation of gold supply to credit presented in new light. R: H. Tingley. Annalist 17: 19-20 Ja 3 '21
- Russian gold exports. Min & Sci P 123:302 Ag 27 '21
- Russian gold shipment from Sweden. Comm & Fin Chr 112:1222-3 Mr 26 '21
- Soaps as protective colloids for colloidal gold. T: Iredale. Chem Soc J 119:625-34 My '21
- South African gold premium. Eng & Min J 112:22 JI 2 '21
- South African gold production for 1919 and 1920. Eng & Min J 111:781 My 7 '21
- U.S. gold and silver exports and imports in 1919. Comm & Fin Chr 110:309 Ja 24 '20
- Vein filling at Bendigo, Victoria. W. Lindgren. il Econ Geol 15:312-14 Je '20; Discussion. F. L. Stillwell. 16:153-9 Mr '21
- Volatilization in assaying. F: P. Dewey. Min & Met 158:(sec 31) 1-16 F '20
- World's production of gold. Min & Sci P 121:168 JI 31 '20
- See also* Assaying; Cyanide process; Gilding; Gold bonus bill; Gold dredging; Gold metallurgy; Gold milling; Gold mines and mining; Gold ores; Goldsmithing
- Coloring**
- Use of gas in connection with gilding on common china and other substances. G. C. Shadwell. Am Gas Eng J 112:439 Je 5 '20
- Taxation**
- Gold taxation question. A. D. Williams. Eng & Min J 109:640 Mr 13 '20
- Weighing**
- Discrepancies in weighing bullion. H. R. S. Wilkes. Min & Sci P 120:454 Mr 27 '20
- Gold alloys**
- Structure of gold amalgams as determined by metallographic methods. S. A. Braley and R. F. Schneider. diag Am Chem Soc J 43: 740-6 Ap '21
- Gold as money**
- Brief facts about money, with a suggestion for making it better able to perform its work. C: E. Duryea. Sci Am 124:206 Mr 12 '21
- Continuing gold stream. J: Oakwood. Annalist 17:731-2 JI 11 '21
- Decline of gold as a credit base. R: H. Tingley. Annalist 18:365+ O 17 '21
- Federal reserve gold holdings and total stock of gold. Annalist 17:285 F 28 '21
- Gold and gold coins: their valuation. I. W. Sylvester. Am Ind 20:24-5 Mr '20
- Gold premium. F. A. Govett. Min & Sci P 122:842 Je 18 '21
- Gold standard adopted by Dairen (Manchuria) produce exchange. Comm & Fin Chr 113:1199-1200 S 17 '21
- Hope that by flooding U.S. with European gold foreign exchange would be stabilized. has failed. J: Oakwood. Annalist 18:221 S 5 '21
- Melting gold coin at New York assay office. il Sci Am 123:429 O 23 '20
- Monetary reform—the fictive unit. Comm & Fin Chr 113:458 JI 30 '21
- Premium on gold. Min & Sci P 120:365-6 Mr 13 '20
- Ratio of gold to credits. R: H. Tingley. Am Ind 20:20-1 My '20
- Report of British committee on currency—recommendation that effective gold standard be restored. Comm & Fin Chr 110:1029-35 Mr 13 '20
- South American currencies. C: Evers. Annalist 18:103 Ag 1 '21
- United States and the gold standard. J: Oakwood. Annalist 17:685 Je 27 '21
- Variations in the value of gold, 1782-1921; chart. Min & Sci P 123:372 S 10 '21
- Will the gold standard be resumed? R. Estcourt. Annalist 18:81 JI 25 '21
- World-wide free market to use all gold and stabilize values. C. W. Bigelow. Annalist 17:491-2 My 2 '21
- Gold assaying**
- Cassius purple test for gold. J: Dixon. Eng & Min J 111:629-30 Ap 9 '21
- New spectroscopic test for purity of gold. il Pop Mech 36:648 N '21
- Sampling of bullion. R. R. Kahan. Min & Sci P 123:30 JI 2 '21
- Gold bonus bill**
- Administration of the McFadden bill. S. L. Willis. Eng & Min J 110:1127-9 D 11 '20
- Anent the McFadden bill. L. S. Ropes. Eng & Min J 109:1153-4 My 22 '20
- Gold bounty. Min & Sci P 120:626-7; 121:684-5 My 1, N 13 '20
- Gold miners' bonus opposed. Eng & Min J 110:81-2 JI 10 '20
- In opposition to the McFadden bill. W. deL. Benedict. Eng & Min J 110:1204-5 D 25 '20; Discussion. G: E. Collins. 111:213 Ja 29 '21
- McFadden bill. Min & Sci P 120:648-50 My 1 '20
- McFadden bill. W. deL. Benedict. Eng & Min J 111:93-4 Ja 15 '21
- McFadden bill. L: T. McFadden. Min & Sci P 121:564 O 16 '20
- McFadden gold bonus bill. Eng & Min J 110: 891-2 N 6 '20
- Opposes secretary Mellon's view on gold tax bonus. T. L. Oddie. Comm & Fin Chr 113: 1834-6 sec 1 O 29 '21; Same. Eng & Min J 112:709-11 O 29 '21
- Report of committee of American bankers' association opposing McFadden gold bonus bill. Comm & Fin Chr 111:1615-17 O 23 '20; Excerpts. Eng & Min J 110:880-1 O 30 '20
- Report of special gold committee to the secretary of the treasury. Min & Sci P 121: 705-6 N 13 '20
- Representative McFadden's answer to gold bonus report. Comm & Fin Chr 111:1617-18 O 23 '20; Excerpts. Eng & Min J 110:916 N 6 '20
- Secretary of treasury Mellon opposed to gold bonus bill. Comm & Fin Chr 113:1833-4 sec 1 O 29 '21
- Gold bromide**
- Darstellung von glyoxal durch einwirkung von acetylen auf goldchlorid bzw. goldbromid. K. Kindler. Deutsche Chem Gesell Ber 54:647-9 Ap '21
- Gold chloride**
- Darstellung von glyoxal durch einwirkung von acetylen auf goldchlorid bzw. goldbromid. K. Kindler. Deutsche Chem Gesell Ber 54:647-9 Ap '21
- Gold dredging**
- American-made gold-dredge for New Zealand. Min & Sci P 121:324 Ag 28 '20
- Bunker Hill enterprise—old diggings and modern dredging operations. T. A. Rickard. il map Min & Sci P 120:185-94 F 7 '20
- Dredge construction at Dayton, Nev. G: J. Young. il Eng & Min J 112:91-6, 374-5 JI 16, S 3 '21
- Dredging in the Klondike. Min & Sci P 122: 494 Ap 9 '21
- Drilling results and dredging returns. C: W. Gardner. Eng & Min J 112:646-9, 688-92 O 22-29 '21
- Electric dredging on the Yukon. A. E. Ransom. il Elec J 17:86-90 Mr '20
- Electric power—farthest north. A. E. Ransom. il J Elec 44:322-3 Ap 1 '20
- Gold dredging. Eng & Min J 109:1103 My 15 '20

Gold dredging—Continued

- Gold dredging—actual recoveries compared with estimates. W. H. Gardiner. *il Eng & Min J* 110:515-17 S 11 '20
- Gold dredging started at Dayton, Nev. G: J. Young. *Eng & Min J* 110:640 S 25 '20
- Largest capacity gold-mining dredge in the world. H. G. Peake. *il Eng & Min J* 109:1106-9 My 15 '20
- Placer prospecting practice. G. H. Hutton. *Min & Met* 176:15-17 Ag '21
- Placer prospecting practice. A. C. Ludlum. *Min & Met* 179:27-8 N '21
- Russian placer mining. L. A. Perret. *Min & Sci P* 122:458 Ap 2 '21; Discussion. 122:592; 123:460-2 Ap 30, O 1 '21
- Shop-operations and repairs on gold-dredges. F. A. Stanley. *il Min & Sci P* 123:569-72 O 22 '21
- Starting of a gold dredge in Nevada. *il J Elec* 45:383-4 O 15 '20
- Valuation of placer deposits. G. H. Hutton. *il Min & Sci P* 123:365-8 S 10 '21; Same cond. *Min & Met* 176:15-17 Ag '21; Discussion. *Min & Sci P* 123:529, 567-8 O 15-22 '21

Cost

- Dredge construction at Dayton, Nev. G: J. Young. *il Eng & Min J* 112:91-6 Jl 16 '21

Gold metallurgy

- Alaska Juneau mill. V. C. Clauson. flow sheet *il Min & Sci P* 122:625-34 My 7 '21
- Ancient South American milling and amalgamating practice. *il Min & Sci P* 123:474-6 O 1 '21
- Baking gold ore. *Min & Sci P* 121:89 Jl 17 '20
- Black-sand deposits of the Island of Chiloe. F. Mella. *il map Eng & Min J* 111:497-501 Mr 19 '21
- Comments on cyanidation and on progress in gold (and silver) ore treatment, 1920. A. James. *Eng & Min J* 111:102-4 Ja 15 '21
- Como Consolidated mill. F. Borzynski. flow sheet map *Min & Sci P* 120:55-6 Ja 10 '20
- Features of the electrical equipment of the Alaska Juneau gold mining company. F. S. Rice. *il Min & Sci P* 120:251-3 F 14 '20
- Influence of metallurgic methods on gold production. *Min & Sci P* 123:3-4 Jl 2 '21
- Metallurgy of gold and silver. P. A. Robbins and H: Hanson. *Eng & Min J* 109:194-7 Ja 17 '20
- Metallurgy of gold and silver in 1920. P. A. Robbins and H: Hanson. *Eng & Min J* 111:198-9 Ja 22 '21
- Milling practice at the Benguet Consolidated mine. C. M. Eye and M. F. Dodd. flow sheet *il Min & Sci P* 121:805-10, 841-6 D 4-11 '20
- Mine and mill of the Belmont Shawmut mining company—the mill. A. B. Parsons. flow sheets *Min & Sci P* 121:659-64 N 6 '20; Discussion. H: Hanson. 121:793 D 4 '20
- New Modderfontein gold mining co. mill and treatment plant at circular shaft. E. M. Weston. *il Eng & Min J* 109:255-9 Ja 24 '20
- New Modderfontein mill. *Min & Sci P* 120:789-90 My 29 '20
- Professional advice from the Bureau of mines. *Min & Sci P* 122:801-2 Je 11 '21; Discussion. H. F. Bain. 123:221-3 Ag 13 '21
- Recent metallurgical practice on the Rand. *Eng & Min J* 111:623-4 Ap 9 '21
- Recovery of gold from black sand. J: A. Davis and J: Gross. *Min & Sci P* 122:504 Ap 9 '21; Discussion. 122:668-9, 869-70; 123:224-5, 423-4, 532 My 14, Je 25, Ag 13, S 24, O 15 '21
- Recovery of gold from black sand. J: Gross. *Min & Sci P* 121:770 N 27 '20
- Re-treatment of sorted residues. *Min & Sci P* 122:22 Ja 1 '21
- Solubility of gold in cyanide solutions. A. H. White. *Chem & Met Eng* 22:183 Ja 28 '20
- Treatment of antimonial gold ore at Globe and Phoenix gold mine, Southern Rhodesia; abstract. V. E. Robinson. *Min & Met* 173:43+ My '21
- See also* Amalgamation: Crowe process; Cyanide process; Gold milling

Gold milling

- Ancient South American milling and amalgamating practice. *il Min & Sci P* 123:474-6 O 1 '21
- First underground mining mill in America. W. F. Wilcox. *il Sci Am* 121:573 D 13 '19
- La Luz and Los Angeles mine, in Nicaragua. J. Scobey. *il Eng & Min J* 110:6-13 Jl 3 '20; Discussion. V. A. Stout. 110:394-5 Ag 28 '20
- Milling plant of the Alaska-Gastineau mining co. E. V. Daveler. flow sheets *Min & Met* 157:(sec 11) 1-18 Ja '20; Same abr. *Chem & Met Eng* 22:361-6 F 25 '20
- Gold mines and mining**
- Ebb tide in gold mining; addresses made at Denver meeting of the American mining congress, November 15-20, 1920. *Eng & Min J* 110:1165-70 D 18 '20
- Prospecting. *Min & Sci P* 122:742-3 My 28 '21
- Status of the metal mining industry: an interrogatory. *Min & Sci P* 123:508-12 O 8 '21
- Trouble shooting in gold and silver mining. B. B. Beckett. *diags J Elec* 46:289-91 Mr 15 '21

See also Gold dredging; *also* Consolidated gold fields of South Africa, limited

Alaska

- Lode developments in the Willow Creek district. T. Chapin. *U S Geol S Bul* 714:201-6, pl 6 '21
- Lode mining in the Juneau and Ketchikan districts. J. B. Mertie, jr. map *U S Geol S Bul* 714:105-28 '21
- Porcupine gold placer district, Alaska. H: M. Eakin. *il maps U S Geol S Bul* 699:1-29 '19

Arizona

- Dardanelles mine at Chloride, opened rapidly. *il map Eng & Min J* 111:999-1000 Je 11 '21
- Katherine-Union pass district in Arizona. S. F. Eaton. *il map Eng & Min J* 111:1039-41 Je 18 '21
- Resuscitation of the Octave gold mine. J. N. Nevius. *Min & Sci P* 123:122-4 Jl 23 '21
- Vulture mine. W. S. Hutchinson. *il diags Eng & Min J* 111:298-302 F 12 '21

Brazil

- Deepest mine in the world, Morro Velho in Brazil. *diag plan Min & Sci P* 121:477-8 O 2 '20

British Columbia

- Cement gravel gold mine in British Columbia. D. D. Frazer. *il Eng & Min J* 111:548 Mr 26 '21
- Early days in the Cariboo. R. Dunn. *il Eng & Min J* 109:265-9 Ja 24 '20
- Similkameen district of British Columbia. C. M. Campbell. *il map Eng & Min J* 111:702-5 Ap 23 '21
- Work in the Cariboo hampered by Placer mining act. D. D. Fraser. *Eng & Min J* 109:670-1 Mr 13 '20

British Guiana

- Gold mining in British Guiana. *il map Eng & Min J* 110:611-14 S 25 '20
- Gold mining in Venezuela and British Guiana. K. Thomas. *Eng & Min J* 110:1088 D 4 '20

California

- Gold mining in California. C. H. Fry. *Eng & Min J* 111:13 Ja 1 '21
- Gold mining in California. G: J. Young. *il diag Eng & Min J* 109:439-45 F 14 '20
- Mining on the Mother Lode of California. A. E. Rau Roesler. *il Min & Sci P* 122:807-9 Je 11 '21
- Poor zones and enrichments. M. W. von Bernewitz. *Min & Sci P* 122:6 Ja 1 '21
- Re-opening of the Plymouth mine and the results. W. J. Loring. *Min & Sci P* 121:771-2 N 27 '20

Colorado

- First underground mining mill in America. W. F. Wilcox. *il Sci Am* 121:573 D 13 '19

Gold mines and mining--Continued

Georgia

Gold in McDuffie county. P. T. Bruhl. Eng & Min J 110:265 Ag 7 '20

Idaho

Mining experiences in Idaho in the nineties. G. L. Sheldon. Eng & Min J 110:1212-14 D 25 '20

India

Gold mines of India in 1920. W. A. Doman. Eng & Min J 111:194-5 Ja 22 '21

Gold production of India. Eng & Min J 110:943 N 13 '20

Romance of gold mining in the Mysore state. E. W. T. Slater. il Eng & Min J 110:302-5 Ag 14 '20

Indiana

Placer gold in Indiana. C. Hafer. Eng & Min J 111:1023 Je 18 '21

Kongo, Belgian

Gold mining at Kilo, in the Belgian Congo. map Min & Sci P 122:606 Ap 30 '21

Lower California

Hunting the lost mines of Lower California. F. B. Howe. il Pop Mech 36:225-7 Ag '21

Nevada

Starting of a gold dredge in Nevada. il J Elec 45:383-4 O 15 '20

New Zealand

Hydraulic gold mining in New Zealand. il Pop Mech 36:75-6 Jl '21

Nicaragua

La Luz and Los Angeles mine, in Nicaragua. J. Scobey. il Eng & Min J 110:6-13 Jl 3 '20; Discussion. V. A. Stout. 110:394-5 Ag 28 '20

New mining fields in eastern Nicaragua. L. Garbrecht. il map Eng & Min J 109:791-7 Ap 3 '20

Piz Piz gold district. R. Hawxhurst, jr. il Min & Sci P 122:353-60 Mr 12 '21

Ontario

Gold and silver production of Ontario. Min & Sci P 121:664 N 6 '20

Record gold production in Ontario for year 1920. Annalist 17:444 Ap 18 '21

Oregon

Boswell mine, in southwestern Oregon. H. M. Parks. il Eng & Min J 112:107-8 Jl 16 '21

Sylvanite gold mine in southern Oregon. A. E. Kellogg. il Eng & Min J 112:548-9 O 1 '21

Russia

Russian placer mining. L. A. Perret. il Min & Sci P 122:391-5, 415-18, 449-50, 457-60 Mr 19-Ap 2 '21; Discussion. 122:592, 671-2, 806, 834; 123:389-91, 460-2 Ap 30, My 14, Je 11-18, S 17, O 1 '21

Siberia

See also Gold mines and mining--Russia

South Africa

New Modderfontein gold mining co. mill and treatment plant at circular shaft. E. M. Weston. il Eng & Min J 109:255-9 Ja 24 '20

Southern states

Gold deposits of the southern Appalachians. J. Frame. Eng & Min J 111:4 Ja 1 '21

Gold mining in the southern states. H. A. Megraw. il Eng & Min J 110:938-40 N 13 '20

Tibet

Gold-digging ants. W. H. Shockley. Min & Sci P 122:705-6 My 21 '21

Transvaal

Belt-conveyors on the gold mines of the Witwatersrand. H. D. Grumbley. il Min & Sci P 122:313-14 F 26 '21

Conditions on the Rand. E. M. Weston. Eng & Min J 109:612 Mr 6 '20

Early days on the Rand. J. E. Clennell. il Min & Sci P 121:51-4 Jl 10 '20

Rand mining industry. A. C. Key. Eng & Min J 109:1024-6 My 1 '20

Rand ore reserves. A. C. Key. diag Eng & Min J 108:723-5 N 1 '19

Rand results in 1920. A. C. Key. Eng & Min J 111:663-5 Ap 16 '21

Transvaal mining in 1919. H. F. Marriot. Eng & Min J 109:186-8 Ja 17 '20

United States

Gold and silver in 1918. J. P. Dunlop. U S Geol S Min Res of U S 1918, pt 1:727-81 '20

Our lagging gold production. A. L. Dahl. il Sci Am 123:628+ D 25 '20

See also Gold bonus bill

Venezuela

Gold mining in Venezuela and British Guiana. K. Thomas. Eng & Min J 110:1088 D 4 '20

Virginia

Virginia gold belt. M. Haney. il Eng & Min J 110:264 Ag 7 '20

Yukon

Electric dredging on the Yukon. A. E. Ransom. il Elec J 17:86-90 Mr '20

Gold ores

Geology of the gold occurrences of Victoria, Australia. N. R. Junner. il diags Econ Geol 16:79-123 Mr '21

Limestone ores of Manhattan, Nevada. H. G. Ferguson. diags maps Econ Geol 16:1-36 Ja '21

Gold plating

Gold plating; a tabulation showing the time required to deposit a given thickness of gold with different values of current densities. W. G. Knox. Metal Ind 19:236-9 Je '21

Green gold. C. H. Proctor. diag Metal Ind 19:359 S '21

See also Gilding

Goldmark, Pauline

Woman manager's excellent record. por Ry R 66:493 Mr 20 '20

Goldsmithing

Gold and silversmith's art. Brass W 17:115-16 Ap '21

Working with gold in a jewelry factory. O. Hillman. Brass W 17:119-20, 183-4 My, Jl '21

See also Gilding; Jewelry; Metal coloring

Golf

Golf machine. il Sci Am 125:217 S 24 '21

Golf bags

Golf without a caddy. E. A. Sperry. il Sci Am 123:473+ N 6 '20

Golf balls

Evolution of the golf ball. T. C. Turner. il Sci Am M 3:434-6 My '21

Golf ball manufacture. il diags India Rubber W 65:21-3 O '21

Golf-links

Engineering features of a golf club. P. E. Green. Munic Eng 58:136+ Mr '20

Lighting

Easy hot weather business; gas lighted tennis and golf courts. C. W. Pierson. plans Gas Age 46:123-4 Ag 10 '20

Gompers, Samuel

Samuel Gompers re-elected president of the American federation of labor. Comm & Fin Chr 113:31-2 Jl 2 '21

Good Ground, Long Island

St Mary's Episcopal church, Good Ground, L.I. L. V. Solon. il plan Arch Rec 49:225-31 Mr '21

Good will (in business)

Capitalization of goodwill. K. Simpson. 105p Johns Hopkins press, Baltimore '21

Corporation stockholder a barrier against public prejudice. I. K. Friedman. Ptr Ink 111:57-9 My 20 '20

- Good will (in business)**
 Good-will in the balance sheet. *Ptr Ink* 115:77-8+ *Je* 9 '21
 Jeweler pays for advertising lost articles. E. Sherwood. *Ptr Ink* 111:137+ *My* 20 '20
 Keeping legal tangles out of the factory. L. Childs. *Factory* 25:1158+ *O* 1 '20
 Making of goodwill. T. C. Elder. *Electrician* 85:354 *S* 24 '20
 Sale of business and good-will. C. C. Sherlock. *Mach* 26:532-3 *F* '20
 Some considerations involved in the valuation of goodwill. H. C. Freeman. *J Account* 32:247-64 *O* '21
 What chance has the small producer? R. W. Johnson. *Ptr Ink* 110:33-6 *F* 12 '20
See also Advertising, Educational; Advertising, Institutional; Public utilities—Advertising; Publicity; *also* the subdivision Public relations under Electric railroads, Gas companies and other public utilities
- Goodale, Charles Warren, 1854-**
 Mining engineers of note. *por Eng & Min J* 111:868 *My* 21 '21
- Goodyear, Charles**
 Nominated for the Hall of Fame. *por India Rubber W* 61:339-40 *Mr* '20
- Goodyear industrial university**
 Goodyear company's industrial university. *il Textile World* 58:523+ *Jl* 24 '20
 Goodyear industrial university. R. C. Busbey. *il India Rubber W* 62:574-5 *Je* '20
- Goodyear tire & rubber company, Akron, Ohio**
 Bankers name new Goodyear head. *Automotive Ind* 44:1077+ *My* 19 '21
 Goodyear three-shift system. *il Textile World* 57:939-40+ *F* 7 '20
 History of the Goodyear company. *il India Rubber W* 64:510-12 *Ap* '21
 Programs of apprenticeship and special training in representative corporations. J. V. L. Morris. *il Am Mach* 54:505-7 *Mr* 24 '21
- Goodyear tire & rubber company of Canada, limited**
 Official statement July 18—tentative balance sheet. *Comm & Fin Chr* 113:1465-6 *O* 1 '21
- Gordon Bennett cup**
 America's bid for the Gordon Bennett cup. A. C. Lescarbours. *il Sci Am* 123:253+ *S* 11 '20
- Gouy thermoregulator**
 Some characteristics of the Gouy thermoregulator. T. S. Sligh, jr. *diag Am Chem Soc J* 42:60-8 *Ja* '20
- Government accounting**
 Principles of government accounting and reporting. F. Oakey. 561p Appleton '21
See also Municipal accounting
- Government advertising**
 Business-paper advertising selling government surplus. *Ptr Ink* 110:45+ *Ja* 8 '20
 Government advertises to change nation's flour consumption habits. *Ptr Ink* 110:136+ *F* 12 '20
 How advertising is moving war department's surplus stock. *Ptr Ink* 113:120+ *N* 4 '20
 How war surplus was marketed. E. C. Boehringer. *Iron Tr R* 68:898-900 *Mr* 31 '21
 Ontario advertises to make department of agriculture benefit farmers. J. T. Bartlett. *Ptr Ink* 110:116+ *Mr* 11 '20
 Wanted: a federal advertising bureau to influence public opinion. R. S. Durstine. *Ptr Ink* 113:85-6+ *D* 9 '20
See also Municipal advertising
- Government boat lines.** *See* Boat lines, Government
- Government bonds.** *See* Bonds, Government; Municipal bonds
- Government bureaus**
See also Professional service
- Government employees**
 Bill places premium on theft of ideas by government employes. *Nat Pet N* 12:33-4 *D* 15 '20
- Creating an asset; law authorizing Federal trade commission to accept and administer assignment of patents. A. Stewart. *Sci Am* 122:394 *Ap* 10 '20
 Federal engineers classified as to duties and pay. *Eng N* 84:780-1 *Ap* 15 '20
 Federal personnel policy. W. E. Mosher. *Monthly Labor R* 11:11-25 *Jl* '20
 Mutual relief associations among government employees in Washington, D.C. V. B. Turner. *U S Bur Labor Statistics Bul* 282:1-38 '21
 Proposed new departures in government chemical work. *J Ind & Eng Chem* 12:1126-7 *N* '20
 Report on reclassification of government employees. *Monthly Labor R* 10:935-8 *Ap* '20
 Shall the government patent and develop the inventions of its employees? *Chem & Met Eng* 23:809-10 *O* 27 '20
 Strikes of Italian government employees. A. Maylander, comp. *Monthly Labor R* 10:1278-89 *My* '20
 Unrest among government employees in Italy. *Monthly Labor R* 13:505-7 *S* '21
 What shall the government do with its employees' inventions? C. L. Alsberg; F. G. Cottrell. *Chem & Met Eng* 23:817-21 *O* 27 '20
See also Arsenals—Employees; Civil service pensions; Municipal employees
- Salaries**
- Classification and salaries for chemists. R. S. McBride. *chart Chem & Met Eng* 22:689-92 *Ap* 14 '20
 Engineering profession and government technology. R. S. McBride. *Chem & Met Eng* 23:1265-7 *D* 29 '20
 Government's wage policy during the last quarter century. M. Conyngton. *charts Monthly Labor R* 10:1325-41 *Je* '20
 Scientists in government employ. S. E. Doane. *Illum Eng Soc* 15:498-503 *no* 8 '20
 Separations from the government service. M. Conyngton. *Monthly Labor R* 11:1131-44 *D* '20
 Wages of civilian employees in the navy reduced. *Comm & Fin Chr* 113:1211-12 *S* 17 '21
- Government expenditures.** *See* United States—Appropriations and expenditures
- Government fuel yard**
 Government fuel yard delivers coal to 725 points, using 275,000 tons annually. G. S. Pope. *Coal Age* 18:908-10 *O* 28 '20
 Maintenance and operation of government fuel yard. *il Power* 52:427-8 *S* 14 '20
 Plan central agency to purchase all government coal; head of Bureau of mines supports project. *Coal Age* 19:194 *Ja* 27 '21
- Government libraries.** *See* Libraries, Government
- Government ownership**
 Economic problems that soviet Russia has not solved. L. Pasvolsky. *Annalist* 17:326 *Mr* 14 '21
 Indiana considers purchase and operation of coal mine. *Coal Age* 18:122 *Jl* 15 '20
 Industrial socialization in Germany. *Elec Ry J* 57:213 *Ja* 29 '21
 Public ownership and operation criticised by commissioners; report. *Elec W* 76:1028-9 *N* 20 '20; Same. *Ry R* 67:816-17 *N* 27 '20
 Public ownership of public service companies. W. R. Creed. *Elec W* 78:29-30 *Jl* 2 '21
 Shall the state own and operate its own Portland cement plant? H. E. Hiltz. *Pub Roads* 3:3-16 *Ja* '21; Same. *Concrete* 18:190-9 *Ap* '21
 Should the state own and operate a plant for the manufacture of Portland cement? J. C. Nagle. *Good Roads n s* 20:92, 94-5 *Ag* 25 '20
 South Dakota to operate huge cement plant. *il Pop Mech* 34:698 *N* '20

Government ownership—Continued

State in business. A. E. Davies. New ed. 267p
G. Bell & sons, ltd., London '20

See also Cement plants—Government ownership; Government regulation of industry; Mines and mineral resources—Government ownership; Municipal ownership; Plumb plan; Public utilities; Railroads and state

Government publications

Government maps. E. B. Matthews. Sci Am M 1:369-70 Ap '20

Suggestion for making our scientific publications more useful and our post-offices a center of information. H. F. Cleland. Special Lib 12:33-4 F '21

Bibliography

Government services department. C. Carmody. Special Lib 12:88+, 109-10, 134-5 Ap-Je '21

Government regulation of industry

Building a political platform for industry. J. A. Emery. Am Ind 20:36-8 Jl '20

For the freedom of business. C. Dawson. Nation's Business 9:13-14 Mr '21

Government and industry. C. D. Burns. 315p G. Allen & Unwin, London '21

Government control and operation of industry in Great Britain and the United States during the world war. C. W. Baker. (no. 18) 138p bibliog pa Carnegie endowment for international peace, Washington, D.C.; cl ed Oxford university press '21

How shall the world's biggest trust be dissolved? M. C. Elliott. Coal Age 18:70-1 Jl 8 '20

Original functions of government. C. S. Keith. Am Lumberman 2345:74-7 Ap 24 '20

Platform for American industry. A. L. Humphrey. Am Ind 20:8-12 Je '20

State control of industry. Comm & Fin Chr 112:197-8 Ja 15 '21

See also Commercial policy; Electric railroads and state; Electric utilities—Regulation; Federal trade commission; Gas companies—Regulation; Government ownership; Interstate commerce commission; Labor laws; Municipal ownership; Packing industry—Regulation; Price fixing, Government; Priorities, Industrial; Public utilities—Regulation; Public utilities commissions; Railroads—Rates; Railroads and state; Trusts, Industrial; United States—Sugar equalization board; Waterworks—Laws and regulations

Government research

Economic importance of the scientific work of the government; abstracts. E. B. Rosa. Monthly Labor R 11:44-50 Jl '20; N E L A Bul 7:786-92 N '20; Soc Auto Eng J 8:69 Ja '21

Much useful automotive research in progress at Bureau of standards. H. Chase. diags Automotive Ind 44:750-5 Ap 7 '21

Research activities of departments of the state government of California in relation to the movement for reorganization. J. R. Douglas. Nat Research Council Bul 2 pt 5:289-334 Je '21

Scientific and engineering work of the government. E. B. Rosa. Mech Eng 43:111-18 F '21; Excerpts. Eng & Contr 55:487-90 My 18 '21

See also Libraries, Government

Governmental labor officials of the United States and Canada, Association of. *See* Association of governmental labor officials of the United States and Canada

Governors, Gas. *See* Gas governors

Governors (machinery)

Adjusting shaft governors. diags Power 54:641-7 O 25 '21

Analysis of truck and tractor engine governors. F. C. Ziesenheim. il diags Automotive Ind 43:1010-15 N 18 '20

Characteristics of shaft governors. C. Myers. diags Power 51:845-6 My 25 '20

Clock-pendulum precision speed limit; device for the control of steam engines. diags Power 51:890 Je 1 '20

Emergency governor and gear for marine turbine. diags Engineering 110:344-5 S 10 '20

Emergency governor with hoist recorder gives data on safety and efficiency. G. F. Royer. il chart Coal Age 18:1079-84 N 25 '20

Equipment used afloat, ashore; Ramsay anticipating marine governor for preventing racing of engine. il Marine R 50:618-19 N '20

Governor adjustment for efficient parallel operation. F. Oppenheimer. il Elec W 76:239-40 Jl 31 '20

How to make a simple gas-engine governor. H. H. Parker. diags Power 52:713 N 2 '20

Jones spur-gear speed reducers. il Power 52:670 O 26 '20

Pneumatic governor. diags Power Pl Eng 25:741-2 Jl 15 '21

Les régulateurs et les soupapes des turbines Curtis de petite puissance. diags Génie Civil 77:278-9 O 2 '20

Regulating hydro-electric prime movers. C. F. Mosher. Elec W 76:280-1 Ag 7 '20

Ridgway mixed-pressure turbine governor. il diags Power 54:106-8 Jl 19 '21

Speed governor for traveling grates. diags Mech Eng 43:743-4 N '21

Stabilized governing; for auto-truck radio plants. O. C. Roos. il diag Sci Am M 2:141-4 O '20

Steam-turbine governors—governors of 75- to 3,000-kw. Curtis turbines. C. H. Bromley. il diags Power 51:414-19 Mr 16 '20; Abstract. Génie Civil 77:113-14 Ag 7 '20

Steam-turbine governors—governors of small Westinghouse turbines. il diags Power 51:135-7 Ja 27 '20

Steam-turbine governors; shaft governors of small Curtis turbines. il diags Power 51:328-9 Mr 2 '20

Steam-turbine governors—shaft governors of Terry turbines. il diags Power 51:254-6 F 17 '20

Steam-turbine governors—small shaft governors. il diags Power 51:21-3 Ja 6 '20

Varispeed tractor and truck engine governor. diag Automotive Ind 43:827 O 21 '20

Westinghouse marine turbine governor. il diags Power 50:766-7 N 25 '19; Génie Civil 77:98-9 Jl 31 '20

See also Gas governors

Grab buckets. *See* Buckets

Grade crossing accidents

Get the safety habit. Ry Age 71:344 Ag 20 '21

Grade crossing accidents. Ry Age 68:1549-50 Je 4 '20

Railroad advertises dangers of grade crossings. Ptr Ink 114:85-6 F 10 '21

Securing observance of safety laws. J. A. Van Osdol. Elec Ry J 56:715-16 O 9 '20

See also Electric railroads—Accidents

Grade crossing elimination

Railroad grade crossing elimination. S. T. Wagner. diags Can Eng 39:284-6 Ag 26 '20; Same abr. Eng & Contr 54:253-4 S 15 '20

See also Railroads—Track elevation

Grade crossings

A G A grade crossing signal. il Ry R 66:435 Mr 13 '20

Construction and maintenance of grade crossings on Pacific Electric. C. A. Elliott. il Elec Ry J 55:995-8 My 15 '20

Construction of street, highway and farm crossings. Ry R 67:561-3 O 9 '20

Crossing regulations for electric cars laid down. Elec Ry J 57:106 Ja 8 '21

Crossing signal that ought to work. E. P. Du Pont. Sci Am 124:7 Ja 1 '21

Danger! il Sci Am 122:135 F 7 '20

Eliminating the planked railway highway crossings. E. R. Mundorff. diags Sci Am 125:265 O 15 '21

Methods and costs of constructing public crossings at railroad grade. Eng & Contr 54:397-8 O 20 '20

Grade crossings—Continued

- Protection of grade highway crossings with railroads. H. McDonald. diags Ry R 68:15-17 Ja 1 '21; Excerpts. Ry Age 69:1162-3 D 31 '20; Eng & Contr 55:65-6 Ja 19 '21; Eng N 86:256 F 10 '21; Can Eng 40:382 Ap 14 '21
- Protection of highway crossings. C. Adler. jr. Ry Age 71:524 S 17 '21
- Railroad crossings and crossing signs. R. S. Messenger. Elec Ry J 58:744-5 O 22 '21
- Steel plate highway crossing. il plan Eng & Contr 55:403 Ap 20 '21
- Substitutes for planked highway crossings. diags plan Eng & Contr 54:266-7 S 15 '20
- Types of paved railroad crossings on Wayne county, Mich., highways. E. N. Hines. Munic Eng 60:234-5 Je '21
- Yielding barrier protection for bridges and railroad crossings. il Eng & Contr 56:401 O 26 '21

See also Grade crossing elimination; Railroads—Track; Railroads—Track elevation

Grade indicator

- Home-made grade indicator. C. R. Harte. il Elec Ry J 54:933 N 15 '19; Same. Eng & Contr 53:73 Ja 21 '20

Grade marks

- Grade-mark may also serve as a trade-mark. Ptr Ink 112:141-2 S 16 '20

Grading (earthwork)

- Grading 15 miles of highway. Pub Works 49:286-7 S 25 '20
- Hints for road grading. R. Hopkins. Eng & Contr 53:406 Ap 7 '20
- Rental rates for grading contractors equipment; table. F. J. Herlihy. Eng & Contr 53:180 F 18 '20
- Road grading methods and costs in Nebraska. G. E. Johnson. il Eng N 86:251-3 F 10 '21
- See also* Railroads—Grades; Roads—Grades

Cost

- Analysis of railroad grading develops trend curves. Ry Age 70:195-8 Ja 14 '21; Abstract. Eng & Contr 55:396 Ap 20 '21
- Expressing railway grading costs by trend curves. L. A. von Rosenberg. map Ry Age 71:623-5 O 1 '21; Same cond. Eng & Contr 56:455-6 N 16 '21
- Study of the costs of grading with elevating grader and wagons. il Eng & Contr 55:53-5 Ja 19 '21
- Grading of labor. *See* Employees—Rating; Labor grading

Graduating

- Graduating a micrometer to tenths of a thousandth. G. Youngquist. diags Mach 27:886 My '21

- Graduating range finder sights. I. B. Rich. il Am Mach 52:1097-8 My 20 '20

Graffito decoration

- Structural service department; scraffito. S. W. Jones and L. E. Kern. Am Inst Arch J 9:61 F '21

Grafting

- Grafting and evolution. L. Daniel. il Sci Am M 4:115-17 Ag '21

Grafting (surgery)

- Human grafting. M. Tevis. il Sci Am M 1:307-10 Ap '20

- Modern elixir of life; experiments in the rejuvenation of aged animals by the grafting of special organs. D. McClure. il Sci Am M 2:202-4 N '20

See also Bone grafting

Grain

- Indicateur automatique de la teneur en humidité dans les céréales. M. Chopin. diags Génie Civil 77:440-1 N 27 '20

- Moisture content of cereals. O. A. Nelson and G. A. Hulett. diags J Ind & Eng Chem 12:40-5 Ja '20

- Search for cereals. H. E. Howe. Sci Am M 1:553-4 Je '20

See also Barley; Corn; Rye; Wheat

Diseases and pests

- Air tight storage and dry heat, new pest controls. Sci Am 125:22 Jl 9 '21

Grading

- Speeding up the grading of grain. Sci Am 123:381 O 9 '20

Marketing

- National sales agency proposed for marketing grain. Comm & Fin Chr 112:1099 Mr 19 '21

Testing

- Man behind our daily bread. R. H. Moulton. il Sci Am 123:66+ Jl 17 '20

Transportation

- Commission reduces western grain rates. Ry Age 71:833-6 O 29 '21
- Grain rate cut, while possibly illegal, likely to stand—estimated annual loss to railroads—previous rate cuts. Comm & Fin Chr 113:1848 sec 1 O 29 '21
- Grain rate hearings are concluded. Ry Age 71:491-3 S 10 '21
- Hearings on western grain and hay rates. Ry Age 71:449-50 S 3 '21
- Important grain rate decision. Ry Age 71:810-11 O 29 '21
- Inter-state rates on grain, grain products, and hay, in West declared unreasonable. Comm & Fin Chr 113:1845-8 sec 1 O 29 '21
- Losses to Union Pacific Rr. which would result from reduced rates on grain. Comm & Fin Chr 113:1012-13 S 3 '21
- Rates on hay and grain to be reduced. Ry R 69:568-70 O 29 '21

Grain binders

- Aids for the binder working in wet soil. T. A. Leadley. il Pop Mech 34:290-1 Ag '20

Grain bins, Concrete

- Loading test of 18-ft. circular concrete grain bin. P. J. Hansen. diags Eng N 84:316-17 F 12 '20

Grain cars

- Canadian Pacific hopper bottom box cars. il Ry Mech Eng 94:785-6 D '20; Ry R 67:869-70 D 4 '20
- Canvas car lining protects grain shipment. il Pop Mech 35:27 Ja '21
- Coopering cars for grain. E. F. Ford. Ry Age 71:284 Ag 13 '21
- New grain unloader saves time at elevators. il Ry Age 66:93-4 Jl 16 '20
- Self-clearing hopper car built exclusively for grain service. il Ry Mech Eng 94:209 Ap '20; Same. Ry Age 68:1149-50 Ap 9 '20

See also Grain doors

Grain doors

- Cost of maintaining grain doors. Ry Age 68:1082 Ap 2 '20
- Freight car grain doors. Ry R 68:717-18 My 7 '21

Grain dust

- Dust explosions. D. J. Price. W Soc E J 26:sup99-104 My '21

Grain elevators

- Bulk handling of grain in California. C. W. Geiger. il diag Ry R 69:205-8 Ag 13 '21
- Concrete elevator construction by the slip form method. C. R. Connaghan. il Concrete 17:196-7 D '20
- Double concrete walls used in construction of Ohio grain elevator. il Am Arch 117:569-70 My 5 '20
- Dust explosion at large Chicago grain elevator. il plan Eng N 86:560-2 Mr 31 '21; Ry R 68:494-5 Mr 26 '21; Ry Age 70:847-8 Ap 1 '21; Concrete 18:217-18 My '21; Pop Mech 35:662-3 My '21; Engineer 131:624 Je 10 '21
- Elevator system and grain production. J. Whitaker. diags Electrician 86:30-1 D 31 '20
- First modern grain elevator in Australia. il diags plans Eng N 85:114-18 Jl 15 '20
- Foundation troubles of Portland City grain elevator. il diags plan Eng N 84:176-9 Ja 22 '20

Grain elevators—Continued

- Grain elevators in Australia. *il* Engineer 131:649 Je 17 '21
- Havoc wrought by dust explosions. *il* Am Mach 54:624f Ap 7 '21
- Improved grain elevator for export service; Pennsylvania's new plant at Baltimore, Md. *il* diag map plan Ry Age 69:9-13 Jl 2 '20
- Municipal grain and freight port terminal at Portland, Ore. W. P. Hardesty. *il* diag map plan Eng N 84:179-82 Ja 22 '20
- Need for barge canal grain elevators and terminals. *Sci Am* 122:240 Mr 6 '20
- New device simplifies elevator practice. *il* Pop Mech 36:693 N '21
- New Orleans public elevator. R. H. Moulton. *il* Pop Mech 33:203-4 F '20
- New York state engineer completes plans for grain elevator. F. M. Williams. *Comm & Fin Chr* 111:1429 O 9 '20
- Portland, Ore., improves harbor with giant elevators. *il* Pop Mech 34:741 N '20
- Relation of plant design to dust explosions. D. J. Price and H. H. Brown. *il* Can Eng 40:247-51 F 24 '21
- Settling foundations of the municipal elevator at Portland, Oregon. *Pub Works* 48:240 Mr 27 '20
- Well designed elevators offer good field for concrete contractors. A. J. R. Curtis. *il* map Concrete 18:268-71 Je '21
- Consult the Agricultural Index for additional material

Cost

- Extensive grain elevator program for South Africa. *il* Can Eng 39:240 Ag 12 '20

Grain handling

- Bulk handling of grain in California. C. W. Geiger. *il* diag Ry R 69:205-8 Ag 13 '21
- Electrically operated grain car unloaders. R. T. Kintzing. *il* Elec J 18:301-4 Jl '21
- Floating pneumatic grain discharging plant. *il* diag plan Engineer 131:381-4 Ap 8 '21
- Floating pneumatic grain elevator at Avonmouth dock. G. F. Zimmer. *il* diag Eng & Ind Management 6:221-5 Ag 25 '21
- Grain in wrecked elevator pneumatically salvaged. *il* Pop Mech 36:374-5 S '21
- Improved grain elevator for export service; Pennsylvania's new plant at Baltimore, Md. *il* diag map Ry Age 69:9-13 Jl 2 '20
- Northern Central Canton granary, Baltimore. E. H. Kidder. *il* Eng & Ind Management 5:147-20 Ap 7 '21
- Pneumatic grain-discharging and sack-handling plant at Bordeaux. *il* diag Engineering 112:312-14, 316, 370-1, pl 15, 20 Ag 26, S 9 '21
- Pneumatic grain transport plants. W. Cramp. *il* diag Eng & Ind Management 5:641-7 Je 2 '21
- Pneumatic intake plant for road or water borne grain. M. Jennings. *il* diag Electrician 86:26-9 D 31 '20
- Preparing for foreign trade; grain elevator and pier at Portland, Ore. W. C. Heston. *il* J Elec 46:8-9 Ja 1 '21
- Rapid tilting cradle unloader for box cars. *il* Ry Age 70:999-1000 Ap 22 '21
- Salvaging grain by suction. *il* Sci Am 125:161 S 3 '21
- Sucking the cargo out of a ship. *il* Sci Am 125:131 Ag 20 '21
- Tilting grain cars in all directions to empty them. J. A. Ford. *il* Sci Am 124:361+ My 7 '21

Grain storage

- Air tight storage and dry heat, new pest controls. *Sci Am* 125:22 Jl 9 '21
- Portable grain storage tanks of metal. *il* Sci Am 124:209 Mr 12 '21

See also Grain bins, Concrete; Grain elevators; Granaries

Grain trade

- British corn trade; from the earliest times to the present day. A. Barker. (Common commodities and industries series) 132p Pitman '20

- Farm reserves of cereals. *Comm & Fin Chr* 112:976-7 Mr 12 '21

- Grain trade's gyroscope; Chicago's board of trade acts as a great stabilizer for the world's supply of bread. R. H. Moulton. *Nation's Business* 8:43+ S '20
- National marketing commission favored by Hoover. *Comm & Fin Chr* 112:426-7 Ja 29 '21

- Report of the Federal trade commission on the grain trade. *U S Fed Tr Comm* vol 5 347p S 15 '20

See also Wheat trade; also Chicago board of trade; Northwest wheat growers, associated; United States grain growers, inc.

Consult the Agricultural Index for additional material

Laws and regulations

- Text of grain futures bill as signed by President Harding. *Comm & Fin Chr* 113:1531-4 O 8 '21

Tables and ready-reckoners

- Rapid grain calculator for wheat, clover seed, oats, rye, shelled corn and barley. J. Cation. 39p J. Cation, Knoxville, Ill. '20

Grains

- Bubbles, drops and grains. W. D. Bancroft. *Sci Am M* 1:366-9 Ap '20

Granaries

- Cribs and granaries—modern farm elevators. *il* diag plan Concrete 18:175-80 Ap '21
- Granby consolidated mining, smelting and power company
- Granby consolidated company's colliery, Cassidy, B. C. R. R. Wilson. *il* Coal Age 17:300-4 F 12 '20
- Hydraulic equipment of Granby mine. C. H. Tallant. *il* J Elec 45:275-7 S 15 '20
- Grand Canyon of the Colorado
- Bridge across Colorado in Grand Canyon completed. *il* Eng N 87:312-13 Ag 25 '21
- Bridge across the Colorado in Grand Canyon. *il* diag plans Eng N 86:254-6 F 10 '21
- Flight through the Grand Canyon of the Colorado. *Aviation* 11:255 Ag '21
- Granite Gorge bridge across the Colorado. *il* Sci Am 125:203+ S 17 '21
- Suspension bridge across Grand Cañon makes all parts of park accessible. *il* Pop Mech 36:20-1 Jl '21
- Grand Central terminal, New York. See New York (city)—Railroads
- Grand Rapids, Michigan

Sanitary affairs

- Sewage-treatment testing station at Grand Rapids. *il* Eng N 86:459-61 Mr 17 '21

Grand Trunk railway

- Railways have passed their worst difficulties; amalgamation of G.T.R. and Canadian National simplifies problems. G. W. Austen. *Can Eng* 39:655-6 D 30 '20
- Report for fiscal year ending Dec. 31 1920. *Comm & Fin Chr* 113:1568-9 O 8 '21
- Result of twelve year's heavy haulage on the single-phase electrification of the Grand Trunk railway system. R. L. Hermann. *Elec J* 17:480-2 O '20

Granite

- Record block of granite quarried. *il* Pop Mech 36:243 Ag '21

Granite blocks

- Laboratory tests of granite paving block and suggested specification. F. H. Jackson. *il* Eng & Contr 53:234-7 Mr 3 '20

Granite pavements. See Pavements, Granite**Grape seed**

- Grape seeds yield good oil for cooking and salads. *Pop Mech* 33:32 Ja '20

Grape-seed oil

- Grape-seed oil. F. Rabak. *J Ind & Eng Chem* 13:919-21 O '21

- Grape seed oils. E. Klinger. *Sci Am M* 4:317 O '21

Grape sugar. See Dextrose**Grapelade**

- Baby product succeeds on elder brother's reputation. *Ptr Ink* 111:57-8+ Ap 1 '20

Grapes

Government worried over future of the grape grower. C. H. Claudy. *Ptr Ink* 110:129+ Ja 22 '20

Produits vinicoles et exportation. L. Mathieu. *Chimie & Ind* 3:253-61 F '20

Utilisation rationnelle des produits de la vigne dans L'Afrique du Nord. G. Ray. *Chimie & Ind* 4:543-50 O '20

What about our wine grapes? A. L. Dahl. *il Sci Am* 122:648+ Je 12 '20

By-products

Commercial utilization of grape pomace and stems from the grape-juice industry. F. Rabak and J. H. Shrader. (*Bul.* 952) 24p U.S. Dept. of agric., Washington '21

Graphic arts exposition

Review of the Graphic arts exposition. *il Inland Ptr* 67:809-14 S '21

Graphic meters

Graphic meter records and their interpretation. W. L. Hamilton. *il Power* 51:803-4 My 18 '20; Same. *Elec W* 75:1131-2 My 15 '20

Interesting examples of graphic meter records. *Elec R* 75:979-81 D 13 '19

Using the graphic meter. V. H. Todd. *il diags Power Pl Eng* 24:987-90 O 15 '20

Graphic methods

Commercial statistics and their value to the executive. G. P. Baldwin. maps *Gen Elec R* 23:648-52 Ag '20

Computing power-factor problems by graphic methods. T. Schou. *diags Elec R* 78:860-6 My 28 '21

Curves for ore-valuation. K. K. Hood. *Min & Sci P* 121:270-2 Ag 21 '20

Curves of building cost increases used in valuation work. F. E. Barnes. *Eng N* 85:702 O 7 '20

Easy way to get facts straight. R. E. Moody. *il System* 39:203-6+ F '21

Graphic building costs. C. E. Patch. *Eng & Contr* 54:84 Jl 28 '20

Graphic metallurgical control. H. M. Merry. *Am Inst Min Bul* 153:sup2313-21 S '19; Excerpt. *Eng & Min J* 108:512 S 20 '19; Excerpt. *Eng & Contr* 52:675-6 D 10 '19

Graphic method of keeping continuous power-plant records. R. H. Parsons. *Elec R* 76:311-14 F 21 '20

Graphic representation of oil-well decline. S. S. Langley. *Eng & Min J* 110:269-71 Ag 7 '20

How graphics help in estimating costs. J. B. Carr. *Ind Management* 61:41-4 Ja 1 '21

Making statistics talk. M. C. Rorty. *Ind Management* 60:394-8; 61:45-50+, 119-25 D 1 '20, Ja 1, F 1 '21

Method of correlation as applied to the determination of laws followed by the results of experiment. H. Cotton. *diags Electrician* 84:368-9 Ap 2 '20

Modern production methods; graphic methods of control. W. R. Basset. *Am Mach* 55:421-3 S 15 '21

Moving pictures of business records. *India Rubber W* 63:82 N '20

Numerical expression for production-decline curves of oil wells. J. O. Lewis and W. W. Cutler, jr. *Eng & Min J* 110:479-80 S 4 '20

Planning department systems; how to visualize methods by mapping the routine. J. H. Van Deventer. charts *diags map Ind Management* 60:373-6 N '20

Production control by graphics. F. R. Daniels. *il Mach* 28:112-20 O '21

Ratio chart and its application. P. A. Bivins. *Ind Management* 62:10-14, 99-104, 166-71, 233-40 Jl-O '21

Value of graphics in an accounting system. W. F. Bloor. chart *J Account* 31:421-7 Je '21

Visualizing facts for control. L. V. Estes. *diags Ind Management* 59:57-63 Ja '20

Voraussetzungen und auswahl bei abgasrechentaufeln. W. Ostwald. *Stahl & Eisen* 41:1328-30 S 22 '21

See also Advertisements—Graphs; Charts (calculating); Errors, Theory of; Nomography

Bibliography

Ratio chart and its application. P. A. Bivins. *Ind Management* 62:237-40 O '21

Graphic statics

Calcul des charpentes d'après les méthodes nouvelles avec solutions graphiques. L. J. B. Bergeron. 426p L. J. B. Bergeron, Dunod, Paris '21

Self-checking string polygon; new graphical method in which paralleling is replaced by measurement. T. Bleckmann. *diags Eng N* 85:880-1 N 4 '20

See also Bridges; Girders; Mechanical drawing; Roofs; Strains and stresses; Strength of materials

Graphite

American graphite. A. B. Conklin. *il Chem Age* 29:191-2 My '21

American graphite industry in 1920. *Chem Age* 29:120 Mr '21; Same. *Gas Age* 47:388 My 10 '21

Artificial crowds natural graphite. H. G. Ferguson. *Foundry* 47:876-7 D 1 '19

Artificial graphite. *Eng & Min J* 110:360 Ag 21 '20

Concentrating graphite. H. S. Spence. *diags Engineer* 130:258-60 S 10 '20

Concentration of graphite ores, past and present; abstract. *Chem & Met Eng* 23:585-6 S 22 '20

Crucible graphite. *Chem & Met Eng* 22:220 F 4 '20

Decline in the production of graphite. *Chem & Met Eng* 23:389 S 1 '20

Effect of a tariff on graphite. J. Bartley. *Metal Ind* 19:77-8 F '21

Fair play for the graphite industry. E. E. Ellis. *Eng & Min J* 112:364 S 3 '21

Flotation of graphite. *Min & Sci P* 121:624 O 30 '20

Foreign graphite in 1919. A. H. Redfield. bibliog maps U S Geol S Min Res of U S 1919,pt 2:181-210 '21

Fusibility of mixtures of graphite ash and bond clays. R. N. Long. *Am Cer Soc J* 3:pt 1,626-33 Ag '20

Graphite. H. S. Spence. 202p Canada Dept. of mines, Ottawa '20

Graphite and the tariff on minerals. *Eng & Min J* 112:204 Ag 6 '21

Graphite from kish. *Sci Am* 123:254 S 11 '20

Graphite in 1920. L. M. Beach. U S Geol S Min Res of U S 1920,pt 2:81-6 '21

Graphite in Quebec, Canada. H. P. H. Brumell. *Eng & Min J* 109:548-50 F 28 '20

Graphite industry. *Iron Tr R* 66:850 Mr 18 '20; Same. *Foundry* 48:300 Ap 15 '20

Graphite industry. H. S. Spence. *Engineering* 110:231-2 Ag 20 '20

Graphite industry during 1919. B. L. Miller. *Eng & Min J* 109:226-7 Ja 17 '20

Graphite industry in Alabama in 1919. W. F. Prouty. *Eng & Min J* 109:228 Ja 17 '20

Graphite industry in 1920. B. L. Miller. *Eng & Min J* 111:157 Ja 22 '21

Graphite industry of the United States and Canada. B. L. Miller. *il Eng & Min J* 112:207-13 Ag 6 '21

Graphite production increased in 1920. *Eng & Min J* 111:752 Ap 30 '21

Graphite rocks of Sleaford Bay, South Australia. C. E. Tilley. *il diags Econ Geol* 16:184-98 Ap '21

Graphite situation in Ceylon. *Chem & Met Eng* 24:340 F 23 '21

Graphitization of white cast iron. R. S. Archer. *il Min & Met* 158:(sec 10) 1-8 F '20; Same. *Foundry* 48:192-4 Mr 1 '20

Improved methods of ore dressing graphite ores. C. Spearman. *Chem & Met Eng* 22:521 Mr 17 '20

Madagascar graphite industry quiet. *Eng & Min J* 111:939 Je 4 '21

Graphite—Continued

- Mine and flotation-plant of the American graphite company, near Ticonderoga, New York. C. E. Chaffin. flow sheet il Min & Sci P 120:567-9 Ap 17 '20
- Mining and preparing domestic graphite for crucible use. G: D. Dub and F: G. Moses. flow sheets il diags U S Bur Mines Bul 112:1-80 '20
- Origin of graphite. H. L. Alling. Econ Geol 16:334-7 Je '21
- Origin of graphite. T: H. Clark. Econ Geol 16:167-83 Ap '21
- Our mineral supplies; graphite. H: G. Ferguson. U S Geol S Bul 666:65-71 '19
- Pencil graphite. C. H. Mitchell. Engineer 128:612 D 19 '19
- Plumbago situation in Ceylon. Brass W 17:52 F '21
- Plumbago trade reaches low level. Foundry 49:151 F 15 '21
- Preparing graphite for foundry facing. H. S. Spence. Foundry 48:590 Ag 1 '20
- Protest proposed duty on plumbago. Foundry 49:241+ Mr 15 '21
- Review states plumbago situation. C: E. Petinos. Foundry 48:99-100 F 1 '20
- Romance of invention; father of the lubrication of the future, Edward G. Acheson. C. H. Claudy. Sci Am 122:332+ Mr 27 '20
- Separation of mineral matter from natural flake graphite. W. C. Ratliff and J. D. Davis. Chem & Met Eng 23:1027-8 N 24 '20
- Sources and uses of graphite. Brass W 17:263-5 S '21
- Uses of graphite. Eng & Min J 111:430 Mr 5 '21

Analysis

- Determination of the volatile matter in graphite. O. L. Shinn. J Ind & Eng Chem 13:633-4 J1 '21
- Problem of determining graphitic carbon. W. A. Selvig and W. C. Ratliff. il Am Electrochem Soc Trans v 37 (preprint 40):629-58 Ap '20; Summary. Chem & Met Eng 22:726-7 Ap 21 '20
- Graphitic acid**
- Graphitic acid—a colloidal oxide of carbon. G: A. Hulett and O. A. Nelson. Am Electrochem Soc Trans v 37 (preprint 32):425-39 Ap '20; Excerpt. Brass W 17:16-17 Ja '21

Grasses

- Possibilities of African grasses in paper manufacture. C. J. West. Paper 26:10, 28 Je 23 '20

See also Hay; Forage plants; Saw grass

Grates

- Avant-grille, système Bessert, pour grilles mobiles et pour combustibles inférieurs. diag Génie Civil 78:164 F 12 '21
- Two-stage combustion in the Evaporator stepped oscillating grate; abstract. diag Mech Eng 43:401-2 Je '21

See also Furnaces; Locomotive grates

Gravel

- Cold water thawing successful in Iditarod district, Alaska. J. G. Rivers. Eng & Min J 109:1087-8 My 8 '20
- Gravel: a plea for common sense specifications. W. F. Purrington. Pub Works 49:381-3 O 23 '20; Same. Eng & Contr 54:446-7 N 3 '20; Same cond. Good Roads n s 20:191+ O 20 '20
- In opening up gravel pits cities and counties should adopt methods successfully employed by commercial producers. il Munic Eng 58:sup33-4+ My '20
- Preliminary report on the sand and gravel deposits of Georgia. L. P. Teas. 392p Byrd ptg. co., Atlanta, Georgia '21
- Relation of gravel specifications to production. R. C. Yeoman. Munic Eng 58:172-3 Ap '20
- Remove gravel substratum without damaging crops. il Pop Mech 36:254 Ag '21
- Sand and gravel. A. Ledoux. il diag Can Eng 38:532-6 Je 3 '20
- Sand and gravel in 1919. R. W. Stone. U S Geol S Min Res of U S 1919,pt 2:151-64 '21
- Sand and gravel production in 1920. Eng & Contr 55:500 My 18 '21

- Sand and gravel production survey of twenty-two states. G: E. Ladd. Pub Roads 4:12-23 My '21

- Thawing frozen grounds with cold water. W. S. Weeks. Eng & Contr 53:507 My 5 '20

- Thawing gravel by cold water. Eng & Min J 109:632 Mr 6 '20

- Unwashed and ungraded river gravel makes good concrete. J. S. Kennedy. Eng N 87:418 S 8 '21

- Using old pit for winter storage of gravel. il plan Eng & Contr 52:696-7 D 17 '19

- Using 6-in. bank run aggregate on Stevenson dam. il diag Eng N 85:638-40 S 30 '20

- Wayne county, Mich., secures its own gravel. Pub Works 48:347-8 Ap 24 '20

See also Concrete—Aggregate

Testing

- Quantity of clay and silt in gravel for highway construction. Am Soc T M Pro v 20 pt 1:770-1 '20; Same. Eng & Contr 54:21 J1 7 '20

Transportation

- Pipe line velocities necessary to transport gravel. P. J. McAuliffe. il Eng N 85:988-90 N 18 '20

- Road gravel hauled 170 miles by rail in side dump cars. il Eng & Contr 55:18 Ja 5 '21

Gravel handling

- What are the best methods of handling gravel from car to concrete mixer. Pub Works 50:435-7, 456-7 My 21-28 '21

Gravel plants

- Advantages of portable equipment for gravel pit work. H. P. Sigwalt. il Munic Eng 61:sup21-2+ S '21

- Gravel plant record has lesson for contractors. Eng N 85:545-6 S 16 '20

- Local gravel plant experiences in road building. H. T. Tuthill. Eng N 86:854-5 My 19 '21

- Plant for sand and gravel storage. G: W. McAlpin. diag Eng N 84:928 My 6 '20

Electric equipment

- Electrical operation of the River rock gravel co. A. V. Thompson. il map Gen Elec R 24:819-27 S '21

Gravel roads. See Roads, Gravel**Gravel washers**

- Device for washing gravel in bins. diag Eng & Contr 55:595 Je 15 '21

- Small portable gravel washing plant. il Eng & Contr 53:418 Ap 7 '20

Graviscopes

- Wuensch bore-hole graviscopes. C. E. Wuensch. diags Eng & Min J 111:949-50 Je 4 '21

Gravitation

- Average force between revolving electrons. A. C. Crehore. diag J Elec 44:388-9 Ap 15 '20

- Discrepancies in the electromagnetic theory. A. C. Crehore. J Elec 44:224-6 Mr 1 '20

- Discussion of a kinetic theory of gravitation; and some new experiments in gravitation. C: F. Brush. Phys R 18:125-6 Ag '21

- Einstein's relativity theory of gravitation. E. Cunningham. Sci Am M 1:116-19 F '20

- Electricity and gravitation. H. Bateman. Phys R 17:64-9 Ja '21

- Electromagnetic theory of gravitation. H. A. Wilson. Phys R 17:54-9 Ja '21

- Gravitation and relativity. C. W. Kanolt. diags J Fr Inst 190:211-42 Ag '20

- Gravitational field of a particle on Einstein's theory. F. W. Hill and G. B. Jeffery. Philos Mag 6th ser 41:823-6 My '21

- Mass in terms of velocity of electrons. A. C. Crehore. J Elec 44:178 F 15 '20

- New equation for gravitational force. A. C. Crehore. J Elec 44:516-17 My 15 '20

- New physics; theory of gravitation. A. C. Crehore. J Elec 44:75 Ja 15 '20

- Newtonian laws of gravitation deduced from the Saha electromagnetic theory applied to the Copernican atom. A. C. Crehore. Phys R 17:252-5 F '21

Gravitation—Continued

On gravitation and relativity; being the Halley lecture delivered on June 12, 1920. R. A. Sampson. 24p Clarendon press, Oxford '20

Planetary attraction and the helium atom. A. C. Crehore. J Elec 44:325-6 Ap 1 '20

Possible limit to gravitation. F. W. Very. Sci Am S 88:318-19 N 29 '19

Revising the gravitational constant. A. C. Crehore. J Elec 44:118-19 F 1 '20

Supposed weight and ultimate fate of radiation. O. Lodge. Philos Mag 6th ser 41:549-57 Ap '21

Velocity of propagation of gravitation. A. C. Crehore. J Elec 44:442-4 My 1 '20

Why is it a pound? W. M. Butterfield. Sci Am 122:105 Ja 31 '20

See also Einstein theory; Specific gravity

Gravity

Modern methods for measuring the intensity of gravity. C. H. Swick. 96p U.S. Coast and geodetic survey, Washington '21

Some mechanical curiosities connected with the earth's field of force. W. D. Lambert. diags Am J Sci 2:129-58 S '21

Times of descent under gravity, suggested by a proposition of Galileo's. W. B. Morton and T. C. Tobin. diags Philos Mag 6th ser 41:225-39 F '21

Value of "g" in engineering work. S. A. Moss. Eng Educ 11:271-81 Ja '21

Gravity, Specific. *See* Specific gravity

Gray-iron castings. *See* Iron founding

Grazing

Mountain-peak grazing. W. F. Wilcox. il Sci Am 122:108+ Ja 31 '20

Grease. *See* Lubrication and lubricants

Grease guns. *See* Locomotives—Lubrication

Great Britain

See also Electric plants (central stations)—Great Britain; Engineering—Great Britain; Finance—Great Britain; Housing problem—Great Britain; Railroads—Great Britain; Roads—Great Britain; Street railroads—Great Britain

Air ministry

Air conference, Oct. 12-15. Engineer 130:372, 406-8, 431-3 O 15-29 '20; Engineering 110:512-15, 528-32 O 15-22 '20

Air estimates. Engineering 111:263-4 Mr 4 '21

British air power and air policy; analysis of British air appropriations, 1921-1922. Aviation 10:600-4 My 9 '21

Excerpts from the report for the year 1919-20 of the Advisory committee for aeronautics. Engineer 131:174 F 18 '21

Half-yearly report on British civil aviation. Aerial Age 13:394-5 Jl 4 '21; Same. Flying 10:209-10 Jl '21

La navigation commerciale aérienne en Grande-Bretagne. Génie Civil 77:456-60, 483-5, 506-8 D 4-18 '20

Army

Increases in British army pay. Monthly Labor R 10:156-7 Ja '20

Railway traffic establishment

British railway traffic establishment in Rhineland. A. L. Stead. Engineer 131:90-1 Ja 28 '21

Commerce

British corn trade; from the earliest times to the present day. A. Barker. (Common commodities and industries series) 132p Pitman '20

British industrial reconstruction and commercial policies. F. W. Powell. U S Bur For & Dom Com 193:1-88 '20

Improvement in our foreign trade. Engineering 110:505 O 15 '20

Kin-tongue nations' export rivalry; the Federation of British industries plans world-wide expansion. A. J. Wolfe. Am Ind 21:35-6 N '20

Ministry of origins. E. J. P. Benn. Electrician 86:331-2 Mr 18 '21

Our international trade relations. Engineering 111:589-90 My 13 '21

Pessimism in trade. Electrician 85:413 O 8 '20

See also Aeronautics, Commercial—Great Britain; Cotton trade—Great Britain; Great Britain—Department of overseas trade; Petroleum industry and trade—Great Britain; Shipping—Great Britain

Defenses

British mystery craft launched. il Concrete 17:173 N '20

Strange concrete battleships built on ocean's floor. P. H. Woodruff. il Pop Mech 35:2-5 Ja '21

Department of overseas trade

How the British department of overseas trade functions. Coal Age 20:265-6 Ag 18 '21

Economic conditions

Adverse balance and unemployment in England. J. Oakwood. Annalist 18:317-18 O 3 '21

Brief sketch of social & industrial history. E. Cressy. 225p Macmillan '20

Business conditions in England. Am Mach 52:587-8, 809-10, 865, 1018-19, 1170-1; 53:524d-e, 650-1, 828b-c, 924-924b, 1016-17, 1206-7; 54:80f-g, 624a-c, 664a-b, 843-4, 1024a-b; 55:80b, 208a, 492a, 702b-c, 866-866a Mr 11, Ap 8-15, My 6, 27, S 9, 30, O 28, N 11, 25, D 23 '20, Ja 13, Ap 7-14, My 12, Je 9, Jl 14, Ag 4, S 22, O 27, N 24 '21

England's industrial situation. A. Yarrow. Am Ind 22:37-9 O '21

Industrial depression. Lord Weir. Engineer 131:101 Ja 28 '21

Present economic position of the engineering and allied industries. Elec R (Lond) 88:609-10, 663-4, 694-5, 732-4 My 13-Je 3 '21

Restoring the vitality of the engineering industry; abstracts. Engineer 132:436 O 21 '21; Elec R (Lond) 89:562-3 O 28 '21

Some reflections on our industrial situation. Lord Weir. diag chart Engineering 110:879-82 D 31 '20

Trade prospects for 1921. Engineering 111:18-19 Ja 7 '21

Unemployment a vital problem in Great Britain. H. Tipper. Automotive Ind 44:519-21 Mr 3 '21

See also Banks and banking—Great Britain; Building trades—Great Britain; Finance—Great Britain; Housing problem—Great Britain; Labor and laboring classes—Great Britain; Money—Great Britain; Prices—Great Britain

Foreign relations**Russia**

Realities and problems of the Russo-British agreement. L. Pasvolsky. Annalist 17:398 Ap 4 '21

Industries and resources

British industrial reconstruction and commercial policies. F. W. Powell. U S Bur For & Dom Com 193:1-88 '20

British industry in uphill battle. J. Horton. il Iron Tr R 66:17-20 Ja 1 '20

Export register of the Federation of British industries. 328p Federation of British industries, London '20

Factory conditions in Great Britain in 1919. Engineering 110:544-5 O 22 '20

Introduction to the industrial history of England. A. P. Usher. 529p G. C. Harrap & co., London '21

See also Aeronautics, Commercial—Great Britain; Automobile industry and trade—Great Britain; Building trades—Great Britain; Cement industry and trade—Great Britain; Chemical industries—Great Britain; Coal trade—Great Britain; Cooperation—Great Britain; Dye industry—Great Britain; Electric industries—Great Britain; Electricity supply—Great Britain; Gas in-

Great Britain—Industries and resources—*Cont.*
 dustry—Great Britain; Iron industry and
 trade—Great Britain; Machine tool indus-
 try—Great Britain; Paper industry and
 trade—Great Britain; Shipbuilding—Great
 Britain; Steel industry and trade—Great
 Britain

Law

Some modern ideas reflected in current law.
 T. Rich. Eng & Ind Management 5:720-2
 Je 23 '21

Ministry of munitions

British nitrogen products committee report.
 J Ind & Eng Chem 12:391-3 Ap '20

Ministry of transport

British ministry of transport. Eng N 84:507
 Mr 11 '20
 British views upon operation of Ministry of
 transport. Eng N 84:659-60 Ap 1 '20
 1st meeting of the Institute of transport;
 inaugural address of Sir Eric Geddes. Ry
 Age 68:1157-8 Ap 9 '20
 Ministry of transport. Engineer 131:268 Mr
 11 '21
 Ministry of transport fiscal year estimates.
 Ry Age 68:1353-4 My 7 '20
 Ministry of transport statement. Engineer
 129:398 Ap 16 '20

Navy

British fleet of today. H. C. Bywater. il Sci
 Am 124:290, 299 Ap 9 '21
 Naval situation. Engineering 110:809-10 D
 17 '20
 Naval strength of United States, Great Brit-
 ain and Japan. J. B. Walker. il Sci Am.
 125A:11-13 N '21
 Navy estimates, 1919-1920. Engineer 128:592-3
 D 12 '19
 Navy estimates, 1920-21. Engineering 109:
 381-2 Mr 19 '20
 Navy estimates, 1921-22. Engineer 131:295-6
 Mr 18 '21
 Navy estimates, 1921-22. Engineering 111:
 328-9 Mr 18 '21
 Notes on naval policy. Engineer 129:303-4;
 131:324-5 Mr 19 '20, Mr 25 '21

Patent office

Patent office practice. Engineer 131:316 Mr
 25 '21

Politics and government

See also Taxation—Great Britain

Great Falls, Virginia

Great Falls development might block railroad
 route. Eng N 85:553 S 16 '20
 Power commission favors Potomac project.
 Eng N 86:388-9 Mr 3 '21

Great Lakes

Diversion of water from the Great Lakes and
 Niagara river. 415p U.S. Engineer dept.,
 Washington '21
 Plan to regulate Great Lakes level by Ni-
 agara dam. F. C. Shenehon. diags maps
 plan Eng N 84:308-13 F 12 '20

See also Lake carriers' association

Commerce

Economic aspects of the Great Lakes-St Law-
 rence ship channel. R. S. MacElwee and
 A. H. Ritter. 291p Ronald press '21
 Trade route from the world ports to the
 midland of North America. W. L. Saund-
 ers. Min & Met 179:11-13 N '21
 Traffic on Great Lakes in 1919. Marine R 50:
 95-7 F '20
 Traffic on Great Lakes in 1920. Marine R 51:
 78-9 F '21
 Great Lakes, Hudson and Atlantic waterways
 association
 1st convention. Buffalo, June 29-30. Eng N
 87:37 J1 7 '21
 Great Lakes protective association
 Annual meeting, Detroit, Jan. 15. Marine R
 50:163-4 Mr '20
 Report of the Protective association. Marine
 R 50:164-6; 51:140-2 Mr '20, Mr '21

Great Northern railway

Annual report for 1920 of the Great North-
 ern; editorial. map Ry Age 71:604-6 O 1 '21
 Great Northern-Northern Pacific bonds ap-
 proved by I.C.C. Ry Age 70:1031-3 Ap 29
 '21

31st report. Comm & Fin Chr 111:81-5 J1 3
 '20

32nd report for the fiscal year ended Dec.
 31, 1920. Comm & Fin Chr 113:636-42 Ag 6
 '21

Great Western power company

Great Western power plants to double present
 capacity. C. W. Geiger. Power Pl Eng 24:
 982-3 O 15 '20

Greece

On the way to Marathon. Am Inst Arch J
 9:96-7 Mr '21

See also Agriculture—Greece; Railroads—
 Greece

Economic conditions

Market conditions in Greece and Egypt.
 Elec R (Lond) 89:64 J1 8 '21
 Prosperous times expected in Greece when
 the Near East is again peaceful. M. S.
 Eulambio. Americas 7:32-4 My '21
 See also Banks and banking—Greece

Industries and resources

Richesses agricoles, minérales, industrielles de
 la nouvelle Grèce. A. Gotteland. tables
 Chimie & Ind 5:713-36 Je '21

Public works

Public works of modern Greece. W. E.
 Spear. il Boston Soc C E J 8:203-23 Je
 '21

Sanitary affairs

Water supply and other sanitation in Greece.
 W. E. Spear. il map Eng N 86:708-15 Ap
 28 '21

Greek architecture. See Architecture, Greek
 Greeley, William B.

Planks for posterity; task facing Colonel,
 Greeley, our new chief forester. J. B. Mor-
 row. Nation's Business 8:36+ N '20

Green river tobacco growers association

Association formed to pool crop disbands.
 Comm & Fin Chr 111:2479-80 D 25 '20

Greenawalt sintering process. See Sintering

Greene, Arthur M., jr., 1872-
 Dean of enlarged school of engineering at
 Princeton. Mech Eng 43:492 J1 '21

Greeneville, Tennessee

Water supply

Water borne typhoid fever at Greeneville.
 C. N. Harrub. Am Water Works Assn J
 8:132-7 Mr '21

Greenfield tap and die corporation

Account of the methods used and the results
 obtained by the Greenfield tap & die cor-
 poration, Greenfield, Mass., in the applica-
 tion of workmen's representation in the
 plants of the corporation. F. G. Echols,
 L. M. Lamb and R. P. Dolan. il Mach 26:
 1007-12 J1 '20

Handling material at the plant of the Green-
 field tap and die corporation. P: F. O'Shea.
 il Am Mach 52:880-3 Ap 22 '20

Sharing the responsibilities of production.
 F. H. Payne. Ind Management 58:499 D '19
 What makes a labor policy successful?; in-
 dustrial relationships. N. G. Shidle. Auto-
 motive Ind 43:970-3 N 11 '20

Greenhouses

Bid for greenhouse business. il Metal Work
 93:793-4 Je 18 '20

Decorating and furnishing the low-cost
 house. il diags plans Bldg Age 42:44-8 Ag
 '20

Greenhouse benches. il diags Concrete 19:
 105-6 S '21

Moving a greenhouse a delicate undertaking.
 il Pop Mech 34:656-7 N '20

Accounting

Greenhouse accounting. A. F. Wagner. J Ac-
 count 29:98-103 F '20

Greenhouses—Continued

Heating and ventilation

- Comments on greenhouse heating. il diags Dom Eng 94:232-4 Ja 29 '21
- Greenhouse field neglected by heating contractor. E: J. Lomasney. Dom Eng 92:271-3 Ag 7 '20
- Making over a greenhouse job. il diags Metal Work 94:8-10 Jl 2 '20
- New treatment of hot water heating. E: E. Parker. diag Metal Work 94:235-6 Ag 20 '20
- Oil for greenhouse fuel. Sci Am 125:163 S 3 '21
- Greensand. See Glaucconite
- Griffin, Robert Stanislaus, 1857-
Head of the Bureau of engineering of the Navy department and engineer-in-chief of United States navy, resigns. por Elec W 78:688 O 1 '21
- Griffith, Franklin Thomas, 1870-
Sketch. por Elec W 77:1088 My 14 '21
- Grignard reagent
- Accelerated formation of magnesium alkyl and aryl haloids. H. Hepworth. Chem Soc J 119:1249-56 Ag '21
- Action of the Grignard reagent on certain nitric esters. H. Hepworth. Chem Soc J 119:251-60 Mr '21
- Action of the Grignard reagent on certain organo-sulphur compounds. H. Hepworth and H: W. Clapham. Chem Soc J 119:1188-98 Jl '21
- Action of the Grignard reagent on certain tervalent organo-iodo-compounds. H. Hepworth. Chem Soc J 119:1244-9 Ag '21
- Action of the Grignard reagent on thiocyanates. R. Adams, H. B. Bramlet and F. H. Tendick. Am Chem Soc J 42:2369-74 N '20
- Mechanism of the reaction between ketenes and the Grignard reagent. H: Gilman and L. C. Heckert. Am Chem Soc J 42:1010-14 My '20
- Oxidation of the Grignard reagent. C. W. Porter and C. Steel. Am Chem Soc J 42:2650-3 D '20
- Über die einwirkung monomolekularen formaldehyds auf Grignardsche verbindungen. K. Ziegler. Deutsche Chem Gesell Ber 54:737-40 Ap '21
- Grinding (ores, etc.). See Crushing machinery
- Grinding and polishing
- Accurate lapping. L. J. Vorhees. diags Am Mach 53:263-5 Ag 5 '20
- Cadillac grinding practice; description of methods employed in the grinding department of a plant building high-grade automobiles. E: K. Hammond. il Mach 27:103-7 O '20
- Causes of cracks in case-hardened objects. Iron Age 108:399-400 Ag 18 '21
- Contour buffing machines. il Iron Age 106:1744 D 30 '20; Am Mach 54:118-19 Ja 20 '21; Metal Ind 19:40 Ja '21
- Cylindrical grinding in 1920. W. H. Chapman. diag Am Mach 53:1152-5, 1184-7 D 16-23 '20; Same abr. Mech Eng 43:173-6 Mr '21; Same. Eng & Ind Management 5:399-402, 433-4 Ap 7-14 '21; Abstract. Ry Mech Eng 95:109-10 F '21
- Device for centering cylinders preparatory to grinding. R. F. Leighton. diags Am Mach 53:131-2 Jl 15 '20
- Device for grinding hacksaws. E. E. Henry. il diags Am Mach 53:955-6 N 18 '20
- Diamond dies for wire drawing. C. W. Busick. il diags Am Mach 55:703-5 N 3 '21
- Elements of gage making. C. A. Macready. diags Am Mach 53:167-9 Jl 22 '20
- Finishing metallurgical specimens. J. F. Adams. il Iron Tr R 68:226-7 Ja 20 '21; Same. Foundry 49:117-18 F 1 '21
- Grinder with flexible shaft grinds propeller blades. il Pop Mech 36:416 S '21
- Grinding a keyway gage for a tapered hole. J. B. Gray. diag Mach 27:656 Mr '21
- Grinding attachment for a milling machine; with a complete set of drawings for its construction. J. Finlay. il diags Am Mach 53:114-16 Jl 15 '20

- Grinding expedites tool building. D. T. Hamilton. il Iron Tr R 67:1472-5 N 25 '20
- Grinding gear wheel teeth. il Engineer 132:112-13 Jl 29 '21
- Grinding in the automotive industry. P. M. Heldt. il diag Automotive Ind 45:265-9, 315-17, 371-3, 421-6 Ag 11-S 1 '21
- Grinding irregular-shaped holes on the Bryant internal grinding machine. il diags Am Mach 55:499-500 S 29 '21
- Grinding lathe and planer tools. J. W. Barritt. il diag Mach 26:917-19 Je '20
- Grinding manganese steel. R. M. Johnson. il Iron Tr R 66:999-1001 Ap 1 '20; Same. Foundry 48:659-61 Ag 15 '20
- Grinding manganese steel castings. F. B. Jacobs. il Foundry 49:767-70 O 1 '21
- Grinding of commutators. O. Linley. Elec R (Lond) 89:302-3 S 2 '21; Discussion. 89:461-2, 530 O 7, 21 '21
- Hollow ware made in an old shop. F. B. Jacobs. il diags Foundry 49:300-2 Ap 15 '21
- How plow castings are ground and fitted. G. A. Park. il Foundry 48:91 F 1 '20
- How precision gage-blocks are made. F. D. Jones. il diags Mach 26:697-708 Ap '20
- Improvements in twist drill grinder. il Ry Mech Eng 95:265 Ap '21
- Instructions for grinding chilled cast iron car wheels. Ry Mech Eng 95:181-3 Mr '21
- Internal lapping and laps. G. A. Remacle. diags Am Mach 52:600 Mr 18 '20
- Janette portable buffing machine. il Mach 28:155 O '21
- Lapping and measuring small cylindrical plugs. H. F. Pusep. diags Am Mach 52:787-9 Ap 8 '20
- Lapping and polishing. E: K. Hammond. 60p Industrial press, New York '21
- Lapping center holes in hardened work. A. L. Eddy. diag Am Mach 53:1243 D 30 '20
- Lapping main and connecting-rod bearings. diags Motor Age 37:16-17 Mr 18 '20
- Large casting finished by grinding. L. S. Walker. il Am Mach 51:913-14 N 27 '19
- Lead laps for internal lapping. W. H. Sawtelle. Am Mach 52:244 Ja 29 '20
- Machine for lapping multiple worms. il Mach 27:119 O '20
- Modern lapping practice. E: K. Hammond. il diags Mach 27:209-17 N '20
- Modern method of steel billet grinding. R. H. Cannon. il Blast F & Steel Pl 9:640-2 N '21
- New system of gear grinding and gear inspection. P. M. Heldt. diags Automotive Ind 44:1430-1 Je 30 '21
- Points on grinding iron castings. L. M. Krull. plan Foundry 48:785-7 O 1 '20
- Polishing motor for metal sections. C: Y. Clayton. il diag Chem & Met Eng 24:356 F 23 '21
- Polishing wheels; a short history of their development. S. A. Cochell. Metal Ind 17:517-18 D '19
- Production of lathe and planer tools. E. G. Blake. il diag Ry Mech Eng 94:384-5 Je '20
- Reamer grinding attachment. E. E. Henry. il Am Mach 54:270 F 17 '21
- Sharpening hobs and cutters. C. G. Olson. diags Mach 27:11-13 S '20
- Some novel grinding fixtures. A. MacNab. il diags Am Mach 55:309-12 Ag 25 '21
- Standards for measuring the efficiency of exhaust systems in polishing shops. C. E. A. Winslow, L. Greenburg and H. C. Angermeyer. Am Soc Heat & V E J 26:supXX-XL S '20
- Unusual methods of securing extreme accuracy. A. L. De Leeuw. il Am Mach 52:1094-7 My 20 '20
- Use and abuse of twist drills; grinding rules and tables of speeds and feeds. H. Wills. il diags Iron Age 106:461-3 Ag 19 '20
- Use of special fixtures in grinding operations. E. Sheldon. il Am Mach 54:545-8 Mr 31 '21
- Wet grinding a dangerous occupation. Am Mach 54:825 My 12 '21; Discussion. A. A. Wood. 54:1040 Je 16 '21

Grinding and polishing—Continued

Work speeds in cylindrical grinding. R. J. Spence. Mach 27:438-40 Ja '21

See also Abrasives; Crushing machinery; Grinding machines; Lubrication and lubricants (cutting and grinding); Machine shop practice; Sand blast

Grinding machines

Automatic grinding machine by W. F. Fraser co. il Iron Age 106:906 O 7 '20; Iron Tr R 67:1143 O 21 '20

Automatic surface grinding machine built by William Osterhom. il Iron Age 108:201-2 Jl 23 '21

Badger machine for grinding eyes of leaf springs. il Iron Age 107:138 Ja 13 '21

Badger piston ring grinder. il Iron Age 107:1396 My 26 '21

Boston 12-inch rotary surface-grinding machine. il Am Mach 54:343-4 F 24 '21

Broach grinding machine. il Iron Age 106:1664 D 23 '20

Bryant form-grinding machine. E. Sheldon. il diag Am Mach 54:305-8 F 24 '21; Abstract. Mech Eng 43:268-9 Ap '21

Centreless grinding. diags Eng & Ind Management 5:39-41 Ja 13 '21

Chaser grinding machines. il Iron Age 106:383 Ag 12 '20

Cincinnati no. 9 internal grinding machine. il Am Mach 53:477-8 S 2 '20; Mach 27:85-6 S '20; Iron Tr R 67:658-9 S 2 '20; Iron Age 106:590 S 2 '20

Cleveland face grinding machine. il Mach 26:366-7 D '19; Iron Age 104:1195 D 11 '19

Design of grinding machines. H. H. Asbridge. il Electrician 86:629-31 My 20 '21

Detroit heavy-duty centerless grinding machine. Mach 27:805-6 Ap '21; Am Mach 54:574-5 Mr 31 '21; Iron Age 107:858+ Mr 31 '21

Device for grinding clearance angles on tools for the automatic. F. P. Rogers. il Am Mach 53:656 O 7 '20

Diamond face-grinding machine and its work. E. L. Dunn. il diags Am Mach 52:877-9 Ap 22 '20

Diamond heavy-duty face grinder. il Mach 26:1181-3 Ag '20; Iron Age 106:450 Ag 19 '20

Diamond type-C high-duty surface grinding machine. il Am Mach 54:347 F 24 '21; Ry Mech Eng 95:193-4 Mr '21; Iron Tr R 68:1182 Ap 28 '21

Fitchburg poppet valve seat grinding machine. il Automotive Ind 45:360 Ag 25 '21

Franklin portable universal grinder. il Mach 27:989 Je '21

Gardner no. 24 continuous feed disc grinder. il Iron Age 106:1192 N 4 '20; Ry Mech Eng 95:59 Ja '21

Garrison gear grinding machine. il Mach 28:69-70 S '21

Glow electric bench and floor grinders. il Am Mach 54:431 Mr 10 '21

Graham knee-type ring-wheel grinding machine. il Am Mach 55:532-3 S 29 '21; Iron Age 108:802 S 29 '21; Mach 28:152-3 O '21

Grand Rapids machine for grinding small taps. il Iron Age 105:1251 Ap 29 '20; Mach 26:880-1 My '20; Ry Mech Eng 94:405-6 Je '20

Grand Rapids machine for grinding taps $\frac{3}{8}$ -in. up to 3 in. in diameter. il diag Iron Age 105:1014 Ap 8 '20; Iron Tr R 66:931 Mr 25 '20; Mach 26:778 Ap '20

Grinding in the automotive industry. P. M. Heldt. il diag Automotive Ind 45:315-17, 371-3 Ag 18-25 '21

Grinding in valves in motor heads. F. A. Stanley. il diags Am Mach 54:332-3 F 24 '21

Grinding machinery; Churchill machine tool co. il Automobile Eng 11:342-4 O '21

Grinding machines and their use. T. R. Shaw. 114p Pitman '21

Grinding machines for locomotive work. il Engineer 131:51 Ja 14 '21

Grinding machines on view at Olympia. il diags Engineering 110:397-401, pl 50-3 S 24 '20

Grinding shaper cross-feed cams. il Mach 27:653-4 Mr '21

Grinding the inner flanges of spools. J. H. Vincent. il Am Mach 52:1309 Je 17 '20

H. E. Harris thread grinding machine. il diags Mach 27:186-9 O '20

Harris automatic hob grinding machine with unit motor drive. il Iron Age 106:72 Jl 8 '20; Iron Tr R 66:1766 Je 17 '20; Mach 26:991-2 Je '20; Ry Mech Eng 94:551-2 Ag '20

Heald cylinder grinding machine. il Mach 27:586-7 F '21; Engineering 111:676-8 Je 3 '21

Heald internal grinding machine with power feed. il Iron Age 106:1664 D 23 '20

Heald rotary surface grinder. il diags Automobile Eng 11:149 Ap '21

Heim centerless roll grinder. il Mach 27:583-4 F '21

Home-made surface grinding machine. J. T. Slocumb. diags Am Mach 54:742 Ap 28 '21

Horizontal disk grinder. il Pop Mech 35:781 My '21

Horizontal surface grinding machine constructed by Graham mfg. co. il diags Engineering 112:506-7 O 7 '21

Landis attachment for grinding of cams. il diag Automotive Ind 43:921-3 N 4 '20; Iron Age 106:1204 N 4 '20; Mach 27:292-4 N '20

Landis internal grinder for irregular parts. il Ry Mech Eng 95:529-30 Ag '21

Landis no. 4-A automotive regrinding machine. il Iron Age 107:1690 Je 23 '21; Am Mach 54:1139 Je 30 '21

Landis no. 5 cylinder grinding machine. il Iron Age 107:1768 Je 30 '21

Lapping and running-in machine. A. B. Bass-off. diags Mach 28:5-7 S '21

Lees-Bradner gear grinding machine. il Am Mach 55:527-8 S 29 '21; Iron Age 108:945-6 O 13 '21; Mach 28:147-50 O '21

Link grinding machine. il diags Engineering 109:240-1 F 20 '20

Machine grinds angular broach teeth. il Iron Tr R 68:292 Ja 27 '21

Marschke economy motor-driven grinding machine. il Am Mach 52:860 Ap 15 '20

Motor-driven face grinder; brought out by Bridgeport safety emery wheel co. il Iron Age 107:199 Ja 20 '21; Ry Mech Eng 95:126-7 F '21

Motor driven ring wheel grinder by Charles S. Besly & co. il Iron Age 107:1752 Je 30 '21

Mummert-Dixon radial grinder. il Mach 26:777-8 Ap '20

New tap grinding machine. il Iron Age 108:878 O 6 '21

Norton autopart regrinding machines. il Iron Age 107:1482 Je 2 '21; Iron Tr R 68:1797 Je 30 '21

Norton type B self-contained cylindrical grinding machine. il Mach 27:177-9 O '20; Am Mach 53:604f-g S 23 '20; Iron Age 106:858 S 30 '20; Ry Mech Eng 94:802-3 D '20

Norton type L universal multipurpose grinding machine. il Mach 27:183-4 O '20; Am Mach 53:635-6 S 30 '20; Iron Age 106:859 S 30 '20

Onsrud pneumatic turbine-type grinder. il Am Mach 55:446 S 15 '21

Persons-Arter automatic piston ring grinder. il Mach 27:592-3 F '21; Iron Age 107:323 F 3 '21

Pneumatic feeding attachment for centerless grinder. A. H. Schwab. diags Mach 28:53-4 S '21

Portable electric grinding machine of French manufacture. il Iron Age 108:1148 N 3 '21

Pratt & Whitney Curvex spiral tooth cutter and grinding machine. il Ry Mech Eng 94:805-6 D '20

Pratt & Whitney 8-in. rotary surface grinder. il Iron Age 108:190 Jl 28 '21; Iron Tr R 69:239 Jl 28 '21; Am Mach 55:203-4 Ag 4 '21; Automotive Ind 45:314 Ag 18 '21

Reid surface grinding machine. il Mach 26:474 Ja '20

Rickert-Shafer chaser grinder. il Mach 26:1191-2 Ag '20

Rotary surface grinding machine. il diags Engineering 111:100-2 Ja 28 '21

Sanford precision centerless grinding machine. il Am Mach 52:696-7 Mr 25 '20; Iron Age 105:1790 Je 24 '20; Mach 26:989-90 Je '20

Grinding machines—Continued

- Small bench grinder. J. V. Romig. il diags Pop Mech 35:610-12 Ap '21
- Small bench surface grinder. il Engineer 129: 657 Je 25 '20
- Thread grinding wheel truing device. il Mach 27:323 D '20
- Twist drill grinder made by the Oliver instrument co. il Mach 27:1076-7 Jl '21; Iron Age 107:1750 Je 30 '21
- Universal grinder and button die grinding attachment. il Iron Age 106:70 Jl 8 '20
- Use of special fixtures in grinding operations. E. Sheldon. il Am Mach 54:161-5, 736-9 F 3, Ap 28 '21
- Van Dorn heavy-duty electric grinding and buffing machines. il Am Mach 53:562 S 16 '20
- Van Norman bore grinder. il diags Mach 26: 1183-4 Ag '20; Am Mach 53:229-30 Jl 29 '20
- Vulcan precision grinder. il Motor Age 37: 34 My 27 '20
- Web-thinning attachment for twist drill grinders. il Engineering 111:724 Je 10 '21
- Wheel-truing diamonds and their settings. E. Good. diags Mach 26:1038-9 Jl '20
- Wilmarth & Morman company's no. 78 surface grinding machine. il Am Mach 54:41-2 Ja 13 '21

See also Grinding wheels

Classification

- Standardization of grinding machine classification. S. M. Henry. Am Mach 52:736-7 Ap 1 '20

Safety devices

- Exhaust hoods for grinding machines. E. E. Snow. diags Am Mach 51:947-8 N 27 '19
- Guards for Modern grinding machines. il Am Mach 53:479 S 2 '20; Mach 27:92 S '20
- Safety features for grinding machines. J. H. Vincent. il diag Am Mach 54:878-9 My 19 '21

Grinding stones. *See* Pulpstones

Grinding wheels

- Adapter for using side of grinding wheel on regular stand. H. H. Parker. diag Am Mach 52:718 Ap 1 '20
- Balancing grinding wheels. W. B. Bennett. diags Am Mach 54:80 Ja 13 '21
- Changing a straight-faced grinding wheel to a cup wheel. H. H. Parker. diag Am Mach 53:956 N 18 '20
- Grinding in the automotive industry. P. M. Heldt. diags Automotive Ind 45:265-8 Ag 11 '21
- Grinding-wheel spindle operated at an unusual speed. il diag Mach 27:420 Ja '21
- Grinding-wheel spindles. C. Ruiz. diags Mach 27:374-5 D '20
- Grinding wheels for repair shops. J. F. Springer. Gas Age 48:14-15 Jl 11 '21
- Grinding wheels; their manufacture, uses in industry, and factors affecting their selection. W. T. Montague. il Eng Soc W Pa 36:205-16; Discussion. 217-20 Ap '20
- Grinding with a phantom wheel. E. Sheldon. il Am Mach 55:44-5 Jl 14 '21; Same cond. Mech Eng 43:611-12 S '21; Abstract. Sci Am M 4:279-80 S '21
- Natural sandstones and artificial abrasive wheels from a health hazard standpoint. A. Rousseau. Am Mach 54:1001 Je 9 '21
- Necessity for keeping grinding wheels in perfect balance. J. H. Hollinger. il Am Mach 52:45 Ja 1 '20
- Pointers for cleaning room foremen. Foundry 48:265+ Ap 1 '20
- Precision thread grinder. diags Mach 26:1170 Ag '20
- Selection and use of diamonds for truing abrasive wheels. C. C. Hill. Am Mach 54: 789 My 5 '21
- Speeds of grinding wheels. W. T. Montague. Mach 27:1031 Jl '21
- Toolmaker's tools; the modern art of grinding, and how the wheels that it uses are made. W. F. Sutherland. il Sci Am 123: 302+ S 25 '20

See also Grinding machines

Accidents

- Reducing grinding wheel failure. H. E. Jenks. Iron Tr R 65:1712-14 D 25 '19

Testing

- Testing abrasive wheels for efficiency. R. F. Yates. il diags Am Mach 52:139-41 Ja 15 '20; Same cond. Iron Age 105:941-2 Ap 1 '20

Grist mills. *See* Flour mills

Grocery trade

- Building a sales policy on the fundamentals of the industry. H. E. Agnew. Ptr Ink 112:128-9+ S 23 '20
- Buyers who don't come back. C. James. Ptr Ink 116:117-18 Ag 18 '21
- Competition and combination in the wholesale grocery trade in Philadelphia. W. L. Abbott. 87p George Banta pub. co., Menasha, Wis. '20
- Getting dealers to display merchandise packages. J. M. Schlachter. Ptr Ink 110:90+ F 5 '20
- Preventing soiled packages from reaching the consumer's table. J. M. Schlachter. Ptr Ink 111:169+ Ap 22 '20
- Selling the jobber a first order. J. M. Schlachter. Ptr Ink 110:105-6+ Ja 22 '20
- Wholesale grocers cannot distribute, manufacture and speculate. C. James. Ptr Ink 112:73-4+ Ag 19 '20
- See also Canned food; Chain stores; Company stores*

Advertising

- Anti-chain advertising must reach fundamentals. Ptr Ink 111:145+ My 13 '20
- Private brands being advertised in newspaper campaign. M. Hastings, jr. Ptr Ink 115:130+ Ap 14 '21
- \$200,000 a year to put into advertising if some one will show them how. A. Davies. Ptr Ink 110:97-8 F 12 '20
- Why and how the wholesale grocers should advertise. O. J. Vogl. Ptr Ink 112:33-6+ S 2 '20
- Why can't the wholesale grocer advertise the retail grocer? H. G. Keelor. Ptr Ink 113: 106+ D 30 '20

See also Flour—Advertising

Grooves

- Cutting crescent-shaped grooves in a large roll. C. F. George. diags Mach 27:885 My '21

- Grooving a large hoist drum. C. M. O'Hara. il Am Mach 55:199 Ag 4 '21

Gross sales tax. *See* Sales tax

Ground detectors. *See* Detectors, Ground

Ground engineers. *See* Aeronautic engineers

Grounds and faults. *See* Electric distribution—Grounds and faults

Group insurance. *See* Insurance, Industrial

Groups, Theory of

- Gruppentheorie. L. Baumgartner. 120p Vereinigung wissenschaftlicher verleger, Berlin, Leipzig '21

See also Crystallography

Grouting

- Experiences in pressure grouting lead to hydraulic machine. S. C. Hulse. il diags Eng N 87:74-6 Jl 14 '21

- Grouting of wells in rock formations. W. G. Kirchoffer. Eng & Contr 54:141-2 Ag 11 '20

- Grouting operations, Catskill water supply. J. F. Sanborn and M. E. Zipser. il diag Engineering 109:525-7, 558-62, 627-30 Ap 16-23, My 7 '20; Excerpts. Eng & Contr 53:149-52 F 11 '20

- Leaking subway station successfully grouted. M. H. Freeman. diags plan Eng N 85: 314-18 Ag 12 '20

- Precautions in grouting tunnels and shafts. Eng N 84:344 F 12 '20

Groves, Andrew

- Master typographers of today. por il Inland Ptr 67:209-11 My '21

- Growth (plants)**
Experiment on regulation in plants. E. N. Harvey. *Sci Am M* 3:126-7 F '21
- Grubb, Hunter**
Builders of business. W: S. Dutton. *por System* 39:812-14 Je '21
- Grunewald, Theodore**
Builders of business. A. F. Harlow. *por System* 39:529-30 Ap '21
- Gruver, Arthur C.**
Master typographers of today. J. L. Frazier. *por Inland Ptr* 66:777-9 Mr '21
Two remarkable portfolios. J. L. Frazier. *il Inland Ptr* 66:202-4 N '20
- Guantanamo sugar company**
15th annual report—for year ending September 30, 1920. *Comm & Fin Chr* 111:2335 D 11 '20
Official statement to the New York stock exchange in connection with the listing of its capital stock. *Comm & Fin Chr* 111:701-3 Ag 14 '20
- Guaranties and sureties**
Whys and wherefores of contract bonds. H. V. Swart. *Eng & Contr* 54:76-7 Jl 21 '20
- Guaranty trust company.** See New York (city)—Banks
- Guard rails**
Road guard rail timbers mounted on concrete pipe. A. D. Butler. *il Eng N* 86:498 Mr 24 '21
Semipermanent guard fence built on federal aid roads. C. L. McKesson. *il Pub Roads* 4:15-16+ Ag '21; Same. *Eng & Contr* 56:328 O 5 '21
Substantial and attractive type of wooden guard rail used on Oregon roads. *Eng & Contr* 54:14 Jl 7 '20
Where to use guard rails. W. W. Cox. *Good Roads n s* 21:215-16 Ap 20 '21; Same *abr. Eng & Contr* 55:549 Je 1 '21
- Guatemala**
See also Mines and mineral resources—Guatemala; Petroleum—Guatemala
- Economic conditions**
Economic conditions in Guatemala. J. Bianchi. *Am Ind* 21:33-5 F '21
- Guess, Harry A.**
Metallurgists of note. *por Eng & Min J* 111:429 Mr 5 '21
- Guggenheim, Isaac**
Villa Carola, the residence of Mr & Mrs Isaac Guggenheim, Port Washington, L. I. *il plans Arch Forum* 32:145-50, pl 49-58 Ap '20
- Guggenheim family**
Guggenheims and the smelting industry. *Min & Sci P* 122:179-82 F 5 '21
- Guild of builders (London), limited**
Builders' guild—an experiment in altruism; prospectus of guild. *Eng & Contr* 55:182-3 F 23 '21
An industry cleared for action. *Am Inst Arch J* 8:266-8 Jl '20
- Guild socialism.** See Gild socialism
- Guilds.** See Gilds
- Guillaume, Charles Edouard, 1861-**
International bureau of weights and measures; interview with Charles Edouard Guillaume. J. Boyer. *il Sci Am M* 3:105-9 F '21
- Gulose**
Heptoses from gulose and some of their derivatives. F. B. LaForge. *J Fr Inst* 189:519 Ap '20
- Gums and resins**
Analysis of resins, balsams and gum resins; with a bibliography. K. Dieterich. 2d ed. 431p Scott, Greenwood & son, London '20
Classification and use of artificial resins. *Oil Paint & Drug Rep* 100:25 sec 1 Ag 29 '21
Contribution à la caractérisation des gommes à vernis. P. Nicolardot and C. Coffignier. *il Chimie & Ind* 5:150-6 F '21
Oils, fats, waxes, and resins used in the rubber industry. F: Dannerth. *India Rubber W* 64:563-6 My '21
- Rubber resins, paints and varnishes. R. S. Morrell and A. de Waele. 236p Bailliére, Tindall & Cox, London '21
Some synthetic resins from furfural. G. H. Mains and M. Phillips. *Chem & Met Eng* 24:661-3 Ap 13 '21
Über neue kolophonium-bestandteile, die kolophensäuren und analogen. O. Aschan. *Deutsche Chem Gesell Ber* 54:867-86 My '21
See also Bakelite; Balata; Chicle gum; Karaya gum; Kauri gum; Paracoumarone; Rosin; Yacca gum
- Gun and howitzer production club**
History and purpose of organization of steel makers. W. P. Barba. *Min & Met* 161:22 My '20
- Gun carriages**
Design and construction of the 16-in. disappearing carriage from an engineer's standpoint. G. M. Barnes. *il diags Mech Eng* 43:659-60+ O '21
Heavy gun mount is either tractor or truck. *il Pop Mech* 35:347 Mr '21
- Manufacture**
Unusual methods of securing extreme accuracy. A. L. De Leeuw. *il diags Am Mach* 52:595-9, 937-41, 1049-53, 1094-7 Mr 18, Ap 29, My 13-20 '20
- Gun metal**
Effect of increasing proportions of antimony and of arsenic respectively upon the properties of admiralty gun-metal. R. T. Rolfe. *il Engineering* 110:689-91, 752-4 N 19, D 3 '20; Abstract, with discussion. *Engineer* 130:299 S 24 '20
Effect of increasing proportions of lead upon the properties of admiralty gun-metal. R. T. Rolfe. *il diags Engineering* 112:580-3 O 21 '21
Formulas for the brass foundryman. *Foundry* 48:868a N 1 '20
Properties of gunmetal. J. Horton. *Foundry* 49:436-9 Je 1 '21
Standard specifications for the alloy: copper, 88 per cent; tin, 10 per cent; zinc, 2 per cent. *Foundry* 49:102a F 1 '21
- Guncotton**
See also Nitrocellulose
- Gunite**
Application of cement mixtures by machinery; with cost analysis. G: J. Young. *il diag plan Eng & Min J* 111:537-43 Mr 26 '21
Conserving steel stacks. J: V. Schaefer. *il Am Mach* 55:520 S 29 '21
Decay of timber in return air courses. D. Harrington. *il diag Eng & Min J* 112:565-9 O 8 '21
Difficult roof reconstruction accomplished by use of a cement-gun. L. R. Talbot and G: P. Trax. *diags Eng & Contr* 55:424-6 Ap 27 '21
Fighting a dump fire with gunite and carbon dioxide. A. Brosky. *Coal Age* 20:256-7 Ag 18 '21
Gunite and creosote extend life of timber. *Coal Age* 20:675 O 27 '21
Gunite for fire-walls. *Min & Sci P* 121:35-6 Jl 3 '20
Gunite forms an excellent material for covering mine buildings. *il Coal Age* 17:1185-8 Je 10 '20
Gunite walls and studs for houses. *il Concrete* 17:9-11 Jl '20
Guniting at United Verde extension. E. E. Campbell. *Eng & Min J* 112:620-1 O 15 '21; Excerpt. *Eng & Contr* 56:467 N 16 '21
New method of gunite wall construction reduces cost to fifty cents per square foot. R. H. Gillespie. *il diag Can Eng* 38:480-2 My 20 '20
New system of gunite building wall construction. *il Eng & Contr* 53:592-4 My 26 '20
Pre-mixing sand and cement for mine repairs. G. B. Southward. *Concrete* 18:182 Ap '21
Reconstructing steel stack with gunite. *il Concrete* 17:194-5 D '20
Reconstruction of the King Hill siphon and flumes. *il diags Eng N* 84:661-3 Ap 1 '20

Gunitite—Continued

- Relining a leaky park lake with gunitite. D. J. Baker. *il Eng N 85:410-11 Ag 26 '20*
 Repair of concrete pavement with gunitite unsuccessful. *Eng N 87:682 O 27 '21*
 Repairing steel tanks with gunitite. *diag plan Concrete 17:90 S '20*
 Reservoir waterproofed by gunitite interlining. B. A. Greene. *diag Eng N 86:958 Je 2 '21*
 Steel trash racks coated with concrete placed by cement gun. *il diag Eng N 86:1003-4 Je 9 '21*
 Use of gunitite in preservation of concrete structures affected by sea-water action. B. C. Collier. *il Can Eng 39:457-9 O 21 '20*
See also Cement gun

Testing

- Tests show that buildings may be rendered fireproof with gunitite. B. C. Collier. *il diags plan Coal Age 18:939-42 N 4 '20*

Gunitite slabs**Testing**

- New design data for cement slabs. *il Am Arch 119:287-91 Mr 9 '21*
 Results of tests of strength of gunitite slabs. *Eng & Contr 53:723 Je 23 '20*
 Safe loads and deflections for gunitite slabs. *il Can Eng 39:525-9; 40:464-6 N 18 '20, My 12 '21*
 Slab values of gunitite. *Can Eng 38:192 F 5 '20*
 Strength of reinforced gunitite slabs. G. E. Strehan. *Concrete 18:132-4 Mr '21*

Gunnery

- Naval gunnery and construction. *il Engineer 131:421-2, 434 Ap 22 '21*

See also Artillery; Ballistics; Explosives, Military; Gunpowder; Guns (ordnance); Projectiles; Range finding; Target practice

Gunpowder**Manufacture**

- La fabrication des poudres et explosifs. L. Lheure. *il Chimie & Ind 3:501-37 Ap '20*

Guns

- Eliminating the flash from rifles and big guns. M. Tevis. *Sci Am 123:484 N 6 '20*
 Nitrogen in steel, and the erosion of guns. H. E. Wheeler. *Min & Met 160:32 Ap '20*
 Triple-barreled gun shoots solid bullet from one tube. *il Pop Mech 36:5 Jl '21*

See also Cement gun; Concrete gun; Guns, Electric; Rifles; Temple driver; Winchester repeating arms company

Inspection

- Reflecting device for inspecting bores. L. E. Olsen. *diag Mach 27:48 S '20*

Guns, Electric

- Electric cannon system. Fauchon-Villeplée. *diags Elec W 78:528-9 S 10 '21*

Guns (ordnance)

- Copper-fouling of ordnance materials. A. Dagory. *Sci Am 125:197+ S 17 '21*
 Cutting up German guns; demolition of Kiel armament by oxy-hydrogen torch. C. A. Heise. *il Iron Age 107:912 Ap 7 '21*
 Death of a big gun. A. Benington. *il diag Sci Am M 1:33-5 Ja '20*
 Development of artillery matériel. G. F. Jenks. *il diags Mech Eng 43:167-72 Mr '21*
 L'évolution et les progrès de la mécanique appliquée; canons, moteurs d'aviation et locomotives à vapeur. *Génie Civil 77:420-2 N 20 '20*
 French suggest a 200-mile gun. *il Sci Am 125A:48-9 N '21*
 General Crozier on our ordnance effort. *Sci Am 123:80 Jl 24 '20*
 German giant gun. G. Greenhill. *diags Engineer 130:651-2 D 31 '20*
 German long-range gun. H. W. Miller. *il diags maps plans Mech Eng 42:89-100 F '20; Same. Engineering 109:27-30, 60-3 Jl 2-9 '20*
 Latest model of coast defense disappearing gun. *il Sci Am 122:308+ Mr 20 '20*
 Monster wire-wound gun heaviest yet made. F. K. Kyle. *il Pop Mech 34:666-7 N '20*
 Most powerful coast defense gun yet built. *il Sci Am 124:91 Ja 29 '21*

- New Holt tractor gun proves success on first official tryout. *il Am Mach 54:848 My 12 '21*
 Our new sixteen-inch barbette coast defense gun. *il Sci Am 124:405 My 21 '21*
 Power of a modern gun and of thunder. *Sci Am 125A:49 N '21*
 Schneider 155-mm. gun. *il diags Engineering 109:512-13 Ap 16 '20*
 Schneider 155-mm. howitzer. *il diags Engineering 109:442-3 Ap 2 '20*
 Submachine-gun magazine. A. B. Richeson. *diags Pop Mech 35:230 F '21*
 Types of artillery equipment used by the American expeditionary forces in France with a brief discussion of their uses and the reasons for their adoption. C. C. Williams. *il J Fr Inst 190:301-21 S '20*
 Why big guns are short-lived. A. Benington. *il Sci Am 122:44 Ja 10 '20*

See also Airplane guns; Ammunition; Artillery; Batteries; Machine guns; Naval guns

Manufacture

- Broaching the recoil cylinder of the 4.7-in. gun. M. E. Infiorati. *il diags Am Mach 52:977-8 My 6 '20*
 Cutting the rotating rack for a breech block. L. E. Olsen. *diags Am Mach 51:1063-4 D 18 '19*
 Experiment in one-piece gun construction. P. W. Bridgman. *diags Min & Met 158:(sec 14) 1-16 F '20; Excerpt. Sci Am M 1:185 F '20; Abstract. Engineering 109:712 My 28 '20*
 Machining problems solved in gun making. J. V. Hunter. *il Am Mach 51:949-52; 52:39-43, 133-7, 613-16, 733-5 N 27 '19, Ja 1, 15, Mr 18, Ap 1 '20*
 Manufacture of artillery range finders. G. H. Thomas. *il diags Am Mach 52:1045-7; 52:249-54, 301-4, 403-4 D 18 '19, Ja 29-F 5, 19 '20*
 Practice in making component drawings for interchangeable manufacture. E. Buckingham. *diags Mach 26:438-42, 521-4 Ja-F '20*
 Stamets gun-boring lathe. E. L. Dunn. *il Am Mach 51:1071-3 D 25 '19*
 12in. howitzer on a railway truck mounting. *il Engineer 130:204, 209 Ag 27 '20*

Guns, Airplane. *See Airplane guns*

Guns, Anti-aircraft

- Future of anti-aircraft artillery. R. V. Morse. *Aviation 11:100 Jl 25 '21*

Guns, Naval. *See Naval guns*

Gutenberg, Johann, 1399-1468

- Defense of Johann Gutenberg, inventor of typography. H. L. Bullen. *il Inland Ptr 66:190-2 N '20*
 Portrait. *Inland Ptr 66:176b N '20*

Gutta gaekwar

- Gutta gaekwar, a new base for chewing gum. F. Dannerth. *Chem & Met Eng 24:308 F 16 '21*

Gutta percha

- Gutta-percha industry. *Chem & Met Eng 22:792 Ap 28 '20*
 Problem of gutta percha cultivation solved. *il India Rubber W 63:263 Ja '21*
See also Balata; Rubber

Gutters

- Device for finishing concrete curb and gutter. *diags Eng & Contr 53:118 F 4 '20*

Gutters (roof)

- Laying copper roofing and gutters. W. Neubecker. *diags Sheet Metal Worker 12:403-4+, 465-6 Jl 8, Ag 5 '21*
 Zinc for eaves trough and conductor pipe. R. L. McHale. *Sheet Metal Worker 11:345-6 N 12 '20*

Guys

- Stresses in stack guys. *diags Marine Eng 26:709-10 S '21*

Gymnasiums**Lighting**

- Illumination of armories and gymnasiums. A. L. Powell and A. B. Oday. *il Elec R 76:973-5 Je 12 '20*

Gymnastics, Medical

See also Orthopedic apparatus

Gypsum

- Calcium sulphate in cement. F. W. Brown. Concrete 16:sup71-2 My '20
- Effect of calcium sulphate on cement. J. C. Witt. diag Concrete 16:sup32-5 F '20
- Gypsum as a building material. Am Arch 117:235-6 F 18 '20
- Gypsum as a building material. L. G. Hall. Sci Am M 4:296-8 O '21
- Gypsum deposits of the United States. R. W. Stone and others. bibliog il diags maps U S Geol S Bul 697:1-326 '20; Excerpts. Am Inst Arch J 9:190-2 My '21
- Gypsum in 1919. R. W. Stone. U S Geol S Min Res of U S 1919,pt2:99-113 '20
- Gypsum in 1920. R. W. Stone. U S Geol S Min Res of U S 1920,pt 2:55-64 '21
- Gypsum in 1920. F. A. Wilder. Eng & Min J 111:157 Ja 22 '21
- Gypsum output increases in 1919. R. W. Stone. Concrete 17:sup82 D '20
- Gypsum—properties, definitions and uses. U S Bur Stand Circ 108:1-21 '21; Abstract. J Fr Inst 191:407-8 Mr '21; Same abr. Eng & Ind Management 5:413 Ap 7 '21; Same. Mech Eng 43:195-6 Mr '21
- Our mineral supplies; gypsum. R. W. Stone. U S Geol S Bul 666:39-41 '19
- Relation between the fineness and other properties of calcined gypsum. W. E. Emley and F. C. Welch. Am Cer Soc J 4:301-5 Ap '21
- Relation of gypsum supplies to mining. D. H. Newland. Min & Met 177:51-3 S '21; Same cond. Eng & Min J 112:489-90 S 24 '21
- Setting of calcium sulphate cements. C. L. Haddon. Concrete 17:sup49-50 O '20
- Use of gypsum for roofing slabs. H. S. Taylor. Can Eng 39:305-6 S 2 '20
- Use special light gypsum blocks in floor construction. A. V. Bekay. il diags plan Eng N 86:544-6 Mr 31 '21
- What you should know about gypsum. Bldg Age 42:61-2 Jl '20
- See also Plaster board

Advertising

- Where advertising turns unfavorable trade conditions to its advantage. A. Cobb, jr. Ptr Ink 114:113-14+ Mr 10 '21

Specifications

- Report of A.S.T.M. committee C-11 on gypsum. Am Soc T M Pro v 20 pt 1:380-6 '20
- Tentative specifications for gypsum. Am Soc T M Pro v 20 pt 1:609-15 '20

Testing

- Results of testing gypsum products. W. E. Emley and C. F. Faxon. Am Cer Soc J 3: 984-93 D '20
- Tentative methods for tests of gypsum and gypsum products. diags Am Soc T M Pro v 20 pt 1:634-46 '20

Gypsum, Reinforced

- Gypsum roof decks for hydroelectric buildings. C. F. Columbia. il Munic Eng 58:132-4 Mr '20
- Gypsum tile as a covering for railroad buildings. C. F. Columbia. il Ry Age 69: 961-2 D 3 '20
- Tests of plain and reinforced gypsum specimens. W. A. Slater and G. P. Anthes. il diags W Soc E J 24:399-462 S '19; Discussion. 24:595-600 N '19

Gypsum Industries' association

- Gypsum industries' association cited for unfair competition. Chem & Met Eng 25:570 S 21 '21

Gypsum plasters. See Plaster and plastering

Gypsum products**Terminology**

- Tentative definitions of terms relating to the gypsum industry. Am Soc T M Pro v 20 pt 1:658-77 '20

Gyro stabilizers. See Ships—Stability

Gyroscope

- Construction of the Lyndonia stabilizer. W. T. Manning. il diags Elec J 18:342-3 Ag '21

Electrical equipment for the Lyndonia stabilizer. T. P. Kirkpatrick and H. C. Coleman. il diags Elec J 18:344-9 Ag '21

Giant gyroscopes stabilize ocean liners. G: F. Paul. il Pop Mech 36:552-6 O '21

Les gyroscopes anti-rouleurs. A. Poidlouë. diags Génie Civil 76:552-4 Je 19 '20

Gyroscopic stabilization for ships. diags Mech Eng 43:685-6 O '21

Gyroscopic stabilizer on the S. Y. Lyndonia. A. E. Schein. il diags Elec J 18:336-41 Ag '21

Large gyroscopes for stabilising ships. il Engineering 111:550, 556 My 6 '21

Preventing the roll of ships; why the gyroscopic stabilizer is practical. J. F. Springer. il Sci Am 124:308+ Ap 16 '21

Romance of invention. C. H. Claudy. il Sci Am 122:420+ Ap 17 '20

Stabilisation of ships by means of gyroscopes. P. R. Jackson. il diags Engineering 109:462-4 Ap 2 '20; Excerpt. Engineer 129:343-4 Ap 2 '20; Discussion. Engineering 109:439 Ap 2 '20; Engineer 129:344 Ap 2 '20

World's largest gyroscope. il Marine Eng 26: 251 Mr '21

Gyroscopic compass. See Compass, Gyrostatic

H

H-acid. See Aminonaphtholdisulfonic acid

Haber process. See Nitrogen

Habirshaw electric wire and cable company

Increasing sales by advertising the industry. E: T. Tandy. Ptr Ink 114:49-50+ Mr 24 '21

Habit

Scientific reason for failure. D. H. Colcord. Sci Am 122:185 F 21 '20

Hadfield, Robert Abbott, 1859-

American engineers in England and France; delegation from American engineering societies received marked attention, courtesy and honors; presented John Fritz medals to Sir Robert Hadfield and to Eugène Schneider. il Min & Met 176:8-11 Ag '21

John Fritz medal awarded to Sir Robert Hadfield. por Iron Age 107:260 Ja 27 '21

John Fritz medalist. Iron Age 107:1749 Je 30 '21; Chem & Met Eng 24:1147 Je 29 '21; Eng & Min J 111:1036-7 Je 18 '21; Iron Tr R 68:1780-1 Je 30 '21; Min & Met 175:4-5 Jl '21; Mech Eng 43:558-60 Ag '21

Hagerstown, Maryland

Water supply

Inquiry into the effect of meteorological conditions upon the efficiency of storage, filtration, and chlorination, based upon a study of the Hagerstown water supply. A. Wolman. map Am Water Works Assn J 7:352-63 My '20

Hague. Permanent court of international justice

Text of Root plan for permanent court of international justice. Comm & Fin Chr 111:1431-3 O 9 '20

Hair

Durability of furs and fabrics. L. A: Hausman. il diags Sci Am M 4:252-4 S '21

Hairs that make fabrics. L. A: Hausman. diags Sci Am 122:184+ F 21 '20

Obstipui, comae steterint; the physical sensations accompanying the emotions of fear and horror. M. Tevis. Sci Am 123:497 N 13 '20

Variations in the hygroscopic action of human hair. A. R. Clawson. Sci Am M 4:352 O '21

Dyeing and bleaching

Dyeing of human hair. E. C. Gray. Color Tr J 6:63-5 F '20

Hair nets

Venida finds a way to merchandise a rival line. E. B. Weiss. Ptr Ink 116:117-18+ S 29 '21

Hair work

Curled hair for car upholstery. C. A. Podesta. Automotive Ind 44:962 My 5 '21

See also Horsehair

Halides

Alkylene and some alkyl halides of 2(4-hydroxy-3-methoxy-styryl)quinoline. L: F. Werner. Am Chem Soc J 43:890-1 Ap '21

Heterogeneous equilibria between aqueous and metallic solutions: the interaction of mixed salt solutions and liquid amalgams; a study of the ionization relations of sodium and potassium chlorides, bromides and iodides in mixtures. L. S. Wells and G. McP. Smith. Am Chem Soc J 42:185-205 F '20

Reaction between acid halides and aldehydes. H. E. French and R. Adams. Am Chem Soc J 43:651-9 Mr '21

Reaction between acid halides and aldehydes. L. H. Ulich and R. Adams. Am Chem Soc J 43:660-7 Mr '21

Reaction of alkali halides with mercury derivatives of phenol. F. C. Whitmore and E. B. Middleton. Am Chem Soc J 43:619-24 Mr '21

See also Ammonium halides

Halifax, Nova Scotia

How Halifax was rebuilt. J. L. Crane, jr. il Munic Eng 61:102+ S '21

Rebuilding the city of Halifax. A. J. R. Curtis. il diags plan Bldg Age 43:21-3 F '21

Hall effect

Hall effect and the Nernst effect in magnetic alloys. A. W. Smith. Phys R 17:23-37 Ja '21

Hall of fame

This year's nominations for the Hall of fame. il Sci Am 123:226+ S 4 '20

Halobates

Only insect found in the sea; halobates. M. A. von Luetgendorff. il Sci Am M 2:125-6 O '20

Halogens

Beitrag zur kenntnis der halogen-substitutions-reaktion. A. Kronstein. Deutsche Chem Gesell Ber 54:1-16 Ja '21; Abstract (Halogen substitution reactions). Chem Soc J 120 pt 1:153-5 Mr '21

Conditions underlying the formation of unsaturated and cyclic compounds from halogenated open-chain derivatives; products derived from α -halogenated adipic acids. C. K. Ingold. Chem Soc J 119:951-70 Jl '21

Conditions underlying the formation of unsaturated and of cyclic compounds from halogenated open-chain derivatives; products derived from α -halogenated glutaric acids. C. K. Ingold. Chem Soc J 119:305-29 Mr '21

Copper flame test for halogens in air. A. B. Lamb and others. diag Am Chem Soc J 42:78-84 Ja '20

Electrolytic determination of the halogens: an indirect method. J. H. Reedy. diag Am Chem Soc J 41:1898-1902 D '19

Halogenation; the replacement of sulfonic groups by chlorine and the preparation of organic chloro-derivatives. R. L. Datta and H. K. Mitter. Am Chem Soc J 41:2028-38 D '19

Labile nature of the halogen atoms in substituted nitromethanes. A. K. Macbeth and D. D. Pratt. Chem Soc J 119:1356-61 S '21

Liquid ammonia-sodium method for the determination of halogen in organic compounds. F. B. Dains and R. Q. Brewster. Am Chem Soc J 42:1573-9 Ag '20

Replacement of halogen attached to a ring carbon atom by other substituents; replacement of halogen by OH, SH and SeH; abstract. K. W. Rosenmund and H. Harms. Chem Soc J 120 pt 1:103-4 F '21

Replacement of sulfonic acid groups by halogens. R. L. Datta and J. C. Bhoumik. Am Chem Soc J 43:303-15 F '21

Simple, rapid method for the determination of halogen in organic substances. W. A. Van Winkle and G. McP. Smith. diags Am Chem Soc J 42:333-47 Mr '20

See also Bromine; Chlorine; Fluorine; Iodine; Trihalogen-methyl compounds

Hambidge, Jay

Dynamic symmetry and the Greek vase; criticism of review in The Nation. W: H. Goodyear. G. A. Eisen. Am Arch 118:669, 673-4, 701-2 N 24-D 1 '20

Dynamic symmetry; the rediscovery of the basic principles of Greek art. il diags Sci Am M 4:23-8 Jl '21

Hamilton, Ohio**Bridges**

Construction features of Black st. bridge piers, Hamilton. il diags plans Eng & Contr 55:280-2 Mr 23 '21

Hammer-welding. See Welding

Hammers

Belt-driven 200-pound forging hammer. diags Mach 27:658 Mr '21

Electrically driven drop-hammer battery for China. il chart diags Engineer 132:246-7 S 2 '21

Long & Allstatter hammers. il Mach 26:985 Je '20

Motor drive for drop hammers. il Iron Age 107:1746 Je 30 '21; Same. Elec R 79:354-5 S 3 '21; Same abr. Elec W 78:124-5 Jl 16 '21

Utility forge hammer. il Engineer 129:202 F 20 '20

See also Pneumatic hammers; Steam hammers

Hammond, John Hays

Strikes—how to avoid them; an interview with John Hays Hammond. W: L. Stoddard. Ind Management 61:77-84 F 1 '21

Hampden, Walter

Four illustrations of Walter Hampden's production of Hamlet. C. Bragdon. Am Inst Arch J 9:240-3 Jl '21

Handicraft

School and fireside crafts. A. Macbeth and M. Spence. 107p Methuen & co., London '20

Handling machinery. See Mechanical handling

Handling material. See Conveying machinery;

Freight handling; Hoisting machinery; Mechanical handling; also names of material handled, e.g. Coal handling. Fruit handling, Grain handling, Rail handling

Hands, Mechanical

Fingers of automatic hand function independently. il Pop Mech 34:599 O '20

Handwheels

Device for turning handwheels. H. M. Bogart. diags Am Mach 52:577-8 Mr 11 '20

Hangars

Air mail uses bascule door hangar. Aviation 10:666-7 My 23 '21

Airplane shed with special roof and door construction. il diags Eng N 87:565-6 O 6 '21

Airship sheds and their erection. L. H. Larmuth. Engineering 111:420 Ap 8 '21; Same. Engineer 131:412 Ap 15 '21; Same. Eng & Ind Management 5:441-2 Ap 14 '21

L'application des cables à la construction d'ateliers et de hangars pour avions ou dirigeables, à toiture suspendue. G. L. Le Cocq. il diags plans Génie Civil 78:205-11, pl 1 Mr 5 '21

Cape May hangar for dirigible built from two small ones. il diags Eng N 87:698-700 O 27 '21

Details of the Lakehurst airship station. il Aviation 11:231 Ag 22 '21

Hangar door operated like bascule bridge. il Pop Mech 36:33 Jl '21; Sci Am 125:101 Ag 6 '21

Hangar en béton armé pour deux dirigeables à Luçon (Vendée). C. Dantin. il diags Génie Civil 78:145-8 F 12 '21

Housing the airplane. E. L. R. Grimsley. il Aviation 7:271-2 O 15 '19

Lakehurst naval airship station. Aviation 11:138 Ag 1 '21

Large German airship stations. J. Sabatier. Aerial Age 14:128-30 O 17 '21

Large roofs suspended by cables to avoid columns. diags Eng N 87:688-9 O 27 '21

Light concrete hangars with curved roofs. diags plan Eng & Contr 54:328-9 S 29 '20

Model of greatest airship shed on exhibition. il Pop Mech 33:647 My '20

Hangars—Continued

- Navy dirigible hangar at Lakehurst a huge structure. diags plans Eng N 84:892-7 My 6 '20
- New cement hangar for dirigibles at Lucon, France. J. H. Blakey. Power Pl Eng 25:1046 N 1 '21
- New hangar door resembles ancient draw-bridge. il Pop Mech 34:723 N '20
- New-type shed for housing giant flying boats. il Pop Mech 36:333 S '21
- L'organisation des stations de dirigeables en Allemagne. J. Sabatier. Génie Civil 78:483 Je 4 '21
- Our ZR-2 airship and its shed. G. H. Dacy. il Sci Am 125:160+ S 3 '21
- Reinforced concrete hangars. il diag Concrete 19:122-3 S '21
- Remarkable hangar built for the navy's two dirigibles. Automotive Ind 45:130 JI 21 '21
- Hannaford, J. M., 1850-**
President of the Northern Pacific has announced his resignation. por Ry Age 69:612-13 O 8 '20
- Harahan, William J., 1867-**
Sketch. por Ry Age 69:1035-6 D 10 '20
- Harbors**
Better port terminals to develop nation's commerce. W. J. Wilgus. Eng N 85:1292 D 30 '20
- Co-ordination of railway and marine terminals. Ry Age 69:1040 D 10 '20
- Deterioration of materials used in harbour construction. Engineering 109:584-7 Ap 30 '20; Same cond. Eng & Contr 53:733-6 Je 30 '20
- Engineers in relation to port and harbor design. Eng N 85:720 O 7 '20
- Enlarging the facilities of the harbor of Marseilles. T. Saville. il diags map plan Eng N 85:1046-9 N 25 '20
- L'extension du Port de Marseille et l'aménagement des étangs de Berre et de Caronte. A. Pawlowski. il map plans Génie Civil 76:57-65 Ja 17 '20
- Harbor obstruction to become shipping aid. H. E. Thomas. il Pop Mech 33:833-5 Je '20
- Harbour works improvements. J. Mitchell. Engineering 109:129-30 Ja 23 '20
- Improvements at Fishguard Harbour. Engineer 129:597 Je 11 '20
- Les installations nouvelles exécutées pendant la guerre dans le port de Nantes et la Loire maritime. A. Kauffmann. map plan Génie Civil 76:89-91 Ja 24 '20
- Langstone harbour development. Engineer 129:621 Je 18 '20
- Larger ships, deeper harbors, better dredges. A. W. Robinson. Can Eng 39:423-6+ O 14 '20; Discussion. 39:574-5, 600-1, 613-14, 630; 40:109-11, 135-6, 147, 283-4, 307-9 D 2-23 '20, Ja 6-20, Mr 10-17 '21; Eng & Contr 55:69-70 Ja 19 '21
- Marine terminals and harbor engineering. H. M. Harding. Int Marine Eng 25:175-6 Mr '20
- Money spent on Canadian harbors since confederation. Can Eng 38:580 Je 17 '20
- New works for the Federated Malay states government railways. diags map plans Engineer 129:440-2 Ap 30 '20
- Le nouveau port fluvial de Chalon-sur-Saône. G. Bérot. plan Génie Civil 77:511-12 D 18 '20
- Progress in dock and harbour works. Engineer 131:59-60 Ja 21 '21
- Progress on Toronto harbor works. diag map Eng N 84:724-6 Ap 8 '20
- Proposed development of Kingston harbor. A. Langlois. plan Can Eng 39:408 O 7 '20
- \$700,000,000 for harbors and terminals. H. M. Harding. il Marine Eng 26:849-52 N '21
- Shipping facilities of the port of Astoria. R. R. Bartlett. il diags map Int Marine Eng 25:104-9 F '20
- See also* Breakwaters; Bulkheads; Docks; Dredging; Free harbors; Piers; Pilots and pilotage; Ports; Terminals; Wharves; also subdivision Harbor under names of cities, e.g. Chicago—Harbor, New Orleans—Harbor, New York (city)—Harbor
- Hard wood distillation.** See Wood distillation

Hard woods

- Comprehensive survey of the Southern hardwood situation. Am Lumberman 2348:60 My 15 '20
- Hardwood-distillation industry. L. F. Hawley. il Chem & Met Eng 25:137-40, 195-9, 237-41 JI 27-Ag 10 '21
- Hardwood distillation industry of Southern states and its development of by-products. Am Lumberman 2351:62 Je 5 '20
- Hardwood mills in the heart of West Virginia. il Am Lumberman 2343:60-1 Ap 10 '20
- Utility of hardwoods for paving shown in comparative tests. E. E. Butterfield. Eng N 85:656-8 S 30 '20
- See also* Hickory; Oak

Hardening

- Meeting of the American society for steel treating; theory of hardening. Chem & Met Eng 25:647-8 O 5 '21
- Selective hardening kinks. W. H. Addis. il Am Mach 52:768 Ap 8 '20
- Slip interference theory of the hardening of metals. Z. Jeffries and R. S. Archer. il diags Chem & Met Eng 24:1057-67 Je 15 '21; Summary. Sci Am M 4:274 S '21; Discussion. Chem & Met Eng 25:313-14, 509-12, 584, 641, 728-9 Ag 24, S 14, 28-O 5, O 19 '21
- See also* Brinell hardness test; Case hardening; Cement—Setting; Hardness; Steel, Hardening of
- Hardening of copper.** See Copper, Hardening of
- Hardening of steel.** See Steel, Hardening of
- Harding, Warren Gamaliel, 1865-**
Address on the unveiling in Central Park of Simon Bolivar. Comm & Fin Chr 112:1702-3 Ap 23 '21
- Message to Congress. Comm & Fin Chr 112:1572-6 Ap 16 '21
- Warren G. Harding inaugurated as president; inaugural address. Comm & Fin Chr 112:894-6 Mr 5 '21
- Hardness**
Alfred Herbert hardness testing machine. il diags Engineering 111:612 My 20 '21; Génie Civil 79:155-6 Ag 13 '21; Mach 27:1157-8 Ag '21; Am Mach 55:243, 244-5 Ag 11 '21
- Brinell testing machine for large forgings. il diags Engineering 111:680 Je 3 '21
- Constitution of martensite and troostite. D. J. McAdam, jr. diags plan Chem & Met Eng 25:613-18 S 28 '21
- Formulas for the brass foundryman. Foundry 48:192a, 236a Mr 1-15 '20
- Fritz Werner A. G. hardness-testing device. il Am Mach 54:1061-2 Je 16 '21
- Hardness and its relation to ductility and fatigue range. W. Rosenhain. Automotive Ind 44:604-7 Mr 17 '21
- Hardness of certain aluminum alloys. R. E. Search. il Metal Ind 18:403-5, 514-17 S, N '20
- Hardness of chilled wheels. il Iron Age 108:672 S 15 '21
- Hardness of solid solutions. W. Rosenhain. Chem & Met Eng 25:243-5 Ag 10 '21
- Hardness-testing machine gives dial readings. il Pop Mech 35:544 Ap '21
- Hardness testing of metals; report of committee of the National research council. il Mech Eng 43:445-9 JI '21; Discussion. R. H. Coolidge. 43:690-1 O '21
- Hardness variations in heat-treated steel. C. R. Hayward. Chem & Met Eng 25:695-6 O 12 '21
- Method of measuring the magnetic hardness of ferrous metals and its utility for carrying out research work on thermal treatment. L. A. Wild. diag Electrician 84:320-2 Mr 19 '20
- Modulus of hardness of vulcanized rubber. H. P. Gurney. il diags J Ind & Eng Chem 13:707-12 Ag '21
- Note on the ball test. T. Baker and T. F. Russell. Engineering 109:698-700; Discussion. 675-6 My 21 '20
- Riehle combination Brinell and scleroscope hardness testing machine. il Am Mach 55:363 S 1 '21; Ry R 69:314-15 S 3 '21
- Rockwell direct reading hardness testing machine. il Iron Age 107:132 Ja 13 '21

Hardness—Continued

Rockwell hardness tester. *il* Iron Age 105:950 Ap 1 '20

Study of the relation between the Brinell hardness and the grain size of annealed carbon steels. H: S. Rawdon and E. Jimeno-Gil. *il* U S Bur Stand Sci Pa 397:557-93 '20

Testing and heat indicating equipment for hardening rooms. S. P. Rockwell. *il* Mach 26:933-5 Je '20

Testing hardness of bearings and journals. *il* diags Iron Age 106:1727-30 D 30 '20

Ueber die härteprüfung weicher metalle, insbesondere der lagermetalle. P. Bardenheuer. *diag* Stahl & Eisen 41:927-8 Jl 7 '21

Use of the scleroscope on light specimens of metals. F. S. Tritton. *il* diags Engineering 112:492-3; Discussion. 483-4 S 30 '21

See also Brinell hardness test; Copper, Hardening of; Hardening; Steel, Hardening of

Hardware

Another hobby that became a business; history of the W. Irving Forge, inc. *il* Ptr Ink M 2:57+ Ap '21

Good hardware makes a house run smoothly. *il* Bldg Age 43:27 Ag '21

South African markets for American hardware. R. A. Lundquist and C. S. Williams. U S Bur For & Dom Com 198:1-55 '20

See also Bolts and nuts; Building fittings; Files and rasps; Knives; Nails; Saws; Screws; Tools

Advertising

Users tell manufacturer how to improve tools he makes. *Ptr Ink* 111:82+ My 27 '20

Hardwood. *See* Hard woods

Hardwood distillation. *See* Wood distillation

Hardwood lumber association, National. *See* National hardwood lumber association

Hardwood manufacturers association, American. *See* American hardwood manufacturers association

Hare, Meredith

Pidgeon Hill residence of Meredith Hare. H. Croly. *il* plans Arch Rec 48:179-91 S '20

Hares, Fossil

Palæolagus, an extinct hare. E: L. Troxell. *diags* Am J Sci 5th ser 1:340-8 Ap '21

Harkness memorial quadrangle. *See* Yale university—Harkness memorial quadrangle

Harlem river

New York (State) Harlem River improvement board of conference. Report. 195p J. B. Lyon co., printers, Albany '20

Opening up the Harlem river. *il* Sci Am 122:507 My 8 '20

Harmine

Harmine and harmaline; the synthesis of norharman. W: O. Kermack, W: H: Perkin, jr. and R. Robinson. *Chem Soc J* 119:1602-42 O '21

Harmonic analysis

Electromechanical device for rapid schedule harmonic analysis of complex waves. F: S. Dellenbaugh, jr. *bibliog il* diags Am Inst E E J 40:135-44 F '21

Harmonic analysis and periodicity measurements. W. L. Balls. *diags* Engineering 112:469 S 30 '21

Harmonic analysis by selected ordinates. A. E. Clayton. *diags* Inst E E J 59:491-510 My '21; Discussion. 59:751-5 Jl '21

Harmonic analysis of rectilinear wave-forms. *diags* Inst E E J 57:sup82-4 '19

Harmonic oscillations. A. F. Zahm. *diags* J Fr Inst 191:381-404 Mr '21

New harmonic analyzer. W. Mason. *diags* Am J Sci 5th ser 1:484-90 Je '21

Practical method of harmonic analysis. P. Kemp. *Inst E E J* 57:sup85-91 '19; Discussion. 58:892 S '20

Simple harmonic analyser. V. Bush. *il* diags Am Inst E E J 39:903-5 O '20

Treatment of harmonics in alternating current theory by means of a harmonic algebra. A. Press. *diags* Univ of Cal Pub in Engineering v 2, no 5:139-204 '19

See also Bessel's functions; Fourier's series

Bibliography

Electromechanical device for rapid schedule harmonic analysis of complex waves. F: S. Dellenbaugh, jr. *Am Inst E E J* 40:143-4 F '21

Harmonic analyzer

Beautiful faces translated into music. H. A. Mount. *il* Pop Mech 34:325-9 S '20

Harness

Harness repairing. L: M. Roehl. 53p Bruce pub. co., Milwaukee, Wis. '21

See also Leather—Testing

Harper, John Lyell

Portrait. *Elec W* 76:560 S 18 '20

Harries, George Herbert, 1860-

Portrait. *Elec W* 76:512 S 11 '20

Sketch. C. M. Gailmard, jr. *por* Illum Eng Soc 15:sup51-4 no 5 '20

Harriman, William Averell, 1891-

Seeks and wins front rank in marine field. V. G. Iden. *por* Marine R 51:121-7 Mr '21

W. A. Harriman as a ship operator. V. G. Iden. *por il* map Marine R 51:175-81 Ap '21

Harrington, Joseph, 1873-

Combustion engineer. *por* Power 51:813-14 My 18 '20

Harrisburg, Pennsylvania**Bridges**

Philadelphia & Reading to build 46-arch double-track concrete bridge at Harrisburg. E. Chamberlain. *il* diags Ry Age 69:869-71 N 19 '20; Same. *Eng & Contr* 54:608-10 D 22 '20

Harrison, Peter

Tablet to Peter Harrison. R: F. Bach. *Arch Rec* 47:96 Ja '20

Harrows

Care and repair of plows and harrows. E. B. McCormick and L. L. Beebe. *diags* U S Agric Farmers' Bul 946:1-9 '20

Hartford, Connecticut**Architecture**

Some recent work in Hartford, Conn. D. Barber. *il* plans Arch Forum 34:114-19, pl 49-51 Ap '21

Water supply

Abolition of double check valves on Hartford water-works. *Eng N* 87:12-13 Jl 7 '21

Building the Hartford filter. *il* Pub Works 48:159-62 Mr 6 '20

Hartford experience with compound meters. J. E. Garratt. *Am Water Works Assn J* 7:855-8 N '20

Reservoir maintenance in Hartford. *Pub Works* 48:344-5 Ap 24 '20

Water-works cross-connections at Hartford, Conn. *Eng N* 87:409-11 S 8 '21

What is the legitimate use of water? C. M. Saville. *Am Water Works Assn J* 7:914-26 N '20; Same. *Eng & Contr* 54:566-9 D 8 '20; Abstract. *Pub Works* 49:509-11 N 27 '20

Hartford times, Hartford, Connecticut

Hartford Times building. *il* diags plan Arch Forum 32:141-4 Ap '20; Same. *Am Arch* 118:140-1, 143, pl 148a-f Ag 4 '20

Some recent work in Hartford, Conn. D. Barber. *il* Arch Forum 34:119, pl 49-51 Ap '21

Hartshorne, Oklahoma**Water supply**

Features of new water purification plant at Hartshorne. V. V. Long. *il* plan Munic Eng 60:123-4+ Mr '21

Harvard engineering school, Cambridge, Massachusetts

Engineering education at Harvard. *Eng N* 86:594-5 Ap 7 '21

Harvard engineering school, Cambridge, Massachusetts—*Continued*

New instructional plan at the Harvard engineering school. *Am Mach* 52:1107 My '20

Practical training for engineering students. *Can Eng* 38:403 Ap 22 '20

Harvard university

Report on trip to Princeton, College of City of New York, Yale and Harvard for the purpose of inspecting the stadia at those universities. H. D. Smith. *il Am Arch* 118:221-4 Ag 18 '20

Harvesting machinery

Hemp-handling machines create new industry. *il Pop Mech* 33:333-4 Mr '20

New method of filling the silo. I. J. Mathews. *il Sci Am* 122:135+ F 7 '20

New sweet clover harvester. *il Sci Am* 124:109 F 5 '21

Platform corn harvester. *il Sci Am* 125:83 Jl 30 '21

Promising flax harvester demonstrated. F. K. Kyle. *il Pop Mech* 35:698-9 My '21

Rice-harvesting tractor works in deep mud. *il Pop Mech* 35:703 My '21

See also Hay making machinery

Harvey, George

Col. Harvey defines the position of United States to the League of nations. *Comm & Fin Chr* 112:2150-1 My 21 '21

Hatch, Darwin S., 1883-1920

Managing editor of *Motor age* dies suddenly of pneumonia. D: Beecroft. *por Motor Age* 37:103 Ja 29 '20

Hats

Dyeing of wool hats; abstract. A. Winter. *Color Tr J* 8:175-6 My '21

Finishing wool hat bodies. J. A. Wilson. *Textile World* 56:3201+ N 29 '19

Instructions in hat cleaning, renovating and blocking. 27p The Hatters supply house, Chicago '20

See also Stetson, John B., company

Haulage

Both motor trucks and industrial railway used on road job. H. E. Breed. *il Eng N* 86:289-91 F 17 '21

Giant rotors rolled over mountain roads. *il Pop Mech* 35:692-3 My '21

Light railway and motor trucks both used on road job. *il plans Eng N* 85:802-3 O 21 '20

Method of transporting 70-ton rotors through mountainous country. W. A. S. Harmon. *il Eng & Contr* 54:226-7 S 8 '20

Moving structural steel. *il Sci Am* 124:154 F 19 '21

Present position of mechanical road traction. C. G. Conradi. *diags Engineer* 128:546-8 N 28 '19

65-ton rotor rolled more easily than carried. *il diag Eng N* 87:454 S 15 '21

Winter hauling for road work in the Dakotas, Minnesota and Wisconsin. E. G. Edwards. *il Eng & Contr* 54:215-17 S 1 '20; Same abr. *Pub Works* 49:261-2 S 18 '20

See also Conveying machinery; Dump cars; Electric trucks; Loading and unloading; Locomotives; Mine haulage; Motor truck trailers; Motor trucks; Motor trucks in construction work; Motor trucks in freight service; Motor trucks in lumber handling; Petroleum—Transportation; Road materials—Transportation; Tractors

Cost

Cost of motor truck haulage in road construction. *Eng & Contr* 53:251-2 Mr 3 '20

Data on storage-battery haulage by railroads. *Elec W* 75:167 Ja 17 '20

Hauling aggregates by motor truck on concrete road construction. *Concrete* 16:98-9 F '20

Motorized freight transfer cuts terminal costs. *Eng N* 84:510 Mr 11 '20

Trailer as a reducer of haulage costs. H. Greene. *il Bldg Age* 42:36-8 Ja '20

Use of heavy tractors for hauling elevating graders and wagon trains from steam shovel. L. V. Branch. *il Eng & Contr* 53:451-4 Ap 21 '20; Same. *Concrete* 16:241-3 My '20

Use of portable track and cars in concrete construction. W: W. Hay. *Concrete* 17:128-30 O '20

See also Motor trucks—Cost of operation

Havana electric railway light & power company

8th annual report of the directors for the year ended December 31, 1919. *Comm & Fin Chr* 110:2204-5 My 22 '20

Ninth annual report, 1920. *Comm & Fin Chr* 112:2202-3 My 21 '21

Hawaiian Islands

Centennial celebration of a great success. *Comm & Fin Chr* 110:1469-70 Ap 10 '20

Hawaii from the air; first aerial survey of our possessions in the Pacific. C. Carriel. *il map Flying* 10:127-30 My '21

See also Agriculture—Hawaiian Islands; Geology—Hawaiian Islands

Hawkins, Rush Christopher, 1831-1920

Great American patron of printing. H. L. Koopman. *Ptg Art* 36:385-7 Ja '21

Hawks

Feathered hunters who work for man; ancient sport of falconry, a pastime well suited for modern America. T: C. Turner. *il Sci Am M* 2:318-21 D '20

Hay

Hearings on western grain and hay rates. *Ry Age* 71:449-50 S 3 '21

Inter-state rates on grain, grain products, and hay, in West declared unreasonable. *Comm & Fin Chr* 113:1845-8 sec 1 O 29 '21

Rates on hay and grain to be reduced. *Ry R* 69:568-70 O 29 '21

See also Alfalfa; Grasses

Hay cake

Hay cake—a new fodder for cattle and horses. *Sci Am M* 3:254 Mr '21

Hay fever

Summer sneezer; new light on hay fever, rose colds, and the like. F. P. Stockbridge. *Sci Am* 125:45+ Jl 16 '21

Hay making machinery

Harvesting the hay the latest way. A. L. Dahl. *il Sci Am* 123:157+ Ag 14 '20

Headache

Headache. S. Cobb and D. C. Parmenter. *J Ind Hygiene* 3:173-8 O '21

Headframes

Ferro-concrete pithead frame at Bentley colliery, Doncaster. *il diags Engineering* 110:499-501, pl 63 O 15 '20; Excerpts. *Min & Met* 168:42-3 D '20

Headgates. *See* Gates, Hydraulic

Headlights. *See* Automobiles—Lighting; Locomotive headlights

Health boards

Activities of Provincial sanitary engineers. F. A. Dallyn. *Can Eng* 38:109-11 Ja 1 '20

New specifications for public health officers. M. Knowles and M. R. Scharff. *Eng N* 84:39-42 Ja 1 '20

Hearing

Minimum sound energy for audition. F. W. Kranz. *Phys R* 17:384 Mr '21; Abstract. *Sci Am M* 3:558 Je '21

Heart

Diagnosis of heart troubles by wireless. S. R. Winters. *il Sci Am* 124:465 Je 11 '21

Heart as a pumping engine. C: N. Holmes. *il Sci Am* 124:201 Mr 12 '21

Some notes on the electro-cardiograph. R. S. Whipple. *il diags Inst E E J* 57:sup13-26; Discussion. 26-8 '19

Vacuum-tube amplifier used to study heart beats. *Elec W* 77:902 Ap 16 '21; *Pop Mech* 35:676 My '21; *Elec R* 78:954 Je 11 '21

When the heart tells its story. H. A. Henry. *il Sci Am* 122:676+ Je 19 '20

Heat

Advanced lecture notes on heat. J. R. Eccles. 177p University press, Cambridge, England '21

Back to first principles; an elementary course in heating and ventilating engineering. R. Davies. Heat & Ven 18:38-41 My '21

Heat. D: H. Cuyler. Dom Eng 91:336-7+ My 22 '20

Lessons in heat; a text-book for colleges and technical schools. W: S. Franklin and B. MacNutt. 147p Franklin and Charles, Bethlehem, Pa. '20

Text-book of physics. J. H. Poynting and J. J. Thomson. 6th ed. 354p C. Griffin and co., London '20

Use of heat and ultra-violet radiation in the war. Illum Engr 12:295-6 O '19

See also Atmospheric temperature; Boiling points; Calorimeters and calorimetry; Chemical reaction, Heat of; Combustion; Dilution, Heat of; Evaporation; Expansion (heat); Flame propagation; Fusion, Latent heat of; Heating; Hydration, Heat of; Insulation (heat); Latent heat; Liquid air; Melting points; Pyrometers and pyrometry; Specific heat; Steam; Temperature; Thawing; Thermochemistry; Thermodynamics; Thermoelectricity; Thermometers and thermometry; Waste heat

Terminology

Preliminary report of the American society of mechanical engineers' standing committee on symbols in heat engineering. Mech Eng 43:623 S '21

Heat conductivity

Application of the thermal conductivity method to the automatic analysis of complex mixtures of gases. E. R. Weaver and P. E. Palmer. diag J Ind & Eng Chem 12: 894-9 S '20

Automatic methods of gas analysis depending upon thermal conductivity. E. R. Weaver and others. il diags J Ind & Eng Chem 12:359-66 Ap '20

Double pipe heat interchangers. G: A. Richter. diags plans Chem & Met Eng 22: 551-6 Mr 24 '20

Longitudinal and transverse heat flow in slot-wound armature coils. C. J. Feehheimer. Am Inst E E J 40:244-8, 332-40, 421-30 Mr-My '21

New thermal testing plate for conduction and surface transmission. F. C. Houghten and A. J. Wood. il diag plan Am Soc Heat & V E J 27:529-42 Jl '21; Same. A S R E J 8:23-36 Jl '21; Discussion. Am Soc Heat & V E J 27:614-18 Jl '21

Relative heat conductivities of some building materials. Am Arch 119:78 Ja 19 '21

Relative heat conductivities of some insulating and building materials. J. J. Lichtin. il diag Chem & Met Eng 24:388 Mr 2 '21

Thermal conductivities of various insulating and building materials. Am Arch 118:682 N 24 '20

Thermal conductivity and diffusivity of concrete. A. P. Carman and R. A. Nelson. il diags Ill U Eng Exp Sta Bul 122:1-32 '21; Abstract. Eng & Contr 56:391-2 O 26 '21

Thermal conductivity of building materials. C. Schroeder. diags Sci Am M 3:243-4 Mr '21

Thermal conductivity of coil wrappers. T. S. Taylor. diags Elec W 75:369-71 F 14 '20

Thermal conductivity of heat insulators. M. S. Van Dusen. il diags Am Soc Heat & V E J 26:625-52 O '20; Same. A S R E J 7:202-29 N '20; Discussion. Am Soc Heat & V E J 26:652-6 O '20; Excerpts. A S R E J 7:229-31 N '20

Thermal conductivity of insulating and other materials. T. S. Taylor. diags Elec J 16:526-32 D '19; Same cond. Mech Eng 42:8-10 Ja '20; Abstract. Elec R 75:1054-6 D 27 '19

Thermal conductivity of underground ducts. W. S. Wilder. diags Elec W 75:14-17 Ja 3 '20

Der wärmeübergang bei flüssigkeiten und gasen als funktion der geschwindigkeit. H. Preussler. Stahl & Eisen 41:827-30 Je 16 '21

See also Heat transmission

Heat convection

Heat loss by convection from wires in a stream of air, and its relation to the mechanical resistance. A. H. Davis. diags Philos Mag 6th ser 41:899-908 Je '21

Null-deflexion constant current type of hot-wire anemometer, for use in the determination of slow rates of flow of gases, together with an investigation of the effect of the free convection current upon such determinations. J. S. G. Thomas. diag Philos Mag 6th ser 41:716-32 My '21

Heat engines

Cours pratique de chauffe et de chaudières industrielles. E: Jolly. 400p Dunod, Paris '21

Heat engines, embracing the theory, construction, and performance. D: A. Low. 592p Longmans '20

New universal type of heat engine: Pratt engine. diags Can Eng 39:310-11+ S 2 '20

See also Gas and oil engines; Steam engines; Steam turbines

Heat measurement

See also Calorimeters and calorimetry; Heat unit; Pyrometers and pyrometry; Temperature—Measurement; Thermometers and thermometry

Heat of combustion. *See* Combustion, Heat of

Heat of dilution. *See* Dilution, Heat of

Heat of hydration. *See* Hydration, Heat of

Heat of reaction. *See* Chemical reaction, Heat of

Heat pumps

Heat pump in theory and practice. F. Krauss. diags Power 53:298-300 F 22 '21

Heat radiation

Air space transmission. P. Nicholls. A S R E J 8:166-9 S '21

Detecting men by their heat radiation. Sci Am 122:327 Mr 27 '20

Determination of radiant heat given off by a direct radiator. J: R. Allen and F. B. Rowley. il diags Am Soc Heat & V E J 26:305-18 Mr '20

Handy radiation chart. W. F. Schaphorst. Heat & Ven 18:43-4 Mr '21; Same. Gas Age 47:201 Mr 10 '21

Radiant energy in boiler practice. A. G. Christie. Power 53:590 Ap 12 '21

Radiant heat and heaters. C. H. Sharp. diags Am Gas Assn Commercial sec v 1:130-41; Discussion. 141-3 '19

Radiation loss in uncovered galvanized-iron ducts. Heat & Ven 16:23-6 D '19

Radiation losses and the advantage of using superheated steam. Power Pl Eng 25:74-6 Ja 1 '21

Seeing in the dark; detecting invisible objects by their bodily heat. S: O. Hoffman. il Sci Am 123:154+ Ag 14 '20

See also Heating—Tables, calculations, etc.; Radiators

Heat regulators. *See* Temperature—Regulation

Heat transmission

Back to first principles; elementary course in heating and ventilating engineering—heat transfer methods. R. Davies. Heat & Ven 18:41-2 Je '21

Dissipation of heat by various surfaces. T. S. Taylor. diags Mech Eng 42:230-2+ Ap '20; Same. Am Soc Heat & V E J 26:445-53 My '20; Abstract. Power 51:985-6 Je 15 '20; Discussion. Am Soc Heat & V E J 26:549-54 Jl '20

Effect of air in steam on the coefficient of heat transmission. C. S. Robinson. J Ind & Eng Chem 12:644-6 Jl '20

Effect of color of paint on heat absorption. R. Z. Kirkpatrick. Eng & Contr 54:293 S 22 '20

Effective heat transmission surfaces; deposits of soot and scale on boiler tubes. il diags Power Pl Eng 25:67-70 Ja 1 '21

Engineering fundamentals; how to proportion heating systems by the B. t. u. method. W: Hutton. Gas Age 45:113-17 F 10 '20; Same. Dom Eng 91:287-9+ My 15 '20

Heat transmission—Continued

- Fluid heat transmission. A. B. McKechnie. *il India Rubber W* 63:162-3 D '20
- Heat loss tables; Jones tables. *Heat & Ven* 18:62-5 Ap; 62-5 My; 64-7 Je; 72-5 Jl; 56-9 Ag; 62 S '21
- Heat losses from direct radiation. J: R. Allen. *diags Am Soc Heat & V E J* 26:103-18 Ja '20; Same *abr. Dom Eng* 90:530-2, 577-8+ Mr 13-20 '20; *Abstract. Heat & Ven* 17:33-6 Mr '20
- Heat transfer in flues. L. H. Fry. *Engineering* 110:265-8 Ag 27 '20; *Abstract. Mech Eng* 42:628-9 N '20; *Discussion. Engineering* 110:802-3; 111:137-8 D 17 '20, F 4 '21
- Heat transfer in flues—a graphic method of calculation. A. J. V. Umanski. *Engineering* 111:702-3 Je 10 '21
- Heat transfer in open hearth furnaces. H: W: Seldon. *Blast F & Steel Pl* 9:299-304 My '21
- Heat transmission—corkboard and air spaces. A. J. Wood and E. F. Grundhofer. *diag Am Soc Heat & V E J* 27:455-62 My '21
- Heat transmission from direct radiators; chart. *Heat & Ven* 18:63 S '21
- Heat transmission from radiating surfaces for various steam pressure and temperatures. *Heat & Ven* 18:46-7 Ap '21
- Heat transmission of brick and high temperature insulating materials. R. A. Horning. *diags Am Cer Soc J* 3:865-74; *Discussion.* 874-6 N '20
- Heat transmission through building materials and heat loss from buildings. L. A. Scipio. *plan Am Soc Heat & V E J* 27:297-301 Ap '21; Same. *Dom Eng* 95:405-6 My 28 '21; *Excerpt. Heat & Ven* 18:50-1 My '21
- How heating and ventilation is taught at Purdue university. R. W. Noland. *diags plans Heat & Ven* 18:25-8 My '21
- New heat transmission chart for radiators. *Heat & Ven* 18:47 Je '21
- New thermal testing plate for conduction and surface transmission. F. C. Houghten and A. J. Wood. *il diag plan Am Soc Heat & V E J* 27:529-42 Jl '21; Same. *A S R E J* 8:23-36 Jl '21; *Discussion. Am Soc Heat & V E J* 27:614-18 Jl '21
- Prevention of heat losses. W. Clay. *il diags Arch Forum* 35:93-8 S '21
- Solution of heat transfer problems. H. G. Nevitt. *chart Power Pl Eng* 25:849-50 S 1 '21
- Stability of thin walls and heat transmission. *Eng & Contr* 54:308-9 S 29 '20
- Studies in evaporator design. W. L. Badger and P. W. Shepard. *diags Chem & Met Eng* 23:237-41, 281-4, 390-3 Ag 11-18, S 1 '20
- Survey of heat transmission problems. W. M. Selvey. *Electrician* 87:11-12 Jl 1 '21
- Test of conductivity of window shades. J: R. Allen. *diags Am Soc Heat & V E* 25:171-3 '19
- Tests of heat conductivity of walls. *Concrete* 19:66 Ag '21
- Theory of heat losses from pipes buried in the ground. J: R. Allen. *il diags Am Soc Heat & V E J* 26:455-69, 588-96 My, S '20; *Discussion.* 26:569-74 Jl '20
- Transmission of heat through single-frame double windows. A. N. Shaw. *il Am Soc Heat & V E J* 26:773-86 D '20; *Discussion.* 27:206-7 Mr '21
- Der wärmeübergang bei flüssigkeiten und gasen als funktion der geschwindigkeit. H. Preussler. *Stahl & Eisen* 41:827-30 Je 16 '21
- Water film on evaporating and condensing tubes. P. H. Parr. *Engineer* 131:559-61 My 27 '21; *Discussion.* 131:617 Je 10 '21
- See also Heat conductivity; Heat radiation; Insulation (heat); Radiators
- Bonuses for quality as well as quantity; employees in the heat-treating department, Duff mfg. co., Pittsburgh, must keep temperature within limits to get extra pay. A. A. Blue. *Iron Age* 107:687-9 Mr 17 '21
- Constructing a heat treating department. L. C. Dunn. *il diag plan Blast F & Steel Pl* 9:152-7 F '21
- Current tendencies in electric heat treating. E. F. Collins. *il Elec W* 75:145-6 Ja 17 '20
- Effects of strain and of heat treatment on metal structure. S. Nishikwa and G. Asahara. *Chem & Met Eng* 22:1130 Je 16 '20
- Electricity's latest contribution to the modern art of heat treatment. A. M. Clark. *il Sci Am* 122:337+ Mr 27 '20
- Das entstehen von spannungen bei der wärmebehandlung. W. Tafel. *diags Stahl & Eisen* 41:1321-8 S 22 '21
- Extension of heat treatment processes to the non-ferrous alloys. F. C. Thompson. *Iron Age* 105:1035 Ap 8 '20
- Gas fired heat treating. J. F. Springer. *diag Gas Age* 46:275-7 O 11 '20
- Hardening after long reheating. *Chem & Met Eng* 22:233 F 4 '20
- Heat-treating gas furnaces; abstract. H. M. Thornton. *diag Mech Eng* 42:353 Je '20
- Heat-treating of brazed fittings for aircraft. A. Black. *Soc Auto Eng J* 6:174-6 Mr '20; Same. *Am Mach* 52:1184-6 Je 3 '20
- Heat treatment of beta brasses. H. M. Brayton. *il Chem & Met Eng* 22:211-17 F 4 '20
- Heat treatment of duralumin. P. D. Merica, R. G. Waltenberg and H. Scott. *il diags U S Bur Stand Sci Pa* 347:271-316 '19
- Heat treatment of 155-mm. high explosive shell. W: J. Merten. *il diags plan Chem & Met Eng* 21:687-9 N 26 '19
- Heat treatment of the alloys of aluminum. *Automotive Ind* 42:1351 Je 10 '20
- Heat-treatment room operators—their part. W. H. Addis. *il Am Mach* 51:857-9 N 13 '19
- Heating furnaces and annealing furnaces. W. Trinks. *il diags Blast F & Steel Pl* 8:118-21 Ja '20
- Microstructure of iron and mild steel at high temperatures. H: S. Rawdon and H. Scott. *il U S Bur Stand Sci Pa* 356:519-29 '20; Same. *Min & Met* 158:(sec 18) 1-20 F '20; Same. *Chem & Met Eng* 22:787-91 Ap 28 '20; *Excerpts. Iron Tr R* 66:911-12 Mr 25 '20
- Nichrome castings for heat treatment. *il Metal Ind* 17:498-9 N '19
- Pots and boxes used in carbonizing. H. H. Harris. *Iron Age* 105:729-31 Mr 11 '20; *Abstracts. Mech Eng* 42:236-7 Ap '20; *Sci Am M* 1:382-3 Ap '20
- Research stimulates heat treating methods. D. W. McDowell. *Blast F & Steel Pl* 8:162 F '20
- Some tests of light aluminum casting alloys—the effect of heat treatment. P. D. Merica and C. P. Karr. *il diags U S Bur Stand Tech Pa* 139:1-31 '19; *Abstract. J Fr Inst* 188:691-3 N '19
- Temperature shocks in heat treatment. *Sci Am M* 4:380 O '21
- Vacuum and heat treatment of insulating materials. J. E. Shrader. *diags Elec J* 17:157-60 Ap '20
- See also Annealing; Copper, Hardening of; Furnaces, Heat treating; Steel, Heat treatment of

Heat unit

British thermal unit and the mechanical equivalent of heat. F. R. Low. *il diags Power* 52:5-8 Jl 6 '20

Heater cords. See Electric wire and wiring—Testing

Heaters

Friction heater. W: Chiddick. *diags Power Pl Eng* 25:1018 O 15 '21

See also Air heaters; Electric heaters; Electric water heaters; Feed water heaters; Gas heaters; Gas water heaters; Oil heaters; Steam heaters; Water heaters

Bibliography

Bibliography on heat transmission. A S R E J 6:379-403; 8:150-62 Mr, S '21

Heat treatment

Advantages of gas fuel in the heat treatments of metals. R. G. Logue. *Am Gas Eng J* 113:283-6 O 9 '20

Heaters, Catalytic

Producing heat by catalysis; flameless stove used by the French army during the war. R. Villers. diag Sci Am M 3:251 Mr '21; Abstract. Mech Eng 43:263 Ap '21

Heaters, Feed water. See Feed water heaters**Heating**

A B C of successful heating. F: Grant. diags Dom Eng 92:56-8, 538-40 Jl 10, S 11 '20

Arrangement of fans and dampers permitting flexibility of heating system in accordance with weather conditions or repairs to the system. diag Heat & Ven 17:43-4 N '20

Back to first principles; an elementary course in heating and ventilating engineering. R. Davies. diags Heat & Ven 18:34-8 Ap; 38-41 My; 41-2 Je; 37-9 Jl; 37-8 Ag '21

Colec system of central and radiant heating. H. H. Berry. Electrician 86:419-20 Ap 8 '21

Compte rendu de l'exposition des appareils de controle de la chauffe. P. Frion. diags Soc Ing Civils Bul 74:7-34 Ja '21; Abstract. Génie Civil 79:231-3 S 10 '21

Development of circulating air outlets for fan blast systems. H. Kraus. diags Heat & Ven 18:39 Jl '21

Economy and waste in warming buildings intermittently used. S. H. Woodbridge. Heat & Ven 18:40-2 S '21

Fan and heater arrangements for public buildings. C: L. Hubbard. diags Dom Eng 94:5-7 Ja 1 '21

Fire hazards connected with heating and ventilating work. I. H. Woolson. Am Soc Heat & V E J 27:286-92 Ap '21

Fire protection measures for installing heating equipment. Metal Work 94:147-8 Jl 30 '20

Handbook for heating and ventilating engineers. 4th ed J. D. Hoffman and B. F. Raber. 478p McGraw-Hill '20

Heating a building with waste air. F. J. Postel. Am Arch 117:821-2 Je 30 '20

Heating a house built for speculation. il diag Metal Work 92:547-8 N 7 '19

Heating and ventilating. C. W. Kimball. diags Arch Forum 32:79-82, 117-18, 175-6, 213-14 F-My '20

Heating and ventilating a combined church, parish house and rectory. C: L. Hubbard. diags plan Dom Eng 91:98-100, 144-7+ Ap 17-24 '20

Heating and ventilating equipment. C: L. Hubbard. il diags Am Arch 119:367-72 Mr 23 '21

Heating and ventilating industrial buildings; hot-blast systems. C: L. Hubbard. il Am Arch 119:71-5 Ja 19 '21

Heating and ventilating systems at the U.S. government's smokeless powder plant at Nitro, West Va. G. W. Hubbard. il diag plan Am Soc Heat & V E 25:333-48 '19

Heating and ventilation. C: L. Hubbard. 213p American technical society, Chicago '21

Heating buildings by fuel oil. Am Arch 116:648-50 N 19 '19

Heating equipment for a large industrial plant; East Pittsburgh works of the Westinghouse electric & manufacturing company. O. H. Bathgate. il Heat & Ven 18:29-32 Jl '21

Heating equipment for the building of moderate cost. C: L. Hubbard. Bldg Age 42:36-7 Ap; 53-4 My; 54-5 Je '20

Heating government houses in a hurry; how return-air furnace equipment was installed. il plans Sheet Metal Worker 11:449-52 Ja 7 '21; Discussion. 12:109-10 Mr 18 '21

Heating guidance for residence work. il diags plan Metal Work 94:97-100, 174-6, 277-9+ Jl 23, Ag 6, 27 '20; (cont. in) Plumber 94:598-600 D 31 '20

Heating, past and present. A. G. King. Dom Eng 94:136-8 Ja 15 '21

Heating small houses and cottages. A. G. King. diags Dom Eng 96:283-5 Ag 13 '21

Heating the small house. W. R. Eaton. il Bldg Age 43:55-8 Ap; 46-7 My '21

How modern England heats her homes. il plan Plumber 95:61-2+ F 11 '21

How the Koreans heat their homes. Metal Work 94:236-7 Ag 20 '20

Improved fan blast system of heating and ventilating. A. R. Klein. il diags Heat & Ven 17:29-33 Jl; 29-33 Ag '20

Is more coal consumed when concealed radiators are used? H. V. Walsh. il diags Bldg Age 41:353-4 N '19

John R. Allen's last pronouncements on heating and ventilation. Heat & Ven 18:29-30 Ja '21

Mechanical equipment of the new Manitoba parliament building. il Heat & Ven 18:29-31 Je '21

New method of heating needed in England. Metal Work 94:30-1 Jl 9 '20

Odd notes on heating and ventilation. diags Metal Work 92:727-9 D 19 '19

Residence insulated like gigantic ice box to keep in heat. il plans Pop Mech 34:640 O '20

Separate systems heat two-family house. il plan Metal Work 92:695-6 D 12 '19

Stopping that leak in the coal bin. il diags Bldg Age 42:52-5 F '20

Supplementary or secondary heaters. C: L. Hubbard. diags plans Dom Eng 95:208-9+ Ap 30 '21

Three types of fan blast heating. il diag Metal Work 93:636-40 My 21 '20

Using fans in warm-air furnace heating. diags Sheet Metal Worker 12:284+ My 27 '21

Warm in winter—cool in summer; system of heating and ventilating which keeps a Florida climate in an Ohio home the year round. il Plumber 94:583-4 D 31 '20

Warming buildings with refrigerating equipment. R. Matthews. diags Power 53:628-31 Ap 19 '21; Same. Sci Am M 3:539-42 Je '21

Why and how coke should be used for domestic heating. H: Kreisinger and A. C. Fieldner. diag U S Bur Mines Tech Pa 242:1-17 '19; Same. Metal Work 92:634-6, 671-3 N 28-D 5 '19; Same. Sci Am S 88:326-8 N 29 '19

See also Boilers, Heating; Car heating; Chimneys; Churches—Heating and ventilation; Electric heaters; Electric heating; Factories—Heating and ventilation; Fireplaces; Fuel; Furnaces, Warm air; Garages—Heating and ventilation; Gas heaters; Gas heating; Greenhouses—Heating and ventilation; Heating from central stations; Heating pipes; Hospitals—Heating and ventilation; Hot water heating; Insulation (heat); Office buildings—Heating and ventilation; Prisons—Heating and ventilation; Radiators; Schoolhouses—Heating and ventilation; Ships—Heating; Steam heaters; Steam heating; Stoves; Submarine boats—Heating and ventilation; Theaters—Heating and ventilation; Ventilation; *also* headings beginning Heat and Heating

Cost

Modern heating equipment. L. W. Millis. diags Am Soc Heat & V E J 27:739-43 O '21

What it will cost to heat with oil. il Sanitary & Heat Eng 96:129-31 Ag 26 '21

Forms, blanks, etc.

Forms for engineering work. chart Heat & Ven 17:31-4 My '20

Plan and specification data sheets for heating and ventilating. Heat & Ven 17:29-31 Ja; 29-32 F; 31-3 Mr; 33-5 Ap '20

Time saving for the engineering office. Heat & Ven 17:31-3 O '20

Useful form for the testing and inspection of heating plants. Heat & Ven 17:33-5 N '20

Laws and regulations

Heating ordinance of Newark, N. J. Metal Work 93:610 My 14 '20

Laws affecting contracting, sales and labor combinations. F. L. English. Dom Eng 91:436+ Je 5 '20

Michigan law governing installation of warm-air furnaces. Heat & Ven 17:55 Ag '20

Heating—Continued

Standards

Report of the committee on standardization presented to the Heating and piping contractors national association at the thirty-second annual convention. W. L. Fleisher. Sanitary & Heat Eng 96:56-7 JI 15 '21; Same. Dom Eng 95:522-3 Je 11 '21

Study and teaching

How heating and ventilation is taught at Purdue university. R. W. Noland. diags plans Heat & Ven 18:25-8 My; 32-6 Je; 33-6 JI; 34-6 Ag '21
Technical requirements in the heating profession. J. D. Hoffman. Dom Eng 95:213-14+ Ap 30 '21
Technical school training for the heating profession. J. D. Hoffman. Heat & Ven 17:37-9 JI '20; Same. Metal Work 94:365-7+ S 17 '20; Same. Dom Eng 93:609-10+ D 25 '20

Tables, calculations, etc.

A B C of successful heating. F. Grant. diags Dom Eng 92:538-40 S 11 '20
Air as a conveyor of heat. S. H. Woodbridge. Heat & Ven 18:29-31 My; 31-2 Je '21
Calculating cost of heating and ventilation. diag Power Pl Eng 24:668 JI 1 '20
Details of a \$3500 furnace heating system. il plans Sheet Metal Worker 12:217-19 Ap 29 '21
Determination of radiant heat given off by a direct radiator. J. R. Allen and F. B. Rowley. il diags Am Soc Heat & V E J 26:305-18 Mr '20
Effect of number of walls on rate of heat loss. Heat & Ven 17:53-4 JI '20
Engineering economics of heating. M. W. Ehrlich. Am Soc Heat & V E 25:185-200; Discussion. 200-2 '19
Engineering fundamentals; how to proportion heating systems by the B.t.u. method. W. Hutton. Gas Age 45:113-17 F 10 '20; Same. Dom Eng 91:287-9+ My 15 '20
Greenhouse field neglected by heating contractor. E. J. Lomasney. Dom Eng 92:271-3 Ag 7 '20
Heat loss tables; Jones tables. Heat & Ven 18:62-5 Ap; 62-5 My; 64-7 Je; 72-5 JI; 56-9 Ag; 62 S '21
Heat losses from direct radiation. J. R. Allen. diags Am Soc Heat & V E J 26:103-18 Ja '20; Same abr. Dom Eng 90:530-2, 577-8+ Mr 13-20 '20; Abstract. Heat & Ven 17:33-6 Mr '20
Heating a fifteen-room dwelling. C. L. Hubbard. plans Dom Eng 96:145-7 JI 23 '21
Heating and ventilating a combined church, parish house and rectory. C. L. Hubbard. diags plans Dom Eng 91:144-7+ Ap 24 '20
Heating and ventilating a cottage hospital. C. L. Hubbard. plans Dom Eng 92:108-12, 167-9+, 221-3, 377-9+, 485-8+; 93:68-9 JI 17-31, Ag 21, S 4, O 9 '20
Heating equipment for the low-cost house. C. L. Hubbard. diags plan Bldg Age 42:54-5 Je; 59-60 JI; 42-4 Ag '20
Heating guidance for residence work. il diags plan Metal Work 94:97-100 JI 23 '20
How to make tests of air leakage in buildings. Heat & Ven 18:52 Ap '21
Installing heaters to please and to pay. il plans Plumber 95:29-30 Ja 28 '21
Losses due to removing hot air from factories. J. L. Alden. chart Power 51:93-4 Ja 20 '20
Modern house heating systems. il diags Dom Eng 90:479-81 Mr 6 '20
New treatment of hot water heating. E. E. Parker. diags Metal Work 93:483-6, 510-12, 544-6, 679-81+, 758-60 Ap 16-30, My 28, Je 11 '20
On-the-level heating for a paint shop. W. Hutton. il diags plan Metal Work 93:710-15 Je 4 '20
Pound of steam. L. M. Emmett. Dom Eng 93:614-15 D 25 '20
Radiation calculation charts. D. N. Crowthait, jr. plan Heat & Ven 18:27-9 O '21
Remodeling furnace job in a costly house. il plans Sheet Metal Worker 12:523-5 S 2 '21

Short cuts to accurate calculations. chart Am Arch 118:450-2 O 6 '20
Standard rules for computing required radiation. Am Soc Heat & V E 25:385-90; Discussion. 390-6 '19
Steam heating system for a church. C. L. Hubbard. il diags plans Dom Eng 96:418-21 S 3 '21
System of piping for hot water jobs. C. L. Hubbard. diags Plumber 95:305-7; 96:7-9+ My 20, JI 1 '21
Testing and adjusting heating systems. C. L. Hubbard. Dom Eng 95:57-8, 115-16+ Ap 9-16 '21
Transmission of heat through single-frame double windows. A. N. Shaw. il Am Soc Heat & V E J 26:773-86 D '20
What the open window does to the coal bill. Heat & Ven 17:32-3 Je '20
See also Heat conductivity; Heat radiation; Heat transmission; Steam heating—Tables, calculations, etc.

Testing

Report on standard code for testing heating systems. Am Soc Heat & V E J 26:525-38; 27:38-42, 580-92 JI '20, Ja, JI '21; Discussion. 26:538-41; 27:183-4 JI '20, Mr '21
Heating, Electric. See Electric heating
Heating, Industrial
Heat pump in theory and practice. F. Krauss. diags Power 53:298-300 F 22 '21
Heating furnace fuel progress during 1920. A. E. Blake. Blast F & Steel Pl 9:179-80+ F '21
Selection of fuel for industrial heating. Chem & Met Eng 25:116-18 JI 20 '21
La technique du chauffage industriel et son enseignement. E. Damour. diags Chimie & Ind 5:271-80 Mr '21
See also Electric heating, Industrial; Furnaces, Recuperative; Gas heating, Industrial

Cost

Metallurgical use of pulverized fuel. C. F. Herington. il Iron Age 107:965-9 Ap 14 '21
Relative thermal economy of electric and fuel-fired furnaces; cost tables. E. F. Collins. il Gen Elec R 23:768-73 S '20
Heating, Warm air. See Furnaces, Warm air; Heating
Heating and piping contractors' national association
31st annual convention, Cleveland, May 24-27. Dom Eng 91:430-6+ Je 5 '20; Metal Work 93:733-9 Je 4 '20
32d annual convention, Boston, May 30-June 2. Dom Eng 95:514-23+ Je 11 '21; Plumber 95:389-92 Je 17 '21; Heat & Ven 18:52-5 JI '21
Heating and ventilating engineers, American society of. See American society of heating and ventilating engineers
Heating boilers. See Boilers, Heating
Heating contracts
Contractor's right to use non-union steamfitters when contract does not provide that only union men shall be used. Dom Eng 96:477+ S 10 '21
Laws affecting contracting, sales and labor combinations. F. L. English. Dom Eng 91:436+ Je 5 '20
Rights and remedies of contractor installing heating and ventilating plant under contracts in excess of debt limit. Heat & Ven 17:52-3 Mr '20
What is amount of damages due a contractor where owner refuses even to start work after signing written agreement? Dom Eng 92:121+ JI 17 '20
Heating from central stations
Advantages and disadvantages of steam and water heating. R. V. Stureman. Heat & Ven 17:39-40 JI '20
Best appliances for central heating jobs are gas-fired boilers for hot water and steam and gas-fired hot air furnaces for hot air systems. P. M. Spies. Am Gas Eng J 112:247-9 Mr 27 '20

Heating from central stations—*Continued*

- Central heating makes good in Wisconsin. P. H. Woodruff. Pop Mech 35:210 F '21
- Central heating rules and regulations. F. A. Tucker. Heat & Ven 17:39-40 Ag '20
- Central-station operation and district heating service. I. L. Kentish-Rankin. Elec R 76:19-21 Ja 3 '20
- Elements of success in central station heating. H. C. Kimbrough. Heat & Ven 18:37-8 Ja '21
- 11th annual convention of National district heating association held as industry faces critical problems of the day. Heat & Ven 17:41-6 Jl '20
- Heating and ventilating a cottage hospital. C: L. Hubbard. plans Dom Eng 92:108-12 Jl 17 '20
- Heating plan must be considered; byproduct current from steam. I. N. Evans. diags Power 54:137-8 Jl 26 '21; Discussion. L: R. Lee. 54:334 Ag 30 '21
- How to make large central steam heating system give satisfactory service. diag Dom Eng 92:13-14 Jl 3 '20
- Load dispatching in a central heating system. J. C. Butler. il plan Power 53:648-51 Ap 26 '21
- Long distance high-pressure steam line. il diags maps Power Pl Eng 25:157-9 F 1 '21
- Non-condensing turbine operation on heating load. R. D. DeWolf. Power 54:220-1 Ag 9 '21
- Points on maintaining up-to-date central heating service. F. A. Tucker. Heat & Ven 17:38-41 My '20
- Present development of the central station heating industry. F. B. Orr. Heat & Ven 18:45 O '21
- Program for smoke prevention and fuel conservation. E. V. Hill. plan Heat & Ven 18:33-5 S; 30-1 O '21
- Recovery of the industry indicated at convention of central station heating engineers. Heat & Ven 18:48-52 Jl '21
- Standardized central heating and lighting plants for state institutions. G. B. Nichols. il diags plans Heat & Ven 17:32-41 Ja '20
- Steam jets on hot-water heating system. J: C. White. il diags Power 54:103-5 Jl 19 '21

Rates

- Plain talk on central station heating rates. D. D. Hayward. Heat & Ven 17:48-9 S '20

Heating industry

- Accurate business methods essential for heating contractor. L. M. Emmet. Dom Eng 96:2-4+ Jl 2 '21
- Building the heating industry. L. P. Breckenridge. Dom Eng 95:167-8+ Ap 23 '21
- Business letters you can use. Dom Eng 96:483 S 10 '21
- Following up leads promptly a necessity in the heating business. Dom Eng 96:140-2 Jl 23 '21
- Furnacemen can aid in solving housing problem. F. K. Chew. Metal Work 93:833-4 Je 25 '20
- Heating business awaits the man who goes after it. H. B. Andrews. Dom Eng 92:582-4 S 18 '20
- Interest the farmer in modern heating equipment. A. G. King. il Dom Eng 92:384-5+ Ag 21 '20
- Investment of a remodeled heating plant. D: H. Cuyler. diags Dom Eng 90:90-3 Ja 10 '20
- Local association can solve problem of no heating business. Dom Eng 96:57-8+ Jl 9 '21
- Making heating plans. A. G. King. diag plans Dom Eng 90:77-80 Ja 10 '20
- Service that wins and holds customers. M. W: Ehrlich. il diags Dom Eng 94:72-3, 179-81 Ja 8, 22 '21
- Suggestions for increasing profits during dull season. H. N. Dix. Plumber 95:71 F 11 '21
- Vanishing point of profit; tabulation of costs. Plumber 94:456-7 O 22 '20
- See also* Furnace industry; Heating from central stations

Accounting

- Years of experience back of this cost system. C: Haig. Dom Eng 96:468-71 S 10 '21

Advertising

- Springtime advertising opportunities. J. A. Gray. Dom Eng 91:96-7+ Ap 17 '20
- Timely hints on getting heating business. R. Duysters. Dom Eng 89:423-4 N 29 '19

Heating pipes

- Arrangement of heating pipes an important factor in decay of factory roofs. F. J. Hoxie. il diags Am Soc Heat & V E 25:89-97; Discussion. 97-100 '19
- Maintenance of supply mains for central heating service. F. A. Tucker. diags Heat & Ven 17:32-4 F '20
- Pattern for double offset wall stack boot. diags plan Metal Work 92:288-9, 391-3 S 5, O 3 '19
- See also* Furnaces, Warm air—Pipes and fittings; Hot water heating; Steam heating; Steam pipes

Hebe company

- How Hebe company teaches trade to stick to the truth. J. T. Bartlett. Ptr Ink 111:116+ Ap 29 '20

Hecter

- Comparison of hecter fuel with export aviation gasoline. H. C. Dickinson, V. R. Gage and S. W. Sparrow. diags U S Nat Advisory Com for Aeronautics 1920:187-94 '21; Abstract. Soc Auto Eng J 7:110-11 Jl '20; Same. Automotive Ind 42:1336-7 Je 10 '20; Same. Aviation 9:62-3 Ag 15 '20

Hectographs

- Novel uses for the hectograph. Pop Mech 35:956 Je '21

Heddles

- Steel wire heddle; especially adapted for heavily sleyed fine cotton and silk fabrics. il Textile World 59:3425 My 21 '21

Hedley, Frank

- Interborough president draws on his personal experience in order to illustrate his advice to young men who are ambitious to succeed. Elec Ry J 57:930 My 21 '21

Hedwaygraph

- Automatic train registering. A. A. Roberts. il diag Elec Ry J 58:440-1 S 17 '21
- Spacing trains the correct distance apart. il Sci Am 124:413 My 21 '21

Heeling. *See* Ships—HeelingHeels. *See* Rubber heels; Shoes—HeelsHelical gearing. *See* Gearing, Spiral

Helicopters

- Actual state of the helicopter problem. G. de Bothezat. diags Aerial Age 13:247-9 My 23 '21
- Again the helicopter?; experiments by prominent inventors who hope to realize this long-standing dream. R. G. Skerrett. il Sci Am 121:576-7+ D 13 '19
- Air craft combines helicopter and balloon. W: H. Hunt. il Pop Mech 36:255 Ag '21
- Captive helicopter. Sci Am 125:117 Ag 13 '21
- European developments in helicopters. il diags Aviation 10:492-5 Ap 18 '21
- Helicopter. D. Shaw. Soc Auto Eng J 8:126 F '21
- Helicopter. S. N. Malterner. Sci Am 122:245 Mr 6 '20
- Helicopter for military purposes. il Sci Am 124:173 F 26 '21
- Helicopter hovers with full load. W: H. Hunt. il diag Pop Mech 35:828-30 Je '21
- Helicopters and aeroplane-helicopters. M. Lame. Aerial Age 13:374 Je 27 '21
- Hewitt-Crocker helicopter. F. B. Crocker. il diags Aerial Age 12:295-7, 323-5 N 22-29 '20
- Is the practical helicopter in sight? G: Gaulois. il Sci Am 124:447+ Je 4 '21
- Lacoin-Damblanc helicopter. Aviation 9:166 O 1 '20
- Man-sized helicopter that leaves the ground with full load. G: Gaulois. il Sci Am 122:331 Mr 27 '20
- New Berliner helicopter. il Aviation 10:393 Mr 28 '21

Helicopters—Continued

- New helicopter design promising. A. M. Hoffmann. *il Pop Mech* 34:243-4 Ag '20
- Notes on helicopters; abstract. M. de Péshoff. *Aerial Age* 12:254 N 8 '20
- Oehmichen helicopter. *il Aviation* 11:319 S 12 '21
- Oehmichen-Peugeot helicopter. *il Engineer* 131:411-12 Ap 15 '21; *Génie Civil* 78:237 Mr 12 '21
- Pescara helicopter. *il Aviation* 10:531 Ap 25 '21
- Problem of the helicopter. *Engineering* 110:710 N 26 '20
- Problem of the helicopter. L: Damblanc. *diags Aeronautical J* 25:3-15; Discussion. 15-19 Ja '21
- Propellers of high efficiency feature new helicopter. P. A. Jenkins. *il Pop Mech* 35:355-6 Mr '21
- Les résultats des essais récents de l'hélicoptère, système Pescara. Pescara. *il Génie Civil* 78:339-40 Ap 16 '21
- Stability of the parachute and helicopter. H. Bateman. *diags U S Nat Advisory Com for Aeronautics* 1919:783-9 '20
- 312 miles an hour claimed for helicopter. *Aerial Age* 13:438 Jl 18 '21
- See also Aeronautics; Flying machines*

Heligoland

- Le démantèlement des fortifications de la base navale allemande d'Héligoland. *il map Génie Civil* 79:49-53 Jl 16 '21
- Dismantling the fortifications of Heligoland. *il Sci Am* 121:556-7 D 6 '19
- Fortress of Heligoland. *il (supp) Engineer* 132:415-16 O 21 '21

Heliodor

- Is heliodor a new gem? an instrument for examining the luminescence of precious stones. A. Eppler. *Sci Am M* 3:227-8 Mr '21

Helithopter

- Passat helithopter. *Aerial Age* 13:254 My 23 '21

Helium

- Balloons, helium gas, and the age of the earth. H. P. Little. *Sci Am M* 4:177-8 Ag '21
- Bureau of mines report on helium. O. F. Schuette. *Gas Age* 45:192-3 F 25 '20
- Discussion over helium in the House of representatives. *Oil Paint & Drug Rep* 99:12 sec 2 F 14 '21
- \$5,000,000 put in helium plant. *Aerial Age* 12:582 F 14 '21
- Government seeks to locate gas containing helium. *Am Gas. Eng J* 112:226-7 Mr 20 '20
- Great natural gas industry. O. F. Schuette. *Gas Age* 45:395 My 10 '20
- Helium. *Min & Sci P* 120:378 Mr 13 '20
- Helium-bearing natural gas. G. S. Rogers. *diags maps U S Geol S Prof Pa* 121:1-113, pl 1-4 '21
- Helium for airships. *Aerial Age* 14:203+ N 7 '21
- Helium: its history, properties, and commercial development. R: B. Moore. *il diags plan J Fr Inst* 191:145-97 F '21; *Abstract. Sci Am M* 3:373 Ap '21
- Helium, its production and uses; abstract. J. C. McLennan. *diag Engineering* 110:154-6 Jl 30 '20
- Helium; methods evolved under the stimulus of war to be applied to commercial production. J: W. Davis. *Eng & Min J* 109:84-5 Ja 10 '20
- Helium, the substitute for hydrogen in balloons and dirigibles. W. S. Andrews. *Gen Elec R* 23:227-8 Mr '20
- History of helium and its production. R. T. Elworthy. *Can Chem & Met* 5:7-9 Ja '21
- Industrial applications of helium. *Sci Am M* 1:330 Ap '20
- Planetary attraction and the helium atom. A. C. Crehore. *J Elec* 44:325-6 Ap 1 '20
- Probable normal state of the helium atom. E. C. Kemble. *Philos Mag* 6th ser 42:123-33 Jl '21
- Spectrum of helium in the extreme ultraviolet. H. Fricke and T. Lyman. *Philos Mag* 6th ser 41:814-17 My '21
- Structure of the helium atom. I. Langmuir. *diags Phys R* 17:339-53 Mr '21
- Uses of helium. J. C. McLennan. *Sci Am* 123:493 N 13 '20
- Would the ZR-2 have been saved by helium? *Chem & Met Eng* 25:451 S 7 '21

Helmets

- Helmets and body armor in modern warfare. *il Sci Am* 123:159+ Ag 14 '20
- Nine million Hadfield manganese steel helmets. *il Min & Met* 157:(sec 1) 33-4 Ja '20

Help wanted ads. See Employment systems—Advertising**Hematoxylin**

- Preparation of hematoxylin. P. A. Houseman and C. K. Swift. *plan J Ind & Eng Chem* 12:173-4 F '20

Hemlock

- Tannin content of Pacific coast conifers. R. H. Clark and H. I. Andrews. *J Ind & Eng Chem* 13:1026-7 N '21

Hemp

- Flax fibre substitutes. A. S. Moore. *Textile World* 58:3631+ N 27 '20
- Hemp-handling machines create new industry. *il Pop Mech* 33:333-4 Mr '20
- Hemp wood as a papermaking material. C. J. West. *Paper Trade Journal* 73:46+ O 13 '21
- Influence of environment on sexual expression in hemp; abstract. J: H. Schaffner. *Sci Am M* 4:32 Jl '21
- Proximate compositions of Korean hemp and ramie. Y. Uyeda. *J Ind & Eng Chem* 12:573-6 Je '20
- Revolutionizing an industry; how modern machinery is minimizing hand labor in hemp production. G: H. Dacy. *il Sci Am* 124:446+ Je 4 '21
- See also Jute; Ramie; Rope; Sisal hemp; Twine*

Hemp, Manila

- Cordage fiber industry of the Philippine Islands. A. J. Cox. *il Chem & Met Eng* 24:285-9 F 16 '21

- Manila hemp; primitive methods of obtaining hemp from the wild banana plant. S. G. Williams. *il Sci Am M* 3:255-7 Mr '21

- Manufacture of paper from abaca bark. *Paper* 26:13-14 Ap 14 '20

Henderson, Charles B., 1873-

- Government officials who influence mining. P. Wooton. *por Eng & Min J* 109:1362 Je 19 '20

Henequen See Sisal hemp**Henry, O., pseud. (William Sydney Porter), 1862-1910**

- O. Henry as a copy man. H. T. Mitchell. *Ptr Ink* 116:73-4+ Ag 11 '21

Heptoses

- Heptoses from gulose and some of their derivatives. F. B. LaForge. *J Fr Inst* 189:519 Ap '20

Hercules powder company

- Hercules powder co. absorbs Aetna explosive co. *Chem Age* 29:235-6 Je '21

Heredity

- Origin of the mechanism of heredity. M. C. Coulter. *Sci Am M* 3:466-7 My '21

See also Eugenics; Evolution; Mendelism

Herr, Edwin Musser, 1860-

- Portrait. *Elec W* 76:960 N 13 '20

Herreshoff, John Brown Francis

- Prominent metallurgical engineers. *por Eng & Min J* 110:409 Ag 28 '20

Herrick, Myron T., 1855-

- President of Aero club. *por Aviation* 10:100 Ja 24 '21

Hershey Cuban railway

- Electrification of the Hershey Cuban railway. F. W. Peters. *il diag map Ry R* 66:593-5 Ap 10 '20; Same. *Gen Elec R* 23:307-12 Ap '20; Same cond. *Sci Am M* 1:540-2 Je '20; Abstract. *Elec Ry J* 55:757-8 Ap 10 '20

Hess-Ives tint-photometer

- Hess-Ives tint-photometer and its use with raw sugars. G: P. Meade and J. B. Harris. *J Ind & Eng Chem* 12:686-8 Jl '20

- Hess-Ives tint-photometer—Continued**
Use of the tint photometer in the evaluation of dyestuffs and pigments. H. B. Gordon. Color Tr J 7:175-80 D '20
- Hetch Hetchy project**
Hetch-Hetchy aqueduct tunnel. il Pub Works 48:508-9 Je 12 '20
Hetch Hetchy water supply. il Pub Works 48:165-7, 203-6, 234-6 Mr 6, 20-27 '20
Making the Hetch-Hetchy dam itself. J. F. Springer. il Sci Am 123:422+ O 23 '20
Progress on the Hetch Hetchy project. M. M. O'Shaughnessy. il J Elec 44:62-4 Ja 15 '20
San Francisco goes to the mountains; some details of the Lake Eleanor dam. J. F. Springer. il Sci Am 122:704+ Je 26 '20
- Hetch Hetchy railroad**
Building in the wilderness. A. R. Surface. il Sci Am 123:218 S 4 '20
Municipally-operated mountain railroad. A. J. Cleary. Ry Age 70:454 F 25 '21
- Heterocyclic compounds**
Heterocyclic compounds of *N*-arylamino alcohols. R. E. Rindfusz and V. L. Harnack. diags Am Chem Soc J 42:1720-5 Ag '20
- Hevea brasiliensis.** See Pará rubber trees
- Hewitt, Peter Cooper, 1861-1921**
Eminent scientist, is dead. por Elec R 79:361 S 3 '21
Sketch. por Elec W 78:481 S 3 '21; Power 54:393 S 6 '21
- Hexabromide numbers**
Detection of oils other than linseed in paints by means of the hexabromide number of the fatty acids. H. Bailey and W. D. Baldsiefen. J Ind & Eng Chem 12:1189-94 D '20
Effect of variation in analytical constants of linseed and soy-bean oils upon the quantitative determination of linseed oil in mixtures of the two oils by means of the iodine and hexabromide numbers of the fatty acids. E. A. Tschudy. J Ind & Eng Chem 13:941-3 O '21
- Hexabromostearic acid**
Linolenic and hexabromostearic acids and some of their derivatives. S. Coffey. Chem Soc J 119:1306-10 Ag '21
- Hexamethylenetetramine**
Compounds of hexamethylenetetramine with complex metallic salts and acids. P. Ray and P. V. Sarkar. Chem Soc J 119:390-6 Ap '21
Further studies on phenolic hexamethylene-tetramine compounds. M. Harvey and L. H. Baekeland. J Ind & Eng Chem 13:135-41 F '21
Hexamethylene-tetramine as a poison in the rubber industry. Monthly Labor R 10:1474-5 Je '20
Influence of certain organic accelerators on vulcanization of rubber. G. S. Whitby and O. J. Walker. J Ind & Eng Chem 13:816-19 S '21
Über die einwirkung des wasserstoffperoxyds auf hexamethylentetramin. C. von Girssewald and H. Siegens. Deutsche Chem Gesell Ber 54:490-1 Mr '21
Vulcanization tests on hexamethylene tetramine, formaldehyde aniline and aldehyde ammonia. C. S. Williams. India Rubber W 65:101-6 N '21
Zur kenntnis des hexamethylentetramins. F. L. Hahn and H. Walter. Deutsche Chem Gesell Ber 54:1531-42 Jl '21; Abstract. Chem Soc J 120 pt 1:651-2 S '21
- Hexane**
Pyrolysis of some hydrocarbons. F. Denig. il Chem & Met Eng 25:751-3 O 19 '21
- Hexanitrodiphenylamine**
Preparation of hexanitrodiphenylamine and its use as a booster for shell charges. J. Marshall. J Ind & Eng Chem 12:336-40 Ap '20
- Hibbing, Minnesota**
Move city aside for riches beneath it. M. Codel. il Pop Mech 33:521-4 Ap '20
Moving houses to clear the mines. il Sci Am 125:95 Ag 6 '21
- Hickory**
Stability of various hickories for vehicle manufacture. Sci Am M 1:384 Ap '20
- Hides and skins**
See also Fish skins; Leather; Rawhide
- Higgs brothers' motor works**
Messrs. Higgs bros.' motor works. il Elec R (Lond), 88:131-3 F 4 '21; Electrician 86:251-2 F 25 '21
- High bridge.** See New York (city)—Bridges
- High buildings**
Berlin's forthcoming skyscraper. il Sci Am 125:13 Jl 2 '21
Extension of tall steel building involves unique operations. il diag plan Eng N 87:152-4 Jl 28 '21
Gotham national bank building, New York. il diags plans Am Arch 119:350-7 Mr 23 '21
High buildings on narrow streets. H. W. Corbett. il diags Am Arch 119:603-8+ Je 8 '21
Higher buildings for London. Am Inst Arch J 8:273-5 Jl 8 '20
Modern plumbing work in the skyscraper. diag plan Plumber 94:429-31, 454-5 O 8, 22 '20
Modification of New York zoning regulations granted in connection with addition to American telephone and telegraph building. il plan Am Arch 117:778-80 Je 16 '20
New York's new architecture. A. Embury, 2d. il diags Arch Forum 35:119-24, pl 47-53 O '21
New York's new concrete skyscraper, Hide and leather realty building. C. W. Van Dyke. il Concrete 18:256-9 Je '21
Spain to have a skyscraper. il plans Am Arch 118:856-8 D 29 '20
Zoning and the architecture of high buildings. I. K. Pond. il Arch Forum 35:131-4 O '21
See also Office buildings; Steel construction; also New York (city)—Architecture; Wrigley building, Chicago
- High frequency absorbers.** See Electric absorbers
- High-lift wing.** See Airplane wings
- High schools**
High school, Morristown, N.J., and Moses Bigelow school, Newark, N.J. Am Arch 117:792a-h Je 23 '20
Roomy high school, of artistic design. il plans Bldg Age 43:41 O '21
Two California schools. il plans Arch Forum 35:85-8, pl 34-8 S '21
- Advertising**
- Selling a high school education to school children. Ptr Ink 116:96 Ag 18 '21
- High-speed steel.** See Tool steel
- Highfield, John Somerville**
President of the Institution of electrical engineers. por Elec R (Lond) 89:556-7 O 28 '21
- Highway accounting**
Cost keeping on asphalt paving. H. C. Drowne. Eng N 87:13 Jl 7 '21
Highway cost analysis simplified by Illinois reports. I. E. Scott. Eng N 86:118-20 Ja 20 '21
Reports and records of Delaware highways. diag Pub Works 49:537-40 D 4 '20
Standard form for estimating costs of highway work. Eng & Contr 53:511-12 My 5 '20
Time and cost-keeping on county roads. K. W. McKay. Can Eng 38:307-8 Mr 18 '20
Wisconsin standardizes highway cost estimates. Eng N 84:663-4 Ap 1 '20
- Highway administration**
American highway problem. A. R. Hirst. Eng N 83:856-60 N 13 '19; Same. Munic Eng 57:258-62 D '19; Same. Eng & Contr 53:8-11 Ja 7 '20; Same. Good Roads n s 19:1-5 Ja 7 '20
Classification and uses of highways and the influence of federal-aid acts. T. H. MacDonald. Eng N 83:985-8 D 11 '19; Same. Good Roads n s 19:13-15+ Ja 14 '20
Connecticut state highway maintenance and repairs. chart Pub Works 51:141-3 Ag 20 '21
Contract dates and peak outputs. B. H. Piepmeyer. Eng N 86:1081 Je 23 '21

Highway administration—Continued

- Delaware state highway department. map
Pub Works 49:488-9, 513-15, 537-40 N 20-D
4 '20
- Development of Saskatchewan's highway
system. C: W. Dill. Can Eng 38:222-5 F
19 '20
- Economics of highway improvements; analy-
sis based on conditions in Summit county,
Ohio. H. G. McGee. Eng N 86:810-14 My
12 '21
- Efficient detours for highway construction.
L. H. Neilsen. Munic Eng 58:161 Ap '20
- Federal bureau to make survey of road
mileage and revenues. Pub Roads 4:3-14
Ag '21
- Federal government's part in the country's
highway program. R. D. Chapin. Good
Roads, n s 19:301-2+ Je 16 '20
- Florida state highways. Pub Works 50:449-
50 My 28 '21
- General principles of road administration. R.
W. Acton. Eng & Contr 52:538-9 N 5 '19
- Handling of federal road-making equipment
by the states after its receipt. R. J. Win-
drow. Munic Eng 58:sup22+ Mr '20; Ab-
stract. Munic J 47:347-9 D 6 '19
- Highway classification undertaken by Bureau
of public roads. T: H. MacDonald. Eng N
84:635-7 Mr 25 '20
- Highway department organization and ad-
ministration. Eng N 85:394-5 Ag 26 '20
- Importance of business administration in
highway affairs. A. R. Hirst. Good Roads
n s 21:338-40+ Je 29 '21; Excerpts. Eng &
Contr 56:245-6 S 7 '21
- Influence of fair specifications and competent
inspection on bidding prices. H. S. Matti-
more. Eng & Contr 53:16-17 Ja 7 '20; Same.
Can Eng 38:309-10 Mr 18 '20; Same. Munic
Eng 58:123-5 Mr '20
- Is state supervision of constructing and main-
tenance of all highways except city streets
desirable? B. H. Piepmeier. Good Roads n s
19:38+ Ja 28 '20
- Is the town an efficient unit for any high-
way administration? G: C. Diehl. Eng N
84:1062-3 My 27 '20
- Justifiable first cost of highways. J. E.
Pennybacker. Eng & Contr 55:350-2 Ap 6
'21; Same. Can Eng 40:400-2 Ap 21 '21;
Same. Eng N 86:770-2 My 5 '21; Same.
Good Roads n s 21:251-2+ My 11 '21
- Municipal contractor and frequent inconsis-
tencies met with in specifications. W: C.
Fraser. Munic Eng 58:120-3 Mr '20; Same.
Eng & Contr 53:410-11 Ap 7 '20
- National highway policy. Pub Works 48:382-3
My 1 '20
- New York's \$82,000,000 highway program;
Governor Miller signs Hewitt law. Good
Roads n s 21:170+ Mr 23 '21
- One-man control speeds Idaho road build-
ing. Munic Eng 59:64 Ag '20
- Oregon highway testing department. Pub
Works 50:446-7 My 28 '21
- Organization of a state highway maintenance
department. J: N. Mackall. Good Roads n s
20:279-81+ D 15 '20; Same, with discussion.
Pub Roads 3:19-23 F '21
- Organizing provincial highways departments.
A. E. Foreman. Can Eng 38:549-53 Je 10
'20; Excerpts. Good Roads n s 20:66-8 Ag
11 '20
- Our national highway problems. T: H. Mac-
Donald. Good Roads n s 21:97-9+ F 16 '21;
Same. Eng & Contr 55:200-2 Mr 2 '21
- Regulation of highway motor transport. F.
W. Fenn. Eng & Contr 53:628 Je 2 '20
- South Carolina highway department. Pub
Works 50:335-6 Ap 16 '21
- State highway system of Connecticut. Pub
Works 51:103-4 Ag 6 '21
- Tennessee highway department organization.
D. Q. McComb. Eng & Contr 56:248 S 7 '21
- Traffic problems of the state highway depart-
ment. C: J. Bennett. Eng N 86:935-6 Je 2
'21; Same. Good Roads n s 21:299-300 Je 8
'21; Same. Eng & Contr 56:13-14 J1 6 '21
- Wisconsin state highway construction. diag
Pub Works 51:226 S 17 '21
- Wisconsin state highway department equip-
ment. Pub Works 51:234 S 24 '21
- Wisconsin state highways. Pub Works 50:12
Ja 1 '21
- See also Highway accounting; Highway in-
spection; Highway law; Highway research;
Roads—Finance; Roads—Maintenance and
repair
- Highway and highway transport education com-
mittee**
Educational activities of the permanent com-
mittee. C. J. Tilden. Good Roads n s 21:205-
6+ Ap 13 '21
- Teachers interested in motor transport edu-
cation plan; joint conference at Pittsburgh.
Automotive Ind 43:1128-9 D 2 '20
- Highway contracts.** See Roads—Contracts
- Highway engineering**
Application of engineering geology to controll-
ing the quality of road building aggregates.
H. S. Mattimore. Good Roads n s 21:193-4+
Ap 6 '21; Same abr. Eng & Contr 56:342-3
O 5 '21
- Basis of an economic theory of highway
transportation. R. C. Barnett. Good Roads
n s 18:253-4+ D 17 '19
- Development of an economic theory of high-
way transportation. R. C. Barnett.
diags Eng & Contr 54:201-5 S 1 '20
- Economic geology and highway construction.
E. F. Bean. Econ Geol 16:215-21 Ap '21
- Economics of highway construction. J. H.
Pratt. Good Roads n s 21:207-8+ Ap 13 '21
- Economics of highway transport. R. D. Chap-
in. Good Roads n s 21:221-2, 245-6 Ap 20,
My 4 '21; Same (pt 2). Eng & Contr 56:
15 J1 6 '21
- Excess lift as a factor in highway transpor-
tation. R. C. Barnett. diags Eng & Contr
55:21-3 Ja 5 '21
- Field manual for the Idaho state highway
department. Eng N 84:333 F 12 '20
- Fitting the highways to modern transporta-
tion needs. Automotive Ind 43:407 Ag 26
'20
- Fundamental economic considerations in lo-
cating and designing highways. E. W.
James. Eng & Contr 55:436-9 My 4 '21
- Highway construction problem. Eng & Contr
53:533-4 My 12 '20
- Highway engineering as a career. A. N. John-
son. Munic Eng 58:111-12 Mr '20
- Highway engineering; relation between high-
way and railway engineering. W. G.
Thompson. il Good Roads n s 18:161-2 O 1
'19; Same. Eng & Contr 52:541-2 N 5 '19
- Highway engineering, rural roads and pave-
ments. G: R: Chatburn. 379p Wiley '21
- Highway transport session of the Society of
automotive engineers. Automotive Ind 44:
1157-8 Je 2 '21
- Highway transport the greatest national
economic problem. Automotive Ind 45:207-8
Ag 4 '21
- Location, grading and drainage of highways.
W. G. Harger. 294p McGraw-Hill '21
- Maximum traffic service the highway ten-
dency of 1920. Eng N 86:12-13 Ja 6 '21
- Modern highway problems. E. W. James. Can
Eng 38:193-4 F 5 '20
- Nation-wide demand for improved highways.
Pub Works 48:288-90 Ap 3 '20
- Need for trained highway and transport en-
gineers. Automotive Ind 42:974-5 Ap 22 '20
- New method for adjusting earth excavation
and determining haul. J. W. Ball and C. R.
Shore. diags plans Eng & Contr 52:530-3 N
5 '19
- Progress in highway improvements. H. E.
Breed. Good Roads n s 19:27-8+ Ja 21 '20
- Relation of the highway engineer to success-
ful road location, construction and mainte-
nance. T. F. Hickerson. Good Roads n s 19:
145-6+ Mr 17 '20
- Road builders discuss highway development;
symposium. Eng N 86:345-7 F 24 '21
- Rural road problem in England. E: J: Stead.
Eng & Contr 55:658-9 Je 29 '21
- Simple solution of three highway construction
problems. W. B. Walraven. diags Eng N
85:1172-3 D 16 '20

Highway engineering—Continued

Trend of highway development. Eng N 85: 920-2, 977-8, 1029-31, 1099-1100, 1120-3, 1177-9, 1218-19, 1271-2; 86:29-30, 59-60, 102-3 N 11 '20-Ja 20 '21

Variable factors in highway design. H. E. Breed. Soc Auto Eng J 8:238-9 Mr '21; Discussion. 8:426-32 My '21

See also Bridges; Curves; Highway research; Motor trucks and roads; Pavements; Roads; Streets

Records

District maintenance engineers' report blank. Eng N 86:223 F 3 '21

Permanent record of field changes in highway construction. J. A. W. Davis. diag Eng N 86:32-3 Ja 6 '21

Study and teaching

Education for highway engineering and highway transport; report of the Conference on highway engineering and highway transport education. U S Bur Educ Bul 1920,42:1-134

Education of the highway engineer. C. H. Mitchell. Can Eng 38:523-5 Je 3 '20; Same. Good Roads n s 20:69-70+ Ag 11 '20; Same cond. Eng & Contr 54:355-7 O 6 '20; Excerpt. Eng N 85:87 Jl 8 '20

Educational activities of the permanent committee. C. J. Tilden. Good Roads n s 21:205-6+ Ap 13 '21

Relation of the highway and motor transport movement to education. C. J. Tilden. Good Roads n s 21:100-1+ F 16 '21; Same abr. Eng & Contr 55:454-6 My 4 '21

Training the personnel for highway construction and transport. R. D. Chapin. Good Roads n s 19:329-30+ Je 30 '20; Same abr. Eng & Contr 54:123 Ag 4 '20

Training the personnel for highway construction and transport. C. Jennings. Automotive Ind 42:1145-7 My 20 '20

Tables, calculations, etc.

Solution for highway curve problem with P.I. inaccessible. C. H. Olmstead. Eng N 85:125-6 Jl 15 '20

Table for use in converting stations to miles. R. T. Brown. Eng N 85:155 Jl 22 '20

Value and application of a traffic census. W. A. McLean. Can Eng 38:519-21 Je 3 '20; Same. Good Roads n s 20:16-17+ Jl 14 '20

Highway engineers

Cooperation between engineers and contractors in the execution of highway programs. R. G. Collins. Good Roads n s 19:169-70+ Mr 31 '20

Cooperation between engineers and contractors in the execution of highway programs. C. M. Upham. Good Roads n s 19:205-7+ Ap 21 '20; Excerpts. Eng & Contr 53:638 Je 2 '20

Duties of resident engineers and inspectors on highway construction. B. H. Piepmeyer. Eng & Contr 56:329-30 O 5 '21

Efficiency ratings for engineers of Tennessee highway department. D. Q. M'Comb. Eng & Contr 56:6 Jl 6 '21

Engineering—a job or profession? W. H. Drane. Eng N 84:878-9 Ap 29 '20

Specific duties of the highway engineer and contractor. W. A. Rogers. Munic Eng 60: 187-90 My '21; Same abr. Eng & Contr 55: 441-2 My 4 '21

Standardizing the qualifications of Canadian highway engineers. A. E. Foreman. Can Eng 40:490-1 My 19 '21; Same. Good Roads n s 21:297-9 Je 8 '21

See also Highway engineering—Study and teaching

Salaries

Inadequate organization policy caused Hirst's resignation. A. R. Hirst. Eng N 86:265-6 F 10 '21; Same. Eng & Contr 55:451-2 My 4 '21

Proposed schedule of salaries for engineers in state highway service. A. N. Johnson. Munic Eng 58:9-11 Ja '20

Highway inspection

Assisting the inspector on public work. H. J. Fixmer. diag Eng & Contr 53:506 My 5 '20

Discovered: the road inspector. G. B. Arthur. Concrete 19:112-14 S '21

Highway inspection methods taught at Oregon institution. S. H. Graf. Eng N 84: 1012-13 My 20 '20

Highway law

Amendment to the Federal highway bill proposed applying receipts from a sales tax on automotive products to the construction and maintenance of highways. Automotive Ind 44:775+ Ap 7 '21

Current highway legislation. Good Roads n s 21:183+, 191-3, 209-10+, 218+, 227-8, 239-40, 255, 270-1 Mr 30-My 18 '21

Engineering—a job or profession? section 11 of Tennessee General enabling act. W. H. Drane. Eng N 84:878-9 Ap 29 '20

Federal aid to states. P. St J. Wilson. Good Roads 61:161-2+ S 28 '21

Federal participation in road construction. J. A. Whittaker. Good Roads n s 19:313-14+ Je 23 '20

Hawes road law as amended, 1919. Mo U Sch Mines & Met Bul 11:47-59 Je '19

Highway legislation in New York. Good Roads n s 19:150+; 20:22-3; 21:169+ Mr 17, Jl 14 '20, Mr 23 '21

Laws relating to highways and bridges, with blank forms. C. C. Vaughan. 317p Michigan Dept. of state, Lansing '20

Legislative program of the North Carolina Good roads association. H. M. Berry. Good Roads n s 20:59-60 Ag 4 '20

Minnesota approves state roads plan; Babcock amendment. Automotive Ind 43:1042 N 18 '20

National highway act. Good Roads n s 19:17-18+ Ja 14 '20

New federal-aid road bill calls for highway classification and state systems. Eng N 86: 738-9 Ap 28 '21

N.J. engineers urge road law amendments. Eng N 86:237 F 3 '21

New road laws forced upon eastern states. il Pop Mech 36:218-19 Ag '21

Provisions of new Missouri law for 7,700 miles state highway system. Eng & Contr 56:325 O 5 '21

Review of road legislation in Ontario. K. W. McKay. Can Eng 38:304-5 Mr 18 '20

Senate passes amended Townsend bill. Eng N 87:337-8 Ag 25 '21

Townsend act, revised and strengthened, again before Congress. Automotive Ind 42: 473 F 12 '20

Townsend submits new highway bill. Automotive Ind 44:933 Ap 28 '21

See also Automobile laws and regulations; Highway administration; Roads—Finance; Traffic regulations

Highway research

Field of highway research. W. K. Hatt. Pub Roads 4:17-18 S '21; Same. Eng & Contr 56:243-4 S 7 '21; Same. Eng N 87:450-1 S 15 '21; Same. Good Roads 61:133-4+ S 14 '21

Highway research. Eng N 86:133 Ja 20 '21

Highway research on a national basis. A. D. Flinn. Eng & Contr 56:103 Ag 3 '21; Same. Munic Eng 61:59-61 Ag '21

Highway researches and their results. A. T. Goldbeck. Good Roads 60:333-7+; 61:5-6+, 19-21+ Je 29-Jl 13 '21

More definite statement of the highway research work. chart Automotive Ind 45:278-9 Ag 11 '21

National program for highway research. A. Marston. Good Roads n s 19:50+ F 4 '20; Same. Eng & Contr 53:24-5 Ja 7 '20

Organized research into highway transportation problems. C. Jennings. Automotive Ind 43:1077 N 25 '20

Outline of field to be covered by highway research. A. N. Johnson. Eng & Contr 55:19 Ja 5 '21

- Highway research—Continued**
 Research most needed as highway construction aid. T: H. MacDonald. Eng N 85:933 N 11 '20
 To co-ordinate highway research work. Eng N 87:164 J1 28 '21
- Highway surveys.** See Roads—Location; Surveying
- Highway traffic.** See Road traffic
- Highway transport clearing houses.** See Motor truck terminals
- Highway transport conference, Chicago**
 Highway transport conference at Chicago, Jan. 24-31. Ry Age 68:433-4 F 6 '20
- Highways.** See Roads; Streets
- Hill, Frank F.**
 Sketch. S. D. Fuson. por System 39:43-4 Ja '21
- Hines, Walker D.**
 Mr Hines's European mission. Ry Age 68:1476-7 My 21 '20
- Hippocampus.** See Sea horses
- Hire-purchase agreements.** See Instalment plan
- Hires, Charles E.**
 Story of Charles E. Hires. R. W. Johnson. por Ptr Ink M 2:25-6+ Ap '21
- Hires, Charles E., company**
 Three-thousand-dollar picture to sell a five-cent drink. D. W. Kingsley. Ptr Ink M 2:40+ My '21
- Hiring.** See Employment systems
- Historic houses**
 Protection of historic buildings. H. W. Sellers. Am Inst Arch J 8:62-3 F '20
 See also Devonshire house
- History, Universal**
 History of the world that engineers can enjoy; review of H. G. Wells's Outline of history. P. B. McDonald. Eng & Contr 54:433 N 3 '20
- Hoatzin**
 Four legged birds that climb trees; the hoatzin—a missing link between birds and reptiles, found in South America. D. McClure. il Sci Am M 4:126-8 Ag '21
- Hobbing machines.** See Gear cutting machines
- Hoboes.** See Tramps
- Hobs**
 Grinding hobs. E. E. Henry. il Am Mach 53:634 S 30 '20
 Making formed tool for relieving worm-gear hobs. J. Finlay. Mach 27:973-4 Je '21
 Metal cutting tools. A. L. DeLeeuw. diags Am Mach 55:517-20 S 29 '21
 Sharpening hobs and cutters. C. G. Olson. diags Mach 27:11-13 S '20
 Side-cutting of thread-milling hobs. E. Buckingham. diags Am Mach 53:1190-5, 1222-4 D 23-30 '20; Same cond. Mech Eng 43:9-11+ Ja '21; Same cond. Eng & Ind Management 5:136-9 F 3 '21
- Inspection**
- Inspection of involute spur and helical gear hobs. C. G. Olson. il diags Mach 28:11-13, 138-40 S-O '21
- Hocking Valley railway**
 21st annual report for the fiscal year ended December 31, 1919. Ry Age 69:50, 83-4 J1 9 '20; Same abr. Comm & Fin Chr 111:96-8 J1 3 '20
 Twenty-second annual report—for 1920. Comm & Fin Chr 112:2200-1 My 21 '21
 Annual report of the Hocking Valley railroad for 1920. Ry Age 71:436 S 3 '21
- Hodge, Henry W., 1865-1919**
 Sketch. por Eng N 83:1079-80 D 25 '19; Am Arch 116:706 D 3 '19
- Hoe, Richard March, 1812-1886**
 Portrait. Inland Ptr 66:621 F '21
- Hoe, R., and company, New York**
 Programs of apprenticeship and special training in representative corporations. J. V. L. Morris. il Am Mach 53:657-9 O 7 '20
- Hog fuel.** See Wood as fuel
- Hog Island**
 Hog Island shipyard transferred to government. Comm & Fin Chr 112:710-11 F 19 '21
 World's greatest shipping terminal? W: B. West. il Sci Am 123:590+ D 11 '20
- Hoisting**
 Steel and lumber hoist equipment. diags plan Eng N 85:427-8 Ag 26 '20; Same cond. Eng & Contr 54:293 S 22 '20
 See also Mine hoisting; Wire rope; Wire rope fastenings
- Safety devices and measures**
- Hoisting and conveying; machinery safeguards and safe operation recommended by the Engineering department of the National safety council.** Power Pl Eng 25:912-14, 1000-3 S 15, O 15 '21
 Safe practice in use of wire rope in hoisting. R. H. Kudlich and O. P. Hood. Eng & Contr 52:697-9 D 17 '19
 Safety measures for hoisting in building operations. Eng & Contr 52:724-5 D 24 '19
- Tables, calculations, etc.**
- Calculating lengths of rope for drums. H. Levine. diag Mach 27:768-9 Ap '21; Discussion. G. W. Trehwella. 28:276 D '21
- Hoisting problem.** F. C. DeWeese. chart Power Pl Eng 24:891 S 15 '20
- Mine-hoisting duty cycles in practical operation.** M. A. Whiting. Eng Soc W Pa 36:345-65 Je '20; Same. Coal Age 18:630-7 S 23 '20; Discussion. Eng Soc W Pa 36:366-80 Je '20
- Singular ways of a hoist.** R. D. Moore. Concrete 19:150 O '21
- The why of block and tackle.** R. D. Moore. il diags Concrete 19:102-3 S '21
- Hoisting engineers**
 Physical examination of hoisting engineers in Utah. C. A. Allen and A. L. Murray. Power Pl Eng 24:335-6 Mr 15 '20; Same. Min & Sci P 120:421-2 Mr 20 '20; Abstract. Eng & Min J 109:864-5 Ap 10 '20
- Hoisting machinery**
 Adapting a skip hoist to the cupola. il Foundry 48:6-10 Ja 1 '20
 Balanced skip hoist that both elevates and distributes boiler coal. diag Coal Age 19:952-3 My 26 '21
 Balanced skip-hoist transporter. diags Iron Age 106:330 Ag 5 '20; Same. Power Pl Eng 24:868 S 1 '20
 Clayden automatic grab for loading refuse. il diags Engineering 111:74 Ja 21 '21
 Electric drive for small automatic self-dumping skip hoists. R. H. McLain and C. B. Connely. Gen Elec R 24:530-5 Je '21; Same. Blast F & Steel Pl 9:617-20 O '21
 Electric hoists in the power plant. il diag Power Pl Eng 24:509-11 My 15 '20
 Electrical grab transporters for Han-Yeh-Ping. H. J. Smith. il Electrician 86:14-17 D 31 '20
 Electrical handling of materials. H. H. Broughton. Benn brothers, London '20
 Electrically driven hoists. F. Jeffery. il charts Power 51:286-90 F 24 '20
 How electricity helps solve the package freight handling problem. F. T. Smith. il Int Marine Eng 25:2-3 Ja '20
 Inexpensive air hoist. J. E. Hester. il Elec Ry J 57:1134-5 Je 18 '21
 Machine d'extraction électrique des mines de Landres (Meurthe-et-Moselle) (Société des aciéries de Micheville). Génie Civil 76:517-18 Je 5 '20
 Monorail hoist as means of reducing production costs. il Elec R 79:181-2 J1 30 '21
 New development in hoisting machinery. W. Travell. diags Int Marine Eng 25:48-50 Ja '20
 Nordberg winding engine. il diags Engineering 112:565-6, 572, 628-30, 694-5, 752-5, pls 32-4, 38, 40 O 21, N 4, 18, D 2 '21
 Problem in levels; how the shafts and workings of coal mines are kept free of water. J. F. Springer. il Sci Am 125:198+ S 17 '21

Hoisting machinery—Continued

- Rational design of hoisting drums. E. O. Waters. diags Mech Eng 42:675-9 D '20
 Skip runs on horizontal and vertical track. diag Iron Tr R 67:42 J1 1 '20
 Straight-line chain block. il Iron Age 105:1310 My 6 '20
 Sullivan Turbinair hoist. il Min & Sci P 123:43-4 J1 2 '21; Am Mach 55:119 J1 21 '21
 Thor pneumatic-motor hoist. il Am Mach 52:1163 My 27 '20; Iron Age 105:1309 My 6 '20
 Uses of the whip hoist. il diag Textile World 56:2731+ N 1 '19
 Waughhoist, driven by rotary engine, though light, is powerful. il Coal Age 20:593-4 O 13 '21
 Winding engines with drop valves. diags Engineering 110:68-71 J1 16 '20
 Wright chain hoist. il Eng & Min J 111:452 Mr 5 '21

See also Bale tiering machine; Buckets; Cableways; Conveying machinery; Cranes, derricks, etc.; Elevators; Lifting magnets; Mine hoisting; Mining machinery; Ore handling; Winches; Wire rope

Holabird & Roche, architects

- Work of Holabird & Roche, architects. il plans Am Arch 118:165-72, 231-42, pl 182a-i Ag 11, 25 '20

Holding companies

See also International motor truck corporation

Holding devices (machine work)

- Holding thin work for machining. F. E. Chace. Mach 27:1017 J1 '21

Holeproof hosiery company

- What we learned from two changes in policy. E. Freschi. il System 40:541-3+ N '21

Holland. See Netherlands**Hollow building tile association**

- 3d annual meeting, Chicago, Mar. 30-31. Brick & Clay Rec 58:558-61+ Ap 5 '21

Hollow ingots. See Steel ingots**Hollow tile**

- Attractive homes constructed with walls of hollow tile. il plans Bldg Age 42:25-7 Je '20
 Builders' misuse of tile must be prevented. E. A. Bickel. diags Brick & Clay Rec 58:983-4 Je 14 '21

- Builds farm to demonstrate value of tile. F. L. Clark. il Brick & Clay Rec 59:502-4 O 4 '21

- Estimating hollow tile. diag plan Bldg Age 43:63-4 Mr '21

- Farm research will aid hollow tile producer. E. G. Meredith. Brick & Clay Rec 58:901-3+ My 31 '21

- Hollow tile shown big future in farm field. Brick & Clay Rec 58:558-61+ Ap 5 '21

- Improvement in hollow tile floor construction. A. F. Owen. il diags Am Arch 119:26-8 Ja 5 '21

- Replace \$250,000,000 farm buildings yearly. E. G. Meredith. Brick & Clay Rec 58:645-7 Ap 19 '21

- Simple dignified hollow tile house. il plans Bldg Age 43:50-1 N '21

- Stucco on hollow tile. il diags plan Bldg Age 42:20-5 F '20

- Stucco on hollow tile houses. il diags Bldg Age 43:51-5 Ap '21

- Successful building in stucco. il diags plans Am Arch 116:615-21 N 12 '19

- Tile and concrete floor shows to advantage under test. il diags plan Am Arch 118:193-9; 119:327-31 Ag 11 '20, Mr 16 '21

See also Franklin brick & tile company

Advertising

- Longer credits for home builders sought by advertising. G. A. Nichols. Ptr Ink 112:19-20+ Ag 5 '20

Manufacture

- There's plenty of business for the Barron brick co. il Brick & Clay Rec 59:345-8 S 6 '21

Prices

- Current prices of common building brick drain tile and hollow building tile. Brick & Clay Rec 59:585 O 18 '21

Hollyhock seed

- Composition of hollyhock seed and oil. R. S. Hiltner and L. Feldstein. J Ind & Eng Chem 13:635 J1 '21

Holtzer, Charles William, 1848-

- Sketch. por Elec W 77:1032 My 7 '21

Holyoke, Massachusetts**Rapid transit**

- Zone fares successful in Holyoke. il Elec Ry J 55:749-54 Ap 10 '20

Water supply

- Water department pays taxes, and charges all city departments for water used by them. Eng & Contr 55:127 F 9 '21

Home economics

- Adventure in housekeeping; what I found out in my own home in one day that will affect my work as an advertising man. G. K. Brown. Ptr Ink 111:149-50+ Je 17 '20

- Budget system in the American home. A. C. Robinson. Comm & Fin Chr 111:169-70 sec 2 N 20 '20

- Housework in the laboratory. S. R. Winters. il Sci Am 125:130+ Ag 20 '21

- Successful family life on the moderate income. M. H. Abel. 251p Lippincott '21

See also Budget, Household; Cookery; Cost of living; Food; Fuel; Furniture; Heating; House decoration; Laundry; Servants; Standards of living; Ventilation

Bibliography

- Bibliography of home economics. C. A. Lyford. (Bul 1919, no. 46) 103p '19 U.S. Bureau of education, Washington, D.C.

Home labor

- Control of work at home. D. W. Hook. Ind Management 61:31 Ja 1 '21

- Home workers in New York city tenements. Monthly Labor R 11:435-6 F '21

Home loan banks. See Building loans**Home owning**

- Home owning. Munic Eng 60:2 Ja '21

- Housing the workers who earn \$5.00 and \$6.00 per day. P. W. Blake. il plans Ind Management 60:432-5 D 1 '20

- Own your home. il plan Bldg Age 42:19-21+ My '20

- Own your home. W. E. Harmon. il Bldg Age 43:21 Ap '21

- Proposals will remedy housing shortage. Brick & Clay Rec 58:723-4 My 3 '21

- Second New York own-your-home exposition. Bldg Age 42:50-2 Je '20

- Thrift and its bearing on the housing question. W. O. Platt. Ind Management 62:165+ S '21

- What is the minimum cost of owning a home? W. O. Platt. Ind Management 62:92 Ag '21

Home rule. See Ireland—Home rule**Home study**

- Home-study and self-education. E. F. McPike. Ry R 68:48-9 Ja 8 '21

Homer electric light and power company

- Inductive interference—Homer, Illinois, case. W. J. Canada. N E L A Bul 8:176-81 Mr '21

- Public necessity the controlling factor in Homer case. Elec W 78:117-18 J1 16 '21

Homes (institutions)

- Daughters of Jacob Home, New York. Arch & Bldg 52:89-90, pl 118-19 O '20

- Grand Lodge hall; a home for aged members of the Masonic order in Pennsylvania. il plans Arch Forum 32:231-4, pl 81-4 Je '20

- Montefiore home, Cleveland Heights, Ohio; views and plans. Arch Forum 33:pl 67-9 N '20

See also Orphanages

- Homestake mining company**
Welfare work at the Homestake mine. B. C. Yates. *il Eng & Min J* 110:198-203 *Jl* 31 '20
- Homing instinct.** See Orientation
- Homocincholoipone**
Über eine teilsynthese des homo-cincholoipons und einige cyclopentantrion-derivate. E. Koenigs and W. Ottmann. *Deutsche Chem Gesell Ber* 54:1343-50 *Je* '21
- Homomorpholine**
Synthese des homo-morpholins und des benzo-homomorpholins. J. v. Braun and O. Braunsdorf. *Deutsche Chem Gesell Ber* 54:685-703 *Ap* '21
- Honduras**
Mining engineer in Honduras. P. T. Bruhl. *il Eng & Min J* 110:1209-11 *D* 25 '20
See also Silver mines and mining—Honduras
- Honey**
Occurrence of melezitose in honey. C. S. Hudson and S. F. Sherwood. *Am Chem Soc J* 42:116-25 *Ja* '20
- Honeycomb coils.** See Induction coils
- Honeycombs**
Honeycombs of aluminum. *Sci Am* 124:181 *Mr* 5 '21
- Hong Kong, China**
Water supply
Hong Kong water supply. *il diags (supp) plans Engineer* 131:170-2, 180 *F* 18 '21
- Hood, Ozni P., 1865-**
Ozni P. Hood, chief mechanical engineer of the Bureau of mines. *por Power* 52:184 *Ag* 3 '20
- Hood, William, 1846-**
Chief engineer of the Southern Pacific co. retires from active service. *Ry R* 68:707-8 *My* 7 '21; *por Eng N* 86:824 *My* 12 '21
- Hooker method.** See Extrusion process
- Hooks**
Coupling hooks for slopes, planes and rope haulages. *diags Coal Age* 16:520, 759 *S* 25, *N* 6 '19
Handling broken rock and ore chunks. H. H. Hunner. *diags Eng & Min J* 110:117 *Jl* 17 '20; Same. *Eng & Contr* 54:398 *O* 20 '20
See also Crane hooks
- Hoosac tunnel**
Renewal of overhead construction in the Hoosac tunnel. *Eng & Contr* 55:167 *F* 16 '21
Renewal of the catenary construction in the Hoosac tunnel. L. C. Winship. *il diag Elec J* 18:84-7 *Mr* '21
- Hootchite**
New mineral containing a large percentage of alcohol. *Min & Sci P* 121:580 *O* 23 '20
- Hoover, Herbert Clark, 1874-**
Address of Herbert Hoover before the Federation of engineering societies. *Sibley J* 34:176-9 *D* '20
Inaugural address as president of A.I.M.E. H. Hoover. *por Min & Met* 159:(sec 1) 3-7 *Mr* '20; Same. *Chem & Met Eng* 22:349-52 *F* 25 '20; Same. *Eng & Contr* 53:202-4 *F* 25 '20; Same. *Eng & Min J* 109:497-500 *F* 21 '20; Same. *Min & Sci P* 120:315-18 *F* 23 '20; Excerpts. *Eng N* 84:418-20 *F* 26 '20
Address; the engineer in service of the public. F. A. Barbour. *Boston Soc C E J* 8:123-8 *Ap* '21
Engineer-economist-organizer. J. M. Oskison. *Ind Management* 61:2-6 *Ja* 1 '21
Engineer in the president's cabinet. *Eng & Contr* 55:239 *Mr* 9 '21
Herbert Hoover to head Mining and metallurgical engineers. *por Mech Eng* 41:968 *D* '19
Presentation of the Washington award to Herbert Clark Hoover; with address by C. F. Loweth. *W Soc E J* 25:169-80 *Mr* 5 '20
Sketch. T. A. Rickard. *por Min & Sci P* 120:494-6 *Ap* 3 '20
- Hopper cars.** See Freight cars
- Hoppers, Ash.** See Ash hoppers
- Hops**
Harvesting hops mechanically. A. L. Dahl. *il Pop Mech* 35:569-72 *Ap* '21
- Horse association of America**
Advertising is utilized in fight to restore horse. C. M. Harrison. *Ptr Ink* 114:49-50+ *F* 10 '21
- Horse races**
Cinematography at the winning-post. A. Gradenwitz. *il Sci Am* 124:327+ *Ap* 23 '21
- Horsehair**
Anthrax problem in horsehair. H. F. Smyth. *biolog J Ind Hygiene* 2:423-32 *Mr* '21
- Horsepower**
Curves of effective horsepower for typical destroyers, yachts, gunboats and tugs, covering speeds of from 10 to 20 knots. J. L. Bates. *Marine Eng* 26:678-84 *S* '21
Diagram to determine horsepower of gasoline engines. C. E. Lounsbery. *Eng N* 85:892-3 *N* 4 '20
Estimating the horsepower required to drive machinery. J. S. Watts. *diags Am Mach* 54:792-3 *My* 5 '21
Horsepower and torque chart. J. S. Watts. *Am Mach* 53:191 *Jl* 22 '20
Horsepower chart for gear teeth. W. W. Gaylord. *chart Mach* 27:62-3 *S* '20
Horsepower determination at the British trials. H. S. Hall. *Automotive Ind* 41:1013 *N* 20 '19
Horsepower of internal combustion engines. *Marine Eng* 25:1018-19 *D* '20
More regarding horsepower formulae. J. J. Ide. *Automotive Ind* 42:1069 *My* 6 '20
New horsepower formulae. P. M. Heldt. *Automotive Ind* 41:959 *N* 13 '19
Primary horsepower at manufacturing establishments. *Power* 53:801 *My* 17 '21
Simplified formula for obtaining horsepower. J. W. Fraser. *Automotive Ind* 42:1173 *My* 20 '20
- Horses**
Future of the draft horse. W. Dinsmore. *Sci Am S* 88:306-7 *N* 22 '19
How Dobbin pulls. *il Sci Am* 124:253 *Mr* 26 '21
Why horses are shod. *Sci Am* 121:598 *D* 13 '19
- Cost**
Cost of horse maintenance. *Pub Works* 48:83-4 *F* 7 '20
Horse maintenance in Pittsburgh. *Pub Works* 48:179 *Mr* 6 '20
- Horseshoes**
Making the horse skid-proof. *il Sci Am* 122:282 *Mr* 13 '20
Steel ingots of small cross section. J. G. Webb. *diags Iron Age* 105:1497-8 *My* 27 '20; Same. *Iron Tr R* 67:232-3 *Jl* 22 '20
- Hose**
Covington hose machine. *il Am Mach* 55:283 *Ag* 18 '21
Flexible metal hose for loading at sea. *il Sci Am* 125:277 *O* 15 '21
Rubber hose in painting, asphalt and cement coating. *il India Rubber W* 62:797-8 *S* '20
Rubber in mine and mill; structure of power transmission belting. A. M. Oliver. *il Eng & Min J* 111:261-2 *F* 5 '21
See also Air brake hose; Fire hose
- Manufacture**
Circular looms for weaving tubular fabrics. *il India Rubber W* 64:902-4 *S* '21
Construction of steam hose. J. M. Bierer. *Am Soc T M Pro v* 20 pt 2:355-8 '20; Same. *Ry Mech Eng* 94:519-20 *Ag* '20; Same. *India Rubber W* 62:724-5 *Ag* '20; Discussion. *Am Soc T M Pro v* 20 pt 2:359-60 '20
- Specifications**
Standard specification for steam hose. *Power* 52:601 *O* 12 '20
Standard steam-heat hose. *diag India Rubber W* 64:639 *Je* '21
- Hose, Fire.** See Fire hose

Hose couplings

- Air hose coupling of simple design. diag Ry Mech Eng 95:404 Je '21
 New hose coupling. diag Power 53:135 Ja 25 '21
 Recent progress in standardization of fire-hose couplings and fittings. F. M. Griswold. Am Water Works Assn J 7:865-8 N '20; Same. N E Water Works Assn J 35:43-5 Mr '21
 Standardization of fire-hose couplings. Mech Eng 42:452 Ag '20; Same cond. Mach 27:170 O '20

Manufacture

- Making Thor quick-action air line couplers. J. V. Hunter. il Am Mach 53:931-3 N 18 '20

Hose machine

- Covington hose machine. il Am Mach 55:283 Ag 18 '21

Hose stripping machine. See Air brake hose**Hosiery**

- Aniline fast black on cotton hosiery. Textile World 60:987 Ag 13 '21
 Dyeing of cotton and silk hosiery. L: G. Hayes. Color Tr J 6:129-30 Ap '20
 Full-fashioned hosiery knitting. Textile World 56:2927+ N 15 '19
 Hard water in silk hosiery dyeing. H. L. Tiger. Textile World 60:2299+ O 22 '21
 Non-greenable black in cotton hosiery. Color Tr J 6:169 Je '20
 Processes for dyeing of hosiery. Textile World 58:1685+ S 11 '20
 When there is service as well as goods to sell. H. E. Agnew. Ptr Ink 114:49-50+ Ja 20 '21

Hosiery and underwear manufacturers, National association of. See National association of hosiery and underwear manufacturers**Hosiery machines**

- Automatic half hose machine, Model H-H. il Textile World 59:2903 Ap 30 '21
 Locating hosiery machine defects. R. A. Thistle. il Textile World 59:3109+ My 7 '21
 Motors for full fashioned knitting. C. T. Guilford. il Textile World 59:3269+ My 14 '21

Hosiery mills

- Automatic inventory for hosiery mill; permanent record of goods in process—forms used. Textile World 55:3505+; 56:1055+, 3363+; 57:2153+ Je 7, Ag 23, D 13 '19, Mr 20 '20
 Department for rush manufacturing. P: F. O'Shea. Ind Management 62:42 Jl '21
 Hosiery mill operation. Textile World 57:2677+ Ap 10 '20
 Hours and earnings in the hosiery and underwear and silk industries. Monthly Labor R 10:405-21 F '20
 Notaseme hosiery company's new mill, Philadelphia. il Textile World 59:1148-9+ F 5 '21
 Schuylkill Valley hosiery mills. il Textile World 59:1853+ Mr 12 '21
 See also Durham hosiery mills, Durham, North Carolina

Hosiery trade

- Hosiery opportunities in Europe. Textile World 58:865 Ag 7 '20
 Hosiery trade with South America. Textile World 57:2143 Mr 20 '20
 Year of disappointment for hosiery knitters. Textile World 59:1059 F 5 '21

Advertising

- Hosiery manufacturer rediscovers himself. Ptr Ink 111:49-50+ My 6 '20

Hospital libraries

- Report on the hospital library and the service bureau. D. R. Hamlin. Special Lib 12:103-5 My '21

Hospital ships

- Latest in hospital ships; the U.S.S. Relief. S: M. Beach. il Pop Mech 35:649-53 My '21
 Our floating hospital. il Sci Am 125:68 Jl 23 '21

Hospitals

- Ancon hospital, Ancon, Panama Canal Zone. S: M. Hitt. il plan Am Arch 116:687-90, pl 186-95 D 3 '19
 Carson C. Peck memorial hospital and nurses' home, Brooklyn, New York. Arch & Bldg 51:77-8, pl 141-6 D '19
 Charles T. Miller hospital, St Paul, Minn. il Arch Forum 35:109, pl 39-40 S '21
 Cleveland clinic is dedicated to healing arts. il Pop Mech 35:854-5 Je '21
 Emergency hospital and lecture room of Pittsburgh terminal company. il diags plans Coal Age 18:745-6 O 7 '20
 Extracts from the program architectural competition for Milwaukee county general hospital design. plans Am Arch 118:635-7 N 17 '20
 Hospital charity on business basis. H: J. Fisher. il Am Ind 21:29-30 N '20
 Hospital construction as affecting distribution of food. F. E. Chapman. Am Arch 119:234+ Mr 2 '21
 Hospital on the Mediterranean; view and plan. Am Arch 116:497 O 15 '19
 New Atlantis among hospitals. R. W. Immel. Ind Management 61:10-12 Ja 1 '21
 Oil companies financing modern \$1,500,000 hospital building in Tulsa. il Nat Pet N 12:50+ My 5 '20
 Planning the hospital for convenience and economy in supervision routing and operation. O. H. Bartine. plans Am Arch 120:69-72, 83-5 Ag 3 '21
 Report of the jury; architectural competition for Milwaukee county general hospital. plans Am Arch 118:631-2, 633-4, 644a-h N 17 '20
 Research and educational hospitals of the state of Illinois. il plans Am Arch 119:223-33, 235, 237, 239-42 Mr 2 '21
 Scottish rite hospital for crippled children, Atlanta, Ga. plans Am Arch 118:341-4, 354h-j S 15 '20
 Soldiers and sailors memorial hospital, Penn Yan, New York. il plans Arch Rec 47:265-7 Mr '20
 See also Ambulances; Hospital libraries; Hospital ships; Medical service, Industrial; New York (city)—Hospitals; Tuberculosis, Hospitals and sanatoriums for

Heating and ventilation

- Cooling of hospitals. G: H. Knight. diag Am Soc Heat & V E J 27:763-4 O '21
 Heating and ventilating a cottage hospital. C: L. Hubbard. plans Dom Eng 92:108-12, 167-9+, 221-3, 377-9+, 485-8+, 589-91; 93:68-9 Jl 17-31, Ag 21, S 4, 18, O 9 '20
 Standardized central heating and lighting plants for state institutions. G. B. Nichols. il diags plans Heat & Ven 17:32-41 Ja '20

Lighting

- Lighting of hospitals and dental offices. A. L. Powell and H. H. Alison. il diags Elec R 77:400-4, 553-8 S 11, O 9 '20

Hospitals, Military

- Criticism of the government's war hospital plans. diags plans Am Inst Arch J 7:532-6 D '19

See also Ambulances**Hot air**

- Disinfection by hot air. Sci Am M 1:211 Mr '20

Hot blast stoves. See Blast furnace stoves**Hot box.** See Cars—Bearings**Hot-plates.** See Electric stoves**Hot springs**

- L'emploi des eaux thermales comme source d'énergie. P. Caufourier. diags Génie Civil 78:37-9 Ja 8 '21; Abstracts (Power generation from natural hot waters). Mech Eng 43:200-1 Mr '21; Power 53:565 Ap 5 '21

Hot water heating

- Accelerated hot-water systems. A. J. Wells. Am Soc Heat & V E J 27:59-61 Ja '21
 Advanced ideas applied in design of a gravity water heating system. W: F. Devendorf. diags plan Heat & Ven 18:25-8 Ag '21

Hot water heating—Continued

- Advantages and disadvantages of steam and water heating. R. V. Stureman. Heat & Ven 17:39-40 JI '20
- All-on-one-floor heating plant. H. N. Dix. diag plan Sanitary & Heat Eng 96:257-9 O 21 '21
- Arrangement of connections for expansion tanks of water heating systems. diags Heat & Ven 17:29-31 O '20
- Circulation problems in hot-water heating. A. W. Luck. diags plans Am Soc Heat & V E J 27:409-16 My '21; Same. Dom Eng 96:238-40, 286-7 Ag 6-13 '21
- Comments on greenhouse heating. il diags Dom Eng 94:232-4 Ja 29 '21
- Design of hot water heating systems. W. Ehrlich. chart Bldg Age 42:33-5 Ja; 30-3 Mr '20
- Designing the automatic sprinkler system for hot water heating. il diags plan Am Arch 117:625-8 My 19 '20
- Do you prepare for piping this way? diags Metal Work 93:417-18 Ap 2 '20
- Forced hot-water circulation heating system, Girard estate, Philadelphia. R. Hughes. il chart plans Am Soc Heat & V E J 27:107-18 Mr '21; Same abr. Heat & Ven 18:43 Je '21
- Functions of the orifice in steam and hot water heating. S. H. Woodbridge. Heat & Ven 18:34-7 Mr '21
- Heating a fifteen-room dwelling. C: L. Hubbard. plans Dom Eng 96:145-7 JI 23 '21
- Heating and hot water service from a coal range. J: Y. Dunlop. diags plans Dom Eng 96:104-5 JI 16 '21
- Heating and ventilating industrial buildings; forced hot water heating. C: L. Hubbard. diags Am Arch 118:707-12 D 1 '20
- Heating guidance for residence work. C: L. Hubbard. diags Plumber 94:598-600 D 31 '20
- Heating plant as a source of power; turbo-generator unit condensing into the heaters of a hot-water forced circulation system. I. N. Evans. il Power 52:846-9 N 30 '20; Discussion. 53:521-2; 54:115-16 Mr 29, JI 19 '21
- Heating rooms with hot water from coil in stove. plan Dom Eng 91:347-8 My 22 '20
- Heating submerged coils by hot water. W: Hutton. diags Dom Eng 91:2-3 Ap 3 '20
- Hot water heating in Asia bank. H. L. Alt. diags plan Am Soc Heat & V E J 27:401-7 My '21; Discussion. 27:599-600 JI '21
- Hot water heating in Canada. C. E. Oldacre. Metal Work 93:333-5 Mr 12 '20
- Hot water heating system that does not work right. diags Dom Eng 91:247-8 My 8 '20
- How to heat a flour mill and office building. diags plan Dom Eng 94:647 Mr 26 '21
- Installation of hot water heating systems in fine residences. R. L. Emmett. diags plans Dom Eng 92:433-6+ Ag 28 '20
- Letters of a plumber to his helper. W: Hutton. Metal Work 93:795-7 Je 18 '20
- Modern house heating systems. diag Dom Eng 90:480-1 Mr 6 '20
- New treatment of hot water heating. E: E. Parker. diags Metal Work 93:445-7, 483-6, 510-12, 544-6, 585-7, 608-10, 679-81+, 758-60, 837-8+; 94:70-2, 146-7, 235-6, 336-7 Ap 9-My 14, 28, Je 11, 25, JI 16, 30, Ag 20, S 10 '20; (cont. in) Plumber 94:425-6, 487+, 565-7; 95: 7-8, 103-4, 208-10 O 8, N 5, D 17 '20, Ja 14, F 25, Ap 8 '21
- On-the-level heating for a paint shop. W: Hutton. il diags plan Metal Work 93:710-15 Je 4 '20
- Overhead hot water heating system good for any building. diags Dom Eng 93:62-3 O 9 '20
- Overhead method of piping for hot water heating. diags Dom Eng 95:256-7 My 7 '21
- Overhead piping for hot water heating. diags Metal Work 93:143-4 Ja 30 '20
- Pipe sizes for one-pipe steam and two-pipe gravity up-feed water heating systems. diags Heat & Ven 18:42-5 Ag '21
- Simple method of correcting unequal distribution on a hot water heating job. J: K. Raymond. diag plan Dom Eng 91:237-8 My 8 '20
- Sound reasons for heating your shop. H: N. Dix, jr. il diags plans Metal Work 93:233-5 F 20 '20
- Steam jets on hot-water heating system. J: C. White. il diags Power 54:103-5 JI 19 '21
- System of piping for hot water jobs. C: L. Hubbard. diags Plumber 95:305-7; 96:7-9+ My 20, JI 1 '21
- Two large cottages, about 60 ft. apart, well heated by one hot water boiler. J: K. Raymond. il diags plans Dom Eng 97:90-2 O 15 '21
- Utilization of automatic sprinkler system for hot water heating. A. W. Moulder. il diags plan Am Soc Heat & V E 25:311-19; Discussion. 319-24 '19
- Water heating—gravity. Heat & Ven 17:65-7 Ap; 64-5 My; 68-9 Je; 66 JI; 62-5 Ag; 68-71 S '20
- Welded pipe feature of large heating plant. L. M. Emmett. diags plan Dom Eng 94:540-3, 590-2 Mr 12-19 '21
- What takes place when pressure is applied to heating system? Dom Eng 93:562-3 D 18 '20
- See also Radiators
- Hot water supply**
- Air-bound domestic hot water supply circulating system. diags Dom Eng 93:208-9 O 30 '20
- Anti-corrosion engineering; a practical method for preventing the destruction of steam and hot-water pipes. W: H. Walker. diag Sci Am 122:110 Ja 31 '20
- Best way to pipe hot water from heater to bath rooms in residence. diags Dom Eng 95: 511-12 Je 11 '21
- Connecting up two hot water storage tanks and heaters to supply three-inch shower line. diags Dom Eng 95:215-16 Ap 30 '21
- Connections to two 30-gallon range boilers to obtain 60 gallons of hot water. diags Dom Eng 93:12-13+ O 2 '20
- Deactivator deaerating apparatus. diag Power 54:329 Ag 30 '21
- Electricity and the domestic hot water problem. C. O. Bastian. Electrician 86:421-2 Ap 8 '21
- Four years' experience in prevention of corrosion of pipe. F. N. Speller and W. H. Walker. diags Am Soc Heat & V E J 26: 97-102 Ja '20; Same. Metal Work 93:236-8 F 20 '20; Abstract. Heat & Ven 17:42-3 Mr '20; Discussion. Am Soc Heat & V E J 26:276-87 Mr '20
- Heating and hot water service from a coal range. J: Y. Dunlop. diags plans Dom Eng 96:104-5 JI 16 '21
- Home hot-water supply from heating boiler. diags Metal Work 92:663-4; 93:606-7 D 5 '19, My 14 '20
- Hot water supply and circulation to old colonial mansion. R. J. Gordon. diags Dom Eng 91:492-3+ Je 12 '20
- Hot water supply for mills. W. G. Starkweather and F. S. Broadhurst. il diags Textile World 59:2671+ Ap 23 '21
- Hot water supply in England. diags Metal Work 93:105-7 Ja 23 '20
- Hot water supply in fifteen-story building unsatisfactory. diags Dom Eng 91:152-3 Ap 24 '20
- Hot water supply of textile mills. W. C. Beekley. Textile World 57:227+ Ja 10 '20
- House furnace efficiency with and without tank heater coils. E. Newsome. Am Gas J 115:193-4 Ag 27 '21; Same. Gas Age 48: 271-2 S 3 '21
- How to remedy defective hot water circulation to distant points. diags Dom Eng 93: 616-17 D 25 '20
- Hurry heating of hot water for sports pavilion. J: Y. Dunlop. il diags Sanitary & Heat Eng 96:99-100 Ag 12 '21
- Instruction course for custodians and janitors; hot water supply. E. S. Hallett. Heat & Ven 18:42-3 S '21

Hot water supply—Continued

Letters of a plumber to his helper; some causes of the bursting of water fronts and short service of range boilers and connections. W: Hutton. Metal Work 94:281-2 Ag 27 '20

Overhauling the plumbing in an old colonial mansion. R. J. Gordon. diags Dom Eng 90: 579-80, 610-11 Mr 20 '20

Plumbing fittings in the English apartment house; domestic hot water supply. diags plans Plumber 95:370-1 Je 17 '21

Practical means of preventing corrosion of iron and steel where not exposed directly to the atmosphere. F. N. Speller. diags Am Electrochem Soc Trans v 39 (preprint 5): 37-46 Ap '21; Same. Chem & Met Eng 24: 1009-12 Je 8 '21; Abstract. Sci Am M 4:220 S '21

Preventing corrosion in heating systems. P. West. il diags Dom Eng 97:50-3+ O 8 '21

Prevention and cure of red water. W: H. Walker. Munic J 47:312+ N 22 '19; Same. Metal Work 93:76 Ja 16 '20; Excerpt. Eng N 84:381 F 19 '20

Proper selection of hot-water heating devices for domestic service. A. Buenger. diags Am Soc Heat & V E J 26:701-13 N '20; Discussion. 27:253-84 Ap '21

Radiator connections from range boilers in systems combining hot water for heating and domestic supply service. diags Heat & Ven 18:41-3 Ja '21

Simple hot water supply for farm house. J: Lynch. diag Metal Work 94:208 Ag 13 '20

Snags in hot water circulation. D. Addy. diags Metal Work 92:583-4 N 14 '19

Some questions on house hot water systems that waterworks officials should be able to answer. D. A. Hefferman. Eng & Contr 54:375 O 13 '20

See also Electric water heaters; Gas water heaters; Plumbing; Water heaters

Tables, calculations, etc.

Correct size of boiler and heater to furnish hot water to six showers. diags Dom Eng 93:162-3 O 23 '20

Determination of hot water requirements. W: Wilcox. diags Heat & Ven 18:31-5 O '21

How to figure coil sizes for hot water services. M. W: Ehrlich. diags Dom Eng 90: 122-4 Ja 17 '20; Excerpt (chart). Dom Eng 97:5 O 1 '21

Hotchkiss pump

Hydraulic propulsion of ships. il diags Engineer 131:140-2 F 11 '21; Abstracts. Sci Am M 3:378-9 Ap '21; Mech Eng 43:270-1 Ap '21; Sci Am 124:301+ Ap 16 '21

Hotels

Ambassador hotel and the architectural engineer. diag Am Arch 119:659-60 Je 22 '21

Hotel Ambassador, Atlantic City, N.J. Arch & Bldg 52:72-4, pl 84-95, 98 Ag '20

Hotel Ambassador, Los Angeles, Cal.: with views and plans. Arch & Bldg 53:46-7, pl 83-6 Je '21

Hotel Ambassador, New York. Arch & Bldg 53:45-6, pl 76-81 Je '21

Hotel Lincoln, Indianapolis, Ind. Arch & Bldg 51:80, pl 154-5 D '19

Hotel Monticello, Norfolk, Va. Arch & Bldg 51:80, pl 156-7 D '19

King Edward hotel extension, Toronto. il Can Eng 39:585-7 D 9 '20

Ritz-Carlton hotel, Atlantic City, N.J. Arch & Bldg 53:71-2, pl 132-8 S '21

See also Apartment hotels; Apartment houses; Restaurants

Accounting

Accounting for a modern hotel. A. G. Macmahon. J Account 31:241-9 Ap '21

Advertising

Hotels that are realizing their advertising opportunities. R. Kennelly. il Ptr Ink 110: 133-4+ Ja 8 '20

Designs and plans

Addition to the Hotel Ambassador, Atlantic City, N.J. il Am Arch 118:314-15, 322a-f S 8 '20

Ambassador hotel, Park avenue, New York. il plans Am Arch 119:644-7, pl 650i-p Je 22 '21

Condado Vanderbilt hotel, San Juan, Porto Rico. plans Arch & Bldg 52:67, pl 80-2 J1 '20

Hotel Deshler, Columbus, Ohio; views and plans. Am Arch 118:254a-i Ag 25 '20

Hotel Fort Shelby, Detroit, Mich.; views and plans. Arch Forum 32:pl 26-8 F '20

Hotel Somerset, Chicago, Ill.; views and plans. Arch Forum 34:pl 82-4 Je '21

Hotel Webster, Chicago. il plans Am Arch 119: 383-8, 398a-d Mr 30 '21

Pickwick Arms hotel, Greenwich, Conn.; views and plans. Arch Forum 35:pl 21-3 Ag '21

Y. M. C. A. hotel, Chicago, Ill. il plans Arch Forum 32:77-8 F '20

Electric equipment

Electrical and mechanical details of The Drake. C. H. Reeder. il Elec R 78:881-6 My 28 '21

Employees

Hours of labor of hotel and restaurant employees. D. Pope. Monthly Labor R 10:685-702 Mr '20

Minimum wage for women in hotels and restaurants in District of Columbia. C. E. Mortenson. Monthly Labor R 10:726-30 Mr '20

Wages of women in hotels and restaurants in the District of Columbia. Monthly Labor R 10:144-8 Ja '20

Equipment

Harmonics of the power plant. G: T. Ingersoll. Power Pl Eng 25:1004-5 O 15 '21

Influence of general design on efficiency of hotel power plant. G: T. Ingersoll. Power Pl Eng 25:819 Ag 15 '21

Inner works of a hotel; a method analyzing the condition of a hotel power plant. G: T. Ingersoll. Power Pl Eng 25:624-5 Je 15 '21; Discussion. C: L. Riecke. 25:872 S 1 '21

Heating and ventilation

Ventilation of the modern hotel. il Plumber 95:340-1 Je 3 '21

Lighting

Improved lighting of the hotel lobby a commercial asset. F. H. Murphy. il diag J Elec 47:65-6 J1 15 '21

Management

Judging efficiency by the system of maintenance employed in power plant. G: T. Ingersoll. Power Pl Eng 25:915-16 S 15 '21

We give more and waste less. J. Huckins, jr. System 40:407-10+ O '21

Water supply

See Water supply for hotels

Hours of labor

Les avantages et les inconvénients de la journée anglaise. Génie Civil 78:12-13 Ja 1 '21

Changes in hours of labor depend upon various factors. H. Tipper. Automotive Ind 43:84-5 J1 8 '20

Changes in union scale of wages and hours of labor, 1913 to 1920. Monthly Labor R 11:699-716 O '20

Comparison of an eight-hour plant and a ten-hour plant. J. Goldmark and M. D. Hopkins. J Ind Hygiene 2:348-51 Ja '21

Comparison of foreign eight-hour laws. L. Magnusson. Monthly Labor R 10:778-92 Mr '20

Cornering the eight-hour day. E. H. Greenwood. Nation's Business 8:26-7+ Ja '20

Discussion of public health bulletin no. 106, comparison of an eight-hour plant and a ten-hour plant. A. H. Ryan; P. S. Florence. J Ind Hygiene 2:466-85 Ap '21

Dutch engineering and iron and steel competition. Engineer 130:356-7 O 8 '20

Eight-hour day. Engineering 110:477-8 O 8 '20

Hours of labor—Continued

- Eight-hour day in federal and state legislation. 2d ed. 14p U.S. Women's bureau (Bul. no 5) '21
- Eight-hour day in France. A. Garniault. Iron Age 105:1364 My 13 '20
- Eight-hour day in Japan. Int Labour R 4:127-30 O '21
- Eight hour shift in British steel plants. W. Williams. Iron Age 107:635-8 Mr 10 '21
- Fatigue and industrial efficiency. W. N. Polakov. Ind Management 58:448-52 D '19
- Five points of view on the question of hours of labor. H. W. Kimball. Ind Management 59:420-1 My '20
- Hours and earnings in anthracite and bituminous coal mining. U S Bur Labor Statistics Bul 279:1-114 '21
- Hours for women workers; law in the principal textile manufacturing cities. Textile World 57:3509 My 8 '20
- Hours of work. Engineer 130:347-8 O 8 '20
- Hours of work and output. Eng & Ind Management 6:122-4 Ag 4 '21
- Hours of work as related to output and accident rate. Monthly Labor R 10:1232-7 My '20
- How many hours? Min & Sci P 122:147-8 Ja 29 '21
- Industrial survey in selected industries in the United States, 1919. A. H. Willett. U S Bur Labor Statistics Bul 265:1-509 '20
- Investigation of national industrial conference board on week of 48 hr. or less; abstracts. Iron Age 107:526 F 24 '21; Factory 26:842 Ap 1 '21
- National industrial conference board criticises report commending 8-hour day. Comm & Fin Chr 111:1810 N 6 '20
- Number of working hours as related to production cost and rate. H. Tipper. Automotive Ind 44:570-1 Mr 10 '21
- Practical experience with the work week of forty-eight hours or less. 88p National industrial conference board, New York '21
- Production and the shorter week. Textile World 56:3167+ N 29 '19
- Some effects of legislation limiting hours of work for women. U S Women's Bur Bul 15:1-26 '21
- Speed of adaptation of output to altered hours of work. Gr. Bt. (Industrial fatigue research board, Rep. no. 6) 33p H. M. Stationery off., London '20
- Standardized working day is an unsatisfactory solution. H. Tipper. Automotive Ind 41:1280-1 D 25 '19
- Tendency toward a shorter work week. Monthly Labor R 11:96-9 Jl '20
- Thirty-hour week of the coal miner. S. A. Taylor. Min & Met 157:(sec 1) 5-6 Ja '20
- Three-shift day in the paper and pulp industry. Monthly Labor R 11:335-9 F '21
- Three shift day in the pulp and paper industry. R. B. Wolf. Paper 28:129-30 Ap 20 '21
- Three-shift system in the steel industry; abstracts. H. B. Drury. Ind Management 61:63-7 Ja 1 '21; Am Mach 53:1182-3 D 23 '20; Iron Age 106:1531-8 D 9 '20; Iron Tr R 67:1599-1600 D 9 '20
- Two-shift system for English working women. Monthly Labor R 12:808-11 Ap '21
- Union scale of wages and hours of labor, May 15, 1918. U S Bur Labor Statistics Bul 259:1-295 '19
- Union scale of wages and hours of labor, May 15, 1919. U S Bur Labor Statistics Bul 274:1-281 '20
- Unwarranted conclusions regarding the eight-hour and ten-hour workday. 21p National industrial conference board, New York '20
- Wages and hours in paper-box, women's clothing, confectionery, and overalls industries. Monthly Labor R 10:925-34 Ap '20
- Wages and hours of labor. See monthly numbers of Monthly labor review
- Wages and hours of labor in cotton-goods manufacturing and finishing, 1918. U S Bur Labor Statistics Bul 262:1-147 '19
- Wages and hours of labor in five Chinese cities, 1917 and 1920. Ta Chen. Monthly Labor R 13:265-77 Ag '21

Wages and hours of labor in the boot and shoe industry: 1907 to 1918. U S Bur Labor Statistics Bul 260:1-135 '19

Wages and hours of labor in the metal trades in Massachusetts 1914-1919. (Labor Bul. 132) 72p '20 Mass. Dept. of labor and industries, Division of statistics, Boston

Wages and hours of labor in the slaughtering and meat-packing industry, 1917. U S Bur Labor Statistics Bul 252:1-114 '19

Wages and working hours are different problems. H. Tipper. Automotive Ind 44:232-3 F 3 '21

What is the most satisfactory length of work day? E. F. Creager. Am Mach 53:902-4 N 11 '20

What shifts? M. C. Burr. Ind Management 58:505 D '19; Discussion. R. A. Packard. Ind Management 59:99 F '20

Why it paid us to adopt the five-day week. R. A. Feiss. Il Factory 25:523-6 Ag 15 '20

Why the forty-four hour week? Inland Ptr 67:64 Ap '21

Woman and the two-shift system. Engineering 110:711-12 N 26 '20

Zum entwurf eines neuen arbeitszeitgesetzes. F. Goerrig. Stahl & Eisen 41:1416-20 O 6 '21

See also Daylight saving; Fatigue; Woman—Employment

House boats

Changing an airplane carrier into a houseboat. Il Sci Am 122:277 Mr 13 '20

Houseboat going from Ohio to Brazil. Il diag Pop Mech 34:54 Jl '20

Summer cottage that was once a houseboat. Il plan Bldg Age 42:19-21 S '20

House decoration

American fabrics for home decoration. Am Arch 117:368 Mr 24 '20

Decorating and furnishing the low-cost house. Il Bldg Age 42:30-4 F; 27-9+ Mr; 41-4 Ap; 48-52+ My; 32-7 Je; 39-43 Jl; 44-8 Ag; 36-8 O '20

Industrial arts exhibit at the Metropolitan museum, New York, Dec. 15, 1920 to Jan. 30, 1921. Il Arch Forum 34:67-8 F '21

Interior decoration commissions. Arch Forum 34:105-6 Mr '21

Interior decoration; decoration and furniture of the Louis XVI period. M. Price. Il Arch Forum 32:101-6 Mr '20

Interior decoration; French architecture and decoration of the regency and Louis XV. M. Price. Il Arch Forum 32:85-90 F '20

Interior decoration; from the work of Delano & Aldrich. H. C. Candee. Il Arch Forum 32:225-30 Je '20

Interior decoration from the work of Howard Major. H. C. Candee. Il Arch Forum 32:189-94 My '20

Interior decoration; house designed in the Italian style. Il Arch Forum 33:17-20 Jl '20

Interior decoration; the period of Louis XIV. M. Price. Il Arch Forum 32:27-34 Ja '20

Interior woodwork. R. B. Derby. Il Arch Forum 33:77-82 S '20

Interiors adapted from the Italian. W. F. Wheeler. Il plans Arch Forum 35:112-17, 154-9, pl 45-6 S-O '21

Principles of small house design. J. T. Boyd, jr. Il plans Arch Rec 47:436-55, 482-500 My-Je '20

Revival of Egyptian art contemplated by decorators. Am Arch 117:252-3 F 25 '20

See also Architecture, Domestic; Carpets; Fireplaces; Furniture; Mural painting and decoration; Paper hanging; Rugs; Wall paper; Woodwork

House drainage. See Drainage, House

House financing corporation

Practical methods of financing home building projects. Arch Forum 33:57-9 Ag '20

House fittings. See Building fittings

House lighting sets. See Electric lighting sets

House moving. See Moving of structures

House organs

Amps, the Milburn light electric. Ptg Art 37:supl-8 My '21

House organs—Continued

- Bank of England starts house-organ. T: Russell. *Ptr Ink* 115:95-6 Je 2 '21
- Broader views for the factory executive; American writing paper company's Business bulletin. *Factory* 24:1324 My 1 '20
- Cashing in on the printer's house-organ. F. H. Williams. *Inland Ptr* 66:615-16 F '21
- Failure in the publication of house organs. *Automotive Ind* 43:579 S 16 '20
- House organ found to be ideal plan to weld sales organization. *Nat Pet N* 13:41 O 26 '21
- House publication attracts apprentices. *il Foundry* 48:442-3 Je 1 '20
- Industrial publicity and the house organ. C: E. Carpenter. *Ind Management* 61:246-9 Ap 1 '21
- Organic troubles. C: T. Hutchinson. *Min & Sci P* 122:259-61 F 19 '21
- Printer's publicity. F. L. Martin. *Inland Ptr* 66:645-7 F '21
- Propaganda. F. L. Martin. *Inland Ptr* 67:645-7 Ag '21
- Publishing the house organ. *Automotive Ind* 43:27 Jl 1 '20
- Selected list of house magazines. *Ptr Ink* 114:137-40 Ja 13; 157+ Ja 27; 129 F 10; 142+ F 24 '21
- This plan makes folks like to trade in our town. S. Wills. *System* 39:525-7+ Ap '21
- Trade-marking and copyrighting house-organs. *Ptr Ink* 112:91-2 S 30 '20
- Use of house organs in handling sales. R. E. Ramsay. *Administration* 2:167-73 Ag '21
- See also* Employees' magazines

Covers

- Attractive house-organ cover by the Rochester bureau of printing. *Inland Ptr* 66:472a Ja '21

House painting

- Expert house painter. A. A. Kelly. 2d ed. 289p A. A. Kelly, Paoli, Pa. '20
- Selecting the color for the house. *diags Bldg Age* 42:30-2 S '20

See also Brick painting; Painting, Industrial

House plants

- Decorating and furnishing the low-cost house. *il diag plan Bldg Age* 42:39-43 Jl; 44-8 Ag '20

Houseboats. See House boats**Household budget. See** Budget, Household**Household expenses. See** Budget, Household; Cost of living**Household management. See** Home economics**Houses**

- Building frame houses. E: Marple. *il diags Bldg Age* 43:44-8 Ap '21
- Rochester, N.Y., health officer pictures the ideal dwelling. G: W. Goler. *Bldg Age* 42:62-3 Je '20

See also Apartment houses; Architecture, Domestic; Bungalows; Concrete houses; Cottages; Country houses; Farmhouses; Historic houses; Log cabins; Miners' houses; Tenement houses

Houses, Concrete. See Concrete houses**Houses, Portable**

- Bunk-houses built in sections for convenience in moving. R. M. Adams. *diags plan Eng N* 86:800-1 My 12 '21
- Buy government houses and take them home by tractor. *il Pop Mech* 33:1 Ja '20
- Construction of the readi-cut house in the West. A. Patterson. *il J Elec* 47:16-18 Jl 1 '21
- How to build a portable summer house. E: H. Prentice. *il diags Pop Mech* 33:603-5 Ap '20
- Improved methods of fabricating houses. A. N. Scott. *il plans Pop Mech* 36:102-3 Jl '21
- One-piece house; Simon Lake's scheme for producing ready-to-live-in concrete unit dwellings and transporting them to the site. H. A. Mount. *il Sci Am* 124:424-5 My 28 '21

Houses, Remodeled

- Architect's offices solving high cost of office rent. C. A. Ziegler. *plans Am Arch* 120:8-9+, pl 14a-d Jl 6 '21

- Experience in remodelling an old house. R. W. Wood. *diags Bldg Age* 42:63-4 N '20
- House surgery in the building crisis. C. L. Edholm. *il Sci Am* 122:418+ Ap 17 '20
- Notably good example of the alteration movement in New York. *il diag plans Am Arch* 118:691-5 D 1 '20
- Putting an old building on a new footing. *il diag plan Bldg Age* 42:54-6 N '20
- Remodeling old houses a good source of business. *il diags plans Bldg Age* 43:35-7 Jl '21
- Remodeling with wallboard. L. H. Harvey. *il diags Bldg Age* 43:48-50 My '21
- Some interesting country house alterations. L: E. Welsh. *il plans Arch Forum* 32:195-202 My '20
- Tendencies in apartment house design; examples of remodeling. F. C. Brown. *il plans Arch Rec* 49:488-502; 50:44-63 Je, Ag '21
- We couldn't get office space. F. V. Prugger. *il System* 39:48-9+ Ja '21
- Housing finance. *See* Building—Finance; Building loans; Housing projects
- Housing laws
- Legal aspects of the housing problem. *Monthly Labor R* 12:925-33 My '21
- Population density as a basis for housing regulations. F. B. Cartwright. *il map Eng N* 87:318-22 Ag 25 '21
- See also* Building laws and regulations; Rent

District of Columbia

- United States Supreme court upholds housing laws of both the District of Columbia and New York state. *Comm & Fin Chr* 112:1824-6 Ap 30 '21

New York (state)

- Constitutionality of 1920 housing and rent laws upheld by Court of appeals. *Comm & Fin Chr* 112:1237-8 Mr 26 '21
- Courts and the housing laws. *Comm & Fin Chr* 111:2176-7 D 4 '20
- Housing laws and the Court of appeals. *Comm & Fin Chr* 112:975-6 Mr 12 '21
- Housing situation—validity of the new statutes. *Comm & Fin Chr* 111:1795-6 N 6 '20
- New York state housing relief bills signed by governor. *Comm & Fin Chr* 111:1336-7 O 2 '20
- New York tenants granted extension of time against eviction under new laws to prevent profiteering in rents. *Comm & Fin Chr* 110:1605-7 Ap 17 '20
- Supreme court affirms the housing laws. *Comm & Fin Chr* 112:1674-6 Ap 23 '21
- United States Supreme court upholds housing laws for both the District of Columbia and New York state. *Comm & Fin Chr* 112:1824-6 Ap 30 '21
- Housing problem
- Better houses for workers. H. E. Miles. *il plans Am Ind* 20:26-31 Ap '20
- Community action to produce more houses. H. Hoover. *Bldg Age* 43:33 N '21
- Housing of employees from an industrial viewpoint. *Arch Forum* 32:203-8 My '20
- Housing plan suggested by labor party. *Am Arch* 118:376-7 S 22 '20
- Housing problem. *Am Arch* 118:627-30+ N 17 '20
- Housing problem and the labor situation. *Comm & Fin Chr* 113:461-2 Jl 30 '21
- Housing problem; its history; growth, legislation and procedure. J: J. Clarke. 544p Pitman '20
- Housing reflects Carnegie ideals. C. L. Woolbridge. *il Iron Tr R* 68:358-9 F 3 '21
- Housing report of the Chamber of commerce of the United States. *Am Arch* 119:633 Je 8 '21
- How housing affects labor. *Nation's Business* 9:16-17 Mr '21
- Importance of site planning in industrial housing. M. R. Scharff. *Eng & Contr* 55:417-18 Ap 27 '21

Housing problem—Continued

- Industrial housing—a financial problem. L. H. Allen. *il Textile World* 57:4221+; 58:105+ Je 5, Jl 3 '20; Same cond. *Eng & Contr* 53:702-4 Je 23 '20; Same cond. *Mech Eng* 42:346-8 Je '20
- Industrial housing problem as seen by employer and employee. R. J. Waldo. *Paper* 28:9-11 My 18 '21
- Industrial housing—whose job? *Am Mach* 53:1098-9 D 9 '20
- Industrial housing; with discussion of accompanying activities. M. Knowles. 408p McGraw-Hill '20
- Industry, homes, and architecture. T: Adams. *Am Inst Arch J* 7:512-18 D '19
- Industry solving house problem. A. J. Hain. *il Iron Tr R* 66:1832-9 Je 24 '20
- Labor and the housing problem. G. Atterbury. *Am Inst Arch J* 9:180-1 My '21
- Land question as related to city planning and housing. G. H. Gray. *diags plan Am Inst Arch J* 9:330-7 O '21
- Model housing law, by L. Veiller; Joke about housing, by C. H. Whitaker. *Review. Am Inst Arch J* 8:342-4 S '20
- National bank sets a precedent in financing new housing. *Arch Forum* 32:164-5 Ap '20
- Philanthropy? *il Nation's Business* 8:11-13 My '20
- Platting city areas for small homes. H. Wright. *plans Am Inst Arch J* 8:supl-16 Ag '20
- Relation of housing to engineering. *Munic Eng* 59:210+ D '20
- Short bibliography and analysis of housing. J. T. Boyd, jr. *Arch Rec* 49:180-5 F '21
- Solving the housing problem. C. F. Dingman. *Eng & Contr* 55:79-80 Ja 26 '21
- Solving the housing problem. H. Hoover and others. *il plans Ind Management* 60:424a-36 D 1 '20
- Strides in housing workmen; six plans for financing a housing program. *Factory* 24:636-8 Mr 1 '20
- Survey of conditions relating to the housing shortage in England and America. *Am Lumberman* 2338:54-5 Mr 6 '20
- Wanted: an inexpensive house. H. A. Mount. *il Sci Am* 123:596+ D 11 '20
- What is the matter with the building industry? *Am Arch* 118:659-61 N 24 '20
- Why the buyers strike. J. Henle. *Ptr Ink* 115:101-4+ My 5 '21
- Work and monotony. D. C. Calthrop. *Engineer* 131:436-7 Ap 22 '21
- Would divert savings for relief of housing shortage. H. Hoover. *Comm & Fin Chr* 113:492-3 Jl 30 '21
- See also* Apartment houses; Building—Finance; City planning; Construction camps; Dormitories, Employees'; Garden cities; Home owning; Housing laws; Housing projects; Lumber camps; Miners' houses; Model towns; Rent; Tenement houses; *also* National conference on concrete house construction

Bibliography

- Recent books and reports on housing and town-planning. F. W. Jenkins. *Housing Betterment* 9:60-71. 172-81 F, My '20
- Short bibliography of housing. J. T. Boyd, jr. *Arch Rec* 49:183-5 F '21

Balkan states

- Study of Balkan dwellings. *il Bldg Age* 42:33-4 Jl '20

Belgium

- Program for financing the rehousing of the workers of Belgium. M. A. Van Den Bempt. *Am Inst Arch J* 8:229-37 Je '20

Europe

- Housing shortage and housing measures in European countries. A. Maylander, comp. *Monthly Labor R* 11:370-9 Ag '20
- Housing situation in northern Europe. *Monthly Labor R* 12:843-51 Ap '21

France

- La construction d'habitations à bon marché pour remédier à la crise des logements. P. Razous. *Génie Civil* 77:309-13 O 16 '20

- Housing and planning problems of greater Paris. N. Hammarstrand. *Am Inst Arch J* 8:296-8 Ag '20

- Two recent French planning reports. F. B. Williams. *Am Arch* 117:404 Mr 31 '20

Germany

- Housing conditions in Germany. C. V. Wein. *Eng & Contr* 56:75-6 Jl 27 '21

Great Britain

- British housing, nationalization an expensive failure. *Eng N* 87:436 S 15 '21
- British housing notes. *Am Inst Arch J* 7:494-6, 540-2; 8:90-3 N-D '19, F '20
- England has 10,000 housing schemes. *Am Arch* 118:471 O 13 '20
- Garden city and English housing laws. L. S. Smith. *il Eng & Contr* 54:510-13 N 24 '20
- Housing in England. H. J. Birnstingl. *il plans Arch Forum* 35:136-40 O '21
- Housing in Great Britain. *Monthly Labor R* 11:356-69 Ag '20
- Housing situation in England. *Monthly Labor R* 12:213-21 Ja '21
- Housing situation in Great Britain. G. D. H. Cole. *Am Inst Arch J* 8:212-14 Je '20
- How Great Britain is financing half a million homes. R. J. Caldwell. *Ind Management* 61:196-7 F 1 '21
- Industrial housing in England subsidized by government. C. H. Northcott. *il Automotive Ind* 43:124-7 Jl 15 '20
- Recent English housing and town planning legislation. *Am Arch* 118:290 S 1 '20

See also Building guilds; Housing projects, Government

India

- Bombay plans 50,000 tenements as thousands protest high rents. *Am Arch* 118:470-1 O 13 '20

Minneapolis, Minnesota

- Minneapolis mail carriers make housing survey. *Pop Mech* 36:650 N '21

New York (city)

- Architectural competition for remodeling of a tenement block. *il plans Am Arch* 118:305-14 S 8 '20
- Co-operation and the housing problem. *Comm & Fin Chr* 112:13-14 Ja 1 '21
- Dwellings erected in New York city between April, 1920, and April, 1922, to be exempt from taxes for ten years. *Dom Eng* 94:470-1 F 26 '21
- Housing problem in Greater New York. *Am Inst Arch J* 8:37 Ja '20
- Housing shortage in New York. *Am Arch* 117:791-2 Je 23 '20
- Is it advisable to remodel slum tenements? A. J. Thomas. *il plans Arch Rec* 48:417-24; Discussion. R. D. Kohn. 425-6 N '20
- Ten years' building and housing activity in New York. *Eng N* 85:598-9 S 23 '20
- Waste spaces. *Am Arch* 118:738 D 8 '20
- Waste spaces in New York; reformation of New York's waterfront. T: Hastings. *Am Arch* 118:771-3 D 15 '20

See also Housing laws—New York (state)

New York (state)

- Mortgage tax exemptions as an impetus to house building. *Am Arch* 118:381-2 S 22 '20
- Need for permanent housing boards. *Am Arch* 118:698-9 D 1 '20
- Opposition of savings bank section of A.B.A. to proposed housing measures. *Comm & Fin Chr* 111:1232-3 S 25 '20
- Report of Housing committee, New York state association of architects. *Am Arch* 118:733-4 D 8 '20
- Report of the Joint legislative committee on housing. 37p J. B. Lyon co., printers, Albany '20

See also Housing laws—New York (state)

Paris

- Housing problem in Paris. N. Hammarstrand. *Am Inst Arch J* 8:388-9 F '20

Poland

- Need for apartments in Warsaw. *il Bldg Age* 42:51 N '20

Housing problem—Continued**United States**

- Adequate housing as related to city and plant expansion. N. G. Shidle. *Automotive Ind* 43:222-3 Jl 29 '20
- Building Age questionnaire indicates small towns require 60% of houses needed in country; tabulation. map *Bldg Age* 43:58-62 S '21
- Comment on the Minnesota chapter's report on the crisis in the building industry. *Am Inst Arch J* 8:433-4 D '20
- Food for radicalism; poor shelter and exorbitant rents breed discontent. J: A. Voll. *il Nation's Business* 9:19-20 Mr '21
- Government must clear the way. W: M. Calder. *il Nation's Business* 9:20-1 Mr '21
- Housing famine, how to end it. J: J. Murphy, E. E. Wood, F: L. Ackerman. 246p Dutton '20
- Housing situation and the way out. L. Veiller. *Arch Rec* 48:531-4 D '20
- Industrial housing reports. J: T. Boyd, jr. *Arch Rec* 47:89-92 Ja '20
- Money for 3,000,000 homes; housing need of the next five years. E. T. Trigg. *Nation's Business* 9:18-19 F '21
- More rural homes a national necessity. I. Skeels. *Am Lumberman* 2332:57 Ja 24 '20
- Starting the nation to build. S. Bent. *il Nation's Business* 9:14-16 Mr '21
- Working out the housing problem. F. R. Miller. *il Am Ind* 21:11-15 Ja '21
- Housing projects**
- Chicago solving house shortage. *Am Arch* 117:789 Je 23 '20
- City of Birmingham, England, housing competition. *diags Am Arch* 117:464-6 Ap 14 '20
- Electrical side of housing schemes; overhead distribution as an economical factor in their development. G: V. Twiss and S. G. Leech. *il diags Electrician* 86:424-6 Ap 8 '21
- Electricity supply and housing schemes; some practical problems. W. F. T. Pinkney. *Electrician* 86:402-4 Ap 8 '21
- Home building project at Fairfield, Iowa. I. Mattson. *il diag plans Bldg Age* 42:19-22 Ag '20
- Housing corporations are being formed throughout the country to promote home building. *Am Lumberman* 2342:62-3 Ap 3 '20
- Housing problem and earth masonry. T: C. Young. *Am Arch* 117:467-8 Ap 14 '20
- Housing problem successfully solved. F. L. Prentiss. *il Iron Age* 106:1661-3 D 23 '20
- Housing project at Olean, N.Y. J: Nolen. *plan Eng N* 86:80 Ja 13 '21
- How a woman builds houses to sell at a profit for \$4,000. K. Gleason. *il diags plans Concrete* 18:8-14 Ja '21
- How 11 manufacturers combined for better housing. C. De Pree. *il Factory* 25:1226-7 O 15 '20
- How municipalities, corporations and communities are solving the housing problem. W. G. Astle. *il plans Ind Management* 60:425-7 D 1 '20
- List of housing corporations formed by commercial and civic organizations in 132 communities. *Nation's Business* 9:58-9+ F '21
- Mansions of mud; how California is meeting the housing problem by building in adobe. J: L. Von Blon. *il Sci Am* 122:218+ F 28 '20
- Plans for financing home building projects. *il Dom Eng* 90:381-2 F 21 '20
- Practical methods of financing home building projects. *Arch Forum* 33:57-9 Ag '20
- Recent developments in housing finance. J: T. Boyd, jr. *Arch Rec* 48:427-31, 542-50 N-D '20
- Some post-war housing developments in New England. T. S. Rogers. *il plans Arch Forum* 34:213-18, pl 89-90 Je '21
- Strides in housing workmen. *Factory* 24:636-8 Mr 1 '20

See also Building loans

Housing projects, Company

- Activity in southern mill village development. E. S. Draper. *il Textile World* 57:1221+ F 7 '20

- Administration and supervision of industrial housing construction projects. *Eng N* 85:748-50 O 14 '20
- American woolen co. relieves house shortage. S: Sayward. *il plans Textile World* 57:1227+ F 7 '20
- Brantham, a pioneer workman's village, built for the British xylonite co., near Manningtree, Essex, England; view. *Am Arch* 117:116e Ja 28 '20
- Building homes for workers. A. J. Hain. *il Iron Tr R* 67:1811-14 D 30 '20
- Building industrial communities. A. J. Hain. *il Iron Tr R* 67:441-4 Ag 12 '20
- Carnegie steel co. plans to aid employees. *Iron Age* 105:1256 Ap 29 '20
- Company housing in anthracite region of Pennsylvania. L. Magnusson. *il plans Monthly Labor R* 10:1260-9 My '20
- Concrete house construction at Valley View development of Ingersoll-Rand co. *il diags plans Eng & Contr* 55:89-90 Ja 26 '21
- Financing homes for employes. *il Iron Tr R* 67:107-11 Jl 8 '20
- Giving employes artistic homes. P. R. Smith. *il Am Ind* 21:37-40 Mr '21
- Home-building plan launched by Western electric co. *Elec R* 78:463-4 Mr 19 '21
- Home for apprentices. F. H. Colvin. *il Am Mach* 53:671-2 O 7 '20
- Home owning plan of United States steel corporation is popular. *il Iron Age* 105:1730-3 Je 17 '20
- Housing by employers in the United States. L. Magnusson. *il plans U S Bur Labor Statistics Bul* 263:1-247 '20
- Industrial community as foundation for sound industrial relationships. *il Automotive Ind* 43:1324-6 D 30 '20
- Industrial housing. L. H. Allen. *Textile World* 59:2871+ Ap 30 '21
- Industrial housing development for present and future requirements. N. G. Shidle. *il plans Automotive Ind* 42:1064-7 My 6 '20
- Industrial housing does pay. F. A. Seiberling. *Nation's Business* 9:19-20 F '21
- Industry solving house problem. A. J. Hain. *il Iron Tr R* 66:1832-9 Je 24 '20
- Lorraine housing development, Pawtucket. R. I. *il plans Textile World* 58:531+ Jl 24 '20
- Methods of selling houses to employees. L. H. Allen. *il Ind Management* 60:427-32 D 1 '20
- Model town to house employes in Texas field; Humblestown. *il Nat Pet N* 12:82-3+ My 26 '20
- Modern housing plan at Fairhaven Mills. *diags plan Textile World* 57:4225+ Je 5 '20
- Newmarket mfg. co. housing development. S. B. Parker. *il plans Textile World* 57:1231+ F 7 '20
- Question of industrial housing. *Sci Am* 124:92 Ja 29 '21
- Small house developments. *il diags plans Bldg Age* 43:26-8 Je '21
- Solving the labor problem; home comforts and the community spirit as a remedy for heavy labor turn-over. *il Sci Am* 124:210+ Mr 12 '21
- Suncook mills build homes for workers. S: Sayward. *il Textile World* 60:847+ Ag 6 '21
- Workman's home. L. H. Allen. *il plans Sci Am S* 88:330-1, 358-9 D 6-13 '19
- Your housing problem. *il Factory* 24:1317-23, 1691-4; 25:216 My 1, Je 1. Jl 15 '20
- See also* Miners' houses; Mining towns; Model towns

Bibliography

- List of references concerning housing by employers in the United States. L. Magnusson. *U S Bur Labor Statistics Bul* 263:248-72 '20
- Housing projects, Cooperative**
- Applying the co-operative method of financing to inexpensive types of apartment buildings. *Arch Forum* 33:111-12 S '20
- Building and selling homes on co-operative plan; Jackson Heights plan of tenant-ownership. *il plans Bldg Age* 43:29, 31-3 Ap '21

Housing projects, Cooperative—Continued

- Business aspects of a successful co-operative apartment development. il plans Arch Forum 34:109-13 Mr '21
 Co-operative financing of a group of homes. Arch Forum 32:161-2 Ap '20
 Co-operative ownership to meet the present shortage of buildings. Arch Forum 32:240-4; 33:31-5 Je-Jl '20
 Group ownership of apartments. Am Arch 118:378-9 S 22 '20
 Interesting points from official investigation of the co-operative plan of apartment ownership. Arch Forum 33:55-7 Ag '20
 Successful co-operative apartment buildings. F: Culver. il plans Arch Forum 33:187-9 N '20
 Texas residential development. il plans Arch Forum 35:73-5 Ag '21
 Town house club, 71 Central Park West, New York city. Arch & Bldg 52:84-5, pl 108-11 S '20

Bibliography

- Brief list of references on co-operative building and housing projects. 4 mim. p. U.S. Library of Congress, Washington '21

Housing projects, Government

- British government's huge housing scheme. E. J. Mehren. il Eng N 85:217-18 Jl 29 '20
 British national housing scheme. Sci Am 122:323+ Mr 20 '20
 Buckman village; U.S. Shipping board housing development at Chester, Pa. il plans Arch Forum 32:183-8 My '20
 Building a nation; social aspects of England's housing program. L. Veiller. il Arch Rec 48:407-16 N '20
 Housing in England. H. J. Birnstingl. il plans Arch Forum 35:136-40 O '21
 Housing—the engineer's job. L: L. Tribus. il Munic Eng 58:103-7 Mr '20
 National shipyards' housing scheme at Chepstow. H. J. Birnstingl. il plans Arch Forum 33:167-70 N '20
 Plumbing and hot water equipment in British government housing plan. J: X. Dunlop. diags Dom Eng 94:486-8 Mr 5 '21
 Sewerage practice in the Emergency fleet corporation housing projects. C. P. Collins. Eng & Contr 53:156 F 11 '20
 Supply of electricity to housing colonies. E. E. Hoadley. Electrician 86:404-5 Ap 8 '21
 War emergency construction (housing war workers). Report of the United States housing corporation. Govt. print. off., Washington '20
 Water distribution system of industrial housing projects for shipbuilders. W: H. C. Ramsey. diags map Am Water Works Assn J 7:239-63 Mr '20

See also Housing problem—Great Britain

Howard, Leland Ossian, 1857-

- Leland Ossian Howard; the new president of the American association. M. Benjamin. por Sci Am 123:631 D 25 '20

Howe, George

- Hillside house; the property of George Howe, esq., Chestnut Hill, Philadelphia. P. P. Cret. il plan Arch Rec 48:82-106 Ag '20

Hubbard squash seed oil

- Composition of Hubbard squash seed oil. W. F. Baughman and G: S. Jamieson. Am Chem Soc J 42:152-7 Ja '20

Hudson & Manhattan railroad

- Seven per cent increase in operating income of tubes. Elec Ry J 57:102 Ja 8 '21

Hudson Bay railway

- How Alberta views Hudson Bay railway. W: Pearce. Can Eng 40:209-10 F 10 '21
 Probable completion of the Hudson Bay railway. Ry R 66:1051 Je 19 '20
 Railroad to Hudson Bay!; new resources in wheat and copper that are expected to contribute to its support. A. M. Rud. il Sci Am 123:568 D 4 '20
 Report on Hudson Bay railway. Ry R 66:1099 Je 26 '20

Hudson river bridge (proposed)

- Hudson river bridge. diags Sci Am 124:322, 324+ Ap 23 '21
 Hudson river bridge as a war memorial. Sci Am 123:148 Ag 14 '20

- Hudson river bridge equivalent to twenty tunnels. Sci Am 124:442 Je 4 '21
 Hudson river pontoon bridge preliminary plans. Eng N 87:244-5 Ag 11 '21
 New York approach to the Hudson river bridge. il Sci Am 124:508 Je 25 '21
 Plan enormous new bridge for New York city. il Pop Mech 35:368-9 Mr '21
 Plan \$100,000,000 bridge to span Hudson. Iron Tr R 68:640 Mr 3 '21
 Planning for Hudson river bridge at New York city. diags Eng N 86:900-1 My 26 '21
 Pontoon bridge across Hudson proposed. Eng N 87:207-8 Ag 4 '21
 Le projet de pont suspendu de 987 mètres de portée sur l'Hudson, à New-York. il diags Génie Civil 78:548-50 Je 25 '21
 Proposed bridge across the Hudson river at New York city. diags Ry Age 71:113 Jl 16 '21
 Proposed Hudson river bridge. diags Good Roads 61:93-4+ Ag 24 '21
 Proposed Hudson river bridge. G. Lindenthal. Eng N 85:1246-7; 86:430 D 23 '20, Mr 10 '21; Abstract. Mech Eng 43:182-3 Mr '21
 Proposed Hudson river bridge at New York. diags Engineer 132:313-14 S 23 '21
 Proposed Hudson river bridge at New York city. Ry Age 70:254 Ja 21 '21
 Proposed memorial bridge across the Hudson river at New York. il plan Am Arch 119:423-5 Ap 6 '21
 Proposed Victory bridge over the Hudson between New York city and Weehawken. R. Imlay. il map Arch Rec 48:218-23 S '20
 Shipping men object to Hudson river pontoon bridge. Eng N 87:421 S 8 '21
 Study in magnitude; comparison of the Hudson river bridge with some of the world's largest constructions in engineering and architecture. J. B. Walker. il Sci Am 124:450-1+ Je 4 '21
 War memorial suggestion. J. S. MacCoy. Sci Am 124:489 Je 18 '21

Hudson river tunnels

- Concrete block vehicular tunnel investigation. Pub Works 48:549-51 Je 19 '20
 Concrete blocks and the Hudson tunnel. Eng N 84:552-3 Mr 18 '20
 Controversy over concrete-block tunnel construction. Eng N 84:624-6 Mr 25 '20
 How much air for the tunnel? G: H. Dacy. il Sci Am 125:42+ Jl 16 '21
 Hudson river bridge or tunnel—which? Sci Am 124:222 Mr 19 '21
 Hudson river caissons. R. G. Skerrett. il Sci Am 125:252 O 8 '21
 Hudson river vehicle tunnel contracts to be ready May 15. Eng N 86:562 Mr 31 '21
 Hudson river vehicular tunnel. diags Eng & Contr 55:262-3 Mr 16 '21
 Hudson river vehicular tunnel. diags plans Engineer 130:394-6 O 22 '20
 Hudson river vehicular tunnel. J: F. O'Rourke. Pub Works 48:406-8 My 8 '20
 Hudson vehicle tunnel designs. J. Forgie. Eng N 84:977-8 My 13 '20
 Hudson vehicle tunnel designs and bidding methods. C. M. Holland. Eng N 84:777-9 Ap 15 '20
 Hudson vehicle tunnel discussed. G: W. Goethals. Eng N 84:729-32 Ap 8 '20
 Hudson vehicular tunnel. Sci Am 123:420 O 23 '20
 Hudson vehicular tunnel at New York. diags plan Ry R 68:309-13, 353-6 F 26-Mr 5 '21
 Largest American shield tunnel designed to carry vehicular traffic under Hudson river. diag plans Eng N 84:357-64 F 19 '20
 Layman's viewpoint of the proposed Hudson vehicular tunnels. G: H. Pride. Eng N 84:587-8 Mr 18 '20
 New York-New Jersey vehicular tunnel. Pub Works 48:212-13 Mr 20 '20
 Oppose two-line Hudson vehicle tunnel. Eng N 84:593-4 Mr 18 '20
 Prospects of the Hudson vehicular tunnel. Sci Am 122:212 F 28 '20
 Relative merits of Hudson river bridge and tunnels. G. Lindenthal. Eng N 86:430 Mr 10 '21
 Shield vs. trench method for Hudson vehicle tubes. C. M. Holland and O. Hoff. Eng N 86:764-6 My 5 '21

Hudson river tunnels—Continued

- Tests fix vehicle tunnel ventilation policies. Eng N 86:602-3 Ap 7 '21; Discussion. C. M. Holland. 86:960-1 Je 2 '21
- Traffic policies for vehicular tunnels endorsed. Eng N 86:293-4 F 17 '21
- Tunnel segment castings for the New York vehicular tunnel. diags Foundry 49:485 Je 15 '21; Same cond. Iron Tr R 68:1599 Je 9 '21
- Ventilation of the Hudson river tunnel. Sci Am 123:249 S 11 '20
- Ventilation of the New York-New Jersey vehicular tunnel. il diags map plan Am Soc Heat & V E J 27:302-20 Ap '21
- World's greatest vehicular tunnel. R. G. Skerrett. il Sci Am 122:510+ My 8 '20

Hughes, George A.

President of the Edison electric appliance company, inc. por J Elec 47:180 S 1 '21

Hulbert, Edmund D.

Builders of business. L. Anson. por System 40:164-6 Ag '21

Humic acids. See Humus**Humidifiers**

- High duty humidifier driven by water motor. il Textile World 59:2561 Ap 16 '21
- Humidification of bituminous mines. J. J. Walsh. il Am Soc Heat & V E J 26:657-60 O '20
- Humidifying apparatus for textile factories. diag plan Engineer 131:648 Je 17 '21
- Humidifying apparatus must be provided. H: P. Gale. Metal Work 93:580-2 My 7 '20
- Humidifying devices for the home. il diag Heat & Ven 18:55 My; 56-7 Je; 52-4 Ag; 56-7 S; 56 O '21
- O. K. radiator humidifier. diags plans Heat & Ven 16:65-6 D '19
- Ventilating, heating, and humidifying plant in the new court house for the London quarter sessions. diags plan Engineering 112:518-19, pl 27-8 O 7 '21
- Ventilation and humidification of textile factories. H. N. Leask. diag Engineering 112:202-4 Jl 29 '21

Humidity

- Automatic control of humidity in shops. Paper 27:30+ Ja 12 '21
- Automatic regulation of humidity in factories. il diag plan Sci Am M 1:24-8 Ja '20
- Better humidifying outfits for furnaces. H. P. Gale. Metal Work 93:454-5 Ap 9 '20
- Convenient humidity table for the wet and dry bulb thermometer. Chem & Met Eng 25:746 O 19 '21
- Effect of humidity on leather belting. F. W. Roys. il Textile World 59:201+ Ja 8 '21; Abstract. Ry Mech Eng 95:190-1 Mr '21
- Humidity control by means of sulfuric acid solutions, with critical compilation of vapor pressure data. R. E. Wilson. diag J Ind & Eng Chem 13:326-31 Ap '21
- Humidity governed by automatic float valve. il Metal Work 92:607-8 N 21 '19
- Humidity in weaving sheds. F. Scudder. Textile World 60:319+ Jl 9 '21
- Instrument for automatic control of humidity in shops. Eng & Contr 55:93-4 Ja 26 '21
- Making weather to order; indoor meteorology. H. A. Mount. il Sci Am 124:188+ Mr 5 '21
- Method of determining relative humidity. Sheet Metal Worker 12:72+ Mr 4 '21
- Muggy days and thirsty air. A. McAdie. Sci Am 113:220+ S 4 '20
- Operating a home heating plant; abstract. A. M. Daniels. Am Inst Arch J 9:283-4 Ag '21
- Physiological heat regulation and the problem of humidity. E. P. Lyon. Am Soc Heat & V E J 26:677-85 N '20; Same. Plumber 95:31-4 Ja 28 '21; Same cond. Heat & Ven 18:43-5 F '21; Abstract. Safety Eng 41:104-5 Mr '21
- Regulating humidity electrically. A. E. Holloway and H. L. Garbutt. J Elec 46:517 My 15 '21

Relation of the death rate to the wet bulb temperature; a review of Dr Huntington's interpretation of the death rate by climographs. E. V. Hill and J. J. Aeberly. Am Soc Heat & V E J 26:471-9 My '20; Discussion. 26:575-9 Jl '20

Relation of wet bulb temperature to health. O. W. Armspach. Am Soc Heat & V E J 26:480-8 My '20; Discussion. 26:575-9 Jl '20

See also Humidifiers

Humin

- Humin formed by the acid hydrolysis of proteins; the effect of acid hydrolysis upon tryptophane. G: E. Holm and R. A. Gortner. Am Chem Soc J 42:2378-85 N '20
- Origin of the humin formed by the acid hydrolysis of proteins. R. A. Gortner and G: E. Holm. Am Chem Soc J 42:821-7 Ap '20
- Die synthese der humine und huminsäuren. J. Marcusson. Deutsche Chem Gesell Ber 54:542-5 Mr '21

Humorous advertisements. See Advertisements, Humorous

Hump method. See Steel, Heat treatment of

Humphrey pump

- Humphrey pump. il diags Engineer 131:232, 238 Mr 4 '21
- Humphrey pump. W. J. Walker. Engineering 111:157-8 F 11 '21

Humus

- Humus acids. S. Odén. Chem Soc J 120 pt 1:393-4 Je '21
- Die synthese der humine und huminsäuren. J. Marcusson. Deutsche Chem Gesell Ber 54:542-5 Mr '21
- Synthetic preparation of humic acids; abstract. W. Eller and K. Koch. Chem & Met Eng 24:313 F 16 '21

See also Humin

Hungary**Economic conditions**

See also Agriculture—Hungary

Hunsaker, Jerome C., 1886-

Who's who in American aeronautics. Aviation 10:496 Ap 18 '21

Hunt, Haywood H.

Master typographers of today. J. L. Frazier. por Inland Ptr 67:353-6 Je '21

Hunter, John, 1866-

Sketch. por Power 53:463 Mr 22 '21

Huntington, H. E.

Frank Trumbull retires from the C. & O.; is succeeded as chairman of the board of directors by H. E. Huntington. por Ry Age 68:167-8 Ja 9 '20

Huntley, Charles Russell, 1854-

Sketch. por Elec W 78:302 Ag 13 '21

Hurricanes

- Forecasting hurricanes. C. L. Meisinger. Sci Am M 3:270-1 Mr '21
- Forecasting the path of hurricanes on the Gulf of Mexico by tides. H. H. Dunn. il maps Pop Mech 35:377-81 Mr '21

Hutchison, Miller Reese

Invention plus advertising equals success; the Klaxon campaign. C: F: Carter. Ptr Ink M 3:23+ O '21

Huxley, Thomas Henry, 1825-1895

Huxley; the exponent of veracity. T. A. Rickard. por Min & Sci P 123:499-507 O 8 '21

Hvid engine

Hvid engine; its relation to the fuel problem. E. B. Blakely. il diags Sci Am M 1:69-72 Ja '20; Abstracts. Mech Eng 41:918-20 D '19; Power 51:38-9 Ja 6 '20; Power Pl Eng 24:196-8 F 1 '20; Excerpts. Min & Met 160:26-7 Ap '20

Operating the Hvid engine. C: Labbe. Power Pl Eng 24:299 Mr 1 '20

Hybridization

Hybridization and evolution. E. M. East. Sci Am M 3:78 Ja '21

See also Mendelism

Hydantoins

On some carbamido-acids and their hydantoins. J: R: Scott and J. B. Cohen. Chem Soc J 119:664-72 My '21

Hydrants

Damage to fire hydrants by motor vehicles; discussion. *Am Water Works Assn J* 7:65-75 Ja '20

Hydrant troubles at Peterborough. R. L. Dobbin. *diag Can Eng* 40:213-14 F 10 '21

Preventing hydrants from freezing. E. T. Austin. *diags Can Eng* 40:513 My 26 '21

Protecting Montreal fire hydrants in winter. *il Metal Work* 93:108 Ja 23 '20

Ross hydrant thawing device. *il Textile World* 59:225 Ja 8 '21; *Eng & Contr* 54:638 D 29 '20; *Safety Eng* 41:45-6 Ja '21; *Plumber* 95:67+ F 11 '21

~ See also Fire service (water supply); Hose couplings

Hydrastis

Commercial hydrastis (goldenseal). A. Viehoever. *J Fr Inst* 190:895-6 D '20

Hydrated lime. See Lime**Hydrates**

Determination of the vapor pressure of salt-hydrates by a distribution—conductivity method. A. A. Noyes and L. R. Westbrook. *Am Chem Soc J* 43:726-34 Ap '21

Some new methods for the determination of the vapor pressure of salt-hydrates. R. E. Wilson. *diags Am Chem Soc J* 43:704-25 Ap '21

See also Carbohydrates

Hydration

Hydration as an explanation of the neutral salt effect. J. A. Wilson. *Am Chem Soc J* 42:715-20 Ap '20

Hydration of the fibres of soap curd. J. W. McBain and others. *Chem Soc J* 119:1369-83 S '21

Hydration of the fibres of soap curd; sorption by sodium palmitate. M. E. Laing. *Chem Soc J* 119:1669-76 O '21

Solubility of Portland cement—its relation to theories of hydration. J. C. Witt and F. D. Reyes. *Concrete* 16:sup13-17 Ja '20

Hydration, Heat of

Heat of hydration and specific heat of wheat flour. F. Daniels, B. H. Kepner and P. P. Murdick. *J Ind & Eng Chem* 12:760-3 Ag '20

Hydraucones

Developing the low-head plant; rehabilitation of old plants by installing hydraucones. L. E. Ayres. *il diags Elec W* 76:1260-3 D 25 '20

Hydraucone regainer, its development and applications in hydroelectric plants. W. M. White. *diags Mech Eng* 43:375-80 Je '21; Same. *Engineering* 112:293-6 Ag 19 '21; Abstracts. *Power* 54:36-7 Jl 5 '21; *Engineer* 132:149-50 Ag 5 '21; *Elec R* 79:363 S 3 '21; Discussion. *Mech Eng* 43:465-7 Jl '21

Hydraulic accumulators. See Accumulators, Hydraulic**Hydraulic engineering**

Fundamental principles of water power engineering. F. F. Fergusson. 116p [bibliog. p. 112-13] Pitman '21

Hydraulic accumulators and piping systems. A. Searles. *Mach* 28:64-5 S '21

Neat problem in hydraulics. J. F. Springer. *il Sci Am* 123:198+ Ag 28 '20

Plan to regulate Great Lakes level by Niagara dam. F. C. Shenehon. *diags maps plan Eng N* 84:308-13 F 12 '20

Regulation of level of Lake Superior. L. C. Sabin. *il diags plan Can Eng* 39:451-6 O 21 '20

See also Aqueducts; Artesian wells; Breakwaters; Breakwaters, Air; Bridges—Foundations and piers; Caissons; Canals; Chicago drainage canal; Cofferdams; Culverts; Dams; Dikes; Docks; Drainage; Dredging; Embankments; Flood control; Flumes; Harbors; Hydraulic filling; Hydraulic laboratories; Hydraulic mining; Hydraulic presses; Hydraulics; Hydrodynamics; Hydroelectric plants; Irrigation; Irrigation canals; Jetties; Levees; Lighthouses; Locks (hydraulic engineering); Mattresses (hydraulic engineering); Piers; Pumping; Pumping machinery; Pumping stations;

Pumps; Reclamation of land; Reservoirs; Retaining walls; Rivers; Rivers—Regulation; Sea walls; Siphons; Spillways; Stream measurement; Surge tanks; Tide power; Tunnels and tunneling; Turbines; Water; Water flow; Water power; Water supply; Water supply engineering; Water wheels; Weirs; Wells; Wharves

Tables, calculations, etc.

Evaporation from reservoirs. H. A. Barre. *J Elec* 46:489-90 My 15 '21

Evaporation from water surfaces. N. W. Cummings. *J Elec* 46:491-6 My 15 '21

Quick and economical waterwheel test. R. C. Starr. *il diag Elec W* 78:509-13 S 10 '21

See also Hydraulics—Tables, calculations, etc.; Water flow

Hydraulic excavation

Groundwater pumping and hydraulic excavation for beach hotel foundation. *il diag plans Eng N* 86:52-5 Ja 13 '21

Hydraulic filling

Core-pool overflow forms core inspection well. *diag Eng N* 85:1138 D 9 '20

Development of early hydraulic fill dams outlined by pioneer. J. M. Howells. *J Elec* 47:259 O 1 '21

Fence of wire cloth retains hydraulic fill. R. R. Lundahl. *il diags Eng N* 87:317 Ag 25 '21

Hydraulic fill at the Miami conservancy dams. C. S. Hill. *il diags plans Eng N* 85:486-90, 547-50, 600-3 S 9-23 '20

Hydraulic fill construction of Huffman dam. *map Pub Works* 49:232-4 S 11 '20

Hydraulic-fill dams. J. A. Holmes. *il diag Engineering* 111:181-4, 211-13 F 11-18 '21; Excerpt. *Eng & Contr* 55:143-6 F 9 '21

Hydraulic fill dams for Miami conservancy district. *il Pub Works* 48:391-4, 419-22 My 8-15 '20

Hydraulic-fill highway across salt marsh. *map Eng N* 84:192 Ja 22 '20

Hydraulic fill practice on Terrace reservoir dam. J. E. Field. *il diag Eng N* 86:597-601 An 7 '21

Hydraulic sluicing for Ochoco dam in heavy material. *il Eng N* 85:939-40 N 11 '20

Hydraulicizing equipment and operations on dam construction, Lockington, O. *il plan Eng & Contr* 54:386-7 O 20 '20

Hydraulicizing earth. C. A. J. Hendry. *diags Eng & Contr* 52:748-50 D 31 '19

Hydraulicizing methods for a million yard fill. *il diags plans Eng N* 85:792-4 O 21 '20

Jersey City coal pier 1,100,000 yd. hydraulic fill. *Pub Works* 48:187-8 Mr 13 '20

Large earth-fill stadium built by sheer-board method. *il diags Eng N* 86:326-9 F 24 '21

Measurement of pressures in core of hydraulic fill dam. *il Eng & Contr* 52:585 N 19 '19

Method of capping hydraulic fill Germantown dam. *diag Eng N* 86:248 F 10 '21

Method of topping out Germantown hydraulic fill dam. *il diag Eng & Contr* 55:224-5 Mr 9 '21

Plastic fill method of consolidating dam embankment. *Eng & Contr* 56:258 S 14 '21

Sluicing methods for core of hydraulic fill dam at Huffman, O. *il plan Eng & Contr* 54:255-6 S 15 '20

Tests of dredge pump operation for hydraulic fill. I. E. Houk. *diags Eng N* 86:1034-7 Je 16 '21

White iron pump shells for hydraulic fill work of Miami conservancy district. *il Eng & Contr* 54:167-8 Ag 18 '20

See also Hydraulic mine filling

Hydraulic flushing. See Hydraulic mine filling**Hydraulic jacks**

Hydraulic jack tears up street-car tracks. *il Pop Mech* 35:374 Mr '21

10-ton hydraulic jack made from parts of shells. *il Engineer* 129:576 Je 4 '20

Hydraulic laboratories

Need for an endowed American hydraulic laboratory. C. Herschel. *Eng N* 84:1239-41 Je 24 '20

State university of Iowa's new hydraulic laboratory. S. Sims. *plan Eng N* 85:124-5 Jl 15 '20

Hydraulic machinery

Breaking down coal without use of powder; coal face is slotted near the roof, hydraulic pistons are placed in the slots and a water pressure forces down the already undermined coal. D. V. Sickman. diags Coal Age 19:180-3 Ja 27 '21

Experiences in pressure grouting lead to hydraulic machine. S. C. Hulse. il diags Eng N 87:74-6 Jl 14 '21

See also Hydraulic motors; Hydraulic presses; Hydraulic rams; Turbines; Valves, Hydraulic; Water wheels

Hydraulic mine filling

How the Kingston coal company reduces subsidence and conserves coal by rock filling and silting. D. C. Ashmead. il diag Coal Age 20:167-71 Ag 4 '21

Hydraulic flushing of mine workings. J. D. Paton. Coal Age 17:18-19 Ja 1 '20

Hydraulic stowage in mines. G. Knox and J. D. Paton. Engineering 112:480 S 30 '21

Hydraulic mining

Electricity in tin mining in the Federated Malay states. D. M. W. Hutchison and W. J. Wayte. diag plan Inst E E J 58:175-80 F '20; Same. Electrician 84:8-10 Ja 2 '20; Discussion. Inst E E J 58:191-7 F '20

Factors in design of sluices and pipe lines for hydraulicking. F. A. Goodale. Eng & Contr 52:590-1 N 19 '19

Mining on Seward peninsula. G. L. Harrington. U S Geol S Bul 714:229-37 '21

Un programme d'extraction hydrodynamique des minerais. diag Génie Civil 77:258-9 S 25 '20

Russian placer mining. L. A. Perret. il Min & Sci P 122:391-5, 415-18, 449-50, 457-60 Mr 19-Apr 2 '21

See also Gold dredging

Hydraulic motors

Making a river pump its water uphill. R. Howard. il Sci Am 122:539+ My 15 '20

Hydraulic presses

Efficient hydraulic laboratory press. il Chem & Met Eng 23:937 N 10 '20

Hydraulic press with oilgear control. il Am Mach 55:395 S 8 '21

Hydraulic presses and pumping machinery. il diags Engineering 111:394 Ap 1 '21

Lead molding hydraulic press. il Iron Age 108:475 Ag 25 '21

Pressing stator plates into motor casings, and rotor plates on squirrel cage rotors on a single-acting hydraulic press. J. Blakey and J. Shankley. diags Eng & Ind Management 6:86-7 Jl 28 '21

Three Southwark hydraulic presses. C. J. Priebe. il Am Mach 53:742-3 O 14 '20

Welding the base of a 250-ton hydraulic press. il Power Pl Eng 25:689-90 Jl 1 '21

Wonders in steel forging. A. R. Surface. il Sci Am 123:10 Jl 3 '20

Hydraulic propulsion of ships. *See* Ship propulsion, Hydraulic

Hydraulic rams

Hydraulic ram, its construction and operation. C. H. Thomas. il plan Dom Eng 93:8 O 2 '20

Hydraulic rams of large capacity. il diag Ry R 66:622-3 Ap 10 '20

Hydraulic regulators

Automatic hydraulically operated regulating system. il diags Iron Age 106:1185-7 N 4 '20

Hydraulic stowage. *See* Hydraulic mine filling

Hydraulic trucks

L.A.C. hydraulic truck. G: F: Zimmer. il diag Eng & Ind Management 6:385-7 O 6 '21

Hydraulic turbines. *See* Turbines

Hydraulicking. *See* Hydraulic filling; Hydraulic mining

Hydraulics

Application of the law of kinematic similitude to the surge-chamber problem. W. F. Durand. diags Mech Eng 43:643-9 O '21

Discontinuous flow of liquid past a wedge. W. B. Morton. Philos Mag 6th ser 41:801-8 My '21

Forces hydrauliques; hydraulique et hydrographie. E. Garnier. 121p C. Béranger, Paris, Liège '21

Hydraulic jump and critical depth in the design of hydraulic structures. J. Hinds. diags Eng N 85:1034-40 N 25 '20; Discussion. 86:135, 272 Ja 20, F 10 '21

Hydraulics of oil pipe lines. W. F. Durand. chart J Elec 44:434-9 My 1 '20

Hydraulics of the Chicago sanitary district's main channel. M. Blanchard. diags W Soc E J 25:471-524 S 5 '20

Value of a hydraulic horsepower at the wheel. E. W. Rettger. diag Eng & Contr 53:47-9 Ja 14 '20

See also Fire service (water supply); Fluids; Hydraulic engineering; Hydrodynamics; Hydrometers; Intakes; Kutter's formula; Liquids; Nozzles; Oil flow; Pitot tube; Siphons; Stream flow; Stream measurement; Water; Water flow; Water power

Tables, calculations, etc.

Le calcul des conduites d'eau par la formule de Dupuit. E. Imbeaux. Génie Civil 78:505-7 Je 11 '21

Charts for solution of Manning's hydraulic formula. E. G. Harris. Eng N 85:837-9 O 28 '20

Determination of velocity of flow of liquids. C. Camichel. il Mech Eng 42:56-7 Ja '20

Hydraucone regainer, its development and applications in hydroelectric plants. W. M. White. diags Mech Eng 43:375-80 Je '21; Same. Engineering 112:293-6 Ag 19 '21; Abstracts. Power 54:36-7 Jl 5 '21; Engineer 132:149-50 Ag 5 '21; Elec R 79:363 S 3 '21; Discussion. Mech Eng 43:465-7 Jl '21

Hydraulic tables. G. S. Williams and A. Hazen. 115p Wiley '20

Manning's formula better than Kutter's. Eng N 87:96 Jl 21 '21; Same. Mech Eng 43:609 S '21

Method of estimating backwater on a river. A. Davis. diags Eng & Contr 53:269-71 Mr 10 '20

Method of procedure in economical design of a pipe under high head. E. W. Rettger. Eng & Contr 54:129-30 Ag 11 '20

Tables for designing non-pressure water and sewer tunnels. J. Hinds. Eng N 87:693-4 O 27 '21

Hydrazine

Action of anhydrous hydrazine on nitriles; abstract. E. Müller and L. Herrdegen. Chem Soc J 120 pt 1:741-2 O '21

Action of hydrazine on chloral hydrate; abstract. G. Knöpfer. Chem Soc J 120 pt 1:158-60 Mr '21

Azodicarbonsäure-ester als mittel zur einföhrung des hydrazin-restes in den aromatischen kern; azo-ester und β -naphthylamin. O: Diels. Deutsche Chem Gesell Ber 54:213-26 F '21

Hydrazines

Influence of nitro-groups on the reactivity of substituents in the benzene nucleus; the condensation of ethyl 3- and 5-nitro-2-chlorobenzoates with hydrazines. J. Kenner and E. Witham. Chem Soc J 119:1053-8 Jl '21

Preparation of optically active hydrazines; the preparation of *dl-p*-trimethylethylphenylhydrazine—the isolation of pure *d-p*-trimethylethyl-aniline. J. W. E. Glattfeld and C. H. Milligan. Am Chem Soc J 42:2322-8 N '20

Über acetophenon- [*p*-amino-phenylhydrazon] und *p*-amino-phenylhydrazin. H. Franzen and P. Steinföhrer. Deutsche Chem Gesell Ber 54:861-7 My '21

Hydrazino-benzoic anhydride

Vergleichende darstellung von derivaten des isatins, phthalimids, succinimids und *o*-hydrazino-benzoesäure-anhydrids. G. Heller and P. Jacobsohn. Deutsche Chem Gesell Ber 54:1107-17 My '21

Hydrazones

Aliphatic diazo-compounds: constitution of the hydrazones, especially of ethyl meso-

Hydrazones —*Continued*

xalatehydrazone; abstract. H. Staudinger and L. Hammet. Chem Soc J 120 pt 1:324-6 My '21

Stereoisomere abkömmlinge des phenacylsulfids; hydrazone. E. Fronim and A. Ehrhardt. Deutsche Chem Gesell Ber 54:187-91 F '21

See also Phenylhydrazones

Hydrindantin

Dreiwertiger kohlenstoff als chromophor bei der halochromie der alloxantine und verwandter stoffe. A. Hantzsch. Deutsche Chem Gesell Ber 54:1267-79 Je '21

Hydrindene

Über hydrinden. W. Borsche and M. Pommer. Deutsche Chem Gesell Ber 54:102-10 Ja '21; Abstract (Hydrindene). Chem Soc J 120 pt 1:168-70 Mr '21

Hydriodic acid

Electro-titration of hydriodic acid and its use as a standard in oxidimetry. W. S. Hendrixson. Am Chem Soc J 43:14-23 Ja '21

Quantitative reduction by hydriodic acid of halogenated malonyl derivatives; the amides and s.-di-alkyl- and- aryl-substituted amides of mono- and di-bromomalonic acid. J: V. Backes, R. W. West and M. A. Whiteley. Chem Soc J 119:359-79 Ap '21

Hydroaeroplanes. *See* Seaplanes

Hydrobromic acid

Reaction between alcohols and aqueous solutions of hydrochloric and hydrobromic acids. J. F. Norris and R. S. Mulliken. Am Chem Soc J 42:2093-8 O '20

Vapor pressures and free energies of the hydrogen halides in aqueous solution; the free energy of formation of hydrogen chloride. S. J. Bates and H. D. Kirschman. Am Chem Soc J 41:1991-2001 D '19

Hydrocarbons

Approvisionnement de la France en hydrocarbures et fixation du pouvoir calorifique du gaz. M. P. Mallet. Génie Civil 79:68-9 Jl 16 '21

Attempted synthesis of a hydrocarbon, $C_{14}H_{10}$; abstract. R: Meyer, W. Meyer and K. Taeger. Chem Soc J 120 pt 1:20-1 Ja '21

Carbons and hydrocarbons used in the rubber industry. F: Dannerth. India Rubber W 64:742-4 Jl '21

Composition of petroleum and its relation to industrial use. C: F. Mabery. Min & Met 158:(sec 34) 1-14 F '20

Condensation of benzoyl chloride with ethylene in the presence of aluminum chloride. J. F. Norris and H: B. Couch. Am Chem Soc J 42:2329-32 N '20

Cracking hydrocarbons; patent. diag Chem & Met Eng 24:134 Ja 19 '21

Data of geochemistry. F. W. Clarke. U S Geol S Bul 695:721-45 '20

Dielectric constants of typical aliphatic and aromatic hydrocarbons, cyclohexane, cyclohexanone, and cyclohexanol. T. W. Richards and J. W. Shipley. diag Am Chem Soc J 41:2002-12 D '19

Direct method for the determination of rubber hydrocarbon in raw and vulcanized rubber. W. K. Lewis and W. H. McAdams. bibliog J Ind & Eng Chem 12:673-6 Jl '20; Same cond. India Rubber W 62:727-8 Ag '20

Distillation of shale-oil. J. A. Bishop. Min & Sci P 120:371-5 Mr 13 '20

Extraction of hydrocarbons. Chem & Met Eng 24:937 My 25 '21

Formation and stability of spiro-compounds; derivatives of cyclohexanespirocyclohexane and of cyclopentanespirocyclohexane. W. S. G. P. Norris and J. F. Thorpe. Chem Soc J 119:1199-1210 Ag '21

Iodine numbers of unsaturated hydrocarbons and cracked gasolines. W. F. Faragher, W. A. Gruse and F. H. Garner. J Ind & Eng Chem 13:1044-9 N '21

Nitration of hydrocarbons. A. Hough, W. Savage and D. J. Van Marle. chart diags plans Chem & Met Eng 23:666-70 O 6 '20

Physical properties of hydrocarbons containing two and three carbon atoms. O. Maass and C. H. Wright. diag Am Chem Soc J 43:1098-1111 My '21

Process and equipment for refining benzene hydrocarbons. A. Thau. diags Chem & Met Eng 23:1065-71 D 1 '20

Removal of the lighter hydrocarbons from petroleum by continuous distillation, with especial reference to plants in California. J. M. Wadsworth. flow sheets il chart diags plans U S Bur Mines Bul 162:1-162 '19

Research in the non-benzenoid hydrocarbon series. B: T. Brooks. Chem & Met Eng 22:933-7 My 19 '20

Some natural hydrocarbons. R. B. Ladoo. Gas Age 48:58-61 Jl 25 '21

Thermochemistry of hydrocarbons according to P. W. Zubow's data. W. Swietoslawski. Am Chem Soc J 42:1312-21 Jl '20

Three new hydrocarbons, leucacene, rhodacene, and chalkacene; abstract. K. Dziewoński and others. Chem Soc J 120 pt 1:105-6 F '21

Über die isomerisierung des 1-phenylindens bei der pyrogenen destillation (ein neuer kohlenwasserstoff). F. Mayer. A. Sieglitz and W. Ludwig. Deutsche Chem Gesell Ber 54:1397-1402 Je '21

Über zersetzung von kohlenwasserstoffen durch kanalstrahlen. V. Kohlschütter and A. Frumkin. Deutsche Chem Gesell Ber 54:587-94 Ap '21

See also Chlorohydrocarbons; Cyclic compounds; Hexane; Petroleum; Petroleum refining; Silicohydrocarbons

Hydrocarbons, Aromatic

Ein beitrag zur summationsmethodik der molekularrefractionen, besonders bei aromatischen kohlenwasserstoffen. A. L. von Steiger. Deutsche Chem Gesell Ber 54:1381-93 Je '21

Dosage des carbures aromatiques dans les essences de pétrole. A. Kling and A. Lassieur. Chimie & Ind 4:331-2 S '20

Les hydrocarbures aromatiques. A. Mailhe. Génie Civil 78:68 Ja 15 '21

Molekularer brechungskoeffizient, sein additives verhalten und seine verwendbarkeit zur konstitutionsbestimmung; die zahlenmässigen zusammenhänge in der reihe der polymethylen-verbindungen. F. Eisenlohr. Deutsche Chem Gesell Ber 54:299-320 F '21

See also Dimethylcyclohexane; Phenanthrene

Hydrocellulose

Are hydrocelluloses simple substances? abstract. H. Ost and R. Bretschneider. Chem Soc J 120 pt 1:711 O '21

Hydrochloric acid

Acid cleaning of condensers. N. G. Hardy. diag Elec W 78:64 Jl 9 '21

Density of hydrochloric acid. J. F. King. bibliog J Phys Chem 25:115-21 F '21

Determination of hydrochloric acid and neutral chlorides in leather. A. W. Thomas and A. Frieden. J Ind & Eng Chem 12:1186-8 D '20

Electrolytic oxidation of hydrochloric acid to perchloric acid. H. M. Goodwin and E. C. Walker, 3rd. diag Am Electrochem Soc Trans v 40 (preprint 30):377-86 S '21

Elimination of hydrogen chloride from chlorohydrocarbons. W. F. Faragher and F. H. Garner. Am Chem Soc J 43:1715-24 Jl '21

Indirect method of determining the specific heat of dilute solutions, with preliminary data concerning hydrochloric acid. T. W. Richards and A. W. Rowe. diag Am Chem Soc J 42:1621-35 Ag '20

Ionization potential of hydrochloric acid and the electron affinity of chlorine. P. D. Foote and F. L. Mohler. Am Chem Soc J 42:1832-9 S '20

New salt cake and hydrochloric acid furnace; internally oil-fired rotary. N. A. Laury. diags Chem & Met Eng 25:834-6 N 2 '21

Production of hydrochloric acid from chlorine and water. H. D. Gibbs. J Ind & Eng Chem 12:538-41 Je '20

- Hydrochloric acid—Continued**
 Reaction between alcohols and aqueous solutions of hydrochloric and hydrobromic acids. J. F. Norris and R. S. Mulliken. *Am Chem Soc J* 42:2093-8 O '20
 Reaction between hydrochloric acid and potassium permanganate. F. P. Venable and D. H. Jackson. *Am Chem Soc J* 42:237-9 F '20
 Reagent chemicals; proposed specification for sulfuric, nitric, and hydrochloric acids, and for ammonium hydroxide. W. D. Collins. *J Ind & Eng Chem* 13:735-7 Ag '21
 Vapor pressures and free energies of the hydrogen halides in aqueous solution; the free energy of formation of hydrogen chloride. S. J. Bates and H. D. Kirschman. *Am Chem Soc J* 41:1991-2001 D '19
- Hydrocupreine**
 Syntheses in the cinchona series; azo dyes derived from hydrocupreine and hydrocupreidine. M. Heidelberger and W. A. Jacobs. *Am Chem Soc J* 41:2131-47 D '19
 Über china-alkaloide; stereoisomere Verbindungen des hydro-cupreans. G. Giemsa and J. Halberkann. *Deutsche Chem Gesell Ber* 54:1189-1204 Je '21; Abstract. *Chem Soc J* 120 pt 1:583-4 Ag '21
- Hydrocyanic acid**
 Beiträge zur erhöhung der ammoniakausbeute bei der destillation der steinkohle; die gewinnung des im koksofengase enthaltenen zyanwasserstoffs durch umwandlung in ammonium-sulfat. F. Sommer. *diags Stahl & Eisen* 41:852-9 Je 23 '21
 Production of hydrocyanic acid. *Chem & Met Eng* 22:329 F 18 '20
 Recherche de l'acide cyanhydrique. A. Kling and A. Lassieur. *Chimie & Ind* 4:152-3 Ag '20
 Récupération de l'acide cyanhydrique et du sulfure de carbone du gaz de fours à coke et du gaz de ville. Minot. *il diag Chimie & Ind* 6:135-40 Ag '21; Same cond. *Am Gas J* 115:386-8+ O 29 '21
 Über die darstellung wasserfrier blausäure. K. Ziegler. *diag Deutsche Chem Gesell Ber* 54:110-12 Ja '21
- Hydrodrome**
 Airplane-hydroplane makes 71 miles an hour. *il Pop Mech* 33:2-3 Ja '20
 Airplane wing principle applied to watercraft. *il Automotive Ind* 41:1253 D 25 '19
- Hydrodynamics**
 Fundamental property of viscous fluids. G. De Bothezat. *U S Nat Advisory Com for Aeronautics* 1920:100-3 '21
 Mechanism of fluid resistance. Th. v. Kármán and H. Rubach. *diags U S Nat Advisory Com for Aeronautics* 1918:149-58 '20
 Resistance of a compressible fluid at high velocities. L. Thompson. *Phys R* 17:371-2 Mr '21
See also Floating bodies; Fluids; Rotating masses of fluid; Ship resistance; Viscosity; Waves
- Hydroelectric plants**
 Alternative for outdoor generators. H. G. Reist. *il Gen Elec R* 23:360-1 My '20
 Bettering efficiency of hydroelectric plants. *Elec W* 77:1320 Je 4 '21
 Le choix entre les transformateurs monophasés et triphasés, pour le service des branchements de distribution. *Génie Civil* 77:279-80 O 2 '20
 Common sense and engineering. J. E. Aldred. *Am Mach* 53:839-42 N 4 '20; Excerpts. *Eng N* 85:18-20 Jl 1 '20; Discussion (Facts and common sense at the Niagara power plants). A. H. Van Cleave. *Eng N* 85:182-3 Jl 22 '20; Same. *Can Eng* 39:224-5 Ag 5 '20
 Common-sense hydro-electric plant. R. L. Mahon. *il J Elec* 45:479-81 N 15 '20
 Country house hydro-electric installation. *il Elec R (Lond)* 88:672-3 My 27 '21
 Developing an additional 100,000 horsepower at Niagara; symposium. *il diags map plan Eng N* 85:582-8, 646-53, 694-701 S 23-O 7 '20
 Development in hydroelectric practice. E. M. Bergstrom. *diags Elec R* 76:400-3 Mr 6 '20
 Developments in power plants and generating stations. A. Still. *il diags Elec R* 77:269-75 Ag 21 '20
 Eddy troubles in an old French mill. A. Landry. *diags plans Power* 54:325-6 Ag 30 '21
 Effecting efficient operating methods in hydro-electric plants. L. W. Wyss. *il Power* 52:217-19 Ag 10 '20
 Handling the river. N. L. Devendorf. *Power* 54:292-5 Ag 23 '21
 High-speed wheels for low-head plants. A. Streiff. *il diag Elec W* 76:121-2 Jl 17 '20
 How to increase the efficiency of water power plants. C. M. Allen. *il diags Paper* 28:152+ Ap 20 '21; Excerpts. *Power* 53:761-2 My 10 '21; Excerpts. *Power Pl Eng* 25:665 Jl 1 '21
 Hydro-electric development. J. W. Meares. 90p Pitman '20
 Hydroelectric plant. N. L. Devendorf. *diags Power* 54:484-6, 513-16 S 27-O 4 '21
 Hydroelectric plant operating under a 5,400-ft. head. *Sci Am M* 3:426 My '21
 Hydro-electric power collection. C. P. Steinmetz. *Gen Elec R* 22:960-3 N '19; Same. *Power Pl Eng* 24:139-41 Ja 15 '20
 Hydroelectric power developments; pointers on developing small water power sites. T. Thumb. *Power Pl Eng* 24:1030-1 N 1 '20
 Hydro-electric practice—draft tubes. C. Voetsch. *il diags Power* 54:164-7 Ag 2 '21
 Improving an inefficient water power-plant. J. S. Carpenter. *diags Power* 51:768 My 11 '20
 Modern trend of hydro-electric engineering. W. M. White. *il Elec W* 75:651-3 Mr 20 '20
 Outdoor generating station. H. W. Buck. *diags Gen Elec R* 23:194-7 Mr '20; Same cond. *Electrician* 85:131-2 Jl 30 '20
 Pond-level control for hydro plants. E. Stafford. *il Elec W* 75:662-5 Mr 20 '20
 Recent advances in utilisation of water power. E. M. Bergstrom. *il diags Engineering* 109:140-3, 191-7, 227-32 Ja 30-F 13 '20; Same cond. *Engineer* 129:110-11, 146-7, 172-3 Ja 30-F 13 '20; Abstracts. *Electrician* 84:139-41 F 6 '20; *Mech Eng* 42:513-15 S '20; Discussion. *Electrician* 84:224-5 F 27 '20
 Recent tendencies in water-power practice. J. F. Vaughan. *Elec W* 77:17+ Ja 1 '21
 Les récents développements de l'utilisation des chutes du Niagara. *il diags maps Génie Civil* 76:565-70 Je 26 '20
 Remote-control station makes small stream development profitable. L. H. Hardin. *Elec W* 78:877 O 29 '21
 Some features of modern hydro-electric practice. H. M. Turner. *Power* 52:352-3 Ag 31 '20
 Symposium on hydro-electric development. *Power* 53:196-7 F 1 '21
 La technique de la houille blanche. É. Pacoret. 4v. 3d ed. H. Dunod et E. Pinat, Paris '19-'20
 32,500-kva. waterwheel generator. R. B. Williamson. *il diags Elec W* 74:456-8 Ag 30 '19; Same. *Electrician* 84:323-5 Mr 19 '20
 Unit idea in 100,000-hp. electrical layout at Niagara Falls extension. J. A. Johnson. *il diag Elec W* 76:825-30 O 23 '20
 L'utilisation des fleuves par barrages ou dérivations; étude de l'usine et du barrage d'Augst-Wyhlen. sur le Rhin. L. Mähl. *Génie Civil* 76:212-14 F 21 '20
 Wasting surplus water at hydroelectric plants; various kinds of gates used to regulate the overflow. L. W. Wyss. *il diag Power Pl Eng* 24:1126-8 D 1 '20
 Water control on hydro-electric systems. R. C. Denny. *il Power* 53:208-12 F 8 '21
 Water power development for small plants. C. H. Tallant. *il J Elec* 44:318-20 Ap 1 '20
 World's largest hydro-electric units. F. A. Annett. *il diags map Power* 52:412-22 S 14 '20
See also Dams; Surge tanks; Turbines
- Automatic operation**
 Automatic and remote control generating stations. A. G. Darling. *diags Gen Elec R* 22:846-8 N '19

Hydroelectric plants—Automatic operation
—Continued

- Automatic hydro-electric stations. T. A. E. Belt. il diags Elec W 75:827-30 Ap 10 '20; Same cond. Eng & Contr 53:547-8 My 12 '20; Excerpts. Electrician 86:720-1 Je 10 '21
- Automatic induction-generator hydraulic plant operation. plans Elec R 76:78-9 Ja 10 '20
- Development of automatic hydro-electric generating stations; abstracts. T. A. E. Belt. diags Elec W 75:477-9 F 28 '20; Elec R 78:417-20 Mr 12 '21
- Operating small hydro plants without an attendant. H. J. Burton. Elec W 76:1075 N 27 '20
- Semi-automatic induction-generator plants. L. J. Moore. il Elec W 74:1148-51 D 27 '19
- Semi-automatic operation economical in small hydro stations. E. R. Stauffacher and G. Clingwald. il diags Elec W 78:213-16 Jl 30 '21

Auxiliary plants

- Hydraulic section of report of the National electric light association committee on prime movers. Mech Eng 42:517-19 S '20
- Steam stations for hydraulic relay service. E. B. Powell. Power Pl Eng 25:310-15 Mr 15 '21; Same. Mech Eng 43:650-2+ O '21; Excerpts. Elec W 77:637-40 Mr 19 '21; Excerpts. Power 53:482-5 Mr 22 '21
- Swedish power station at Västerås. Electrician 85:426-7 O 8 '20
- Why are stand-by steam plants necessary? H. L. Doolittle. J Elec 46:342 Ap 1 '21

Construction

- Airplane costs in hydro-electric work. E. W. Dichman. il J Elec 45:360-3 O 15 '20; Same. Aviation 10:134-6 Ja 31 '21; Same abr. Eng & Contr 54:470-1 N 10 '20
- Airplane in modern hydro-electric practice. R. C. Starr. il J Elec 45:357-9 O 15 '20
- Big Creek plant adds 30,000 hp. to western power supply. R. E. Smith. il J Elec 47:188 S 1 '21
- Duties of a young engineer on the construction of a hydro-electric plant. H. S. Slocum. il diags plans Can Eng 38:375-84 Ap 15 '20

Cost

- Analysis of hydro-electric plant costs. G. R. Kenny. Elec W 75:954 Ap 24 '20
- Does state or municipal ownership and operation pay? F. I. Winslow. diags plan Pub Works 51:22-4 Jl 9 '21
- Economics of hydro-electric development. A. H. Gibson. Engineer 131:367-9, 393-4 Ap 8-15 '21
- Estimate of the cost of hydroelectric equipment. Elec W 75:372 F 14 '20
- Estimated cost of hydro-electric and transmission construction. Elec W 78:123 Jl 16 '21
- Estimated cost of 2,500-kw. hydro-electric development. Elec W 75:731 Mr 27 '20
- Operating results of a 1,500-kva. automatic hydro station. T. A. E. Belt. Elec W 77:1235-7 My 28 '21
- Proposed state hydro electric development in South Dakota and detailed estimates of cost. D. W. Mead and C. V. Seastone. Eng & Contr 53:652-4 Je 9 '20
- Water-power development in New England. H. K. Barrows. maps Boston Soc C E J 8:1-42 Ja '21

Equipment

- Automatic features of new Kern river power plant. Eng N 87:453 S 15 '21
- Developing the low-head plant; rehabilitation of old plants by installing hydraulicons. L. E. Ayres. il diags Elec W 76:1260-3 D 25 '20; Discussion. H. H. White. 77:316-17 F 5 '21
- Hydraucone regainer, its development and applications in hydroelectric plants. W. M. White. diags Mech Eng 43:375-80 Je '21; Same. Engineering 112:293-6 Ag 19 '21; Abstracts. Power 54:36-7 Jl 5 '21; Engineer 132:149-50 Ag 5 '21; Elec R 79:363 S 3 '21; Discussion. Mech Eng 43:465-7 Jl '21

- Installation and maintenance of trash racks for hydraulic power plants. R. V. McDonald. diag Power 51:659-60 Ap 27 '20; Same. Eng & Contr 54:50-1 Jl 14 '20
- Steel trash racks coated with concrete placed by cement gun. il diag Eng N 86:1003-4 Je 9 '21

*See also Screens***Failures**

- Penstock bursts during tryout of high-head turbine plant. diag Eng N 87:640-1 O 20 '21; Same. Power 54:616 O 18 '21

Ice protection

- First aid to a freezing river. J. C. Alter. map Pop Mech 33:378-9 Mr '20
- Formation of frazil ice easily prevented. J. Murphy. Elec W 77:785-6 Ap 2 '21
- Ice diversion for St Lawrence river power co. B. F. Groat. il maps plan Can Eng 39:545-52 N 25 '20; Excerpts. Eng & Contr 55:45-6 Ja 12 '21
- Ice formation and its prevention. J. Murphy. il diags Can Eng 40:291-2+ Mr 10 '21
- Ice protection for hydroelectric plant; methods of deflecting ice jams. J. S. Carpenter. diags plan Power Pl Eng 24:1125-6 D 1 '20

Municipal ownership

- Inflexibility of power development by municipalities. E. O. Edgerton. Elec W 78:657-8 O 1 '21; Same. J Elec 47:261-2 O 1 '21
- See also Electric plants, Municipal*

Reconstruction

- Rebuilding an old New England water-power plant. E. H. Sweet. il diags map plan Eng N 86:1062-6 Je 23 '21
- Remodeling plant to increase rating; Bangor (Me.) railway & electric company's Veazie plant. P. Smith. il Elec W 78:815-18 O 22 '21

Tables, calculations, etc.

- Les efforts dus à la dilatation dans les conduites forcées des usines hydro-électriques. E. Baticle. diags Génie Civil 78:82-4 Ja 22 '21
- Measuring river flow for hydro-electric plant operation. R. D. De Wolf. charts Power 52:361-3 S 7 '20; Same cond. Eng & Contr 55:32-3 Ja 12 '21
- Pond elevation converted into kw-hrs. by curves. N. H. Davidson. Elec R 76:664-5 Ap 17 '20; Elec W 75:1199 My 22 '20

Testing

- Obtaining test load for steam- and water-wheel-driven units in power stations with water rheostats. C. W. Leonard. diags Power 54:416-17 S 13 '21

Afghanistan

- Building a hydro-electric plant in Afghanistan. A. C. Jewett. il Eng N 84:68-72 Ja 8 '20

Alabama

- Government engineers recommended interconnection of Muscle Shoals. Elec W 78:535-6 S 10 '21
- Hydroelectric development at Muscle Shoals. W. B. West. il Elec R 76:929-32 Je 5 '20
- Hydro-electric project at Muscle Shoals. A. S. McBride. il diags Power 53:422-4 Mr 15 '21
- Muscle Shoals hydro-electric development. C. H. Jones. il map Chem & Met Eng 22:417-19 Mr 3 '20

Arctic regions

- Electric power in the Arctic regions. il Power 51:666 Ap 27 '20

Arizona

- Electrical development on the Salt river project. il J Elec 44:505-7 My 15 '20

Australasia

- Australasian electrical developments. Electrician 85:705 D 17 '20

Hydroelectric plants—Continued

Brazil

Sorocaba hydro-electric plant in Brazil. H. P. Quick. *il map Power* 54:548-51 O 11 '21

British Columbia

Hydraulic equipment of Granby mine. C: H. Tallant. *il J Elec* 45:275-7 S 15 '20

California

Big Creek development of the Southern California Edison co.; abstract. *il diag Mech Eng* 43:682 O '21

California hydroelectric plant ready for service. *Elec R* 79:440-1 S 17 '21

Caribou hydro-electric development of the Great Western power company on Feather river. H. L. Rogers. *Munic Eng* 61:46-7 Ag '21

Caribou power plant completed. C: W. Geiger. *il diags plan Power Pl Eng* 25:693-702 J1 15 '21

Construction features of Snow Mountain dam. *il Elec R* 77:725-6 N 6 '20

Electrical development in the San Joaquin valley. A. G. Wishon. *il J Elec* 44:481-4 My 15 '20

Electrical energy from city water supply. D. J. McCormack. *il plans Elec W* 78:161-5 J1 23 '21

Emergency hydroelectric plant of the Pacific gas & electric company. G: H. Bragg. *il J Elec* 46:340-2 Ap 1 '21

Fontana power-irrigation development. C. H. Tallant. *il J Elec* 44:207-8 Mr 1 '20

Forward steps in California hydro-electric designs. *il Eng N* 85:1260-2 D 30 '20

Generator excitation practise in the hydro-electric plants of the Southern California Edison company. H. H. Cox and H. Michener. *Am Inst E E J* 39:562 Je '20

Great new irrigation and power developments. C: H. Lee. *chart J Elec* 44:119-20 F 1 '20

Half million horsepower from Pit river; abstracts. A. H. Markwart. *il maps plan Elec W* 77:581-4 Mr 12 '21; *J Elec* 46:281-4 Mr 15 '21

High Sierras hydro-electric developments. *il maps Elec W* 76:513-15 S 11 '20

Hydroelectric development in Southern California. W. A. Brackenridge. *il chart map plan J Elec* 44:501-5 My 15 '20

Hydro-electric development on the Feather river. J. H. Anderton. *il diags map J Elec* 44:485-90 My 15 '20

Hydro-electric plant built in 15 months; Kerckhoff project. R. C. Starr. *il diag Elec W* 77:471-4 F 26 '21

Hydroelectric plants on the Los Angeles aqueduct. *il Elec R* 77:19-20 J1 3 '20

Important features in the design of high-head reaction turbines. F. H. Rogers. *il diag Power* 54:244-8 Ag 16 '21; *Abstract. Sci Am* M 4:382 O '21

Interesting additions to the longest transmission system; Southern Sierras power company. C. O. Poole. *il J Elec* 45:476-8 N 15 '20

Kerckhoff hydroelectric project in California. W. A. Scott. *il Elec R* 78:384-8 Mr 5 '21

Kerckhoff power development of the San Joaquin river: a western achievement. J. M. Buswell. *il Power* 52:926-34 D 14 '20

Kern River no. 3 construction work. H. W. Dennis. *Power* 51:556 Ap 6 '20

Kern River Three development has highest head Francis turbines installed. *il Power* 53:996-9 Je 21 '21

New hydroelectric plant in operation near Auberry, California. C: W. Geiger. *il Power Pl Eng* 24:932-3 O 1 '20

Plant additions by Southern California Edison company. *Am Inst E E J* 40:853 N '21

Power and the city: how Los Angeles has harnessed the distant mountain streams. C. Marriott. *il Sci Am* 123:608+ D 18 '20

Progress on Pit river project in California. *plan Eng N* 87:604-6 O 13 '21

Progress on the Hetch Hetchy project. M. M. O'Shaughnessy. *il J Elec* 44:62-4 Ja 15 '20

Putting the San Joaquin to work; some details of the water-power development in California. A. L. Dahl. *il Sci Am* 123:470+ N 6 '20

Recent hydraulic development on the Pacific coast. R. Sibley. *Mech Eng* 43:212 Mr '21

Reminiscences of power development on the San Joaquin. A. G. Wishon. *il J Elec* 45:267-9, 322-4 S 15-O 1 '20

Remotely controlled hydroelectric synchronous generators. C: H. Tallant. *il diag J Elec* 44:432-3 My 1 '20

Semi-automatic induction-generator plants. L. J. Moore. *il diags Elec W* 74:1148-51 D 27 '19; Same cond. *Electrician* 86:664 My 27 '21

Series of plants to develop 868,000 hp. from total head of 5,720 ft. *diag Elec W* 75:1334 Je 5 '20

Simple and compact hydro station on the Kerckhoff project. R. C. Starr. *diags map Elec W* 77:641-3 Mr 19 '21

To develop hydroelectric project on Kings river. *map Elec R* 79:699-700 N 5 '21

Water power resources in California. P. M. Downing. *J Elec* 46:643-6 Je 15 '21

Canada

Canada shows rapid hydro development. J. B. Challis. *il maps Elec W* 77:930-4 Ap 23 '21

Power development in Canada in 1920. L. Denis. *Can Eng* 39:649-50 D 30 '20

Water power development in Canada. J. T. Johnston. *Can Eng* 38:388-9 Ap 15 '20; Same cond. *Eng & Contr* 53:548-9 My 12 '20; *Abstract. W Soc E J* 25:sup25-6 Ap 5 '20

See also Hydroelectric plants—Ontario

Ceylon

Ceylon hydroelectric plant will work with high head. *Pop Mech* 35:484 Ap '21

Chile

Braden copper company's power system in Chile. *il diags map plan Power* 52:730-4 N 9 '20

Connecticut

Great Falls hydro-electric development. *il diags plan Power Pl Eng* 25:981-6 O 15 '21

England

Electrification of a Yorkshire woollen mill. *il Electrician* 86:179-81 F 4 '21

Severn barrage scheme. *il Electrician* 85:659-60 D 3 '20

Tidal hydro-electric scheme for the Severn. *map Engineer* 130:562-3 D 3 '20; Same cond. *Eng N* 85:1221-2 D 23 '20; *Discussion. Engineer* 130:558 D 3 '20

Finland

Hydro-electric power schemes in Finland. *Engineer* 132:199-200 Ag 19 '21

Formosa

Formosa developing her water powers. *Elec W* 78:793 O 15 '21

Hydro-electric enterprises in Formosa. *Engineer* 132:152 Ag 5 '21

Hydro-electric works in Formosa. *Electrician* 87:216 Ag 12 '21

France

L'aménagement hydraulique du bassin de la Dordogne et l'électrification du réseau de la Compagnie du chemin de fer d'Orléans. G. Tochon. *map Génie Civil* 77:170-2 Ag 28 '20

Electrification of the upper Rhone district. *Elec W* 77:991 Ap 30 '21

French hydroelectric plant has complex water system. *Pop Mech* 36:68 J1 '21

Hydro-electric plant at Eget, France; abstract. *Elec W* 77:53 Ja 1 '21

Hydro-electric plants of French system. L. A. H. Pahin. *il Elec W* 75:1411-13 Je 19 '20

Hydro-electric power in France. *maps Elec R (Lond)* 89:276-7 Ag 26 '21

Making best use of French hydro plant. L. Pahin. *Elec W* 77:357-9 F 12 '21

Hydroelectric plants—France —Continued

L'usine hydro-électrique des Vernes, à Livet (Isère). A. Pawlowski. il diags Génie Civil 76:345-9 Ap 10 '20

Usines électriques de la Société des forces motrices de la Vienne; usine de l'Isle-Jourdain (Vienne). A. Pawlowski. il diags map plan Génie Civil 78:285-9 Ap 2 '21

Germany

Germany developing water power. Power 54: 133 Jl 26 '21

Great Britain

North Wales counties asylum, Denbigh; hydro-electric installation. il diag plan Elec R (Lond) 89:547-8 O 21 '21; Same. Electrician 87:542 O 28 '21

Idaho

Developing Idaho by water power. il J Elec 45:22-3 Jl 1 '20

India

Anritsar hydro-electric irrigation installation. S. Leggett. Engineering 111:292 Mr 11 '21; Same. Eng & Ind Management 5:349 Mr 24 '21; Same. Eng & Contr 56:211 Ag 31 '21

Electrical notes from India. Elec R (Lond) 89:516-17. 548-9 O 14-21 '21

Plant of the Tata hydro-electric power supply company in India; abstract. H. Eubell. Elec W 78:430 Ag 27 '21

Iowa

Great hydroelectric plant at Keokuk. il Mech Eng 42:228-9 Ap '20; Same, without il. Sci Am M 1:523 Je '20

Remote control hydro-electric plants. T. A. E. Belt. Elec W 75:827-30 Ap 10 '20; Same cond. Eng & Contr 53:547-8 My 12 '20

Italy

Hydro-electric construction in Italy. L. G. Stucke. Elec W 77:1048-9 My 7 '21

Les usines hydro-électriques en Italie; abstract. Denizet. Génie Civil 78:538 Je 18 '21

Japan

Japanese hydro-electric and electrical manufacturing works. R. Torikai. Elec R (Lond) 88:568-9 Ap 29 '21

Korea

Construction of Suribong power project in Korea. O. W. Peterson. il J Elec 44:595-8 Je 15 '20

Maine

Rumford Falls hydroelectric plant. il Power 50:688-90 N 11 '19

Massachusetts

Automatic induction generator hydraulic plant operation. diags Elec R 76:78-9 Ja 10 '20

Michigan

Mining with hydroelectric power. il map Iron Tr R 66:280-3 Ja 22 '20

Montana

Montana water power development. J. H. Bonner. il J Elec 44:496-9 My 15 '20

What interconnection has done for Montana. il Elec W 75:1041-50 My 8 '20

New Brunswick

Hydro-electric power development in New Brunswick. C. O. Foss. Can Eng 39:576-8 D 2 '20

Power development of Nepisiguit river. J. Dick. il diag plan Can Eng 39:361-4 S 23 '20

New Jersey

Pompton Lakes municipal hydro electric plant. Pub Works 48:216 Mr 20 '20; Same. Power Pl Eng 24:407 Ap 1 '20; Same. Elec R 76: 487-8 Mr 20 '20

New York

Hydroelectric development at Niagara Falls. J. L. Harper and J. A. Johnson. il diags maps plans Am Inst E E J 40:561-76 Jl '21; Excerpt. Eng N 86:1120 Je 30 '21; Excerpts. Power 54:26-8 Jl 5 '21

Hydro-electric developments at Niagara. diags maps Engineer 130:608-10 D 17 '20

Making the most of Niagara. R. G. Skerrett. Sci Am 124:266+ Ap 2 '21

Niagara development breaks efficiency records; symposium. il Can Eng 39:337-46 S 16 '20

Niagara Falls 100,000-hp. development; symposium. il diags map Elec W 76:561-8 S 18 '20

Niagara Falls plant discussed by Pittsburgh section, A.I.E.E. il Elec R 78:550-1 Ap 2 '21

La nouvelle usine hydro-électrique de la Niagara Falls power Co (Niagara, E.-U.). il diags map plans Génie Civil 77:527-30 D 25 '20

New Zealand

Hydroelectric power development in New Zealand. J Elec 46:229 Mr 1 '21

Lake Coleridge hydro-electric power station. Engineer 131:299 Mr 18 '21

Niagara Falls

See Hydroelectric plants—New York; Hydroelectric plants—Ontario

North Carolina

Hydro-electric development in North Carolina. Elec W 77:1015 Ap 30 '21

Reservoir and plant for new Southern water power at Bridgewater. W. S. Lee and R. Pfahler. il diags maps plan Eng N 84: 1088-95 Je 3 '20; Abstract. Elec W 75:1299-1303 Je 5 '20

Northwestern states

Interconnection of hydro-electric energy in the Northwest. Power 53:122 Ja 18 '21

Water power in the Inland empire. J Elec 44:499-500 My 15 '20

Norway

Herlandsfossen hydroelectric plant. il diags Engineering 112:497-8, 531-5 O 7-14 '21

Hydro-electric plant on the Glomfjord. G. Troeltsch. diag Elec W 78:680 O 1 '21

Hydro-electric power scheme at the Nore Falls. il diags Engineering 111:248-9, 312-15, 386-7 Mr 4, 18, Ap 1 '21

L'usine hydro-électrique de Vamma (Norvège); les turbines hydrauliques Jensen et Dahl. il diag Génie Civil 77:414-16 N 20 '20

Vamma hydro-electric plant. il diag Engineer 130:324-6 O 1 '20

Water power in Norway. Engineer 131:332 Mr 25 '21

Nova Scotia

Hydro-electric power development begins in Nova Scotia. Eng N 84:1248 Je 24 '20

Ohio

Low-head hydroelectric plant in Stillwater valley. il Elec R 79:426 S 17 '21

Ontario

Canada's Niagara development; details of the Queenston-Chippawa project. J. F. Springer. il Sci Am 124:44+ Ja 15 '21

Canada's superpower zone; what Ontario has done in hydroelectric development. R. G. Skerrett. map Sci Am 124:246+ Mr 26 '21

Construction of the hydroelectric power canal at Niagara Falls. il Engineering 110:734, 740 D 3 '20

Construction progress on Canadian Niagara power project. il diags plan Eng N 83:1010-12 D 11 '19

Design features of Queenston-Chippawa, Ontario, power canal. T. H. Hogg. plan Eng & Contr 54:572-3 D 8 '20; Same. Eng N 85: 742-4 O 14 '20

Design of the new Canadian Niagara power project. H. G. Acres. diags Eng N 85:744-6 O 14 '20

50,000-hp. wheels for 500,000-hp. Queenston-Chippawa plant. E. T. J. Brandon. il map plan Elec W 77:697-9 Mr 26 '21

Hydraulic installation of the Queenston-Chippawa power development. M. V. Sauer. diags plan Can Eng 39:469-71 O 28 '20; Same. Eng N 85:746-7 O 14 '20

Hydroelectric plants—Ontario—Continued

Hydro generating station now under construction at Queenston. *il Can Eng* 39:542 N 18 '20

Hydroelectric development at Niagara Falls. J: L. Harper and J. A. Johnson. *il diags maps plans Am Inst E E J* 40:561-76 J1 '21; Excerpt. *Eng N* 86:1120 Je 30 '21; Excerpts. *Power* 54:26-8 J1 5 '21

Hydro-electric development at Ranney's Falls. *il diags map plans Can Eng* 38:457-9 My 13 '20

Improve small water power by building eight dams. *il Eng N* 85:1142-3 D 9 '20

Nipigon river power development. *il Can Eng* 38:502-5 My 27 '20

Ontario hydro-electric power commission's new Nipigon development. *il Can Eng* 40:144-5 Ja 20 '21

Recent hydro-electric power developments in Ontario, Canada. *Engineering* 111:97-9, 127-9, 160-1 Ja 28-F 11 '21

Turbines for Niagara's high-head plant. *il diag Iron Age* 106:1453-7 D 2 '20; Same *abr. Can Eng* 40:185-6a F 3 '21

Twin Falls development of Abitibi river. H. L. Trotter. *il diags plan Can Eng* 39:605-9 D 16 '20; Excerpts. *Eng & Contr* 55:469-70 My 11 '21

Panama canal

Hydro-electric power plant of the Panama canal. *il diags Engineer* 128:562-3, 566 D 5 '19

Philippine Islands

Hydroelectric power plant in Philippines. *Sci Am* 124:423 My 28 '21

Quebec

Hydro-electric development at St Jerome, Que. L. A. Wright. *il diag Can Eng* 38:299-302 Mr 18 '20

Scotland

Lochaber hydro-electric scheme. *map Engineer* 131:226-7 Mr 4 '21

New hydro-electric project in Scotland. *Chem & Met Eng* 23:975 N 17 '20

South America

Electric furnaces, power plants, metallurgical development in South America. Sibley J 34:181-2+ D '20; Same. *Power Pl Eng* 24:1171-3 D 15 '20

Hydro-electric developments in South America. *Ind Management* 61:93-4 F 1 '21

South Carolina

Southern power company's largest station. W. S. Lee and R. Pfaehler. *il diag Elec W* 75:1072-5 My 8 '20

South Dakota

Report on the feasibility of the development of hydro electric power from the Missouri River in the state of South Dakota. D. W. Mead, C: V. Seastone. 116p Blied printing co., Madison, Wis. '20

State hydro-electric development for South Dakota. *diags plan Eng N* 85:987-8 N 18 '20

Southern states

Proposed power district in the South. L. A. Whitsit. *map Elec W* 76:1009-12 N 20 '20

Spain

Ribadelago hydro-electric scheme. E. S. Rivett. *Elec R (Lond)* 88:542-3 Ap 29 '21

Sweden

Large hydro-electric plants—Tröllhattan plant in Sweden; abstract. A. Tetral. *Elec W* 78:181 J1 23 '21

Swedish electric power scheme. *Engineer* 132:224 Ag 26 '21

Utilizing hydro-electric energy in Sweden. *map Elec W* 76:1167-70 D 11 '20

Switzerland

Electrification in Switzerland. *Engineer* 131:95-6 Ja 28 '21

5000-ft. head hydro-electric plant at Fully. *il Engineering* 110:823-6 D 24 '20

Hydraulic power under a mile-high head; details of a remarkable Pelton-wheel installation in Switzerland. *il Sci Am* 125:22 J1 9 '21

Swiss electrical problems. *Elec R (Lond)* 88:306-7 Mr 11 '21

Swiss plant under a mile head. *il Elec W* 77:529 Mr 5 '21

Swiss Rhone-Rhine navigation. A. W. Metcalfe. *diag plans Engineer* 129:389-90 Ap 16 '20

Tasmania

Hydroelectric engineering feat in Far Tasmania. P. H. Woodruff. *il map Pop Mech* 33:71-3 Ja '20

Hydro-electric power works at the Great Lake, Tasmania. *diags (supp) Engineer* 130:3-5, 12, 40-1 J1 2-9 '20

United States

Harnessing our waterpower. S. G. Roberts. *il Sci Am* 122:514-15+ My 8 '20

Prospective power development in the Far West. *il Elec W* 75:666-71 Mr 20 '20

Status of hydroelectric development in America. L. Lyndon. *Elec R* 76:63-4 Ja 10 '20

See also Niagara Falls

Vermont

Interconnection in Southern Vermont. *il diag Elec W* 76:9-12, 70-2 J1 3-10 '20

Wales

Actual and projected water power developments in North Wales. J: B. C. Kershaw. *il diags map Engineer* 131:195-8; 132:210-11 F 25, Ag 26 '21

Washington

Changes being made in Seattle power system. *Elec R* 76:637 Ap 17 '20

Giving service in agricultural districts. *il map Elec W* 75:1051-9 My 8 '20

Hydro-electric service west of Cascades. *il Elec W* 75:1060-8 My 8 '20

New features of the Cedar Falls pipe line. F. R. Nicholas. *il J Elec* 45:31-2 J1 1 '20

Power generation in Mt. Rainier national park. C. P. Gordon. *il plan J Elec* 46:436-7 My 1 '21

Seattle building large municipal hydroelectric development. C. F. Uhden. *diag map plan Eng N* 85:994-6 N 18 '20; Same. *J Elec* 45:567-8 D 15 '20

Silt disposal at Tacoma hydro-electric plant. L. Evans. *il Power* 51:694-7 My 4 '20

Western states

Western hydroelectric systems; map showing transmission lines, power plants and some major undeveloped water power sites as of May 15, 1920. *J Elec* 44:supp My 15 '20

World's greatest electrical project. C: H. Peirson. *N E L A Bul* 8:458-61 Ag '21; Same. *Elec R* 79:586-8 O 15 '21

Hydroelectric power

Beauty of use; water-power resources essential to Pacific states limited by proposed enlargement of national parks. *maps Elec W* 76:1201-3 D 18 '20

Electrical future of Norway. *Elec R (Lond)* 88:323 Mr 11 '21

Feasibility of hydro-electric power for New York metropolitan district. W: B. Parsons. *Elec W* 77:525-7 Mr 5 '21; Same *abr. N E L A Bul* 8:199-202 Ap '21

Greater use of Niagara power urged. J: L. Harper. *il Power* 51:314-15 F 24 '20

Hydro power for the Canadian farmer. *il Sci Am* 122:93+ Ja 24 '20

Hydroelectric construction sites along Columbia river. W. A. Scott. *il Elec R* 79:339-41 S 3 '21

Hydro-electric development in its relation to the community. J. M. Morris. *charts N E L A Bul* 8:7-9 Ja '21

Hydroelectric possibilities for Dundee, Scotland. A. H. Gibson. *Elec R* 76:70 Ja 10 '20

Hydro-electric possibilities in Montana. E. W. Kramer. *il map Elec W* 78:111-15 J1 16 '21

Hydroelectric power—Continued

- Hydro-electric power and its use for industrial purposes. E. A. Lof. *il Gen Elec R* 22:942-6 N '19
- Hydroelectric power in Argentina. L. Maters. *il Sci Am* 124:330+ Ap 23 '21
- Hydro-electric power in Germany. A. L. Sympher. *Electrician* 85:590 N 19 '20
- Hydroelectric power in Ontario. W. L. Edmonds. *Power Pl Eng* 24:896-7 S 15 '20
- Hydroelectric power possibilities in Puget Sound district. J. J. Wettrick. *J Elec* 44:14 Ja 1 '20
- Hydro-electric survey of India. *Electrician* 86:82 Ja 14 '21
- Industrial development of California depends largely on hydro-electric power. W. Woods. *N E L A Bul* 8:151-2 Mr '21
- Industrial power problems. W. F. Uhl. *Textile World* 56:2742+ N 1 '19
- More power to the West. R. Sibley. *maps J Elec* 45:328-9 O 1 '20
- Newspaper points to necessity of hydroelectric development. *Elec W* 77:890-1 Ap 16 '21
- Possible hydro-electric development in Great Britain. S. E. Britton. *Electrician* 84:136-7 F 6 '20
- Potential kilowatts and business. J. M. Morris. *J Elec* 45:475 N 15 '20
- Power development and use in Middle West. C. W. Place. *il maps Elec R* 79:77-80 Jl 16 '21; Same, with tables. *Mech Eng* 43:523-5 Ag '21
- Power development of small streams. C. C. Harris and S. O. Rice. *Rodney Hunt machine company, Orange, Mass.* '20
- Power developments in Scandinavia. J. W. Beckman. *map J Elec* 44:605-6 Je 15 '20
- Power growth in California. *Power* 51:184 F 3 '20
- Power needs on the Pacific coast. F. H. Fowler. *Elec W* 76:873-4 O 30 '20
- Power problems of the Pacific coast. C. H. Bromley. *il Power* 51:701-8 My 4 '20
- Power projects. *Min & Sci P* 122:77-8 Ja 15 '21
- Power service for a middle west section; survey in western Pennsylvania and eastern Ohio. L. A. Whitsit. *map Elec W* 76:969-71 N 13 '20
- Review of present status of Ontario hydroelectric power commission's radial railway projects. *Can Eng* 38:138-9 Ja 15 '20
- St Lawrence river project. H. C. Gardner. *maps Mech Eng* 42:509-12+ S '20; Same. *Can Eng* 39:385-8 S 30 '20; Discussion. C. W. Baker. *Mech Eng* 42:592 O '20
- To develop electric power from Colorado river. *Elec R* 78:35-6 Ja 1 '21
- Water power and conservation. H. de B. Parsons. *Munic Eng* 58:244-6+ Je '20
- See also* Hydroelectric plants; Niagara falls; Power cost; Tide power; Water power
- Hydro-electric power commission.** See Ontario—Hydro-electric power commission
- Hydro-extractors.** See Centrifugal machines
- Hydrofluoric acid**
- Preparation by hydrofluoric acid; patent. *Chem & Met Eng* 23:1182 D 15 '20
- Über das Gleichgewicht: fluorwasserstoff—schwefelsäure—fluorsulfonsäure. W. Traube and E. Reubke. *Deutsche Chem Gesell Ber* 54:1618-26 Jl '21
- Hydrofluosilicic acid**
- Equilibria of hydrofluosilicic acid. L. J. Hudleston and H. Bassett. *Chem Soc J* 119:403-16 Ap '21
- Hydrogen**
- Collisions of α -particles with hydrogen nuclei. C. G. Darwin. *diags Philos Mag* 6th ser 41:486-510 Mr '21
- Dissociation of hydrogen and nitrogen by electron impacts. A. L. Hughes. *diag Philos Mag* 6th ser 41:778-98 My '21
- Effect of an alternating current on hydrogen overvoltage. H. M. Goodwin and M. Knobel. *diags Am Electrochem Soc Trans* v 37 (preprint 36):553-75 Ap '20
- Electric discharge in hydrogen. D. N. Mallik. *Philos Mag* 6th ser 41:304-7 F '21

- Electrolytic production of hydrogen. H. L. Barnitz. *diags Chem & Met Eng* 22:201-6 F 4 '20
- La fabrication de l'hydrogène pour la synthèse de l'aminonitrique. G. Claude. *Génie Civil* 78:398-9 My 7 '21
- Ferrosilicon process for the generation of hydrogen. E. R. Weaver, W. M. Berry and B. L. Bohson. *diag U S Nat Advisory Com for Aeronautics* 1918:429-68 '20
- Generation of hydrogen by the reaction between ferrosilicon and a solution of sodium hydroxide. E. R. Weaver. *J Ind & Eng Chem* 12:232-40 Mr '20
- Hydrogen from steam. H. L. Barnitz. *diags Sci Am M* 4:61-5, 143-8 Jl-Ag '21
- Hydrogen in the ozone form. G. L. Wendt. *Chem & Met Eng* 21:790 D 24 '19
- Hydrogen manual. T. A. Monckton. 2v H. M. Stationery off., London '19-'20
- Hydrogen overvoltage. D. A. MacInnes. *diag Am Chem Soc J* 42:2233-8 N '20
- Hydrogen overvoltage. E. Newbery. *Am Chem Soc J* 42:2007-11 O '20
- Hydrogen production for airships. P. L. Teed. *Engineering* 109:811 Je 18 '20
- Industrial applications of hydrogen. H. L. Barnitz. *il diags Sci Am M* 3:341-8 Ap '21
- Inflammability of jets of hydrogen and inert gas. P. G. Ledig. *J Ind & Eng Chem* 12:1098-1100 N '20
- Is hydrogen gas sometimes the primary cause of boiler explosions? C. A. Green. *Power* 52:949 D 14 '20
- Lift of hydrogen. P. L. Teed. *Aviation* 8:328-30 My 15 '20
- Methods for the production and measurement of high vacua; absorption of hydrogen by palladium black. S. Dushman. *Gen Elec R* 24:66-8 Ja '21
- Molecular heat of hydrogen. F. H. MacDougall. *Am Chem Soc J* 43:23-8 Ja '21
- Notes on the effects of hydrogen on copper. W. C. Hotherhall and E. L. Rhead. *il Engineering* 109:391-3 Mr 19 '20
- Penetration of iron by hydrogen. T. S. Fuller. *il diag Gen Elec R* 23:702-11 Ag '20; *Excerpt (Conclusion).* *Chem & Met Eng* 21:521 O 22 '19
- Photochemical reaction between hydrogen and chlorine and its variation with the intensity of the light. E. C. C. Baly and W. F. Barker. *Chem Soc J* 119:653-64 My '21
- Preparation of nitrogen and hydrogen mixture by decomposition of ammonia. R. O. E. Davis and L. B. Olmstead. *diag J Ind & Eng Chem* 12:316-17 Ap '20
- La production électrolytique de l'hydrogène et de l'oxygène. *diags Génie Civil* 76:237-8 F 28 '20
- Production of hydrogen for the manufacture of synthetic ammonia by the hyperpressure process; abstract. G. Claude. *Chem & Met Eng* 24:1071 Je 15 '21
- Radiating and ionizing potentials of hydrogen. K. T. Compton and P. S. Olmstead. *Phys R* 17:45-53 Ja '21
- Spectral structure of the luminescence excited by the hydrogen flame. H. L. Howes. *Phys R* 17:469-74 Ap '21
- Spectrum of hydrogen positive rays. L. Vegard. *diag Philos Mag* 6th ser 41:558-66; Discussion. G. P. Thomson. 566-7 Ap '21
- Testing of balloon gas. J. D. Edwards. *diag U S Nat Advisory Com for Aeronautics* 1918:469-72 '20
- Theory of the katharometer; instrument for indicating the presence of hydrogen in small quantities in air; abstract. G. A. Shakespear and H. A. Daynes. *diag Sci Am M* 2:184 O '20
- Triatomic hydrogen. G. L. Wendt and R. S. Landauer. *il diags Am Chem Soc J* 42:930-46 My '20
- Unit oxygen-hydrogen generator. F. C. Perkins. *il Sci Am* 122:140+ F 7 '20
- See also* Hydrogenation; Water—Analysis

Bibliography

- Determination of hydrogen ions. W. M. Clark. p. 239-302 Williams and Wilkins co., Baltimore '20

Hydrogen, Liquid

How Uncle Sam liquefies hydrogen and then bottles it. *il Sci Am* 123:303 S 25 '20

Hydrogen bromide. See Hydrobromic acid

Hydrogen chloride. See Hydrochloric acid

Hydrogen halides. See Hydrobromic acid; Hydrochloric acid

Hydrogen iodide. See Hydriodic acid

Hydrogen ion concentration

Acidity and acidimetry of soils: investigation of acid soils by means of the hydrogen electrode. H: G. Knight. *diags J Ind & Eng Chem* 12:457-64 My '20

Activity of water in sucrose solutions. W. E. Garner and I. Masson. *Philos Mag* 6th ser 41:484-6 Mr '21

Chemical and physical behavior of proteins. J. Loeb. *Chem & Met Eng* 24:550-3 Mr 30 '21

Color value of a tan liquor as a function of the hydrogen-ion concentration. J: A. Wilson and E. J. Kern. *J Ind & Eng Chem* 13:1025-6 N '21

Contrasting effects of chlorides and sulfates on the hydrogen ion concentration of acid solutions. A. W. Thomas and M. E. Baldwin. *Am Chem Soc J* 41:1981-90 D '19

Determination of the hydrogen-ion concentration in pure water. E. T. Oakes. 22p Columbia university press, New York '20

Effect of varying hydrogen-ion concentration upon the decolorization of cane juice with carbon. J. F. Brewster and W: G. Raines, jr. *J Ind & Eng Chem* 13:1043-4 N '21

Further observations on hydrogen-ion concentration in natural waters. S. Wolman and F. Hannan. *Chem & Met Eng* 25:502-6 S 14 '21

Hydration as an explanation of the neutral salt effect. J: A. Wilson. *Am Chem Soc J* 42:715-20 Ap '20

Hydrogen ion concentration and its application to water purification. R. E. Greenfield. *Am Water Works Assn J* 8:397-401 Jl '21; Same. *Can Eng* 40:335-6 Mr 31 '21; Excerpt. *Eng & Contr* 55:371-2 Ap 13 '21

Precipitation of some of the rare earths by creams of insoluble oxides and carbonates, based on the principle of hydrolysis. A. C. Neish and J. W. Burns. *diag Can Chem & Met* 5:69-74 Mr '21

Relation between the total acidity, the concentration of the hydrogen ion, and the taste of acid solutions. R. B. Harvey. *diag Am Chem Soc J* 42:712-14 Ap '20

Relation of voltage of dry cells to hydrogen-ion concentration. H. D. Holler and L. M. Ritchie. *diag U S Bur Stand Sci Pa* 364: 659-68 '20; Same. *Am Electrochem Soc Trans* v 37 (preprint 21):339-48 Ap '20

Relations of hydrogen-ion concentration to the heat coagulation of proteins in Swiss cheese whey. Y. Okuda and H. F. Zoller. *J Ind & Eng Chem* 13:515-19 Je '21

Relationship of hydrogen-ion concentration of natural waters to carbon dioxide content. R. E. Greenfield and G. C. Baker. *J Ind & Eng Chem* 12:989-91 O '20

Residual aluminum compounds in water filter effluents. A. Wolman and F. Hannan. *bibliog Chem & Met Eng* 24:728-35 Ap 27 '21; Same cond. *Eng & Contr* 55:473-5 My 11 '21

Significance of hydrogen-ion concentration in drinking water and particularly for the business of water supply. A. Massink and J. A. Heymann. *Am Water Works Assn J* 8:239-69 My '21

Significance of hydrogen-ion concentration in water purification. H. P. Eddy. *Eng & Contr* 56:354-5 O 12 '21; Same cond. *Eng N* 87:498 S 22 '21

Hydrogen peroxide

Activation of hydrogen peroxide by light. H. A. Curtis. *Am Chem Soc J* 42:720-4 Ap '20

Benzilic acid rearrangement; the non-addition of hydrogen peroxide to diphenyl ketene. B. H. Nicolet and J. J. Pelc. *Am Chem Soc J* 43:935-7 Ap '21

Catalytic decomposition of hydrogen peroxide by ferric salts. V. L. Bohnson. *J Phys Chem* 25:19-54 Ja '21

Catalytic decomposition of hydrogen peroxide by sodium iodide in mixed solvents. V. L. Bohnson. *J Phys Chem* 24:677-700 D '20

Electrolytic production of hydrogen peroxide. F. W. Skirrow and E. R. Stein. *Am Electrochem Soc Trans* v 38 (preprint 10):69-79 O '20

Manufacture of hydrogen peroxide solutions; patent. *Chem & Met Eng* 24:488 Mr 16 '21

Periodic reaction in homogeneous solution and its relation to catalysis. W: C. Bray. *Am Chem Soc J* 43:1262-7 Je '21

Properties of pure hydrogen peroxide. O. Maass, W. H. Hatcher, and O. W. Herzberg. *Am Chem Soc J* 42:2548-70 D '20

Über die einwirkung des wasserstoffperoxyds auf hexamethylentetramin. C. von Girssewald and H. Siegens. *Deutsche Chem Gesell Ber* 54:490-1 Mr '21

Hydrogen phosphide. See Phosphine

Hydrogen sulfide

Gas generating apparatus for hydrogen sulfide. A. W. Bull. *diags Chem & Met Eng* 24:749-50 Ap 27 '21

Modified method for the determination of iron and vanadium after reduction by hydrogen sulfide. G. E. F. Lundell and H. B. Knowles. *Am Chem Soc J* 43:1560-8 Jl '21

Removal of arsenic from zinc electrolyte by means of hydrogen sulphide. H. R. Hanley. *plan Chem & Met Eng* 24:693-6 Ap 20 '21

Hydrogenation

Die beeinflussung der wirksamkeit von katalysatoren; die reduktion von säurechloriden zu alkohol und ester. K. W. Rosenmund, F. Zetzsche and F. Heise. *Deutsche Chem Gesell Ber* 54:638-47 Ap '21

Catalytic hydrogenation of cottonseed oil. L: Kahlenberg and G: J. Ritter. *diags J Phys Chem* 25:89-114 F '21

Catalytic hydrogenation with protected hydrosols. E. K. Rideal. *Am Chem Soc J* 42: 749-56 Ap '20

L'hydrogénation des huiles. M. Fréjacque. *diags Chimie & Ind* 4:443-56 O '20

New type of catalyzer for hydrogenation. W. D. Richardson. *Chem & Met Eng* 22: 793-6 Ap 28 '20

On the relation between the occlusive power of palladium for hydrogen and its activity for catalytic hydrogenation. E: B. Maxted. *Chem Soc J* 119:1280-4 Ag '21

Partielle hydrierung von pyridincarbonsäureestern. O: Mumm and W. Beth. *Deutsche Chem Gesell Ber* 54:1591-1603 Jl '21; Abstract. *Chem Soc J* 120 pt 1:686-7 S '21

Preparation of ethylene by hydrogenation of acetylene. W: H. Ross, J. B. Culbertson and J. P. Parsons. *diags J Ind & Eng Chem* 13:775-8 S '21

Technical application of hydrogen in hydrogenation or hardening of oils. H. L. Barnitz. *il diags plan Chem & Met Eng* 22: 745-8 Ap 21 '20

Über die abhängigkeit der katalytischen hydrierung von der gegenwart des sauerstoffs. R: Willstätter and E. Waldschmidt-Leitz. *Deutsche Chem Gesell Ber* 54:113-38 Ja '21; Abstract (Hydrogenation of aromatic compounds by the help of platinum). *Chem Soc J* 120 pt 2:185-8 Mr '21

Über hydrierte phenyl-naphthyl-methan-carbonsäuren; über hydrierung aromatischer verbindungen mit hilfe von platin. R: Willstätter and E. Waldschmidt-Leitz. *Deutsche Chem Gesell Ber* 54:1420-30 Jl '21; Abstract. *Chem Soc J* 120 pt 1:667-8 S '21

Patents

Catalysts for hydrogenating fats and oils; patent. *Chem & Met Eng* 23:1229 D 22 '20

Hydrogenating oils and fats; patent. *diag Chem & Met Eng* 23:846 O 27 '20

Hydrogenation freed from patent monopoly. *Chem Age* 29:33-6 Ja '21

Supreme court declares hydrogenation patents invalid. *Chem & Met Eng* 23:1145 D 15 '20

Hydrographic bureau, International. See International hydrographic bureau

Hydrographic charts

Twelve hundred charts at a third of a cent. C. H. Claudy. map Sci Am 124:264+ Ap 2 '21

Hydrographic office. See United States—Hydrographic office

Hydrographic surveying

City surveys of rivers and harbors at Milwaukee. il diag maps Eng N 87:558-61 O 6 '21

Mapping the waters along our coasts; obtaining exact information about the sea bottom. L: C. Kane. il Sci Am 124:10 Ja 1 '21

See also Channel sweeper

Hydrolysis

Alkaline hydrolysis of casein. M. A. Griggs. J Ind & Eng Chem 13:1027-8 N '21

Comparative hydrolysis of fibrin and gelatin in the presence of various aldehydes. G: E. Holm and R. A. Gortner. Am Chem Soc J 42:632-40 Mr '20

Electrolytic dissociation of cyanamide and some of its salts in aqueous solutions. N. Kameyama. Am Electrochem Soc Trans v 40 (preprint 25):327-34 S '21

Hydrolysis of cotton cellulose. G. W. Monier-Williams. Chem Soc J 119:803-5 Je '21

Hydrolysis of dichloro and hexa-aquo chromic chlorides. A. B. Lamb and G. R. Fonda. Am Chem Soc J 43:1154-78 My '21

Hydrolysis of fats by reagents made from cymene. R. H. McKee and L. J. Lewis. Chem & Met Eng 24:969-75 Je 1 '21

Hydrolysis of the silicates of sodium. R. H. Bogue. Am Chem Soc J 42:2575-82 D '20

Hydrolysis of zirconyl chloride and sulfate at zero and twenty degrees. F. P. Venable and D. H. Jackson. Am Chem Soc J 42:2531-4 D '20

Preparation and hydrolysis of benzyl esters. E. H. Volwiler and E. B. Vliet. Am Chem Soc J 43:1672-6 Jl '21

Rates of hydrolysis of the rare earth carbonates and the serial order of the rare earth elements. P. H. M.-P. Brinton and C. James. Am Chem Soc J 43:1446-51 Jl '21

Successive stages of the hydrolysis of triacetin. E. Yamasaki. Am Chem Soc J 42:1455-68 Jl '20

Theory on the gradual hydrolysis of certain salts; abstract. Chem & Met Eng 25:32 Jl 6 '21

Hydrometallurgy

Ammonia leaching process as used at the Kennecott copper co. plant, Kennecott, Alaska. E: L. Sweeney. Min & Met 170:17 F '21

Chloride roasting and leaching at the plant of the Tintic milling company. T. P. Holt. flow sheet il Min & Sci P 120:603-5 Ap 24 '20

Copper leaching and precipitation practice in North and South America outlined. F. E. Lathe. Eng & Min J 111:467-8 Mr 12 '21; Discussion. 111:656-7, 817 Ap 16, My 14 '21

Hydrometallurgical process for copper ores. flow sheet Chem & Met Eng 22:473-4 Mr 10 '20

Hydrometallurgy of copper sulfides. W: E. Greenawalt. Min & Met 166:20-1 O '20; Same. Sci Am M 2:188-9 O '20

Metallurgical methods at Rio Tinto; details of the cementation plant. C. De Kalb. il Min & Sci P 122:185-91 F 5 '21; Discussion. 122:451, 638-40; 123:52-3 Ap 2, My 7, Jl 9 '21

Metallurgy of complex low-grade ores. C. S. Vadner. Min & Sci P 120:519-20 Ap 10 '20

Hydrometers

Gasoline from natural gas; hydrometer for small amounts of gasoline. R. P. Anderson and C. E. Hinckley. diag J Ind & Eng Chem 13:144-5 F '21

Notes on the Baumé hydrometer. G: H. Taber. J Ind & Eng Chem 12:593-5 Je '20; Same. Nat Pet N 12:98+ Ag 4 '20

Hydromica

Kaolin in North Carolina, with a brief note on hydromica. W. S. Bayley. Econ Geol 15: 243-5 Ap '20

Hydronaphthalene series

Über benzopolymethylen-verbindungen; über bromhaltige alicyclische substitutionsprodukte des tetrahydro-naphthalins (tetralins) und über Δ^1 -dihydro-naphthalin (Δ^1 -dialin). J. v. Braun and G: Kirschbaum. Deutsche Chem Gesell Ber 54:597-618 Ap '21

Hydrophobia

Stamping out hydrophobia in Chicago. R. H. Moulton. il Pop Mech 36:359-61 S '21

Hydrophone

Safeguards navigation by sound. H. C. Hayes. Marine R 51:404-5, 466-8+, 493-5 S-N '21

Sounding with sound; how the M-V type of hydrophone developed for U-boat detection now serves the peaceful mariner. H. A. Mount. il diags Sci Am 122:642+ Je 12 '20

Submarine acoustics. F. L. Hopwood. il diags Sci Am S 88:289 N 15 '19

Hydroplanes

Air-propelled hydroplane has auto body. il Pop Mech 34:161 Ag '20

L'hydroglisseur Marcel Besson. M. F. de Pierrefeu. diag Génie Civil 78:514 Je 11 '21

Le XIIe meeting de canots automobiles de Monaco. G. Birlé. Génie Civil 76:445-9 My 15 '20

See also Hydrodrome; Seaplanes

Hydroquinone

Oxidation and reduction of hydroquinone and quinone from the standpoint of electromotive-force measurements. F. S. Granger and J. M. Nelson. Am Chem Soc J 43:1401-15 Jl '21

Hydrosols. See Colloids

Hydrosulfites. See Hyposulfites

Hydrous oxides. See Oxides

Hydroxy-anthraquinones

Certain metallic derivatives of hydroxy-anthraquinones. M. L. Crossley. Am Chem Soc J 41:2081-3 D '19

Hydroxyazo-compounds

Physico-chemical investigations on hydroxyazo-compounds. E. Puxeddu and M. Genari. Chem Soc J 120 pt 1:623 Ag '21

Hydroxybenzoic acid

Nitro- and amino-derivatives of m-hydroxybenzoic acid. V: Froelicher and J. B. Cohen. Chem Soc J 119:1425-32 S '21

Hydroxycellulose

Unterscheidung von oxy- und hydro-cellulosen durch titration. K. G. Schwalbe and E. Becker. Deutsche Chem Gesell Ber 54:545-50 Mr '21

Hydroxylamine

Influence of colloids on the rate of reactions involving gases; decomposition of hydroxylamine in the presence of colloidal platinum. A. Findlay and W: Thomas. Chem Soc J 119:170-6 F '21

Structures and reactions of hydroxylamine and its derivatives. A. Michael. Am Chem Soc J 43:315-32 F '21

Hydroxylammonium derivatives

Nonexistence of valence and electronic isomerism in hydroxylammonium derivatives. A. Michael. Am Chem Soc J 42:1232-45 Je '20

Hydroxyphenyl styryl ketone dibromides

Über die bildung von flavonen und benzalcumaranon aus oxy-chalkon-dibromiden. K. v. Auwers and L. Anschütz. Deutsche Chem Gesell Ber 54:1543-60 Jl '21; Abstract. Chem Soc J 120 pt 1:682-3 S '21

Hydroxyphenylpropionic acid

Studies in the resolution of racemic acids by optically active alcohols; the resolution of atrolactic and α -hydroxy- β -phenylpropionic acids by *l* menthol. H: Wren and E: Wright. Chem Soc J 119:798-803 Je '21

Hygiene

Right to fatigue. E. L. Fisk. *Nation's Business* 9:29-30 Ag '21

See also Air conditioning; Air pollution; Disinfection and disinfectants; Fatigue; Humidity; Nutrition; Sanitation; Tobacco habit; Ventilation; Water pollution; Water purification

Hygiene, Industrial

Does the magnetic field constitute an industrial hazard? C. K. Drinker and R. M. Thomson. *bibliog il diags J Ind Hygiene* 3:117-29 Ag '21

Economic aspect of industrial hygiene. B. J. Newman. *Ind Management* 60:271-3 O '20

Employment and the distribution of industries in their relation to the growth and physical development of the young wage earner. H. J. Wilson. *J Ind Hygiene* 2:321-7 Ja '21

Fatigue and efficiency in iron and steel works; health of steel workers. *Eng & Ind Management* 5:519-22 My 5 '21

Health hazards in certain industries of New York state. P. M. Holmes. *Monthly Labor R* 10:755-62 Mr '20

Health hazards in the millinery industry in New York city. *Monthly Labor R* 11:319-21 Ag '20

Health in mercantile establishments; common sanitary defects in stores. A. B. Emmons. *J Ind Hygiene* 3:29-36 My '21

Health of the industrial worker. E. L. Collis and M. Greenwood. 450p J. & A. Churchill, London '21

History of negroes employed in packing rooms from the hygienic viewpoint. T. B. Sappington. *Concrete* 18:sup67-8 Ap '21

How proper shoes make better workers. H. A. Gartner. *il Factory* 25:385 Ag 1 '20

Human machine in industry. W. J. Matherly. *Am Mach* 55:226-7 Ag 11 '21

Hygienic control of the anilin dye industry in Europe. A. Hamilton. *Monthly Labor R* 9:1665-85 D '19; *Abstract. J Ind & Eng Chem* 12:393 Ap '20

Industrial health: its value in the public health service; abstracts. E. L. Collis. *Int Labour R* 2:218-26 My '21; *Eng & Ind Management* 6:67-8 Jl 21 '21; *J Ind Hygiene* 3:sup123-4 O '21

Industrial hygiene. T. Oliver. *Int Labour R* 1:153-8 F '21

Industrial hygiene and medicine. *Monthly Labor R* 10:220-9 Ja '20

Industrial hygiene: its rise, progress and opportunities; abstract. T. Oliver. *J Ind Hygiene* 3:sup151-2 N '21

Influence of hours of work and of ventilation on output in tinsplate manufacture. H. M. Vernon. *Chem & Met Eng* 22:223-5 F 4 '20

Keeping workers well. *Factory* 24:386+, 834+, 1280+; 25:1100+, 1520+, 1800+, 1908+; 26:220+; 27:262+ F 1, Mr 15, Ap 15, O 1, N 1, D 1-15 '20, Ja 15, Ag '21

La loi de 1917 sur les établissements dangereux, insalubres ou incommodes. C. Lormand. *Chimie & Ind* 3:106-26 Ja '20

Prevention of fatigue in industry. R. A. Spaeth. *Ind Management* 59:7-9, 120-2, 215-17, 311-13, 409-11 Ja-My '20

Sickness and absenteeism during 1919 in a large industrial establishment. D. K. Brundage. 14p U.S. Public health service '20

Standard sickness records. *Paper* 27:16+ F 9 '21

Woman labor in Germany during the war. A. Maylander, comp. *Monthly Labor R* 11:1036-50 N '20

See also Air conditioning; Air purification; Back strain; Baths; Cuspidors; Dental service, Industrial; Diseases, Industrial; Dust; Dust removal; Eye strain; Factories—Heating and ventilation; Factory sanitation; Fatigue; Foundry sanitation; Medical service, Industrial; Mental hygiene, Industrial; Miners—Diseases and hygiene; Occupations, Dangerous; Physical examinations; Poisons; Poisons, Industrial; Rest periods; Rest rooms; Safety devices and measures; Water supply for factories

Study and teaching

Opportunities for the study of industrial medicine in the United States. A. Shuford. *Monthly Labor R* 10:1216-28 My '20

Hygiene, Public. *See* Public health

Hygrometer

Care and use of the hygrometer. *Chem & Met Eng* 25:192 Ag 3 '21

New electric hygrometer for remote indication. *J. Cartus. Elec W* 78:737 O 8 '21

Hygroscopicity

Hygroscopic moisture of flour exposed to atmospheres of different relative humidity. C. H. Bailey. *J Ind & Eng Chem* 12:1102-4 N '20

Hygroscopicity of by-product coke. W. A. Selvig and B. B. Kaplan. *J Ind & Eng Chem* 12:783-4 Ag '20

Hyoscymus

New fields of phytochemical research opened up by the cultivation of medicinal plants on an economic scale. E. Kremers. *J Ind & Eng Chem* 12:1019 O '20

Hyperbolic functions. *See* Functions, Exponential

Hypergeometric functions. *See* Functions, Hypergeometric

Hyperspace

Absolute significance of Maxwell's equations. F. D. Murnaghan. *Phys R* 17:73-88 F '21

Motion and hyperdimensions. F. Tavanl. *Philos Mag* 6th ser 41:647-51 Ap '21

Hypisodus alacer

Tiny oligocene artiodactyl, *hypisodus alacer*. E. L. Troxell. *diags Am J Sci* 49:391-8 Je '20

Hypochlorites

Augmenting the energy of hypochlorites. *Color Tr J* 7:142 N '20

Hypochlorites; effect of alkalinity on their use. *Textile World* 60:2437 O 29 '21

Hypochlorous acid

Contributions to the chemistry of the terpenes; the action of hypochlorous acid on pinene. G. G. Henderson and J. K. Marsh. *Chem Soc J* 119:1492-1500 O '21

Hypophosphorous acid

Studies on hypophosphorous acid; its reaction with mercuric chloride. A. D. Mitchell. *Chem Soc J* 119:1266-77 Ag '21

Hyposulfites

Hydrosulphite for discharge work. *Textile World* 60:1217+ Ag 27 '21

List of the principal commercial hydrosulfite compounds. *Color Tr J* 8:131 Ap '21

Hyracodon

New species of hyracodon. E. L. Troxell. *il Am J Sci* 2:34-40 Jl '21

Hysteresis

Hysteresis effects with varying superposed magnetizing forces. W. Fondiller and W. H. Martin. *il diags Am Inst E E J* 40:149-58 F '21

Measurement of hysteresis values from high magnetizing forces. W. L. Cheney. *U S Bur Stand Sci Pa* 383:281-9 '20

Piezo-electric and allied phenomena in Rochelle salt. J. Valasek. *diags Phys R* 17:475-81 Ap '21

Qm-operators and hysteresis harmonics. A. Press. *diags Electrician* 86:72-3 Ja 14 '21

Recoverance. R. G. Guthrie. *Chem & Met Eng* 23:671-2 O 6 '20

Separating hysteresis and eddy current losses in iron. *chart Elec W* 76:1220 D 18 '20

Tooth frequency losses in rotating machines. T. Spooner. *Am Inst E E J* 40:751-6 S '21

Ueber elastische nachwirkung und elastische hysteresis bei metallen. H. von Wartenberg. *Stahl & Eisen* 41:56-7 Ja 13 '21

See also Iron losses

Hytempite

Thin, strong joints used in lining gas apparatus. *il Am Gas Eng J* 112:sup20 Ap 24 '20

I

Ice

- Concerning ice; high pressure experiments on water. P. W. Bridgman. *il Sci Am* 124: 512+ Je 25 '21
- Crystal structure of ice. D. M. Dennison. *Phys R* 17:20-2 Ja '21
- Ice formations underground. C. M. Campbell. *il Eng & Min J* 110:623 S 25 '20
- Nature forced to make ice in sands of Sahara desert. R. M. Law. *il diag Pop Mech* 33: 331-2 Mr '20
- Peculiar ice formations. H. G. Dorsey. *il Phys R* 18:162-4 Ag '21
- Physical properties of ice. M. Matsuyama. *Sci Am M* 3:430 My '21
- Refrigerating effect of natural and artificial ice. J. H. Ryan. *Power* 51:731 My 4 '20
- Specific and latent heats of ice. A S R E J 7:340-2 Ja '21
- See also* Ice harvesting; Ice houses; Ice industry; Ice on rivers, lakes, etc.; Icebergs; Sleet; Thawing

Cost of delivery

- Where your ice bill money goes. *Nation's Business* 9:12 N '21

Manufacture

- Cold storage and ice-making. B. H. Springett. 122p Pitman '21
- Community ice plant. *Sci Am* 124:207 Mr 12 '21
- Consumers new ice plant at South Chicago. G. Sellers. *il diags Power* 53:1038-40 Je 28 '21
- Discusses revenue from making of raw-water ice. G: E. Wells. *Elec R* 76:994-5 Je 12 '20
- Economy at the Finney avenue ice plant, St Louis. C. Wilkie. *il chart diags Power* 51: 990-4 Je 22 '20
- Electric power for ice plant drive. C: R. Neeson. A S R E J 6:109-10; Discussion. 110-13 S '19
- Electrical refrigeration. C. J. Carlsen. *il map Elec J* 17:502-6 N '20
- Freezing tanks. F. Ophuls. *Power Pl Eng* 24: 341-4 Mr 15 '20
- Freezing time for can ice. *Power Pl Eng* 25:627 Je 15 '21
- Ice making in the San Joaquin valley. J. M. Buswell. *il J Elec* 45:257-9 S 15 '20
- Ice plant depreciation. G: E. Wells. A S R E J 6:369-71 Mr '20
- Ice plant efficiency. H. C. Hayes. *Power Pl Eng* 24:757-8 Ag 1 '20
- Ice plant investments; discussion. G: E. Wells. A S R E J 6:139-46 S '19
- Ice plant of the Ainsworth pure ice co. *il Power Pl Eng* 25:426-7 Ap 15 '21
- Ice tank of new design gives remarkable results; Merchants ice & coal co., St Louis. C. Wilkie. *il diags plan Power* 52:823-6 N 23 '20; Abstract. *Mech Eng* 43:51-2 Ja '21
- Men and machinery in the ice plant. E. S. Ormsby. A S R E J 6:103-7; Discussion. 107-8 S '19
- Model small ice plant in Cuba. J. Kilian. *il Power* 51:248-9 F 17 '20
- Motor-driven ice plants—electrical consumption per ton of ice. J: E. Starr. *il Power* 52:742-3 N 9 '20
- Refrigeration load. A. R. Stevenson, jr. *Gen Elec R* 24:569-71 Je '21
- Refrigeration study course; applications of refrigeration—ice making. H. J. Macintire. *diags Power* 52:781-3 N 16 '20
- Shutting down the ice plant. A. G. Solomon. *Power Pl Eng* 24:946-8 O 1 '20
- Some ice-tank defects. G. C. Sellers. *Power* 52:976-7 D 21 '20
- Water softener for raw-water ice plants. M. N. McIlvaine. *diags Power Pl Eng* 25:1006-8 O 15 '21
- Water softening for the manufacture of raw water ice. A. S. Behrman. *J Ind & Eng Chem* 13:235-7 Mr '21

- Water treatment for raw water ice. J: J. Fel-secker. *il A S R E J* 8:135-49 S '21
- Why the snow-like ice? A. G. Solomon. *Power Pl Eng* 24:208-9 F 1 '20

See also Refrigeration and refrigerating machinery

Ice-breaking vessels

- Ice-breakers. J: Flodin. *il Int Marine Eng* 25: 707-12 S '20
- Icebreakers for Archangel. *il diags Engineer* 128:632, 633, 636 D 26 '19

Ice cream

Advertising

- Switching orders from the telephone to the dealer. C. B. McCuaig. *Ptr Ink* 112:69-70+ JI 8 '20

Manufacture

- Making ice cream electrically. *il J Elec* 45: 174-6 Ag 15 '20
- Power and refrigeration for model ice cream and dairy plant. *il diag plan Power* 51: 752-7 My 11 '20
- Refrigeration study course—applications of refrigeration. H. J. Macintire. *diags Power* 52:943-4 D 14 '20

Ice cutters

- Engine-driven ice-cutting machine. F. D. Burke. *diags plan Pop Mech* 33:283-4 F '20
- Ice cutting attachment for Jordan spreader. *il Eng & Contr* 53:576 My 19 '20

Ice harvesting

- Harvesting and storing ice on the farm. J: T. Bowen. *il diags map plans U S Agric Farmers' Bul* 1078:1-31 '20
- New aids for the ice harvesters. *il Sci Am* 124:211 Mr 12 '21

Ice houses

- Energy and plant requirements for artificial ice storage. *Elec W* 77:547-8 Mr 5 '21
- Harvesting and storing ice on the farm. J: T. Bowen. *il diags map plans U S Agric Farmers' Bul* 1078:1-31 '20

Ice industry

- Supply man in the ice industry. A. P. Miller. *Power Pl Eng* 25:237 F 15 '21
- See also* Ice manufacture

Advertising

- Using advertising to fend off price agitations. M. Hussobee. *Ptr Ink* 116:37-8+ JI 21 '21

Tables, calculations, etc.

- Determining advantageous ice storage capacity. F. E. Matthews. A S R E J 6:196-200 N '19

Ice jams. See Ice on rivers, lakes, etc.

Ice on rivers, lakes, etc.

- Brattleboro highway bridge wrecked by pressure of cake ice. G: F. Eckhard. *il Eng N* 84:902-4 My 6 '20

- Concrete road uninjured by weight of ice jam. *il Eng N* 85:29-31 JI 1 '20

- Ice diversion for St Lawrence river power co. B: F. Groat. *il maps plan Can Eng* 39:545-52 N 25 '20; Excerpts. *Eng & Contr* 55:45-6 Ja 12 '21

See also Hydroelectric plants—Ice protection; Ice breaking vessels

Ice skating. See Skating rinks

Ice storage. See Ice houses; Ice industry

Icebergs

- Locating icebergs at sea. G. F. Lees. *il Pop Mech* 36:419-20 S '21

Iceland

See also Prices—Iceland

Iceland spar

- More information about Iceland spar. *Eng & Min J* 111:869 My 21 '21
- Resources and commercial application of Iceland spar. *Eng & Min J* 110:219 JI 31 '20

Ichthyol

- European ichthyol industry during and after the war. *Oil Paint & Drug Rep* 100:25 sec 1 Ag 8 '21

Idaho

See also Coal mines and mining—Idaho; Geology—Idaho; Gold mines and mining—Idaho; Irrigation—Idaho; Mines and mineral resources—Idaho; Silver mines and mining—Idaho

History

Bunker Hill enterprise. T. A. Rickard. *il* maps Min & Sci P 120:5-13, 41-6 Ja 3-10 '20

Idaho power company

Developing Idaho by water power. *il* J Elec 45:22-3 Jl 1 '20

Ideas for advertisements. *See* Advertisements—Composition

Ideas for management. *See* Suggestion systems

Identification

See also Footprints

Idle machines. *See* Machine shop management

Idleness, Industrial

Idleness and its relation to industry. T. W. Dinlocker and A. W. Wainright. *Automotive Ind* 44:1012-17 My 12 '21

Igloos, Concrete

Modern Eskimos to have igloos of concrete. *il* Pop Mech 33:161-2 F '20

Igneous rocks. *See* Rocks, Igneous

Ignis fatuus. *See* Will o' the wisp

Ignition

Spontaneous-ignition temperatures of liquid fuels; abstracts. H. Moore. *Engineering* 109:151-2 Ja 30 '20; *Power* 52:24 Jl 6 '20

See also Airplane engines—Ignition; Automobile engines—Ignition; Electric ignition; Gas and oil engines—Ignition; Inflammable mixtures

Ignition, Electric. *See* Electric ignition

Iguazu falls

Hydroelectric power in Argentina. L. Maters. *il* Sci Am 124:330+ Ap 23 '21

Illinois

See also Drainage—Illinois; Electric plants (central stations)—Illinois; Mines and mineral resources—Illinois; Petroleum—Illinois; Roads—Illinois

Public health, Department of

Activities of division of engineering of Illinois department of public health. *Eng & Contr* 54:381-2 O 13 '20; *Same cond.* *Pub Works* 49:490 N 20 '20

Illinois automotive association

Illinois forms a comprehensive automotive trade association. *Motor Age* 37:46-8 Ap 1 '20

Illinois Central railroad

Advantages of a liberal motive power policy. *il* *diags Ry R* 68:559-65 Ap 9 '21

70th annual report for year ended December 31, 1919. *map Ry Age* 69:216-17, 257-8 Ag 6 '20; *Same abr.* *Comm & Fin Chr* 111:197-200 Jl 10 '20

71st annual report for 1920. *Comm & Fin Chr* 112:2763-6 Je 25 '21; *Excerpts.* *Ry Age* 71:92-3 Jl 9 '21

71st annual report, 1920; editorial. *map Ry Age* 71:54-5 Jl 9 '21

Illinois electric railway association

Annual meeting, Aurora, Ill., Oct. 14. *Elec Ry J* 58:746-8 O 22 '21

Illinois association holds annual meeting and golf tournament. *Elec Ry J* 56:265-7 Ag 7 '20

Illinois utilities hold successful joint convention in Chicago, March 15-16. *Elec Ry J* 57:589-92 Mr 26 '21

Illinois gas association

Brief history. *Am Gas Eng J* 112:169-70 F 28 '20

16th annual convention, Chicago. *Gas Age* 45:298-302 Ap 10 '20

17th annual meeting, Chicago, March 15-16. *Gas Age* 47:248-50 Mr 25 '21

Illinois master plumbers' association

28th annual convention, Quincy, Jan. 20-22. *Dom Eng* 90:235-7+ Ja 31 '20

Illinois mining institute

Meeting at Springfield, Nov. 20. *Coal Age* 18:1189-90 D 9 '20

7th annual summer meeting in Chicago. D. J. Baker. *Coal Age* 18:67-9 Jl 8 '20

Illinois state waterway. *See* Waterways—United States

Illinois. University**Engineering experiment station**

Functions of the Engineering experiment station of the University of Illinois. C: R. Richards. *Ill U Eng Exp Sta Circ* 9:1-21 '21

New Mechanical engineering laboratory, College of engineering, University of Illinois. C: R. Richards. *il* *plan Mech Eng* 42:110-13+ F '20

Wesley foundation

Wesley foundation, University of Illinois, Urbana. *Am Arch* 119:pl 458e-g Ap 13 '21

Illinois waterway. *See* Waterways—United States

Illiteracy

Illiterate adults. W. Talbot. *Sci Am* 123:566+ D 4 '20

Illuminated signs. *See* Signs, Illuminated

Illuminating engineering. *See* Lighting

Illuminating engineering society, London

Annual meeting, London, May 31. *Illum Engr* 14:143-4 Je '21

Meeting, London, Jan. 27. *Illum Engr* 13:29-30 F '20

Proceedings at the opening meeting, December 14, 1920. *Illum Engr* 14:5-6 Ja '21

Illuminating engineering society, New York

Annual convention, Rochester, N.Y., Sept. 26-29. *il* *Elec R* 79:546-51, 556-7 O 8 '21

Constitution and by-laws of the Illuminating engineering society. *Illum Eng Soc* 16:57-76 no 4 '21

Educational plans. S. E. Doane. *Elec R* 77:755-6 N 13 '20

14th annual meeting, Cleveland. *Elec R* 77:566-70 O 9 '20

General secretary's report for the fiscal year 1919-1920. C. L. Law. *maps Illum Eng Soc* 15:867-80 no 9 '20

Plans of the Illuminating engineering society for 1920. S: E. Doane. *Elec R* 76:15-16 Ja 3 '20

Presidential address. S. E. Doane. *Illum Eng Soc* 15:495-503 no 8 '20

Report of committee on automobile head lighting specifications, 1918-19. *Illum Eng Soc* 14:500-2; *Discussion.* 502-11 no 9 '19

Report of the committee on progress. *Illum Eng Soc* 14:313-90; *Discussion.* 390-3 no 8 '19

Report of the Committee on progress presented before 14th annual convention. *Illum Eng Soc* 15:425-93 no 7 '20

Illuminating glassware guild

Artistic value of illuminating glassware discussed at meeting. *Elec R* 79:707-8 N 5 '21

Convention, Buffalo. *Elec R* 78:349-56 F 26 '21

Illumination. *See* Lighting

Illuminometers. *See* Photometry

Ilmenite

American enterprise makes rare earths a misnomer. G. A. Pritchard. *Chem Age* 29:45-6 F '21

Images, Method of

Some applications of the method of images. J. Kunz, P. L. Bayley and C. M. Hebbert. *diags Phys R* 17:147-60 F '21

Imhoff tanks

Design elements of various Imhoff tanks. *Eng N* 85:458 S 2 '20

Experience with Imhoff tanks in Minnesota. J. A. Childs. *Munic Eng* 59:162 N '20

Fitchburg sewage treatment plant. *Pub Works* 49:399-403 O 30 '20

Modifications of Imhoff tanks. E. A. Stewart. *Munic Eng* 61:90-1 S '21

Modified sewage tanks in America. W. G. Kirchoffer. *Engineer* 129:576 Je 4 '20

Imhoff tanks—Continued

- Operating data of Wurl screen and Imhoff tanks. J: R. Downes. Eng & Contr 55:368-9 Ap 13 '21; Same. Pub Works 50:370-1 Ap 30 '21; Same. Munic Eng 60:212+ My '21
- Operating experiences with Imhoff sewage tanks. W. G. Kirchoffer. diags plans Munic Eng 58:107-10 Mr '20; Abstract. Eng & Contr 53:168-9 F 11 '20; Discussion. Munic Eng 59:88-90, 192-4 S, D '20
- Pennsylvania mining town Langeloth constructs its own sewage-disposal plant. D. J. Baker. il diags plans Coal Age 18:723-7 O 7 '20
- Some small Imhoff tanks. W. A. Hardenbergh. diags plans Pub Works 49:122-6 Ag 7 '20
- Special features of Imhoff tank construction. G: B. Gascoigne. il diags plan Munic Eng 60:135-40 Ap '21

Imitation

- Arts of imitation among animals. Sci Am M 1:311 Ap '20

Immigrants in the United States

- Federal administration and the alien. F. A. Kellor. 80p Doran '21
- Industrial medicine and the immigrant. M. M. Davis, jr. and L. James. bibliog J Ind Hygiene 2:397-422 Mr '21
- Reducing foreign labor turnover. A. Hanko. Ind Management 61:367-9 My 1 '21

See also Americanization

Education

- Illiterate adults. W. Talbot. Sci Am 123:566+ D 4 '20

Immigration and emigration**Canada**

- Canadian Pacific president discusses immigration. Ry R 68:605-6 Ap 16 '21

Italy

- Italian emigration, 1916-1918. Monthly Labor R 11:468-70 F '21

United States

- After the immigrant passes the Statue of liberty. F. Kellor. Ptr Ink 114:114+ F 10 '21
- Alien labor supply. Pub Works 48:397-8 My 8 '20
- Better men from the melting pot. C: Nagel. Nation's Business 9:17-18 Mr '21
- Century of immigration. Pub Works 49:347-9 O 9 '20
- Check of immigration requires labor conservation. F. A. Kellor. Am Gas Eng J 113:155-6 Ag 21 '20; Same. Ry R 67:794-5 N 20 '20; Same. Blast F & Steel Pl 8:694 D '20
- Conditions operating to check immigration. Comm & Fin Chr 111:1338 O 2 '20
- Constructive immigration policy. W: H. Barr. Am Mach 54:297-8 F 17 '21
- Decreased immigration—less production. J: E. Otterson. Iron Age 105:1133-4 Ap 15 '20; Same. Dom Eng 91:191-2 My 1 '20
- Establishment of an immigration policy. L: Marshall. Am Ind 20:38-9 Jl '20
- Exclusion of immigrants in excess of monthly quotas upheld by Judge Mack. Comm & Fin Chr 113:1324 S 24 '21
- Immigration. Min & Sci P 120:927-8 Je 26 '20
- Immigration and emigration. Comm & Fin Chr 111:2266-7 D 11 '20
- Immigration and emigration. See monthly numbers of Monthly labor review
- Immigration and emigration in 1919-20. Comm & Fin Chr 111:2371 D 18 '20
- Immigration and emigration in 1920-21. Comm & Fin Chr 113:1300 S 24 '21
- Immigration and the construction industry; labor shortage not yet relieved. Eng N 85:642-3 S 30 '20
- Immigration and the future. F. Kellor. 276p Doran '20
- Immigration before and after the war. Pub Works 49:304-6 O 2 '20
- Immigration figures show aliens arriving since June 3 and the number permissible. Marine Eng 26:569 Jl '21

- Immigration problem stripped of fear and hysteria. F. Kellor. Annalist 17:255-6 F '21

- Immigration's tide brings new markets. C. M. Wright. Ptr Ink 113:149-50+ D 9 '20

- Loss of alien laborers. W. H. Barr. Concrete 18:sup47 Mr '21

- Menace of the immigrant tide. F. A. Wallis. il Am Ind 21:7-10 D '20

- Number of immigrants increases. Iron Age 106:325-6 Ag 5 '20

- Our immigration problem. W: H. Barr. Am Mach 53:1068b-e D 2 '20; Same. Dom Eng 94:2, 4+ Ja 1 '21; Excerpts. Iron Tr R 67:1681-3 D 16 '20

- Plain facts about immigration. W: H. Barr. Blast F & Steel Pl 8:422 Jl '20

- Present-day immigration with special reference to the Japanese. 232p The Annals, acad. of pol. and soc. sci. Ja '21

- Problem of immigration. W: H. Barr. Am Mach 52:850 Ap 15 '20

- The promise—and the land. C: Nagel. il Nation's Business 8:28-9 N '20

- Restricting immigration to our powers of assimilation—laws that are proposed for the future. R. A. Clemen. map Factory 25:56-8 Jl 1 '20

- Restriction of immigration. T: N. Carver. Textile World 59:2889+ Ap 30 '21

- Seek equitable solution of our immigration problem. S. L. Gulick. Annalist 17:143-4 Ja 24 '21

- Selected articles on immigration. E. M. Phelps. 370p H. W. Wilson co. '21

- Status of immigration. C. du Pont. Eng N 86:57-8 Ja 13 '21

- Who's who in industry in America? W. Talbot. maps Ind Management 59:138-42 F '20

- Why bar the door to labor? H. Reid. il Nation's Business 9:29-31 Ja '21

- Year supply of raw material for the melting pot. R. Howard. Sci Am 122:239 Mr 6 '20

See also Americanization; Immigrants in the United States; Immigration law

Immigration law

- Immigration bill signed by President Harding; text. Comm & Fin Chr 112:2375-6 Je 4 '21

- New immigration law. Monthly Labor R 13:222-6 Jl '21

- Three per cent limit on immigration fixed by Senate. Comm & Fin Chr 112:801 F 26 '21

Immortality

- Edison's views on life and death; interview regarding his attempt to communicate with the next world. A. C. Lescarboursa. Sci Am 123:446+ O 30 '20

Immunity

See also Anaphylaxis; Antigens and antibodies; Antitoxins; Chemotherapy

Impact

- Analysis of roughness impact on highway bridges. W. Whited. diag Eng N 86:582-3 Ap 7 '21

- Government research in road construction. P. M. Heldt. il Automotive Ind 44:848-52, 902-6+ Ap 21-28 '21

- Highway researches and their results. A. T. Goldbeck. Good Roads n s 21:333-7+ Je 29 '21

- How and why of truck impact. E. B. Smith. il Eng & Contr 55:121-2 F 2 '21

- How hard did it hit? il Sci Am 123:44 Jl 10 '20

- Impact and its relation to damage claims. J. A. Pilcher. Ry Age 71:77-9 Jl 9 '21

- Impact stresses. Engineering 112:189-90 Jl 29 '21

- Impact tests and allowances; abstracts. H. J: Fereday. Engineering 112:80 Jl 8 '21; Engineer 132:59 Jl 15 '21; Discussion. Engineering 112:50 Jl 8 '21

- Impact tests on roads. C. C. Wiley. Munic Eng 58:75-8 F '20

- Impact tests on trucks. E. B. Smith. Soc Auto Eng J 8:17 Ja '21

- Mashing copper cylinders to test road impact. S. R. Winters. il Sci Am 122:703 Je 26 '20

Impact—Continued

- Measurement of impact. E. B. Smith. diags Good Roads 61:149-51+ S 21 '21
- Motor truck impact tests and highway materials. Automotive Ind 43:830 O 21 '20
- Motor truck impact tests of the Bureau of public roads. E. B. Smith. il charts diags Pub Roads 3:3-36 Mr '21; Excerpts. Eng N 86:553-6 Mr 31 '21; Excerpts. Eng & Contr 55:340-2 Ap 6 '21; Excerpts. Concrete 18:206 My '21
- Need for measurement of highway bridge impact. H. E. Warrington. il Eng N 85:812 O 21 '20
- New highway tests being made by the Bureau of public roads. A. T. Goldbeck. Good Roads n s 19:97-8+ F 18 '20; Same. Eng & Contr 53:635-6 Je 2 '20; Excerpt. Munic Eng 58:160-1 Ap '20
- Present status of impact tests on road surfaces. A. T. Goldbeck. il Soc Auto Eng J 6:265-9 Ap '20; Excerpts. Eng & Contr 52:651-2 D 3 '19
- Results of impact tests on bridges in England. Eng N 87:642-5 O 20 '21
- Tests of impact on pavements by the Bureau of public roads. C. A. Hogentogler. il Pub Roads 4:3-18 O '21
- U.S. tests show road wear and resistance. Munic Eng 59:121-2 O '20
- See also Bridges—Load; Elasticity
- Impact testing of metals. See Charpy impact test; Lewis impact machine; Metals—Testing; Testing machines
- Implement and vehicle association, National. See National implement and vehicle association
- Implements. See Agricultural machinery; Eskimos—Implements; Tools
- Incandescent electric lamps. See Electric lamps, Incandescent
- Incandescent gas lighting. See Gas lighting, Incandescent
- Incentives (in industry). See Bonus system; Employment management—Incentives; Profit sharing; Wages
- Incinerators, Refuse. See Refuse incinerators
- Inclinometers
- Airplane flight instruments. K. Bennewitz. diags Aviation 9:346-8 N 29 '20
- Precision instrument known as an inclinometer. Elec R 79:565 O 8 '21
- Special inclinometers and indicators. il Aviation 9:322-3 N 22 '20
- Income**
- Accounting for income in eleemosynary institutions. P. D. Mitchell. J Account 30:344-53 N '20
- Classification of profits on investments. J Account 31:48-9, 124-9 Ja-F '21
- Methods of measuring business income. W. A. Paton. diag Administration 1:509-26 Ap '21
- See also Capital; Profit
- Income tax**
- Appraisals and income tax. L. H. Olson. J Account 32:28-35 Jl '21
- Dividing line between capital and income; why profit from an increase of capital may be assessed to income tax. R. Estcourt. Annalist 17:519 My 9 '21
- Effect of income taxes on investments. W. N. Dean. Administration 1:309-12 Mr '21
- Graduated income tax—evenness of the property tax. Comm & Fin Chr 111:1792-3 N 6 '20
- Warning against tax evasion—tax reduction the sovereign remedy. Comm & Fin Chr 113:775-6 Ag 20 '21
- See also Corporations—Taxation

Bibliography

- List of recent references on the income tax. 96p U.S. Library of Congress '21

Great Britain

- Income-tax problems; Great Britain. Eng & Ind Management 5:114, 718+ Ja 27, Je 23 '21

- Letting up on business men. Nation's Business 8:28 S '20
- Report of the Royal commission on the British income tax. A. Comstock. Comm & Fin Chr 111:1514-15 O 16 '20

New York

- Amendment of New York income tax law regarding profits and losses from sale of capital assets. Comm & Fin Chr 112:1709 Ap 23 '21
- Amendments of New York income-tax law. M. Graves. J Account 31:173-5 Mr '21
- Decision of New York court as to method of computing profit and losses under income tax law. Comm & Fin Chr 112:1940 My 7 '21
- Federal income-tax law and regulations versus New York state law and regulations. E. M. Travis. J Account 29:81-90 F '20
- Figures of New York state income tax returns for 1919. Comm & Fin Chr 113:39 Jl 2 '21
- How New York state income tax law affects the trade. E. M. Travis. Metal Work 93:86-7 Ja 16 '20
- How New York state taxes incomes. E. M. Travis. Metal Work 92:737-8 D 19 '19
- New York income tax questions and answers. E. M. Travis. Metal Work 93:277-8 F 27 '20
- New York state income tax. E. M. Travis. Metal Work 93:117-18 Ja 23 '20
- New York state income tax aids. Metal Work 92:736 D 19 '19
- New York state income tax bureau not to alter its taxation policy as to stock profits. Comm & Fin Chr 112:1108-9 Mr 19 '21
- New York state income tax—increase in value of gift not taxable. Comm & Fin Chr 112:2607-8 Je 18 '21
- New York state income tax relating to building. Arch & Bldg 52:13-14 Ja '20
- New York state personal income tax law. E. M. Travis. Heat & Ven 17:45-6 Ja '20
- State comptroller on workings of New York state income tax law. E. M. Travis. Comm & Fin Chr 110:(sec 1) 47-8, (sec 1) 215-18 Ja 3, 17 '20
- Text of Supreme court decision holding N.Y. income tax law invalid as to non-residents. Comm & Fin Chr 110:1048-9 Mr 13 '20

United States

- Burden imposed by the income tax on corporations and partnerships. H. H. Bailly. Administration 2:511-18 O '21
- Certain features of the income tax explained. W. Gustin. Dom Eng 90:275-6 F 7 '20
- Computation of commissions and federal taxes; where commissions are based upon profits after deducting taxes. A. van Oss. J Account 31:1-20 Ja '21
- Corporation trust company's 1913-1921 income tax service. 473p The Corporation trust co., New York '20
- Cumulative supplement to Black on federal taxes, January, 1921. H: C. Black. 4th ed. 252p Vernon law book co., Kansas City, Mo. '21
- Decision of the United States Supreme court in the case Eisner vs. Macomber. J Account 29:367-85 My '20
- Depreciation and obsolescence. H. B. Fernald. Eng & Min J 111:53-4 Ja 8 '21
- Digest of American income tax cases. L. T. Alverson. 453p Baker, Voorhis & co., New York '21
- Effect of double taxation on our foreign trade. D. R. Williams. Am Mach 54:927 My 26 '21
- Federal corporate income taxes. E. E. Rossmore. 338p Dodd, Mead & co., New York '21
- Federal income tax. R. M. Haig and others. 271p Columbia university press, New York '20
- Federal taxes for 1920. 56p Federal trade information service, New York and Washington '21
- Figuring the business man's taxes. Am Ind 21:11-12 F '21

Income tax—United States —Continued

- How to figure your income tax. W. Gustin. Dom Eng 90:170-2, 228-30 Ja 24-31 '20
- Income tax and employees' bonus. J Account 31:307-13 Ap '21
- Income-tax department. S. G. Rusk. See monthly numbers of the Journal of accountancy
- Income tax inequities. J Account 28:369-72 N '19
- Income tax law—U.S. Supreme court defines invested capital. Comm & Fin Chr 112:2154-6 My 21 '21
- Income tax procedure, 1921. R. H. Montgomery. 1206p Ronald press '21
- Income-tax returns. Min & Sci P 122:296 F 26 '21
- Increment of an investment not income within the Federal tax law. Comm & Fin Chr 112:219-21 Ja 15 '21
- Information about the income tax. Dom Eng 94:506-8 Mr 5 '21
- Inventories and their income tax procedure. N. L. McLaren. J Elec 44:6-7 Ja 1 '20
- Is increase in capital income and, as such, taxable? J: Bauer. Annalist 17:173-4 Ja 31 '21
- Partnership vs. corporation in federal taxation. C. T. Chenery. Annalist 17:373-4 Mr 28 '21
- Personal income tax collections for calendar year 1919. Comm & Fin Chr 113:478-9 Jl 30 '21
- Problem in federal taxes. E. L. Kohler. Administration 1:544-53 Ap '21
- Problem in federal taxes; depletion of wasting assets. E. L. Kohler. Administration 1:397-403 Mr '21
- Problem in federal taxes; some points in the computation of the tax on individual incomes. E. L. Kohler. Administration 1:255-9 F '21
- Regulations 45 (1920 ed.) relating to the income tax and war profits and excess profits tax under the Revenue act of 1918. 342p U.S. Office of internal revenue, Washington, D.C. '21
- Secretary of treasury Houston recommends revision of income and profit taxes. Comm & Fin Chr 110:1139-40 Mr 20 '20
- Sinclair-Murray explanatory income tax returns. 97p Sinclair, Murray & co., New York '21
- Solicitor-general admits errors in tax collections on stock sales. Comm & Fin Chr 112:1107-8 Mr 19 '21
- Stock dividends not subject to income tax according to United States Supreme court. Comm & Fin Chr 110:1049-50 Mr 13 '20
- Suggestions for a new income tax law. J: A. Burrows. Am Ind 21:29-30 Ag '20
- Supreme court on income taxes. Comm & Fin Chr 112:1340-1 Ap 2 '21
- Taxable income and profit and loss. J. W. Roberts. J Account 29:351-8 My '20
- Taxation of capital profits and stock dividends. T. Krohn. J Account 30:88-96 Ag '20
- Taxpayer now may choose cost or market valuation. Annalist 17:174 Ja 31 '21
- Technique of consolidated returns. J: W. Roberts. J Account 29:43-52 Ja '20
- Text of house bill amending and simplifying revenue act as to income tax. Comm & Fin Chr 111:1148-9 S 18 '20
- U.S. Supreme court and income tax law—profits from capital investments held taxable. Comm & Fin Chr 112:1362-4 Ap 2 '21
- Yield from federal income and profits taxes for fiscal year 1920-21. Comm & Fin Chr 113:479 Jl 30 '21

Wisconsin

- Wisconsin income tax. H: B. Nelson. 191p University of Wisconsin, Madison '21
- Incorporated municipal electrical association**
- 26th annual meeting. Elec R (Lond) 89:109-10, 161-4, 195-8, 225-8 Jl 22-Ag 12 '21; Electrician 87:149-59 Jl 29 '21; Engineer 132:113-14 Jl 29 '21

Incubator rooms**Heating**

- Constant temperature rooms. E. G. Hastings. diag J Ind & Eng Chem 13:1056-7 N '21
- Incubators**
- Chicks reared in bacteria-proof incubator. il Pop Mech 33:247 F '20
- Improved giant incubator compact and convenient. il Pop Mech 33:367 Mr '20
- Incubators, Electric**
- Hatching eggs electrically. P. J. Denninger. il J Elec 44:73-4 Ja 15 '20
- Indandiones**
- Synthesis of indanediones; abstracts. K. Fleischer, F. Siefert and J. Stemmer. Chem Soc J 120 pt 1:251-6, 264-5 Ap '21
- Indemnities.** See Boxer indemnities; German indemnities
- Independence Hall**
- Rejuvenation of Independence Hall. J. F. McClarren. il Pop Mech 33:83-6 Ja '20
- Independent oil men's association**
- Denver convention. G: J. Young. Eng & Min J 110:728-9 O 9 '20
- 12th annual convention, Denver, Colorado, Sept. 28-Oct. 1. Nat Pet N 12:41-5+ S 22; 25-6, 43-4 O 6 '20
- 13th annual national convention, Chicago, Oct. 11-14. Nat Pet N 13:24+ O 5 '21
- Index numbers (economics)**
- Adjusting the wages on index plan. E. H. Underhill. Am Ind 21:32 F '21
- Attacks upon cost of living indexes. Eng & Contr 56:145-6 Ag 17 '21
- Barometer of business conditions. See weekly numbers of the Annalist
- Comparison of methods used in constructing index numbers of wholesale prices. Monthly Labor R 11:469-74 S '20
- Contract prices. W. P. Digby. Inst E E J 58:870-6; Discussion. 876-80 S '20
- Course of United States wholesale prices for 100 years. R. G. Hurlin. il Annalist 17:425 Ap 11 '21; Excerpts. Factory 26:1184-5 My 15 '21
- Formula for predicting average wage rates. Eng & Contr 55:270 Mr 23 '21
- Index numbers of the cost of living in the United States. Elec W 78:712 O 8 '21
- Index numbers of wholesale prices for July in the United States, by groups of commodities. Gas Age 48:281 S 10 '21
- Index numbers of wholesale prices in the United States. See monthly numbers of Monthly labor review
- Index numbers of wholesale prices 1913 to September, 1921. Eng & Contr 56:388 O 26 '21
- Monthly photograph of supply and demand. R. W. Johnson. Ptr Ink 116:33-7 Jl 28 '21
- New index numbers of wholesale prices. Int Labour R 4:58-76 O '21
- Price and wage indices—their composition and characteristics. Eng & Contr 56:397-400 O 26 '21
- Quantitative analysis of all factors that affect average prices and a formula for predicting price changes. H. P. Gillette. Eng & Contr 53:383-5 Ap 7 '20
- Relief measures adopted by National unemployment conference—approximate index numbers. Comm & Fin Chr 113:1939 N 5 '21
- Wages, living costs and commodity prices. Eng & Contr 55:623 Je 22 '21
- Index numbers (water supply).** See Water—Bacteriology
- Indexing**
- Indexing, a handbook of instruction. G: E. Brown. 137p Grafton & co., London; H. W. Wilson co., New York '21
- Indexing and filing. C. E. Curran. Paper 28:17-19 Jl 20; 17-18 Jl 27 '21
- Indexing references. A. Tingle. J Ind & Eng Chem 12:909-10 S '20
- New method for indexing cards. 12p Library bureau, Boston '20
- Simple system of indexing notes and plans. F. D. Avery. Eng N 85:155-6 Jl 22 '20

Indexing—Continued

Special library indexing methods. M. C. Wells. Special Lib 12:198 S '21

See also Files and filing (documents)

Indexing (machine work)

Center indicator. J. Villiger. il Mach 26:977 Je '20

Geiras indexing head. il Mach 27:585-6 F '21; Am Mach 54:515 Mr 24 '21

Index-head for gear-tooth rounding machine. A. Bassoff. diags Mach 27:686 Mr '21

Indexing jig for babbitting locomotive cross-heads. N. McCleod. diags Mach 26:1172-3 Ag '20

Indexing milling fixtures. il diags plan Mach 26:527-31, 617-19, 721-4 F-Ap '20

Indexing tapping fixture. diags Mach 26:643 Mr '20

Industrial indexing table. il Am Mach 54:529 Mr 24 '21

Progressive indexing jig. diags Am Mach 52:7-9 Ja 1 '20

Safeguard index plate latch. A. Ferber. il Am Mach 54:693-4 Ap 21 '21

Scully-Jones index-centers. il Mach 26:881 My '20

Special indexing fixture on P & W semi-automatic milling machine. il Am Mach 54:1007-8 Je 9 '21

India

Hydro-electric survey of India. Electrician 86:82 Ja 14 '21

Mining engineer in India and the Gold Coast. P. T. Bruhl. il Eng & Min J 109:1160-3 My 22 '20

See also Electric plants (central stations)—India; Housing problem—India; Hydroelectric plants—India; Irrigation—India; Labor and laboring classes—India; Railroads—India

Commerce

Dominating factor in East Indian trade. W. G. Hildebrant. Ptr Ink 116:95-6 Ag 11 '21

Import trade of India. Elec R (Lond) 88:122-3 Ja 28 '21

India glutted with foreign goods. Am Ind 21:45+ Jl '21

Opportunities for American sugar machinery in India. Am Mach 54:711 Ap 21 '21

Trade relations between England and India. C. J. Hamilton. 263p Thacker, Spink and co., Calcutta '19

See also Automobile industry and trade—India

Economic conditions

Commercial situation in India. W. M. Benney. Am Ind 22:35-6 Ag '21

Economic need of better transportation in India. Monthly Labor R 11:612-14 S '20

Industries and resources

Smelting in Namtú, Burma. A. W. Jenks. il Eng & Min J 110:309-12 Ag 14 '20

Trade and industries of India. T. M. Ainscough. Engineering 109:221-2 F 13 '20

See also Cement industry and trade—India; Gold mines and mining—India; Iron industry and trade—India; Machine tool industry—India; Mines and mineral resources—India; Water supply—India

Indian refining company

Balance sheet, December 31, 1920. Comm & Fin Chr 112:1422 Ap 2 '21

Indiana

See also Coal mines and mining—Indiana; Electric plants (central stations)—Indiana; Gold mines and mining—Indiana; Roads—Indiana; Water supply—Indiana

Public service commission

How Indiana's commission works. il Elec Ry J 57:254-8 F 5 '21

Indiana commission law. E. Bullock. Gas Age 47:173 F 25 '21

Indiana gas association

12th annual meeting, West Baden, Indiana. April 26-27. Gas Age 45:401-2 My 10 '20

Indiana public utility association

First annual meeting, Indianapolis, Jan. 13.

Elec Ry J 57:181-5 Ja 22 '21

Public utilities of Indiana organize. Elec W 75:256 Ja 31 '20

Indiana society of architects

Semi-annual meeting, Indianapolis, Dec. 9. Am Arch 116:720-2 D 10 '19

Indiana state sheet metal contractors

1st annual convention, Feb. 2-4, Indianapolis.

Sheet Metal Worker 12:50-3 F 18 '21

Indianapolis, Indiana

Indianapolis and its industries. il plan Iron Age 108:649-52 S 15 '21

Rapid transit

Indianapolis and the 5-cent fare. E. T. Lewis. Elec Ry J 56:1143-4 D 4 '20

Indianapolis takes warning from Des Moines. R. Willson. Elec Ry J 58:379 S 3 '21

Indians of North America

Paying treaty in far north. F. Dickie. il Pop Mech 35:413 Mr '21

Poetic justice to the red man. J. Burnam. il Nation's Business 9:32+ Ag '21

See also Mound builders; Yucca national monument

Dwellings

Circles give Arapahoe Indian village racial appeal. F. Steele. il diag plan Pop Mech 34:806-10 D '20

Indicator diagrams

Calculation of low-pressure indicator diagrams. E. C. Kemble. U S Nat Advisory Com for Aeronautics 1918:644-54 '20

Measuring an indicator diagram. W. F. Schaphorst. Power 51:560 Ap 6 '20

Old method of working out indicator diagrams. J. S. Watts. diag Am Mach 52:1261 Je 10 '20

Taking indicator diagrams. P. A. Baumeister. diags Power 54:551-2 O 11 '21; Discussion. J. Cassiday. 54:653 O 25 '21

Indicators

Diesel engine and the indicator. diags Power 52:544-5 O 5 '20

Engine indicators; types, their use and care. il Power Pl Eng 24:89-90 Ja 1 '20

High-speed engine pressure indicator of the balanced diaphragm type. H. C. Dickinson and F. B. Newell. il diags U S Nat Advisory Com for Aeronautics 1920:637-48 '21

High-speed indicators. T. Midgley, jr. il diags Soc Auto Eng J 6:254-7 Ap '20; Discussion. 6:331-4 My '20

Indicating the Diesel engine. J. A. Wal-land. diags Power 53:884-5 My 31 '21

Indicator as an aid to economy; with discussion. W. E. Dalby. Engineering 112:94-5 Jl 15 '21

New design of high speed engine indicator. B. R. Dierfeld. il diags Automotive Ind 45:471-3 S 8 '21

New engine indicator. Power Pl Eng 25:541-2 My 15 '21

New high-speed gas-engine indicator. diags Power 51:720-2 My 4 '20

New type of indicator for high-speed internal-combustion engines. A. Trowbridge. il diags Power 53:704-8 My 3 '21

Okill pressure indicator. il Automobile Eng 11:272 Ag '21

Pressure indicator for internal combustion engines. J. Okill. il diag Power 54:10-11 Jl 5 '21

Using the indicator on a Diesel engine. diags Power 52:458 S 21 '20

What goes on inside a gas cylinder. il Sci Am 122:671+ Je 19 '20

See also Air speed indicators; Alinement indicators; Carbon dioxide recorders; Selsyn position indicator; Tachograph; Water gages

Indicators and test papers

Alkylene and some alkyl halides of 2(4-hydroxy-3-methoxy-styryl) quinoline. L. F. Werner. Am Chem Soc J 43:890-1 Ap '21

Color chart of indicators. W. M. Clark. Williams & Wilkins co., Baltimore '21

Indicators and test papers—Continued

Indicators and their industrial application. H. A. Lubs. J Ind & Eng Chem 12:273-4 Mr '20

Indicators used for determining free acid in pickling solutions. C. L. Boyle. J Ind & Eng Chem 12:571-2 Je '20

Methiodides of the condensation products of some cyclic aldehydes with quinaldine and alpha picoline, and their possible value as indicators in acidimetry. L. F. Werner. Am Chem Soc J 42:2309-14 N '20

See also Chemical reagents; also names of indicators, e.g. Phenolphthalein, Potassium permanganate

Indigo

Fusion of phenylglycine-*o*-carboxylic acid for the production of indigo. M. Phillips. J Ind & Eng Chem 13:759-62 S '21

Methods of direct indigo printing. R. Sansone. Textile World 58:4293+ D 25 '20

Use of glucose as a discharge for indigo blue. A. Scheunert and N. Wosnessensky. Color Tr J 8:47 F '21

Use of organic dyestuffs in the manufacture of lakes; gamboge, indigo and logwood. B. De Puyster. Color Tr J 6:43-6 F '20

Indigo carmine

Indigo carmine. J. M. Matthews. Color Tr J 6:96-9; 7:8-11 Mr, Jl '20

Indium

Compressibility of indium. T. W. Richards and J. Sameshima. diag Am Chem Soc J 42:49-54 Ja '20

Individualism

Herbert Spencer and human government. F. J. E. Woodbridge. Comm & Fin Chr 110: 1921-3 My 8 '20

Individuality, Physiological

Chemical construction and individuality. H. Bierry. Sci Am M 3:212-14 Mr '21

Indol

Metallic salts of pyrrol, indol and carbazol. E: C. Franklin. J Phys Chem 24:81-99 F '20

Indophen blue

New achievement in American dyes. Color Tr J 8:96 Mr '21; Same. Sci Am M 3:563 Je '21

Inductance

Universal inductance and capacity testing bridge. C. V. Drysdale. il diags Electrician 84:80-2, 108-9 Ja 23-30 '20

See also Mutual inductance; Self inductance

Inductance coils

Design of air-core inductance coils of minimum weight for a given inductance and resistance. C. O. Gibbon. diags Am Inst E E J 39:660-5 Jl '20

Dimensions of inductance coils. M. K. Akers. Wireless Age 8:20-1 O '20

Dimensions of inductances. P. R. Coursey. Wireless Age 8:18-19 Je '21

Distributed capacity of inductance coils. G. Breit. diags Phys R 17:649-77 Je '21

Distributed capacity of inductance coils. G. Breit. Phys R 18:133-5 Ag '21

Final adjustment of precision inductances. G. E. Moore. diags Elec R (Lond) 88:504-5 Ap 22 '21

High-frequency resistance of inductance coils. G. Breit. Phys R 18:135 Ag '21

Inductance, capacity and resistance of coils. J. Marsten. Wireless Age 8:33-5 S '21

Radio frequency inductance coils. M. K. Zinn. diags Wireless Age 7:21-3 My '20

Stagger-wound inductances for radio work. D. R. Clemons. il diag Wireless Age 8:18-20 Jl '21

Tables for the calculation of the inductance of circular coils of rectangular cross section. F. W. Grover. Phys R 18:136-9 Ag '21

Universal, honeycomb and lattice coils in general. O. C. Roos. chart diags Wireless Age 7:22-4 Jl; 23-6 Ag; 8:12-19 O; 14-16 N; 16-17 D '20

Induction (electricity)

Integration method of deriving the alternating-current resistance and inductance of

conductors. H. L. Curtis. diag U S Bur Stand Sci Pa 374:93-124 '20

See also Condensers (electricity); Inductance

Induction, Magnetic. See Magnetic induction

Induction coils

High-frequency resistance of wires and coils. G. W. O. Howe. diags Inst E E J 58:152-162; Discussion. 162-70 F '20

Ignition circuit characteristics as determined by engine requirements. H. F. Geist. Automotive Ind 43:666-70 S 30 '20

Induction coil design. M. A. Codd. 238p Spon '20

Proof of the formula for determining the self-induction of a coil using the $\sqrt{-1}$ function. H. F. Trewman. diags Electrician 85:622-3 N 26 '20

See also Choke coils; Condensers (electricity); Mutual inductance; Resistance coils; Self inductance

Induction motors. See Electric motors, Induction

Induction regulators. See Voltage regulators

Inductive interference. See Electric lines—Inductive interference

Industrial accident boards and commissions, International association of. See International association of industrial accident boards and commissions

Industrial accidents. See Accidents, Industrial

Industrial arbitration. See Arbitration, Industrial

Industrial arts

Design in the industrial arts; where do the museums stand. R. F. Bach. Arch & Bldg 52:65-6 Jl '20

Things worth making. A. Williams. 511p T. Nelson and sons, London; New York '20

See also Agriculture; Architecture; Book-binding; Building; Business; Canning and preserving; Chemical engineering; Chemistry, Technical; Commerce; Design; Dyes and dyeing; Electric engineering; Engineering; Engraving; Factories; Foundry practice; Glass manufacture; Industrial education; Industry; Inventions; Machine shop practice; Machine shops; Machinery; Machinery in industry; Manual training; Manufactures; Masonry; Mechanical engineering; Metal work; Metallurgy; Occupations, Dangerous; Painting, Industrial; Paper making; Patents; Photography; Plumbing; Pottery; Printing; Production; Rubber; Shipbuilding; Tanning; Technical education; Technology; Textile industry; Waste products; Weaving; Woodwork

Bibliography

See Technology—Bibliography

Industrial association of Cleveland

Where 700 plants mix managers and men. C: Woodward. il Factory 24:443-5 F 15 '20

Industrial betterment

Activity in southern mill village development. E. S. Draper. il Textile World 57:1221+ F 7 '20

Conservation of labor. L. W. Wallace. Am Mach 53:1104-6 D 9 '20

Consideration of employe service plans. Textile World 58:375 Jl 17 '20

Cooperation of manufacturers to solve unrest. Textile World 57:1079+ F 7 '20

Industrial betterment, health and safety. Am Ind 20:15-18 Je '20

Keeping up the labor morale. J. E. Bullard. Am Mach 53:505-6 S 9 '20

Labour's position in industry. A. Duckham. Engineering 109:822-3 Je 18 '20

Putting cooperation on a business basis. C. A. Lippincott. Factory 26:482-3 F 15 '21

Repetitive operation. Am Mach 53:1102-3 D 9 '20

Rising standard in industry. C: R. Towson. Textile World 58:89+ Jl 3 '20

Industrial betterment—Continued

- Society of industrial engineers; relation of the industrial expert to present world conditions. *Ind Management* 59:156-8 F '20
- South Manchester—a model textile community. *il Textile World* 57:936-7+ F 7 '20
- Stimulating cooperation between employer and employee; Clark equipment company, Buchanan, Mich. *il Mach* 26:544-50 F '20
- Treatment of industrial problems by constructive methods. 15p '19 U S Dept of Labor, Working conditions service, Washington, D.C.
- What's on the worker's mind, by W. Williams. Review by P. B. McDonald. *Chem & Met Eng* 23:1137-8 D 8 '20
- Where 700 plants mix managers and men. C: Woodward. *il Factory* 24:443-5 F 15 '20
- Wholesome working conditions through cooperation. Paper 26:21-3 Je 9 '20
- Winning your employees' loyalty. W. Webb. *il Paper* 27:13-16 F 16 '21
- See also* Company stores; Employees; Hours of labor; Housing problem; Housing projects, Company; Industrial councils; Industrial education; Industrial management; Industrial relations; Insurance, Industrial; Labor and capital; Labor and laboring classes; Profit sharing; Safety devices and measures; Unemployment—Relief measures; Welfare work in industry; Workmen's compensation; *also* Penn-American employees' association
- Industrial buildings**
- Central manufacturing district, Chicago, Ill. S. S. Joy. *il diags plans Arch Forum* 34:123-8, 177-82 Ap-May '21
- Industrial expansion heralds future prosperity. W. M. Rooney. *il chart Iron Tr R* 66:48-52 Ja 1 '20
- Insulating industrial buildings. L. C. Jacob. *Ind Management* 60:22-3 Jl '20
- Peace-time industry at Old Hickory smokeless powder plant, Jacksonville, Tenn. *il diag map Chem Age* 29:176-7 My '21
- Plant expansion in 1921 will be ruled by normal needs of industry. W: M. Rodney. *il Iron Tr R* 68:29-31 Ja 6 '21
- \$250,000 building dedicated to Pratt & Lambert advertising. C. B. McCuaig. *il Ptr Ink M* 3:109+ Je '21
- See also* Department stores; Factories; Foundries; Loft buildings; Machine shops; Mercantile buildings; Packing houses; Store buildings; Warehouses; *also* Bush buildings, London; Bush terminal sales building, New York
- Industrial chemistry. *See* Chemistry, Technical
- Industrial conference, Washington, 1919 (1st)
- President's industrial conference meets in Washington. *Chem & Met Eng* 21:481-6, 514-19 O 15-22 '19; *Ind Management* 58:420-2 N '19
- Proceedings of the first Industrial conference (called by the President) October 6 to 23, 1919. 285p National industrial conference, Washington, D.C. '20
- Industrial conference, Washington, 1919 (2d)
- Comment on industrial conference plan. *Iron Age* 105:137-8 Ja 8 '20
- Employee representation indorsed; president's second Industrial conference reports. *Iron Age* 105:875-9 Mr 25 '20
- How will it work?; symposium. *Nation's Business* 8:22-4 F '20
- Industrial conference declares for employee representation; summary of final report. *Ind Management* 59:348-54 My '20
- National arbitration plan offered. *Iron Tr R* 66:169-71 Ja 8 '20
- Plan for national industrial arbitration. *Ind Management* 59:1-7 Ja '20
- Preliminary statement of president's Industrial conference. *Monthly Labor R* 10:60-8 Ja '20; Same. *Comm & Fin Chr* 110:40-2 Ja 3 sec 1 '20; Same abr. *Am Ind* 20:14-17 F '20; Same cond. *Ry Age* 68:169-71 Ja 9 '20; Excerpt. *Eng N* 84:49-51 Ja 1 '20; Excerpt. *Min & Met* 158:(sec 1) 18-19 F '20; Excerpts. *Elec W* 75:39 Ja 3 '20; Excerpts. *W Soc E J* 24:sup19-21 Ja 5 '20; Summary. *Ry R* 66:17-19 Ja 3 '20
- President's second Industrial conference report. *Iron Tr R* 66:938-40, 1007-10, 1054-5, 1128-30, 1203-6 Mr 25-Apr 22 '20
- President's second Industrial conference says employer and employees must solve industrial problems together. *Comm & Fin Chr* 110:1249-51 Mr 27 '20
- Report of Industrial conference. *Ry Age* 68:1062-3 Mr 26 '20; Excerpt. *Ry R* 66:518-19 Mr 27 '20
- Report of second Industrial conference. *Am Ind* 20:11-18 Ap '20
- Report of the president's Industrial conference. *Monthly Labor R* 10:863-70 Ap '20
- Samuel Gompers says Industrial conference plan is unsatisfactory to labor. *Comm & Fin Chr* 110:1251-2 Mr 27 '20; Excerpt. *Ry R* 66:519 Mr 27 '20
- What the industrial report means to the American manufacturer. H. Tipper. *Automotive Ind* 42:774-5 Mr 25 '20
- Industrial cost association**
- Business problems studied by cost association. *Elec R* 78:976 Je 18 '21
- Conference, East Aurora, N.Y., May 26-28. *Am Mach* 54:1024 Je 9 '21; *Iron Age* 107:1491 Je 2 '21
- Cost accounting as a basis for selling cars. C. Jennings. *Automotive Ind* 44:151-2 Ja 27 '21
- Industrial cost association. *Mach* 27:369 D '20
- Organization. *Mach* 27:36 S '20
- Industrial councils**
- Application of industrial council plan to British civil service. *Monthly Labor R* 10:195-6 Ja '20
- Les conseils d'exploitation dans les entreprises industrielles en Allemagne. G: Mesnard. *Génie Civil* 79:153-4 Ag 13 '21
- Control of industry. E. J. P. Benn. *Electrician* 84:473-5 Ap 30 '20
- Creation of a provisional National economic council in Germany. *Monthly Labor R* 11:1078-81 N '20
- Function of Whitley councils in the electricity supply industry. J. W. Thomas. *Elec R (Lond)* 88:372-4 Mr 25 '21
- Functions of a work's council. *il Eng & Ind Management* 5:405-8 Ap 7 '21
- German works council law. *Monthly Labor R* 10:1246-55 My '20
- German works councils act. *Chem & Met Eng* 22:1172 Je 23 '20
- German works councils act and its significance. E: Bernstein. *Int Labour R* 1:175-87 F '21
- How the Whitley joint councils are working. *Factory* 27:629-30 N '21
- J. I. C.'s; Joint industrial councils of England. G: T. Bye. *Nation's Business* 8:64-5+ N '20
- National council for the printing trades. C: R. Walker, jr. *Monthly Labor R* 12:23-44 Ja '21
- National industrial council for the electricity supply industry. T. W. Cole. *Elec R (Lond)* 88:103-4 Ja 28 '21
- Operation of the Whitley councils. *Metal Ind* 18:367-8, 416, 470 Ag-O '20
- Scope, purpose and effects of the Whitley scheme. A. Rowland-Entwistle. *Ind Management* 60:8-10 Jl '20
- Spirit of goodwill in electricity supply. J. W. Thomas. *Elec R (Lond)* 89:334-6 S 9 '21
- Whitley plan in fifty British industries. *Iron Age* 105:16-18 Ja 1 '20
- See also* Employees' representation in management

Bibliography

- Joint councils in industry. (Bul. 1, Industrial relations ser.) 24p Supplement to the Canada Labour Gazette, F '21
- Social movements. S. Zimand. p.94-104. H. W. Wilson co. '21
- Industrial courts.** *See* Courts, Industrial
- Industrial diseases.** *See* Diseases, Industrial
- Industrial education**
- American apprenticeship and industrial education. P. H. Douglas. 348p Columbia university, New York; Longmans '21

Industrial education—Continued

- Foreman or teacher—which? W: A. Ayars. Am Mach 55:106-7 J1 21 '21
- Harmful tendency in trade education. Am Mach 53:691 O 7 '20
- Industrial education; complete report of the proceedings of the fall national convention, Nov. 10-12, 1920. 245p Society of industrial engineers, 327 So. La Salle St., Chicago '21
- Industrial education inspiring; work as conducted by the American steel and wire corp. C: R. Sturdevant. Iron Tr R 68:1520-2 Je 2 '21; Same cond. Iron Age 107:1460-2 Je 2 '21
- Industrial training in China. F. A. Foster. Mech Eng 42:305+ My '20
- Industrial training in Pennsylvania state college. Power 54:465 S 20 '21
- Mass of detail obscures essentials in industrial education. H. Tipper. Automotive Ind 42:474-5 F 12 '20
- National metal trades association and industrial education. H. C. Smith. Mech Eng 43:521-2+ Ag '21
- Necessity for a mining and industrial education. H. H. Stoeck. Coal Age 16:850-2 N 27 '19
- Progress in industrial education. Iron Age 107:1109 Ap 28 '21
- Sheet metal instruction in Milwaukee. Metal Work 92:698-700 D 12 '19
- So the worker may increase his efficiency and education. H. Tipper. Automotive Ind 42:1124-5 My 13 '20
- Trade and industrial education for girls and women. 106p U.S. Federal board for vocational education '20
- Training industrial workers. R. W. Kelly. 437p Ronald press '20
- Vocational education for mill employees. Paper 27:26+ D 22 '20
- Vocational training for women in industry. Monthly Labor R 10:966-70 Ap '20
- See also Apprentices; Corporation schools; Employees, Training of; Engineering education; Evening and continuation schools; Printing, Practical—Study and teaching; Technical education; Trade schools; Vocational education
- Industrial education, Cooperative**
- Building plant executives at University of Cincinnati. Factory 24:998+ Ap 1 '20
- Co-operative industrial high school and the part-time extension trade school for apprentices. C. C. Sharkey. il Am Mach 51:1105-8 D 25 '19
- Co-operative system of engineering education. E. K. Scott. Elec R (Lond) 89:107-8 J1 22 '21
- Engineering educators discuss co-operation. Eng N 85:91-2 J1 8 '20
- Industrial co-operative course of the Lansing (Mich.) high school. E. M. Hall. il Am Mach 54:83-6 Ja 20 '21
- Meeting the 1925 labor problem. L. Parker. il Factory 26:461-3 F 15 '21
- New co-operative course in electrical engineering. W. H. Timbie. Gen Elec R 23:784-90 S '20; Abstract. Sci Am M 2:183-4 O '20
- New engineering instruction plan. L. S. Marks. Soc Auto Eng J 6:214 Ap '20
- Practical application of education to industry; methods in use at the University of Cincinnati. N. G. Shidle. Automotive Ind 42:1413-16+ Je 17 '20
- Progress of the co-operative system of engineering education. F. H. Plaisted. Eng N 84:1172 Je 10 '20
- Recent developments at the University of Cincinnati. Eng N 87:277-9 Ag 18 '21
- Relation of educational institutions to the industries. H: P. Talbot. J Ind & Eng Chem 12:943-7 O '20
- See also Antioch college; Massachusetts institute of technology
- Industrial efficiency.** See Efficiency, Industrial
- Industrial engineering**
- Columbia to train men to head organizations. W. Rautenstrauch. Iron Tr R 67:1198 O 28 '20

- Industrial engineering as major profession. Iron Age 106:1331-5 N 18 '20
- Industrial engineering at the Massachusetts institute of technology. H. C. Haskell. Ind Management 60:184 S '20
- Practical work of the industrial engineer. L. W. Wallace. Ind Management 59:502-7 Je '20
- Training men to specialize in cutting costs. E. L. Ryerson, jr. il Factory 26:590-4 Mr 1 '21
- What a production engineer should know. A. McDonald. Ind Management 60:185-7 S '20
- What industrial engineering includes. 154p C. E. Knoeppel & co., New York '21
- See also Industrial education; Industrial management

Bibliography

- List of bibliographies on industrial engineering and management. 23p Society of Industrial Engineers. Publications v.3, no. 6. My '20
- Industrial engineers**
- Function of the production engineer. Eng & Ind Management 6:125-6 Ag 4 '21
- Labor and the industrial engineer. Sci Am 124:62 Ja 22 '21
- Scarcity of the college-trained engineer in production. J: Airey. Eng Educ 11:290-7 F '21
- Why industry seeks competent counsel. L. V. Estes. Ind Management 59:475-80 Je '20
- Industrial engineers, Society of.** See Society of industrial engineers
- Industrial forums.** See Forums, Industrial
- Industrial heating.** See Electric heating, Industrial; Gas as fuel; Heating, Industrial
- Industrial hygiene.** See Hygiene, Industrial
- Industrial insurance.** See Insurance, Industrial
- Industrial journalism.** See House organs; Journalism—Study and teaching; Trade journals
- Industrial laws and legislation**
- Industrial code, 1920. 248p Bureau of statistics and information, Albany, N.Y. '20
- Protective machinery in danger of becoming cumbersome. H. Tipper. Automotive Ind 44:132-3 Ja 20 '21
- Rathenausche zwangswirtschaft. J. Reichert. Stahl & Eisen 41:1030-7 J1 28 '21
- Social legislation in Illinois; needs and opportunities in 1921. S. Eldridge. 110p W. M. Shimmin & co., Rockford, Ill. '21
- See also Competition, Unfair; Factory laws; Labor laws and legislation; Oil industries—Fire regulations; Patent laws and legislation; Trade marks
- Industrial lighting.** See Factories—Lighting; Foundries—Lighting; Shipyards—Lighting; Textile mills—Lighting
- Industrial management**
- Administration and organization on construction work. A. G. Gehrig. Eng & Contr 53:157-9 F 11 '20
- Applying common sense methods to the ship-ping room. F. J. O'Brien. Ind Management 59:191-2 Mr '20
- Applying scientific management to industrial administration. J. W: Schulze. Paper 26:15-16+ Je 2; 15-16+ Je 9; 24+ Je 16 '20
- Avoiding industrial traffic jams. W. R. Bas-set. Ind Management 61:342-6 My 1 '21
- Business policies. System 39:381+, 513+ Mr-Ap '21
- Chart of scientific management. R. Stelling. Eng & Ind Management 5:622-3 Je 2 '21
- Coordinating shop management. M. H. Potter. Iron Tr R 65:1647-9 D 18 '19
- Correct application of scientific management. Eng & Ind Management 5:685-6 Je 16 '21
- Education and research as factors in modern management. A. P. M. Fleming, J. G. Pearce and H. J. Brocklehurst. Electrician 84:475-7 Ap 30 '20
- Elastic planning system. E. A. Pells. Eng & Ind Management 5:102-4 Ja 27 '21

Industrial management—*Continued*

- Eliminating the stop watch from industry. C. E. Knoepfel. *Iron Age* 104:766-7 S 18 '19; Same. *Sci Am* 121:308 S 27 '19; Same *abr. Metal Ind* 17:495 N '19
- Evolution of industrial management. H: R. Towne. *Ind Management* 61:230-3 Ap 1 '21
- Experts talk on industrial relations' problems at American foundrymen's association convention. *Iron Tr R* 67:1057-8 O 14 '20
- Flexibility in organization. J: Younger. *Soc Auto Eng J* 6:237-8 Ap '20
- Future of industrial management. F. M. Lawson. *Eng & Ind Management* 5:107-9 Ja 27 '21
- How management ties in with financing. G: M. Verity. *System* 39:636-7+ My '21
- How successful executives are handling present day problems. F. Matzke. *Ind Management* 61:245 Ap 1 '21
- Industrial engineering applied to shipyard management. N. Howard. *il Ind Management* 59:372-6, 492-5; 60:38-42 My-Jl '20
- Industrial engineers' opportunity. L. W. Wallace. *Ind Management* 58:462-4 D '19
- Industrial government. J: R. Commons. *Int Labour R* 1:61-7 Ja '21; Same. *Administration* 1:145-50 F '21
- Industrial management, Soviet Russia's unsolved problem. L. Pasvolsky. *Annalist* 17:353 Mr 21 '21
- Industrial research in the art of man management. E. H. Schell. *Am Mach* 54:364-7 Mr 3 '21
- Installing Gantt production methods. W. Clark. *Ind Management* 59:443-8 Je '20
- Laws of industrial organization. C. E. Knoepfel. *Ind Management* 58:265-8, 381-3, 494-8; 59:43-7, 145-8, 184-91 O '19-Mr '20
- Limitations of system. F. R. C. Steele. *J Account* 31:21-9 Ja '21
- Logical steps in installing the Taylor system of management. H. K. Hathaway. *Ind Management* 60:89-96 Ag '20
- Making statistics talk. M. C. Rorty. *Ind Management* 60:394-8; 61:45-50+ D 1 '20, Ja 1 '21
- Management; a study of industrial organization. J: Lee. 125p Pitman '21
- Mnemonic system of classification. H. K. Hathaway. *il diags Ind Management* 60:173-83 S '20
- New executive for the new times. H. C. Barnes. *Ind Management* 58:405-8 N '19
- L'organisation du travail. C: De Fréminville. *Chimie & Ind* 4:680-5 N '20
- Plain steps toward legitimate prosperity. E. H. Fish. *Ind Management* 59:10-12 Ja '20
- Possibilities of planning. E. A. Pells. *Eng & Ind Management* 5:69 Ja 20 '21
- Principles of industrial philosophy. W. N. Polakov. *Mech Eng* 43:249-52; Discussion. 253-4 Ap '21
- Psychological versus scientific management. C: S. Myers. *Engineering* 109:773-4 Je 4 '20; Same. *Eng & Contr* 53:741-3 Je 30 '20
- Research laboratory adopts modern management. C. V. Maudlin. *il chart Ind Management* 61:98-102 F 1 '21
- Responsibilities of management to-day; policy of Klearfax linen rug co. J. H. Barnes. *Ptr Ink* 114:3-4+ F 17 '21
- Results obtained by applying scientific management in a French ship yard. M. Lavalée. *Ind Management* 60:240-4, 287-9 S-O '20
- Scientific management. H: Atkinson. *il Eng & Ind Management* 5:162-5, 569-71, 629-31; 6:6-8, 97-8+, 119-21, 286-9, 400-1+ F 10, My 19, Je 2, Jl 7, 28-Ag 4, S 15. O 13 '21
- Scientific management: a solution of the capital and labour problem. J. M. Scott-Maxwell. *bibliog Inst E E J* 58:329-42; Discussion. 342-76 My '20; Excerpts. *Engineer* 128:632, 634 D 26 '19
- Scientific management in Great Britain. C. H. Northcott. *Ind Management* 60:57-8 Jl '20
- Simplification in industry. L. I. Thomas. *Factory* 26:451-3, 715-18+ F 15, Mr 15 '21
- Society of industrial engineers annual spring meeting. Milwaukee. *Iron Tr R* 68:1262-3 My 5 '21

- Society of industrial engineers fall convention, Springfield, Mass. *Iron Age* 108:952-4 O 13 '21
- Society of industrial engineers in spring convention, Philadelphia. *Iron Age* 105:947-9 Ap 1 '20
- Society of industrial engineers; scientific management and organized labor discussed at September meeting of Chicago chapter. G: D. Babcock. *Ind Management* 58:365-8 N '19
- Spring meeting of the Taylor society, Cleveland. *Iron Age* 107:1377-8+ My 26 '21; *Iron Tr R* 68:1442 My 26 '21
- Steps in industrial management. E. H. Schell. *Am Mach* 54:444-7 Mr 17 '21
- Supplement to Frederick W. Taylor's On the art of cutting metals. C. G. Barth. *diags Ind Management* 58:169-75, 282-7, 369-74, 483-7; 59:49-53, 153-5, 222-6, 395-9, 483-6; 60:49-52, 218-25, 365-72 S '19-Mr, My-Jl, S, N '20
- System is a means of harnessing full capacity. H. Tipper. *Automotive Ind* 42:1472-3 Je 24 '20
- Taylor society heeds post-war problems; studies scientific management as guest of Harvard school of business administration. *Iron Age* 104:1129-31 D 4 '19
- Time and job analysis in management. W: O. Lichtner. *chart il Ind Management* 59:301-6, 361-6, 487-91; 60:28-34, 130-9, 201-7 Ap-S '20
- Trends in management; wanted—reducing exercises for overweight inventories. *Factory* 25:1719 D 1 '20
- Trends in management; what the excess profits tax means to plant management. W. R. Basset. *Factory* 26:470-2 F 15 '21
- Waste due to poor engineering and management. D. S. Kimball. *Chem & Met Eng* 25:375-7 Ag 31 '21
- What makes men give their best? H. L. Ferguson. *System* 39:363-70+ Mr '21
- Wrongs in industry; little heed given to "soldiering" of equipment. W. N. Polakov. *Iron Age* 105:1059 Ap 8 '20
- See also* Bonus system; Business management; Company stores; Efficiency, Industrial; Employees as stockholders; Employees' representation in management; Employment management; Employment systems; Factory management; Foremen; Foundry management; Garages—Management; Gas companies—Management; Housing projects, Company; Hygiene, Industrial; Industrial engineers; Industrial relations; Inspection; Inventories; Job analysis; Machine shop management; Mine management; Motion study; Motor trucks—Management; Office management; Organization in industry; Piece work; Planning; Power plants—Management; Priestman plan; Printing offices—Management; Railroads—Management; Rest periods; Routing systems; Service (in industry); Shipyards—Management; Shop management; Specialization; Suggestion systems; Time study; Waste; *also* Council of management education

Bibliography

- List of bibliographies on industrial engineering and management. 23p Society of Industrial Engineers. Pub. v.3, no. 6 My '20
- List of references on scientific management as the basis of efficiency, with special reference to the government service. H. H: B. Meyer. 22p U.S. Govt. print. off., Washington '20
- Suggested college course on the human side of engineering. 15p n.d. Industrial service movement, 347 Madison av, N.Y.
- Supplementary reading for students in industrial management. *Mech Eng* 43:137, 347 F, My '21
- 30 years of management literature. J: R. Dunlap. *Ind Management* 61:278-83+, 361-6 Ap 1, My 1 '21

Standards

- Promulgation of standards by the Taylor society. W: O. Lichtner. *Iron Age* 105:1367-8 My 13 '20

Industrial management—*Continued*

Study and teaching

- Bringing manufacturers back to college. *il Factory* 24:1895 Je 15 '20
 Educate and train managers. H. Godfrey. *Gas Age* 47:323-4 Ap 25 '21
 Le gouvernement des entreprises. J. Carlioz. *Chimie & Ind* 5:350-4 Mr '21
 Management education course to be established throughout country's colleges. *Am Mach* 53:698-9 O 7 '20
 Training of engineering students in industrial management. B. W. Benedict. *Mech Eng* 42:492-4 S '20; Same. *Paper* 27:13-16 N 3 '20

See also Industrial engineering

Industrial management (periodical)

- 30 years of management literature. J. R. Dunlap. *Ind Management* 61:278-83+, 361-6 Ap 1, My 1 '21

Industrial management council, Rochester. See Rochester, New York—Industrial management council

Industrial medical service. See Medical service, Industrial

Industrial organizations. See Trade associations

Industrial partnerships. See Profit sharing

Industrial plants. See Industrial buildings

Industrial poisons. See Poisons, Industrial

Industrial priorities. See Priorities, Industrial

Industrial railroads. See Railroads, Industrial

Industrial rehabilitation. See Disabled—Rehabilitation

Industrial relations

- Abstracts of reports presented by subcommittees of industrial relations committee at annual meeting of institute in February. *Min & Met* 172:11-17 Ap '21

After all, who pays the wages? G. M. Verity. *Am Ind* 21:13-16 Ag '20

America at the cross roads. C. A. Eaton. *Textile World* 58:2311+ O 2 '20

American society of mechanical engineers annual meeting, New York. *Iron Tr R* 65:1589-92 D 11 '19

Another and more complete industrial Tribunal scheme. *Comm & Fin Chr* 110:14-15 Ja 3 sec 1 '20

Baltimore plan. R. S. Gill. *Ptg Art* 38:25-9 S '21

Basics of industrial understanding. H. Tipper. *Automotive Ind* 45:632-3 S 29 '21

Better understanding through factory forums. L. Etherington. *il Factory* 24:58-9 Ja '20

Bunk or a fair deal? a discussion of mental attitudes. H. Tipper. *Automotive Ind* 44:872-3 Ap 21 '21

Causes of industrial unrest and the remedy. F. P. Fish. *Mech Eng* 42:17-23+ Ja '20

Chamber of commerce of U.S. adopts principles of industrial relations. *Dom Eng* 92:286-7 Ag 7 '20; Same. *Metal Work* 94:188 Ag 6 '20; Same. *Iron Tr R* 67:388-9 Ag 5 '20; Same. *Min & Sci P* 121:437-8 S 18 '20; Same cond. *Eng N* 85:312 Ag 12 '20; Same cond. *Pub Works* 49:157-8 Ag 14 '20

Choosing a labor policy. W. R. Basset. *Ptr Ink* 112:3-4+ S 9 '20

Concerning plans to adjust the industrial situation. H. Tipper. *Automotive Ind* 42:90-1 Ja 8 '20

Conference of Australian employers' federations on industrial relationships. *Monthly Labor R* 10:890-2 Ap '20

Conservation of labor. L. W. Wallace. *Am Mach* 53:1104-6 D 9 '20

Consideration of industrial relations. G. E. Holmes. *Textile World* 57:3272 My 1 '20

Construction labor's instability. H. Blenderman. *Eng N* 83:939-40 N 27 '19

Co-operation in industry. J. D. Rockefeller, jr. *Int Labour R* 2:3-16 Ap '21

Dealing with labor under new conditions. *Ry Age* 69:910-11 N 26 '20

Declarations of principle of Manufacturers association of Connecticut, inc. *Am Mach* 54:1064 Je 16 '21

Democracy after hypocrisy. R. M. Neustadt. *Ind Management* 58:416-17 N '19

Direct action for employers. C. E. Knoeppel. *Nation's Business* 9:17 Ap '21

Direct action versus inaction. S. Rogers. *Textile World* 57:3053-4 Ap 24 '20

Educating the workers to sound economics. H. W. Kimball. *Ind Management* 58:414-16 N '19

Employment management and industrial relations. D. R. Kennedy. *Ind Management* 58:353-8 N '19

Employment relations in the construction industry; report of committee on labor of Associated general contractors at annual meeting. *Eng N* 86:225-7 F 3 '21; Excerpt. (Statute of employment relations). *Eng & Contr* 55:165-6 F 16 '21

Engineering analysis of the labor problem. C. Townley. *Elec R* 77:8-10 Jl 3 '20

Engineer's service to society. F. J. Miller. *Mech Eng* 43:1-4+ Ja '21

English view of American industrial relationships. H. Tipper. *Automotive Ind* 45:382-3 Ag 25 '21

Fourteen points of industrial relations. R. E. Newcomb. *Ry Mech Eng* 94:696 N '20

Fuller understanding of fundamentals. D. R. Kennedy. *Textile World* 57:3063+ Ap 24 '20

Future of industrial relations. D. R. Kennedy. *Ind Management* 59:227-31 Mr '20

Getting together. *Sci Am* 122:356 Ap 3 '20

Getting workmen interested in the company. H. Tipper. *Automotive Ind* 42:424-5 F 5 '20

Hartford fair, frank, fearless. T. J. Kelly. *Iron Tr R* 67:652-3 S 2 '20

Have you the elements of discontent in your plant? H. Tipper. *Automotive Ind* 42:943-5 Ap 22 '20

Human aspects of engineering. W. Maclachlan. *Can Eng* 40:432a My 5 '21

Human engineering; a study of the management of human forces in industry. E. Wera. 378p Appleton '21

Human factor in industry. A. Ramsay. *Engineer* 130:109-10 Jl 30 '20; Same. *Engineering* 110:132 Jl 23 '20; Same. *Electrician* 85:181-2 Ag 13 '20; Discussion. *Engineer* 130:583-4 D 10 '20; *Engineering* 110:765-6 D 10 '20

Human relations in industry; Industrial conference, Silver Bay, Aug. 27-29. *Am Mach* 53:613-15 S 30 '20

Impossible to return to pre-war conditions. F. L. Ackerman. *Am Arch* 117:153 F 4 '20

Industrial autocracy has a danger all its own. H. Tipper. *Automotive Ind* 43:1082-3 N 25 '20

Industrial disputes—causes and remedies. *Eng & Ind Management* 5:626-7, 658-9, 682-4 Je 2-16 '21

Industrial personnel relations. A. H. Young. *W Soc E J* 24:341-50; Discussion. 350-8 Je '19

Industrial plans based on common sense; Lorraine manufacturing co., Pawtucket, R.I. *il Textile World* 59:3257+ My 14 '21

Industrial relations. C. F. Hirshfeld. *Sibley J* 34:75-80 Je '20

Industrial relations. H. C. Hoover. *Ind Management* 59:345-7 My '20

Industrial relations and the engineer. *Mech Eng* 43:351 My '21

Industrial relations association of America; annual convention, Chicago, May 19-21. *Iron Age* 105:1532-4 My 27 '20

Industrial relations—at home and abroad. D. T. Farnham. *Administration* 1:351-7 Mr '21

Industrial relations departments. J. W. Brown. *Foundry* 49:229-31 Mr 15 '21; Same. *Iron Tr R* 68:906-8 Mr 31 '21

Industrial teamwork. W. J. Matherly. *Ind Management* 61:284-5 Ap 1 '21

Industries vote on labor creed. *Iron Tr R* 66:1771 Je 17 '20

Industry's one law Be square with your men. E. E. Bell. *Iron Tr R* 67:169-73+ Jl 15 '20

Institute's part in the improvement of industrial relations. *Min & Met* 164:8-11 Ag '20

International paper company issues statement to employees. *Paper* 28:9-10+ Je 15 '21

Industrial relations—Continued

- It pays us to tell our business secrets. R. W. Stewart. *il System* 40:568-70+ N '21
- Keeping the peace with labor. M. H. Wiseman. *diag Ind Management* 59:177-83 Mr '20
- Knowledge is the beginning of understanding. H. Tipper. *Automotive Ind* 45:32-3 JI 7 '21
- Labor efficiency through good-will. W. R. Basset. *Textile World* 59:2864+ Ap 30 '21
- Labor leadership and the absentee employer. C: A. Eaton. *Ptr Ink* 111:73-4+ Je 10 '20
- Labor problems. J: D. Rockefeller, jr. *Ind Management* 58:403-4 N '19
- Labor problems discussed. R. H. Irons. *Iron Age* 105:531-3 F 19 '20
- Labor relation's policy formulated by Cleveland chamber of commerce. *Comm & Fin Chr* 110:1377-8 Ap 3 '20
- Labor's domination but temporary. C. Townley. *Iron Tr R* 67:593-5 Ag 26 '20
- Lasting lessons of the labor crisis. *Ind Management* 59:89-91 F '20
- Leadership and education the cures for our industrial ills. C: E. Eaton. *Coal Age* 17:1201-4 Je 10 '20
- Listening in on employers' thoughts. O. W. Knauth. *System* 39:132+ Ja '21
- Man from Port Sunlight, near Liverpool. G: T. Bye. *Nation's Business* 8:24-6 F '20
- Man-to-man talks. C: A. Eaton. *Textile World* 57:511+, 633+, 1160d+, 1384, 1506 Ja 24-F 7, 21 '20
- Many industrial problems clarified; report of National metal trades association. J: W. O'Leary. *Iron Tr R* 66:1255-6 Ap 29 '20
- Meeting the radical with understanding and agreement. H. Tipper. *Automotive Ind* 42:1024-5 Ap 29 '20
- Method for social research. H. W. Jordan. *J Ind & Eng Chem* 13:1066-7 N '21
- Moral obligations of the individual in industry. H. Tipper. *Automotive Ind* 43:282-3 Ag 5 '20
- Moulding human relations out of the theories of labor progress. H. Tipper. *Automotive Ind* 42:674-5 Mr 11 '20
- Nation swinging to open shop. A. J. Hain. *Iron Tr R* 67:846-52 S 23 '20
- Need for an understanding of labor and industry. H. Tipper. *Automotive Ind* 42:593-5 Mr 4 '20
- Need of increased production stressed at 22d annual convention of National metal trades association, New York. *Iron Age* 105:1229-34 Ap 29 '20
- Notes on our economic position as a ship-building country. A. Yarrow. *Engineering* 109:459-60 Ap 2 '20; Discussion. *Engineer* 129:342-3 Ap 2 '20; *Engineering* 109:437-8 Ap 2 '20
- Other side of the shield. R. E. Dockham. *Inland Ptr* 68:185-7 N '21
- Our men said: that wage cut it O.K. C: E. Brinley. *System* 40:427-9+ O '21
- Overcoming organized labor opposition by fairness. H. Tipper. *Automotive Ind* 45:82-3 JI 14 '21
- Personal and economic relations. L. V. Estes. *Ind Management* 58:453-7 D '19
- Platform for American industry. A. L. Humphrey. *Am Ind* 20:8-12 Je '20; Excerpts. *Monthly Labor R* 11:246-7 Ag '20
- Plead for industrial education; papers presented at fall convention of Society of industrial engineers. *Iron Tr R* 67:1396-7 N 18 '20
- Prevention of industrial troubles. W. Webb. *Paper* 28:13-14 Ap 13 '21
- Principles of employment relations in construction industry. *Eng & Contr* 54:75 JI 21 '20
- Producing better men to produce bigger dividends. *Textile World* 57:933+ F 7 '20
- Progress in industrial relations during 1920. *Textile World* 59:858-9+ F 5 '21
- Public's right to service. R. Dickinson. *Ptr Ink* 111:53-4+ Je 3 '20
- Pursuit of labor peace demands patience and understanding. H. Tipper. *Automotive Ind* 43:332-3 Ag 12 '20
- Reason to win over radicalism. A. J. Hain. *Iron Tr R* 66:25-32 Ja 1 '20
- Referenda of United States Chamber of commerce on employment relations. *Monthly Labor R* 11:424-6 S '20
- Relation of labor to industry. J. R. Clynes. *Automotive Ind* 43:730-1 O 7 '20
- Religion and business from the standpoint of a layman. *Comm & Fin Chr* 112:883-4 Mr 5 '21
- Report of the president's Industrial conference. *Monthly Labor R* 10:863-70 Ap '20
- Responsibility of Congress in industrial strife. C: S. Thomas. *Am Ind* 20:19-22 Ja '20
- Review of relations between employers and employees. *Comm & Fin Chr* 113:1623-4 O 15 '21
- Shall one class rule the United States? A. J. Beveridge. *Ry R* 66:135-7 Ja 24 '20
- Social industrial relations. H. W. Jordan. *J Ind & Eng Chem* 13:473-4 My '21
- Society of industrial engineers spring meeting, Milwaukee. *Iron Age* 107:1181-2 My 5 '21
- Solving the labor problem. E. W. Hulet. *Sci Am* 123:611+ D 18 '20
- Solving the labor problem. H. C. Osborn. *Sci Am* 123:496+ N 13 '20
- Solving the labor problem. G: M. Verity. *Sci Am* 123:304+ S 25 '20; Same. *Ptr Ink* 113:57-8+ O 7 '20
- Some phases of reconstruction. W: C. Redfield. *Sci Am* 122:60+ Ja 17 '20
- Some phases of relationship of engineering societies to public service. H. Hoover. *Am Inst E E J* 39:1073-5 D '20; Same. *Eng N* 85:1053-5 N 25 '20; Same. *Iron Age* 106:1412-14 N 25 '20; Same. *Am Mach* 53:1061-3 D 2 '20; Same. *Min & Met* 168:3-7 D '20; Excerpts. *Comm & Fin Chr* 111:2104-5 sec 1 N 27 '20; *Iron Tr R* 67:1467-8 N 25 '20; *Power* 52:876-8 N 30 '20; *Ry Age* 69:933-5 N 26 '20; *Chem & Met Eng* 23:1077-80 D 1 '20; *Mech Eng* 42:722-3 D '20
- Spirit of unity will rule land; abstracts. E. H. Gary. *Iron Tr R* 66:1600-1 Je 3 '20; *Iron Age* 105:1580-1 Je 3 '20
- Square deal as solution of industrial relations problems of contractors. J. H. Ellison. *Eng & Contr* 53:494-5 Ap 28 '20
- Status of industrial relations. L. P. Alford. *Eng & Ind Management* 5:77-80 Ja 20 '21
- Status of industrial relations in Great Britain. C. H. Northcott. *Ind Management* 59:64-6 Ja '20
- Strength of labor lies in definite objective of organization. H. Tipper. *Automotive Ind* 44:1392-3 Je 23 '21
- Strikes—how to avoid them; an interview with John Hays Hammond. W: L. Stoddard. *Ind Management* 61:77-84 F 1 '21
- System for mutual control of industry. W: L. Leiserson. *Mech Eng* 42:24-5+ Ja '20
- Systems likely to overshadow the individual in labor discussions. H. Tipper. *Automotive Ind* 43:1232-3 D 16 '20
- Taft, Hughes and Hoover on collective bargaining. *Ind Management* 59:93-7 F '20
- Testing out industrial relations. *Iron Age* 107:462-3 F 17 '21
- Thinking behind the mere mechanics of industrial organization. H. Tipper. *Automotive Ind* 42:874-5 Ap 8 '20
- Tie that binds. E. G. Marshall. *Inland Ptr* 67:187-8 My '21
- Time study and industrial unrest. C. M. Bigelow. *Ind Management* 59:143-5 F '20
- Time to cure the nation's ills. P. West. *Metal Work* 93:513-15+ Ap 23 '20
- Tyrannous labor leaders, parlor socialists and so-called collective bargaining. H: H. Squire. *Ind Management* 61:138-40 F 1 '21
- Union labor and the enlightened employer. S: Gompers. *Ind Management* 61:234-9 Ap 1 '21
- Various plans of industrial relations. R. Vance. *Iron Tr R* 67:1063-6 O 14 '20
- View on industrial relations. D. Guggenheim. *Eng & Min J* 109:252-4 Ja 24 '20
- View the labor problem in perspective. H. Tipper. *Automotive Ind* 44:922-3 Ap 28 '21

Industrial relations—Continued

- Wage payment. A. L. DeLeeuw. *Mech Eng* 41:939-40+ D '19; Same. *Am Ind* 20:12-17 Ja '20; Same. *Am Mach* 52:331-5 F 12 '20; Same. *Eng & Contr* 53:183-5 F 18 '20; Same cond. *Iron Tr R* 65:1579-81 D 11 '19
- Way out in industrial relations. J. Calder. *Iron Age* 107:1766-7 Je 30 '21
- Welfare work and industrial stability. C. E. Fouhy. *Ind Management* 58:413-14 N '19
- What America faces. H. Hoover. *Ind Management* 61:224-9 Ap 1 '21
- What is industrial stability? F. L. Ackerman. *Arch Forum* 33:sup47 S '20
- What of the safety and personnel departments? H. Tipper. *Automotive Ind* 44:620-1 Mr 17 '21
- What place has individual personality in industrial relationships? N. G. Shidle. *Automotive Ind* 44:171+ Ja 27 '21
- What thoughts guide executives to-day. D. F. Kennedy. *Iron Age* 107:1172-4 My 5 '21
- Which labor policy? W. B. Dickson. *Ptr Ink* 113:49-50+ N 18 '20; Excerpts. *Iron Age* 106:1252-4 N 11 '20; Excerpts. *Mech Eng* 42:715 D '20
- Why laws are not the solution of labor problems. H. Tipper. *Automotive Ind* 41:1180-1 D 11 '19
- Why manufacturer should justify himself to workers. H. Tipper. *Automotive Ind* 43:482-3 S 2 '20
- Why some factories have escaped the unrest taint. H. Tipper. *Automotive Ind* 41:880-1 O 30 '19
- Workers' rights and responsibilities as factors in industrial crises. T. Rich. *Eng & Ind Management* 5:374-5 Mr 31 '21
- Workmen feel just like the rest of us as regards wage cuts. H. Tipper. *Automotive Ind* 44:470-1 F 24 '21

See also Arbitration, Industrial; Boycott; Courts, Industrial; Employees' representation in management; Employment management; Industrial betterment; Industrial conference, Second; Industrial councils; Industrial management; Industrial service movement; Labor and capital; Labor disputes; Profit sharing; Railroad labor board; Trade agreements; Welfare work in industry; *also* Council on industrial relations for the electrical construction industry in the United States and Canada

Advertising aids

- Advertising as ammunition in Britain's labor war. T. Russell. *Ptr Ink* 115:93-4+ My 12 '21
- Advertising the soft answer. R. Dickinson. *Ptr Ink* 114:33-6 F 10 '21
- Campaign to adjust Philadelphia's labor conditions. A. Joyce. *il Ptr Ink* 114:93-4+ Ja 13 '21
- Management begins to see what labor wants. R. Dickinson. *Ptr Ink* 112:25-7+ S 30 '20
- Solving labor troubles by advertising. S. Crowther. *Ptr Ink* 112:73-4+ S 2 '20
- See also* Employment management—Advertising aids

Terminology

- Definition of industrial relations and its related terminology. H. Tipper. *Automotive Ind* 43:632-3, 680-1 S 23-30 '20
- Industrial relations association of America** (formerly National association of employment managers)
- Annual convention, Chicago, May 19-21. *Am Lumberman* 2349:73; 2350:74-5 My 22-29 '20; *Am Mach* 52:1370 Je 24 '20; *Mech Eng* 42:425-6 Jl '20; *Ind Management* 60:59-60 Jl '20; *Monthly Labor R* 11:51-3 Jl '20
- Industrial research**
- Co-ordination of research in works and laboratories. H. R. Constantine. *Inst E E J* 57:sup134-48; Discussion. sup148-57 '19
- Developing laboratory work along practical business lines; Research department of the Aluminum castings company. J. E. Schipper. *il chart Automotive Ind* 42:414-18 F 5 '20
- Development of American research. V. Karapetoff. *Chem & Met Eng* 21:722 D 10 '19

- Education and research as factors in modern management. A. P. M. Fleming, J. G. Pearce and H. J. Brocklehurst. *Electrician* 84:475-7 Ap 30 '20
- Finding the better way. C. E. Ruby. *il Ind Management* 62:303-8 N '21
- How research helps rejuvenate industries. A. Van Vlissingen, jr. *il Factory* 24:947-52 Ap 1 '20
- Industrial benefits of research. C. L. Reese and A. J. Wadhams. (Reprint & Circ. Ser. 18) 14p '21 25c National Research Council, 1701 Massachusetts av, Washington, D.C.
- Industrial research. F. B. Jewett. (Reprint & Circ. Ser. 4) 16p n.d. 25c National research council, 1701 Massachusetts av, Washington, D.C.
- Industrial research a vital factor in substantial growth. B. M. Rastall. *J Elec* 46:193-4 F 15 '21
- Industrial research at the Mellon institute. W. Savage. *il Chem & Met Eng* 22:249-55 F 11 '20
- Industrial research in England. *Eng & Contr* 53:500 Ap 28 '20
- Industrial research in small establishments. M. E. Leeds. *Chem & Met Eng* 21:690-1 N 26 '19; Same. *Elec W* 74:1007-8 N 29 '19
- Industrial research in the art of man management. E. H. Schell. *Am Mach* 54:364-7 Mr 3 '21
- Industrial research laboratories; name and address of the company and address of the laboratory. R. S. McBride. *Gas Age* 48:173-5 Ag 20 '21
- Laboratory in business. *il Sci Am* 122:570+ My 22 '20
- National importance of scientific and industrial research. G. E. Hale and others. *Nat Research Council Bul* 1 pt 1:1-43 O '19
- National research council—its scope and plans. H. E. Howe. *Textile World* 57:952+ F 7 '20
- Need for researches on automobile parts. W. T. Magruder. *Soc Auto Eng J* 8:255-6 Mr '21
- Need of extensive research in the petroleum industry. V. H. Manning. *Chem & Met Eng* 21:727-8 D 10 '19
- Need of research in the industrial field. P. F. Walker. *Mech Eng* 42:487-91 S '20
- Organization of industrial scientific research. C. E. K. Mees. 170p McGraw-Hill '20
- Plan for the development of industrial research in Canada. R. F. Ruttan. *J Ind & Eng Chem* 13:376-8 O '21
- Planning for a co-operative research in alloys. *Automotive Ind* 41:876-7 O 30 '19
- Pure science and industrial research. J. J. Carty. *Am Inst E E J* 39:57-8 Ja '20
- Recherches industrielles en petit laboratoire; pâtes à papier. A. Le Chatelier. *il diags plan Chimie & Ind* 4:529-42 O '20
- Relation of pure science to industrial research. J. J. Carty. (Reprint & Circ. Ser. 14) 16p n.d. 20c National research council, 1701 Massachusetts av, Washington, D. C.
- Report of the committee of the Privy council for scientific and industrial research for the year 1919-1920; abstracts. *Engineer* 130:305-6, 345-6 S 24, O 8 '20; *Engineering* 112:606-7 O 23 '21; *Mech Eng* 42:696-7 D '20; *Illum Engr* 13:255-6 S '20
- Research and cotton. H. E. Howe. *Sci Am* 121:606 D 20 '19
- Research and industrial wastes. G. S. Hesenbruch. *Mech Eng* 42:104-5 F '20
- Research and social evolution. C. F. Hirshfeld. *Mech Eng* 42:103-4 F '20
- Research as an investment. *Am Cer Soc J* 3:91-3 F '20
- Research in industrial conservation. H. E. Howe. *Gas Age* 47:42-4 Ja 25 '21
- Research in industry. L. A. Hawkins. *Soc Auto Eng J* 9:20-2 Jl '21
- Research laboratories in industrial establishments of the United States of America. A. D. Flinn, A. J. Porskievies and R. Cobb. *Nat Research Council Bul* 1, no. 2:45-130 Mr '20
- Research the bond between the university and industry. A. E. White. *Soc Auto Eng J* 8:497-500; Discussion. 500-1 My '21

Industrial research —Continued

Role of research in waste elimination. H. E. Howe. *Chem & Met Eng* 25:379-82 Ag 31 '21

Science and industry. W. Rosenhain. *Eng & Contr* 53:641-2 Je 2 '20

Science and national progress. V. Kellogg, R. M. Yerkes and H. E. Howe. *Sci Am M* 1:73-7 Ja '20

6th annual report of the committee of the Privy council for scientific and industrial research, August 1st, 1920, to July 31st, 1921. *Engineer* 132:393-4, 430-1, 450 O 14-28 '21; *Abstract. Elec R (Lond)* 89:595-6 N 4 '21

Technical research and the textile industry. E. T. Brooks. *Textile World* 59:2877+ Ap 30 '21

See also Chemical research; Chemistry, Technical; Cotton research; Dye research; Laboratories; National research council; Scientific research; Textile research

Bibliography

Industrial research. C. J. West. (*In Reprint & Circ. ser. 9*) p 17-35 '20 National research council, 1701 Massachusetts av, Washington, D.C.

Reading list on industrial research. C. J. West, E. D. Greenman and A. D. Little. *Special Libraries* 11:19-28 Ja '20 (Reprinted by Arthur D. Little, Inc., Cambridge, Mass.)

Industrial service movement

Industrial service movement of Y.M.C.A. J. P. Channing. *Min & Met* 177:33-4 S '21

Industrial statistics

Look your statistics in the eye. A. W. Douglas. *Nation's Business* 9:23-4 Jl '21

Making statistics talk. M. C. Rorty. *Ind Management* 60:394-8; 61:45-50+, 119-25 D 1 '20, Ja 1, F 1 '21

Statistics in business. W. B. Cokell. *Administration* 1:585-92 My '21

Study and purpose of statistics. A. W. Douglas. *Administration* 1:175-8 F '21

Study and purpose of statistics. J. W. Scoville. *Administration* 1:443-8 Ap '21

Value of statistical information. G. E. Roberts. *Administration* 1:721-4 Je '21

Value of statistics to business. S. L. Rogers. *Textile World* 56:2503 O 25 '19

Industrial surveys

Industrial survey in selected industries in the United States, 1919. A. H. Willett. *U S Bur Labor Statistics Bul* 265:1-509 '20

Industrial towns. See Model towns

Industrial traffic league, National. *See* National industrial traffic league

Industries. *See* Industrial arts; Industry; *also* names of industries, e.g. Chemical industries, Clay industries, Dye industry; Electric industries, Gas industry, Iron industry and trade, Mineral industries, Oil industries, Petroleum industry and trade, Steel industry and trade, Textile industry

Industry

Acquisitive society. R. H. Tawney. 188p Harcourt, Brace and Howe, New York '20; *Review. System* 39:517+ Ap '21

Balance between agriculture and industry. R. J. McFall. *Annalist* 18:438-40 N 7 '21

Biological trend of industry. H. W. Jordan. *J Ind & Eng Chem* 13:650-1 Jl '21

Engineers and the price system. T. Veblen. 169p B. W. Huebsch, New York '21

Industrial activity in Europe. E. S. Carman. *Am Mach* 51:945-6 N 27 '19

Industry and the university. A. Currie. *Paper* 27:9-10+ F 9 '21

Industry, homes and architecture. T. Adams. *Am Inst Arch J* 7:512-18; 8:173-7 D '19, My '20

International industrial digest. *See* semi-monthly numbers of *Factory*

Power transmission and industrial development. R. J. McClelland. *Gen Elec R* 22:825-32 N '19

Science and industry. A. W. Allen. *Min & Sci P* 121:161-5 Jl 31 '20

What industries can do for Americanization. H. T. Waller. *Metal Work* 92:674-5 D 5 '19; *Same. Sci Am* 123:9 Jl 3 '20

See also Efficiency, Industrial; Government regulation of industry; Industrial laws and legislation; Labor and laboring classes; Machinery in industry; Manufactures; Service (in industry); Substitutes; Woman—Employment; *also* headings beginning *Industrial*; *also* subdivision *Industries and resources* under names of countries

History

Coal, iron, and war. E. C. Eckel. 375p Holt '20

History of industry. E. L. Osgood. 430p Ginn '21

Introduction to the industrial history of England. A. P. Usher. 529p G. C. Harrap & co., London '21

Industry and state

Liberalism and industry: towards a better social order. R. Muir. 208p Constable & co., ltd., London '20

See also Commercial policy; Economic policy; Government ownership; Government regulation of industry; Industrial councils; Labor laws; Priorities, Industrial; Public utilities; Tariff

Inertia, Moments of. *See* Moments of inertia

Infants' clothing

How a business was built up on a piece of tape. C. L. Benjamin. *Ptr Ink* 114:138+ Ja 27 '21

Infection

Spray infection. S. R. Douglas and L. Hill. *bibliog il diags J Ind Hygiene* 3:206-12 N '21

See also Wounds

Infectious diseases

See also Chemotherapy; Influenza; Insects as carriers of contagion; Typhoid fever; Yellow fever

Infinite

See also Space

Infinitives

When to split the infinitive. *Ptr Ink* 113:136 N 25 '20

Inflammable liquids

Inflammable and explosive liquids in shops. *Ry Mech Eng* 94:295-6 My '20

Unloading tank cars of inflammable liquids. *Chem & Met Eng* 23:231 Ag 11 '20

See also Oil industries—Fire regulations; Oil inspection; *also* names of inflammable liquids, e.g. Gasoline; Petroleum

Inflammable mixtures

Explosion hazard and its prevention. J. F. Shadgen. *Iron Age* 108:127-30 Jl 21 '21

Incendiaries in modern warfare. A. B. Ray. *J Ind & Eng Chem* 13:641-6 Jl '21

Phenomena of the ignition of gaseous mixtures by induction coil sparks. J. D. Morgan and R. V. Wheeler. *diags Chem Soc J* 119:239-51 Mr '21

Propagation of flame in complex gaseous mixtures. W. Payman. *Mech Eng* 42:240 Ap '20

Propagation of flame in mixtures of methane and air. W. Mason and R. V. Wheeler. *Mech Eng* 42:239-40 Ap '20

See also Dust explosions; Explosions; Flame propagation

Inflation (finance)

Advertising agencies learn why living is high; Professor Irving Fisher tells of the hole in the dollar. *Ptr Ink* 110:134+ F 26 '20

Business and the depreciated dollar. E. W. Kemmerer. *Administration* 1:19-29 Ja '21

Clamor for re-inflation. J. Oakwood. *Annalist* 18:413+ O 31 '21

Currency inflation. *Am Ind* 20:11 Mr '20

Discrimination in inflation. H. Parker. *Comm & Fin Chr* 111:1040-1 S 11 '20

How the money of Europe lost its purchasing power. R. L. Duffus. *Ptr Ink* 110:128+ F 12 '20

Inflation (finance)—Continued

Inflation and high prices; ed. by H: R. Seager. 144p The academy of political science, Columbia university. '20

Inflation as world problem. P. M. Warburg. Comm & Fin Chr 110:1800-2 My 1 '20

L. C. Leffingwell declares government expenditure to be root of inflation. Comm & Fin Chr 110:1925-9 My 8 '20

New York chamber of commerce on danger from further inflation. Comm & Fin Chr 110:1481-2 Ap 10 '20

See also Money; Paper money

Influenza

Chlorine and influenza. C: Baskerville. J Ind & Eng Chem 12:293-4 Mr '20

Study of influenza-pneumonia among wage earners. Monthly Labor R 10:223-4 Ja '20

Information, General. See Edison questionnaire**Information departments**

Good will and the information desk. R. Dickinson. Ptr Ink 112:17-18 Ag 5 '20

Small job with wide possibilities for good or bad results. Automotive Ind 43:527 S 9 '20

Information service

Business information services. Special Lib 11: 150-1; 12:68-70 Je '20, Ap '21

Dependence of the business executive upon the special librarian. H. V. Coes. Special Lib 12:168-70 S '21

See also Libraries, Special; *also* Alloys research association; National research council

Bureau of Efficiency has formed a section for the purpose of answering inquiries as to what has been done by the government in certain fields of endeavor and where to go to find the information pertaining to any activity. Address: U.S. Bureau of Efficiency, Washington, D.C.

An engineers' exchange, 30 North La Salle street, Chicago, has been incorporated for the collection and distribution of information for engineers, architects, builders, contractors, manufacturers and clients.

Infra-red rays

Flavors, odors and infra-red rays; measuring degrees of taste and smell with the olfactometer and the saporimeter. G. Hamelin. il Sci Am M 3:519-22 Je '21

Infra-red radiation through coloured glass screens. Engineering 110:537 O 22 '20

Infrared-ray telegraph has interesting equipment. il Pop Mech 33:649 My '20

Infra-red transmission and refraction data on standard lens and prism material. W. W. Coblentz. bibliog U S Bur Stand Sci Pa 401:701-14 '20

Locating icebergs at sea. G. F. Lees. il Pop Mech 36:419-20 S '21

Putting infra-red rays to work. G: Gaulois. il diags Sci Am 122:248+ Mr 6 '20

Infusorial earth. See Diatomaceous earth**Ingersoll watches**

Nest egg that started Ingersoll in business. C. H. Ingersoll. Ptr Ink 113:89-90+ D 16 '20

Advertising

Advertising built on dealer tie-ups. E: T. Tandy. Ptr Ink 113:17-20+ N 18 '20

Ingots

Bill describes the making of ingot mold rigging. P. Dwyer. diag Foundry 48:493-5 Je 15 '20

Further progress in ingot production. C: Meigh. diags Metal Ind 17:507-9 D '19

Molding and pouring problems in making a 114-ton iron mold. il Iron Age 105:1365-6 My 13 '20; Iron Tr R 66:1402-3 My 13 '20

Zones of weakness in solidified ingots. L. Aitchison. Chem & Met Eng 23:280 Ag 18 '20

Ingots, Steel. See Steel ingots**Inheritance tax**

Prentice-Hall inheritance tax service. 2v Prentice-Hall, inc., New York '21

Treatise on the federal estate tax. R. D. Thurber. 423p M. Bender & co., inc. Albany, N.Y. '21

Injectors

Advantages of the exhaust steam injector. C. Roberts. diags Ry Mech Eng 95:290-1 My '21

Injector trouble. H. W. Rose. Power Pl Eng 24:331 Mr 15 '20

Why boiler-feed pump gives better service than an injector. T. H. Green. Coal Age 18: 172 Jl 22 '20

Injectors, Pneumatic. See Pneumatic injectors**Ink**

Cost of ink. B. Daniels. Inland Ptr 66:56 O '20

Inks—their composition, manufacture, and methods of testing. bibliog U S Bur Stand Circ 95:1-24 '20

Manufacture of carbon paper. B. Walther. Sci Am M 4:307-8 O '21

Printing-inks; their history, composition and manufacture. F. L. Burt. Inland Ptr 64:190-2, 310-12, 463-4, 575-6 N '19-F '20

Typewriter inks and ribbons; German methods of manufacture. B. Walter. Sci Am M 3:536-7 Je '21

Where the printer gets his ink; America's carbon-black industry. H: P. Westcott. il Sci Am 124:88+ Ja 29 '21

Ink stains

Removal of ink stains. Dr. Gerhardt. Sci Am M 3:18 Ja '21

Ink trade

Coöperation between organizations or associations. D: H. Sloane. Inland Ptr 67:234 My '21

New selling point markets an old product. T: Russell. Ptr Ink 110:68+ Ja 8 '20

Inlay

Application of decoration to art metal ware. A. F. Saunders. il Metal Ind 19:21-2 Ja '21

Inns

Miller stile inn, Quincy, Mass. S. Baxter. il plan Arch Rec 48:14-30 Jl '20

See also Riverside, California—Mission Inn

Insect powder. See Insecticides**Insecticides**

Agricultural insecticides. R. R. Henderson. il diag Chem Age 29:167-9, 205-7, 257-60, 353-5 My-Jl, S '21; Abstract. Sci Am 125: 188 S 10 '21

Insect powder. C. C. McDonnell, R. C. Roark and G. L. Keenan. il U S Agric Bul 824:1-82; Bibliography. 83-100 '20

Leadless insect spray. Sci Am 123:615 D 18 '20

Production of pyrethrum flowers in Japan. Sci Am S 88:305 N 22 '19

See also Calcium arsenate

Insectivorous plants

Plant that feeds on animals; bladder-shaped structures of the water pipe. il Sci Am M 3:218 Mr '21

Insects

Behavior of land insects with regard to water. J. S. Szymanski. Sci Am S 88:383 D 27 '19

How insects fly. E. Bade. il Sci Am M 4: 350-2 O '21

How insects steer themselves while flying. F. Stellwaag. il diags Sci Am M 1:207-11 Mr '20

See also Ants; Crickets; Halobates

Experiments

Individual and the species. L. Bertin. Sci Am M 4:235-8 S '21

Insects, Effect of temperature on

Prolonging the life of insects by variable temperatures. Sci Am 125A:29 N '21

Insects, Injurious and beneficial

Insect ravages in our forests. S. R. Winters. il Sci Am 124:48+ Ja 15 '21

Insects in their relation to forestry. R. W. Shufeldt. il Sci Am S 88:320-1 N 29 '19

See also Boll weevils; Bookworms; Corn—Diseases and pests; Leaf hoppers; Mosquitoes; Moths; Termites; Tree hoppers

Insects as carriers of contagion

Man-killing insects. G: P: Paul. *il Sci Am* 124:321+ Ap 23 '21
Sanitary entomology. W: D. Pierce. 518p R. G. Badger, Boston '21

Insignia. See United States—Army—Medals, decorations, etc.; United States—Navy—Medals, decorations, etc.

Inspection

Capitalizing the inspection evil. A. Kauffmann. *Factory* 25:1391-3 N 1 '20
Control of quality. I. Katz. *Ind Management* 61:426 Je '21
Delco inspection system; description of the methods used in the Dayton engineering laboratories co. L: Ruthenburg, R. A. Crist and E. Oberg. *il Mach* 27:921-6, 1032-5, 1127-30; 28:43-7 Je-S '21
Engineering inspection. *Engineering* 112:543-4 O 14 '21
Existing practice of inspecting work and materials; abstracts. G: Hatton. *Engineering* 112:84 Jl 8 '21; *Engineer* 132:60 Jl 15 '21; Discussion. *Engineering* 112:111 Jl 15 '21
Factory inspection. H. H. Armstrong. *Am Mach* 54:896 My 26 '21
Functions of management. A. R. Stelling. *Eng & Ind Management* 5:317-19 Mr 17 '21
German organization of the factory inspection department. *Automotive Ind* 44:1385 Je 23 '21
How the inspection department helps the factory. G: S. Radford. *Ind Management* 60:418-21 D 1 '20
Inspecting pistons and connecting rods. F. H. Colvin. *il Am Mach* 54:407-10 Mr 10 '21
Inspection and progress system. E. A. Allcutt. *diag Eng & Ind Management* 6:58-61+ Jl 21 '21
Inspection and testing in interchangeable manufacture. E. Buckingham. *Mach* 27:52-4 S '20; Same. *Soc Auto Eng J* 8:57-8 Ja '21
Inspection and the modern factory. O. B. Whittaker. *charts Am Mach* 53:305-9 Ag 12 '20
Inspection as an aid to planning. G: S. Radford. *Ind Management* 61:25-30 Ja 1 '21
Inspection department in modern scientific management. R. Stelling and W. R. Hill. *il Eng & Ind Management* 5:594-6 My 26 '21
Inspection of brass goods. P. W. Blair. *Metal Ind* 19:11-12 Ja '21
Inspection: the control of quality. G: S. Radford. *Ind Management* 60:169-72, 290-4, 331-5 S-N '20
Interesting inspection methods. F. H. Colvin. *il Am Mach* 55:633-5 O 20 '21
Making inspectors into doctors—not undertakers. G: B. Comfort. *Factory* 26:319 F 1 '21
Management problems of the small factory. E. Cordeal. *il Ind Management* 62:182-7 S '21
Managing an inspection department. G: S. Radford. *chart Ind Management* 61:422-6 Je '21
Notes on inspection. E. B. Blackburn. *Eng & Ind Management* 5:398, 548 Ap 7, My 12 '21
Organization of the inspection department. G: S. Radford. *Ind Management* 61:356-60 My 1 '21
Part inspection plays in good management. H. B. May. *Factory* 26:175-9, 335-9 Ja 15-F 1 '21
Precise inspection of large and irregular curves. E. O. Brower. *diags Am Mach* 54:60-6 Ja 13 '21
Principles of inspection. L: Ruthenburg and R. A. Crist. *Mach* 27:859-62 My '21
Putting inspection where it belongs. F. R. Schubert. *il Factory* 26:1062-4 My 1 '21
Reason why: each process must be inspected. W. J. Hiscox. *Electrician* 86:524-5 Ap 29 '21
Works management. *Eng & Ind Management* 5:84 Ja 20 '21
See also Boiler inspection; Bridge inspection; Building inspection; Car inspection; Electric inspection; Factory inspection; Highway inspection; Mine inspection; Oil inspection; Plumbing inspection; Steamboat inspection service; also subdivision Inspec-

tion, under various subjects, e.g. Electric plants (central stations)—Inspection, Elevators—Inspection, Hobs—Inspection, Locomotives—Inspection, Ships—Inspection

Inspection cars. See Cars (inspection)

Instalment plan

Developing sales by the use of hire-purchase agreements. E. R. Morton. *Electrician* 87:448 O 7 '21
Dissolving frozen credits with a cash sale plan for manufacturer and dealer. R. Cole. *Ptr Ink* 117:57-8+ O 27 '21
Handling the time payment sale on a cash basis. E. F. Whitehead. *J Elec* 47:235 S 15 '21
Methods of the automobile industry in financing instalment sales. J. H. Newmark. *Ptr Ink* 114:110+ Mr 17 '21
To finance time payment business. S. A. Dennis. *diags Gas Age* 48:474-6 O 8 '21

L'Institut d'optique, Paris

L'institut d'optique théorique et appliquée, à Paris. P. Nicolardot. *Génie Civil* 79:291-3 O 1 '21

Institute for plant protection

Organization. H. H. Whetzel. *Sci Am M* 2:174-5 O '20

Institute of chemistry of Great Britain and Ireland

43d annual meeting, March 1. *Engineer* 131:271 Mr 11 '21; *Chem Age* 29:135 Ap '21
Some history of chemical organization in Great Britain and some comparisons. *il Chem Age* 29:301-4 Ag '21

Institute of metals

Autumn meeting, Barrow-in-Furness, Sept. 15-16. *Engineer* 130:272, 298-9, 330-1 S 17-O 1 '20; *Engineering* 110:381, 403-7 S 17-24 '20; *Iron Age* 106:878-9, 983-4 S 30, O 14 '20; *Metal Ind* 18:448-9 O '20
Autumn meeting, Birmingham, Sept. 21-23. *Engineering* 112:448-9, 483-5 S 23-30 '21; *Engineer* 132:314, 338-9, 365-7 S 23-O 7 '21; *Iron Age* 108:961-3, 996-7 O 13-20 '21
Spring meeting, London, March 11-12. *Iron Age* 105:990-2 Ap 1 '20
12th annual general meeting. *Engineering* 109:352, 370-2, 399-402 Mr 12-26 '20; *Engineer* 129:291-3, 318-19 Mr 19-26 '20
13th annual meeting, March 9-10. *Engineer* 131:264, 285-6 Mr 11-18 '21; *Engineering* 111:300-1, 315-17 Mr 11-18 '21

Institute of metals, American. See American institute of mining and metallurgical engineers

Institute of physics

Foundation of an institute of physics. *Illum Engr* 13:134 Ap '20
Inaugural meeting, April 27. *Engineering* 111:527 Ap 29 '21; *Engineer* 131:467 Ap 29 '21; *Elec R (Lond)* 88:601-2 My 6 '21; *Electrician* 86:550-1 My 6 '21; *Eng & Contr* 55:628-9 Je 29 '21

Institute of transport

1st congress, Manchester, Jan. 27-29. *Engineering* 111:130-1 F 4 '21; *Engineer* 131:118 F 4 '21

Institution of automobile engineers

See also Steel research committee

Institution of British foundrymen

17th annual convention, Glasgow, Aug. 25-27. *Foundry* 48:764-5 O 1 '20
18th annual meeting, Blackpool, England, Sept. 14-16. H. C. Estep. *Foundry* 49:817-20 O 15 '21

Institution of civil engineers

Engineering conferences. *Engineer* 132:16-17, 31-2, 59-60, 83-8 Jl 1-22 '21; *Engineering* 112:18-24, 30-2, 38-56, 73-88, 111-24, 128-34, 138-48 Jl 1-22 '21; *Elec R (Lond)* 89:42-4, 97-9, 129-30, 194-5, 228-9, 259-60 Jl 8-22, Ag 5-19 '21; *Electrician* 87:38-51 Jl 8 '21

Institution of electrical engineers

Electrical science and industry; past progress and future developments. L. B. Atkinson. *Inst E E J* 59:1-20 D '20; Abstracts. *Electrician* 85:616-19 N 26 '20; *Engineer* 130:536-7 N 26 '20; *Engineering* 110:709-10 N 26 '20

- Institution of electrical engineers—Continued**
 Engineering ideals. C. C. Garrard. *Inst E E J* 58:55-61 D '19
 49th annual general meeting, May 31. *Elec R (Lond)* 88:675-6 My 27 '21; *Electrician* 86:697-8 Je 3 '21
 Inaugural address. R. T. Smith. *Inst E E J* 58:1-15 D '19; *Excerpts. Engineer* 128:510-11, 533-4 N 21-28 '19
 Jubilee of the Institution of electrical engineers. *Electrician* 86:578-80 My 13 '21
 Meeting. Jan. 27. *Electrician* 86:195-7 F 11 '21
 North Midland centre: chairman's address. W. M. Selvey. *Inst E E J* 58:28-42 D '19
 Report for the year 1920-21. *Inst E E J* 59:343-59 Mr '21
 Report of the council for presentation at the annual general meeting of 20 May, 1920. *Inst E E J* 58:308-19 Ap '20
- Institution of engineers (India)**
 Inaugural meeting, Calcutta, Feb. 23. *Engineer* 131:216 F 25 '21
- Institution of gas engineers**
 Annual general meeting, London, Oct. 11-13. *Engineering* 112:546-7, 560-4 O 14-21 '21
 Annual meeting, London, June 1-3. N. H. Humphrys. *Gas Age* 46:11-12 JI 10 '20
 57th annual general meeting, Westminster, June 1-3. *Engineering* 109:763-4, 787-8, 819 Je 4-18 '20
- Institution of mechanical engineers**
 Annual general meeting, Westminster, Feb. 20. *Engineering* 109:271-2, 338-9 F 27, Mr 12 '20
 Annual general meeting, Westminster, Feb. 18. *il Engineering* 111:219-22 F 25 '21
 Discussion on the sterilisation of water by chlorine gas. *diag Engineer* 130:527-8 N 26 '20; *Engineering* 110:694-6 N 26 '20
 Meeting, Jan 23. *Engineering* 109:152-3 Ja 30 '20
 Summer meeting, Lincoln, Eng., July 20-23. *Engineer* 130:82-4, 103-6 JI 23-30 '20; *Engineering* 110:121-2, 135-7 JI 23-30 '20
 Summer meeting, London, June 30-July 1. *Elec R (Lond)* 89:44-5, 99-100, 130 JI 8-22 '21; *Engineering* 112:63-72, 89-95 JI 8-15 '21; *Engineer* 132:32-4, 60-2, 88 JI 8-22 '21
- Institution of naval architects**
 Annual meeting, March 16. *Engineer* 131:287-8, 314-15, 343-4 Mr 18-Apr 1 '21; *Engineering* 111:329-32, 347-51, 384-5 Mr 18-Apr 1 '21
 Liverpool conference, July 6-8. *Engineer* 130:38-9, 54-6, 90-1 JI 9-23 '20
 Meeting, London. C. H. Peabody. *Marine Eng* 26:447-8 Je '21
 Spring meeting, London, March 24-26. *Engineer* 129:328, 330-1, 342-5, 368-9 Mr 26-Apr 9 '20; *Engineering* 109:417-20, 437-40, 472-4 Mr 26-Apr 9 '20
 Summer meeting, Liverpool, July 6. *Engineering* 110:53-5, 85-7, 101-3 JI 9-23 '20
- Institution of rubber industry**
 Inauguration, Oct. 19. *Engineering* 112:575-6 O 21 '21
- Institution of water engineers**
 Winter general meeting, London, Dec. 5. *Engineer* 128:594 D 12 '19
- Institutions, Public**
 Coal consumption in institutional heating plants. G. B. Nichols. *diag Power* 51:654-6 Ap 27 '20
 Power for a state institution; the Elgin state hospital. *il diags plan Power* *Pl Eng* 24:921-6 O 1 '20
 Standardized central heating and lighting plants for state institutions. G. B. Nichols. *il diags plans Heat & Ven* 17:32-41 Ja '20
See also Homes (institutions); Prisons; State buildings
- Accounting**
 Accounting for income in eleemosynary institutions. P. D. Mitchell. *J Account* 30:344-53 N '20
- Bibliography**
 Bibliography of home economics: institutional management. E. L. Murphy and L. Hill, comps. *J Home Econ* 13:186-8 Ap '21
- Instruments, Astronomical.** *See* Astronomical instruments
- Instruments, Drawing.** *See* Drawing instruments
- Instruments, Electric.** *See* Electric instruments
- Instruments, Ltd.**
 Canadians own part interest in English instrument merger. *Can Eng* 39:332 S 9 '20
- Instruments, Measuring.** *See* Measuring instruments
- Instruments, Musical.** *See* Musical instruments
- Instruments, Negotiable.** *See* Negotiable instruments
- Instruments, Optical.** *See* Optical instruments
- Instruments, Physical.** *See* Physical instruments
- Instruments, Scientific.** *See* Scientific apparatus and instruments
- Instruments, Surgical.** *See* Surgical instruments and apparatus
- Instruments, Surveying.** *See* Surveying instruments
- Insulating yarns**
 Electrical yarns. *il India Rubber W* 62:412 Ap '20
- Insulation (electric)**
 Analysis of insulator practice. *Elec W* 75:543-6, 597-600, 673-5 Mr 6-20 '20
 Automatic protection of large electrical power distribution schemes. *diags Electrician* 85:178-81 Ag 13 '20
 Basalt; new insulating material. *Sci Am* 124:507 Je 25 '21
 Breakage in high-tension insulators; abstract. E. O. Meyer. *Sci Am M* 1:84-5 Ja '20
 Bushings for insulation of high voltage lines. A. Still. *il diags Elec R* 78:217-20 F 5 '21
 Cause of cracking of rubber insulation on ignition cables. *il Automotive Ind* 44:799 Ap 14 '21
 Chains of disk-type insulators; abstract. F. Buske. *Elec W* 78:32 JI 2 '21
 Changing insulators on live lines. *il diags Elec W* 74:992-4 N 29 '19
 Cloths treated with yellow varnish make flexible, durable insulating fabrics. *il Coal Age* 18:798 O 14 '20
 Comparison of small capacities by a beat note method. P. Thomas. *Elec J* 18:349-50 Ag '21
 Deleterious effect of fibres on the electric insulating power of oils. T: A. McLaughlin. *Electrician* 86:325-7 Mr 18 '21
 Deterioration of insulation resistance in the high pressure fire service motors, city of New York. W: W. Brush. *Munic Eng* 60:38-40 Ja '21
 La dilatation des isolants. *Génie Civil* 77:354-7 O 30 '20
 Effect of the replacement of free silica by alumina and zirconia in electrical porcelain. R. Twells, jr., and C. C. Lin. *Am Cer Soc J* 4:195-205 Mr '21
 Electrical characteristics of the suspension insulator. F. W. Peek, jr. *il diags Am Inst E E J* 39:623-30 JI '20; *Abstract. J Elec* 45:7-8 JI 1 '20
 Electrical insulating materials. N. Litchfield. *Elec Ry J* 57:719-23 Ap 16 '21
 Electrical stress on insulators at strain towers. W. D. A. Peaslee. *diag Elec W* 75:843 Ap 10 '20
 Factors affecting long-distance bulk-power transmission. F. G. Baum. *il diag Elec W* 77:1468, 1477-80 Je 25 '21
 Factors controlling the design and selection of suspension insulators. W. D. A. Peaslee. *diags Am Inst E E J* 39:571-9 Je '20; *Abstract. J Elec* 45:114-16 Ag 1 '20
 Flashover of insulators for 220-kv. lines. H. J. Ryan, H. H. Henline and F. F. Even-son. *il diag Elec W* 78:561-5 S 17 '21
 Function and limitations of insulation. B. G. Lamme. *Elec J* 18:382-3 S '21
 Fused basalt as electric insulator. *Sci Am M* 4:89 JI '21
 Generator operating temperatures. S. H. Mortensen. *il diags Power* 54:319-20 Ag 30 '21

Insulation (electric)—Continued

- German insulator standards; abstract. Elec W 77:497 F 26 '21
- High-tension insulator porcelain. W. D. A. Peaslee. Am Inst E E J 39:445-8 My '20
- High-tension insulators. W. D. A. Peaslee. Am Inst E E J 39:329 Mr '20
- High-voltage insulator development indicated at Portland convention. il diag Elec Ry J 56:261-3 Ag 7 '20
- Industrial research work on insulating materials. il Engineering 111:482-4 Ap 22 '21
- Insulating materials; some theoretical chemical considerations. W. H. Nuttall. Electrician 87:484-5 O 14 '21
- Insulation for steel mill motors. J. L. Rylander. il Elec J 18:405-8 S '21
- Insulation of high-voltage transmission systems. A. Still. il Elec R 78:54-6 Ja 8 '21
- Insulator progress during 1920. H. J. Ryan. il Elec W 77:30-3 Ja 1 '21
- Insulators and connectors for crane contact wires. C. M. Benton. diags Power Pl Eng 25:131-2 Ja 15 '21
- Insulators, the destruction of high tension; abstract. E. O. Meyer. Am Cer Soc J 3: 515 Je '20
- Keeping records of insulators found defective on line. Elec W 77:601 Mr 12 '21
- Making electric insulators of porcelain. R. Howard. il Sci Am 124:205+ Mr 12 '21
- Malicious breakage of insulators reduced by educating children. W. M. Hamilton. Elec W 78:378 Ag 20 '21
- Manufacture and qualities of insulating materials. L. W. Allison. Elec R 77:331-2 Ag 28 '20
- Manufacture of varnished cotton and silk cloth for insulation purposes. il Electrician 84:502 Ap 30 '20
- Maximum safe operating temperature of low-voltage paper-insulated cables. W. A. Del Mar. diags Am Inst E E J 40:131-4 F '21
- Maximum temperature allowable for insulation. Elec W 77:154 Ja 15 '21
- Measuring potential distribution around insulators. A. P. Strom. diags Elec W 78:774 O 15 '21
- Method of directly indicating the insulation resistance of a live direct current network. G. W. Stubbings. diags Electrician 87:100 Jl 22 '21
- Modern production of suspension insulators. E. H. Fritz and G. I. Gilchrest. il Am Inst E E J 40:470-9 Je '21
- Moulded insulating compositions. R. T. Fleming. diags Inst E E J 57:sup322-7 '19
- New porcelain feeder insulator. G. H. McKelway. il Elec Ry J 55:1267 Je 19 '20
- New varnish that insulates. Sci Am 125:77 Jl 30 '21
- Note on the design of insulating bushings. F. M. Denton. Am Inst E E J 39:588 Je '20
- Operating performance of insulators on a 45,000-volt system. H. B. Vincent. il diags Am Inst E E J 40:30-4 Ja '21
- Permissible operating temperatures of impregnated paper insulation in which the dielectric stress is low. L. L. Elden. Am Inst E E J 40:145-8 F '21
- Permissible operating temperatures of impregnated paper insulation in which the dielectric stress is low. D. W. Roper. Am Inst E E J 40:201-2 Mr '21; Abstract. Elec W 77:480-1 F 26 '21
- Permissible operating temperatures of impregnated paper insulation in which dielectric stress is low. P. Torchio. Am Inst E E J 40:96-104 F '21; Excerpt. Elec R 78:556 Ap 2 '21; Abstract. Elec W 77:413-15 F 19 '21
- Porcelain insulators. Sci Am M 2:281 N '20
- Present and future of line insulators. F. W. Peek, jr. Elec W 75:209-11 Ja 24 '20
- Preventing fuel losses due to faulty insulation. il diags Elec W 75:22-3 Ja 3 '20
- Progress report on suspension insulator deterioration. J. A. Koontz. J Elec 44:369-71 Ap 15 '20
- Properties and preparation of ceramic insulators for spark plugs. F. B. Silsbee and others. diags U S Nat Advisory Com for Aeronautics 1919:77-111 '20
- Recent developments in high-tension insulators. A. O. Austin. Elec R 76:64 Ja 10 '20
- Recent research in manufacture of porcelain insulators. A. Still. il diag Elec R 78:389-92 Mr 5 '21
- Recording status of insulation. diags chart Elec W 75:383 F 14 '20
- Records show life of suspension insulators. S. R. Van Drezer. diags Elec W 77:1429-30 Je 18 '21
- Reduction in the temperature of a wire when covered with insulation. A. B. Eason. Electrician 85:202-3 Ag 20 '20
- Report on work at Liverpool university on vulcanized bitumen cables laid solid in stoneware troughing. E. W. Marchant. diags Inst E E J 59:201-13 F '21; Abstract. Elec R (Lond) 88:27 Ja 7 '21; Discussion. Inst E E J 59:213-38 F '21; Elec R (Lond) 88:28-9, 365-6 Ja 7, Mr 18 '21
- Report on work at Newcastle-upon-Tyne on E.H.P. paper-insulated cables laid direct in the ground at different depths. E. Fawcett. diag Inst E E J 59:199-201 F '21; Excerpts. Elec R (Lond) 88:26 Ja 7 '21; Discussion. Inst E E J 59:213-38 F '21; Elec R (Lond) 88:28-9, 365-6 Ja 7, Mr 18 '21
- Report on work at the National physical laboratory on paper-insulated cables laid under various conditions. S. W. Melsom and V. Cockburn. Inst E E J 59:183-99; Discussion. 213-38 F '21
- Requirements of insulating material in motor service. J. S. Dean. il Elec W 77:1432-4 Je 18 '21
- Researches in high-voltage insulation. H. J. Ryan. il Elec W 75:254-6 Ja 31 '20
- Right tapes to use for special purposes. il Coal Age 18:1233 D 16 '20
- Safe operating temperature for underground cables. W. A. Del Mar. Elec R 79:697-8 N 5 '21
- Solution of the porcelain insulator problem. E. E. F. Creighton and F. L. Hunt. Am Inst E E J 40:480-2 Je '21; Same. Elec R 79:17-19 Jl 2 '21; Abstract. Elec W 78:10 Jl 2 '21
- Standard insulators may be used on 220,000-volt lines. F. G. Baum. Elec W 77:445 F 19 '21
- Story of the insulations. C. E. Skinner. Elec J 17:139-45 Ap '20
- Strap coils reinsulated with cotton sleeving to save time. A. C. Roe. Elec W 78:475 S 3 '21
- Strength and insulating values of various materials. Elec R 78:990 Je 18 '21
- Surface creepage and high-voltage insulation. T. Nishi. diags Am Inst E E J 39:949-59 N '20
- Surface leakage as a factor in insulator design. T. M. Feder. diags Am Inst E E J 39:803-6 S '20
- Suspension type of transmission line insulators. A. Still. il diags Elec R 78:135-8 Ja 22 '21
- Teleo cement for multi-part high-tension insulators. Sci Am M 4:89 Jl '21
- Tentative specifications for adhesive insulating tape. Am Soc T M Pro v 20 pt 1:761-3 '20; Same. India Rubber W 62:653 Jl '20
- Thermal conductivity of coil wrappers. T. S. Taylor. diags Elec W 75:369-71 F 14 '20
- Thermal conductivity of insulating and other materials. T. S. Taylor. diags Elec J 16: 526-32 D '19; Same cond. Mech Eng 42: 8-10 Ja '20; Abstract. Elec R 75:1054-6 D 27 '19
- Thermal expansion of insulating materials. W. H. Souder and P. Hidnert. il U S Bur Stand Sci Pa 352:387-417 '19
- Thickness of cable insulation differs widely with different companies. Elec W 76:330 Ag 14 '20
- Transmission-line insulation in America. F. W. Peek, jr. il diags Elec W 76:1061-4, 1105-7, 1258-9 N 27-D 4, 25 '20
- Trends in substations and lines. A. Alsaker. Elec W 75:1308 Je 5 '20
- Types and uses of varnished cloth insulation. il Elec R 77:793 N 20 '20

Insulation (electric) —Continued

- Unit voltage duties in long suspension insulators. H. J. Ryan and H. H. Henline. diags Am Inst E E J 39:631-6 JI '20; Abstract. J Elec 45:9 JI 1 '20
- Using lye to remove old insulation. J. E. Hester. il Elec Ry J 58:14 JI 2 '21
- Value of linoleum for insulating mats. Elec W 75:1488 Je 26 '20
- Voltage distribution on high-tension insulators; abstract. A. Schwaiger. diag Elec W 76:1272 D 25 '20
- Voltage regulation and insulation for large power, long distance transmission systems. F. G. Baum. il diags Am Inst E E J 40:643-65 Ag '21; Abstract. Sci Am M 4:281-2 S '21
- See also* Dielectrics; Electric cables; Electric resistance; Electric wire and wiring

Testing

- Duration of insulation tests. R. C. Muir. Elec W 76:186 JI 24 '20
- Effect of heat on impregnated paper from cable insulation. W. S. Clark. diags Am Inst E E J 40:113-14 F '21
- Effect of heat on paper insulation. H. W. Fisher and R. W. Atkinson. il Am Inst E E J 40:183-91 Mr '21; Abstract. Elec W 77:481-2 F 26 '21
- Elimination of insulator failures. E. J. Kallevang. Elec W 74:1063-4 D 13 '19
- Features of European insulator testing practice. B. Schapira. il diag Elec R 77:721-4 N 6 '20
- Half-million volt test for high-voltage insulators. il Sci Am 122:59 Ja 17 '20
- How gap, temperature, etc., affect voltage test on oil. Elec W 78:729-30 O 8 '21
- Locating defective suspension insulators by buzz stick. T. F. Johnson. diag Elec R 76:328-9 F 21 '20
- Machine for testing insulators and bus supports. A. Ramsey. il Elec W 76:1024-5 N 20 '20
- Methods of measuring resistance of insulators at high temperatures. F. B. Silsbee and R. K. Honaman. diags U S Nat Advisory Com for Aeronautics 1919:79-89 '20; Same. Aerial Age 11:806-9 Ag 23 '20
- More than 123,000 insulators tested alive at cost of 2.13 cents each. Elec W 75:954-5 Ap 24 '20
- Oil and glove testing on large distribution system. D. Borden. diag Elec W 75:607-8 Mr 13 '20
- Periodic inspection and testing improve insulator performance. Elec W 75:530-1 Mr 6 '20
- Tentative specifications for insulated wire and cable: 30-per-cent hevea rubber. Am Soc T M Pro v 20 pt 1:736-60 '20
- Tentative tests for molded insulating materials. diags Am Soc T M Pro v 20 pt 1:776-88 '20
- Testing insulating materials. J. S. Dean. il diag Elec Ry J 57:931-4; 58:85-8 My 21, JI 16 '21
- Testing insulators for resistance to thermal changes. Elec W 75:1479-80 Je 26 '20
- Testing insulators in factory and field. N. L. Crichton. il diags Elec J 17:506-9 N '20
- Testing of insulators upon the dead lines. il diags Elec W 74:1012 N 29 '19
- Unique insulator tester. R. B. Howland. il diag Elec Ry J 56:878 O 23 '20
- Vacuum and heat treatment of insulating materials. J. E. Shrader. diags Elec J 17:157-60 Ap '20
- Voltmeter method of testing resistance of insulation. diags Elec W 75:330 F 7 '20

See also Mica—Testing

Insulation (heat)

- Balsa insulation for refrigerator ships. il diags Marine Eng 26:557-60 JI '21
- Balsa wood. Am Inst Arch J 9:311-12 S '21
- Coal famine demonstrated need of heat insulation in home building. Am Lumberman 2329:56-7 Ja 3 '20
- Cold-proof house in Saskatoon. R. Patton. il diags plans Concrete 16:8-11 Ja '20; Abstract. Heat & Ven 17:50-1 My '20

Comparison of the heat insulating properties of some of the materials used in fire resistive construction. W. A. Hull. il diags U S Bur Stand Tech Pa 130:1-40 '19

- Conservation of heat in power and heating systems; 85 per cent magnesia insulation. E. R. Weidlein. flow sheet il Chem & Met Eng 24:295-300 F 16 '21; Same. Heat & Ven 18:30-4 F; 32-4 Mr '21; Abstract. Mech Eng 43:262 Ap '21
- Effect of geometric form upon the heat transfer through insulation. C. E. Rose. diags Mech Eng 42:635-6 N '20
- Emissivity of heat from various surfaces; abstract. V. S. Day. Elec W 76:1273 D 25 '20
- Felted mineral wool blocks for insulating. il Sheet Metal Worker 12:113 Mr 18 '21
- Good insulation means economy. W. H. Mikhleson. Power Pl Eng 24:1139-40 D 1 '20
- Heat-insulating value of cork and lith board. A. A. Potter and others. il diags Mech Eng 42:624-6+ N '20; Abstract. Power Pl Eng 25:285-6 Mr 1 '21; Excerpt (tables). Power 52:995 D 21 '20; Same. Eng & Ind Management 5:165 F 10 '21
- Heat insulation facts. L. B. McMillan. chart diags Am Soc Heat & V E J 26:387-402 My '20; Discussion. 26:542-8 JI '20
- Heat insulation; selection and installation of heat insulating materials with diagram for finding the correct thickness. Power Pl Eng 24:514-16 My 15 '20
- How insulation pays for itself. Factory 26:262+ Ja 15 '21
- Insulating industrial buildings. L. C. Jacob. Ind Management 60:22-3 JI '20
- Insulating roofs of moist buildings. F. J. Hoxie. il Textile World 60:1937+ O 1 '21
- Insulating train steam pipes. W. N. Allman. Ry Mech Eng 93:711-12 D '19
- Insulating value of various coverings for hot air pipes as determined by tests at the University of Illinois. il diags Am Arch 118:648-52 N 17 '20
- Insulation in a cement kiln. L. Stockton-Abbott. diags Concrete 15:sup84-8 D '19
- Insulation in heating work. C. L. Hubbard. il Dom Eng 93:5-7+. 59-61 O 2-9 '20
- Insulation of buildings from heat and cold. C. F. Brooks. Am Inst Arch J 9:255-6 JI '21
- Insulation of concrete walls. N. D. Mitchell. Can Eng 38:422-3 Ap 29 '20
- Insulation of freight and passenger cars. W. N. Allman. Ry Mech Eng 95:444-8, 608 JI, O '21
- Insulation of passenger and refrigerator cars. A. J. Wood. diag Ry Mech Eng 95:547-9 S '21
- Insulation upkeep. J. E. Starr. A S R E J 6:372-4; Discussion. 374-8 Mr '20
- Permanency of refrigeration insulation. J. E. Starr. Power 50:810-11 D 16 '19
- Prevention of heat losses. W. Clay. il diags Arch Forum 35:93-8 S '21
- Reducing the fuel consumption of power plants. W. N. Allman. Ry Mech Eng 95:154-5 Mr '21
- Refrigeration study course; insulation. H. J. Macintire. diags map Power 51:630-2 Ap 20 '20
- Residence insulated like gigantic ice box to keep in heat. il plans Pop Mech 34:640 O '20
- Thermal conductivity of heat insulators. M. S. Van Dusen. il diags Am Soc Heat & V E J 26:625-52 O '20; Same. A S R E J 7:202-29 N '20; Discussion. Am Soc Heat & V E J 26:652-6 O '20; Excerpts. A S R E J 7:229-31 N '20
- See also* Asbestos; Cold storage; Pipe coverings; Refrigeration and refrigerating machinery; Steam pipe coverings

Testing

- Apparatus for testing insulating materials. F. B. Rowley. il diags Am Soc Heat & V E J 27:463-74 My '21
- Heat transmission of brick and high temperature insulating materials. R. A. Horning. diags Am Cer Soc J 3:865-74; Discussion. 874-6 N '20

Insull, Martin J.
Portrait. N E L A Bul 7:326 Je '20

Insull, Samuel, 1859-
President of the Commonwealth Edison com-
pany. Elec W 77:1269 My 28 '21

Insurance

Danger of depending too much on the insur-
ance agent and something on extra taxes
imposed on business men. E. J. Buckley.
Metal Work 92:770-1 D 26 '19

Does insurance receive the attention it de-
serves? J. G. Reese. N E L A Bul 7:248-
51 Ap '20

How a large management association saves
insurance premiums for its companies.
N. H. Daniels. Eng & Contr 53:466 Ap 21 '20

Insurance ethics and economics. F. S. Smith.
Textile World 57:3059+ Ap 24 '20

Knowing your insurance policy. C. C. Sher-
lock. Am Mach 52:963-5, 1035-7, 1084-6,
1244-6; 53:25-7 Ap 29, My 13-20, Je 10, Jl 1
'20

Lessening life's gambles. J. W. Bishop. Na-
tion's Business 9:22-4 Ag '21

Accounting

Introduction to actuarial science. H. A. Fin-
ney. J Account 28:321-52, 435-50 N-D '19

Insurance, Accident

Is the air traveler entitled to accident insur-
ance? R. R. Updegraff. Ptr Ink 112:122+
Jl 29 '20

See also Insurance, Employers' liability

Insurance, Aircraft

Aircraft engine design and insurance; ab-
tract. W. A. Bristow. Aerial Age 12:354 D
6 '20

Aircraft insurance data. Aerial Age 13:198
My 9 '21

Aircraft insurance for 1921. Aerial Age 13:246
My 23 '21

Aircraft insurance problem. Soc Auto Eng J
7:257 S '20

Aircraft underwriters confer. Aviation 10:696
My 30 '21

Aircraft underwriters seek data. Aviation 10:
375 Mr 21 '21

L'assurance en matière de navigation
aérienne. Génie Civil 78:202-3 F 26 '21

Cost of aircraft insurance. E. S. Martin.
Aviation 11:12 Jl 4 '21

First year's result in aircraft underwriting.
Aviation 10:243 F 21 '21

Gathering aircraft data. Aviation 10:266 F
28 '21

National aircraft underwriters' association;
activities. Aerial Age 13:54 Mr 28 '21

New aircraft insurance rules. Aviation 11:82
Jl 18 '21

Safety in aviation. E. S. Martin. Aviation 10:
336 Mr 14 '21

Underwriters' laboratories and aviation.
A. R. Small. Aviation 10:21-2 Ja 3 '21

Bibliography

Aircraft insurance. [11 titles] p 31a Special
Libraries My '20

Insurance, Automobile

Automobile locking-device classification and
theft insurance. A. R. Small. Soc Auto Eng
J 9:95-100; Discussion. 100-6 Ag '21

Car design lowers rates on insurance. Auto-
motive Ind 44:630 Mr 17 '21

Insurance is a sales resistant. Automotive
Ind 45:226-8 Ag 4 '21

Insurance rates show new increases. Auto-
motive Ind 42:978 Ap 22 '20

Law relating to automobile insurance. J.
Simpson. 202p Eastern underwriter co., New
York '21

Insurance, Car

Controversies over car insurance eliminated.
Elec Ry J 57:691 Ap 9 '21

Insurance, Employers' liability

Comparison of compensation insurance sys-
tems as to cost, service, and security. C.
Hookstadt. Monthly Labor R 11:1255-76 D
'20

Crime of uninsurance under workmen's com-
pensation. B. L. Shientag. Monthly Labor
R 11:554-7 S '20

Dividing accident insurance costs by three.
M. R. Lott. Factory 27:337-9 S '21

Mutual insurance in Boston. Elec Ry J 58:
254 Ag 13 '21

Mutual liability insurance service. W: M.
Burch. Textile World 57:3061-2 Ap 24 '20

See also Workmen's compensation

Insurance, Eyeglass

Optical dealers unite in service organization.
H. K. Dugdale. Ptr Ink 113:80 D 2 '20

Insurance, Fire

Convention report of committee on insurance.
N E L A Bul 7:429-37 Jl '20

Do agencies carry insurance on clients' mer-
chandise? Ptr Ink 112:73-4 Ag 5 '20

Fire insurance from the public utility view-
point. J. G. Reese. Am Gas Assn Accounting
sec v 2:49-59 '20; Excerpt. Elec W 77:159-60
Ja 15 '21; Discussion. Am Gas Assn Ac-
counting sec v 2:59-65 '20

Fire insurance in a gas and electric com-
pany. G. H. Smith. Am Gas J 114:221-2, 228-
30+ Mr 12 '21

How the annual insurance cost on large
structures can be reduced by proper design.
diags Arch Forum 32:41-6 Ja '20

Reciprocal insurance as applied to oil indus-
try risks. E. W. Hess. Nat Pet N 13:41+ Ap
6 '21

Utility companies should have better under-
standing of fire insurance policies. C: B.
Scott. chart N E L A Bul 8:134-6 Mr '21

Rates and tables

Analytic system for the measurement of
relative fire hazard. 1921 ed. 259p Hack &
Anderson, Chicago '21

Insurance, Group. See Insurance, Industrial

Insurance, Health

Attitude of Medical society of the state of
New York toward compulsory health insur-
ance. Monthly Labor R 10:255-8 Ja '20

British national health insurance act of
May 20, 1920. H: J. Harris. Monthly Labor
R 11:405-15 S '20

British national health insurance system,
1911-1919. H: J. Harris. Monthly Labor R
10:45-59 Ja '20

Compulsory sickness insurance a menace.
Am Ind 20:37-8 F '20

Some reasons for compulsory health insur-
ance. F. W. Hersey. Factory 25:1583 N 15
'20

Insurance, Industrial

Albuquerque, New Mexico, covers all munic-
ipal employees with group life insurance,
Munic Eng 58:216 My '20

Group insurance as employees' service. E: E.
Rice. Ind Management 59:449-53 Je '20

Group insurance plan popular. B. Dunn. Eng
& Min J 110:215-16 Jl 31 '20

Group life insurance. F. S. McManus. Metal
Ind 19:83-4 F '21

Insurance facts for employment men. H. W.
Kimball. Ind Management 59:73-5 Ja '20

Master plumbers' mutual liability insurance
plan successful. Dom Eng 90:74-6 Ja 10
'20

Progress and influence of group insurance.
Comm & Fin Chr 111:130-2 Jl 10 '20

Trends in management. Factory 25:378-9 Ag
1 '20

Way to industrial goodwill. C: W. Eliot. Tex-
tile World 57:3012; Discussion. 3014 Ap 24
'20

Why group insurance? E. E. Rice. Textile
World 57:3054+ Ap 24 '20

See also Benefit societies; Insurance, Em-
ployers' liability; Insurance, Health; In-
surance, Maternity; Insurance, State and
compulsory; Insurance, Strike; Insurance,
Unemployment; Old age pensions; Work-
men's compensation

Insurance, Life

Combining life insurance and savings ac-
counts. A. C. Robinson. Comm & Fin Chr
113:184-7 sec 2 O 29 '21

Vest pocket life agents brief. 13th annual
ed. 435p Spectator co., New York '21

Insurance, Life—Continued**Advertising**

- Advertising makes men want even life insurance. *Ptr Ink* 116:81-2 J1 14 '21
 How an insurance company in the Northwest uses advertising. *Ptr Ink* 117:92 N 3 '21
 Life insurance copy paves way for salesmen. *Ptr Ink* 114:101-2 Ja 6 '21
 Milwaukee bank goes out of its way to advertise life insurance. G. D. Ward. *Ptr Ink* 113:125-6 D 23 '20
 Paving the way for the life insurance agent by co-operative advertising. A. E. Haase. *Ptr Ink* 117:41-2 O 27 '21

Agents

- Fraternal salesman's tool-kit. E: J. Dunn. 154p E: J. Dunn, Chicago '21
 Meeting objections. J: A. Stevenson. 95p Harper '21

Insurance, Marine

- American marine insurance syndicates. *Marine Eng* 26:40-1+ Ja '21
 Developments in marine insurance. *Marine Eng* 26:731-2+, 805-6 O-N '21
 Encouragement of American marine insurance. W. Fawcett. *Marine Eng* 26:663-5 S '21
 How claim problems are solved. *Marine R* 51:318-19 J1 '21
 Importance of marine insurance. *Marine Eng* 26:387-8 My '21
 Marine insurance as an aid to American shipping. *Sci Am* 125:178 S 10 '21
 Marine insurance syndicate. W. S. Benson. *Am Ind* 21:16 O '20
 Prudence—or improvidence? S. S. Huebner. *il Nation's Business* 8:9-11 Ap '20
 Twist of the lion's tail? W: H. McGee. *Nation's Business* 8:62+ S '20

Bibliography

- Books on foreign trade: bibliography of publications, including pamphlets, on the various phases of marine insurance from its early development to the methods of modern underwriters. M. L. Prevost, comp. *World's Market* p. 43-45 Ag '20

Insurance, Maternity

- New regulation of maternity insurance in Germany. *Monthly Labor R* 10:536-8 F '20

Insurance, Reciprocal

- Reciprocal insurance as applied to oil industry risks. E. W. Hess. *Nat Pet* N 13:41+ Ap 6 '21

Insurance, Replacement

- Replacement insurance. E. Kurtz. *Administration* 2:41-69 J1 '21

Insurance, Social

- French government bill on social insurance. *Int Labour R* 3:179-87 J1 '21; *Monthly Labor R* 13:680-4 S '21
 Workmen's compensation and social insurance. See monthly numbers of *Monthly labor review*

See also Insurance, Industrial; Insurance, Maternity; Insurance, Unemployment

Insurance, State and compulsory

- British national health insurance system, 1911-1919. H: J. Harris. *Monthly Labor R* 10:45-59 Ja '20
 Profiteers on economic sins. E. S. Lott. *Nation's Business* 9:22-3 Je '21
 Swedish act on pensions insurance and its application. *Int Labour R* 2:234-46 My '21
See also Insurance, Health

Insurance, Strike

- Strike insurance. *Pub Works* 50:242 Mr 19 '21

Insurance, Surety and fidelity

- Formation of surety company by Association of stock exchange firms. *Comm & Fin Chr* 110:1930-1 My 8 '20

Insurance, Unemployment

- British unemployment insurance act, 1920. *Monthly Labor R* 11:569-73 S '20
 British unemployment insurance act. *Monthly Labor R* 13:685-6 S '21

- Labor problems reopen unemployment insurance question. *Annalist* 17:86 Ja 10 '21
 Miners and unemployment benefit. *Engineering* 111:462 Ap 15 '21
 New unemployment insurance scheme. *Engineering* 110:247-8 Ag 20 '20
 Novel unemployment insurance scheme. W. Wallace. *Ind Management* 62:21-2 J1 '21
 Provisions for unemployment relief in Switzerland. *Monthly Labor R* 10:1029-31 Ap '20
 Regulation of the employment service and unemployment insurance in Italy. *Monthly Labor R* 10:1021-8 Ap '20
 Unemployment insurance. *Engineering* 110:676 N 19 '20
 Unemployment insurance act, 1920. *Engineer* 130:178 Ag 20 '20

Insurance companies

- Fire prevention and the insurance companies. *Elec R (Lond)* 88:493-4 Ap 15 '21
See also Metropolitan life insurance company

Advertising

- Advertising not in conflict with mutual insurance idea. *Ptr Ink* 110:81-2+ Ja 29 '20
 Affiliated Aetna companies advertise for early settlers. C. T. Hubbard. *Ptr Ink* 110:93-4+ Ja 15 '20
 Probing for fundamental instincts in an advertising campaign; advertising activities of the Hartford fire insurance company. R. Cole. *Ptr Ink* 112:113-14+ J1 29 '20

See also Insurance, Life—Advertising

Insurance libraries

- Organization of knowledge in its relation to insurance. F: L. Hoffman. *Special Lib* 12:165-8 S '21

Intakes

- Condenser-water intake used in shallow stream. *diag Elec R* 79:443-4 S 17 '21
 Hydraulics of the intake to a pipe drop. G: H: Ellis. *diags plan Eng N* 85:565 S 16 '20
 Intake for railroad water station protected from drift. *diags plan Eng N* 85:701 O 7 '20

Intellect

- Animal mind; comparative intelligence of animals. R. L. Garner. *diags Sci Am M* 3:395-9 My '21

Intellectual workers

- International protection of intellectual workers. *Int Labour R* 4:3-24 O '21

Intelligence tests. See Ability tests**Interborough rapid transit company**

- Extracts from annual report for the fiscal year ended June 30 1920. *Comm & Fin Chr* 111:1091 S 11 '20
 New York subway's plan for cooperation with employees. F. Hedley. *Ptr Ink* 113:177+ O 7 '20

Interchangeable mechanism

- Application of interchangeability to drill chuck manufacture. F. R. Daniels. *il diags Mach* 27:509-15, 674-9 F-Mr '21
 Continuous versus station milling; comparison of results obtained by both methods on identical work using similar machines in interchangeable manufacture. G: M. Meyncke. *il diags Mach* 27:151-3 O '20
 Economical interchangeable manufacturing practice. E. Buckingham. *Mach* 26:636-41 Mr '20
 Equipment for interchangeable manufacturing. E. Buckingham. *il diags Mach* 26:754-60, 828-33, 927-32 Ap-Je '20
 Inspection and testing in interchangeable manufacture. E. Buckingham. *Mach* 27:52-4 S '20; *Same. Soc Auto Eng J* 8:57-8 Ja '21
 Interchangeability of machine parts. W: H. Parry. *Metal Ind* 19:245 Je '21
 Interchangeable manufacture discussed. C. B. Lord. *Iron Age* 108:274-5 Ag 4 '21; *Same. Eng & Ind Management* 6:343-5 S 29 '21; *Same. Mech Eng* 43:533-4 Ag '21; *Same. Engineering* 112:553-4 O 14 '21
 Machines for multiple drilling operations on small parts. *il diags Mach* 27:690-1 Mr '21
 Making Flather lathe parts interchangeable. *il Am Mach* 55:50-3 J1 14 '21

Interchangeable mechanism—Continued

- Manufacturing for selective assembly; comparison of interchangeable and selective assembly manufacturing methods. E. Buckingham. *diag Mach* 27:142-3 O '20
- Practice in making component drawings for interchangeable manufacture. E. Buckingham. *diags Mach* 26:438-42, 521-4 Ja-F '20
- Principles of inspection. L. Ruthenburg and R. A. Crist. *Mach* 27:859-62 My '21
- Service factor in interchangeable manufacturing. E. Buckingham. *Mach* 27:338-9 D '20
- Small-quantity production methods; application of interchangeable manufacturing principles. E. Buckingham. *il Mach* 27:246-9 N '20

See also Gages

Interchurch world movement

- Interchurch world movement to advertise nationally. *Ptr Ink* 110:45-6 Ja 22 '20

Interconnection of electric plants. See Electric plants—Interconnection**Interest**

- Accounting for effective interest on bonds sold. H. D. Grant; G. W. Greenwood. *Administration* 2:108-16, 393-4 Jl, S '21
- Alleged high interest rates of New York city banks—fixing of renewal rates. J. S. Williams. *Comm & Fin Chr* 111:1618-20 O 23 '20
- Comptroller of currency Williams criticises interest charges in New York—lending power of reserve banks. *Comm & Fin Chr* 111:543-4 Ag 7 '20
- Comptroller of the currency amplifies his criticism of New York banks for alleged high interest rates. *Comm & Fin Chr* 111:643-4 Ag 14 '20
- Effective interest rate. H. A. Finney. *J Account* 31:380-5 My '21
- Federal reserve board replies to inquiry as to high call loan rates. *Comm & Fin Chr* 110:1366-8 Ap 3 '20
- Industrial corporations and the rise in interest rates. J. Paige. *Comm & Fin Chr* 112:418-19 Ja 29 '21
- Interest rate manipulation to stabilize country. A. W. Russel. *Annalist* 18:75-6 Jl 25 '21
- Interest rate of investments. D. N. Lehmer. *J Account* 32:41-5 Jl '21
- I.C.C. holds hearing on interest rates. *Ry Age* 69:239-41 Ag 6 '20
- Introduction to actuarial science. H. A. Finney. *J Account* 28:321-52, 435-50 N-D '19
- Power plant accounts; interest. W. A. Miller. *Power* 54:636-8 O 25 '21
- Problems for the business executive; accounting for effective interest on bonds sold. H. D. Grant. *Administration* 2:108-16 Jl '21
- Some current valuation accounts; cash discounts, and discounts on promissory notes. W. A. Paton. *J Account* 29:346-50 My '20
- Washington conference on interest rates—Gov. Harding on Scramble for deposits. *Comm & Fin Chr* 110:123-4 Ja 10 sec 1 '20
- When is the interest rate coming down? H. H. Merrick. *System* 40:560-1+ N '21
- Why money rates are high. H. P. Willis. *Comm & Fin Chr* 112:702-3 F 19 '21
- Whys and wherefores of interest rates. W. P. G. Harding. *System* 39:4-5+ Ja '21

Interest tables

- Coupon interest table. 51p Financial pub. co., Boston '21

Interfacial tension

- Orientation of molecules in surfaces; cohesion, adhesion, tensile strength, tensile energy, negative surface energy, interfacial tension, and molecular attraction. W. D. Harkins and Y. C. Cheng. *Am Chem Soc J* 43:35-53 Ja '21
- Orientation of molecules in surfaces, surface energy, adsorption, and surface catalysis; the adhesional work between organic liquids and water. W. D. Harkins, G. L. Clark and L. E. Roberts. *Am Chem Soc J* 42:700-12 Ap '20

- Relation between interfacial and surface tension in sundry organic solvents in contact with aqueous solutions. W. C. Reynolds. *diag Chem Soc J* 119:466-76 Ap '21

- Statical measurement of interfacial tension in absolute units. W. C. Reynolds. *diags Chem Soc J* 119:460-5 Ap '21

Interference (light)

- Measuring balls and plugs by light-wave method. H. L. Van Keuren. *il diags Mach* 27:14-16 S '20

- Measuring deflection with interference bands. H. L. Van Keuren. *il Sci Am* 122:705+ Je 26 '20

See also Electric waves

Interferometer

- Application of the interferometer to gas analysis. J. D. Edwards. *U S Bur Stand Tech Pa* 131:1-19 '19; Same. *Chem & Met Eng* 21:560-5 O 29 '19

- Interferometer for testing optical systems. *il diags Engineering* 110:857-9 D 31 '20

- Measuring star diameters in remote space. P. H. Woodruff. *il diag Pop Mech* 35:518-19 Ap '21

- Measuring the diameter of the stars; recent astronomical applications of professor Michelson's interferometer. H. N. Russell. *il diags Sci Am M* 3:100-4 F '21

- Rigidity of the earth; measuring tides in a 500-foot pipe by means of interferometers. *il diag Sci Am M* 2:300-1 D '20

Inter-insurance. See Insurance, Reciprocal**Interior decoration. See House decoration****Interlocking plants**

- Interlocking extensions at Kansas City union station terminal. *il plans Ry R* 67:9-12 Jl 3 '20

Internal combustion engines. See Gas and oil engines**Internal revenue stamps. See Revenue stamps****International, The**

- Russia and the Third Internationale. *Comm & Fin Chr* 113:812-13 Ag 20 '21

- Workers' international. R. W. Postgate. 125p Swarthmore press, ltd., London; Harcourt, Brace & Howe, New York '20

International acceptance bank, Inc., New York

- Opening of International acceptance bank, inc. *Comm & Fin Chr* 112:1686-7 Ap 23 '21

- Paul Warburg heads new bank to finance foreign trade. *Annalist* 17:228 F 14 '21; Same. *Comm & Fin Chr* 112:702 F 19 '21

International aircraft standards commission

- International aircraft standardization. *Mech Eng* 42:651 N '20

International association of garment manufacturers

- 24th annual convention, Cleveland, O. *Textile World* 59:3404-6 My 21 '21

International association of industrial accident boards and commissions

- 5th annual meeting, Madison, Wis., Sept. 24-27, 1918. *U S Bur Labor Statistics Bul* 264:1-224 '19

- Proceedings of the 6th annual meeting, Toronto, Canada, Sept. 23-26, 1919. *U S Bur Labor Statistics Bul* 273:1-424 '20

- 7th annual meeting, San Francisco, Sept. 20-24. C. Hookstadt. *Monthly Labor R* 11:884-93 N '20

International association of machinists

- Develops business in foreign lands. *Iron Age* 108:1147 N 3 '21

International association of municipal electricians

- 25th annual convention, New Orleans, Oct. 19-22. *Elec R* 77:731-2 N 6 '20

International association of printing house craftsmen

- Craftsmen's movement—its aims and objects. L. M. Augustine. *Inland Ptr* 67:473-4 Jl '21

- 2d annual convention, Chicago, July 25-27. *Inland Ptr* 67:667-70 Ag '21

International association of street cleaning officials

- Organization. *Munic Eng* 60:72 F '21

- International association of street cleaning officials**—*Continued*
2d annual conference, Chicago, August 10-11. Eng N 87:295-6 Ag 18 '21
- International bureau of weights and measures**
International bureau of weights and measures; interview with Charles Edouard Guillaume. J. Boyer. il Sci Am M 3:105-9 F '21
- International cement corporation**
First annual report for the period ended December 31 1919. Comm & Fin Chr 111:997-8 S 4 '20
2d annual report for 1920. Comm & Fin Chr 112:2315-16 My 28 '21
- International chamber of commerce**
La chambre de commerce internationale. G. Roché. Chimie & Ind 4:249-51 Ag '20
Committee on international relations; Paris meeting, 1920. Comm & Fin Chr 111:138-40 sec 2 N 20 '20
Financing of world trade discussed at London congress of the International chamber of commerce. Iron Tr R 69:178-9 Jl 21 '21
International chamber of commerce established. Metal Work 94:63-4 Jl 16 '20
Log of organized business. Nation's Business 8:54, 57 Ja '20
New International chamber of commerce to be formally organized. Am Mach 52:756-7 Ap 1 '20
No. 33 Rue Jean Goujon; headquarters of the International chamber of commerce in Paris. S. Bent. Nation's Business 9:32+ Jl '21
Organization and plans. Am Gas Eng J 113:224-5 S 18 '20
Resolutions adopted at London conference of International chamber of commerce. Comm & Fin Chr 113:681-2 Ag 13 '21
Resolutions passed by International chamber. Am Mach 55:328c Ag 25 '21
Trade's common denominator; seventeen nations harmonize their lingual and traditional differences at London conference of the International chamber. M. Thorpe. il Nation's Business 9:13-15 Ag '21; Excerpts. Am Mach 55:248b Ag 11 '21
Treaty of trade peace. F. R. Eldridge, jr. Nation's Business 8:24 S '20
- International Chinese-American conference**
International Chinese-American conference, Detroit, Oct. 8-10. F. G. Bolles. Elec R 79:595-7 O 15 '21
- International commission on illumination**
Meeting, Paris. Elec R 79:551 O 8 '21
- International communist congress**
2nd congress of the communist International as reported and interpreted by the official newspapers of soviet Russia. 166p U.S. Dept. of state, Washington '20
- International conference of pure and applied chemistry**
Meeting, Brussels, June 25-30. Chem & Met Eng 25:344 Ag 24 '21
2d meeting, Brussels, June 25-30. J Ind & Eng Chem 13:737-8 Ag '21
- International cooperation**
Historical survey of international action affecting labor. U S Bur Labor Statistics Bul 268:1-294 '20
International co-operation in science. R. F. Ruttan. Can Chem & Met 5:17-19 Ja '21
International scientific relations. F. G. Cottrell. J Ind & Eng Chem 12:697-700 Jl '20
See also Credit, International; Finance, International; Labor laws and legislation, International; Money, International; Paper money, International; *also* International union of academies
- Periodicals**
Serials of an international character, tentative list prepared in the Columbia university law library. (Bul. 2d ser. no. 3) 60p Institute of international education, New York '21
- International co-operative alliance**
Next conference of the International co-operative alliance. Int Labour R 1:127-36 Ja '21
- International cotton mills**
Report to stockholders, 1919. Comm & Fin Chr 110:1325-8 Mr 27 '20
- International credit.** *See* Credit, International; Finance, International
- International electrotechnical commission**
Electrical symbols proposed for international adoption. diags Elec W 76:971-2 N 13 '20
4th plenary meeting in London, Oct. 20-22, 1919. Am Inst E E J 39:180-2 F '20
- International federation of master cotton spinners' and manufacturers' associations**
Shall U.S. spinners join international body? C: Macara; J. R. MacColl; A. S. Pearse. Textile World 59:856-7+ F 5 '21
10th annual meeting, Zurich, Switzerland, June 9-11. Textile World 57:4523+ Je 19 '20
- International federation of trade unions**
Trade union movement. Int Labour R 1:197-201 F '21
- International finance.** *See* Finance, International
- International financial conference**
Brussels financial conference. R. W. Boyden. Comm & Fin Chr 111:1610-11 O 23 '20
Resolutions adopted at Brussels. Comm & Fin Chr 111:1998-2001 sec 1 N 20 '20
- International general electric company**
1st general conference, Briarcliff, N.Y. Elec R 77:733-4 N 6 '20
- International harvester company**
Annual report for the fiscal year ending December 31 1919. Comm & Fin Chr 110:1879-80 My 1 '20
Annual report for the fiscal year ending December 31, 1920. Comm & Fin Chr 112:1766-7 Ap 23 '21
Attack turned into an advertising asset. Ptr Ink 115:17-18 Ap 28 '21
Details of harvester stock distribution. Iron Age 106:576-7 S 2 '20
Foremen that were bosses are now leaders; foremanship as a science at the International harvester co. A. H. Young. Factory 25:1035-7 O 1 '20
Foundries in France rebuilt. H. C. Estep. il plan Foundry 48:169-76 Mr 1 '20
Harvester plan. W. E. Worth. Brick & Clay Rec 58:27-9, 120-3 Ja 11, 25 '21
New place of women in industry. I. M. Tarbell. il Ind Management 61:51-7 Ja 1 '21
Rebuilding a war-zone plant; factory near Lille, France. H. C. Estep. il plan Iron Tr R 66:479-88 F 12 '20
Some experiences in industrial relations. A. H. Young. il Factory 24:259-64 F 1 '20
- International hydrographic bureau**
Object and powers. Eng N 85:1029 N 25 '20
- International labor conference, First**
Conventions, recommendations and resolutions. Am Ind 20:21-3 D '19
Draft conventions adopted. Monthly Labor R 10:319-36 F '20
1st world labor conference, Washington, Oct. 29-Nov. 29, 1919. Mrs V. B. Turner. Monthly Labor R 10:1-26 Ja '20
Proceedings, Oct. 29-Nov. 29. Am Ind 20:12-20 D '19
Work of first International labor conference. Comm & Fin Chr 110:320-3 Ja 24 '20
- International labor conference, Second**
Second International labor conference, Genoa. Monthly Labor R 11:833-5 O '20
- International labor law.** *See* Labor laws and legislation, International
- International labor office, Geneva**
First year of the International labour organization. Int Labour R 1:23-40 Ja '21
International labor office. Special Lib 12:23-5 F '21
International labor organization; its origins, development and future. A. Thomas. Int Labour R 1:5-22 Ja '21
Labour as an international problem. G. N. Barnes and others. 345p Macmillan '20
Plan of organization of the International labor office of the League of nations. Monthly Labor R 11:603-5 S '20
What the International labor office stands for. Factory 27:74 Jl '21

- International ladies' garment workers' union**
Educational work. F. M. Cohn. Monthly Labor R 13:667-8 S '21
See also Workers' university (New York city)
- International law and relations**
International waterways. P. M. Ogilvie. 424p Macmillan '20
See also Trade-marks (international law)
- International mercantile marine company**
I.M.M. hearing. Marine Eng 26:797-8 N '21
International mercantile marine company, New York, opens new service to Germany. W. M. Thompson. il Marine R 50:585-8 N '20
New York offices of the International mercantile marine company. il plan Am Arch 120:279-82, 287-93 O 12 '21
- International miners' congress**
International miners' congress at Geneva. Monthly Labor R 11:836-8 O '20
- International mining convention**
Meeting, Seattle, Wash., April 7. Eng & Min J 109:943-5 Ap 17 '20
Mining men of Pacific Northwest meet again in Portland, April 5-9. R. Dunn. Eng & Min J 111:718-19 Ap 23 '21
3d convention, Nelson, B.C., July 20-24. L. K. Armstrong. il Eng & Min J 110:227-8 Jl 31 '20
- International molders' union**
Molders have not surrendered any jurisdiction over their trade. Metal Work 94:78 Jl 16 '20
- International money.** *See* Money, International
- International motor truck corporation**
Annual report and consolidated balance sheet, December 31, 1920. Comm & Fin Chr 112:1165 Mr 19 '21
Official statement to New York stock exchange in connection with the listing of common stock. Comm & Fin Chr 110:2086-7 My 15 '20
Statement to New York stock exchange in connection with the listing of its 7% cumulative first preferred stock, 7% cumulative second preferred stock, common stock without par value. A. J. Brosseau. Comm & Fin Chr 110:370-3 Ja 24 '20
- International nickel company, Canada, Ltd.**
High-speed direct-current generator and turbo-blower power plant. H. W. Spooner and F. A. Annett. il diags Power 52:768-75 N 16 '20
- International paper company**
International paper company issues statement to employees. Paper 28:9-10+ Je 15 '21
- International petroleum union**
Formation at Zurich, on March 1. Eng & Min J 111:632 Ap 9 '21
- International power economy conference**
2d meeting, Chicago, Oct. 30-31. Power 50:632 O 21 '19; Elec R 75:788-91 N 8 '19
- International railroad equipment association (proposed)**
Proposal for establishment of International railroad equipment association. Comm & Fin Chr 113:19-20 Jl 2 '21
- International railroad master blacksmiths' association**
26th annual convention, Detroit, Mich., Aug. 17-19. Ry Mech Eng 94:603-8 S '20
- International railway association**
Activities of the International railway association since 1914. Ry R 66:1049-51 Je 19 '20
International railway body acts on pre-war basis. Eng N 86:965 Je 2 '21
International railway congress re-formed. Engineering 111:623 My 20 '21
Program of ninth congress of the International railway association to be held at Rome, Italy, April 18-May 1, 1922. Ry Age 70:1373 Je 10 '21
- International railway congress.** *See* International railway association
- International railway fuel association**
12th annual meeting, Chicago, May 24-26. Ry Age 68:1507-14 My 28 '20; Ry R 66:871-8 My 29 '20; Ry Mech Eng 94:445-53 Jl '20
13th annual convention, Chicago, May 24-26. Ry Age 70:1233-40, 1271-8 My 27-Je 3 '21; Ry R 68:813-16 My 28 '21; Power 53:949 Je 7 '21; Mech Eng 43:497 Jl '21; Ry Mech Eng 95:423-7 Jl '21
- International railway general foremen's association**
16th annual convention, Chicago, Sept. 7-10. Ry Age 69:485-7, 496-7 S 17 '20; Ry R 67:417-22 S 18 '20; Ry Mech Eng 94:634-40 O '20
- International research council**
International organization of scientific research. G. E. Hale. International Conciliation 154:431-41 S '20 American association for international conciliation
- International road congress**
4th International road congress. Good Roads n s 20:182+ O 13 '20
4th International road congress and membership in the Permanent international association of road congresses. A. H. Blanchard. Eng & Contr 54:344-5 O 6 '20; Same. Pub Works 49:362-3 O 16 '20
United States should be a member of International road congress. A. H. Blanchard. Eng N 85:1151 D 9 '20
- International seafarers' conference**
International conference of seafarers at Genoa. Monthly Labor R 11:835-6 O '20
- International seafarers' federation**
Biennial meeting, Brussels, Belgium, August 9. Monthly Labor R 11:1084-6 N '20
See also International seafarers' conference
- International seamen's union of America**
Nationality of members of International seamen's union of America. Monthly Labor R 11:430-1 F '21
23d annual convention, San Francisco, Jan. 12-22. Monthly Labor R 10:797-9 Mr '20
- International statistical bureau on construction (proposed)**
Plan. Eng N 86:1140 Je 30 '21
- International street and interurban railway congress**
Meeting, Vienna, May 29-June 3. Elec Ry J 57:870 My 7 '21
- International trade composition association**
First national convention, Chicago, Feb. 12-14. Inland Ptr 64:726 Mr '20
- International trade union congress, London**
1st special congress, London, Nov. 22-27, 1920. Int Labour R 1:69-78 Ja '21
- International traffic officers' association**
3d annual convention, San Francisco. Sci Am 123:431+ O 23 '20
- International tramway and light railway association**
1st annual congress, Nuremberg, Nov., 1920. Elec R (Lond) 89:326-7 S 2 '21
- International typographical union**
Growth of the International typographical union. Monthly Labor R 11:607 S '20
- International union of academies**
International union of academies and the American council of learned societies. W. G. Leland. International Conciliation 154:442-57 S '20 American association for international conciliation
- International union of pure and applied chemistry.** *See* International conference of pure and applied chemistry
- Internationale.** *See* International, The
- Interoceanic canal.** *See* Nicaraguan canal (proposed)
- Interpoles**
Correct shape and strength of interpoles. J. Dixon. diags Elec W 75:273 Ja 31 '20
Direct-current motors—interpole machines. B. A. Briggs. il diags Power 52:938-40 D 14 '20
How to determine interpole strength curve. diags Elec W 75:440 F 21 '20

Interpoles —Continued

Interpole strength adjusted on the job. J. Dixon. Elec W 75:607 Mr 13 '20
Method for testing strength of interpoles. J. Dixon. diags Elec W 75:958 Ap 24 '20

Inter-professional conference

Address. T: R. Kimball. Eng N 83:808-9 O 30 '19; Same. Am Arch 116:692, 695 D 3 '19; Same. Am Inst Arch J 8:5-6 Ja '20
Conference of professional men and women, Detroit, November 28-29. Am Arch 116:691-2 D 3 '19
Conference of the interprofessional relation. Dr Ebersole. Am Arch 117:674-7 Je 2 '20
1st conference, Detroit, Michigan, Nov. 28-29, 1919. Am Inst Arch J 8:6-9 Ja '20
Notes on the Inter-professional conference. R. D. Kohn. Arch Forum 32:1-2 Ja '20

Inter-professional movements

Inter-professional movements abroad. R. D. Kohn. Am Inst Arch J 8:197-8 My '20
Professional organization movement in the United States and in England. Am Inst Arch J 8:160-2 Ap '20

Inter-racial council

Our immigration problem. W: H. Barr. Am Mach 53:1068b-e D 2 '20; Excerpts. Iron Tr R 67:1681-3 D 16 '20

Interrupters

Features of mechanical interrupters for ignition systems. H. F. Geist. diags Automotive Ind 44:1051-6, 1109-13 My 19-26 '21

Interstate commerce commission

Address before the meeting of the National association of railway and utilities commissioners. E. B. Clark. Ry R 67:726-9 N 13 '20

Advanced rate hearings. Ry R 66:927-30, 1060-2; 67:60-2 Je 5, 19, JI 10 '20; Ry Age 68:1517-24, 1681-5, 1940-7, 1977-81; 69:64-8, 145-6 My 28, Je 11-25, JI 9, 23 '20

Commission announces plans for use of \$125,000,000 for equipment. Ry Age 68:1674-6 Je 11 '20

Commission asked to exercise emergency powers. Ry Age 68:1467-71 My 21 '20

Commission issues emergency car service orders. Ry Age 68:1525-31 My 28 '20

Commission orders increases in intra-state railroad rates in Illinois. Comm & Fin Chr 111:2186-7 D 4 '20

Federal intrastate rate control. Eng N 85:1114-15 D 9 '20

I.C.C. and public group of Labor board meet. Ry Age 71:759-60 O 22 '21

I.C.C. authorizes increase in railway rates. Ry R 67:187-97 Ag 7 '20; Same. Comm & Fin Chr 111:549-56 Ag 7 '20

I.C.C. creates Bureau of finance. Ry Age 68:1466 My 21 '20

I.C.C. creates Bureau of service. Ry Age 68:1308-9 Ap 30 '20

I.C.C. holds hearing on rate-making procedure. Ry Age 68:1031-6 Mr 26 '20

I. C. C. orders increase in intrastate rates. Ry Age 69:913-16 N 26 '20; Same abr. Ry R 67:807-9 N 27 '20

I.C.C. rules for railroad asking authority to issue securities. Ry R 67:153-5 JI 31 '20

I.C.C. to continue railroad administration operating statistics. Ry Age 68:236-8 Ja 16 '20

I.C.C. will not measure efficiency of railroad labor. Ry Age 71:291-3 Ag 13 '21; Excerpt. Eng & Contr 56:288-9 S 21 '21

Legislative program of Interstate commerce commission. B. H. Meyer. Ry R 66:19-21 Ja 3 '20; Excerpts. Ry Age 67:1145-7 D 12 '19

Majority of shippers favor rate advance; summary of testimony before I.C.C. Ry Age 69:20-6 JI 2 '20

Mark W. Potter appointed to I.C.C. Ry Age 68:1420 My 14 '20

More work for the Interstate commerce commission. Ry Age 68:641-2 F 27 '20

New duties for Interstate commerce commission. Am Ind 20:9-10 Ap '20

New service orders issued by I.C.C. Ry Age 69:535-6 S 24 '20

Payment of guaranty delayed. Ry Age 69:664-6 O 15 '20

Public utilities given assigned cars for coal. Coal Age 18:190-1 JI 22 '20

Railway valuation. F. Rhea. Ry R 66:600-4, 641-4, 672-5, 725-7, 801-5, 988-92; 67:228-32, 275-9, 311-13, 359-61, 389-92, 429-31, 544-6, 676-9, 771-5, 809-13 Ap 10-My 1, 15, Je 12, Ag 14-S 18, O 9, 30, N 20-27 '20

Report on Vincent derailment. Ry Age 68:489 F 13 '20

Routing of freight traffic. Ry R 66:888-90 My 29 '20

Success or failure of railroads depends upon I.C.C. C. A. Prouty. Ry Age 68:473-8 F 13 '20

Supreme court decision in valuation case. Ry R 66:471-2 Mr 20 '20

Tentative valuation results and the carriers' investments. F. Rhea. Ry R 67:124-7 JI 24 '20

33d annual report, November 1, 1918 to October 31, 1919; Ry R 65:913-19 D 20 '19

34th annual report. Ry Age 69:1019-23, 1075-8 D 10-17 '20

34th annual report. Ry R 67:937-9, 979-80; 68:17-19+, 55-9 D 18 '20-Ja 8 '21

Two Interstate commerce commissioners appointed; Henry J. Ford and James Duncan. Ry Age 68:1348 My 7 '20

Valuation arguments heard by I.C.C. Ry Age 68:181-3 Ja 9 '20

Accident bulletins

Distribution of I.C.C. accident bulletins. W: S. Wollner. Ry Age 68:1096 Ap 2 '20

Bureau of locomotive inspection

8th annual report of the chief inspector of the locomotive boilers. il Ry R 65:957-9 D 27 '19; Ry Mech Eng 93:697-9 D '19

Report of the Bureau of locomotive inspection. Ry Age 69:1071-3 D 17 '20; Same. Ry Mech Eng 95:18-20 Ja '21

Bureau of safety

Annual report of the Bureau of safety. Ry Mech Eng 94:26-8 Ja '20

Annual report of the chief of the Bureau of safety. Ry Mech Eng 95:29-30 Ja '21; Excerpts. Ry Age 69:1165-7 D 31 '20

Interstate cottonseed crushers' association

Silver anniversary meeting, Chicago, May 18-20. Oil Paint & Drug Rep 99:25+ sec 1 My 30 '21

Interurban railroads

Labor board denies jurisdiction over interurbans by transportation act. Ry Age 69:1121-3 D 24 '20

Possibilities of interurban railroads. B. I. Budd. il Elec Ry J 56:637-41 O 2 '20

What is an interurban? Elec Ry J 57:86-7 Ja 8 '21

See also Electric railroads; Street railroads

Time tables

Something new in interurban time-tables. Elec Ry J 58:394 S 10 '21

Interviewing of applicants. See Employment systems

Intra-factory transportation. See Factory transportation

Intrenchments

Concrete structures in German defenses. R. R. Cameron. il Concrete 16:218-24 My '20

Inulin

Inulin in the globe artichoke. R. Okey and A. W. Williams. Am Chem Soc J 42:1693-6 Ag '20

Über inulin. H. Pringsheim and A. Aronowsky. Deutsche Chem Gesell Ber 54:1281-6 Je '21

Invar

Uses of invar. Mach 27:881 My '21

Inventions

Advice to inventors. R. V. Deane. Am Mach 52:1066-7 My 13 '20

Capitalist and the inventor. Engineering 109:39-40 Ja 9 '20

Inventions—Continued

- China's oldest inventions. H. K. T. Loh. Sci Am M 3:234 Mr '21
- Conserving the rights of inventors. J: Boyle, jr. Eng & Min J 110:1073 D 4 '20
- Encouragement of invention in workshop practice. J. H. Gibson. il diags Engineering 109:700-2 My 21 '20
- Encouragement of the pioneer a pressing need of industry. C. T. Chenery. Annalist 17:589 My 30 '21
- First aid for inventors; Franklin institute and the committee through which it assists meritorious patents. W: A. McGarry. il Sci Am 123:502+ N 13 '20
- Giving the inventor his boost; Federated engineers' development corporation aims to give advice and aid. R. Harris. Am Ind 21:42-3 Je '21
- Heirs of Mars. T: H. Uzzell. il Nation's Business 8:32+ Ja '20
- How to keep invention records, together with an explanation of the nature of industrial property. H. A. Toulmin, jr. 85p Appleton '20
- Inventions to order. Sci Am 121:574 D 13 '19
- Inventive accomplishments of Thomas A. Edison during the war. L. N. Scott. Eng & Contr 54:283-5 S 22 '20
- Launching an invention. J. L. Lane. Am Mach 52:404-6 F 19 '20
- Role of the patent system in the United States. Sci Am 124:20 Ja 1 '21
- Romance of invention. C. H. Claudy. il Sci Am 121:252+, 340+, 442-3+, 580+, 122:8+, 88+, 244+, 332+, 420+, 620+, 123:8+, 282+, 424+, 124:46+, 230+ S 13, O 4, N 1, D 13 '19, Ja 3, 24, Mr 6, 27, Ap 17, Je 5, Jl 3, S 18, O 23 '20, Ja 15, Mr 19 '21
- Seventy-five years of applied electricity. il Sci Am 123:331-3+ O 2 '20
- Seventy-five years of invention. il Sci Am 123:322-5 O 2 '20
- Triumphs of invention. C. Hall. 276p Blackie & son, Ltd., London '20
- What's so and what isn't about patents and inventions. E. Scheyer. Am Mach 54:321-3 F 24 '21
- When an invention is not an invention; printed forms for the keeping of accounts. Sci Am 124:82 Ja 29 '21
- Who is entitled to inventions? C. C. Sherlock. Chem & Met Eng 24:438 Mr 9 '21
- See also Inventors; Patents
- Inventories**
- Automatic inventory for hosiery mill. Textile World 55:3505+; 56:1055+, 3363+; 57:2153+ Je 7, Ag 23, D 13 '19, Mr 20 '20
- Continuous inventory of fixed capital. Am Gas J 115:341-2+ O 15 '21
- Continuous inventory of fixed capital of vital importance. E. Johnson. Am Gas Eng J 113:535-6 D 25 '20
- Convenient set of inventory blanks. Sheet Metal Worker 11:459-60 Ja 7 '21
- How preparation eliminated inventory troubles. R. E. Roesler. Factory 25:1879-80 D 15 '20
- How 3 plants maintain material inventories. P. M. Atkins. Factory 26:472-4 F 15 '21
- How to obtain monthly material inventories. P. M. Atkins. Factory 26:587-90 Mr 1 '21
- Inventories and their income tax procedure. N. L. McLaren. J Elec 44:6-7 Ja 1 '20
- Inventories for taxation purposes. C. D. Moore. Am Lumberman 2334:67 F 7 '20
- Inventories in stores keeping. H. B. Twyford. Iron Age 105:813-14 Mr 18 '20
- Keeping a perpetual stock inventory. A. S. Keast. Iron Tr R 66:225 Ja 15 '20
- Merchandise inventory and sales analysis. W. L. Lund. Administration 1:616-24 My '21
- Perpetual inventory as a part of accountants' records. I. A. May. Elec Ry J 58:398-9 S 10 '21
- Pricing of inventories. J. P. Suter. J Account 29:276-82 Ap '20
- Right and wrong ways to readjust an inventory. W. R. Basset. System 39:365-7+ Mr '21
- Standardized inventory methods; federal tax regulations explained. E. Szepesi. Textile World 58:3632, 3855+ N 27-D 4 '20

- Substitute for the perpetual inventory. J: Hartshorne. Ind Management 62:205 O '21
- What to do about inventories. W. R. Basset. Am Mach 54:40a-c Ja 6 '21

See also Stores systems

Inventors

- Exploiting the inventor. C. H. Claudy. Sci Am 122:360+, 388+, 452+, 484+ Ap 3-10, 24-May 1 '20
- First aid for inventors; Franklin institute and the committee through which it assists meritorious patents. W: A. McGarry. il Sci Am 123:502+ N 13 '20
- See also Inventions; also names of inventors, e.g. Edison, Thomas Alva; Vinci, Leonardo da

Invertase

- Some errors in the study of invertase action. W. C. Vosburgh. Am Chem Soc J 43:1693-1705 Jl '21

Inverts

- Basic principles used in the designs for the new water supply works of Winnipeg, Manitoba; designs of inverts. J. H. Fuertes. diags plans Am Water Works Assn J 7:729-41 S '20; Same. Can Eng 39:265-7+ Ag 19 '20; Same. Pub Works 49:235-6, 257-9 S 11-18 '20; Excerpt. Eng & Contr 54:361-2 O 13 '20

Investment bankers' association of America

- Annual convention. Comm & Fin Chr 111:1436 O 9 '20
- Report of committee on Public service securities. O. B. Wilcox. N E L A Bul 7:777-85 N '20
- 10th annual convention, New Orleans, Oct. 31. Comm & Fin Chr 113:1947-54 N 5 '21

Investments

- Advertising to employees to beware of bad investments. A. McClure. Ptr Ink 111:124-5+ Je 24 '20
- Amortization. 16p Guaranty trust co., New York '21
- Effect of income taxes on investments. W. N. Dean. Administration 1:309-12 Mr '21
- Guarding the employee's pocketbook. J: T. Bartlett. Ind Management 61:193-4 Mr 1 '21
- Investments. J. N. Babcock. Comm & Fin Chr 113:203-5 sec 2 O 29 '21
- Investments. E: D: Jones. 317p Alexander Hamilton institute, New York '21
- Jordan on investments. D: F. Jordan. 423p Prentice-Hall, inc., New York '21
- Thrift encouragement by employers. L. F. Fuld. Ind Management 62:287-9 N '21
- See also Bonds; Brokers; Building loans; Building trades; Interest; Morris plan banks; Municipal bonds; Railroads—Securities; Securities; Stock exchange; Stocks

Accounting

- Amortizing discount on instalment contracts. J Account 29:470-8 Je '20
- Computation of coupon values. A. S. Little. J Account 29:283-98 Ap '20
- See also Interest

Advertising

- How stocks are sold by mail on partial payment plan. C. M. Harrison. Ptr Ink 115:115-16+ Je 30 '21
- See also Bonds—Advertising

Tables, calculations, etc.

- Bond tables. 148p Harris, Forbes & co., New York '21
- Consolidated tables of bond values. 751p Financial publishing co., Boston '21
- Investments, Foreign**
- Facts and foreign investments. G: E. Roberts. Nation's Business 9:19-20 S '21
- Guarding the overseas dollar. G: E. Roberts. Nation's Business 8:30-1 Je '20
- Investments in foreign issues. T: W. Lamont. Comm & Fin Chr 111:1437-8 O 9 '20
- Profitable foreign investments, or loss of export trade—which will America choose? R. M. Byrnes. Americas 7:1-5+ F '21
- Profitable uses for foreign money. S. H. Bunnell. Iron Age 105:1099-1100 Ap 15 '20

Investments, Foreign—Continued

Shall Americans go abroad to mine? H. F. Bain. *il Min & Sci P* 120:761-4 My 22 '20

See also Loans, Foreign

Invincible oil corporation

Official statement to the New York stock exchange in connection with the listing of its capital stock. *Comm & Fin Chr* 111: 91-6 J1 3 '20

Invisible light. *See* Infra-red rays; Ultra violet rays

Invoice forms

National association of purchasing agents standardized invoice adopted at 1920 convention. *Foundry* 49:10 Ja 1 '21

Iodic acid

Determination of iodic acid and silver by electrometric titration. W. S. Hendrixson. *Am Chem Soc J* 43:858-66 Ap '21

Preparation of iodic acid and its anhydride. A. B. Lamb, W. C. Bray and W. J. Geldard. *Am Chem Soc J* 42:1636-48 Ag '20

Iodide of hydrogen. *See* Hydriodic acid

Iodides

Determination of iodic acid and silver by electrometric titration. W. S. Hendrixson. *Am Chem Soc J* 43:858-66 Ap '21

Determination of iodide and bromide in mineral waters and brines. W. F. Baughman and W. W. Skinner. *J Ind & Eng Chem* 12: 358 Ap '20

Electrometric determination of bromate, dichromate, nitrate and chloride ions. W. S. Hendrixson. *Am Chem Soc J* 43:1309-17 Je '21

Electro-titration of hydriodic acid and its use as a standard in oxidimetry. W. S. Hendrixson. *Am Chem Soc J* 43:14-23 Ja '21

Polyjodide von ammoniakaten. F. Ephraim and P. Mosimann. *Deutsche Chem Gesell Ber* 54:385-96 Mr '21

See also Periodides

Iodine

Catalytic decomposition of certain phenol silver salts; the action of iodine on the sodium salt of trichlorophenol. W. H. Hunter and L. M. Seyfried. *Am Chem Soc J* 43:151-9 Ja '21

Chilean iodine industry. *Chem & Met Eng* 25:788 O 26 '21

Determination of the sorption of both solvent and solute—preliminary; the system: benzene—iodine—charcoal. A. M. Bakr and J. E. King. *diag Chem Soc J* 119:454-60 Ap '21

Dissociation of iodine vapor and its fluorescence. S. Landau and E. Stenz. *J Fr Inst* 190:593-4 O '20

Positive halogen in organic compounds; iodine in di-iodoacetylene and chloro-iodoethylene. L. B. Howell and W. A. Noyes. *Am Chem Soc J* 42:991-1010 My '20

Solubility; solubility relations of naphthalene and iodine in the various solvents, including a method for evaluating solubility data. J. H. Hildebrand and C. A. Jenks. *diags Am Chem Soc J* 42:2180-9 N '20

See also Halogens; Iodometry

Iodine compounds

New type of iodine compound. J. N. Collie and A. A. B. Reilly. *Chem Soc J* 119:1550-4 O '21

Iodine numbers

Effect of variation in analytical constants of linseed and soy-bean oils upon the quantitative determination of linseed oil in mixtures of the two oils by means of the iodine and hexabromide numbers of the fatty acids. E. A. Tschudy. *J Ind & Eng Chem* 13:941-3 O '21

Iodine numbers of unsaturated hydrocarbons and cracked gasolines. W. F. Faragher, W. A. Gruse and F. H. Garner. *J Ind & Eng Chem* 13:1044-9 N '21

Iodo-compounds

Action of the Grignard reagent on certain tervalent organo-iodo-compounds. H. Hepworth. *Chem Soc J* 119:1244-9 Ag '21

Iodoform paper

Iodoform paper—a useful novelty. J. Scott. *il Paper* 28:14-15 Mr 23 '21

Iodomethane. *See* Methyl iodide

Iodometry

Determination of iodic acid and silver by electrometric titration. W. S. Hendrixson. *Am Chem Soc J* 43:858-66 Ap '21

Electrometric determination of bromate, dichromate, nitrate and chloride ions. W. S. Hendrixson. *Am Chem Soc J* 43:1309-17 Je '21

Electro-titration of hydriodic acid and its use as a standard in oxidimetry. W. S. Hendrixson. *Am Chem Soc J* 43:14-23 Ja '21

Iodometric estimation of mercaptans. J. W. Kimball, R. L. Kramer and E. E. Reid. *Am Chem Soc J* 43:1199-1200 My '21

Rapid iodometric method for determination of chromium in chromite. E. Little and J. Costa. *J Ind & Eng Chem* 13:228-30 Mr '21

Iodophenacyl bromide

Identification of acids; para halogen phenacyl esters. W. L. Judefind and E. E. Reid. *Am Chem Soc J* 42:1043-55 My '20

Ionic valves. *See* Vacuum tubes

Ionization

Application of the law of mass action to strong electrolytes, and the derivation of the general equation of the ionization isotherm. W. Hughes. *Philos Mag* 6th ser 42: 428-31 S '21

Compound formation and specific conductivity in solutions of the types acid:ester, acid:ketone and acid:acid. J. Kendall and P. M. Gross. *Am Chem Soc J* 43:1426-39 J1 '21

Correlation of compound formation, ionisation, and solubility in solutions; outline of a modified ionisation theory. J. Kendall. *Chem Soc J* 120 pt 2:491-3 Ag '21

Degree of ionization of very dilute electrolytes. G. N. Lewis and G. A. Linhart. *Am Chem Soc J* 41:1951-60 D '19

Distribution of a strong electrolyte between benzene and water. A. E. Hill. *Am Chem Soc J* 43:254-68 F '21

Emploi de la lampe à trois électrodes pour la mesure des courants d'ionisation; abstract. J. Malassez. *Génie Civil* 78:424 My 14 '21

Factors affecting the stability of addition compounds in solution and their influence upon ionization equilibria. J. Kendall and P. M. Gross. *Am Chem Soc J* 43:1416-26 J1 '21

Heterogeneous equilibria between aqueous and metallic solutions: the interaction of mixed salt solutions and liquid amalgams; a study of the ionization relations of sodium and potassium chlorides, bromides and iodides in mixtures. L. S. Wells and G. McP. Smith. *Am Chem Soc J* 42:185-205 F '20

Ionization and activity of largely ionized substances. A. A. Noyes and D. A. MacInnes. *Am Chem Soc J* 42:239-45 F '20

Ionization of aqueous solutions of ammonia in the presence of urea. W. M. Burke. *diag Am Chem Soc J* 42:2500-6 D '20

Polarity and ionization from the standpoint of the Lewis theory of valence. W. M. Latimer and W. H. Rodebush. *Am Chem Soc J* 42:1419-33 J1 '20

Studies in conductivity; the behavior of mixtures of two salts containing a common ion in anhydrous formic acid solution. H. I. Schlesinger and F. H. Reed. *Am Chem Soc J* 41:1921-34 D '19

Studies with the ionization gauge. S. Dushman and C. G. Found. *diags Phys R* 17:7-19 Ja '21

Study of the heats of dilution of certain aqueous salt solutions. A. E. Stearn and G. McP. Smith. *Am Chem Soc J* 42:18-32 Ja '20

See also Electric conductivity; Radioactivity

Ionization, Gaseous

Critical electron velocities for the production of luminosity in atmospheric neon. F. Horton and A. C. Davies. *diag Philos Mag* 6th ser 41:921-40 Je '21

Ionization, Gaseous—Continued

- Ionization and resonance potentials for electrons in vapors of lead and calcium. F. L. Mohler, P. D. Foote and H. F. Stimson. U S Bur Stand Sci Pa 368:723-26 '20
- Ionization and resonance potentials of some nonmetallic elements. F. L. Mohler and P. D. Foote. diags U S Bur Stand Sci Pa 400:669-700 '20
- Ionization potential of hydrochloric acid and the electron affinity of chlorine. P. D. Foote and F. L. Mohler. Am Chem Soc J 42:1832-9 S '20
- Nature of ionization in the point to plate discharge. E. Anderson. Phys R 17:516-18 Ap '21
- Radiating and ionizing potentials of hydrogen. K. T. Compton and P. S. Olmstead. Phys R 17:45-53 Ja '21
- Range and ionization of the α particles from radium C and thorium C. G. H. Henderson. Philos Mag 6th ser 42:538-51, pl 17 O '21
- Thermal ionization of metallic vapors. R. C. Tolman. Am Chem Soc J 43:1630-2 Jl '21
- Ions**
- Absolute sizes of certain monovalent ions. W. P. Davey. Phys R 18:102-4 Ag '21
- Activities of the ions in aqueous solutions of some strong electrolytes. F. H. Getman. Am Chem Soc J 42:1556-64 Ag '20
- Activities of the ions in solutions of mixed electrolytes. Ming Chow. diag Am Chem Soc J 42:497-502 Mr '20
- Adsorption by precipitates. H. B. Weiser and E. B. Middleton. J Phys Chem 24:30-73, 630-63 Ja, N '20
- Change of mobility of the positive ion in air with age. H. A. Erikson. diag Phys R 18:100-1 Ag '21
- Elliott ion-o-meter. 28p [bibliog. p. 13-19] Will corporation, Rochester, N.Y. '21
- Evidence for the existence of homogeneous groups of large ions. P. J. Nolan. Phys R 18:185-98 S '21
- Formation of negative ions in air. L. B. Loeb. bibliog diags Phys R 17:89-115 F '21
- Free energy of potassium hydroxide in aqueous solution and the activities of its ions. Ming Chow. diags Am Chem Soc J 42:488-97 Mr '20
- How bivalves feed; effect of ions upon the movements of cilia. J. Gray. diags Sci Am M 3:511-12 Je '21
- Ion mobilities, ion conductances, and the effect of viscosity on the conductances, of certain salts. D. A. MacInnes. Am Chem Soc J 43:1217-26 Je '21
- Relation between the volume and the velocity of some organic ions. H. W. Smith. J Phys Chem 24:539-61 O '20
- Theory of electrolytic ions; migration velocity of some ions: a second test of Paul Hertz's theory of ion conductivity. R. Lorenz and W. Neu. Chem Soc J 120 pt 2: 481-2 Ag '21
- Thermodynamic properties of the ions of some strong electrolytes and of the hydrogen ion in solutions of tenth molal hydrochloric acid containing uni-univalent salts. H. S. Harned. Am Chem Soc J 42: 1808-32 S '20
- Transference numbers of sodium and potassium in mixed chloride solutions. S. A. Braley and J. L. Hall. Am Chem Soc J 42:1770-6 S '20
- See also Dissociation; Electrochemistry; Electrolysis; Electrons; Ionization; Solution (chemistry)

Bibliography

- Determination of hydrogen ions. W. M. Clark. p. 239-302 Williams and Wilkins co., Baltimore '20

Iowa

- See also Coal mines and mining—Iowa; Drainage—Iowa; Roads—Iowa

Iowa City water company

- Valuations of the Iowa City water company based on present and pre-war costs. J. H.

- Dunlap. Am Water Works Assn J 8:138-46 Mr '21; Excerpt. Eng & Contr 55:36-7 Ja 12 '21

Iowa district gas association

- 15th annual convention, Des Moines, Iowa, April 21-22. Am Gas Eng J 112:371-4 My 8 '20; Gas Age 45:414-15 My 10 '20

Iowa electric railway association

- Mid-year convention, Omaha, Neb., Sept. 16-17. Elec Ry J 56:585-6 S 25 '20
- 16th annual convention, Omaha, May 20-21. Elec Ry J 55:1098-1100 My 29 '20

Iowa master plumbers' association

- 32d annual convention, Fort Dodge, Iowa, Jan. 13-15. Dom Eng 90:182-4 Ja 24 '20

Ipswich, England

- Ipswich dock extensions. diag plan Engineer 129:114 Ja 30 '20

Ireland

- See also Railroads—Ireland

Commerce

- Advertising a nation; copy of the Irish trademark. T. Russell. Ptr Ink 115:50+ Je 23 '21

Home rule

- England and Ireland in the new year. Comm & Fin Chr 110:11-12 Ja 3 sec 1 '20

Politics and government

- Conferences looking to the solution of the Irish problem. Comm & Fin Chr 113:368-9 Jl 23 '21
- Developments of negotiations looking to solution of Irish problem. Comm & Fin Chr 113:806-10 Ag 20 '21

Iridium

- See also Platinum group

Iron

- A B C of iron and steel. A. O. Backert. 4th ed. 408p Penton pub. co. '21
- Case hardening and oxidation of steel. F. Giolitti. Chem & Met Eng 25:312-13 Ag 24 '21
- Chemical equilibrium between iron, carbon and oxygen; abstracts. A. Matsubara. Chem & Met Eng 24:331-2 F 23 '21; Min & Met 170:31-2 F '21
- Colloid theory of the corrosion and passivity of iron, and of the oxidation of ferrous salts. J. A. N. Friend. Chem Soc J 119: 932-49 Je '21
- Development of magnetic materials. T. D. Yensen. Elec J 18:93-5 Mr '21
- Grading iron in Great Britain. J. Horton. Iron Tr R 66:843-5 Mr 18 '20
- Heterogeneity in *Canis variegatus*. M. Seyt. Chem & Met Eng 25:92-3 Jl 20 '21
- Increasing revolving ferrous scrap fund. W. Graham. Iron Age 108:187-9 Jl 28 '21
- Influence of copper on the rate of solution of iron in acids. F. K. Bell. 31p F: K. Bell, Baltimore, Md. '20
- Influence of copper on the rate of solution of iron in acids. F. K. Bell and W. A. Patrick. diag Am Chem Soc J 43:452-65 Mr '21
- Iron and steel; a discussion of steel making processes as applied to iron manufacture. Am Arch 120:26-7, 95-6 Jl 6, Ag 3 '21
- New theory of the corrosion of iron. J. N. Friend. Am Electrochem Soc Trans v 40 (preprint 1):1-13 O '21
- Our mineral supplies; iron. E. F. Burchard. U S Geol S Bul 666:137-48 '19
- Penetration of iron by hydrogen. T. S. Fuller. il diag Gen Elec R 23:702-11 Ag '20; Excerpt (Conclusion). Chem & Met Eng 21:521 O 22 '19
- Physical changes in iron and steel below the thermal critical range. Z. Jeffries. Min & Met 158:(sec 20) 1-17 F '20; Same. Blast F & Steel Pl 8:238-45 Ap '20; Same cond. Iron Age 105:620-1 F 26 '20; Discussion. Chem & Met Eng 22:395-6 Mr 3 '20
- Possible connexion between the magnetic state of iron and its photo-electric properties. J. H. J. Poole. diags Philos Mag 6th ser 42:339-51 S '21
- Protection of iron from corrosion. L. McCulloch. bibliog Elec J 17:288-92 Jl '20

Iron—Continued

- Soldering iron and steel. F. H. Sweet. diags Power Pl Eng 24:1084-5 N 15 '20
- Solid solution of oxygen in iron. J. E. Stead. il Engineering 111:627 My 20 '21; Same. Blast F & Steel Pl 9:359-60 Je '21; Discussion. Engineering 111:608-9 My 20 '21
- States of iron in nitric acid. J. G. Brown. diags J Phys Chem 25:429-54 Je '21
- Thermoelectric electric effects in iron and mercury due to asymmetric heating. J. M. Benade. diags Phys R 18:199-205 S '21
- Ueber den zusammenhang zwischen physikalischer und chemischer beschaffenheit des Thomasroheisens. O. Holz. Stahl & Eisen 41:1285-93; Discussion. 1293-7 S 15 '21
- See also* Annealing; Blast furnaces; Cast iron; Chilled iron; Corrosion and anti-corrosives; Foundry practice; Galvanizing; Iron alloys; Iron founding; Iron industry and trade; Iron metallurgy; Iron mines and mining; Iron ores; Iron works; Ironwork, Architectural; Pickling (metals); Pig iron; Steel; Wrought iron

Analysis

- Carbon in iron. D. T. Yensen. diags Am Electrochem Soc Trans v 37 (preprint 4):43-58 Ap '20
- Determination of iron by the cupferron method. G. E. F. Lundell. Am Chem Soc J 43:847-51 Ap '21
- Estimation of small amounts of iron as thiocyanate. R. Willstätter. Am J Sci 50:392 N '20
- Modified method for the determination of iron and vanadium after reduction by hydrogen sulfide. G. E. F. Lundell and H. B. Knowles. Am Chem Soc J 43:1560-8 Jl '21
- Rapid accurate method for the analysis of an iron ore. E. Little and W. L. Hult. J Ind & Eng Chem 12:269-73 Mr '20
- Sulphur in malleable cast iron. L. C. Crome. Chem & Met Eng 25:247-8 Ag 10 '21
- Trivalent titanium; notes on the volumetric determination of iron by means of titanous salts. W. M. Thornton, jr., and J. E. Chapman. diags Am Chem Soc J 43:91-102 Ja '21
- Ueber die bestimmung des sauerstoffs im eisen durch die behandlung der späne im wasserstoffstrom. P. Oberhoffer. Stahl & Eisen 41:163-4 F 3 '21
- Untersuchungen über die Baumannsche schwefelprobe und beiträge zur kenntnis des verhaltens von phosphor im eisen. P. Oberhoffer and A. Knipping. il Stahl & Eisen 41:253-8 F 24 '21

See also Steel—Analysis

Bibliography

- Review of iron and steel literature for 1919. E. H. McClelland. Blast F & Steel Pl 8:8-10 Ja '20
- Review of iron and steel literature, 1920. E. H. McClelland. Blast F & Steel Pl 9:6-8 Ja '21

Corrosion

See Corrosion and anti-corrosives

Cost

- Transportation rules iron costs. C. J. Stark. Iron Tr R 68:275-7 Ja 27 '21; Same. Foundry 49:133-4+ F 15 '21

History

- Chronology of iron and steel. S. L. Goodale, comp., and J. R. Speer, ed. 294p Pittsburgh iron & steel foundries co., Pittsburgh '20

Metallography

- American malleable cast iron; metallography of malleable iron. H. A. Schwartz. il chart diag Iron Tr R 68:353-7+ F 3 '21
- Crystallography of alpha and beta iron. F. Giolitti. il Chem & Met Eng 22:585-9 Mr 31 '20
- Cupric etching effects produced by phosphorus and oxygen in iron. J. H. Whiteley. il Iron & Steel Inst J 103:277-89 no 1 '21; Same. Engineering 111:628-30 My 20 '21; Abstract. Engineer 131:537 My 20 '21; Discussion. Iron

- & Steel Inst J 103:290-302 no 1 '21; Engineering 111:608-9 My 20 '21; Engineer 131:537 My 20 '21
- Explain the structures of malleable. W. R. Bean, H. W. Highriter and E. S. Davenport. il Foundry 49:557-64 Jl 15 '21
- Macroscopic examination of iron and steel. Chem & Met Eng 25:334-5 Ag 24 '21
- Microstructure of iron and mild steel at high temperatures. H. S. Rawdon and H. Scott. il U S Bur Stand Sci Pa 356:519-29 '20; Same. Min & Met 158:(sec 18) 1-20 F '20; Same. Chem & Met Eng 22:787-91 Ap 28 '20; Excerpts. Iron Tr R 66:911-12 Mr 25 '20
- Physical changes in iron and steel below the thermal critical range. Z. Jeffries. Chem & Met Eng 22:395-6 Mr 3 '20
- Roentgen spectrographic investigations of iron and steel. A. Westgren. il diags Iron & Steel Inst J 103:303-25 no 1 '21; Same. Engineering 111:727-8, 757-9 Je 10-17 '21; Discussion. Iron & Steel Inst J 103:326-37 no 1 '21; Engineering 111:609 My 20 '21; Engineer 131:537-8 My 20 '21
- Schmiedeveruche an flusseisen. P. Junkers. il Stahl & Eisen 41:677-87 My 19 '21
- Schwinden und lunkern des eisens. K. Sipp. diags Stahl & Eisen 41:888-90 Je 30 '21
- Solid solution of oxygen in iron. J. E. Stead. il Iron & Steel Inst J 103:271-5 no 1 '21; Same. Engineering 111:627 My 20 '21; Same. Blast F & Steel Pl 9:359-60 Je '21; Discussion. Iron & Steel Inst J 103:290-302 no 1 '21; Engineering 111:608-9 My 20 '21
- Use of ammonium persulphate for revealing the macrostructure of iron and steel. H. S. Rawdon. il U S Bur Stand Sci Pa 402:715-23 '20; Same. Iron Age 106:965-8 O 14 '20
- Use of microscope in malleable-iron industry. E. Touceda. Min & Met 158:(sec 5) 1-5 F '20; Same. Iron Tr R 66:704-5 Mr 4 '20; Same. Foundry 48:237-8 Mr 15 '20

Prices

- Average monthly iron and steel prices in 1920; tabulation. Iron Tr R 68:78 Ja 6 '21
- Average monthly prices of leading iron and steel products, 1908-1919; tabulation. Iron Tr R 66:128 Ja 1 '20
- British iron and steel prices since the war. Iron Age 105:1806-7 Je 24 '20
- Demand exceeds bar production. Iron Tr R 68:87-8 Ja 6 '21
- Die eisenpreise für die eisenbahnverwaltung. J. Reichert. Stahl & Eisen 41:298-300 Mr 3 '21
- European iron and steel in 1920. H. C. Estep. Iron Tr R 67:1204-10 O 28 '20; Abstract. Iron Age 106:1114-16 O 28 '20
- Fluctuations in iron and steel prices for twenty-five years; charts. Iron Tr R 66:88a Ja 1 '20
- Foundry iron prices, Cincinnati and Chicago. Iron Age 107:63 Ja 6 '21
- Foundry iron prices; tabulation. Iron Age 105:58-9 Ja 1 '20
- German league to govern iron trade. Iron Age 105:1243-4 Ap 29 '20
- Grading iron in Great Britain. J. Horton. Iron Tr R 66:843-5 Mr 18 '20
- Iron and steel prices for twenty-one years, 1899-1919. chart (supp) Iron Age 105:52-3 Ja 1 '20
- Iron and steel prices for twenty-one years, 1900-1920; with supplement. Iron Age 107:56-7 Ja 6 '21
- Pig iron, finished material and scrap, Chicago, 1902-1919; tabulation. Iron Age 105:47 Ja 1 '20
- Readjustment of prices of pig iron and finished materials in past six months. Iron Age 108:12 Jl 7 '21
- Steel and iron prices in Belgium. Iron Age 107:783-4 Mr 24 '21
- Surprising achievement of blast furnaces; rapid decline of pig iron prices in last quarter of 1920. Iron Age 107:50-1 Ja 6 '21
- See also* Iron ores—Prices

Specifications

- Standard specifications for engine-bolt iron; English and French. U S Bur For & Dom Com Industrial Standards 129:1-12 '21

Iron—Specifications—Continued

Standard specifications for foundry pig iron; English and French. U S Bur For & Dom Com Industrial Standards 155:1-10 '21
Standard specifications for staybolt iron; English and French. U S Bur For & Dom Com Industrial Standards 128:1-12 '21

Testing

Aus der metallographischen praxis. M. v. Schwarz. Stahl & Eisen 41:548-52 Ap 21 '21
Beitrag zur kenntnis des elektrolyteisens. O. Bauer and W. Schneider. diag Stahl & Eisen 41:647-8 My 12 '21
Cupric etching effects produced by phosphorus and oxygen in iron. J. H. Whiteley. il Engineering 111:628-30 My 20 '21; Abstract. Engineer 131:537 My 20 '21; Discussion. Engineering 111:608-9 My 20 '21; Engineer 131:537 My 20 '21
Experiments on the corrosion of iron and steel. T. S. Fuller. il Am Electrochem Soc Trans v 39 (preprint 29):337-46 Ap '21
Late French testing device records iron permeability. il Pop Mech 35:814 Je '21
Macroscopic examination of iron and steel. Chem & Met Eng 25:334-5 Ag 24 '21
Magnetic and mechanical testing of iron. diags Engineering 109:136-8 Ja 30 '20
Magnetic properties of compressed powdered iron. B. Speed and G. W. Elmen. il Am Inst E E J 40:596-609 Jl '21; Abstract. Sci Am M 4:374 O '21
Microscopic examination of iron and steel. Chem & Met Eng 25:471-2 S 7 '21
Neue versuche über die kerbschlagprobe. P. Fillunger. diags Stahl & Eisen 41:88-9 Ja 20 '21
Report of A. S. T. M. sub-committee III on inspection of the Fort Sheridan, Pittsburgh and Annapolis tests. il Am Soc T M Pro v 20 pt 1:148-226 '20
Rostversuche mit kupferhaltigen eisenblechen. O. Bauer. diags Stahl & Eisen 41:37-45, 76-83 Ja 13-20 '21
Schmiederversuche an flusseisen. P. Junkers. il Stahl & Eisen 41:677-87 My 19 '21
Versuche über das verhalten von schweisseisen und flusseisen in der kälte bei plötzlicher beanspruchung. E. W. Kaiser. il diags Stahl & Eisen 41:333-7 Mr 10 '21
See also Cast iron—Testing

Iron, Galvanized

L'emploi des riblons de fer galvanisé dans les fours Martin. R. V. Muller. Génie Civil 77:423 N 20 '20

Iron, Powdered

Magnetic properties of compressed powdered iron. B. Speed and G. W. Elmen. bibliog il Am Inst E E J 40:596-609 Jl '21

Iron, Stainless

Many new uses for stainless iron. Iron Tr R 69:1078 O 27 '21

Iron, Wrought. See Wrought iron**Iron alloys**

Alloys of iron and uranium. E. P. Polushkin. il Iron & Steel Inst C S M 10:129-50 '20
Carbon determination in ferro-alloys. C. J. Rottmann. diags Am Electrochem Soc Trans v 37 (preprint 5):59-68 Ap '20
Developments in some of the rarer ferroalloys. Iron Age 105:484 F 12 '20
Ferro-alloy industry in 1919. R. J. Anderson. Eng & Min J 109:204-8 Ja 17 '20
Ferroalloy industry meets test. G. F. Creveling. Iron Tr R 66:79-84+ Ja 1 '20
Ferroalloy year in three phases. Iron Tr R 66:107-9 Ja 1 '20
Ferroalloys and steel-making metals in 1920. R. J. Anderson. Iron Age 107:73-6 Ja 6 '21; Abstract. Eng & Min J 111:201-2 Ja 22 '21
Ferroalloys open strong but close weak. Iron Tr R 68:91 Ja 6 '21
Influence of chemical composition and thermal treatment upon magnetic properties, specific resistivity and density of iron alloys; abstract. E. Gumlich and P. Goerens. Elec W 75:393 F 14 '20; Same. Chem & Met Eng 22:376 F 25 '20

Influence of copper on some physical properties of iron and steel. E. A. Richardson and L. T. Richardson. Chem & Met Eng 24:565-7 Mr 30 '21

Manufacture of ferro-alloys in the electric furnace. C. B. Gibson. Am Electrochem Soc Trans v 37 (preprint 17):265-73 Ap '20; Same abr. Iron Age 105:1102-3 Ap 15 '20; Excerpts (tables). Elec W 76:195 Jl 24 '20
Recent developments in the ferro-alloy industry. R. J. Anderson. Am Electrochem Soc Trans v 37 (preprint 13):177-206 Ap '20; Excerpts. Iron Tr R 66:1120-2+, 1194-6 Ap 15-22 '20; Excerpts. Iron Age 105:1167-8 Ap 22 '20

Silicothermy and therminisilid. R: Walter. Engineering 112:478 S 30 '21

See also Ferrocium; Ferrochromium; Ferromanganese; Ferrosilicon; Ferrotungsten; Ferrouanium; Ferrovanadium; Iron-nickel alloys; Spiegeleisen; Steel

Iron and steel electrical engineers, Association of. *See* Association of iron and steel electrical engineers

Iron and steel institute

Annual meeting, London, May 6-7. Engineer 129:496-8, 521-4, 547-9 My 14-28 '20; Engineering 109:620-1, 641-4, 675-8 My 7-21 '20; Iron Age 105:1452-4 My 20 '20; Iron Tr R 66:1551-3 My 27 '20
Autumn meeting, Cardiff. Engineer 130:306-7, 335-7 S 24-O 1 '20; Engineering 110:413-14, 448-9 S 24-O 1 '20; Iron Age 106:927-31 O 7 '20; Iron Tr R 67:985-6 O 7 '20
Autumn meeting, Paris, Sept. 5-6. Engineering 112:382-4, 418 S 9-16 '21; Engineer 132:257-8, 284-5 S 9-16 '21; Iron Age 108:733-7, 796-801 S 22-29 '21
52d annual meeting, May 5. Engineering 111:561, 577-80, 608-9 My 6-20 '21; Engineer 131:519-21, 536-8 My 13-20 '21; Electrician 86:717-18 Je 10 '21; Iron Tr R 68:1440-1 My 26 '21

Iron and steel institute, American. *See* American iron and steel institute

Iron bacteria

Iron bacteria in relation to the incrustation of pipes. D: Ellis. il Engineering 112:457 S 23 '21

Iron-carbon-chromium alloys

Properties of iron-chromium-carbon steels. C. A. Edwards, H. Sutton and G. Oishi. il diags Engineering 109:692-4; Discussion. 676-8 My 21 '20

Iron chlorides

Use of aluminium chloride and ferric chloride in the preparation of phenolphthalein. C: F: Ward. Chem Soc J 119:850-2 Je '21

Iron compounds

Catalytic oxidation of ferrous salts in acid solutions. R: Thomas and E: T: Williams. Chem Soc J 119:749-58 My '21

See also Iron oxides

Iron founding

Air furnace iron for big castings. H. E. Diller. il Foundry 48:973-7 D 15 '20
Air furnace is fired automatically. il Foundry 49:515-17 Jl 1 '21; Same. Iron Tr R 69:1082-4 O 27 '21
American malleable cast iron. H. A. Schwartz. il charts Iron Tr R 68:1175-80, 1317-21; 69:611-16+, 813-16 Ap 28, My 12, S 8, 29 '21
American malleable cast iron; pattern-making and molding. H. A. Schwartz. diags Iron Tr R 69:496-9 Ag 25 '21
British malleable iron practice differs. H. A. Schwartz. Foundry 49:325 Ap 15 '21
Cast iron pipe made with electric furnace. diags Am Gas Eng J 112:sup20 Je 12 '20
Cast-iron pipe, the method of manufacture and its inspection. W: R. Conard. il diags N E Water Works Assn J 35:205-20; Discussion. 220-7 S '21
Casting large pipe fittings. J. J. Zimmerman. il diags Blast F & Steel Pl 9:417-20 Jl '21
Casting pipe specials in green sand. E. A. V. Linzey. diags plans Engineer 130:226 S 3 '20

Iron founding—Continued

- Centrifugal castings. *il* Engineering 111:311-12 Mr 18 '21
- Changes occur in foundry practice. H. E. Diller. *Iron Tr R* 68:16 Ja 6 '21
- Cleaning and dressing castings. F. W. Wilson. *diags Engineering* 111:725-7 Je 10 '21
- Conveying molten iron to the molds. *il Sci Am* 123:381 O 9 '20
- Crank cases made of malleable iron. *il Foundry* 49:762-6 O 1 '21
- Cupola daubing clay affects iron. C. Buberl. *Foundry* 49:533-4 Jl 1 '21
- Cupola practice is not consistent. P. Dwyer. *il Foundry* 48:671-8 S 1 '20
- Cuts cost of iron mixture with scrap. H. E. Diller. *Foundry* 49:511 Jl 1 '21
- Electric cast iron pipe. *Iron Age* 106:1542 D 9 '20
- Electric furnace as an adjunct to the cupola. G: K. Elliott. *Am Mach* 51:1012-14 D 11 '19; Abstract. *Foundry* 47:687 O 1 '19; Abstract. *Iron Tr R* 65:891-2 O 2 '19; Abstract. *Iron Age* 105:1017 Ap 8 '20
- Electric furnace gray iron. J. L. Cawthon, jr. *il Elec J* 18:396-400 S '21
- Electric-furnace practice at Treadwell. W. E. Cahill. *il Min & Sci P* 122:535-7 Ap 16 '21; Excerpt. *Iron Age* 107:1604 Je 16 '21
- Electric furnaces in the iron foundry. R: Moldenke. *Iron Age* 107:437-9 F 17 '21; Same. *Foundry* 49:216-18 Mr 15 '21; Excerpts. *Min & Met* 170:32 F '21; Same. *Sci Am M* 3:283-4 Mr '21
- English foundry makes rail chairs. H. C. Estep. *il diag plans Foundry* 48:733-40 S 15 '20
- Equipment features malleable shop; new foundry of the American chain co., York, Pa. H. E. Diller. *il Iron Tr R* 69:935-42+ O 13 '21; Same. *Foundry* 49:805-13 O 15 '21
- Experiments on cupola malleable. F. H. Hurren. *il Foundry* 49:135-8 F 15 '21
- Explain the structures of malleable. W. R. Bean, H. W. Highriter and E. S. Davenport. *il Foundry* 49:557-64 Jl 15 '21
- Figuring the charges for foundry irons. Y. A. Dyer. *Iron Age* 108:931-3 O 13 '21
- Foundry irons for particular uses. Y. A. Dyer. *Iron Age* 108:585-8 S 8 '21
- Foundry pig iron in Birmingham district. Y. A. Dyer. *il Iron Age* 107:907-9 Ap 7 '21
- Gray-iron castings. R: Moldenke. *Mech Eng* 42:437-9 Ag '20
- Hollow ware made in an old shop. P. Dwyer. *il Foundry* 49:253-9 Ap 1 '21
- How a slag hole in a cylindrical retort casting was filled in as good as new. *Am Gas Eng J* 112:23-5 Ja 10 '20
- How Abraham Darby made iron pots. J. H. Taylor. *Foundry* 49:410-11 My 15 '21
- How Ford cylinder blocks are cast. P. Dwyer. *il plans Foundry* 49:751-8 O 1 '21; Same. *Iron Tr R* 69:739-46 S 22 '21
- How glass factory molds are made. P. Dwyer. *il Foundry* 48:585-90 Ag 1 '20
- How soil pipe castings are made. P. Dwyer. *il Foundry* 49:43-7+ Ja 15 '21
- How steel mill rolls are made. H. E. Diller. *il Foundry* 49:595-601, 631-8 Ag 1-15 '21; Same. *Iron Tr R* 69:419-24+, 547-54 Ag 18, S 1 '21
- How to make cast iron welding rods. *il Foundry* 48:383 My 15 '20
- Innovations increase unit output. H. E. Diller. *il diags Foundry* 48:599-607 Ag 1 '20
- Inverted chilled castings. C. A. Heise. *Iron Age* 107:1534 Je 9 '21
- Irons for Diesel engine castings. F. J. Cook. *il diags Foundry* 48:635-7 Ag 15 '20
- Ladle additions for softening iron. *Foundry* 48:670 S 1 '20
- Lansing shop shows advanced ideas. P. Dwyer. *il diag Foundry* 48:831-8 O 15 '20
- Large elbow made in dry sand mold. J. J. Zimmerman. *il diags Foundry* 49:607-10 Ag 1 '21
- Lime slag lowers sulphur in cupola iron. A. C. Porter. *il Foundry* 49:306-7 Ap 15 '21
- Make marine cylinders in new shop; practice pursued at the Boston navy yard. H. R. Simonds. *il Foundry* 49:1-4 Ja 1 '21
- Making milling machine tables. L. M. Sherwin. *il Foundry* 48:953-6 D 1 '20
- Making railway castings in Manchuria. C: C. Lee. *diags Iron Tr R* 66:928-9 Mr 25 '20
- Malleable castings. E. Touceda. *Mech Eng* 42:431-2; Discussion. 440 Ag '20; Abstract. *Foundry* 48:558 Jl 15 '20
- Malleable castings production as related to the automotive industry. *Automotive Ind* 44:708-11 Mr 31 '21
- Malleable made by triplex process. H. A. Schwartz. *il Foundry* 48:815-17+ O 15 '20
- Manufacturing chilled iron car wheels. H. E. Diller. *il diags Foundry* 48:259-65, 304-10, 353-9, 389-96, 429-34, 481-3 Ap 1-Je 15 '20
- Mechanical control in foundry problems. J. H. Hopp. *diags Iron Age* 108:456-8 Ag 25 '21
- Melting cast iron scrap. *il Iron Age* 107:1686-7 Je 23 '21
- Molding a deep cast-iron hopper. M. E. Duggan. *diags Mach* 27:655-6 Mr '21
- Molding and pouring problems in making a 114-ton iron mold. *il Iron Age* 105:1365-6 My 13 '20; *Iron Tr R* 66:1402-3 My 13 '20
- New ferroalloy for deoxidizing molten iron. R: Moldenke. *Iron Age* 105:324-5 Ja 29 '20
- Novel mechanical molding of car wheels. *il plan Iron Age* 108:662-4 S 15 '21
- Permanent iron molds are not perfected. H. E. Diller. *Foundry* 48:352 My 1 '20
- Piano plate foundry is distinctive. *il Foundry* 48:421-5 Je 1 '20
- Piston rings cast centrifugally. H. E. Diller. *il Foundry* 48:127-32 F 15 '20
- Pouring castings having thin sections. *Foundry* 48:925 N 15 '20
- Pouring gates are used as risers. *diag Foundry* 49:695 S 1 '21
- Powdered coal applied in foundry. A. J. Grindle. *Foundry* 49:617-18 Ag 1 '21
- Prevent the distortion of light castings. *diag Foundry* 49:347 My 1 '21
- Primitive iron smelting in China. T: T. Read. *il Iron Age* 108:451-4 Ag 25 '21
- Production of good iron castings. R. Moldenke. *Iron Age* 106:191-3, 316-18 Jl 22, Ag 5 '20; Excerpt (Chemical reactions in the cupola). *Foundry* 48:591-2 Ag 1 '20
- Reasons why foundry iron should be sand cast. J. P. Dovel. *Iron Age* 107:1035 Ap 21 '21; Discussion. 107:1256-7, 1318-19 My 12-19 '21
- Recent developments in the manufacture of cast-iron pipe; abstract. *Eng N* 85:644 S 30 '20
- Research work on malleable iron; abstracts. E. Touceda. *il Mech Eng* 41:593-600 Jl '19; *Am Mach* 51:861-6 N 13 '19; *Foundry* 47:436-7 Jl 1 '19
- Sewer rings molded by short cut method. F. E. McKanna. *diag Foundry* 49:723-4 S 15 '21
- Shop specializes in annealing pots. *il Foundry* 49:11-15 Ja 1 '21
- Some defects in foundry pig irons. Y. A. Dyer. *Iron Age* 107:1093-4 Ap 28 '21
- Specialty shop shows versatility; minute stove parts to largest malleable castings are made. *il Foundry* 49:265-70 Ap 1 '21
- Standard specifications for gray-iron castings; English and French. *diags U S Bur For & Dom Com Industrial Standards* 157:1-14 '21
- Standard specifications for malleable-iron castings; English and French. *diag U S Bur For & Dom Com Industrial Standards* 156:1-10 '21
- Sulphur problem in cast iron. G: K. Elliott. *Foundry* 48:978-9 D 15 '20; Same abr. *Iron Age* 106:919-20 O 7 '20
- Sulphur reduced in acid lined furnace. *Foundry* 49:390 My 15 '21
- Superheats in the electric furnace. G: K. Elliott. *Foundry* 49:714-19 S 15 '21; Same. *Iron Tr R* 69:1007-11 O 20 '21
- Synthetic electric furnace cast iron. C: A. Keller. *il Am Electrochem Soc Trans v* 37 (preprint 2):17-34 Ap '20; Abstract. *Iron Age* 105:337-8 Ja 29 '20
- Der umgekehrte hartguss. P. Bardenheuer. *il diags Stahl & Eisen* 41:569-75, 719-23 Ap 28, My 26 '21
- Der umgekehrte hartguss. B. Osann. *Stahl & Eisen* 41:1224; Discussion. P. Bardenheuer. 1224-6 S 1 '21

Iron founding—Continued

Value of scientific and industrial research to the iron foundry. T. Vickers. Eng & Ind Management 5:356-7 Mr 24 '21

Vertically cast hollow rolls are warped. P. Dwyer. diags Foundry 48:681 S 1 '20

See also Annealing; Cast iron; Chilled iron; Cupola furnaces; Foundry practice; Molding machines; Patternmaking; Pig iron

Sampling

Air hammer used to pulverize sample. H. E. Diller. il Foundry 49:411 My 15 '21

Standardizing of gray iron samples. E. J. Fowler. Foundry 48:876-7 N 1 '20

Iron hydroxides

Zur kenntnis der besonderen chemischen und physikalischen eigenschaften des ferrohhydrat-peroxydes: reduktion von alkalinitrat. O. Baudisch. Deutsche Chem Gesell Ber 54:406-13 Mr '21

Iron industry and trade

Automobiles stressed too strongly. J. W. Hill. Foundry 49:48-50 Ja 15 '21

Cause of industrial depressions. G. H. Hull. il Ind Management 61:386-91 Je '21

Economy features in a modern iron and steel warehouse. H. A. Knight. il plan Iron Age 107:497-502 F 24 '21

European iron and steel in 1920. H. C. Estep. Iron Tr R 67:1204-10 O 28 '20; Abstract. Iron Age 106:1114-16 O 28 '20

European iron and steel prices in 1920; tabulation. Iron Tr R 68:100 Ja 6 '21

Exporting iron and steel. V. G. Iden. il Iron Tr R 66:987-91, 1257-61, 1474-7+; 67:236-40, 1411-15, 1675-8; 68:698-703, 1657-61; 69:619-23 Ap 1, 29, My 20, Jl 22, N 18, D 16 '20, Mr 10, Je 16, S 8 '21

Influence of the war on accident rates in the iron and steel industry, 1914-1919. L. W. Chaney. charts Monthly Labor R 10:1457-63 Je '20

Iron and steel industry—a barometer of the world's industrial progress. il Americas 7:22-30 Mr '21

See also Cast iron; Iron—Prices; Iron founding; Iron mines and mining; Iron ores; Iron works; Pig iron; Rolling mills; Scrap metal; Steel industry and trade; Stoves; *also* Amalgamated association of iron, steel and tin workers

History

Earliest iron making in the United States; Saugus works started in 1642. il Iron Age 106:187-9 Jl 22 '20

Prices

See Iron—Prices

Statistics

See also Foundries—Statistics

Argentina

Iron industry in the Argentine. Engineer 130:474 N 12 '20

Australia

Iron and steel in Australia. Sci Am 123:599 D 11 '20

Austria

Die öosterreichische eisen- und maschinenindustrie im jahre 1920. Stahl & Eisen 41:140 Ja 27 '21

Belgium

Belgiens bergwerks- und eisenindustrie im jahre 1919. Stahl & Eisen 41:169-70 F 3 '21

Belgium's splendid recovery. F. Miltoun. Iron Tr R 68:108+ Ja 6 '21

Conditions in Belgium parallel French. Iron Tr R 69:879-80 O 6 '21

Die lage des belgischen eisenmarktes im 4. vierteljahr 1920. Stahl & Eisen 41:241-3 F 17 '21

Die lage des belgischen eisenmarktes im 1. vierteljahr 1921. Stahl & Eisen 41:631-7 My 5 '21

Present status of the Belgian iron and steel industry. Chem & Met Eng 24:387 Mr 2 '21

Steel and iron prices in Belgium. Iron Age 107:783-4 Mr 24 '21

Canada

Iron and steel statistics for Canada for 1919. Iron Age 106:518 Ag 26 '20

China

Das eisengewerbe in China. Stahl & Eisen 41:1316-18 S 15 '21

Czechoslovakia

Troubled year in Central Europe. B. Schapira. Iron Tr R 68:118+ Ja 6 '21

France

Conditions in the French iron and steel industry. Am Mach 55:40d Jl 7 '21

Evolution in French iron and steel. J. F. Shadgen. Iron Age 107:1623-4+ Je 16 '21

France is steadily reorganizing. F. Miltoun. Iron Tr R 68:106+ Ja 6 '21

France shows but little improvement. Iron Age 107:995-6 Ap 14 '21

France's iron and steel future. F. Miltoun. il Iron Tr R 67:780-6+ S 16 '20

Frankreichs roheisen- und stahlerzeugung im 1. halbjahre 1920. Stahl & Eisen 41:21 Ja 6 '21

Frankreichs roheisen- und stahlerzeugung im jahre 1920. Stahl & Eisen 41:803-4 Je 9 '21

French control Skoda works. F. Miltoun. il Iron Tr R 67:589-90 Ag 26 '20

French iron and steel drops. F. Miltoun. Iron Tr R 69:877-9 O 6 '21

French steel industry gaining. E. L. Ives. Iron Tr R 66:1472-3 My 20 '20

Iron and steel trades during the war. M. S. Birkett. Iron Age 105:1097 Ap 15 '20

Die lage des französischen eisenmarktes im 4. vierteljahr 1920. Stahl & Eisen 41:317-18 Mr 3 '21

See also Iron industry and trade—Lorraine; Iron mines and mining—Lorraine; Iron works—France

Germany

Brikett- und koks- sowie eisen- und stahlerzeugung des deutschen reiches im jahre 1917. Stahl & Eisen 41:94-5 Ja 20 '21

Die eisen- und metallverarbeitende industrie im jahre 1920. Stahl & Eisen 41:62-3 Ja 13 '21

German foreign trade uncertain. Iron Tr R 68:1244-5 My 5 '21

German foundries face big tasks. H. C. Estep. il chart diag map Foundry 48:295-300 Ap 15 '20

German iron and steel in reconstruction. H. C. Estep. il Iron Tr R 69:25-30 Jl 7 '21

German league to govern iron trade. Iron Age 105:1243-4 Ap 29 '20

German production cost soaring. Iron Tr R 69:360-2 Ag 11 '21

German steel and iron in 1920. H. C. Estep. map Iron Tr R 66:1059-63, 1131-9 Ap 8-15 '20

German steel industry. Engineer 129:505-6 My 14 '20

Germany trying to settle down. Iron Tr R 68:114+ Ja 6 '21

Germany's export outlook in steel. Iron Age 106:151+ Jl 15 '20

Germany's steel trade cautious. Iron Tr R 67:1476-8 N 25 '20

Die hütten- und walzwerks-berufsgenossenschaft im jahre 1919. H. Roser. Stahl & Eisen 41:28-30 Ja 6 '21

Integration of the German iron industry. J. F. Shadgen. Iron Age 107:1320-3 My 19 '21

Die italienische und die deutsche eisenindustrie. C. Klein. Stahl & Eisen 41:1264-7 S 8 '21

Die lage des deutschen eisenmarktes im September 1921. Stahl & Eisen 41:1433-9 O 6 '21

Nordwestliche gruppe des Vereins deutscher eisen- und stahl-industrieller. Stahl & Eisen 41:1057-64, 1103-10, 1143-50 Ag 4-18 '21

Iron industry and trade—Germany—Continued

La situation de la sidérurgie allemande avant et depuis la guerre. J. Seigle. Génie Civil 78:141-2 F 5 '21

Year's progress in German iron and steel. Iron Age 107:80-2 Ja 6 '21

Zum entwurf einer verordnung über die aenderung des eisenwirtschaftsbundes. Stahl & Eisen 41:1187-90 Ag 25 '21

Great Britain

Britain's exports show big gain. H. C. Estep. Iron Tr R 68:625-7 Mr 3 '21

British industry in transition. J. Horton. Iron Tr R 68:103-5 Ja 6 '21

British iron and steel centers. H. C. Estep. map Iron Tr R 68:1167-9 Ap 28 '21

British iron and steel centers. J. Horton. maps Iron Tr R 68:1246-50, 1388-90+; 69:163-6, 433-5, 556-8 My 5, 19, Jl 21, Ag 18, S 1 '21

British iron and steel in 1919. Iron Age 105:63-5 Ja 1 '20

British iron and steel in 1920. Iron Age 107:77-8 Ja 6 '21

British 1920 steel exports. Iron Age 107:378 F 10 '21

Conditions in the iron and steel industry. Engineer 131:675-6 Je 24 '21

Iron and steel industry of the United Kingdom under war conditions. F. H. Hatch. 167p Harrison & sons, ltd., London '19; reprinted '20

Iron and steel trades during the war. M. S. Birkett. Iron Age 105:1095-7 Ap 15 '20

Iron, steel, coal, and engineering. Engineer 129:2-4, 29-31 Ja 2-9 '20

Iron, steel, coal and engineering trades in 1920. Engineer 131:2-5, 31-4 Ja 7-14 '21

Die lage des englischen eisenmarktes im Oktober und November 1920. Stahl & Eisen 41:23-6 Ja 6 '20

Rise and fall of the Sussex iron industry. R. Jenkins. Engineer 131:116-18, 502-5 F 4, My 13 '21; Discussion. 131:546-7 My 20 '21

India

Iron and steel industry in India. C. P. Perin. Iron Age 106:1119-22 O 28 '20; Abstract. Chem & Met Eng 23:822 O 27 '20; Abstract. Eng & Ind Management 5:104 Ja 27 '21

Italy

Italy grapples with the labor problem. Iron Tr R 68:110+ Ja 6 '21

Labor disturbances in the Italian iron and steel industry. A. Maylander, comp. Monthly Labor R 11:1317-26 D '20

Die zukunftsansichten der italienischen eisenindustrie. F. Runkel. Stahl & Eisen 41:209-11 F 10 '21

Japan

Eisen und stahl in Japan. F. Runkel. Stahl & Eisen 41:874-6 Je 23 '21

Iron and steel manufacture in Japan. J. F. Springer. il Sci Am S 88:368-9+ D 20 '19

Japan is chief buyer of steel. Iron Tr R 66:1336-7 My 6 '20

Japanese development in iron and steel. Iron Age 106:1045-7 O 21 '20

Lorraine

Lorraine iron and steel industry. J. F. Butler. Blast F & Steel Pl 8:309, 384 My-Je '20

Lorraine plants are hampered. F. Miltoun. Iron Tr R 69:624-5 S 8 '21

Operation of Lorraine plants, France's step to leadership. F. Miltoun. il Iron Tr R 68:54-7 Ja 6 '21

Why France buys German steel. G. de Wendel. Iron Tr R 68:350-1 F 3 '21

See also Iron mines and mining—Lorraine

Luxemburg

Erzeugung der eisen- und stahlwerke Luxemburgs im jahre 1917. Stahl & Eisen 41:95-6 Ja 20 '21

Norway

Wage award in the Norwegian iron and steel industry. Monthly Labor R 11:514-16 S '20

Oregon

Why not revive the former pig iron industry of Oregon? W. H. Crawford. il J Elec 47:109-10 Ag 1 '21

Poland

Polish steel industry reviving. W. J. Kelly. Iron Tr R 67:1743-5 D 23 '20

Rumania

L'industrie sidérurgique de la grande Roumanie. N. G. Caranfil. map Génie Civil 77:533-5 D 25 '20

Russia

Iron and steel resources of Russia. P. Kovaloff. maps Iron Age 104:1247-51 D 18 '19

Russian coal and iron industry. V. Gudkov. il Min & Met 174:10-13 Je '21; Same abr. Blast F & Steel Pl 9:667-9 N '21

Silesia

Die lage des oberschlesischen eisenmarktes im vierten vierteljahr 1920. Stahl & Eisen 41:22-3 Ja 6 '21

South Africa

South African iron and steel. Engineering 110:478-80 O 8 '20

Steel plants of Africa. Iron Age 106:1270 N 11 '20

Spain

Postwar reactions are felt in Spain. F. Miltoun. Iron Tr R 67:175-6 Jl 15 '20

Spain, world steel battleground. H. C. Estep. Iron Tr R 68:489-90 F 17 '21

War lowered Spain's ore output. Iron Tr R 67:174-5 Jl 15 '20

United States

Can steel exports be kept up? V. G. Iden. il Iron Tr R 68:50-3 Ja 6 '21

Country's iron production in 1919. Comm & Fin Chr 110:1472-5 Ap 10 '20

Country's iron production in 1920. Comm & Fin Chr 112:1457-60 Ap 9 '21

Detailed statistics of rolled iron and steel produced in the United States in 1920. Iron Age 107:1776-8 Je 30 '21

Exports and imports of steel for 1919 decrease. Iron Age 105:480-1 F 12 '20

Exports below one-fourth those of May, 1920. Iron Age 107:1706-7 Je 23 '21

Factors in the production of iron and steel on the Pacific coast. C. E. Williams. map Min & Sci P 123:94-6 Jl 16 '21; Discussion. N. Thompson. 123:113-14 Jl 23 '21

Fluctuations in iron and steel prices for twenty-six years. Iron Tr R 68:88a Ja 6 '21

Foreign ore competition limited. A. J. Ennis. Iron Tr R 68:769 Mr 17 '21

From Pittsburgh to Palestine. V. G. Iden. il Iron Tr R 66:60-4 Ja 1 '20

Iron and steel in 1919. Eng & Min J 109:126 Ja 17 '20

Iron ore, pig iron and steel in 1918. E. F. Burchard. U S Geol S Min Res of U S 1918,pt 1:527-84 '20

Iron ore, pig iron and steel in 1919. E. F. Burchard. U S Geol S Min Res of U S 1919,pt 1:621-52 '21

Iron-ore production in 1920. Eng & Min J 111:302 F 12 '21

Large iron and steel exports last year. Iron Age 107:392-3 F 10 '21

Large steel output under handicaps; 1920 in iron and steel. Iron Age 107:1-3+ Ja 6 '21

Lowest iron and steel exports in 12 years. Iron Age 108:824-5 S 29 '21

1919 ore shipments analyzed. A. J. Hain. Iron Tr R 66:497-500 F 12 '20

1920 steel production is heavy. Iron Tr R 68:1710-11 Je 23 '21

Ore output passes billion tons. A. J. Hain. Iron Tr R 68:475-8 F 17 '21

Pittsburgh iron and steel markets. B. E. V. Luty. Eng & Min J 109:127-8 Ja 17 '20

Production of all kinds of finished rolled iron and steel, gross tons, 1905-1920. Iron Age 108:1009 O 20 '21

Iron industry and trade—United States—*Cont.*

- Production of iron and steel. Iron Age 106:925+, 985-7 O 7-14 '20
 Slight decrease in iron and steel exports. Iron Age 105:968-9 Ap 1 '20
 Slight decrease in tonnage of steel exports. Iron Age 107:144-5 Ja 13 '21
 Steel exports again decline. Iron Tr R 66:977 Ap 1 '20
 Steel exports fall 164,385 tons. Iron Tr R 68:1189 Ap 28 '21
 Steel shrinkage is unparalleled. J: W. Hill. Iron Tr R 69:297-300 Ag 4 '21
 Troubled year in the steel trade. Iron Age 105:1-3, 43-4 Ja 1 '20
 United States exports, 1914-1919. Iron Age 105:1228 Ap 29 '20
 What the outlook is for iron and steel. J: A. Topping. Iron Age 105:1307-8 My 6 '20; Same cond. Iron Tr R 66:1321-2 My 6 '20
See also Abeel brothers, New York; Republic iron & steel company; United States steel corporation

Iron losses

- High-frequency iron losses. T: Spooner. diag Am Inst E E J 39:809-13 S '20
 Induction motor core losses. P. L. Alger and R. Eksergian. bibliog diags Am Inst E E J 39:906-20 O '20

Iron metallurgy

- Asphaltum may make steel in California. Nat Pet N 12:40 Ja 14 '20
 British blast-furnace practice. F: Clements. diags Engineering 109:646-50 My 14 '20; Excerpts. Iron Tr R 66:1764-6 Je 17 '20
 Century of ironmaking in southern Ohio. J: D. Knox. il Iron Tr R 67:919-26 S 30 '20
 Commercially pure iron in the basic open-hearth. W. J. Beck. il Chem & Met Eng 24:965-8 Je 1 '21; Same. Blast F & Steel Pl 9:345-8 Je '21; Same abr. Iron Tr R 68:1517-19+ Je 2 '21; Excerpts. Iron Age 107:1462-4 Je 2 '21
 Development of iron ore into iron and steel; chart. S. C. Dickerhoff, jr. Blast F & Steel Pl 9:318-19 My '21
 Dosage du phosphore dans les produits sidérurgiques. A. Kling and A. Lassieur. Chimie & Ind 4:162-4 Ag '20
 Early methods of iron smelting. il plan Iron Tr R 66:1330-2 My 6 '20
 Electric furnace gray iron. J. L. Cawthon, jr. il Elec J 18:396-400 S '21
 Fifty years of progress in the ferrous industries. J. E. Stead. Engineer 129:473-4 My 7 '20
 Improvements in the metallurgy of iron and steel. B. Stoughton. Iron Age 108:939-40 O 13 '21
 L'industrie sidérurgique de la grande Roumanie. N. G. Caranfil. map Génie Civil 77:533-5 D 25 '20
 Iron and steel discussed at the A.I.M.E. Chem & Met Eng 22:391-6 Mr 3 '20
 Leaching of phosphorus from iron ore. Iron Tr R 69:625 S 8 '21
 Making pig iron and steel from Pacific coast black sands. J. L. Avis, jr. il Iron Tr R 69:810-12 S 29 '21
 Malleable made by triplex process. H. A. Schwartz. il Foundry 48:815-17+ O 15 '20
 Modern calcining plant in Great Britain at its Irthlingborough iron mines. J. Horton. il diags Iron Tr R 66:351-3 Ja 29 '20
 Modern methods of manufacturing pig iron. L. L. Arnold. Blast F & Steel Pl 8:408-9 Jl '20
 Modernizes historical iron plant at Catasauqua, Pa. R: Peters, jr. il diag Iron Tr R 69:803-6 S 29 '21
 New blast furnaces of Replogle steel co. flow sheets il diags plan Iron Age 106:895-901 O 7 '20
 New plant puddles iron mechanically; Lebanon valley iron & steel co., Lebanon, Pa. il diags Iron Age 104:1053-7 N 27 '19
 Pig iron from black sands. J. L. Avis, jr. Iron Age 108:83 Jl 14 '21
 Primitive iron smelting in China. T: T. Read. il Iron Age 108:451-4 Ag 25 '21

- Production of iron without a blast furnace; patent. diag Chem & Met Eng 23:120 Jl 21 '20
 Reclaiming iron from non-ferrous material. H. Hermanns. il diags Blast F & Steel Pl 8:442-7 Ag '20
 Replogle iron mine near Wharton, N.J. A. H. Hubbell. flow sheets il Eng & Min J 110:658-64 O 2 '20
 La sidérurgie en Haute-Silésie et la question du coke. Durnerin. Génie Civil 78:503-5 Je 11 '21
 Smelt iron sand by mixing coal dust with it. il Pop Mech 35:32-3 Ja '21
 Tapping the nation's great reserves of lean iron ores. A. J. Hain. il map Iron Tr R 68:33-7+ Ja 6 '21
 Utilization of titaniferous iron ore. J. A. Heskett. il Min & Met 162:29-30 Je '20; Same. Sci Am M 1:570 Je '20
 Die verfahren zur erzeugung manganhaltigen roheisens aus niedrigprozentigen manganträgern, insonderheit siegerländer hochofenschlacken. H. Thaler. Stahl & Eisen 41:249-53, 338-43 F 24, Mr 10 '21
 Das verhalten des schwefels in der Thomasbirne. E. Herzog. Stahl & Eisen 41:781-8; Discussion. 788-9 Je 9 '21
 War-time ferrous metallurgy in Germany. Chem & Met Eng 21:789 D 24 '19
 Year in iron and steel metallurgy. L: B. Lindemuth. Iron Age 105:61-2 Ja 1 '20
 Year, 1920, in iron and steel metallurgy. L: B. Lindemuth. Iron Age 107:76-7 Ja 6 '21
See also Blast furnaces; Case hardening; Cast iron; Foundry practice; Galvanizing; Iron alloys; Iron mines and mining; Iron works; Pig iron; Puddling; Sintering; Slag; Steel metallurgy; Wrought iron

Electrometallurgy

- American malleable cast iron; electric furnace melting. H. A. Schwartz. il Iron Tr R 68:1792-7 Je 30 '21
 Annual report of the A.I.E.E. iron and steel industry committee. diag Am Inst E E J 39:752-6 Ag '20
 Aspects of electrolytic iron. W. A. Noyes, jr. Am Electrochem Soc Trans v 39 (preprint 1):1-7 Ap '21
 Cost of synthetic gray iron low. R. C. Gosrow. Foundry 49:242-3 Mr 15 '21; Correction. 49:311 Ap 15 '21
 Developments in electric iron and steel furnaces. J. Bibby. diags Inst E E J 57:sup231-46 '19; Excerpts. Engineer 127:513-15 My 23 '19; Abstracts. Elec W 74:84, 712-13 Jl 12, S 27 '19; Iron Age 105:329-30 Ja 29 '20
 Electric furnace possibilities in the Western iron industry. R. C. Gosrow. J Elec 47:265-6 O 1 '21
 Electric reduction of iron ores; comparative costs for the commercial production of electric pig iron in the shaft and pit types of electric furnaces. H. A. De Fries. Chem & Met Eng 25:193-4 Ag 3 '21
 Electric smelting of iron ore. F: Hodson. Chem & Met Eng 25:881-2 N 9 '21; Same. Elec W 78:826-7 O 22 '21
 Electric smelting of iron ore with coke. G: Stig. Chem & Met Eng 23:29-31 Jl 7 '20
 Electric smelting of pig iron at Domnarfvet, Sweden. G. de Geer. il diag map Chem & Met Eng 24:429-33 Mr 9 '21
 Electro-deposited iron: its value for engineering purposes. W. E. Hughes. il Engineer 130:350-1 O 8 '20
 Electro-deposition of iron. W. E. Hughes. Metal Ind 19:405-7, 441-3 O-N '21
 Electrolytic iron is practical success in France. Elec R 76:610-11 Ap 10 '20
 L'électrometallurgie du fer et de ses alliages. 811p Dunod, Paris '20
 French electrolytic iron. Iron Age 105:732 Mr 11 '20
 Industrial future of electro-deposited iron. W. E. Hughes. il Electrician 85:530-2 N 5 '20
 Die magnetischen eigenschaften von elektrolyteisen. E. Gumlich. Stahl & Eisen 41:1249-54 S 8 '21

Iron metallurgy—Electrometallurgy—Continued

- Makes pig iron in novel furnace. H. L. Hatt. *il* Iron Tr R 68:149-51 Ja 13 '21; Same. Foundry 49:30-2 Ja 1 '21
- Manufacture of ferro-alloys in the electric furnace. C. B. Gibson. *Am Electrochem Soc Trans v* 37 (preprint 17):265-73 Ap '20; Same *abr.* Iron Age 105:1102-3 Ap 15 '20; Excerpts (tables). *Elec W* 76:195 Jl 24 '20
- Manufacturing pig iron from pyrites cinders in electric furnaces; abstracts. M. Guédras. *Chem & Met Eng* 23:795-6 O 20 '20; *Stahl & Eisen* 41:233-4 F 17 '21; *Chimie & Ind* 5:680-1 Je '21
- Molten cast iron held without change in electric furnace. F. T. Cope. *Elec W* 78:523 S 10 '21
- Nickel in iron castings. D. N. Witman. *il* Iron Age 108:460 Ag 25 '21
- Problems of iron and steel metallurgy in France. J. Cavalier. *Iron Age* 108:940-1 O 13 '21
- Recent developments in the ferro-alloy industry. R. J. Anderson. *Am Electrochem Soc Trans v* 37 (preprint 13):177-206 Ap '20; Excerpts. *Iron Tr R* 66:1120-2+, 1194-6 Ap 15-22 '20; Excerpts. *Iron Age* 105:1167-8 Ap 22 '20
- Slip-lines and twinning in electro-deposited iron. W. E. Hughes. *il* Iron & Steel Inst J 103:355-63 no 1 '21; Same. *Engineering* 111:583, pl 29 My 13 '21
- Smelting iron ore in an electric furnace. *Elec R* 76:500-1 Mr 20 '20
- Smelting iron ore with electricity. F. Hodson. *Iron Tr R* 69:101 Jl 14 '21
- Swedish electric pig iron furnace. J. Herlenius. *il* *diag Chem & Met Eng* 24:108-12 Ja 19 '21
- Synthetic cast iron. C: A. Keller. *il* *Chem & Met Eng* 22:83-8 Ja 14 '20
- Synthetic foundry pig irons in Germany. *Iron Age* 108:1137-8 N 3 '21
- Synthetische herstellung von giessereiroheisen und dessen eigenschaften. J. Bronn. *il* *Stahl & Eisen* 41:881-8 Je 30 '21

History

- American malleable cast iron. H. A. Schwartz. *il* *Iron Tr R* 67:1536-40; 68:213-18, 353-7+, 485-8+, 628-31+, 770-5, 901-4, 1039-42, 1175-80, 1317-21, 1453-60, 1662-8, 1792-7; 69:98-101, 233-8, 354-9+, 496-9 D 2 '20, Ja 20, F 3, 17, Mr 3, 17, 31, Ap 14, 28, My 12, 26, Je 16, 30, Jl 14, 28, Ag 11, 25 '21

Study and teaching

- Instruction in iron and steel at M.I.T. C. R. Hayward. *Chem & Met Eng* 22:1024 Je 2 '20
- Iron mines and mining**
- Heavier equipment for all mining work. *Iron Age* 105:1013 Ap 8 '20
- See also* Iron ores

Alabama

- Alabama iron mining in 1920. Y. A. Dyer. *Eng & Min J* 111:180 Ja 22 '21
- Iron mining in the Birmingham district. G: J. Young. *il* *map Eng & Min J* 110:249-55 Ag 7 '20

Belgium

- Iron and associated industries of Lorraine, the Sarre district, Luxemburg, and Belgium. A. H. Brooks and M. F. La Croix. *map (supp) U S Geol S Bul* 703:80-124 '20

China

- Iron mining in China. W: A. Wong. *Eng & Min J* 109:239 Ja 17 '20

Great Britain

- Irthlingborough iron ore mines. *plan Engineer* 130:177-8 Ag 20 '20

Lake Superior region

- Future of the Lake Superior district as an iron-ore producer. E: W. Davis. *Minn Univ Sch Mines Bul* 7:1-18 '20
- Improved mining methods in iron ranges. D. E. Woodbridge. *Iron Age* 107:127-9 Ja 13 '21

- Iron mining in the Lake Superior district. J. C. Metcalf. *il* *diags Min & Met* 178:35-8 O '21

Latin America

- Economic situation of iron-ore mining in Latin America. D. E. A. Charlton. *il* *Eng & Min J* 112:454-8 S 17 '21

Lorraine

- Le bassin ferrifère de la Lorraine désannexée. Langrogne and Bergerat. *Génie Civil* 77:438-9 N 27 '20
- Iron and associated industries of Lorraine, the Sarre district, Luxemburg, and Belgium. A. H. Brooks and M. F. La Croix. *map (supp) U S Geol S Bul* 703:13-58 '20
- Lorraine iron field and the war. A. H. Brooks. *il* *map Eng & Min J* 109:1065-9 My 8 '20
- La politique du fer au cours de la guerre; la question de Briey. *Génie Civil* 77:352-4 O 30 '20

Luxemburg

- Iron and associated industries of Lorraine, the Sarre district, Luxemburg, and Belgium. A. H. Brooks and M. F. La Croix. *map (supp) U S Geol S Bul* 703:59-70 '20

Minnesota

- Developments on the Mesabi range during 1920. D. E. A. Charlton. *Eng & Min J* 111:179 Ja 22 '21
- Heavy ore demand in prospect. *il* *Iron Tr R* 68:38-44 Ja 6 '21
- Increasing iron-ore production on the Mesabi range. R. S. Botsford. *il* *Eng & Min J* 109:1072-3 My 8 '20
- Methods in the Northwest that impressed the coal men of the A.I.M.E. R. D. Hall. *il* *Coal Age* 18:575-81 S 16 '20
- Striking features of Lake Superior mining. D. E. Woodbridge. *Iron Age* 105:66-9 Ja 1 '20

See also Hibbing, Minnesota; Iron ores—Minnesota

Morocco

- Moors capture Spanish mines. F. Miltoun. *il* *map Iron Tr R* 69:686-7 S 15 '21

New Jersey

- Replogle iron mine near Wharton. A. H. Hubbell. *flow sheets il* *Eng & Min J* 110:658-64 O 2 '20

New York

- Iron mines at Port Henry, N.Y. C: A. Blatchly. *il* *Eng & Min J* 109:702-4 Mr 20 '20

Spain

- Spain mines ore for nine nations. H. C. Estep. *il* *map Iron Tr R* 68:219-26 Ja 20 '21

See also Iron ores—Spain

Sweden

- Swedish iron mines of Kiruna and Gellivare. C: W. Boise. *il* *Eng & Min J* 110:53-7 Jl 10 '20

United States

- Iron mines ready for big year. A. J. Hain. *il* *Iron Tr R* 66:994-8 Ap 1 '20
- Iron mining in the United States. D. E. A. Charlton. *Eng & Min J* 111:144-5 Ja 22 '21
- Iron mining in the United States, 1918. *Eng & Min J* 109:1053-4 My 8 '20
- Iron mining in the United States, 1919. *Eng & Min J* 109:240-1 Ja 17 '20
- Iron ore mined in the United States in 1920. *Iron Age* 107:307 F 3 '21; *Iron Tr R* 69:699 S 15 '21
- Operators expect good year in ore trade. A. J. Hain. *il* *diag map (supp) Iron Tr R* 66:70-8 Ja 1 '20
- Statistics for the iron ore mining industry in 1919. *Iron Tr R* 69:947 O 13 '21
- See also* Iron ores—United States

Iron mines and mining—Continued

Virginia

Oriskany iron ores of Virginia. S. E. Doak. *il Eng & Min J* 111:386-7 F 26 '21

Iron nickel alloys

Carbon-free ferronickel in a high-frequency induction furnace. D. Wilson. *diag Chem & Met Eng* 23:251 Ag 11 '20

Constitution of the nickel-iron alloys. D. Hanson and H. E. Hanson. *il Engineering* 110:620-3, 655-7 N 5-12 '20; Abstract, with discussion. *Engineer* 130:307 S 24 '20

Forgeability of iron-nickel alloys. T. D. Yensen. *il Min & Met* 157:(sec 9) 1-12 Ja '20; Same. *Blast F & Steel Pl* 8:231-4 Ap '20

Influence of nickel on cast iron. *Automotive Ind* 44:705 Mr 31 '21

Iron:nickel alloys. P. D. Merica. *Chem & Met Eng* 24:375-8 Mr 2 '21

Magnetic and electrical properties of iron-nickel alloys. T. D. Yensen. *il Am Inst E E* J 39:396-405 Ap '20; Same cond. *Elec W* 75:774-7 Ap 3 '20; Abstract. *Chem & Met Eng* 22:1039-40 Je 2 '20

Making a 5 per cent. nickel-cast-iron alloy in an electric furnace. D. N. Witman. *Min & Met* 176:29+ Ag '21

Iron nitrides

Dissociation pressures of iron nitrides. A. A. Noyes and L. B. Smith. *diag Am Chem Soc J* 43:475-81 Mr '21

Iron ores

Density determination of semi-hard ores. R. H. McHardy. *diags Eng & Min J* 110:65 Jl 10 '20

Development of iron ore in Great Britain during the war. F. H. Hatch. *Econ Geol* 15:328-38 Je '20

Forecasts ore reserve depletion. *Iron Tr R* 69:758-9 S 22 '21

Iron ore resources of the world. *Mach* 27:650 Mr '21

Iron ore sufficient for two centuries. *Iron Tr R* 67:1403 N 18 '20

Origin of iron ores. *Eng & Min J* 109:1053 My 8 '20

Political and commercial geology series the iron ores of the world. E. C. Harder and F. T. Eddingfield. *Eng & Min J* 109:1060-4 My 8 '20

Valuation of ores and iron-making material. C. H. Ridsdale. *Engineering* 109:607-9 My 7 '20

See also Iron industry and trade; Iron metallurgy; Iron mines and mining; Pyrites

Analysis

See Chromite—Analysis; Iron—Analysis

Prices

Lake Superior iron ore unit values. A. J. Hain. *Iron Tr R* 68:1712-14 Je 23 '21

New ore prices. *Iron Age* 107:1705 Je 23 '21

Ore prices shown by analyses. A. J. Hain. *Iron Tr R* 68:1029-30+ Ap 14 '21

Transportation

Deadlocked on iron ore rates. A. J. Hain. *Iron Tr R* 68:1469 My 26 '21

Ore cut step to rate revision. A. J. Hain. *Iron Tr R* 69:927-8 O 13 '21

Permission to reduce ore rates granted. L. W. Moffett. *Iron Age* 108:944+ O 13 '21

Shippers attack proposed ore rate raise. *Iron Tr R* 68:505 F 17 '21

Canada

Iron ore deposit found in Canada. *Iron Tr R* 69:495 Ag 25 '21

Iron-ore deposits on the Belcher islands. D. E. Woodbridge. *il Eng & Min J* 112:251-4 Ag 13 '21

China

Japan's control of Chinese iron ores. *Eng & Min J* 110:620 S 25 '20

Cockatoo Island

Yampi Sound iron-ore deposits. *Min & Met* 172:43 Ap '21

Cuba

Chromiferous iron ore. *Min & Sci P* 121:738 N 20 '20

Dutch East Indies

Large iron ore deposits found in East Indies. *Iron Tr R* 66:1335 My 6 '20

Europe

Iron and coal in the new states of Europe. B. Schapira. *map Iron Tr R* 67:716-20 S 9 '20

Iron-ore resources of Europe. M. Roesler. *maps U S Geol S Bul* 706:1-123; Bibliography. 124-48 '21; Abstracts. *Iron Tr R* 69:484-8 Ag 25 '21; *Min & Sci P* 123:249-50 Ag 20 '21

France

Iron ore deposits of eastern and western France; with discussion. P.-R. Nicou. *Iron Age* 108:733-7 S 22 '21

India

Iron and steel in India. E. F. O. Murray. *Min & Sci P* 121:654 N 6 '20

Mexico

Mexico plans to develop ore deposits. E. Ordóñez. *Iron Tr R* 68:908-9 Mr 31 '21

Michigan

Correlation of formations of Huronian group in Michigan. R. C. Allen. *diags Min & Met* 153:sup2579-94 D '19; Discussion. 156:3113-15 D '19; 157:(sec 12) 1-6 Ja '20

Exploration methods on the Gogebic range; abstract. W. C. Hotchkiss. *Min & Met* 163:29-30 Jl '20

Minnesota

Address. F. B. Snyder. *Eng & Min J* 110:451-2 S 4 '20

Concentrating eastern Mesabi ores. *Eng & Min J* 109:1055 My 8 '20

Courts to decide ore tax issue; special law enacted by Minnesota legislature. D. E. Woodbridge. *Iron Tr R* 68:1163-4 Ap 28 '21

Economic geology and stratigraphy of the Gunflint iron district, Minnesota. T. M. Broderick. *map diags Econ Geol* 15:422-52 Jl '20

Estimates of Mesabi range orebodies. *map Eng & Min J* 110:350-4 Ag 21 '20

Future of the Lake Superior district as an iron ore producer. E. W. Davis. *Iron Tr R* 67:301-4 Jl 29 '20

New machine for concentrating Minnesota wash ores. E. W. Davis. *il diags Minn U Sch Mines Bul* 6:1-32 '19

Tapping the nation's great reserves of lean iron ores. A. J. Hain. *il map Iron Tr R* 68:33-7+ Ja 6 '21

See also Iron mines and mining—Minnesota

Montana

Deposits of iron ore near Stanford, Montana. L. G. Westgate. *maps U S Geol S Bul* 715—F:85-92 '20

New York

Magnetic iron ores of Clinton county, New York. D. H. Newland. *Econ Geol* 15:177-80 Mr '20

New Zealand

Utilisation of titaniferous iron ore. J. A. Heskett. *il diags Engineering* 109:875-7 Je 25 '20

Peru

Iron in Peru. J. J. Bravo. *il Eng & Min J* 111:263-6 F 5 '21

Spain

Spain mines ores for nine nations. H. C. Estep. *il map Iron Tr R* 68:219-26 Ja 20 '21

United States

Iron ore mined in the United States in 1920. *Iron Tr R* 69:699 S 15 '21

Iron ores—United States—Continued

Our mineral supplies; manganese iron ores. E. C. Harder. U S Geol S Bul 666:197-209 '19

Quality of the iron ore Lake Superior district holds up well. Iron Tr R 66:1543-8 My 27 '20

Iron oxides

Action of sodium sulfide on ferric oxide. J. C. Witt. Am Chem Soc J 43:734-40 Ap '21

Adsorption by precipitates. H. B. Weiser and E. B. Middleton. J Phys Chem 24:30-73 Ja '20

Anhydrous yellow ferric oxide. J. H. Yoe. J Phys Chem 25:196-200 Mr '21

Hydrous oxides; hydrous ferric oxide. H. B. Weiser. J Phys Chem 24:277-328 Ap '20

Some conditions affecting the usefulness of iron oxide for city gas purification. W. A. Dunkley. diag Ill U Eng Exp Sta Bul 119:1-59 '21; Excerpt (Choice of oxide). Gas Age 48:11-13 Jl 11 '21

See also Ocher

Iron plating

Metal plating; a tabulation showing the time required to deposit a given thickness of iron with different values of current density. W. G. Knox. il Metal Ind 19:160-2 Ap '21

Iron-pot furnaces. *See* Furnaces, Iron-pot

Iron pyrites. *See* Pyrites

Iron sand

Smelt iron sand by mixing coal dust with it. il Pop Mech 35:32-3 Ja '21

Iron, steel and tin workers, Amalgamated association of. *See* Amalgamated association of iron, steel and tin workers

Iron sulfate

Ferric sulphate as a new etching reagent in the metallography of aluminum. R. J. Anderson. Metal Ind 19:69-70 F '21

Reduction by metals in acid solutions; the reduction of acid ferric sulphate solutions by zinc and magnesium. S. Sugden. Chem Soc J 119:233-8 Mr '21

Iron sulfide. *See* Pyrites

Iron workers

Die psychotechnische eignungsprüfung und ihre anwendung auf hüttenbetriebe. Hüttenhain and others. Stahl & Eisen 41:822-7 Je 16 '21

Iron works

Anwendbarkeit der kohlenstaubfeuerung in eisenhüttenwerken. G. Bulle. il diags Stahl & Eisen 41:985-94 Jl 21 '21

Fatigue and efficiency in an iron and steel works. H. M. Vernon. il Eng & Ind Management 5:201-8 F 17 '21

See also Foundries; Steel works

China

Die neuere entwicklung der chinesischen eisenindustrie. E. Kocher. il Stahl & Eisen 41:9-12 Ja 6 '21

England

Lincoln works of Messrs. Ruston and Hornsby, limited. il diags plans Engineering 110:4-10, pl 1-2 Jl 2 '20

France

Greatest progress in former war zone. il map Iron Tr R 68:57-60 Ja 6 '21

Position of the metallurgical industries of northern and eastern France. L. Guillet. Iron Age 108:796-800 S 29 '21

Synthetic cast iron. C. A. Keller. il Chem & Met Eng 22:83-8 Ja 14 '20

Germany

Fuel practice in occupied German territory. W. J. Jones, R. C. Harding and P. S. J. Cooper. Iron Age 104:1066-7 N 27 '19

Zum fünfzigjährigen bestehen des eisen- und stahlwerks Hoesch. il Stahl & Eisen 41:1401-5 O 6 '21

United States

Earliest iron making in the United States; Saugus works started in 1642. il Iron Age 106:187-9 Jl 22 '20

New iron and steel works construction in 1920. Iron Age 107:106-12 Ja 6 '21

Ironing machines

Oasis motor-driven ironing machine. Elec R 78:235 F 5 '21

Selling dealer first as consumer, then as a middleman. A. Cobb, jr. Ptr Ink 112:62+ S 30 '20

Thor two-speed ironing machine with ruffle attachment. il Elec R 77:1022 D 25 '20

Washer, wringer, and ironer all in one machine. Pop Mech 35:857 Je '21

Ironton, Ohio**Bridges**

New cantilever bridge begun on the Ohio river. diag Eng N 87:613 O 13 '21; Discussion. C. S. Davis. 87:702 O 27 '21

Ironwork, Architectural

Old hardware from Philadelphia and Annapolis. V. C. Salomonsky. diags Arch Rec 48:169-73 Ag '20

Ironwork, Artistic

Wrought iron grille, Loggia dei Mercati, Siena, Italy. Am Arch 120:273-4 O 12 '21

Irrigation

Apportioning and measuring water for irrigating purposes. il diag Metal Work 92:665 D 5 '19

Artificial glaciers for irrigating dry land. Sci Am 123:383 O 9 '20

Building the agricultural load. il J Elec 45:458-61 N 15 '20

Capillary movement of soil moisture. W. W. McLaughlin. bibliog diags U S Agric Bul 835:1-70 '20

Duty of irrigation water in western Canada. F. H. Peters. Eng & Contr 53:46-7 Ja 14 '20

Factors affecting the use of water in irrigation. E. A. Moritz. Eng N 84:1150-5 Je 10 '20; Discussion. A. L. Fellows. 85:859-61 O 28 '20

Factors determining the duty of water in irrigation. J. T. Kingdon. Eng N 86:546-7 Mr 31 '21

Higher duty of irrigation water. G. Ebner. Eng N 84:828 Ap 22 '20

How Los Angeles meters aqueduct water for irrigation. Eng N 85:451 S 2 '20

Irrigation: its principles and practice as a branch of engineering. H. Brown. 3d ed. 305p Constable & co. ltd., London; Van Nostrand '20

Net duty of irrigation water. W. L. Powers. Eng & Contr 55:466-7 My 11 '21

Notes on irrigation, roads, and buildings and on the water supply of towns. W. L. Strange. 849p G. Routledge and sons, ltd., London '20

Rating stations for large irrigation systems. W. G. Steward. Eng & Contr 56:262 S 14 '21

Recovery of return flow or irrigation waste water. A. H. Ayers. Eng & Contr 54:477-8 N 10 '20

Suggestions for reducing waste of irrigation water. G. E. P. Smith. Eng & Contr 52:563-4 N 12 '19

Unprecedented design involved in irrigation project, Columbia Basin, Washington. diags map Eng N 85:944-6 N 11 '20

See also Alkali soils; Dams; Drainage; Flumes, Concrete; Irrigation canals; Irrigation laws; Reclamation of land; Sewage irrigation; Water storage

Experiments

Experiments on duty of water in Alberta. F. H. Peters. Eng N 84:1002 My 20 '20

Africa

Details of plan to rewater Africa. Pop Mech 34:571 O '20

Argentina

Irrigation in Mendoza. S. T. Henry. il Eng N 85:353-5 Ag 19 '20

Irrigation—Argentina—Continued

Les irrigations de la vallée du Rio Negro (Argentine) et le barrage de Neuquén. il diags plans Génie Civil 78:353-4 Ap 23 '21

California

- Community pumps for irrigation. J. T. Bartlett. Sci Am 122:472 Ap 24 '20
- Conserving the water table in electric pumping. C: H. Lee. il J Elec 44:271-4 Mr 15 '20
- Emergency steam plant for rice irrigation. R. Van Norden. il J Elec 45:464-6, 525-8 N 15-D 1 '20
- Fontana power-irrigation development. C. H. Tallant. il J Elec 44:207-8 Mr 1 '20
- Great new irrigation and power developments. C: H. Lee. chart J Elec 44:119-20 F 1 '20
- Irrigation of the desert. E. B. Criddle. il Elec J 17:193-4 My '20
- Map of California showing general plan for the reclamation of the entire Sacramento and San Joaquin valleys; to accompany a discussion of the problem by R. B. Marshall. J Elec 45:supp N 15 '20
- Marshall plan for all-California irrigation held chimerical. Eng N 86:273, 606 F 10, Ap 7 '21
- Marshall plan for utilizing California's waters. map Eng N 86:994-6 Je 9 '21
- Marvel of irrigation. R: L. Adams and W. W. Bedford. 2d ed. 71p Anglo & London Paris national bank, San Francisco '21
- Permanence of electric pumping in California. C: H. Lee. il J Elec 44:161-3 F 15 '20
- Plan irrigation system on San Joaquin river. Eng N 86:141 Ja 20 '21
- Precast concrete slabs for small irrigation structures; type of irrigation structure built of concrete lumber. R. W. Olmsted. Eng N 84:1167-8 Je 10 '20
- Report on Iron Canyon project. H. J. Gault and W. F. McClure. 76p U.S. Reclamation service, Washington '21

Canada

- Duty of irrigation water in western Canada. F. H. Peters. Eng & Contr 54:46-7 Ja 14 '20
- Irrigation water divided between United States and Canada. B: E. Jones. il map Eng N 85:1277-9 D 30 '20; Same. Can Eng 40:347-9 Mr 31 '21

Egypt

- Harnessing the Nile. T: B. Preston. maps Ind Management 61:203-7 Mr 1 '21
- Taming the river Nile; construction of dams and a 225-mile canal to double the irrigated area in Egypt. H. C. Hardy. il Sci Am 123: 524+ N 20 '20

Idaho

- Distribution of Snake river water during greatest drought. il map Eng N 85:927-31 N 11 '20
- Mountain tunnels carry irrigation water in Twin Lakes region. F: Kinney. il Pop Mech 34:729-30 N '20
- Progress on proposed American Falls dam. Eng N 85:659 S 30 '20
- Watering Idaho's desert. J. F. Springer. il Sci Am 122:520+ My 8 '20

India

- Amritsar hydro-electric irrigation installation. S. Leggett. Eng & Ind Management 5:349 Mr 24 '21; Same. Engineering 111: 292 Mr 11 '21; Same. Eng & Contr 56:211 Ag 31 '21
- Indian state builds a power and irrigation dam. E. W. T. Slater. il Eng N 86:1107-8 Je 30 '21
- Subsoil water in relation to tube wells for irrigation. T. A. Miller-Brownlie. Eng & Contr 53:355-6 Mr 31 '20

Mesopotamia

- Irrigation and cotton growing in Mesopotamia. map Engineer 129:133-6 F 6 '20

Montana

- Irrigation in Montana with electrically operated pumping plants. K. A. Hills. il Gen Elec R 24:853-63 O '21

Nevada

- Exploratory drilling for water and use of ground water for irrigation in Steptoe Valley; with introd. by O. E. Meinzer. W. O. Clark and C. W. Riddell. il diags maps U S Geol S Water-supply Pa 467:1-70 '20

Northwest

- Turning our deserts into gardens; vast acreage in the Northwest made fertile. G: Turner. il Am Ind 21:7-10+ Ja '21

Oregon

- Irrigation developments in Oregon. Eng & Contr 54:130 Ag 11 '20
- Power and irrigation report on Deschutes river. Eng N 87:501+ S 22 '21; Elec W 78: 581 S 17 '21

Texas

- Automatic irrigation system. W. F. Wilcox. il Pop Mech 34:549-50 O '20

United States

- Irrigation in the fourteenth census of the United States. R. P. Teele. Eng N 83:926-7 N 27 '19
- Irrigation water divided between United States and Canada. B: E. Jones. il map Eng N 85:1277-9 D 30 '20; Same. Can Eng 40: 347-9 Mr 31 '21
- Making farms out of deserts. R. G. Skerrett. il Sci Am 122:358+ Ap 3 '20
- Results of irrigation by U.S. reclamation service. Eng & Contr 56:270-1 S 14 '21
- Results of national irrigation. A. P. Davis. Eng & Contr 53:54-5 Ja 14 '20

Utah

- Changing a salt lake into a fresh water basin. F: Kinney. il Pop Mech 35:86-7 Ja '21
- Deep wells reclaim desert. F: Kinney. il Pop Mech 33:715-16 My '20
- Development of institutions under irrigation, with special reference to early Utah conditions. G: Thomas. 293p Macmillan '20
- Improvements on a state irrigation project in Utah. J. C. Ullrich. il diags map plan Eng N 85:1084-9 D 2 '20
- Intermountain irrigation project. G. B. Walker. il J Elec 46:440-1 My 1 '21
- Plans for ultimate development of oldest irrigated area. map Eng N 84:1064-5 My 27 '20

Washington

- Board finds Columbia basin cost estimates are low. Eng N 86:733 Ap 28 '21
- Main features of Columbia basin irrigation project, Washington. O. L. Waller. Eng N 84:456 Mr 4 '20
- Natches-Selah irrigation works, Yakima Valley, Washington. il diags Pub Works 48:291-3 Ap 3 '20
- Seepage and waste water losses on Wapato irrigation project. L. W. Holt. diag Eng N 85:365-6 Ag 19 '20
- 600-ft. pumping lift for irrigation. J. C. Stevens. il J Elec 44:223 Mr 1 '20
- \$300,000,000 irrigation project. Eng & Contr 55:146-7 F 9 '21
- Unprecedented design involved in irrigation project, Columbia Basin, Washington. diags map Eng N 85:944-6 N 11 '20

Wyoming

- North Platte project today. J. F. Springer. il Sci Am 123:629+ D 25 '20

Irrigation canals

- Concrete in irrigation systems. A. J. R. Curtis. il Pop Mech 36:657-60 N '21
- Concrete lined irrigation canals; with cost tables. il diag plans Concrete 16:244-6 My '20; Excerpt (table). Eng & Contr 53:556 My 12 '20
- Conveyance losses of water on U.S. reclamation service irrigation projects. E. A. Moritz. Eng & Contr 55:470-1 My 11 '21
- Dragline excavator operations on Murrumbidgee irrigation project, Australia. Eng & Contr 56:155 Ag 17 '21

Irrigation canals—Continued

- Dredge digs narrow canal. *il Eng N 86:827 My 12 '21*
- Experience with insect larvae in decreasing canal capacity. *Eng N 84:923 My 6 '20*
- Lining canals with concrete without forms. K. Sanborn. *il diag Concrete 17:167-9 N '20*
- Lining irrigation canals with concrete without forms. F. Cuttle. *il Eng N 85:17-18 Jl 1 '20*
- Method of lining irrigation canal with reinforced concrete. *il Eng & Contr 53:35 Ja 14 '20*
- Natches-Selah irrigation works, Yakima Valley, Washington. *il diags Pub Works 48:291-3 Ap 3 '20*
- New curtain wall drop for irrigation canals. H. M. Chadwick. *diags plan Eng N 87:179 Ag 4 '21*
- Radial gate for irrigation canals. S. Hess. *il Sci Am 122:457 Ap 24 '20*

See also Flumes

Cleaning

- Device for scouring silt from irrigation canals. *diag Eng & Contr 54:244 S 8 '20; Eng N 85:707 O 7 '20*
- Irrigation canals kept open by odd dredge. E. L. Poor. *il Pop Mech 35:93 Ja '21*
- Methods of preventing and removing moss from irrigation canals. G. E. Stratton. *Eng & Contr 54:558 D 8 '20*
- Removal of sand from irrigation canal by sluicing. H. M. Schilling. *diags Eng & Contr 52:559-60 N 12 '19*
- Removal of vegetation from Twin Falls irrigation canals. R. M. Adams. *il diags Eng N 85:319-21 Ag 12 '20*

Cost

- Cost of rock drop construction for Alberta irrigation canal. R. S. Stockton. *il diag plan Eng & Contr 55:134-5 F 9 '21*

Repair

- Handling breaks in irrigation canal embankments. R. M. Adams. *diags Eng N 87:561-2 O 6 '21*
- Stopping sink holes in irrigation canals and construction of drops in very light soils. C. J. Moody. *diags plan Eng & Contr 54:235-6 S 8 '20; Abstract. Eng N 85:948-9 N 11 '20*

Irrigation flumes. *See Flumes*

Irrigation laws

- Handbook of the irrigation district laws of the seventeen western states of the United States. W. R. King. 213p U.S. Reclamation service, Washington '20

Isaacs, John D., 1848-

- Appreciation. *por Eng N 84:756-8 Ap 15 '20*

Isatin

- Über die konstitution der salze aus isatin und verwandten stoffen. A. Hantzsch. *Deutsche Chem Gesell Ber 54:1257-67 Je '21*
- Über die wirklichen und angeblichen isomeren in der isatin-reihe. A. Hantzsch. *Deutsche Chem Gesell Ber 54:1221-57 Je '21; Abstract. Chem Soc J 120 pt 1:597-8 Ag '21*
- Vergleichende darstellung von derivaten des isatins, phthalimids, succinimids und o-hydrazino-benzoesäure-anhydrids. G. Heller and P. Jacobsohn. *Deutsche Chem Gesell Ber 54:1107-17 My '21*

Isherwood system. *See Shipbuilding*

Island oil and transport corporation

- Report for the year ended December 31, 1920. *Comm & Fin Chr 112:1166 Mr 19 '21*

Isocurcumin

- Über iso-curcumin. G. Heller. *Deutsche Chem Gesell Ber 54:1118-19 My '21*

Isocyanic acid

- Four-membered cyclic ureas; the condensation of isocyanic acid with alkyl Schiff bases and related compounds. W: J. Hale and N: A. Lange. *Am Chem Soc J 42:107-16 Ja '20*

Isocyanines

- Comparison of some isomeric isocyanines. F. M. Hamer. *Chem Soc J 119:1432-44 S '21*
- Isocyanine dyes from lepidine and its homologs. E. Q. Adams and H. L. Haller. *Am Chem Soc J 42:2389-91 N '20*

Isodiphenic acid

- Beitrag zur konstitution des flouranthens; synthese der isodiphensäure und der fluorenone-1-carbonsäure. F. Mayer and K. Freitag. *Deutsche Chem Gesell Ber 54:347-57 F '21*

Isomerism

- Chemical mechanism of organic rearrangements. A. Michael. *diags Am Chem Soc J 42:787-821 Ap '20*
- Chromo-isomeric silver salts of pentabromophenol and a theory of chromo-isomerism of solid compounds. H. J. Lucas and A. R. Kemp. *Am Chem Soc J 43:1654-65 Jl '21*
- Comparison of some isomeric isocyanines. F. M. Hamer. *Chem Soc J 119:1432-44 S '21*
- Darstellung der enolformen aus acetessig-ester und acetyl-aceton. K. H. Meyer and H. Hopff. *Deutsche Chem Gesell Ber 54:579-80 Ap '21*
- Isomerism of formylphenylacetic esters; alkylation of formylphenylacetic ester; abstract. W: Wislicenus and R. v. Schrötter. *Chem Soc J 120 pt 1:672-3 S '21*
- Stereoisomere abkömmlinge des phenacylsulfids. E. Fromm and A. Ehrhardt. *Deutsche Chem Gesell Ber 54:187-93 F '21*
- Structural isomerism of the oximes; a fourth benzildioxime. F: W: Atack and L. Whin-yates. *Chem Soc J 119:1184-8 Jl '21*
- Structural isomerism of the oximes; criticism of the Hantzsch-Werner hypothesis and a new theory of the constitution of isomeric oximes. F: W: Atack. *Chem Soc J 119:1175-84 Jl '21*
- Triphenyl-vinylalkohol und 9-benzoyl-fluoren. K. H. Meyer and H. Gottlieb-Billroth. *Deutsche Chem Gesell Ber 54:575-8 Ap '21*
- Über beziehungen zwischen konfiguration und physikalischen eigenschaften der ester halogenierter zimtsäuren. K. v. Auwers and E. Schmellenkamp. *Deutsche Chem Gesell Ber 54:624-32 Ap '21*
- Über china-alkaloide; stereoisomere verbindungen des hydro-cupreans. G. Giemsa and J. Halberkann. *Deutsche Chem Gesell Ber 54:1189-1204 Je '21*
- Über die isomerisierung des 1-phenylindens bei der pyrogenen destillation (ein neuer kohlenwasserstoff). F. Mayer, A. Sieglitz and W. Ludwig. *Deutsche Chem Gesell Ber 54:1397-1402 Je '21*
- Über die wirklichen und angeblichen isomeren in der isatin-reihe. A. Hantzsch. *Deutsche Chem Gesell Ber 54:1221-57 Je '21; Abstract. Chem Soc J 120 pt 1:597-8 Ag '21*
- See also Optical rotation; Stereochemistry; Tautomerism*
- Isoprene**
- Thermal decomposition of turpentine with particular reference to the production of toluene and isoprene. S. A. Mahood. *il J Ind & Eng Chem 12:1152-5 D '20*
- Isopropyl alcohol**
- Isopropyl alcohol from petroleum. *Chem & Met Eng 23:1230-1 D 22 '20*
- Properties of mixtures of isopropyl alcohol and water. R. B. Lebo. *Am Chem Soc J 43:1005-11 My '21*
- Isostasy**
- Mathematics of isostasy. T. C. Chamberlin and W: D. MacMillan. *diag Am J Sci 49:311-23 My '20*
- Relation of isostasy to uplift and subsidence. W: Bowie. *Am J Sci 2:1-20 Jl '21*
- Isothiocyantes**
- Addition of 1,3-diketones to isothiocyantes; acetylacetone and certain aryl isothiocyantes. D: E. Worrall. *Am Chem Soc J 42:1055-61 My '20*

Isotopes

- Force, apparently due to mass, acting on an electron, and the non-identity of isotopes in spectra and other properties. W: D. Harkins and L. Aronberg. *il diag Am Chem Soc J* 42:1328-35 J1 '20
- Isotopes and atomic weights. F. W. Aston. *il diags Engineering* 111:203-5 F 18 '21
- Isotopism of mesothorium and radium and the separation of these elements from barium. R. K. Strong. *Am Chem Soc J* 43:440-52 Mr '21
- Natural systems for the classification of isotopes, and the atomic weights of pure atomic species as related to nuclear stability. W: D. Harkins. *Am Chem Soc J* 43:1038-60 My '21; Abstract. *Chem Soc J* 120 pt 2:445-7 J1 '21
- Possibility of separating mercury into its isotopic forms by centrifuging. J. H. J. Poole. *Philos Mag* 6th ser 41:818-22 My '21

Italian language**Dictionaries**

- Naval dictionary; Italian-English and English-Italian. W. T. Davis. 356p Pitman '21

Italian society of naval architects and marine engineers

- Meeting, Genoa, Dec. 4-6. *Engineering* 111:40-1 Ja 14 '21

Italians

- Teachers study; characteristics of Italians. *Factory* 25:730+ S 1 '20

Italians in the United States

- Immigrant farm colonies in southern New Jersey. S: Jacob. *Monthly Labor R* 12:1-22 Ja '21

Italite

- Italite, a new leucite rock. H: S. Washington. *Am J Sci* 50:33-47 J1 '20

Italy

- Port improvements in Italy. *Engineer* 131:522 My 13 '21

See also Aeronautics, Commercial—Italy; Air routes—Italy; Architecture, Domestic—Italy; Electric plants (central stations)—Italy; Railroads—Italy

Colonies

See also Eritrea

Commerce

- Import and export schedules of Italy (translation). *U S Bur For & Dom Com misc ser* 100:1-93 '20

- Italy's trade situation. *Am Mach* 53:1116 D 9 '20

- New regulations affect trade with Italy. *Am Mach* 53:924b-c N 11 '20

See also Merchant marine—Italy

Economic conditions

- Cost of living in Italy. *Monthly Labor R* 10:919-23 Ap '20

- Italy overcoming its difficulties. *Elec R (Lond)* 88:458 Ap 8 '21

- Italy winning over odds. W. H. Booth. *Nation's Business* 8:71+ S '20

- Italy's present-day position. R. Bolla. *Comm & Fin Chr* 112:1568 Ap 16 '21

- Italy's skies grow brighter. A. C. Bedford. *Nation's Business* 9:25-6 Ap '21

- Italy's soviet shows weakness. F. Miltoun. *Iron Tr R* 67:1271-2 N 4 '20

- Prices and cost of living in Italy, 1914 to 1920. *Monthly Labor R* 11:939-44 N '20

- Die ueberwachung der italienischen industrie durch die gewerkschaften. *Stahl & Eisen* 41:177-8 F 3 '21

See also Immigration and emigration—Italy; Labor and laboring classes—Italy; Steel industry and trade—Italy; Wages—Italy

Industrial revolt, 1920

- Failure of Italy's communistic experiment. A. Stewart. *Eng & Contr* 55:316-18 Mr 30 '21

- Labor disturbances in the Italian iron and steel industry. A. Maylander, comp. *Monthly Labor R* 11:1317-26 D '20

Industries and resources

- Chemical industry and trade of Italy. O. P. Hopkins. *J Ind & Eng Chem* 12:525-31 Je '20

- Glance at the industrial situation in Italy. J: B. Woods. *il Am Mach* 52:1289-91 Je 17 '20

- Great industrial expansion in Italy. *Iron Tr R* 66:15-16 Ja 1 '20

- Italian steel industry expands. *il Iron Tr R* 66:1404-5 My 13 '20

See also Agriculture—Italy; Automobile industry and trade—Italy; Chemical industries—Italy; Cotton trade—Italy; Electric industries—Italy; Hydroelectric plants—Italy; Iron industry and trade—Italy; Machine tool industry—Italy; Mines and mineral resources—Italy; Paper industry and trade—Italy; Petroleum—Italy; Rubber industry—Italy; Steel industry and trade—Italy

Ives, Frederic E.

- Romance of invention. C. H. Claudy. *por Sci Am* 123:104+ J1 31 '20

Ivory

- Making billiard balls from ivory. T. A. Marchmay. *il Sci Am M* 3:316-18 Ap '21

Ivory nut

- Preparation of mannose from ivory-nut shavings. P. M. Horton. *J Ind & Eng Chem* 13:1040-1 N '21

J**Jackhammers. See Rock drills****Jacks**

- Design of jack screw and pillow block. *diag Int Marine Eng* 25:461 My '20

- Duff high speed ball bearing screw jack for heavy lifting. *il Eng & Contr* 54:197-8 Ag 25 '20

- Jackscrews tighten wood block pavement in place. W. W. Horner. *il Eng N* 85:686-9 O 7 '20

- Lowering a 400-ton dock caisson gate with sand jacks. G. W. Plaisted. *il diags Eng N* 83:886-90 N 13 '19

- Pivoted jacks to prevent rotation of tunnel shields. *il diags Eng N* 86:892 My 26 '21

- Straightening car ends with a pull jack. A. H. Anderson. *il Ry Mech Eng* 95:239 Ap '21

- Universal type suspension journal jack. *il Ry Mech Eng* 95:524-5 Ag '21

See also Hydraulic jacks

Jackson, Dugald Caleb, 1865-

- Portrait. *Elec W* 76:1104 D 4 '20

Jacksonville, Florida**Railroads**

- New Union railroad facilities at Jacksonville. *il plan Ry Age* 68:157-60 Ja 9 '20

Jacksonville, Tennessee

- Peace-time industry at Old Hickory smokeless powder plant. *il diag map Chem Age* 29:176-7 My '21

Jacquard cards

- Automatic Jacquard card cutting. *Textile World* 57:4541 Je 19 '20

Janitors

- Instruction course for custodians and janitors. E. S. Hallett. *Heat & Ven* 18:25-6 Ja; 36-7 F; 38-9 Mr; 38-40 Ap; 36-7 My; 37-9 Je; 36-7 Ag; 42-3 S; 40-1 O '21

- Training of janitors and custodians. E. S. Hallett. *Am Soc Heat & V E J* 26:357-62 Ap '20; Discussion. 26:559-62 J1 '20

Japan

- Advertising methods in Japan, China, and the Philippines. J. W. Sanger. *il U S Bur For & Dom Com* 209:1-43 '21; Excerpt. *Ptr Ink* 116:113-14+ S 22 '21

- American engineer in Japan. C: F. Mason. *Eng & Min J* 110:946-7 N 13 '20

Japan—Continued

Engineer's impressions of Japan. D. M. Wood. Boston Soc C E J 7:231-40 O '20

See also Cooperation—Japan; Labor and laboring classes—Japan; Railroads—Japan; Social work—Japan

Commerce

See also Shipping—Japan

Economic conditions

Financial conditions in Japan—capital and labor. G. T. Ladd. Comm & Fin Chr 111:735-7 Ag 21 '20

Japanese commercial and financial developments. Comm & Fin Chr 110:1578-81 Ap 17 '20

Japanese crisis natural result of inflated conditions. F. Chipman. Textile World 58:252 Jl 10 '20

See also Labor and laboring classes—Japan; Wages—Japan

Foreign relations**United States**

Attitude of Japan to Yap mandate—the Hughes and Colby notes. Comm & Fin Chr 112:1705-8 Ap 23 '21

Industries and resources

Gas industry in Japan. Am Gas Eng J 112:99-101 F 7 '20

Industrial conditions in Japan. M. J. Root. il Am Mach 52:463-4 F 26 '20

Industrial prospects in Japan. Engineering 110:351 S 10 '20

Iron and steel manufacture in Japan. J. F. Springer. il Sci Am S 88:368-9+ D 20 '19

Lead and zinc industry in Japan. Chem & Met Eng 22:1198-1200 Je 30 '20; Same cond. Eng & Min J 110:339 Ag 14 '20; Abstract. Min & Sci P 121:278 Ag 21 '20

War upbuilds Japan in steel. J. A. Rabbitt. il map Iron Tr R 66:21-4 Ja 1 '20

See also Aeronautics, Commercial—Japan; Automobile industry and trade—Japan; Chemical industries—Japan; Copper mines and mining—Japan; Dye industry—Japan; Electric industries—Japan; Gas industry—Japan; Hydroelectric plants—Japan; Iron industry and trade—Japan; Mines and mineral resources—Japan; Paper industry and trade—Japan; Steel industry and trade—Japan; Water power—Japan

Navy

Japan and a big navy. F. P. Archer. Sci Am 125:81 Jl 30 '21

Naval strength of United States, Great Britain and Japan. J. B. Walker. il Sci Am 125A:11-13 N '21

Sea-power in the Pacific. H. C. Bywater. 334p Houghton '21

See also Warships—Japan

Roads

See Roads—Japan

Social conditions

Conditions in Japan and the Far East. Comm & Fin Chr 110:18-21 Ja 3 sec 1 '20

Japanese in California

Japanese in California. Min & Sci P 121:543-4 O 16 '20

Japanese in California. C. A. Grabill. Min & Sci P 121:617-18 O 30 '20

Japanese in the United States

Japanese problem. Min & Sci P 122:832 Je 18 '21

Present-day immigration with special reference to the Japanese. 232p The Annals, Am. acad. of pol. and soc. sci. Ja '21

Racial segregation of U.S. population by census shows large gain by Japanese. Comm & Fin Chr 113:38 Jl 2 '21

Japanese periodicals

Principal publications in Japan. J. W. San-ger. U S Bur For & Dom Com 209:104-5 '21

Japanning

Application of gas to japanning. W. J. Hampton. Am Gas Assn Commercial sec v 2:211-17 '20; Same abr. Am Gas Eng J 113:509-10 D 18 '20; Same abr. Metal Ind 19:278-9 Jl '21; Excerpts. Gas Age 46:449 N 25 '20

Electrically heated japanning ovens. il Automotive Ind 44:1002 My 12 '21; Same. Elec R 79:12 Jl 2 '21

Electrically heated japanning ovens. A. M. Clark. il Am Mach 51:944 N 27 '19

Electrically heated japanning ovens. C. F. Hirshfeld. il Metal Ind 18:128-9 Mr '20

Japanning. W. A. Darrah. Brass W 17:213-17 Ag '21

Japanning equipment. C. W. Starker. il Am Mach 54:22-6 Ja 6 '21

Japanning metal articles. Mach 26:708 Ap '20

Japanning; patent. Chem & Met Eng 23:1270 D 29 '20

Japanning with air pressure in tumbling barrels. W. King. Metal Ind 18:174-5 Ap '20

New process of japanning. Chem & Met Eng 22:946 My 19 '20

Non-inflammable baking japan. Automotive Ind 43:980 N 11 '20

Non-inflammable japan. Am Mach 52:480 F 26 '20

Review of the methods and operations of japanning practice. C. J. Schumann. Automotive Ind 42:917-18 Ap 15 '20

Study of the methods and operations of japanning practice. W. A. Darrah. Automotive Ind 42:669-72, 712-15 Mr 11-18 '20; Same. Soc Auto Eng J 6:180-6 Mr '20

Use of electricity in japanning processes. il Elec R 76:358 F 28 '20

Water japan installations. W. P. Davey and P. Dunning. il Gen Elec R 24:935-8 N '21

See also Varnish and varnishing

Jar rings, Rubber. *See* Rubber jar rings

Jars, Storage battery. *See* Storage battery jars

Java

See also Dye industry—Java

Antiquities

See also Boro-Budur, Java

Javellization. *See* Water purification

Jelly

Elastic properties of gelatin jellies. S. E. Sheppard and S. S. Sweet. Am Chem Soc J 43:539-47 Mr '21

Jelly. C. H. Campbell. J Ind & Eng Chem 12:558-9 Je '20

Jennings, Hennen, 1854-1920

Biographical sketch. W. R. Ingalls. por Min & Met 161:19-21 My '20

Sketch. por Eng & Min J 109:661 Mr 13 '20

Jersey City, New Jersey

Engineer board recommends plans for Jersey City. maps Eng N 86:177-9 Ja 27 '21

Jersey cloth

Holes in finishing jersey cloth. Textile World 58:537 Jl 24 '20

Woven imitation of knit jersey cloth. il Textile World 58:259+ Jl 10 '20

Jerusalem**Water supply**

Jerusalem's new water works. H. J. Shepstone. il Sci Am 123:543 N 27 '20

Jerusalem chamber of commerce

Old lands and new trade. C. D. Snow. Nation's Business 8:41 O '20

Jessup house, Westport, Connecticut

Early American domestic architecture. il diags plans Arch Forum 33:219-26 D '20

Jet propulsion of ships. *See* Ship propulsion, Hydraulic

Jets, Steam. *See* Steam jets

Jetties

Caisson system of reinforced concrete jetty construction at Cape Thevenard, South Australia. E. G. Stone. diags plan Eng & Contr 55:320-1 Mr 30 '21

See also Breakwaters

Jewelers' weights and measures. *See* Carat (unit of weight)

Jewelry

Jewelry and silverware in Chile, Bolivia, and Peru. S. W. Rosenthal. il U S Bur For & Dom Com 187:1-115 '19

Jewelry and silverware in Cuba. S. W. Rosenthal. pls U S Bur For & Dom Com 181:1-78 '19

Working with gold in a jewelry factory. O. Hillman. Brass W 17:119-20, 183-4 My, JI '21

See also Precious stones, Artificial; Rings

Jewelry trade

Tracking the boom town. L. Anson. il Ptr Ink M 3:37-8 S '21

Accounting

Complete manual of operating accounts. 112p Jewelers' research bureau, Los Angeles, Cal. '20

Advertising

How to get your advertising displayed in the most conservative stores. Ptr Ink M 3:54+ S '21

Jeweler pays for advertising lost articles. E. Sherwood. Ptr Ink 111:137+ My 20 '20

Jigs

Automatic pin drilling jig. il diags Mach 27:941-2 Je '21

Building jigs and fixtures on a manufacturing basis. W. H. Vockell and H. C. Uihlein. il diags Mach 27:632-5 Mr '21

Caulkins automatic drilling jig. il Am Mach 55:487 S 22 '21

Centering jig for cross-head and knuckle-joint pins. N. McCleod. diags Mach 27:69-70 S '20

Crosshead babbitting devices eliminate machining. il diags Ry Mech Eng 95:187-8 Mr '21

Data for the design of jigs and fixtures. A. Moses. diags Am Mach 51:1000-1 D 11 '19

Drill jig and tool equipment for motor housing. H. Mikkelsen. il Mach 27:1136-7 Ag '21

Drill jig for brackets of different lengths. diags Mach 26:1120 Ag '20

Drill jig for cream separator frames. il Mach 27:54-5 S '20

Hinged jig for drilling and tapping. F. Server. diags Mach 26:1111 Ag '20

How jigs simplify shop operation on the E.P. & S.W. F. G. Lister. diags Ry R 69:136-9 JI 30 '21

Indexing jig for babbitting locomotive cross-heads. N. McCleod. diags Mach 26:1172-3 Ag '20

Interchangeable jigs and fixtures. S. Helweg. diags Mach 26:557-8 F '20

Interchangeable-plate jig for small parts. A. J. Cayouette. diags Mach 28:143-4 O '21

Jig and fixture design. F. D. Jones. 326p Industrial press, New York '20

Jig for assembling gears and collar on shafts. F. Server. diags Mach 27:442-3 Ja '21

Jig for machining reversing valve bushing seats. J. H. Hahn. il diag Ry Mech Eng 95:553 S '21

Jig for milling beading tools. C. W. Schane. diags Ry Mech Eng 94:159-60 Mr '20

Jig for rebabbitting compressor connecting rods. il Elec Ry J 58:274 Ag 20 '21

Jig with cam-actuated clamping arrangement. W. B. Bennett. diags Mach 27:680 Mr '21

Jigs used in reaming and tapping pipe tees and ells. J. C. King. diags Mach 26:1026 JI '20

Kingsbury automatic pin-drilling jig. il Am Mach 54:1060-1 Je 16 '21

Laying out bushing holes in special drill jig. il Mach 27:328 D '20

Maintenance of jigs and gauges. Engineering 111:130 F 4 '21

Modern welding and cutting; welding jigs and fixtures. E. Viall. il diags Am Mach 52:665-9 Mr 25 '20

Multiple drill jig. J. J. Borkenhagen. diags Mach 27:68-9 S '20

Position gauges: their jigs, construction and calculations. A. G. Robson. diags Engineer 129:157-60 F 13 '20

Progressive indexing jig. diags Am Mach 52:7-9 Ja 1 '20

Quick-action drilling jig. A. Ferber. il Am Mach 52:469-70 F 26 '20

Should jigs and fixtures be designed? P. A. Fredericks. Am Mach 54:26 Ja 6 '21; Discussion. H. W. Armstrong. 54:359 Mr 3 '21

Some jigs for drilling harvesting machine parts. H. W. Johnson. il Am Mach 53:697 O 7 '20

Some products of a modern tool-room. C. O. Herb. il diags Mach 27:1048-50 JI '21

Some special jigs used in the manufacture of pneumatic tools. H. Fox. il Am Mach 53:370 Ag 19 '20

Standard milling jig. Eng & Ind Management 6:142-4 Ag 11 '21

Tool engineering; drill jig design. A. A. Dowd and F. W. Curtis. Am Mach 54:770-2, 816-19, 864-7, 905-8, 939-42, 997-9, 1037-40, 1078-80, 1119-22; 55:18-22, 61-4 My 5-JI 14 '21

Two drill jigs for motor-truck work. I. B. Rich. il Am Mach 52:513 Mr 4 '20

Universal jig for drilling cotter-pin holes. A. J. Cayouette. diags Mach 27:1145-6 Ag '21

Using compound slide in jig and die making. il Mach 27:630-1 Mr '21

Jigs (mining)

How to test the fitness of coals for coking. G. H. Elmore. diags plan Coal Age 18:1130-4 D 2 '20

Preliminary roughing concentration by sorting, jiggling, and tabling. E. S. Wiard. Eng & Min J 112:326-30, 369-73, 411-17 Ag 27-S 10 '21; Discussion. J. W. Neill. 112:644-5 O 22 '21

Tests with jig having no suction effect suited to small sizes of coal. J. H. McNally. il diags Coal Age 18:1089-92 N 25 '20

Jimson weed

Atropine sulfate from datura stramonium. H. W. Rhodehamel and E. H. Stuart. J Ind & Eng Chem 13:218-20 Mr '21

Jitney buses

Club-plan buses busy at Bridgeport. Elec Ry J 58:419 S 10 '21

Des Moines loses car service. il Elec Ry J 58:237-8 Ag 13 '21

Des Moines rides buses and walks. il Elec Ry J 58:283-8 Ag 20 '21

Electric railway and the jitney. F. G. Buffe. Elec J 18:450-2 O '21

How one railway eliminated jitneys. Elec Ry J 55:230-3 Ja 31 '20

Jitneys still hold sway. Elec Ry J 56:387-8 Ag 21 '20

170 applications for bus permits before Connecticut public service commission. Elec Ry J 57:1103-4 Ja 11 '21

Survival of the fitter at Terre Haute, Ind. il Elec Ry J 56:412-14 Ag 28 '20

Vae jitnis at Terre Haute. Elec Ry J 56:1148 D 4 '20

Why jitneys aren't driven out. Elec Ry J 55:463 Mr 6 '20

Regulation

Bridgeport restricts jitneys. Elec Ry J 56:137-40 JI 17 '20

Indianapolis takes warning from Des Moines. R. Willson. Elec Ry J 58:379 S 3 '21

Jitney battled for five years in Seattle. Elec Ry J 58:571-2 O 1 '21

Jitney competition not favored in Connecticut. Elec Ry J 58:113, 151 JI 9, 23 '21

Jitney law upheld at New Haven. Elec Ry J 58:380 S 3 '21

Jitney ordinance works well. Elec Ry J 57:914 My 14 '21

New Jersey commission lays down general conditions under which it will grant permits to jitneys. Elec Ry J 57:1186 Je 25 '21

Providence, R.I., Chamber of commerce wants jitneys regulated. Elec Ry J 56:1308 D 25 '20

Regulations for jitneys in Connecticut. Elec Ry J 58:50-1 JI 9 '21

Job analysis

- Doing half the job before you start. M. H. Reasoner. Factory 25:552-4 Ag 15 '20
- Foreman and his job. F. H. Colvin. Am Mach 54:740-1 Ap 28 '21
- Foreman and job analysis. H. Diemer and others, eds. 66p La Salle extension university, Chicago '21
- Job analysis aid to production. J. D. Hackett. Iron Tr R 67:722-4 S 9 '20
- Job analysis and job specification. J. C. Clark. Ry Age 71:445-6 S 3 '21
- Job analysis and job specifications. Eng & Ind Management 5:264-6 Mr 3 '21
- Job analysis and the employee. W: O. Lichtner. Administration 1:179-84 F '21; Same. Paper 28:17-19 Mr 30 '21
- Job analysis successfully applied to office force. N. G. Shidle. chart Automotive Ind 43:671-3 S 30 '20
- Teaching our workers to work. M. W. Osgood. il System 40:423-6+ O '21
- Time and job analysis in management. W: O. Lichtner. chart il Ind Management 59:301-6, 361-6, 487-91; 60:28-34, 130-9 Ap-Ag '20
- Time study and job analysis. W: O. Lichtner. 397p Ronald press '21
- Value and application of job analysis. B. Gabine. Ind Management 61:107-8 F 1 '21
- Zoning of jobs. H. L. Clary. Ind Management 61:324-9 My 1 '21

See also Jobs, Standardization of

Job tickets

- Simplifying shop tickets. Factory 25:1354+ O 15 '20
- Transparent case for protecting job tickets. Mach 26:824 My '20

See also Time tickets

Job work. *See* Typesetting—Job work**Jobbers**

- Curbing the retailer's jobbing ambitions. A. Cobb, jr. Ptr Ink 111:105-6+ Ap 29 '20
- How will the jobber elimination policy affect advertising? L. Allen. Ptr Ink 112:26-7+ JI 29 '20
- Increasing the jobber's profit by reducing his discount; campaign of the Joseph Burnett company. R. Cole. Ptr Ink 117:3-4+ N 3 '21
- Jobbers are driving manufacturers to sell retailers direct. H. E. Sloan. Ptr Ink 112:93-4 Ag 12 '20
- Jobber's viewpoint. T. L. Anderson. Textile World 57:3265+ My 1 '20
- Manufacturer and the jobber. E. C. Hall. Textile World 57:3261+ My 1 '20
- Manufacturers come to the jobber's defense. Ptr Ink 115:65-6+ Ap 28 '21
- Manufacturers must either fish or cut bait. Ptr Ink 115:129-30 Ap 7 '21
- Nationally advertised articles the most profitable for jobbers to handle. J. S. Goldbaum. Ptr Ink 110:129-30+ Ja 1 '20
- New status of the jobber in the distribution scheme. J Elec 47:343-4 N 1 '21
- Overreaching jobbers at fault for loss of paying lines. C. N. Greig. Ptr Ink 112:88 S 9 '20
- Scientific scale of discounts to jobbers. H. E. Agnew. Ptr Ink 114:44+ Mr 3 '21
- To allay the unrest caused by manufacturing jobbers. Ptr Ink 114:133-4+ Mr 10 '21
- What a new price policy did for our business. L. H. Bronson. il System 40:275-7+ S '21
- When is jobber distribution advisable? A. Cobb, jr. Ptr Ink 112:33-6 JI 8 '20
- When jobbers frown at selling to catalogue houses. Ptr Ink 114:12 F 3 '21
- See also* Mail order business, Wholesale; Marketing; Merchandizing

Advertising

- Advertising jobber to dealer puts pep into both. Ptr Ink 115:17-18 Je 9 '21
- Advertising to justify the jobber. L. Allen. Ptr Ink 110:79-80 F 12 '20
- Another plan to get jobbers to use manufacturer's literature. H. B. Burlow. Ptr Ink 116:113-14 Ag 18 '21

Can the jobber sell advertising to the dealer? A. Cobb, jr. Ptr Ink 112:33-4+ Ag 26 '20

Here is something the jobber could advertise. Ptr Ink 117:44 O 27 '21

Jobber who would advertise seeks manufacturers help. Ptr Ink 112:109-10 S 23 '20

Jobber's letters to the trade act as dealer helps. T. H. Heddon. Ptr Ink 116:50+ Ag 25 '21

Jobbers seek to prove their right to existence. Ptr Ink 112:150+ JI 22 '20

Manufacturer strengthens relations by advertising distributors to the dealers. R. L. Burdick. Ptr Ink 112:17-20 Ag 19 '20

Unusual plan for distributing advertising through jobbers. Ptr Ink 115:17-18 My 26 '21

Wholesaler as an independent advertiser. S. Norvell. Ptr Ink 111:105-6+ Je 10 '20

Wholesalers of coal advertise their functions. H. E. Agnew. Ptr Ink 112:65-6+ S 16 '20

Jobs, Standardization of

Standardizing the job. M. R. Lott. chart Factory 23:1290-2; 24:54-5, 286-8 D '19-F 1 '20

See also Job analysis

Johannesburg, South Africa**Water supply**

Vaal river scheme with special reference to the Vaal river barrage. W. Ingham and J. C. Hawkins. il Engineering 112:325-7 Ag 26 '21

Johansson compound slide. *See* Locating devices

John Crerar library

Work of Holabird & Roche, architects. il plans Am Arch 118:231-4 Ag 25 '20

John Fritz medal

American engineers in England and France: delegation from American engineering societies received marked attention, courtesy and honors; presented John Fritz medals to Sir Robert Hadfield and to Eugène Schneider. Min & Met 176:8-11 Ag '21

Awarded to Orville Wright. Am Mach 52:1118 My 20 '20; Power 51:823-4 My 18 '20; Min & Met 162:11-12 Je '20; Soc Auto Eng J 6:394-6 Je '20

Eugène Schneider awarded the John Fritz medal for 1922. Eng & Min J 111:1037 Je 18 '21

John Fritz medal awarded to Sir Robert Hadfield. Iron Age 107:260 Ja 27 '21

John Fritz medals presented at international gatherings. Mech Eng 43:558-60 Ag '21

Robert A. Hadfield awarded John Fritz medal. Iron Age 107:1749 Je 30 '21; Eng & Min J 111:1036-7 Je 18 '21; Iron Tr R 68:1780-1 Je 30 '21; Engineer 132:16-17 JI 1 '21; Engineering 112:19-20 JI 1 '21; Min & Met 175:4-5 JI '21

Johnson, Bertrand Leroy

Government officials prominent in mining. P. Wooton. por Eng & Min J 111:17 Ja 1 '21

Johnson, Roy J.

Sketch. K. H. Brower. por System 39:210-11+ F '21

Johnston, Percy H.

Builders of business. C. Phillips. por System 39:668-70 My '21

Joints

Glass to metal joints. E. C. McKelvy and C. S. Taylor. diags Am Chem Soc J 42:1364-74 JI '20

Simple tension joint for wood trusses. diags Bldg Age 42:64 Je '20

See also Boilers—Joints; Cable joints; Couplings; Packing; Pipe joints; Rail joints

Joints, Fabric

Flexible shaft-joint progress; with discussion. C. A. Schell. Soc Auto Eng J 7:30-2 JI '20

Joints, Riveted. *See* Riveted joints**Joints, Universal**

Clutches, transmissions and universal joints. H. Chase. il diags Automotive Ind 44:79-81 Ja 13 '21

Joints, Universal—Continued

- Defects in motor vehicles and their remedy. F. Strickland. Engineering 110:855-6 D 31 '20
- Forces acting in a universal joint; abstract. D. Thoma. diags Mech Eng 42:409-10 J1 '20
- Kinematics of the universal joint. P. Cormack. diags Automobile Eng 11:301-5 S '21
- Making a sheet-steel universal joint cover. W. A. Flumerfelt. diags Am Mach 54:171-3 F 3 '21
- Making universal joints without jigs. E. A. Dixie. il diags Am Mach 55:318-19 Ag 25 '21
- Pick universal joint. diags Automotive Ind 43:1058 N 25 '20
- Self lubricating universal joint. il Automotive Ind 44:855 Ap 21 '21
- Joliet, Illinois**
- Principles of city planning stated in a report for Joliet, Illinois. E: H. Bennett and W: E. Parsons. Eng & Contr 56:108-13 Ag 3 '21
- Jones bill.** See Merchant marine—United States
- Jordan engine**
- Jordan engine and its uses. E. Blau. il Paper 27:61-2+ N 10 '20
- Joule-Thomson effect**
- Joule-Thomson effect for air. F: G. Keyes. Am Chem Soc J 43:1452-70 J1 '21
- Journal bearings.** See Bearings; Cars—Bearings
- Journal de physique et le radium**
- Nouvelle publication mensuelle. C. Matignon. Chimie & Ind 4:709-10 D '20
- Journal of electricity and western industry (periodical)**
- Thirty-fifth year of service to the West. J Elec 46:140-5 F 1 '21
- Journalism**
- Handbook for newspaper workers. G. M. Hyde. 226p Appleton '21
- See also Newspapers; Periodicals
- Study and teaching**
- Developing the individual for institutional responsibility; the Business publishers association's school of industrial journalism. Automotive Ind 45:630-1 S 29 '21
- Jugoslavia**
- Jugoslavia, Balkan's reconstruction balance wheel. J. Moritzen. Annalist 18:153 Ag 15 '21
- New flag—and market. T. M. Mak. Nation's Business 8:93 F '20
- See also Automobile industry and trade—Jugoslavia; Mines and mineral resources—Jugoslavia; Railroads—Jugoslavia
- Economic conditions**
- Jugo-Slavia's needs and resources. W. T. Rawleigh. il Am Ind 21:35-9 F '21
- Junkers engine**
- Junkers engine. P. L. Scott. diags Sibley J 33:99-100 D '19
- Junkersfeld, Peter, 1869-**
- Sketch. por Elec W 76:1200 D 18 '20
- Jute**
- Jute and its manufacture. H. R. Carter. 192p J. Bale, sons & Danielsson, London '21
- Jute and its manufacture in India. il (supp) Engineer 128:505-6, 516 N 21 '19
- Modern methods of driving machines in jute manufacture. T. Woodhouse and P. Kilgour. il Electrician 86:159-65 F 4 '21
- Preparation and dyeing of jute. Textile World 56:2930+ N 15 '19
- See also Dyes and dyeing—Jute
- Jute board**
- Manufacture of jute board. J: Pfister. Paper 26:16-17 J1 21 '20
- Jutland, Battle of**
- Battle of Jutland. Engineer 129:183-4, 209-10, 238-40, 263-4 F 20-Mr 12 '20

- Les enseignements de la guerre maritime et particulièrement de la bataille du Jutland (31 mai 1916). A. Poidlouë. Génie Civil 78: 415-17 My 14 '21
- Lessons from Jutland. Engineer 130:639-40 D 24 '20
- Reflections on the Jutland dispatches. Engineer 131:87-8, 114-15, 139-40, 169-70 Ja 28-F 18 '21
- Technical results of the battle of Jutland. S. Orlando. Engineering 111:56-7; Discussion. 40-1 Ja 14 '21
- What the Germans thought of Jutland. Sci Am 122:508 My 8 '20
- Juvenile advertising. See Advertising, Juvenile

K

Kalinite

- Recovery of potash alum and sulphur at Tonopah. L. Duncan. flow sheet il Chem & Met Eng 24:529-30 Mr 23 '21

Kalispell, Montana**Water supply**

- Kalispell water works. il Pub Works 48:349-51 Ap 24 '20

Kamerun

- Rubber plantations in Kamerun. A. Dominikus. il India Rubber W 62:535-6 My '20

Kansas

- Kansas. A. W. Douglas. Nation's Business 8: 26+ My '20

See also Electricity supply—Kansas; Geology—Kansas; Petroleum industry and trade—Oklahoma-Kansas district; Roads—Kansas

Industries and resources

- Industrial directory of Kansas. 147p Kansas Dept. of labor and industry, Topeka '20

Public utilities commission

- Utilities commission re-created. Elec Ry J 57: 780 Ap 23 '21

Kansas City, Kansas**Rapid transit**

- Rerouting plan to save \$620,000; sections of Beeler report on Kansas City railways. maps Elec Ry J 56:957-61 N 6 '20

Kansas City, Missouri**Railroads**

- Electrical equipment of Kansas City terminal. R. W. Budd. il Elec R 76:933-6 Je 5 '20

Rapid transit

- Analyzing Kansas City traffic. Elec Ry J 56: 317-19 Ag 14 '20
- Greater operating efficiency enables better merchandising of the service. F. G. Buffe. il Elec Ry J 58:475-80 S 24 '21
- Kansas City operation analyzed. diags Elec Ry J 56:702-5 O 9 '20
- Kansas City studies congested lines. diags Elec Ry J 55:331-4 F 14 '20
- Philip J. Kealy of Kansas City—and his job. E: Hungerford. il map Elec Ry J 55: 884-8 My 1 '20
- Rerouting plan to save \$620,000; sections of Beeler report on Kansas City railways. maps Elec Ry J 56:957-61 N 6 '20
- Speeding Kansas City's traffic. chart diags Elec Ry J 55:707-9 Ap 3 '20
- Universal loop for 118 cars an hour in Kansas City. il plan Elec Ry J 58:725-6 O 22 '21
- See also Kansas City (Mo.) railways

Sanitary affairs

- Blue river sewerage problem, Kansas City. Eng N 87:439 S 15 '21

Water supply

- Comprehensive report on water supply of Kansas City. Eng N 86:499 Mr 24 '21

Kansas City, Missouri—Water supply—Cont.
New \$18,000,000 water supply recommended for Kansas City, Mo. Eng & Contr 55:225 Mr 9 '21

Kansas City, Mexico and Orient railroad
Interstate commerce commission refuses loan to Kansas City Mexico and Orient R. R.—sets forth principles. Comm & Fin Chr 111:145 Jl 10 '20

Kansas City power and light company
Annual report for 1920. Comm & Fin Chr 112:1882-4 Ap 30 '21

Kansas City (Mo.) railways
Kansas City railways receivership and its causes. Elec Ry J 56:734-6 O 9 '20
Receivers in charge in Kansas City. Elec Ry J 56:986-7 N 6 '20
Report for fiscal year ended June 30. Comm & Fin Chr 111:2515-16 D 25 '20

Kansas City Southern railway
Analysis of the current valuation report on the Kansas City Southern properties. S: W. Moore. Eng N 86:818-21 My 12 '21
Report. map Ry Age 71:234-5 Ag 6 '21
20th annual report. Comm & Fin Chr 111:397-9 Jl 24 '20
21st annual report for 1920. Comm & Fin Chr 112:2772-5 Je 25 '21

Kansas. Court of industrial relations. See Courts, Industrial

Kaolin
Absorption of sodium hydroxide by kaolins. R. F. Geller and D. R. Caldwell. Am Cer Soc J 4 pt 1:468-73 Je '21
Analysis of china clay. Paper 27:18+ S 29 '20
Elutriation tests on American kaolins. H. G. Schurecht. il diag Am Cer Soc J 3:355-78 My '20
Imported vs. domestic kaolin. Eng & Min J 112:299 Ag 20 '21
Kaolin in North Carolina, with a brief note on hydromica. W. S. Bayley. Econ Geol 15:236-46 Ap '20
Kaolin of Indiana. W: N. Logan. 131p Indiana. Dept. of conservation, Indianapolis '19
Microscopic examination of china clay. Paper 27:18+ S 15 '20
New method developed for drying China clay. Pop Mech 36:242 Ag '21
Use of china clay in tinted papers. Paper 27:22+ S 22 '20
See also Clay; Wilkinitite

Kaolinite
Study of the heating and cooling curves of Japanese kaolinite. S. Satoh. il diag Am Cer Soc J 4:182-94 Mr '21

Kapok
Abundant kapok formerly wasted is now spun into attractive fabrics. il Pop Mech 36:262-3 Ag '21

Karaya gum
Zone of maximum colloidalilty; its relation to viscosity in hydrophile colloids, especially karaya gum and gelatin. J. Alexander. Am Chem Soc J 43:434-40 Mr '21

Kaska, Pennsylvania
Kaska, a mining town in the rebuilding. il diags plans Coal Age 18:747-50 O 7 '20

Katathermometers
Extent of the experimental error involved in the factoring of katathermometer. L. Greenburg. il Heat & Ven 18:37-40 O '21
Important work on the science of ventilation. diags Heat & Ven 17:39-41 N '20
Kata-thermometer. Eng & Min J 111:1029 Je 18 '21

Kata-thermometer. Min & Sci P 123:387-8 S 17 '21

Relation between katathermometer and thermometer readings under ordinary indoor conditions. C. E. A. Winslow and E. L. Hewitt. Heat & Ven 18:27-31 Mr '21

Katharometer
Theory of the katharometer; instrument for indicating the presence of hydrogen in small quantities in air; abstract. G. A. Shakespear and H. A. Daynes. diag Sci Am M 2:184 O '20

Katz, Frank J.
Sketch. por Eng & Min J 110:525 S 11 '20

Kauri-gum
Development of kauri-gum industry in New Zealand. Chem & Met Eng 22:937 My 19 '20

Kauri-gum industry in New Zealand. Winslow. Chem & Met Eng 23:1197 D 22 '20

Kealy, Philip J.
Philip J. Kealy of Kansas City—and his job. E: Hungerford. por Elec Ry J 55:884-8 My 1 '20

Keighley, England

Rapid transit

Trackless trolley in two British cities. il diags Elec Ry J 57:77-9 Ja 8 '21

Kellogg toasted corn flake company
Kellogg's novel action to make court decree effective. R. W. Johnson. Ptr Ink 116:77-8+ Jl 21 '21

Power for toasting cornflakes. il diags plan Power Pl Eng 25:545-50 Je 1 '21

Kelly-Springfield tire company
Annual report as at December 31 1920. Comm & Fin Chr 112:945 Mr 5 '21

Kelp
Carbon monoxide a respiration product. S. C. Langdon and W. R. Gailey. diags Am Chem Soc J 42:641-6 Mr '20; Same. Sci Am M 1:508-10 Je '20

Government kelp plant to continue operations. Chem & Met Eng 22:535 Mr 24 '20

Indian uses of kelp. J. C. Leachman. il Sci Am M 3:137-40 F '21

Les laminariacées. diags Chimie & Ind 3:378-86 Mr '20

Potash from kelp; continuous countercurrent lixiviation of charred kelp. J. W. Turrentine and P. S. Shoaff. flow sheet J Ind & Eng Chem 13:605-9 Jl '21

Potash from kelp—the experimental distillation of kelp at low temperatures. G. C. Spencer. J Ind & Eng Chem 12:682-4 Jl '20

Potash from kelp; the preliminary examination of kelp distillates. G. C. Spencer. J Ind & Eng Chem 12:786-92 Ag '20

Use of electric power for producing potash from kelp. A. B. Cram. Elec R 76:283-4 F 14 '20

Kelvin, William Thompson, 1st baron, 1824-1907

Four great British electric lights: Faraday—the discoverer; Maxwell—the interpreter; Kelvin—the measurer; Silvanus Thompson—the teacher. L. B. Atkinson. Inst E E J 59:667-76 Je '21

Kennecott, Alaska
Geology of the ore deposits of Kennecott. A. M. Bateman and D. H. McLaughlin. il diags maps plans Econ Geol 15:1-80 Ja '20

Kennedy, Samuel Macaw, 1863-
Portrait. Elec W 76:912 N 6 '20

Kennelly, Arthur Edwin, 1861-
Portrait. Elec W 77:356 F 12 '21

Kenotron
Les tubes à décharge électronique et leurs applications. P. Letheule. il diags Génie Civil 76:254-6, 269-71 Mr 6-13 '20

UV-216 kenotron—its operation and application. W. R. G. Baker. il diags Wireless Age 9:21-6 O '21

See also Magnetron

Kenova, West Virginia

Bridges

Secondary stresses in Kenova bridge measured. J: I. Parcel and G: A. Maney. il diags Eng N 85:1116-19 D 9 '20; Discussion. J. W. Pearl. 86:234 F 3 '21

Kensico dam
Street lighting with low mounted units: Kensico dam roadway; with discussion. C. A. B. Halvorson and A. B. Oday. il diags map plans Illum Eng Soc 15:153-62 no 3 '20

Kentucky

See also Coal mines and mining—Kentucky; Petroleum—Kentucky; Petroleum industry and trade—Kentucky; Roads—Kentucky

Kentucky mining institute

Meeting, Lexington, Ky., June 4-5. Coal Age 17:1273-4 Je 17 '20

Kerckhoff power project. See San Joaquin river

Kerosene

La carburation par le pétrole lampant et l'action de paroi. G. Lumet. Soc Ing Civils Bul 74:291-301 Ap '21

Condensation temperatures of gasoline- and kerosene-air mixtures. R. E. Wilson and D. P. Barnard. diags J Ind & Eng Chem 13:906-12 O '21; Same. Soc Auto Eng J 9:313-19 N '21

L'emploi des pétroles lampants dans les moteurs d'automobiles. A. Grebel. Génie Civil 78:289-95 Ap 2 '21; Same. Soc Ing Civils Bul 74:250-69 Ap '21

État actuel de la carburation au pétrole lampant. Drosne. diags Soc Ing Civils Bul 74:35-52, 173-84 Ja-Apr '21; Abstract. Génie Civil 78:261-2 Mr 19 '21

Gasoline and kerosene gallonage first six months of 1921. Nat Pet N 13:32 Ag 10 '21

Kerosene as a tractor fuel. J. A. Secor. Soc Auto Eng J 7:140-3; Discussion. 143-4+ Ag '20

Kerosene possesses many advantages as fuel for home use. S. W. McMichael. Nat Pet N 13:39-40 O 19 '21

Oil-gas generator. A. N. Capron. diags Pop Mech 34:770-1 N '20

Pyrolysis of some hydrocarbons. F. Denig. il Chem & Met Eng 25:751-3 O 19 '21

See also Carbureters; Gas and oil engines; Petroleum

Kerosene engines

Caffort French kerosene engine has single sleeve valves. W. F. Bradley. diags Automotive. Ind 42:1009 Ap 29 '20

Cold-starting kerosene engine; the Blackstone. diags Automotive Ind 43:659+ S 30 '20

Combustion of heavier fuels in constant-volume-type and superinduction-type engines. L. Cammen. Mech Eng 41:941-2 D '19

Kerosene as a fuel in high-speed engines. L. F. Seaton. il Mech Eng 41:881-2 N '19; Same cond. Power 51:154-5 Ja 27 '20

Small kerosene engines supply power for local or temporary purposes. il Coal Age 20:12 Jl 7 '21

See also Vaporisers

Kerosene industry

Pushes kerosene cook stove burners to boost oil sales. il Nat Pet N 13:35-6 Ag 24 '21

Kerosene water heaters

Market for kerosene water heaters in rural districts. L. M. Hewitt. Dom Eng 92:328 Ag 14 '20

Kersey

Saving time in finishing kerseys. Textile World 57:2815+ Ap 17 '20

Ketenes

Ketens and aliphatic diazo-compounds; abstract. H. Staudinger and T. Reber. Chem Soc J 120 pt 1:245-8 Ap '21

Mechanism of the reaction between ketenes and the Grignard reagent. H. Gilman and L. C. Heckert. Am Chem Soc J 42:1010-14 My '20

Ketones

Formation and stability of spiro-compounds; ketones derived from open-chain and cyclic glutaric acids. G. A. R. Kon. Chem Soc J 119:810-30 Je '21

Mechanism underlying the reaction between ethyl cyanoacetate and tautomeric substances of the keto-enol type. C. K. Ingold. Chem Soc J 119:329-41 Mr '21

Reactivity of doubly-conjugated unsaturated ketones. I. M. Heilbron and J. S. Buck. Chem Soc J 119:1500-20 O '21

Über die einwirkung von semicarbazid auf ungesättigte ketone. K. von Auwers. Deutsche Chem Gesell Ber 54:987-1000 My '21; Abstract. Chem Soc J 120 pt 1:466-7 Je '21

Über phenylhydrazin-derivate ungesättigter fett-aromatischer ketone und ihre umwandlungsprodukte. K. von Auwers and E. Lämmerhirt. Deutsche Chem Gesell Ber 54:1000-24 My '21; Abstract. Chem Soc J 120 pt 1:464-6 Je '21

Kettledrums

Pitch of kettledrums is varied by foot levers. il diags Pop Mech 35:220 F '21

Kettles

Drawing operations on seamless kettles; design of dies and step-by-step operations. F. R. Daniels. il diags Mach 27:433-7 Ja '21

Keys and keyways (machinery)

Broaching lock cylinders. C. H. Briggs. diags Am Mach 54:960 Je 2 '21

C. F. Davis keyseater. il Mach 26:1191 Ag '20
Chart for lengths of keys. J. S. Watts. chart diags Am Mach 53:560-1 S 16 '20

Determining height of arc when milling keyways. C. W. Mapes. diag Mach 27:377 D '20

Dimensioning of keyways. H. Ernst. Am Mach 53:82 Jl 8 '20; Discussion. T. Kuraisi. 53:960 N 18 '20; Correction. 54:336 F 24 '21

Garvin machine for milling crosshead keyways. il Ry Mech Eng 94:547-8 Ag '20

Guide bushings for keyway broaching; formulas for designing bushings. C. H. Briggs. diags Mach 27:767-8 Ap '21

Milling keyways in long shafts. il Mach 26:602 Mr '20

Portable keyseating machine. P. Geil and E. McGinn. il diags Am Mach 54:280 F 17 '21

See also Splines

Kidder, H. A.

Portrait. Power 52:135 Jl 27 '20

Kieselguhr. See Diatomaceous earth

Kiln drying of wood. See Lumber drying

Kiln firemen. See Brickmaking

Kilner, Walter Glenn, 1888-

Sketch. Aviation 10:365 Mr 21 '21

Kilns

Anneal malleable in tunnel kiln. H. E. Diller. il diags plan Foundry 48:638-44 Ag 15 '20

Artificial versus natural draft in downdraft periodic kilns. A. Staudt. Am Cer Soc J 3:915; Discussion. 915-17 N '20

Burning brick in portable kilns. W. W. Dickinson, jr. il Brick & Clay Rec 59:29-32 Jl 12 '21

Coal or gas in continuous kilns. Am Gas Eng J 112:484-5 Je 19 '20

Common wall of new double chamber annealing oven reduces radiation. diags plan Iron Tr R 67:453 Ag 12 '20

Construction of dry kilns. Elec Ry J 57:140 Ja 15 '21; Same. Eng & Contr 55:85 Ja 26 '21

Continuous tunnel kiln. C. B. Harrop. Am Cer Soc J 3:697-700 S '20

Continuous tunnel kilns at the plant of Mount Clemens pottery company. C. B. Harrop. il diags Am Cer Soc J 4:673-80 Ag '21

Data on the operation of the Dressler tunnel kiln in the manufacture of semi-porcelain dinner ware. I. E. Sproat and D. Allbright. il diag Am Cer Soc J 3:460-75 Je '20

Discussion of dry kilns and means of controlling the essential conditions. H. D. Tiemann. U S Nat Advisory Com for Aeronautics 1919:366-8 '20

Discussion of tunnel kilns. Am Cer Soc J 3:712-21 S '20

Dressler tunnel kiln for firing sanitary ware. G. Brain. diag Am Cer Soc J 3:706-11 S '20

Dryers and kilns for industrial processes. C. L. Hubbard. diags Dom Eng 90:173-5, 272-4 Ja 24, F 7 '20

Forest service water-spray kiln. H. D. Tiemann. diag U S Nat Advisory Com for Aeronautics 1919:382-3 '20

Kilns —Continued

- How to reduce fuel and time in burning; with cost tables. J. H. Kruson. diag Brick & Clay Rec 59:661-3 N 1 '21
- Layout of a brick or tile plant with a car tunnel kiln. T. W. Garve. plan Am Cer Soc J 4:277-81 Ap '21
- Manual of design and installation of forest service water spray dry kiln. L. V. Teesdale. diags U S Agric Bul 894:1-47 '20
- Manufacture of lime for chemical and metallurgical purposes. R. K. Meade. il diags Chem & Met Eng 23:841-4 O 27 '20
- Modern firing by the tunnel kiln method. G. W. Parker. Gas Age 48:200 Ag 20 '21
- New annealing oven saves heat. diags plans Foundry 48:569-70 Jl 15 '20
- Oil firing of kilns. F. A. Whitaker. Am Cer Soc J 3:842-3; Discussion. 844-6 O '20
- Promising tunnel oven. H. G. Schurecht. Am Cer Soc J 3:999-1000 D '20
- Study of the operation of a Dressler tunnel-kiln. C. J. Hudson. il diags plan Am Cer Soc J 4:738-54 S '21
- Tunnel kiln applied to ceramics. S. Trood. Am Cer Soc J 3:701-5 S '20
- See also* Brickmaking; Cement kilns; Drying apparatus; Furnaces; Lime kilns; Terra cotta kilns

Cleaning

- Cleaning kiln flues with vacuum cleaner. il diags Brick & Clay Rec 59:670-1+ N 1 '21

Kilowatt

- Le kilowatt, unité industrielle de puissance. M. Jacob. Génie Civil 78:164 F 12 '21
- Kimball, Dexter Simpson, 1865-
New president of the A.S.M.E. por Mach 28:258 N '21

Kinematics

- Cinématique et mécanismes. R. Bricard. 212p A. Colin, Paris '21
- Kinematics of machinery. *See* Machinery, Kinematics of

- Kinetic theory of gases. *See* Gases, Kinetic theory of

Kingston, Ontario**Harbor**

- Proposed development of Kingston harbor. A. Langlois. plan Can Eng 39:408 O 7 '20

Kish

- Graphite from kish. Sci Am 123:254 S 11 '20

Kitchens

- Competition for plan and equipment of a model kitchen. plans Am Arch 118:745-8 D 8 '20; Same abr. Bldg Age 43:50-1 Ja '21
- Decorating and furnishing the low-cost house. il plans Bldg Age 42:48-52+ My; 32-7 Je '20
- How Hoosier company backs its save steps slogan. E. T. Tandy. il diag plans Ptr Ink M 3:17-18+ My '21
- Planning the bath-room and kitchen. C. A. Byers. il Bldg Age 42:63-4 D '20
- Well-planned kitchen breakfast corners. C. A. Byers. il Bldg Age 42:38-9 S '20

Kitchens, Experimental

- Knowing before we go ahead. P. W. Hanna. il System 40:168-9+ Ag '21

Kitching, W. and A.

- Short histories of famous firms; Messrs. W. and A. Kitching. Hope Town foundry, Darlington. E. L. Ahrons. il diags Engineer 130:419-21 O 29 '20

Kjeldahl method. *See* Nitrogen—Analysis**Kjellberg process. *See* Electric welding, Arc****Klearfax linen rug company**

- Responsibilities of management to-day. J. H. Barnes. Ptr Ink 114:3-4+ F 17 '21

Klein, Julius

- Julius Klein, Latin-American authority, to head foreign trade bureau. Am Mach 55:40e Jl 7 '21

Kleinert, I. B., rubber company

- How quick wit won two continents by bold strokes of advertising and merchandising. E. T. Tandy. Ptr Ink 113:33-4+ O 28 '20

Knife handles. *See* Knives**Knit goods**

- British knit goods developments. W: Davis. Textile World 60:575 Jl 23 '21
- Census bureau's summary concerning knit goods industry for 1919. Textile World 60:1009+, 1093 Ag 13-20 '21
- China's Americanized knitting industry. Sih-Zung Yang. il diags Textile World 59:1391+ F 19 '21
- Combination woven and knit articles. W: Davis. diags Textile World 58:529+ Jl 24 '20
- Developments in British knitting. W: Davis. Textile World 57:1515+ F 21 '20
- Developments in knitted goods. W: Davis. diags Textile World 58:1183+ Ag 21 '20
- Exhibit of machinery and equipment at the 17th convention of the National association. il Textile World 59:3070+ My 7 '21
- Field for American knit goods in China. il Textile World 59:13+ Ja 1 '21
- Finishing of knitted goods. Color Tr J 6:87 Mr '20
- Knit goods manufacturers of America annual meeting, Atlantic City. Textile World 59:3399+ My 21 '21
- Knit goods production; report of association for winter months of 1920; tabulation. Textile World 59:497 Ja 22 '21
- Knitted scarfs and mufflers. W: Davis. diags Textile World 58:2801+ O 23 '20
- Nainsook underwear advertising threatens market of knit goods manufacturers. Ptr Ink 116:41-2+ Ag 4 '21
- National association of hosiery and underwear manufacturers 16th annual convention. Textile World 57:3232+ My 1 '20
- Novelties in knit goods. W: Davis. diags Textile World 58:4157+ D 18 '20
- Stripes and checks in knitted goods. W: Davis. il diags Textile World 60:1787, 1789 S 24 '21
- See also* Hosiery; Jersey cloth; Underwear; *also* Earnshaw knitting company; National knitted outerwear association

Advertising

- How knitted outerwear makers hope to boost trade. G. D. Ward. Ptr Ink 114:65-6+ F 24 '21

Bibliography

- References on the knit goods industry. 34p Knit goods manufacturers of America, Utica, N.Y. '20

Cost

- Cost of yarn in knitted cloth. Textile World 57:2161 Mr 20 '20

Repairing

- Mending ribbed knitted goods. il Textile World 58:1837+ S 18 '20
- Repairing of knitted goods. W: Davis. il Textile World 57:2673+ Ap 10 '20

Knit goods manufacturers of America

- Annual meeting, Atlantic City, May 16-17. Textile World 59:3399+ My 21 '21
- Meeting of underwear manufacturers at Utica. Textile World 57:3763, 3768-9 My 22 '20

Knitted outerwear association, National. *See* National knitted outerwear association**Knitting**

- Embroidery made on flat machines. il Textile World 58:527+ Jl 24 '20
- Flat machine knitting and fabrics. H. D. Buck. 147p Bragdon, Lord & Nagle co., New York '21
- Hosiery mill operation. Textile World 57:2677+ Ap 10 '20
- Machine knitting and knitted fabrics. H. D. Buck. il diags Textile World 57:3301+, 4533+, 58:1179+, 1833+, 2799+, 3499+, 4153+, 59:465+, 1401+, 1981+, 2553+, 4055+, 60:1097+, 2297+ My 1, Je 19, Ag 21, S 18, O 23, N 20, D 18 '20, Ja 22, F 19, Mr 19, Ap 16, Je 18, Ag 20, O 22 '21
- Problems of the knitted loop. W: Davis. il Textile World 57:519+, 1513+ Ja 24, F 21 '20

Knitting—Continued

Stripes and checks in knitted goods. W: Davis. il diags Textile World 60:1787, 1789 S 24 '21

See also Knit goods

Knitting machines

Little knitting machinery available. Textile World 57:1501+ F 21 '20

Machine knitting and knitted fabrics. H. D. Buck. il diags Textile World 57:4533+; 58:4153+; 59:465+, 1401+, 1981+, 2553+, 60:2297+ Je 19, D 18 '20, Ja 22, F 19, Mr 19, Ap 16, O 22 '21

See also Hosiery machines

Exhibitions

Display of knitting machine developments at Manufacturers' club. il Textile World 59:3090+ My 7 '21

Exhibit of knitting machinery and supplies at Philadelphia. il Textile World 57:3279+ My 1 '20

Exhibit of machinery and equipment at the 17th convention of the National association. il Textile World 59:3070+ My 7 '21

Knitting mills

Construction of knitting mills. W. H. Rose. Textile World 57:3267+ My 1 '20

Glen knitting company, Philadelphia; new full fashioned hosiery mill and power plant. il Textile World 59:1407 F 19 '21

Humidification in knitting mills. Textile World 57:1521 F 21 '20

Plan of an underwear mill. Textile World 59:4059 Je 18 '21

See also Hosiery mills

Accounting

Cost system that guides policies. W: R. Bassett and S. R. Gordon. Factory 24:43-8 Ja '20

Management

Experiences in the knitting room. Textile World 57:1517+ F 21 '20

Reducing the waste in underwear mills. G: H. Goldsmith. diags Textile World 59:467+ Ja 22 '21

Successful textile planning departments. G: H. Goldsmith. Textile World 59:3105+ My 7 '21

Knitting needles

Inspection of knitting needles. W: Davis. il Textile World 60:1101+ Ag 20 '21

Knives

Story of the knife and fork. A. F. Saunders. il Metal Ind 18:21-2 Ja '20

Time studies on wooden knife handles. P. Bernstein. diags Ind Management 62:76-82 Ag '21

Advertising

Remington arms co. now marketing cutlery. C. P. Russell. Ptr Ink 115:19-20+ Je 9 '21

Knives. Machine

Proper use and care of paper cutting knives. W. F. Ebbing. Paper 27:17-18 Ja 19 '21

Manufacture

Some operations on caramel knives. D. A. Hampson. il diags Am Mach 52:601-2 Mr 18 '20

Knobs, Curtain pole

Dies for brass curtain pole knobs. J. Bingham. diags Mach 27:171-2 O '20

Knots and splices

How to splice stranded wire conductors. E. D. Hunt. diags Coal Age 17:210 Ja 29 '20

Rope work. L: M. Roehl. 47p Bruce publishing co., Milwaukee '21

Knowledge, Theory of

On certain fundamental principles of scientific inquiry. D. Wrinch and H. Jeffreys. Philos Mag 6th ser 42:369-90 S '21

Knurling

Gray bench knurling machine. il Mach 27:184 O '20

Kodak park works. *See* Eastman kodak company

Kodaks. *See* Cameras—Advertising

Koka Seki. *See* Punice

Kokomo, Indiana**Rapid transit**

Real service in a city of 30,000. C. T. Dehore. il Elec Ry J 57:179 Ja 22 '21

Kongo, Belgian

See also Gold mines and mining—Kongo, Belgian; Mines and mineral resources—Kongo, Belgian; Railroads—Kongo, Belgian

Korea

See also Hydroelectric plants—Korea

Economic conditions

Economic history of Chosen. 266p Bank of Chosen, Seoul '21

Industries and resources

Building a Korean beet sugar factory. il Am Mach 54:690-2 Ap 21 '21

Kraemer, Albert

Sketch. T: E. Dabney. por System 39:378-9 Mr '21

Kreisinger, Henry H.

Blizard heads survey at Pittsburgh—Kreisinger will co-operate. Coal Age 17:1315 Je 24 '20

Krupp works

From swords to plowshares. Sci Am 125:165 S 3 '21

Reconstruction of the Krupp works at Essen. Am Mach 54:624c-d Ap 7 '21; Mach 27:776 Ap '21

Transformation of Krupp works. Am Mach 54:217 F 10 '21

Kryptocyanines

Kryptocyanines; a new series of photosensitizing dyes. E. Q. Adams and H. L. Haller. Am Chem Soc J 42:2661-3 D '20

Kudzu

Kudzu, the latest forage plant. R. H. Moulton. il Sci Am S 88:364-5 D 20 '19

Kutta's theorem

Generalization and general discussion of Kutta's theorem on circulation. diag U S Nat Advisory Com for Aeronautics 1918:140-2 '20

Kutter's formula

Determination of Kutter's coefficient for 30 in. concrete tile. Eng & Contr 55:147-8 F 9 '21

Diagram of values for C in Ganguillet & Kutter hydraulic formula. H. Philips. chart Can Eng 39:588-9 D 9 '20

Kynurenic acid

Über die kynurensäure. E. Besthorn. Deutsche Chem Gesell Ber 54:1330-4 Je '21

L**La Belle Iron works, Steubenville, Ohio**

Iron firm nears seventieth year. Iron Tr R 67:454-5 Ag 12 '20

Labels

Package labels; selected specimens. il Ptg Art 36:133-40 O '20

Value of illustrative label. W. L. Larned. Ptr Ink 112:133-4 Jl 22 '20

Labor, Compulsory

Compulsory work law of West Virginia held unconstitutional. Monthly Labor R 11:579-80 S '20

Failure of the Soviet system of militarized labor. L. Pasvolsky. Annalist 17:470 Ap 25 '21

Proposed labor conscription. Comm & Fin Chr 112:1339-40 Ap 2 '21

Slave labor in free Russia. J. O'Hara. Nation's Business 8:22-3 O '20

Standing army of labor in Bulgaria. Nation's Business 9:46+ Ap '21

Labor, Foreign. *See* Immigrants in the United States

Labor, Hours of. See Hours of labor

Labor and capital

- Are capital and labor getting together? R. Dickinson. *Ptr Ink* 110:85-6+ Ja 22 '20
- Consider the labor problem from the profit angle. H. Tipper. *Automotive Ind* 43:1182-3 D 9 '20
- Control of industry. E. J. P. Benn. *Electrician* 84:473-5 Ap 30 '20
- Engineering analysis of the labor problem. C. Townley. *Am Inst E E J* 39:711-14 Ag '20; Same cond. *Power* 52:73-4 Jl 13 '20; Same cond. *Eng & Contr* 54:415-16 O 27 '20
- Future relations of capital and labor. W. H. Taft. *Metal Ind* 19:120 Mr '21
- How management ties in with financing. G. M. Verity. *System* 39:636-7+ My '21
- Industrial reconstruction; Plumb plan extended to all industries. G. E. Plumb. *Ry Age* 68:251-4 Ja 16 '20
- Is labor a commodity? P. Kreuzpointer. *Ind Management* 58:363-4 N '19
- Is there an irrepressible conflict? *Ry Age* 69:1141-2 D 31 '20
- Labor as a business, not a commodity. *Mech Eng* 43:213 Mr '21
- Management and the stimulus to work. W. R. Basset. *Ptr Ink* 111:3-4+ Je 17 '20
- Meeting radical propaganda with reason why copy; a banker's answer to a labor leader's statement. *Ptr Ink* 112:129-30+ Ag 26 '20
- Position of cost and works accountants in co-ordinating the aims of capital and labor. *Eng & Ind Management* 5:196-8 F 17 '21
- Proper relations of capital and labor. S. K. Parker. *Inland Ptr* 66:780 Mr '21
- Relations of labor and capital. H. M. Hallsworth. *Eng & Contr* 53:369-70 Mr 31 '20
- Some results of small profits in manufacturing trades. F. Strickland. *Engineering* 109:533-4 Ap 23 '20
- Stand on labor principles by the Chamber of commerce of United States. *Nation's Business* 8:16-17 S '20
- Strikes and organization of employers. *Comm & Fin Chr* 111:1426 O 9 '20
- Turn of the tide. *Am Mach* 53:1170-1 D 23 '20
- Union viewpoint on labor questions. L. S. Kronheimer. *Ry Mech Eng* 95:5-6 Ja '21
- Wealth—its use and control. G. E. Roberts. *Administration* 1:1-10 Ja '21

See also Arbitration, Industrial; Boycott; Cooperation; Employees; Industrial betterment; Industrial councils; Industrial relations; Labor and laboring classes; Profit sharing; Strikes; Trade unions; Wages; Welfare work in industry; Workmen's compensation

Labor and laboring classes

- Architecture and craftsman. W. R. B. Willcox. *Am Inst Arch J* 9:244-6 Jl '21
- Baneful influences in labor leadership. S. H. Church. *Am Ind* 20:24-6 D '19
- Capital, labor and the public. R. J. Andersen. *Ind Management* 59:117-19 F '20
- Construction labor's instability; symposium. *Eng N* 83:759-60, 813-14, 876, 939-40, 1051-2 O 23-30, N 13, 27, D 25 '19
- Draft conventions adopted by International labor conference. *Monthly Labor R* 10:319-36 F '20
- Ethics of the machine shop. J. S. Watts. *Am Mach* 55:234-5 Ag 11 '21
- Historical survey of international action affecting labor. *U S Bur Labor Statistics Bul* 268:1-294 '20
- How the worker feels about it. W. Williams. *Nation's Business* 8:40+ Mr '20
- Human factor in industry. C. H. Northcott. *Ind Management* 62:195-8 O '21
- Industrial depression does not solve labor problem. H. Tipper. *Automotive Ind* 43:801-2 O 21 '20
- Industrial economics. H. Almert. *W Soc E J* 25:55-8 Ja 20 '20; Same abr. *Eng & Contr* 53:185-6 F 18 '20
- Industrial engineers discuss labor unrest. *Iron Age* 104:1125-8 D 4 '19
- Industrial magazines and labor conditions. H. E. Cleland. *Chem & Met Eng* 21:682-3 N 26 '19

- Industry, homes, and architecture. T. Adams. *Am Inst Arch J* 7:512-18 D '19
- International relations of labor. D. H. Miller. 77p Knopf '21
- Labor and industry. W. H. Barr. *Am Mach* 52:1212-13, 1256-7 Je 3-10 '20; Excerpt. *Metal Ind* 18:278 Je '20
- Labor and its responsibilities. C. Piez. *Coal Age* 16:882-4 D 11 '19
- Labor and radicalism. T. C. Knoles. *Comm & Fin Chr* 113:146-9 sec 2 O 29 '21
- Labor conditions in foreign countries; Norway, Japan, Mexico and Chile. W. G. McConnon. *Elec J* 18:102-4 Mr '21
- Labor field. *Pub Works* 48:357-8 Ap 24 '20
- Labour international handbook. Ed. by R. P. Dutt. 320p Labour research dept., London '21
- Labor movement; its conservative functions and social consequences. F. Tannenbaum. 259p Putnam '21
- Labor must return to a pre-war basis of production even though wages will never again strike level hitherto deemed normal. W. A. Fairservis. *Am Gas Eng J* 113:391-3 N 13 '20
- Mechanical engineers view labor situation. *Iron Age* 104:1177-9 D 11 '19
- National conference of state manufacturers' association Chicago conference. *Iron Tr R* 68:209-11 Ja 20 '21
- Plain talk for executives; by an employee. *Ind Management* 62:251-2 O '21
- President's second Industrial conference report. *Iron Tr R* 66:938-40, 1007-10, 1054-5, 1128-30, 1203-6 Mr 25-Apr 22 '20
- Production, and efficiency of labor. *Monthly Labor R* 11:990-3 N '20
- Proletarian mind. P. B. McDonald. *Eng N* 84:1042-3 My 27 '20
- Report of second Industrial conference. *Am Ind* 20:11-18 Ap '20
- Restoring craftsmanship pride to the worker. H. Tipper. *Automotive Ind* 45:482-3 S 8 '21
- Review of the present labor situation. H. Tipper. *Automotive Ind* 44:182-3 Ja 27 '21
- Revolution and democracy. F. C. Howe. 238p B. W. Huebsch, New York '21
- Rise of the industrial worker in an organized society. I. N. Hollis. *Mech Eng* 43:396-7 Je '21
- Three decades of employment fluctuation. R. G. Hurlin. *diags Annalist* 18:387-8 O 24 '21
- Trade unionism and labor problems. J. R. Commons. 2d series. 838p Ginn '21
- Tyrannous labor leaders, parlor socialists and so-called collective bargaining. H. H. Squire. *Ind Management* 61:133-40 F 1 '21
- Unskilled worker. H. W. Kimball. *Ind Management* 58:500-2 D '19
- Unwritten law that utilities labor will not strike not sufficient assurance that public's vital needs will not be jeopardized. W. A. Fairservis. *Am Gas Eng J* 113:233-4 S 25 '20
- What the worker really wants. W. Williams. *Nation's Business* 8:27-8 D '20
- What the workers think about capital. H. W. Kimball. *Ind Management* 59:245-7 Mr '20
- Workingmen's incentive and morale. P. Kreuzpointner. *Ind Management* 60:200 S '20
- Workman's home. L. H. Allen. *il plans Sci Am S* 88:330-1, 358-9 D 6-13 '19
- World standard for labor. D. T. Farnham. *Nation's Business* 8:24-5 Mr '20

See also Accidents, Industrial; Apprentices; Arbitration, Industrial; Bonus system; Boycott; Child labor; Coal miners; Consumers' leagues; Cooperation; Cost of living; Day labor; Disabled—Rehabilitation; Diseases, Industrial; Efficiency, Industrial; Employees; Employees' representation in management; Employers' liability; Employment agencies; Employment management; Employment systems; Factory inspection; Factory sanitation; Farm labor; Fatigue; Foundries—Employees; Guild socialism; Government employees; Home labor; Hours of labor; Housing problem; Housing projects, Company; Hygiene, Industrial; Industrial betterment;

Labor and laboring classes—Continued

Industrial education; Industrial management; Industrial relations; Industry; Insurance, Industrial; Labor and capital; Labor camps; Labor contracts; Labor disputes; Labor laws and other headings beginning Labor; Machinery in industry; Marine workers; Metal workers; Miners; Municipal employees; Occupations; Occupations, Choice of; Occupations, Dangerous; Office workers; Old age pensions; Open and closed shop; Pensions, Industrial; Piece work; Production; Profit sharing; Railroads—Employees; Roads—Convict labor; Safety devices and measures; Seamen; Servants; Shoe factories—Employees; Socialism; Standards of living; Steel workers; Street railroads—Employees; Strikes; Syndicalism; Time study; Trade agreements; Trade unions; Unemployment; Wages; Welfare work in industry; Woman—Employment; Woolen and worsted mills—Employees; Workmen's compensation; *also* International labor conference; International labor office, Geneva; Loyal labor legion of New York city

Bibliography

Publications of the National industrial conference board. Boston, Mass. '20
Publications relating to labor. See monthly numbers of the Monthly labor review
Reading list of books on social and labor problems for workers' classes. F. Anderson and R. Anderson. Library Journal 46: 741-7 S 15 '21

Dwellings

See Housing problem

Education

See Education of workers; Labor colleges

Terminology

Labor terminology. Harvard University Bureau of Business Research Bul 25:1-108 '21

Australia

Development of the labor situation in Australia. A. W. Ferrin. Monthly Labor R 11: 59-66 Jl '20

Belgium

Labor unrest in Belgium. A. L. Whitney. Monthly Labor R 12:863-70 Ap '21

See also Housing problem—Belgium; Wages—Belgium

Bulgaria

Standing army of labor in Bulgaria. Nation's Business 9:46+ Ap '21

Canada

Labor unrest in Canada. M. T. Waggaman. Monthly Labor R 13:21-32 Jl '21

See also Labor laws—Canada; Wages—Canada

China

Labor situation in China. Ta Chen. Monthly Labor R 11:1327-32 D '20

Labor unrest in China. Ta Chen. Monthly Labor R 13:278-92 Ag '21

See also Wages—China

Denmark

Wages and hours of labor in Denmark. Monthly Labor R 10:1182-3 My '20

See also Wages—Denmark

Egypt

Labor unrest in Egypt. V. B. Turner. Monthly Labor R 13:292-311 Ag '21

Europe

Europe's labor is in a ferment. H. C. Estep. Iron Tr R 67:995-7 O 7 '20

France

Analysis of collective agreements in France, January to October, 1920. Monthly Labor R 12:573-7 Mr '21

Economic labour council in France. L. Jouhaux. Int Labour R 1:159-66 F '21

France seeks legal power to force labor conciliation. H. Tipper. Automotive Ind 42: 1274-5 Je 3 '20

Industrial and labor conditions abroad. L. D. Burlingame. il Am Mach 51:1079-83 D 25 '19

Labor unrest in France. A. L. Whitney. Monthly Labor R 11:436-48 F '21

See also Housing problem—France; Labor laws—France; Trade unions—France; Wages—France

Germany

Aus den jahresberichten der Preussischen regierungs- und gewerberäte für 1914 bis 1919. C. Kutschera. Stahl & Eisen 41:860-4, 929-32 Je 23, Jl 7 '21

Cost of labor in Germany. Am Mach 52:1197-8 Je 3 '20

Die geistigen bewegungen in der deutschen arbeiterschaft. H. Schumacher. Stahl & Eisen 41:1-6, 48-54 Ja 6-13 '21

Labour cost in Germany. Engineer 129:502 My 14 '20

Labor unrest in Germany. Monthly Labor R 12:871-85 Ap '21

Problems of labor and industry in Germany. 65p National industrial conference board, New York '20

Report of the activities of the German board of trade during the war with tabulated data on the wage conditions and accidents for the period 1913-1918. Chem & Met Eng 23: 976-9 N 17 '20

Socialization schemes in the German building industry. A. Ellinger. Int Labour R 1: 287-301 Mr '21

Statistics as to occupied persons in the new Germany. Int Labour R 3:134-6 Jl '21

Woman labor in Germany during the war. A. Maylander, comp. Monthly Labor R 11:1036-50 N '20

See also Housing problem—Germany; Labor laws—Germany; Trade unions—Germany; Wages—Germany

Great Britain

British workers' objections to systems of payment by results. Eng & Contr 53:339-40 Mr 31 '20

Causes of the economic disturbances in England. E. J. P. Benn. Eng N 86:1069 Je 23 '21

Conciliation and arbitration in Great Britain. Int Labour R 1:371-90 Mr '21

Course of labor and the strike tendency in Great Britain. C. H. Northcott. Automotive Ind 42:622-4 Mr 4 '20

Course of labor and the workers' tendency in Great Britain. C. H. Northcott. Automotive Ind 42:970-3 Ap 22 '20

Effect of labor conditions on British production. J. W. Griggs. Automotive Ind 42:862-3 Ap 8 '20

European labor indicates a slow return to normal production. H. Tipper. Automotive Ind 42:824-5 Ap 1 '20

Foreign labor unreasonable. W. S. Pilling. Iron Tr R 67:651 S 2 '20

Full up and fed up; the worker's mind in crowded Britain. W. Williams. 324p Scribner '21

How the British labor unions became a power in politics. C. H. Northcott. Automotive Ind 43:778-80 O 14 '20

Industrial and labor conditions abroad. L. D. Burlingame. il Am Mach 51:1079-83 D 25 '19

Industrial problems and disputes. G. R. A. Askwith. 494p J. Murray, London '20

Interpretation of British wage movements. C. H. Northcott. Automotive Ind 43:480-1 S 2 '20

Labour and industry. P. Alden and others. 293p Longmans '20

Labour situation as it affects the electricity supply industry. T. W. Cole. Elec R (Lond) 88:425-6, 457-8, 527-8 Ap 1-8, 22 '21

Labor unrest in Great Britain. V. B. Turner. Monthly Labor R 12:677-96 Mr '21

Labor and laboring classes—Great Britain
—Continued

Life and labour in the nineteenth century. C: R. Fay. 319p The University press, Cambridge, Eng. [Macmillan] '20

Operation of the Whitley councils. Metal Ind 18:367-8, 416, 470 Ag-O '20

L'ouvrier anglais d'aujourd'hui. 277p Hachette, Paris '21

Political significance of the labor trend in Europe. H. Tipper. Automotive Ind 43:582-3 S 16 '20

What British experience indicates. H. Tipper. Automotive Ind 44:770-1 Ap 7 '21

What the British worker is thinking. C. H. Northcott. Ind Management 60:96-9 Ag '20

When labor rules. J. H. Thomas. 197p Harcourt, Brace and Howe, New York '21

See also Coal strike (British), 1920; Housing problem—Great Britain; Labor laws—Great Britain; Labor party (Great Britain); Trade unions—Great Britain; Wages—Great Britain

Hungary

Boycott of Hungary by international organized labor. Monthly Labor R 11:588-92 S '20

India

Labor unrest in India. V. B. Turner. Monthly Labor R 13:32-53 Jl '21

New labor movement in India. Monthly Labor R 11:387-8 Ag '20

See also Housing problem—India

Italy

Failure of communistic industry in Italy. A. Stewart. Ry R 68:88-90 Ja 15 '21

Italian labour. Engineering 110:447-8 O 1 '20

Italy's soviet shows weakness. F. Miltoun. Iron Tr R 67:1271-2 N 4 '20

Labor disturbances in the Italian iron and steel industry. A. Maylander, comp. Monthly Labor R 11:1317-26 D '20

Labor unrest in Italy. A. Maylander. Monthly Labor R 12:1253-75 Je '21

Strikes of Italian government employees. A. Maylander, comp. Monthly Labor R 10:1278-89 My '20

Workers' control in Italy: the government proposal. Int Labour R 1:333-46 Mr '21

Workers' education in Italy. Int Labour R 3:205-15 Jl '21

See also Wages—Italy

Japan

Industrial conditions in Japan. O. White. Monthly Labor R 11:250-5 Ag '20

Kyocho Kai or harmonizing society. Int Labour R 1:189-96 F '21

Labor unrest in Japan. A. L. Whitney. Monthly Labor R 13:53-63 Jl '21

Wages and working conditions and hours of labor in certain industries in Japan. Monthly Labor R 12:578-81 Mr '21

See also Trade unions—Japan

Mexico

Inefficiency and poor food of Mexican miners. C. H. Grabill. Il Eng & Min J 109:448-51 F 14 '20

Mexican peon. Min & Sci P 121:736 N 20 '20

New Zealand

Industrial peace in New Zealand. J. Findlay. Int Labour R 4:32-46 O '21

See also Wages—New Zealand

Norway

See also Wages—Norway

Philippine Islands

Wages and working conditions in the Philippine Islands. Monthly Labor R 11:1201-2 D '20

Russia

Attendance of workers in Moscow factories. Int Labour R 1:223-30 F '21

Employment situation in Russia since the bolshevik revolution. Int Labour R 4:96-110 O '21

Failure of the soviet system of militarized labor. L. Pasvolsky. Annalist 17:470 Ap 25 '21

Protection of labor in soviet Russia. S. Kaplan. 30p (Soviet Russia pamphlets, no. 4) Russian soviet government bureau, New York '20

Regulation of employment conditions in soviet Russia. Int Labour R 1:390-6 Mr '21

Slave labor in free Russia. J. O'Hara. Nation's Business 8:22-3 O '20

See also Labor laws—Russia

South Africa

See also Wages—South Africa

Spain

Labor unrest in Spain. A. L. Whitney. Monthly Labor R 12:1078-89 My '21

Sweden

See also Wages—Sweden

Turkey

See also Trade unions—Turkey

United States

Comparison of employment and wages in selected industries in January 1921 and 1920. Comm & Fin Chr 112:800-1 F 26 '21

Comparison of employment and wages in selected industries in February 1921 and 1920. Comm & Fin Chr 112:1230-1 Mr 26 '21

Industrial unrest: a study of present conditions in industry, with some suggestions. C: H. Eglee. Boston Soc C E J 6:317-29; Discussion. 329-39 N '19

Labor, management and production. ed. by M. L. Cooke, S: Gompers and F. J. Miller. 173p American academy of political and social science, Philadelphia '20

Labor recommendations in governors' messages of January, 1921. Monthly Labor R 12:671-7 Mr '21

Labor situation; Associated general contractors of America in convention at New Orleans discuss reduction of wages, open shop, union labor and apprenticeship. Pub Works 50:303-5 Ap 9 '21

Labor statistics give definite industrial facts. diags Automotive Ind 42:259-67 Ja 15 '20

Labor statistics indicate recent industrial trends. N. G. Shidle. Automotive Ind 44:415-21 F 17 '21

Labor the holder of the nation's wealth and income. W. R. Ingalls. Min & Sci P 121:558-60, 592-6, 628-32 O 16-30 '20; Discussion. C. V. Corless. 121:829-31 D 11 '20

Trends in management. H. H. Haylett. Factory 24:1157-9 Ap 15 '20

Wages working to normal basis. Il Iron Tr R 68:7-11 Ja 6 '21

Workers in American history. J. Oneal. 208p 4th ed., rev. and enl. Rand school of social science, New York '21

See also Housing problem—United States; Labor laws—United States; Trade unions—United States; Unemployment; Wages—United States; *also* Cigar makers' union

Labor bureaus. *See* Labor departments

Labor camps

Housing and feeding maintenance of way employees on the N.C. & St L. Ry. H. McDonald. Il diags Ry R 67:843-6 D 4 '20; Excerpt. Eng & Contr 54:584-5 D 15 '20

Labor camps in California. Monthly Labor R 11:846-8 O '20

See also Construction camps; Lumber camps; Oil camps

Labor colleges

Adult working-class education' in Great Britain and the United States; a study of recent developments. C: P. Sweeney. U S Bur Labor Statistics Bul 271:1-101 '20

Adult working-class education in the United States. Monthly Labor R 12:1301-9 Je '21

What the workers want to know. W: L. Stoddard. Ind Management 61:208-10 Mr 1 '21

Labor colleges—Continued

Workers' education; American experiments with a few foreign examples. A. Gleason. rev. ed. 87p bibliog Bureau of industrial research, 289 4th av., New York '21

Labor colonies. See Agricultural colonies

Labor conference, International. See International labor conference

Labor contracts

Contract system in mines. E. Hedburg. Min & Sci P 120:667-8 My 8 '20

Contract system of mining coal. Coal Age 17:959; 18:176, 348-9, 400, 639, 688-9, 808 My 6, Jl 22, Ag 12-19, S 23-30, O 14 '20

Contract wage system for mines. A. K. Knickerbocker. Min & Met 158:(sec 32) 1-8 F '20; Same. Min & Sci P 120:497-500 Ap 3 '20; Excerpt. Eng & Contr 53:299-300 Mr 17 '20; Discussion. Min & Met 159:(sec 2) 15-16 Mr '20

Contracts with labor unions. C. C. Sherlock. Am Mach 53:897-8 N 11 '20

Enforcibility of labor contracts. E. L. Seabrook. Dom Eng 92:380-1 Ag 21 '20

Essentials of a labor contract. E. Gruhl. Elec Ry J 55:96-101; Discussion. R. I. Todd. 92-4 Ja 10 '20

See also Open and closed shop; Trade agreements; Wages

Labor cost

Efficiency of labor in building trades. J. B. Miles. Eng & Contr 54:81 Jl 28 '20

Engineering costs. F. Walker. Eng & Ind Management 5:486-90 Ap 28 '21; Discussion. 5:578 My 19 '21

Estimating labor hour requirements for three types of street railway track construction. D. B. Davis. diags Munic Eng 58:239-40 Je '20

Is the workman responsible for high labor cost? D. Patch. Eng N 84:876-7 Ap 29 '20

Labor cost chief wedge between wholesale and retail prices. G. E. Putnam. Annalist 17:565 My 23 '21

Labor cost of constructing monolithic concrete sewers. D. B. Davis. diags plan Eng & Contr 53:434-5 Ap 14 '20

Labor costs and the workman. E. H. Fish. Ind Management 59:412-15 My '20

Labor hours per output unit in building construction. F. E. Barnes. Eng N 86:888-91 My 26 '21

Modern production methods; analyzing the labor costs. W. R. Basset. diag Am Mach 54:187-91 F 3 '21

Relation of cost of labor to factory product. H. Tipper. Automotive Ind 44:282-3 F 10 '21

Track labor costs. P. N. Wilson. il Elec Ry J 58:438-9 S 17 '21

True relation between wages and unit cost. H. Tipper. Automotive Ind 45:301-2 Ag 18 '21

Wisconsin experience with day-labor road construction. W. C. Buetow. Eng N 86:1070-3 Je 23 '21

See also Time tickets

Labor departments

Organization of Massachusetts department of labor and industries. Monthly Labor R 10:803-7 Mr '20

Proposed organization of New York state department of labor. Monthly Labor R 10:266-9 Ja '20

What state labor bureaus are doing. See monthly numbers of Monthly labor review

See also Labor officials

Labor disputes

Federal intervention in railroad disputes. L. Magnusson and M. A. Gadsby. Monthly Labor R 11:26-43 Jl '20

Individual worker as the keystone of the labor arch. H. Tipper. Automotive Ind 42:1072-3 My 6 '20

Labor dispute which was settled by frankness. Automotive Ind 44:661 Mr 24 '21

Labor disputes in New York state involve loss of over ten million days. Comm & Fin Chr 111:2185 D 4 '20

Pennsylvania railroad system inaugurates new method of handling labor disputes. Am Mach 54:207-8 F 3 '21

Portland (Oregon) plan of preventing labor disputes. Monthly Labor R 11:1214-18 D '20

Provisions for dealing with labor disputes in Great Britain during the war. Monthly Labor R 10:1062-4 Ap '20

Settlement of wage disputes. H. Feis. 289p Macmillan '21

See also Arbitration, Industrial; Picketing; Railroads—Employees—National agreements; Strikes

Labor grading

Grading of labour. A. W. Kirkaldy. Eng & Ind Management 6:347-9 S 29 '21

Labor laws and legislation

Decisions of courts and opinions affecting labor 1918. L. D. Clark and M. C. Frincke, jr. U S Bur Labor Statistics Bul 258:1-233 '20

Labor laws and decisions. See monthly numbers of Monthly labor review

See also Boycott; Child labor; Courts, Industrial; Employers' liability; Hours of labor; Industrial laws and legislation; Labor, Compulsory; Labor contracts; Minimum wage; Strikes; Trade unions; Wage claims; Woman—Employment; Woman—Law; Workmen's compensation

Austria

Social legislation in the republic of Austria. M. Lederer. Int Labour R 2:133-59 My '21

Canada

Labor legislation of 1920 in Canada. Monthly Labor R 11:580-3 S '20

Czechoslovakia

Labour legislation in Czecho-Slovakia. Int Labour R 1:302-12 Mr '21

Works councils and arbitration tribunals in the Czecho-Slovakian mining industry. Int Labour R 2:26-31 Ap '21

France

Conciliation and arbitration in collective labour disputes in France. Int Labour R 3:166-78 Jl '21

Les conventions collectives du travail. E. Chauvin. Chimie & Ind 3:692-9 My '20

Labour legislation in France during and after the war. R. Picard. Int Labour R 3:27-40 Jl '21

Germany

Les conseils d'exploitation dans les entreprises industrielles en Allemagne. G. Mesnard. Génie Civil 79:153-4 Ag 13 '21

German workers' council law. Engineer 129:356 Ap 2 '20

German works council law. Monthly Labor R 10:1246-55 My '20

German works councils act. Chem & Met Eng 22:1172 Je 23 '20

German works councils act and its significance. E. Bernstein. Int Labour R 1:175-87 F '21

New spirit in German labour legislation. E. Francke. Int Labour R 4:25-31 O '21

Recent developments in German works council system. Monthly Labor R 12:1251-3 Je '21

Die rechtsverwirklichung im jetzigen und künftigen arbeitsrecht. F. Goerrig. Stahl & Eisen 41:923-6 Jl 7 '21

Vermittlungsmonopol und vermittlungstätigkeit im neuen arbeitsnachweisgesetzentwurf. F. Goerrig. Stahl & Eisen 41:757-60 Je '21

Vertragsfreiheit, selbstverwaltung oder bürokratischer staatszwang im neuen arbeitsrecht. F. Goerrig. Stahl & Eisen 41:1301-3 S 15 '21

Works councils in Consumers' co-operative societies in Germany. Int Labour R 3:188-204 Jl '21

Zum entwurf eines neuen arbeitszeitgesetzes. F. Goerrig. Stahl & Eisen 41:1416-20 O 6 '21

Labor laws and legislation—*Continued*

Great Britain

Industrial courts act (1919) of Great Britain. Monthly Labor R 10:345-50 F '20
Summary of labor legislation in Great Britain in 1919. Monthly Labor R 10:200-2 Mr '20

See also Apprentices—Law

Russia

Code of labor laws of Soviet Russia. Monthly Labor R 10:1040-4 Ap '20

United States

Federal labor legislation. L. D. Clark. Monthly Labor R 12:832-8 Ap '21
Labor laws and legislation, International
International labour law. E. Mahaim. Int Labour R 1:283-6 Mr '21
International labor legislation. I. F. Ayusawa. 258p Columbia university, New York '20

See also Intellectual workers

Labor losses

Production hours—a new measure of management. W: L. Stoddard. Factory 26: 1287-91 Je 1 '21

Labor officials

Directory of labor officials in United States and Canada. Monthly Labor R 11:181-201 Jl '20
Directory of labor officials in United States and Canada. Monthly Labor R 13:230-48 Jl '21

Labor party (Great Britain)

New labour outlook. R. Williams. 160p L. Parsons, London '21

Labor-saving devices

Doing more work with fewer men. B. S. Pear-sall. il Factory 27:339-41 S '21
Drive against drudgery. A. W. Douglas. il Nation's Business 8:51-2 Ag '20
Labor-saving devices for loading and unloading. il Ry R 67:950 D 18 '20
Labor-saving devices that may with profit be used in the gas industry. G: A. Neal. Am Gas Eng J 112:342-4 My 1 '20; Same. Gas Age 45:404-5 My 10 '20
Report of committee on office labor saving devices. J: L. Conover. Am Gas Assn Accounting sec v 1:15-34; Discussion. 35-42 '19
Time-saving devices in an assay office. F. L. Smith. il diags Eng & Min J 110:111-12 Jl 17 '20

See also Calculating machines; Domestic appliances; Mechanical handling; Milking machines; Office appliances; Punched card system

Labor supply

Alien labor supply. Pub Works 48:397-8 My 8 '20
Check of immigration requires labor conservation. F. A. Kellor. Am Gas Eng J 113:155-6 Ag 21 '20; Same. Ry R 67:794-5 N 20 '20; Same. Blast F & Steel Pl 8:694 D '20
Labor conditions; tabulation. Pub Works 50: 309 Ap 9 '21
Labor for public works: unskilled labor in United States; tabulation. map Pub Works 50:121-9 F 5 '21
Labor situation. Pub Works 49:298-300 O 2 '20
Laborers—and other laborers. O. R. Rietschlin. Eng & Contr 54:67-8 Jl 21 '20
Shall Chinese labor be imported to relieve unskilled labor shortage? Eng N 84:926-7, 1121-2 My 6, Je 3 '20
Shortage of untrained female labor. Comm & Fin Chr 111:1528-9 O 16 '20

See also Employment systems; Immigration and emigration—United States; Labor turnover; Unemployment

Labor treaties

See also Franco-Italian labor treaty

Labor turnover

Analysis of labor records. D: R. Craig. chart Ind Management 61:374-6 My 1 '21

Analysis of labor turnover. G. S. Watkins. Administration 2:27-35 Jl '21

Can you afford to lose an executive? F. L. Eidmann. Factory 26:318-19 F 1 '21
Common sense attack on turnover. J. R. Adams. il Ind Management 62:298-302 N '21

Des Moines manufacturers consolidate employment study. H. C. Pfund. Iron Tr R 68:286-9+ Ja 27 '21

Elements of labor turnover. E. C. Gould. Ind Management 59:510-12 Je '20

Finding out what turnover costs. J. R. Sedgwick. Factory 25:530-2 Ag 15 '20

Hoboes of industry. H. A. Mount. Sci Am 122:541 My 15 '20

Keeping track of labor turnover. Automotive Ind 41:978-9 N 13 '19

Labor turnover in New York city. Am Mach 53:933-5 N 18 '20

Labor turnover least in 1915. Iron Tr R 67: 309 Jl 29 '20

Labor turnover—not a disease but a symptom. J. C. Clark. Ry Age 69:1157-9 D 31 '20

Labor turnover recording code. E. J. Benge. Ind Management 60:248 S '20

Manufacturer's part in labor turnover. F. G. Timperly. Ind Management 58:502 D '19

Mathematics of labor turnover. C. G. Barth. diags Ind Management 59:315-18 Ap '20

Migratory workmen handicap advertising's results. C. M. Wright. Ptr Ink 112:129+ Ag 19 '20

Millions are wasted in labor turnover. Iron Tr R 69:307 Ag 4 '21

Mobility of labor in American industry. P. F. Brissenden and E. Frankel. charts Monthly Labor R 10:1342-62 Je '20

New employee as a vital factor in labor turnover. N. G. Shidle. il Automotive Ind 42:1216-18 My 27 '20

New York subway's plan for cooperation with employees. F. Hedley. Ptr Ink 113: 177+ O 7 '20

Prevention of labor turnover. H. G. Kenagy. Administration 2:464-8 O '21

Production hours—a new measure of management. W: L. Stoddard. Factory 26: 1287-91 Je 1 '21

Reducing foreign labor turnover. A. Hanko. Ind Management 61:367-9 My 1 '21

Significance of labour turnover. Eng & Ind Management 5:134-5 F 3 '21

Some remarkable labor turn-over statistics. W: S. Wollner. Ry Age 71:582 S 24 '21

Sources of labor loss. J. B. LeClere. Ind Management 62:177-81 S '21

Study in human nature; reasons for labor turnover. Elec Ry J 58:731 O 22 '21

Suggested cures for labor turnover. C. W. Holmes. Ind Management 58:505-6 D '19

Turnover of labor. Min & Sci P 121:165 Jl 31 '20

Visualizing employment records. W. S. Wells. charts Ind Management 60:67-70 Jl '20

What the workers think about management. A. Fry. Ind Management 60:322-7 N '20

Why men quit. H. L. Keely. il chart Ind Management 62:223-7 O '21

See also Employment management; Employment systems

Labor unions. *See* Trade unions

Laboratories

Coal-tar research at Shadyside, Edgewater. N.J. J: M. Weiss and C: R. Downs. il plans Chem & Met Eng 24:150-5 Ja 26 '21

Design of a laboratory for carburetion investigation. il diag Automotive Ind 42:906-11 Ap 15 '20

Developing laboratory work along practical business lines; Research department of the Aluminum castings company. J. E. Schipper. il chart Automotive Ind 42:414-18 F 5 '20

Electric furnace laboratory of the Bureau of mines. C: D. Grier. il diags Chem & Met Eng 21:574-6 O 29 '19

Industrial laboratory, U.S. Bureau of standards, Washington, D.C.: views and plans. Arch Forum 34:pl 6-7 Ja '21

Laboratory in business. il Sci Am 122:570+ My 22 '20

Laboratories—Continued

- Loughborough technical college. il diags Engineering 110:232-6 Ag 20 '20
 Novel laboratory for industrial research. il Chem & Met Eng 23:496-8 S 8 '20
 Research laboratories in industrial establishments of the United States of America. A. D. Flinn, A. J. Porskievies and R. Cobb. (National Research Council Bul v. 1, no. 2) p 45-130 Mr '20 National research council, 1701 Massachusetts av, Washington, D.C.
 Selling the basic material plus an idea. R. Dickinson. il Ptr Ink M 3:39-40+ O '21
 Value of cost accounting in commercial laboratories. W: W. Caswell. J Ind & Eng Chem 12:79-81 Ja '20

See also Aerodynamic laboratories; Ceramic laboratories; Chemical laboratories; Electric laboratories; Engineering laboratories; Hydraulic laboratories; Industrial research; Metallurgical laboratories; Physical laboratories; Testing laboratories; United States—Forest products laboratory; United States—Mines, Bureau of—Cryogenic laboratory; Waterworks—Laboratories

Heating

See also Incubator rooms—Heating

- Laboratories, Aerodynamic. *See* Aerodynamic laboratories
 Laboratories, Chemical. *See* Chemical laboratories
 Laboratories, Engineering. *See* Engineering laboratories
 Laboratories, Hydraulic. *See* Hydraulic laboratories
 Laboratories, Metallurgical. *See* Metallurgical laboratories
 Laboratories, Non-magnetic
 Magnetic-proof house for the workers in Department of research in terrestrial magnetism, Carnegie institution. H. A. Mount. il Sci Am 123:423+ O 23 '20
 Laboratories, Physical. *See* Physical laboratories
 Laboratories, Testing. *See* Testing laboratories
 Labrador
 Pulp wood from Labrador. J. T. Rowland. il Sci Am 123:156 Ag 14 '20
 Lace and lace making
 Lace. E. F. Thomson. 47p Grafton & co., London '20
 Machine-made laces and embroideries. R. G. Skerrett. il Sci Am M 2:47-52 Jl '20

Bibliography

- Lace guide for makers and collectors. G. Whiting. \$15 E. P. Dutton & co., 1920. Bibliography: p. 243-401
 Lace curtains. *See* Curtains
 Lackawanna steel company
 Annual report, 1919. Comm & Fin Chr 110:1098-9 Mr 13 '20
 Annual report—for fiscal year ended December 31, 1920. Comm & Fin Chr 112:1041-2 Mr 12 '21
 Laclede-Christy clay products company
 How Laclede-Christy markets its product. il Brick & Clay Rec 58:736-8 My 3 '21
 Lacquer and lacquering
 L'introduction, en France, de l'industrie de la laque d'Extrême-Orient. M.-Y. Lemaire. Génie Civil 78:195-6 F 26 '21
 Lacquer finishes on chandeliers. W. D. Scott. Metal Ind 19:363 S '21
 Quick dry lacquer coating. H: A. Gardner. Sci Am 122:320 Mr 20 '20
See also Japanning; Varnish and varnishing
 Lactic acid
 Fermentation process for the production of acetic and lactic acids from corncocks. E. B. Fred and W. H. Peterson. J Ind & Eng Chem 13:211-13 Mr '21
 Ladders
 Pipe ladder for industrial plants. H: Brady. diags Power Pl Eng 25:124-5 Ja 15 '21

Safety devices and measures

- Essentials of a national safety code for ladders. C. B. Connelley. Safety Eng 42:165-6 O '21
 Need of a safety code for ladders. F. A. Davidson. Safety Eng 42:180-2 O '21
 Tentative draft of ladder safety code. Safety Eng 42:81-6 Ag '21
 Lading, Bills of. *See* Bills of lading
 Ladle stoppers. *See* Foundry ladles—Stoppers
 Ladles
 Welding ladle spouts at Garfield. E. J. Harris. il Eng & Min J 111:870 My 21 '21
 Whiting teapot-spout crane ladle. il Am Mach 54:516 Mr 24 '21
 Ladles, Steel
 Repairing lips and bottoms of steel ladles. il diags Eng & Min J 110:1217 D 25 '20; Chem & Met Eng 23:1226 D 22 '20
 Lafayette flying corps. *See* Aviation—Lafayette flying corps
 Lake carriers' association
 Annual meeting, Detroit, Jan. 15. Marine R 50:163-4 Mr '20
 Lake commerce shows reaction. W: Livingstone. Marine R 50:167-9 Mr '20
 Wins success against obstacles. W: Livingstone. Marine R 51:143-5 Mr '21
 Lake colors. *See* Dyes and dyeing
 Lake Erie & Western railroad
 Annual report for the year ended December 31, 1920. Ry Age 71:805 O 22 '21
 Lakes
 Data of geochemistry. F. W. Clarke. U S Geol S Bul 695:59-117 '20
See also Great Lakes
 Lakewood, Ohio
 Report on a tentative zoning plan for Lakewood. R. H. Whitten. map Eng N 85:789-91 O 21 '20
 Lambert, Johann Heinrich, 1728-1777
 Lambert and photometry. A. P. Trotter. Illum Engr 12:313-15 N '19
 Laminariaceae
See also Kelp
 Lamp banks. *See* Electric testing
 Lamp globes
 Diffusive glassware as a means toward proper lighting. E. J. Davidson, jr. il Elec R 79:225-7 Ag 13 '21
 Glass an adaptable element in lighting equipment. F. J. Blaschke. il Elec R 79:49-50 Jl 9 '21
 Glassware and posts for street-lighting service. C. H. Shepherd. il Elec R 79:51-5 Jl 9 '21
 Lighting for comfort in homes and public places. H. T. Spaulding. il Elec R 79:385-7 S 10 '21
 Street lighting glassware. S. L. E. Rose. diags Gen Elec R 24:740-3 Ag '21
 Lamp posts. *See* Street lighting fixtures
 Lamp shades
 Glass an adaptable element in lighting equipment. F. J. Blaschke. il Elec R 79:49-50 Jl 9 '21
 Lampblack
 Lampblack, by-product from oil gas manufacture a readily marketed domestic fuel. E. L. Hall. il Am Gas Eng J 112:77-80 Ja 31 '20
See also Carbon black

Bibliography

- Lampblack; a bibliography. 8p Carnegie library, Pittsburgh '19
 Lampreys
 Curious habits of lampreys. M. Tevis. il Sci Am 124:233+ Mr 19 '21
 Lamps. *See* Acetylene lamps; Automobiles—Lighting; Electric lamps; Gas lamps; Reflectors; Safety lamps; Searchlights
 Lamps, Electric. *See* Electric lamps
 Lamps, Gas. *See* Gas lamps
 Lamps, Mine. *See* Safety lamps

Lancaster, Massachusetts**Churches**

Bulfinch church, Lancaster, Mass. C: A. Place. il diags plan Arch Forum 34:front, 192-8 Je '21

Land

Industry, homes and architecture. T: Adams. Am Inst Arch J 8:173-7 My '20

Land question as related to city planning and housing. G: H. Gray. diags plan Am Inst Arch J 9:330-7 O '21

See also Agricultural colonies; Agriculture; Clearing of land; Coal lands; Drainage; Farms; Irrigation; Mineral lands; Oil lands; Real estate business; Reclamation of land; Rent

Valuation

See Assessment

Land banks. *See* Federal farm land banks

Land drainage. *See* Drainage

Land settlement. *See* Agricultural colonization

Land tenure

City planning and land tenure. Am Inst Arch J 9:313-15 O '21

Program for financing the rehousing of the workers of Belgium. M. A. Van Den Bempt. Am Inst Arch J 8:229-37 Je '20

See also Coal lands; Landlord and tenant; Mineral lands; Oil lands

Landlord and tenant

Law of landlord and tenant. J. H. Redman. 7th ed. 906p Butterworth & co., London '20

See also Apartment houses; Housing laws; Rent; Tenement houses

Landscape architecture. *See* Back yards; Forest recreation; Landscape gardening

Landscape gardening

Beautifying the farmstead. F. L. Mulford. il chart diags plans U S Agric Farmers' Bul 1087:1-63 '20

Creation of an American style of landscape architecture. W: E. Bliz-Zard. Arch Rec 47:93-6 Ja '20

Gardens of Charles M. Schwab, esq., Loretto, Pa. R. Imlay. il plans Arch Rec 47:386-407 My '20

How Slidertown was changed into South Park. il Arch & Bldg 52:49-51 My '20

Landscape architecture: a comprehensive classification scheme for books, plans, photographs, notes and other collected material; with combined alphabetic topic index and list of subject headings. H: V. Hubbard and T. Kimball. 132p '20 Harvard university press, Cambridge

Landscape architecture in the Middle West; some recent work of W: Pitkin, jr. P. L. Small. il Arch Rec 47:214-31 Mr '20

Landscape gardening. A. J. Downing and F. A. Waugh. 10th ed. 439p Wiley '21

Landscape gardening at Spokane incinerator. il plan Munic J 48:7 Ja 3 '20

Relation between the architect and the landscape architect. W: Pitkin, jr. il plans Am Arch 117:327-34, 363-7 Mr 17-24 '20

Some suggestions for landscape designing for public and private grounds. F. H. Dudley. 43p Maine. Dept. of Agric., Augusta

See also Back yards; Cemeteries; Gardens; Parks; Trees; Water gardens

Landslides

Bigelow Boulevard slide at Pittsburgh. M. R. Scharff. il map Eng N 85:1076-80 D 2 '20

Council committee reports on Pittsburgh slide. Eng N 86:610 Ap 7 '21

Heavy slide badly deranges train operation. il Ry Age 69:1029-30 D 10 '20

How railroad forces met a serious emergency. il diag plan Ry Age 69:1053-6 D 17 '20

Landslip material successfully chuted into railroad cars. diags Eng N 85:1040-1 N 25 '20

Retaining wall in deep cut displaced by slide. diags Eng N 84:870 Ap 29 '20

Sliding Pittsburgh hillside covers eight Pennsylvania R.R. tracks; fill dumped on steep slope below Bigelow Boulevard causes failure of retaining wall. M. Knowles and M. R. Scharff. il Eng N 85:1058-9 N 25 '20

See also Subsidences

Langley, Samuel Pierpont, 1834-1906

New Langley controversy. G. Brewer. il Aviation 11:532; Discussion. C: M. Manly; C: D. Walcott. 11:532-5 N 7 '21

Langley (aircraft carrier)

Navy building battleships of new design. J: W. Kean. il Pop Mech 35:331-4 Mr '21

United States aircraft carrier Langley. il Sci Am 124:49 Ja 15 '21; Aviation 9:478-9 D 27 '20

Langmuir, Irving

Award of the Nichols medal to Dr Langmuir. por Chem & Met Eng 22:486-7 Mr 17 '20

Medal presentation. W: H. Nichols. por J Ind & Eng Chem 12:385-6 Ap '20

Langmuir postulates

Analysis of molecular volumes from the point of view of the Lewis-Langmuir theory of molecular structure. R. N. Pease. Am Chem Soc J 43:991-1004 My '21

Architecture of the atom. O. R. Foster. diags Sci Am 122:544+ My 15 '20

Architecture of the molecule. O. R. Foster. diags Sci Am 122:596+ My 29 '20; Same. Brass W 17:10-11 Ja '21

Langmuir's theory of the arrangement of electrons in atoms and molecules. C: R. Bury. Am Chem Soc J 43:1602-9 Jl '21

Some remarkable models of atomic and molecular structure. O. R. Foster. il Chem & Met Eng 23:690-2 O 6 '20

Language, Universal

International auxiliary language problem. W. Nichols. Sci Am M 3:365-8 Ap '21

See also Esperanto

Lansing, Michigan**Water supply**

Water-supply typhoid outbreak at Lansing. J. R. Daugherty. diags plan Eng N 84:92-4 Ja 8 '20

Lansing (Michigan) high school

Industrial co-operative course of the Lansing high school. E. M. Hall. il Am Mach 54:83-6 Ja 20 '21

Lantern projection

Improved type of optical projection apparatus for screw thread inspection designed and built by the Bureau of standards. L. A. Fischer. il Am Mach 53:1153 D 16 '20

Modified stereopticon feature of theater. H. E. Thomas. il Pop Mech 36:666-7 N '21

No slides necessary for new daylight projector. il Pop Mech 36:208-9 Ag '21

Lanthanum

Revision of the atomic weight of lanthanum. G. P. Baxter, M. Tani and H. C. Chapin. Am Chem Soc J 43:1080-5 My '21

Lapping. *See* Grinding and polishing**Lapping machines.** *See* Grinding machines**Larceny**

Larceny of water, gas and electricity. J. Simpson. Munic J 48:28-30 Ja 17 '20

See also Automobiles—Theft; Platinum—Theft; Railroads—Theft losses; Silk theft

Lard, Substitutes for

U.S. Supreme court holds Burchenal patent void for anticipation by the Normann process. W. Gustin. Chem & Met Eng 24:789-90 My 4 '21

La Rhone engines

New engine. Sci Am 123:503 N 13 '20

Larvae

Experience with insect larvae in decreasing canal capacity. Eng N 84:923 My 6 '20

Lasker, Albert D., 1881-

New chairman of the Shipping board. por Marine Eng 26:503 Jl '21; Comm & Fin Chr 112:2602 Je 18 '21

Salvaging the shipwreck. W: A. DuPuy. por Nation's Business 9:21-2 S '21

Latent heat

Surface energy, latent heat, and compressibility. D. L. Hammick. Philos Mag 6th ser 41:22-32 Ja '21; Discussion. H. Chatley. 42:183-4 Jl '21

Latent heat of fusion. See Fusion, Latent heat of

Lathes

Adjustable boring, turning and facing head for turret lathes. J. Blakey and J. A. H. Shankley. diags Eng & Ind Management 5:637 Je 2 '21

Alfred Herbert no. 5 automatic chucking lathe. il diags Ry Mech Eng 94:734-6 N '20

Alfred Herbert no. 20 combination turret lathe. il Am Mach 55:203 Ag 4 '21

Alfred Herbert thread-cutting lathe. il diag Mach 27:899-900 My '21

Application of modern semi-automatics to electrical manufacture. H. Ashton. il diags Electrician 86:635-8 My 20 '21

Atkins 5½-in. tool room lathe. il diags Engineering 110:766-7 D 10 '20

Bench lathes and millers as production tools. il diags Mach 28:130-4 O '21

Betts-Bridgeford all-gearhead 60-in. or 72-in. lathe. il Mach 26:881-2 My '20; Iron Age 105:1222 Ap 29 '20; Am Mach 52:1116 My 20 '20; Ry Mech Eng 94:418-19 Je '20

Betts-Bridgeford geared-head 32 to 48 in. lathe. il Mach 26:775 Ap '20; Ry Mech Eng 94:406-7 Je '20

Betts 26-in. geared-head lathe. il Mach 26:983-4 Je '20

Cadillac vertical lathe. J. V. Hunter. il Am Mach 54:489-91 Mr 24 '21

Capstan lathe with rotating multiple stops. il Engineer 129:632 Je 18 '20

Cincinnati geared-head lathes. il Mach 26:679 Mr '20; Iron Age 105:661 Mr 4 '20; Ry R 66:779-80 My 8 '20; Automotive Ind 43:65 Jl 8 '20; Engineering 109:758 Je 4 '20; Aviation 10:371 Mr 21 '21

Crankshaft turning practice. J. V. Hunter. il diags Am Mach 54:456-8 Mr 17 '21

Cutting power of lathe turning tools; abstract with discussion. G. W. Burley. Engineer 128:640-1 D 26 '19

Economy in the manufacture of crankshafts. il Automotive Ind 42:963-4 Ap 22 '20

18-in. high-speed sliding and surfacing lathe. il diags Engineering 109:513, 516 Ap 16 '20

Evolution of the engine lathe. J. E. Franzen. Am Mach 53:184 Jl 22 '20; Discussion. 53:335, 591 Ag 12, S 23 '20

Example of correct turret lathe practice. F. S. Harmer. il diags Ry Mech Eng 94:669-70 O '20

Fitchburg 4-inch Lo-swing lathe. il Mach 27:86-7 S '20

Foot-Burt piston-turning machines. J. V. Hunter. il Am Mach 53:124-5 Jl 15 '20

Geared-head transmission for lathes. il Mach 27:164 O '20

Geared head turret lathe with 12 spindle speeds. il Iron Age 106:1198-9 N 4 '20; Iron Tr R 67:1281-2 N 4 '20

Gisholt 10-in. automatic turret lathe. il diags Engineering 112:463-7, pl 26 S 30 '21

Gordon camshaft lathe. J. V. Hunter. il diags Am Mach 51:1085-8 D 25 '19

Greenlee double-end center-drive lathe. J. V. Hunter. il Am Mach 52:815-17 Ap 15 '20

Hamilton double carriage production lathe. J. V. Hunter. il Am Mach 53:1021-2 D 2 '20

Handling large work on small lathes. F. C. Hudson. il Am Mach 53:976 N 25 '20

Hartness automatic lathe. il Iron Age 107:386 F 10 '21; Am Mach 54:273-5 F 17 '21

Herbert auto-lathe. il diags Engineer 131:574-5 My 27 '21

Herbert hexagon turret lathe. il diags Engineering 110:146-7 Jl 30 '20; Am Mach 52:969 Ap 29 '20

Herbert no. 5 automatic turret lathe. il Am Mach 53:600-1 S 23 '20

Herbert universal turret lathe. il Am Mach 52:1015 My 6 '20

Houston, Stanwood & Gamble 60-in. heavy triple-gearhead lathe. il Iron Age 107:1622 Je 16 '21; Am Mach 54:967-8 Je 2 '21; Ry Mech Eng 95:464-5 Jl '21

Ideal geared-head engine lathe. il Am Mach 52:421-2 F 19 '20

Improved lathe headstock details and their jigs. H. Bentley. diags Eng & Ind Management 6:398-9 O 13 '21

Influence of the automobile on lathe practice. R. E. Flanders. Mech Eng 43:532-3 Ag '21

Large lathe made by Thomas Shanks and co., Johnstone, Scotland. il (supp) diag Engineer 132:325-6 S 23 '21

Lathe lead screw variator device. il Iron Age 107:569 Mr 3 '21

Lathe work; tools, and methods of setting up work for turning, facing and boring. il diags Power Pl Eng 24:846-8 S 1 '20

Lathes displayed at Machine tool and engineering exhibition. il Engineering 110:306-9, 337-9 S 3-10 '20

Lehmann geared head engine lathe. il Iron Age 107:206 Ja 20 '21

Lehmann 22-in. and a 24-in., 3-step cone, double back-gearhead engine lathe. il Iron Age 108:324 Ag 11 '21

Libby turret lathe practice. il diags Mach 26:1132-9 Ag '20

Machines automatiques Thomas Ryder pour l'usinage des pistons et des segments de pistons. il diags Génie Civil 78:57 Ja 15 '21

Machining clutch parts on turret lathes; tooling equipment used in the plant of the Borg & Beck co., Chicago, Ill. il diags Mach 27:156-9 O '20

Melling cam turning lathe. il Iron Age 107:510 F 24 '21

Millholland geared-head turret lathe. J. V. Hunter. il Am Mach 53:485-6 S 9 '20

Millholland turret lathe for intensive production. il Ry Mech Eng 94:807 D '20

Monarch machine tool co. adds to line of engine lathes. il Iron Age 108:471 Ag 25 '21

Morris geared head lathe made in three sizes. il Ry Mech Eng 95:384-5 Je '21

New automatic chucking lathe developed at New England plant. P. M. Heldt. il diags Automotive Ind 44:510-12 Mr 3 '21

Niles-Bement-Pond adaptable 90-in. journal-turning lathe. il Ry Mech Eng 95:591-2 S '21

Noble & Lund 48-in. railway wheel lathe. il diag Engineering 112:280-1 Ag 19 '21

Obtaining production on the vertical turret lathe. il diags Mach 27:534-40 F '21

P.M.C. precision bench lathe. il Iron Age 105:1104 Ap 15 '20

Peculiar lathe jobs. J. T. Slocumb. diags Am Mach 54:563-4 Mr 31 '21

Production work on the vertical turret lathe. il diag Mach 27:316 D '20

Putnam 54-in. tire turning lathe. il Iron Age 106:1746 D 30 '20; Ry Mech Eng 95:385-6 Je '21

Putnam heavy double axle lathe. il Iron Age 107:976 Ap 14 '21; Ry Mech Eng 95:382-3 Je '21

Railroad shop turret lathe practice. H. Volz. il diags Ry Mech Eng 95:111-13 F '21

Recent machine tool developments; Fay automatic lathe. J. Horner. il diags Engineering 110:660-4 N 19 '20

Recent machine tool developments; motor-driven heavy lathe: 20 in. centres. J. Horner. il diags plans Engineering 112:364-7 S 9 '21

Reed-Prentice 14-in. geared head lathe. il Iron Age 105:343-4 Ja 29 '20; Am Mach 52:315-16 F 5 '20; Mach 26:574 F '20; Ry Mech Eng 94:111-12 F '20

Rockford automatic lathe designed for duplicate parts. il Iron Tr R 68:427-8 F 10 '21

Ryerson-Conradson selective-head lathes. il Am Mach 52:861 Ap 15 '20; Iron Tr R 66:1273 Ap 29 '20; Iron Age 105:1306 My 6 '20; Ry Mech Eng 94:411-12 Je '20

Sellers heavy pattern 90-in. driving wheel lathe. il Ry Mech Eng 95:521-2 Ag '21

Seneca Falls multi-head lathe. il Mach 27:179-80 O '20

Should term screw machine be used when referring to turret lathes? il Iron Tr R 66:1338-9 My 6 '20

Simple relieving attachment for the lathe. J. Ellis. diag plan Pop Mech 35:292-3 F '21

Lathes —Continued

- Some of the advantages of the left-hand lathe carriage. F. W. Shaw. *Am Mach* 53:646 S 30 '20
- Special lathe centers. H. H. Parker. *diags Mach* 27:269 N '20
- Springfield lathes. *il Mach* 26:570-1 F '20
- Stamets gun-boring lathe. E. L. Dunn. *il Am Mach* 51:1071-3 D 25 '19
- Tool engineering. A. A. Dowd and F. W. Curtis. *Am Mach* 55:506-10, 541-4 S 29-O 6 '21
- Turret lathe design and construction. A. F. Bennett. *diags Mach* 27:127-30 O '20
- Turret lathe in the electrical industry. A. H. Lloyd. *il diags Electrician* 86:624-9 My 20 '21
- Turret lathe practice. E. Oberg. *il diags plan Mach* 26:99-109, 227-35, 344-51, 514-20, 941-5, 1055-60 O-D '19, F, Je-Jl '20
- Turret lathe with guarded headstock. *il Engineer* 132:22 Jl 1 '21
- 22-in. Morris lathe provided with quick change feed. *il Ry Mech Eng* 94:243 Ap '20
- Unique lathe turns cams at single operation. *il Iron Tr R* 68:564 F 24 '21
- Veteran of three wars. F. R. Calkins. *il Am Mach* 53:1032 D 2 '20
- War had only slight influence on lathe practice. R. E. Flanders. *Iron Tr R* 68:1595-6 Je 9 '21
- Warner & Swasey turret lathe with double friction back gears. *il Iron Age* 104:1205 D 11 '19; *Iron Tr R* 65:1519-20 D 4 '19; *Mach* 26:365 D '19; *Ry Mech Eng* 93:739-40 D '19; *Automotive Ind* 41:1261 D 25 '19
- Wickes crankshaft lathes. J. V. Hunter. *il Am Mach* 52:57-8 Ja 8 '20
- Wickes crankshaft line-bearing and flange-turning lathe. J. V. Hunter. *il Am Mach* 53:99-100 Jl 15 '20
- Wood turning lathe of unusual length. *il Ry Mech Eng* 95:134 F '21
- See also* Machine shop practice; Machine tools; Relieving attachments; Screw machines; Turning; Variators

Manufacture

- Long lathe castings demand skill. *il diag Foundry* 48:283-7 Ap 1 '20
- Making a six-inch bench lathe. J. V. Romig. *diags Pop Mech* 36:607-10 O '21
- Making Flather lathe parts interchangeable. *il Am Mach* 55:50-3 Jl 14 '21
- Mass production as applied to machine tools. E. W. Field. *il Electrician* 84:496-8 Ap 30 '20
- Milling operations on Herbert lathes in English shops. I. W. Chubb. *il Am Mach* 53:945-50 N 18 '20
- South Bend lathe works, South Bend, Ind. First year lathe work; how to build an 8-inch grinder. 63p '20
- South Bend lathe works, South Bend, Ind. How to make an 8-inch bench lathe in the school shop. 64p '20
- Tooling Acme turret lathes. *il diags Mach* 27:5-9 S '20
- Tools and methods for manufacturing precision bench lathes; the S. A. Potter tool & machine works. F. R. Daniels. *il diags Mach* 27:668-72, 751-4 Mr-Apr '21

Transportation

- Boxing heavy turret lathes. F. H. Colvin. *il diag Am Mach* 54:12 Ja 6 '21

Laths

- Expanded wooden lathing competitor of metal kind. *il Pop Mech* 36:118 Jl '21
- Production of lumber, lath, and shingles in 1918. F. H. Smith and A. H. Pierson. *U S Agric Bul* 845:1-47 '20
- See also* Metal lath

Latin America

- Anglo-South American handbook for 1921 (incorporating Mexico and Central America). W. H. Koepel, ed. 959p Macmillan '21
- Commercial travelers' guide to Latin America. E. B. Filsinger. *bibliog U S Bur For & Dom Com misc ser* 89:1-592 '20
- Latin-American year book for investors and merchants for 1920. 647p Criterion pub. syndicate, inc., New York '20

- Weather conditions of the Latin American countries. *Automotive Ind* 43:362 Ag 19 '20
- See also* Aeronautics, Commercial—Latin America; Iron mines and mining—Latin America; Machine industry—Latin America; South America

Bibliography

- Works on Latin America, by countries. E. B. Filsinger. *U S Bur For & Dom Com misc ser* 89:580-92 '20

Commerce

- Essentials of trading with Latin America. 28p Guaranty trust co., New York. '20
- First hand advice to salesmen in Latin America. *Ptr Ink* 112:125+ S 2 '20
- Latin America as a side issue. J. H. Collins. *Ptr Ink* 111:69-72 Ap 22 '20
- Latin-American dealer. J. H. Collins. *Ptr Ink* 111:33-6 My 6 '20
- Market guide for Central and South America, Cuba, Mexico and the West Indies. 482p American manufacturers foreign credit underwriters, inc., New York, Chicago '21
- Speak for yourself, Samuel! J. Carson. *Ptr Ink* 114:88+ F 10 '21
- Things to remember in seeking Latin-American trade. E. C. Conover. *Ptr Ink* 114:152 Ja 13 '21
- Trading with our neighbors in the Caribbean. O. P. Austin. *il map* (Foreign commerce series no. 1) 63p '20 The National City Bank of New York, N.Y.

Industries and resources

- Art of selling machinery in Latin America. *Eng & Ind Management* 5:687-8, 716-17 Je 16-23 '21
- Oils, fats and waxes in Latin America. O. Wilson. *il Chem & Met Eng* 24:1101-8 Je 22 '21

Maps

- Maps of Latin America; commercial travelers' guide to Latin America. *U S Bur For & Dom Com misc ser* 89:30 folding maps '20

Latin Americans in the United States

- Latin American within our gates. J. H. Collins. *Ptr Ink* 113:17-20+ O 14 '20

Latitude

- Latitude without instruments. R. W. Porter. *diag Sci Am M* 4:104-5 Ag '21

Lattice bars

- Latticing of compression members. R. Fleming. *diags Eng & Contr* 56:173-7 Ag 24 '21

Lattice coils. See Induction coils**Lattice work. See Trellis work****Latvia**

- Reconstruction in republic of Latvia. C. W. Ozols. *Am Ind* 21:34-5 O '20

See also* Railroads—Latvia*Lauck, W. Jett**

- Discrediting the consulting economist in wage controversies. *Coal Age* 18:492-4, 549-50, 601-2, 644-5 S 2-23 '20

Launching

- Accident causes unusual side launching. S. E. Conner. *il Pop Mech* 34:199 Ag '20
- Experiments on tallows used for launching ships. J. J. Kling-Salter. *diag Engineering* 111:405-7; *Discussion*. 385 Ap 1 '21
- Key-releasing arrangement for side launching. *diags Eng N* 85:126 Jl 15 '20
- Launch anchor in narrow river. *il diag Marine R* 50:73-4 F '20
- Launching a 45-ton motor tug from the deck of a transport. H. A. Arnold. *il Int Marine Eng* 25:506-7 Je '20
- Launching in restricted waters. H. M. Gleason and H. E. Saunders. *diags plans Marine R* 50:81-6 F '20
- Launching of ships in restricted waters. H. E. Saunders. *il Engineering* 110:721-4 N 26 '20; *Excerpts. Marine Eng* 25:1006-7 D '20
- Launching vessel in narrow waterway at Terry shipyard, Savannah, Ga. *il diags Int Marine Eng* 25:223-5 Mr '20

Launching—Continued

- Motion study of side launching of 6,000-ton vessel. Eng N 84:470-1 Mr 4 '20
 New departure in side launching. il Int Marine Eng 25:573 JI '20
 Novel method of launching adopted at Puget Sound navy yard. E. R. Bouvier. il Int Marine Eng 25:212-13 Mr '20
 Strainagraph and its application to concrete ships. F. R. McMillan. il diags Int Marine Eng 25:588-93 JI '20
 Transport et lancement par le travers de coques de 1 000 tonnes suivant les procédés Freyssinet. H. de Lauriston. il diags plan Génie Civil 78:345-50 Ap 23 '21

See also Shipways

Launching of airplanes. See Airplanes—Launching

Laundries

- Up-to-the-minute laundry. C: W. Geiger. il Sci Am 124:511 Je 25 '21

Advertising

- Changing prejudice to good will. H: Burwen. Ptr Ink 111:97-8+ Je 3 '20
 Philadelphia laundry men advertise for the rest of the wash. Ptr Ink 110:157-8+ Mr 11 '20

Equipment

- Laundry sorting boxes move in endless train. il Pop Mech 36:720 N '21
 Steam laundry equipment. plan Heat & Ven 17:62-5 O '20
See also Laundry machinery; Laundry mangles; Laundry trays, Concrete; Steam water heaters

Lighting

- Illumination in a modern steam laundry plant. H. Logan. il Elec R 78:578-9 Ap 9 '21

Power

- Application of gas in laundries. Am Gas Eng J 112:200-1 Mr 13 '20
 Studying power cost for steam laundries. P. P. Pine. Elec W 75:905-6 Ap 17 '20

Laundries, Cooperative

- Community laundry. B. M. Buell. Sci Am 122:324 Mr 20 '20

Laundries, Industrial

- Value of industrial laundries. il Textile World 58:3195+ N 6 '20

Laundry

- Conservation of textiles. H. G. Elledge and A. L. Wakefield. 162p Laundryowners national assn., La Salle, Ill. '21
 Present-day practice in laundering. A. L. Wakefield. Color Tr J 7:35-8 Ag '20

See also American institute of laundering

Laundry machinery

- Machine prints laundry marks on clothing. il Pop Mech 33:111 Ja '20
 Problems of the laundry power plant. F. E. Downing. 47p Troy laundry machinery co., Chicago '21
 Steam laundries; data for laundry apparatus. Heat & Ven 17:62 N '20

See also Ironing machines; Washing machines

Exhibitions

- Laundry exhibition. Engineering 110:705-6 N 26 '20

Laundry mangles**Explosions**

- Explosion of a laundry mangle. il diag Locomotive 33:226-7 O '21

Laundry trays, Concrete

- Concrete laundry tray business. Concrete 19:111 S '21

Laurotetanine

- Laurotetanine, the tetanising alkaloid of various *lauraceae*. K. Gorter. Chem Soc J 120 pt 1:587-8 Ag '21

Lava

- Data of geochemistry. F. W. Clarke. U S Geol S Bul 695:285-315 '20

Lavatories

- Overhauling the plumbing in an old colonial mansion. R. J. Gordon. diags plan Dom Eng 89:579-81; 90:6-9 D 20 '19, Ja 3 '20

Law

- Laws as a source of history. Sci Am 122:356 Ap 3 '20

- Popular names of statutes. H: J. Harris. Library Journal 46:211-15, 259-62, 301-4 Mr 1-Ap 1 '21

See also Advertising—Laws and regulations; Automobile laws and regulations; Banking law; Building laws and regulations; Commercial law; Contracts; Corporation law; Engineering law; Government regulation of industry; Highway law; Housing laws; Industrial laws and legislation; Labor laws and legislation; Landlord and tenant; Legislation; Liens; Lighting—Laws and regulations; Liquor laws; Maritime law; Mechanics' liens; Mining law; Narcotics—Law; Negligence; Patent laws and legislation; Patents; Petroleum—Laws and regulations; Railroad law; Right of way; Sales; Trade marks; Water laws and legislation; Water rights; Waterworks—Laws and regulations; *also* Federal reserve act; War minerals relief act

Lawn sprinklers

- Making a lawn sprinkler. il diags Pop Mech 34:468 S '20

Lawns

- Making and maintaining a lawn. U S Agric Circ 49:1-6 '19; Excerpts. Am Inst Arch J 9:188 My '21

Lawrence, Wilkerson Wallace, 1881-

- Secretary of American engineering council. por Am Mach 54:352 F 24 '21

Lawrence, Willis, 1868-

- Sketch. por Power 52:946 D 14 '20

Lawyers

See also Patent lawyers

Lay-off compensation. See Wages

Layout. See Boiler plants—Layout; Construction equipment—Layout; Factories—Layout; Foundries—Layout; Machine shops—Layout; Planing mills—Layout; Steam plants—Layout

Layout (printing). See Typesetting—Layout

Leaching. See Hydrometallurgy

Lead

- Alleged allotropic form of metallic lead. Am J Sci 50:392 N '20

- Anode corrosion of lead in sodium hydroxide solutions. O. W. Brown, C. O. Henke and L. T. Smith. J Phys Chem 24:367-78 My '20

- Atomic weight of lead from a Japanese radio-active mineral. T. W. Richards and J. Sameshima. Am Chem Soc J 42:928-30 My '20

- Determination of small amounts of lead in brass. F. W. Glaze. J Ind & Eng Chem 13:553-4 Je '21

- Diagram and data on using lead in architectural sheet metal work. il diags Sheet Metal Worker 12:600-2 S 30 '21

- Distinguishing lead in brass and bronze. F. P. Gilligan and J. J. Curran. il Iron Age 105:657-8 Mr 4 '20

- Distinguishing lead in brass and bronze. O. A. Knight. il Iron Age 105:327-8 Ja 29 '20

- Electrolytic corrosion of lead by continuous and periodic currents. E. R. Shepard. Am Electrochem Soc Trans v 39 (preprint 4):23-36 Ap '21

- Intercrystalline brittleness of lead. H: S. Rawdon. il U S Bur Stand Sci Pa 377:215-32 '20; Same. Min & Met 158:(sec 7)1-16 F '20

- Ionization and resonance potentials for electrons in vapors of lead and calcium. F. L. Mohler, P. D. Foote and H. F. Stimson. U S Bur Stand Sci Pa 368:723-36 '20

- Lead coated iron. C: Baskerville. J Ind & Eng Chem 12:152-4 F '20

- Lead, including lead pigments and the desilverisation of lead. J. A. Smythe. (Common commodities and industries series) 120p Pitman '20

Lead—Continued

- Lead shingles perfect architect's scheme. *il* Sheet Metal Worker 11:335-6 N 12 '20
- Melting points and thermoelectric behavior of lead isotopes. T. W. Richards and N. F. Hall. *Am Chem Soc J* 42:1550-6 Ag '20
- Our mineral supplies; lead. C. E. Siebenthal. *U S Geol S Bul* 666:167-9 '19
- Le travail du plomb à la presse à chaud et à froid. *diags Génie Civil* 77:77 J1 24 '20
- Two-minute qualitative test for lead. E. C. D. Marriage. *Eng & Min J* 111:1031 Je 18 '21
- Uses of hard lead in building construction. J. J. Welshofer. *Sheet Metal Worker* 12:41-2 F 18 '21
- Volatilization in assaying. F. P. Dewey. *Min & Met* 158:(sec 31) 1-16 F '20
- See also* Lead metallurgy; Lead mines and mining; Red lead; White lead

Prices

- Diagram and table showing pig lead prices. D. H. Maury. *Eng & Contr* 56:349 O 12 '21
- Four-cent lead and its significance. *Eng & Min J* 111:490 Mr 12 '21

Specifications

- Tentative specifications for pig lead. *diags Am Soc T M Pro v* 20 pt 1:554-60 '20

Lead, Reinforced

- Reinforced lead. C. Baskerville and C. M. Wales. *il diags Chem & Met Eng* 22:1081 Je 9 '20

Lead accumulator. *See* Storage batteries**Lead acetate**

- Precipitation of solid fatty acids with lead acetate in alcoholic solution. E. Twitchell. *J Ind & Eng Chem* 13:806-7 S '21

Lead alloys

- Electrolytic corrosion of lead-thallium alloys. C. G. Fink and C. H. Eldridge. *Am Electrochem Soc Trans v* 40 (preprint 26):335-44 S '21
- Hardened lead for bearing metal; cost comparisons. R. T. Rolfe. *il Chem & Met Eng* 25:799-800 O 26 '21
- Hardening effects of various elements upon lead. C. O. Thieme. *il J Ind & Eng Chem* 12:446-8 My '20
- Sweating of lead from castings prevented. *Foundry* 48:367 My 1 '20

See also Lead antimony alloys; Lead tin alloys

Lead antimony alloys

- Dosage rapide de l'antimoine dans le plomb antimonieux. L. Bertiaux. *Chimie & Ind* 4:467-72 O '20
- Properties of antimonial lead. L. J. Gurevich and J. S. Hromatko. *Chem & Met Eng* 25:62-3 J1 13 '21
- Report on investigation of antimonial lead. *Paper* 27:25-6 Mr 2 '21

Lead arsenate

- Dry method of preparing lead arsenate. O. W. Brown, C. R. Voris and C. O. Henke. *J Ind & Eng Chem* 13:531-3 Je '21
- Process for making arsenate of lead is held valid—growth of the industry. *Chem & Met Eng* 24:521-2 Mr 23 '21

Lead burning

- Hard soldering and brazing joints for copper and brass tubing. J. F. Springer. *Textile World* 58:3863 D 4 '20
- Lead burning with acetylene. *Metal Work* 93:298-9 Mr 5 '20

Lead carbonate. *See* White lead**Lead chlorides**

- Equilibrium between chlorine and plumbous and plumbic chlorides in aqueous solution. E. W. Wescott. *diag Am Chem Soc J* 42:1335-49 J1 '20

Lead compounds

- Anilino-bleiverbindungen. H. Mandal. *Deutsche Chem Gesell Ber* 54:703-8 Ap '21
- See also* Lead salts

Lead industry and trade

- Lead market in 1919. *Eng & Min J* 109:118-19 Ja 17 '20

- Lead products other than white lead. J. R. Wettstein. *Eng & Min J* 109:183 Ja 17 '20
- Pig lead; price and production. *Eng & Min J* 111:138-9 Ja 22 '21
- Production of lead, 1915-1919. *Eng & Min J* 109:118 Ja 17 '20
- Silver-lead smelting works of North America. *Eng & Min J* 109:119 Ja 17 '20
- World's production of lead, 1911-1920. *Min & Sci P* 122:886 Je 25 '21; Same. *Eng & Min J* 111:1050 Je 18 '21

Japan

- Lead and zinc industry in Japan. *Chem & Met Eng* 22:1198-1200 Je 30 '20; Same cond. *Eng & Min J* 110:339 Ag 14 '20; Abstract. *Min & Sci P* 121:278 Ag 21 '20

United States

- Effect of imported lead. *Eng & Min J* 110:1064 N 27 '20
- Importance of foreign trade in copper and other non-ferrous metals. F. E. Wormser. *Eng & Min J* 111:459-60 Mr 12 '21
- Joplin-Miami district. J. A. Zook. *Eng & Min J* 111:174-5 Ja 22 '21
- Lead and zinc in 1920. *Brass W* 17:227-8 Ag '21
- Lead and zinc in the Joplin district. J. A. Zook. *Eng & Min J* 109:181-2 Ja 17 '20
- Lead in 1918. C. E. Siebenthal. *U S Geol S Min Res of U S* 1918,pt 1:937-71 '21
- Lead in 1919. C. E. Siebenthal and A. Stoll. *U S Geol S Min Res of U S* 1919,pt 1:313-30, pl 3 '21
- Lead in 1920. C. E. Siebenthal and A. Stoll. *U S Geol S Min Res of U S* 1920,pt 1:85-95 '21
- Lead production during 1920. *Min & Sci P* 122:152 Ja 29 '21; Same. *Iron Age* 107:136 Ja 13 '21; Same. *Iron Tr R* 68:1589 Je 9 '21
- Lead production in United States for the first half of 1920. *Min & Sci P* 121:383 S 11 '20
- Mine output of lead and zinc in 1919. *Min & Sci P* 120:202-3 F 7 '20
- Southeast Missouri lead district. H. A. Wheeler. *Eng & Min J* 111:175-6 Ja 22 '21

Lead metallurgy

- Blast roasting at Port Pirie. G. Rigg. *Chem & Met Eng* 22:518-20 Mr 17 '20
- Bunker Hill smelter. T. A. Rickard. *il diags plan Min & Sci P* 122:42-60 Ja 8 '21
- Determination of low percentages of lead. J. H. Hastings. *Eng & Min J* 110:867-8 O 30 '20
- Flotation tests of Idaho ores. C. A. Wright, J. G. Parmelee and J. T. Norton. *il diags U S Bur Mines Bul* 205:1-48 '21
- Le grillage préalable des minerais de plomb. J. Rubio. *Génie Civil* 78:283 Mr 26 '21
- Lead smelting in 1920. J. Labarthe. *Eng & Min J* 111:197-8 Ja 22 '21
- Lead-smelting practice at Port Pirie, South Australia. G. Rigg. *il Min & Sci P* 121:90-6 J1 17 '20
- Metallurgy of lead. H. O. Hofman. *Eng & Min J* 109:190-1 Ja 17 '20
- Mining activities near San Luis Potosi, Mexico. R. B. Brinsmade. *il Min & Sci P* 123:61-3 J1 9 '21
- Problem of reducing lead sulphate. F. N. Flynn. *flow sheet Eng & Min J* 109:487-9 F 21 '20
- Process for the extraction of lead from its ores; patent. *Chem & Met Eng* 23:798 O 20 '20
- Shattuck-Arizona mill for concentrating silver lead-carbonate ores. G. L. Allen. *flow sheet il Eng & Min J* 110:759-62 O 16 '20
- Smelting lead-zinc ores. *Min & Sci P* 121:113-14 J1 24 '20

Lead mines and mining

- Status of the metal mining industry: an interrogatory. *Min & Sci P* 123:573-4 O 22 '21

Missouri

- Southeast Missouri lead district in 1919. H. A. Wheeler. *Eng & Min J* 109:178-81 Ja 17 '20

Lead ores

- Lead deposits in South Africa. *Min & Sci P* 120:714 My 15 '20

Lead ores—Continued

- Lead ores. T. C. F. Hall. 127p [Bibliog. p 123-7] J. Murray, London '21
 Rapid formation of lead ore. H. A. Wheeler. *il Min & Met* 158:(sec 25)1-4 F '20

Lead oxides

- Physical chemistry of the oxides of lead; the solubility of lead monoxide. S. Glassstone. *Chem Soc J* 119:1689-97 O '21
See also Red lead

Lead pencils. *See* Pencils

Lead pipes. *See* Pipes, Lead

Lead plating

- Discussion of lead plating from fluoborate solutions. *Brass W* 17:62-3 Mr '21
 Lead plating from sodium hydroxide lead baths by the use of addition agents. F. C. Mathers. *Am Electrochem Soc Trans v* 38 (preprint 5):35-9 O '20; Same. *Metal Ind* 18:467-8 O '20; Same. *Brass W* 17:12-13 Ja '21; Abstract. *Chem & Met Eng* 23:724 O 13 '20
 Metal plating; a compilation of tables showing the time required to deposit a given thickness of lead. W. G. Knox. *chart Metal Ind* 18:264-6 Je '20

Lead poisoning

- Blood changes in lead workers. A. Sellers. *J Ind Hygiene* 2:361-7 F '21
 Cause and control of lead poisoning. W. S. Slemmons. *diags Min & Sci P* 122:427-9 Mr 26 '21
 Discussion on R. R. Weston's paper, "Lead poisoning by water." G. C. Bunker. *il N E Water Works Assn J* 35:126-36 Je '21
 Earliest positive sign of lead absorption. *Monthly Labor R* 13:405-8 Ag '21
 Industrial lead poisoning; abstract. M. D. Shie. *J Ind Hygiene* 3:sup97 S '21
 Lead-poisoning. *Min & Sci P* 123:491-2 O 8 '21
 Lead poisoning. R. R. Sayers. *Min & Sci P* 122:162 Ja 29 '21
 Lead poisoning and water supplies. *Eng & Contr* 55:333-4 Mr 30 '21
 Lead poisoning and water supplies. J. F. Reade. *Eng & Contr* 55:632-3 Je 29 '21
 Lead poisoning in the pottery trades. *Chem & Met Eng* 25:78 Jl 13 '21
 Memorandum on lead poisoning. *Int Labour R* 2:231-3 My '21
 Occupational lead poisoning. W. H. Rand. *Monthly Labor R* 11:383-96 F '21
 Possible source of lead poisoning; pipe tobacco. A. F. G. Cadenhead and A. G. Jacques. *Can Chem & Met* 5:260 S '21
 Some observations on a case of lead poisoning. H. A. Lubbers. *J Ind Hygiene* 2:sup 194-5 F '21

Lead salts

- Quantitative separation of the lead salts of the saturated from the less unsaturated fatty acids. A. Seidenberg. *Am Chem Soc J* 43:1323-36 Je '21

Lead sulfate

- Problem of reducing lead sulphate. F. N. Flynn. *flow sheet Eng & Min J* 109:487-9 F '21 '20

Lead-tin-alloys

- Electrodeposition of lead-tin-alloys. W. Blum and H. E. Haring. *il Am Electrochem Soc Trans v* 40 (preprint 11):147-64 S '21; Same. *Brass W* 17:302-4, 315-17 O-N '21

Leadite

- Experiences with pipe jointing compounds. F. O. Stevens. *Eng & Contr* 54:39-41 Jl 14 '20

Leaf hoppers

- Brownies of the insect world; leaf hoppers and tree hoppers. M. Tevis. *il Sci Am M* 2:123-5 O '20

League for political education, New York

- Civic forum for New York city. *il diag plans Am Arch* 117:10-13 Ja 7 '20

League of nations

- H. C. Wallace retiring ambassador to France convinced League was born to live. *Comm Fin Chr* 113:143-4 Jl 9 '21

- League of nations the one great hope. R. McKenna. *Comm & Fin Chr* 111:2111-12 sec 1 N 27 '20

- Outcome of the long debate. *Comm & Fin Chr* 110:402-4 Ja 31 '20

- President Wilson's address in behalf of League of nations. *Comm & Fin Chr* 111:1716 O 30 '20

- World standard for labor. D. T. Farnham. *Nation's Business* 8:24-5 Mr '20

- See also* Hague. Permanent court of international justice; International financial conference; International labor office

League of nations building

- Capitol building of the League of nations, twelfth Paris prize, final competition; views. *Am Arch* 117:116g-j; 722-3 Ja 28, Je 9 '20

League of the Southwest

- Denver meeting of the League of the Southwest. R. M. Hosea. *W Soc E J* 25:sup16-18 O '20

- Engineers active in study of Colorado river problems. *Eng N* 86:862 My 19 '21

Least common multiple

- Physical significance of the least common multiple. N. Campbell and E. C. C. Baly. *Philos Mag* 6th ser 41:707-16 My '21

Leather

- American leather chemists association 18th annual meeting, Atlantic City. *Chem & Met Eng* 24:1094-6 Je 22 '21
 Area measurement of leather. F. J. Schlink. *il diags U S Bur Stand Tech Pa* 153:1-47 '20
 Care of leather. F. P. Veitch, H. P. Holman and R. W. Frey. *il U S Agric Farmers' Bul* 1183:1-18 '20
 Chemistry of leather manufacture. J. A. Wilson. *Chem & Met Eng* 22:938 My 19 '20
 Dyeing and finishing of suede leather; abstract. J. W. Lamb. *Color Tr J* 9:151 O '21
 Dyeing and tanning of leather. J. Helfrich. *il Color Tr J* 5:134-7; 6:11-14, 125-8; 7:24-7, 83-5 N '19, Ja, Ap, Jl, S '20
 Hides & skins and the manufacture of leather. J. P. Warburg. 78p First national bank of Boston, Boston '21
 L'industrie du cuir au Maroc. C. Chaveau. *Chimie & Ind* 4:409-18 S '20
 Inefficiency in the leather industry. J. A. Wilson. *Chem & Met Eng* 25:436-7 Ag 31 '21
 Kid gloves from whale intestines. L. W. Pedrose. *il Pop Mech* 35:169-72 F '21
 Leather industry; unhairing, deliming, bating, tanning, stuffing and dyeing. J. A. Wilson. *il Chem & Met Eng* 23:457-60 S 8 '20
 Mechanism of bating. J. A. Wilson. *il J Ind & Eng Chem* 12:1087-90 N '20
 Preparation of Japanese white leather. L. Balderston. *Color Tr J* 6:184 Je '20; Same. *Sci Am* 124:72 Ja 22 '21
 Report on the leather section, sixtieth meeting, A.C.S. *Chem & Met Eng* 23:613-16 S 29 '20
 There is nothing like leather. *il Sci Am* 123:401 O 16 '20
 Utilization of the shark for food and leather. A. Rogers. *J Ind & Eng Chem* 12:293 Mr '20
 Utilizing scrap leather. *Sci Am* 124:72 Ja 22 '21
 Wilmington and the chemical industry; manufacture of glazed kid leather. *Chem & Met Eng* 23:1083-4 D 1 '20
See also Belting; Rawhide; Tanning

Analysis

- Determination of hydrochloric acid and neutral chlorides in leather. A. W. Thomas and A. Frieden. *J Ind & Eng Chem* 12:1186-8 D '20

Testing

- Apparatus for measuring the relative wear of sole leathers, and the results obtained with leather from different parts of a hide. R. W. Hart and R. C. Bowker. *il chart diags U S Bur Stand Tech Pa* 147:1-10 '19; Excerpts. *Sci Am M* 1:230-1 Mr '20

Leather—Testing—Continued

- Effects of oils, greases, and degree of tannage on the physical properties of russet harness leather. R. C. Bowker and J. B. Churchill. diags U S Bur Stand Tech Pa 160:1-18 '20
- Laboratory wearing test to determine the relative wear resistance of sole leather at different depths throughout the thickness of a hide. R. W. Hart. il U S Bur Stand Tech Pa 166:1-7 '20
- Leather takes test walk to reveal quality. il Pop Mech 35:840 Je '21
- Measuring the wear of shoe soles. A. P. Child. il Sci Am 122:335 Mr 27 '20
- Stretch and strength tests of shoe leather. R. F. Mundorff. il Pop Mech 35:201-2 F '21

Leather, Artificial

- Artificial leather and coated fabrics. Chem & Met Eng 23:487-8 S 8 '20
- Cellulose acetate in artificial leather manufacture. M. Deschiens. Chem Age 29:370-1 S '21
- Manufacture of artificial leather. I. Ginsberg. il Sci Am M 4:300-4 O '21
- Nitrocellulose and its solutions as applied to the manufacture of artificial leather. W. K. Tucker. J Ind & Eng Chem 13:623-4 Jl '21
- Use of gas in the artificial leather and kindred industries. G. C. Shadwell. il Am Gas Eng J 112:120-3 F 14 '20

Leather, Substitutes for

- Competitors jointly advertise pride in their product. Ptr Ink 110:61-2 Ja 22 '20

Leather industry and trade

- Hides & skins and the manufacture of leather. J. P. Warburg. 78p First national bank, Boston '21
- See also Harness; Shoe industry and trade

Directories

- Hides and leather in France. N. Hertz. U S Bur For & Dom Com 200:142-55 '20

France

- Hides and leather in France. N. Hertz. il map U S Bur For & Dom Com 200:1-159 '20

United States

- Summary of report of the Federal trade commission on shoe and leather costs and prices. 15p U.S. Federal trade commission, Washington, D.C. '21

Leather workers

- Descriptions of occupations; boots and shoes, harness and saddlery, tanning. 70p '18 U.S. Bureau of labor statistics, Washington, D.C.

Leaves

See also Plants—Respiration

Leavitt, Charles Wellford

- Gardens of Charles M. Schwab, esq., Loretto, Pa. R. Imlay. il plans Arch Rec 47:386-407 My '20

Leblond machine tool company

- Training future mechanics. E. Oberg. il Mach 27:26-30 S '20

Lecithin

- Lecithin; patent. Chem & Met Eng 23:941 N 10 '20

Leclanché pots. See Electric batteries**Ledoux, Albert Reld, 1852-**

- Sketch. por Eng & Min J 109:1167 My 22 '20

Lee highway

- Lee highway. Pub Works 49:364 O 16 '20

Lee rubber and tire corporation

- Fifth annual report for the fiscal year ended December 31, 1920. Comm & Fin Chr 112:1039 Mr 12 '21

Legal chemistry. See Chemistry, Legal**Legislation**

- Don't desert the lawmaker! H. A. Wheeler. Nation's Business 9:15-16 F '21
- Hasty and excessive legislation—House of Congress too large. Comm & Fin Chr 112:410-11 Ja 29 '21

- Psychology of the rider. Sci Am 123:216 S 4 '20

See also Law

Legislative reference libraries

- Selling legislative reference service. H. E. Flack. Special Lib 12:204-5 S '21

Legs, Artificial. See Artificial limbs**Legumes**

- Manganese in commonly grown legumes. J. S. Jones and D. E. Bullis. J Ind & Eng Chem 13:524-5 Je '21

Lehigh Valley railroad

- Lehigh Valley. map Ry Age 68:1390-1 My 14 '20

- Lehigh Valley combination ordered dissolved. Ry Age 69:1030-2 D 10 '20; Comm & Fin Chr 111:2292-3 D 11 '20

- Lehigh Valley files segregation plan. Ry Age 71:718-19 O 15 '21

- Lehigh Valley plan for selling stock to employees. A. F. Bayfield. Ry Age 69:883-4 N 19 '20

- 1920 annual report. maps Ry Age 70:1105-6 My 13 '21

Leighton, J. H.

- Builders of business. R. D. Penney. por 40:282-4+ S '21

Leipsic engineering fair

- Leipsic engineering fair. Am Mach 54:756-7 Ap 28 '21

Leisure

- Spare time. H. W. Jordan. J Ind & Eng Chem 13:253-4 Mr '21; Criticism. F. O. Sprague. 13:474-6 My '21

Leitch, John

- John Leitch, the man. J. Card. por Textile World 59:2287+ Ap 2 '21

Leland Stanford junior university**President's house**

- President's house, Leland Stanford junior university, Palo Alto, California. Arch Forum 33:53-4 Ag '20

Lemons

See also Citrus fruit

L'Enfant, Pierre Charles, 1754-1825

- L'Enfant, a tribute to city planner. Eng N 86:649 Ap 14 '21

Length. See Standards of length**Lenses**

- Direct determination of the powers of lenses. J. A. Tomkins. diags Philos Mag 6th ser 42:144-7 Jl '21

See also Optical instruments

Lenses, Photographic

- Method for determining the photographic absorption of lenses. G. W. Moffitt. J Fr Inst 190:260-2 Ag '20

- Rock-crystal lens. H. D'A. Power. J Fr Inst 189:124-5 Ja '20

Lenz, Charles Otto, 1868-

- Portrait. Elec W 78:152 Jl 23 '21

Leonardo da Vinci. See Vinci, Leonardo da**Lepidine**

- Isocyanine dyes from lepidine and its homologs. E. Q. Adams and H. L. Haller. Am Chem Soc J 42:2389-91 N '20

- Preparation of lepidine and related bases. L. A. Mikeska. Am Chem Soc J 42:2396-7 N '20

Leprosy

- Our leprosy problem. Sci Am M 3:75-6 Ja '21

Leptauchenia

- Leptauchenia Leidy and cyclopidius (pitheciastes) Cope, with descriptions of new and little known forms in the Marsh collection. M. R. Thorpe. bibliog il Am J Sci 5th ser 1:405-19 My '21

Lethbridge, Alberta**Sanitary affairs**

- Sanitation at Lethbridge, Alta. H. W. Meech. Can Eng 40:106 Ja 6 '21

Letter writing

- Drafting a letter according to rules of officialdom. *Ptr Ink* 116:64 Ag 18 '21
 Pollyanna letters. J. T. Bartlett. *Ptr Ink* 110:167-8+ F 5 '20
 Quality of restraint in business letters. J. Wallen. *Ptr Ink* 110:53-6 Ja 1 '20
See also Commercial correspondence; Postscripts; Sales letters

Letterheads

- Letterheads as direct advertising. F. H. Williams. *Inland Ptr* 65:727-8 S '20
 Letterheads match catalogues in this follow-up plan. E. H. Falkner. *Ptr Ink M* 2:66+ Ap '21
 New field for printers. W. Williams. *Inland Ptr* 65:620 Ag '20
 Results of the letter-head contest. *il Inland Ptr* 64:443-5 Ja '20

Letters of credit

- Travelers cheques and circular letters of credit. 139p American express co., New York '21
 Where credit begins and ends. C. D. Snow. *Nation's Business* 9:38-40 F '21

Letts. *See* Latvia**Leucites**

- Italite, a new leucite rock. H. S. Washington. *Am J Sci* 50:33-47 Jl '20

Levees

- Borrow pit for levee forms drainage canal. P. N. Entemann. *Eng N* 85:465 S 2 '20
 Controlling the lower Mississippi. R. Gotthold. *il Sci Am* 124:485+ Je 18 '21
 Emergency levee on Mississippi built in record time. A. L. Dabney. *diags Eng N* 87:62-4 Jl 14 '21
 High-speed block-laying on Miami river levees. *il Eng N* 85:248-9 Ag 5 '20
 Levee construction on Mississippi and its effect on river section. C. McD. Townsend. *diags Eng & Contr* 53:36-8 Ja 14 '20; *Abstract. Eng N* 84:284-5 F 5 '20
 Levee settlement: causes and remedies. *Eng & Contr* 53:675-7 Je 16 '20
 Levee settlement causes seepage under pump house. *il Eng N* 86:814-15 My 12 '21
See also Flood control

Repair

- Closure of a flowing crevasse in the Beulah levee. T. L. Dubbs. *Eng & Contr* 54:68-9 Jl 21 '20

Leveling

- Leveling. R. H. Montgomery. *Can Eng* 40:305-7, 328-30 Mr 17-24 '21
 Methods of using the engineer's level. C. L. Hubbard. *il diags Power Pl Eng* 24:733-6, 828-33 Ag 1, S 1 '20
 Precise leveling in England. E. O. Henrici. *Eng & Contr* 53:360 Mr 31 '20
 Use of a self-computing level rod in highway surveys. R. T. Brown. *Eng & Contr* 52:534 N 5 '19
See also Surveying

Levels

- Cooke engineer's and surveyor's level. *il diags Engineering* 111:680-2 Je 3 '21
 Methods of using the engineer's level. C. L. Hubbard. *il diags Power Pl Eng* 24:733-6, 828-33 Ag 1, S 1 '20
 New self-computing level rod. E. P. Effertz. *il Eng & Contr* 55:114 F 2 '21

Levels, Machinists'

- Adjusting a machinist's level. E. H. Thompson. *diags Power* 53:672 Ap 26 '21

Leverhulme, William Hesketh Lever, 1851-

- Man from Port Sunlight near Liverpool. G. T. Bye. *Nation's Business* 8:24-6 F '20
 Worker writes about Lord Leverhulme. *Ptr Ink* 110:97-8+ F 5 '20

Levers

- Design of forged hand-levers. J. S. Watts. *chart Mach* 26:855 My '20
 Determination of forces on eccentric levers and bell cranks. H. M. P. Murphy. *diags Elec Ry J* 57:729-33 Ap 16 '21
See also Bell cranks

Leviathan (ship)

- Propelling machinery of the Leviathan. E. H. B. Anderson. *il diags Int Marine Eng* 25:51-60 Ja '20

Levis, Quebec**Rapld transit**

- Safety car next door to the North Pole; experience at Levis. H. E. Weyman. *il diag map Elec Ry J* 55:699-703 Ap 3 '20

Levoglucosan

- Constitution of levoglucosan. A. Pictet and M. Cramer. *Paper* 28:20-1 Ap 13 '21

Lewis, Gilbert N.

- Award of the Nichols medal to Gilbert N. Lewis. *por Chem & Met Eng* 24:869-75 My 18 '21

Lewis impact machine

- Lewis impact machine. A. G. Zimmermann. *diags Chem & Met Eng* 22:325-7 F 18 '20

Lewisohn, Adolph, 1849-

- Sketch. *por Eng & Min J* 110:722 O 9 '20

Lexington, Kentucky**Sanitary affairs**

- Sewage treatment at Lexington. *il plan Pub Works* 50:249-52 Mr 26 '21

Leyner, John George, 1860-1920

- Biographical sketch. W. L. Saunders. *por Min & Met* 166:14 O '20
 Sketch. *por Coal Age* 18:589 S 16 '20; *Eng & Contr* 54:267 S 15 '20

Liability

- Liability for laboratory explosions. *J Ind & Eng Chem* 13:1079-81 N '21

Liberia

- President Harding and Secretary Hughes find U. S. obligated to extend loan to Liberia. *Comm & Fin Chr* 113:588 Ag 6 '21

Liberty bond tax exemptions. *See* Taxation, Exemption from**Liberty bonds.** *See* Bonds, Government**Liberty engines.** *See* Airplane engines**Liberty loan.** *See* War loans**Liberty motor.** *See* Airplane engines**Librarians**

- Certification and special libraries as related to the reclassification problem of government libraries. E. R. Oberly. *Special Lib* 12:46-7 Mr '21

Libraries

- Industrial division in a public library; work of the Washington public library. A. R. Blessing. *J Elec* 44:180 F 15 '20

- Libraries from the standpoint of the library user. F. E. Barrows. *Special Lib* 12:173-7 S '21

- Suggestions. J. C. Dana. 52p F. W. Faxon co., Boston '21

- See also* Business libraries; Electric railroads—Libraries; Engineering libraries; Factory libraries; Financial libraries; Legislative reference libraries; Library advertising; Library architecture; Library science; Library service; Mining camps—Libraries; Municipal reference libraries; Newspaper libraries; Public utilities—Libraries; Technical libraries; *also* names of libraries, e.g. Engineering societies' library, New York; Newberry library, Chicago

Lighting

- Indirect ceiling fixtures provide even illumination for library. *il diag Elec W* 77:929 Ap 23 '21

Libraries, Business. *See* Business libraries**Libraries, Factory.** *See* Factory libraries**Libraries, Government**

- American research centers, Washington, D.C. *Special Lib* 12:97-100, 118-21 My-Je '21

- Libraries in the District of Columbia. W. I. Swanton, comp. *Special Lib* 12:135-53 Je '21; Same. (Reprint & Circ. Ser. 20) 19p '21 25c
 National Research Council, 1701 Massachusetts av, Washington, D.C.

Libraries, Private. *See* Engineering libraries, Private

Libraries, Special

- Acquisition of special library material. E. L. Baechtold. *Special Lib* 12:193-4 S '21
- Cooperation between public and special libraries; symposium. *Special Lib* 12:179-88 S '21
- How business and technical executives obtain information and what it means to the special librarian. D. N. Handy. *Special Lib* 12:162-4 S '21
- Libraries of Philadelphia and its environs. *Library Journal* 46:161-8 F 15 '21
- Special libraries directory. D. W. Hyde, jr., ed., 123p *Special libraries assn.*, Washington '21
- Special libraries in New York city. R. B. Rankin. *Library Journal* 46:67-76, 547-9 Ja 15, Je 15 '21
- Special library for the rubber industry. J. A. Cushman. (Faculty studies no. 1) 21p '20 The Municipal university of Akron, Ill.
- Special library link. K. C. Walker. *Eng N* 86:392 Mr 3 '21; Same. *Chem & Met Eng* 24:372 Mr 2 '21
- Special library office forms. M. Burnett. *Special Lib* 12:197-8 S '21
- See also* Business libraries; Financial libraries; Hospital libraries; Legislative reference libraries; Libraries, Government; Newspaper libraries; Technical libraries

Costs

- Costs in the special library. *Special Libraries* 11:156-9 Je '20

Libraries, Technical. *See* Technical libraries**Libraries, Traveling**

- Motorized branch library serves large territory. *il Pop Mech* 33:714 My '20
- When a lumberjack turns bookworm. C. Savage. *Am Lumberman* 2342:77 Ap 3 '20

Library advertising

- Advertising a public library. *Ptr Ink* 112:116 Ag 26 '20
- Advertising the public library. W. F. Ticer. 39p *Democrat printing co.*, Madison, Wis. '21
- Business and the public library in St Paul. W. D. Johnston. *J Elec* 44:19-21 Ja 1 '20
- Effective advertising library service. M. L. Alexander. *Special Lib* 12:201-2 S '21
- Library advertising: publicity methods for public libraries, children's libraries and rural libraries. W. A. Briscoe. Published by Grafton press, for sale by H. W. Wilson co. '21

Library architecture

- Detroit public library. *il Am Arch* 120:228a-h, 229-35 S 28 '21; *Arch & Bldg* 53:79, pl 150-4 O '21
- East Haddam library, East Haddam, Conn.; views and plan. *Arch Rec* 49:166-7 F '21
- Economics of library architecture. C. W. Andrews. *Library Journal* 46:437-41 My 15 '21
- George Osius branch library, Detroit, Mich.; views. *Arch Forum* 32:pl 25 F '20
- Helen Kate Furness free library, Wallingford, Pa.; view, diagrams and plans. *Bldg Age* 42:50-1 Mr '20
- James J. Hill reference library, St Paul, Minn.; views. *Am Arch* 120:188b-g S 14 '21
- James J. Hill reference library and the St Paul public library, St Paul, Minn. R. C. Sturgis. *il plans Arch Rec* 47:2-24 Ja '20
- McPherson square branch, free library of Philadelphia; views and plan. *Arch Forum* 32:pl 22-3 F '20
- Mosaics in the frontal colonnade of the Detroit public library. W. F. Paris. *il Arch Rec* 49:300-9 Ap '21
- Public library of Hood River, Oregon. *il plans Bldg Age* 42:51-2 S '20
- Rural library building. J. A. Lowe. *il plan Arch Rec* 46:451-6 N '19
- Tobey memorial library, Wareham, Mass.; views and plan. *Arch Forum* 33:pl 70-1 N '20
- Waltham public library, Waltham, Mass.; views. *Am Arch* 116:pl 149-52 O 29 '19
- Work of Holabird & Roche, architects. *il plans Am Arch* 118:231-4 Ag 25 '20

- Wychwood branch of Toronto public library; views and plan. *Arch Rec* 47:556-7 Je '20

Library bureau

- Library bureau building, Chicago. D. K. Boyd. *il plans Arch Rec* 50:75-80 Jl '21

Library extension

- Selling service by correspondence. E. Thomas. *Special Lib* 12:203 S '21

Library fittings

- See also* Card catalog cases

Library of Congress

- Washington's rapid transit book service for legislators. *il Sci Am* 124:367 My 7 '21

Library science

- How to organize a library. Z. K. Miller. 40p *Library bureau*, New York '21

Study and teaching

- Library training for the special librarian. J. R. Donnelly. *Special Lib* 12:186-8 S '21

Library service

- Business and the public library in St Paul. W. D. Johnston. *J Elec* 44:19-21 Ja 1 '20
- Business branch of the public library; Indianapolis public library. *il J Elec* 46:71-2 Ja 15 '21
- Business service in the public library. G. F. Bowerman. *Special Lib* 11:181-90 N '20
- Intention of the University of Michigan to place a technical library at the disposal of Michigan manufacturers. *Special Lib* 12:37-9 F '21
- Silent partner; how the Cleveland public library helps the Cleveland business man. J. S. Harron. *Special Lib* 12:41-4 Mr '21
- Subject mailing list as a library tool. R. Agg. *Special Lib* 12:44-5 Mr '21

Library training. *See* Library science—Study and teaching**Lich gates**

- Old crosses and lych gates. *il Am Arch* 118:100-1 Jl 28 '20

Lichadidæ

- Generic relations of the American ordovician lichadidæ. A. F. Foerste. *il Am J Sci* 49:26-50, pl 1-4 Ja '20

Liens

- Necessity of material going into an installation to preserve lien rights. W. Gustin. *Dom Eng* 93:568-9 D 18 '20
- See also* Mechanics' liens

Lierre, Belgium

- Civic vision of Lierre. J. I. Bright. *il Am Inst Arch J* 8:256-8 Jl '20

Life

- Animal tissue that does not die; how a bit of chicken heart has been alive and growing for more than the chick's span of life. H. A. Mount. *Sci Am* 125:10 Jl 2 '21
- Is oxygen necessary for animal existence? O. Krummacher. *Sci Am M* 3:37-8 Ja '21
- New theory concerning the nature of the phenomena of life. F. Regnault. *Sci Am M* 1:304 Ap '20
- Photosynthetic processes in the air, upon the land, and in the sea in relation to the origin and continuance of life on the earth. B. Moore. *il diags Chem Soc J* 119:1555-72 O '21
- Place of life in nature. R. S. Lillie. *Sci Am M* 3:112-17 F '21

See also Biological chemistry; Protoplasm

Life boats. *See* Lifeboats**Life-gun.** *See* Life saving apparatus**Life insurance.** *See* Insurance, Life**Life packs.** *See* Airplanes—Safety devices**Life saving apparatus**

- Life-gun with water-proof charge. *il Sci Am* 122:115 Ja 31 '20
- Life-saving appliances on cargo and passenger vessels. E. W. Blocksidge. *Engineering* 111:504-6 Ap 22 '21; Excerpt. *Engineering* 131:314-15 Mr 25 '21; Discussion. *Engineering* 111:349 Mr 25 '21; *Engineer* 131:315 Mr 25 '21
- Line-carrying bouy serves also as life preserver. *il Pop Mech* 36:3 Jl '21

Lifeboats

- Broady collapsible lifeboat. *il* Int Marine Eng 25:359-60 Ap '20
 Development of the motor lifeboat. *il* diags Engineer 129:294-6, 298 Mr 19 '20
 Double-deck folding lifeboat carries seventy. *il* Pop Mech 36:322 S '21
 Lifeboat-launching device that is automatic. *il* Pop Mech 35:874-5 Je '21
 Ship's boat launching gear. *il* Sci Am 124:371 My 7 '21
 Something new in lifeboats. *il* Sci Am 124:433 My 28 '21

See also Davits

Lift bridges. *See* Bridges, Lift

Lifting jacks. *See* Elevators; Hoisting machinery; Jacks

Lifting magnets

- Electric lifting magnets. F. A. Hooper. Eng & Ind Management 6:52, 109-12 Jl 14, 28 '21
 Improving warehouse efficiency; horizontal storage of iron and steel products. K. H. Lansing. *il* diags Iron Tr R 68:1108-10 Ap 21 '21
 Lifting magnets. Engineering 111:264 Mr 4 '21
 Neale submarine lifting magnet. Engineering 112:311 Ag 26 '21
 Pont roulant électrique de 5 tonnes pour le transport de profilés au moyen d'électro-aimants de levage. *il* Génie Civil 76:314-15, pl 6 Mr 27 '20
 Rectangular lifting magnets. K. H. Hamilton. *il* Sci Am 122:96 Ja 24 '20
 Submarine lifting magnet recovers ship's wreckage. Pop Mech 36:711 N '21

Lifts. *See* Elevators; Hoisting machinery

Liggett drug stores

- Good old-fashioned brand name advertising, the specific for substitution. J. A. Murphy. Ptr Ink 115:3-4+ Je 30 '21

Light

- Blue eyes and blue feathers. W. D. Bancroft. Sci Am M 1:461-3 My '20
 Henri Piéron on the physiological principles underlying the study of light. L. T. Tro-land. bibliog Illum Eng Soc 16:sup44-50 no 3 '21
 Light; a textbook for students who have had one year of physics. H. M. Reese. 295p Missouri book co., Columbia '21
 Light and chemical energy; Perrin's brilliant new theory with regard to effect of wave length upon reactions. P. Weiss. Sci Am M 3:523-5 Je '21
 Light and electrons. O. Lodge. Philos Mag 6th ser 42:177-83 Jl '21
 Light rays bent by gravity. Pop Mech 33:11 Ja '20
 Modified views on the theory of light. E. F. Nichols. diags Illum Eng Soc 15:558-70; Discussion. 570-5 no 8 '20
 Relation of radiant energy to matter, space and time. J. D. Ross. diags Am Inst E E J 39:985-94 N '20
 Scattering of light by dust-free liquids. W. H. Martin. diags J Phys Chem 24:478-92 Je '20
 Scattering of X- and γ -rays. J. A. Gray. diags J Fr Inst 190:633-55 N '20
 Spectral distribution of energy required to evoke the gray sensation; abstract. I. G. Priest. J Fr Inst 192:524-6 O '21
 Supposed weight and ultimate fate of radiation. O. Lodge. Philos Mag 6th ser 41:549-57 Ap '21
See also Aberration; Absorption of light; Brightness; Color; Daylight, Artificial; Diffraction; Dispersion; Electromagnetic theory; Eye; Fluorescence; Gamma-rays; Glare; Infra-red rays; Interference (light); Light projection; Light signals; Light-houses; Lighting; Optics; Phosphorescence; Photochemistry; Photoelectric effect; Photography; Photometry; Phototropy; Plants, Effect of light on; Polarization (light); Radiation; Radioactivity; Reflection (optics); Refraction; Refractive index; Refractometer; Solar radiation; Spectrum; Ultra-violet rays; X rays

Light, Colored

- Advantages of various light intensities in combination with color. B. Irwin. Elec R 79:176 Jl 30 '21
 Colored lighting equipment and its applications. F. B. Rae, jr. *il* Elec R 78:777-8 My 14 '21
 Progress in stage lighting. *il* Electrician 87:299 S 2 '21
 Protecting fruit by colored light. M. Tevis. Sci Am 125:223 S 24 '21
 Recent applications of color in lighting. A. D. Curtis and J. L. Stair. *il* diags plan Illum Eng Soc 15:678-91; Discussion. 691-2 no 9 '20

Light, Invisible. *See* Infra-red rays; Ultra-violet rays

Light meters. *See* Foot-candle meter; Photometry

Light projection

- Daylight projection of opaque subjects. G. Gaulois. *il* Sci Am 125:29 Jl 9 '21
 Flood lighting Niagara Falls. *il* J Elec 44:69-70 Ja 15 '20
 Floodlights for buildings and yards of manufacturing plants; used around the no. 1 nitrate plant at Sheffield, Ala., during the war. C. D. Gray and E. Hagenlocher. Elec W 76:693 O 2 '20
 Floodlights make high-tension bus inspection easier. *il* Elec W 78:322 Ag 13 '21
 Lighting the Wrigley building, Chicago, at night. *il* Elec R 79:397 S 10 '21
 Locomotive turbines for flood lighting night construction. *il* Eng N 87:206 Ag 4 '21
 Report of the Illuminating engineering society committee on progress. Illum Eng Soc 15:442-8 no 7 '20
 Selecting lamps for flood-lighting. H. E. Butler. chart Elec W 78:473-4 S 3 '21

Light ships

- United States lightship 99 is built for Great Lakes service. *il* Pop Mech 35:702 My '21

Light signals

- Electric lighting of railroad signals. L. C. Porter and F. S. Stallknecht. *il* diags Illum Eng Soc 15:223-42 no 4 '20
 Flashing speeds of incandescent signal lamps. A. G. Worthing. diags J Fr Inst 191:231-57 F '21
 Motor-haulage block-signal protection. T. H. Arnold. plan Eng & Min J 110:677 O 2 '20
 Motor haulage switch protection. T. H. Arnold. diag Eng & Min J 110:578 S 18 '20
 Note on speed of flashing of incandescent signal lamps. A. G. Worthing. J Fr Inst 189:788-9 Je '20; Same. Am Inst E E J 39:841 S '20
 Putting infra-red rays to work. G. Gaulois. *il* diags Sci Am 122:248+ Mr 6 '20
 Secret signalling by light rays. Am J Sci 49:214-16 Mr '20; Same. Sci Am M 1:559 Je '20

See also Searchlights

Light telephone

- Light wave telephony; abstract. A. O. Rankine. diags Sci Am M 1:83-4 Ja '20

Lighters

- Electrical equipment of lighter proves efficient. W. H. Easton. *il* Elec R 76:144-5 Ja 24 '20

Lighthouse service (United States)

- Signposts of the sea; the United States lighthouse service. *il* Sci Am 121:582 D 13 '19

Lighthouses

- Aerial lighthouses. *il* diags Engineer 129:500-1 My 14 '20; Same. Sci Am M 2:170-1 O '20
 Beacon on Wolf Rock off coast of Cornwall is most dangerously situated lighthouse. *il* Pop Mech 35:902-3 Je '21
 Development of the radio beacon. *il* Wireless Age 8:16-17 Mr '21
 Few problems in lighthouse operation. L. Irwell. *il* Marine R 50:219-20 Ap '20
 Les moyens d'augmenter l'effet utile des feux à éclats employés pour la navigation aérienne. Génie Civil 78:381 Ap 30 '21
 New lighthouse devices safeguard mariners. J. W. Kean. *il* Pop Mech 36:60-1 Jl '21

Lighthouses—Continued

- Signposts of the sea; the United States lighthouse service. *il Sci Am* 121:582 D 13 '19
 Welding a lighthouse foundation. *il Int Marine Eng* 25:771 S '20

See also Buoys; Light ships

Lighting

- Artificial lighting in the rubber industry. E. L. Elliott. *il India Rubber W* 63:239-41, 329-32, 412-16 Ja-Mr '21
 Better industrial and commercial lighting. R. M. Alvord. *il J Elec* 46:480-3 My 15 '21
 Effect of color of walls and ceilings on resultant illumination. A. L. Powell. *bibliog il Gen Elec R* 23:209-13 Mr '20
 Effect of variations in intensity of illumination on functions of importance to the working eye. C. E. Ferree and G. Rand. *Illum Eng Soc* 15:769-92; Discussion. 792-801 no 9 '20
 Fundamental principles of illuminating design. *il diags Am Arch* 117:261-3, 479-81, 833-9; 118:475-82+ F 25, Ap 14, Je 30, O 13 '20
 Home lighting—how to make it comfortable and effective. A. L. Powell and R. E. Harrington. *il Illum Eng Soc* 14:394-406 no 8 '19; Same, without discussion. *Am Arch* 116:795-8, 823-6 D 24-31 '19; Discussion. *Illum Eng Soc* 14:407-14 no 8 '19
 Illuminating engineering from the sidelines. R. W. Shenton. *il Illum Eng Soc* 15:349-60; Discussion. 361-2 no 6 '20
 Illuminating engineering society 14th annual meeting, Cleveland. *Elec R* 77:566-70 O 9 '20
 Illuminating features in luxurious Chicago apartment. *il Elec R* 79:377-80 S 10 '21
 Illuminating laboratory research and developments. W. D'A. Ryan. *il Elec R* 78:779-81 My 14 '21
 Illumination in a stock show building. F. D. Weber. *il J Elec* 45:83-4 Jl 15 '20
 Illumination of artistic interiors without the use of pendant ceiling fixtures. A. D. Curtis and J. L. Stair. *il diags Illum Eng Soc* 15:61-73; Discussion. 73-6 no 1 '20
 Industrial lighting exhibit at San Francisco. *Elec R* 77:930 D 11 '20
 Knowns and unknowns of light production; with discussion. G. M. J. Mackay. *diag Illum Eng Soc* 15:545-57 no 8 '20
 Lighting and industrial efficiency: development in theory and practice. W. E. Bush. *il diag Eng & Ind Management* 5:42-5 Ja 13 '21; Abstract. *Illum Engr* 13:279-81 O '20
 Lighting in England. F. W. Willcox. *Illum Eng Soc* 15:139-41; Discussion. 141-4 no 2 '20
 Lighting in wartime. P. S. Miller. *il W Soc E J* 24:584-94 N '19
 Lighting opportunities open to contractor-dealers. *Elec R* 77:921-2 D 11 '20
 Lighting requirements in modern dining room. F. W. Mathieu. *il Elec R* 78:771-2 My 14 '21
 Lighting the home. M. Luckiesh. *il plans Bldg Age* 42:55-8 My; 25-8 S; 33-6 N '20; 43:59-62 Ap '21
 Lighting the home. M. Luckiesh. 289p Century co. '20
 Maintenance of interior lighting systems. W. Harrison and J. R. Colville. *il Elec W* 75:204-8 Ja 24 '20; Same. *Power Pl Eng* 24:434-6 Ap 15 '20
 90% more light from your present equipment. W. Harrison and J. C. Colville. *Factory* 25:53-4 Jl 1 '20
 Opportunities for extending lighting through new applications. R. M. Searle. *Illum Eng Soc* 15:145-8; Discussion. 148-51 no 2 '20
 Optical principles of illuminating engineering. P. G. Nutting. *Illum Eng Soc* 15:529-38 no 8 '20
 Paint and illumination. *Illum Engr* 13:21 Ja '20
 Principles of scientific illumination. C. E. Webb. *diags Inst E E J* 58:756-61 Ag '20
 Problems of theory and practice in modern lighting; extracts from reports and papers presented before convention of Illuminating engineering society. *il Elec R* 79:546-51 O 8 '21

- Progress in the past year, 1919. *Illum Engr* 13:1-3 Ja '20
 Progress in the past year, 1920. *Illum Engr* 14:1-3 Ja '21
 Psychology of lighting. H. A. Wagner. *Am Gas Eng J* 112:108-10 F 7 '20
 Rayonnement; principes scientifiques de l'éclairage. A. Blanc. 212p A. Colin, Paris '21
 Recent developments in public and private lighting. W. C. Clinton. *Illum Engr* 12:287-9 O '19
 Report of the Illuminating engineering society committee on progress. *Illum Eng Soc* 14:313-90 no 8 '19; 15:425-93 no 7 '20; Discussion. *Illum Eng Soc* 14:390-3 no 8 '19
 Shipping, engineering, and machinery exhibition held at Olympia, Sept. 25th-Oct. 17th. *Illum Engr* 12:297-9 O '19
 Succeeding in illuminating engineering. R. F. Yates. *Sci Am* 123:468 N 6 '20
 Symposium—maintenance of lighting equipment. J. L. Stair and others. *Illum Eng Soc* 15:291-347 no 5 '20
 Use of artificial light as an aid to various games and sports. J. S. Dow. *il Illum Engr* 14:149-57; Discussion. 157-62 Je '21
 Value of proper illumination. F. D. Fagan, R. E. Fisher, and H. W. Kimball. *J Elec* 44:152-6 F 15 '20
 Year's progress in illuminating engineering. *Illum Engr* 12:345-9 D '19

See also Acetylene lighting; Aerial routes—Lighting; Armories—Lighting; Art galleries and museums—Lighting; Automobiles—Lighting; Bank buildings—Lighting; Brightness; Buoys; Candles; Car lighting; Church lighting; Courthouses—Lighting; Daylight, Artificial; Department stores—Lighting; Docks—Lighting; Electric lamps; Electric lighting; Factories—Lighting; Foundries—Lighting; Gardens—Lighting; Gas lighting; Glare; Golf links—Lighting; Laundries—Lighting; Libraries—Lighting; Light projection; Lighthouses; Locomotive headlights; Machine shops—Lighting; Mine lighting; Motor buses—Lighting; Moving picture studios—Lighting; Moving picture theaters—Lighting; Office lighting; Parks—Lighting; Photometry; Piers—Lighting; Printing offices—Lighting; Public buildings—Lighting; Railroads—Stations—Lighting; Railroads—Yards—Lighting; Reflectors; Roads—Lighting; Roundhouses—Lighting; Schoolhouses—Lighting; Searchlights; Ships—Lighting; Show windows—Lighting; Store buildings—Lighting; Street lighting; Subways—Lighting; Tennis courts—Lighting; Textile mills—Lighting; Theaters—Lighting; Woodworking shops—Lighting; *also* International commission of illumination

Bibliography

- Illumination bibliography. *Illum Eng Soc* 15:385-91 no 7 '20
 Illumination index; published in each number of Illuminating engineering society transactions

Cost

- Monograph on illumination. G. A. Hoadley. *Illum Eng Soc* 15:422-3 no 7 '20

History

- Monograph on illumination. G. A. Hoadley. *il diags Illum Eng Soc* 15:392-424 no 7 '20
 Time periods in development of artificial lighting. *il Elec R* 77:561 O 9 '20

Laws and regulations

- England's fuel and light rationing orders. *Metal Work* 92:701 D 12 '19
 General lighting safety orders. *il J Elec* 44:30-2 Ja 1 '20
 Industrial lighting code for factories, mills, offices and other work places. 2d ed. 44p Issued by the Industrial commission of Wisconsin, Madison '20
 Industrial lighting codes. G. H. Stickney. *il Elec W* 75:378-9 F 14 '20
 Modern industrial lighting for Oregon. F. H. Murphy. *il Elec W* 76:820-3 O 23 '20; Abstract. *Illum Engr* 13:273-4 O '20

Lighting—Laws and regulations—Continued

Practical application of general lighting safety orders. R. L. Eltringham. J Elec 45: 65-6 J1 15 '20

Report of the Illuminating engineering society committee on progress. Illum Eng Soc 15: 483-6 no 7 '20

Symposium—application of industrial lighting codes; codes of Wisconsin, New York, New Jersey, Pennsylvania and Federal code. il Illum Eng Soc 14:435-77; Discussion. 480-99 no 9 '19

See also Schoolhouses—Lighting

Standards

Determination of standard for white light. Elec R 78:420 Mr 12 '21

Necessity for standards in the relation between illumination and output. W. Harrison. il Illum Eng Soc 15:337-41 no 5 '20

Table showing present standards of illumination for various service. E. A. Anderson. Elec R 78:414 Mr 12 '21; Same. Elec W 77:416 F 19 '21

See also Lighting fixtures—Standards

Tables, calculations, etc.

Calculating the size of lighting units. D. W. Blakeslee. Elec W 77:660 Mr 19 '21

Coefficients of utilization. W. Harrison and E. A. Anderson. Illum Eng Soc 15:97-123 no 2 '20

Graphical calculation of illumination. K. S. Weaver. diags Elec W 76:880 O 30 '20

Illumination design simplified. E. A. Anderson. il Elec W 77:417-22 F 19 '21; Same. Elec R 78:411-15, 569-72 Mr 12, Ap 9 '21

Industrial illumination. V. H. Todd. il diags Power Pl Eng 24:701-4 J1 15 '20

Predetermining foot-candle illumination. I. W. Gross. chart diag Elec W 75:1423-5 Je 19 '20; Discussion. R. H. Cook. 78:876 O 29 '21

Safety features of industrial lighting. S. G. Hibben. diags Illum Eng Soc 16:47-55 no 3 '21; Same. Elec R 78:773-6 My 14 '21; Same cond. Safety Eng 41:13-18 Ja '21

Walls and floors—their effects on lighting. V. R. Lansingh. il diags Illum Eng Soc 15: 124-31; Discussion. 131-8 no 2 '20

Testing

Bearing of illuminating intensity upon efficiency of visual operations. M. Luckiesh, A. H. Taylor and R. H. Sinden. diag Elec W 78:668-70 O 1 '21

Lighting, Electric. *See* Electric lighting

Lighting fixture dealers' society of America Convention, Buffalo. Elec R 78:349-56 F 26 '21

Lighting fixture manufacturers, National council of. *See* National council of lighting fixture manufacturers

Lighting fixtures

Finishing lighting fixtures. F. G. Leal. Metal Ind 18:513 N '20

Period styles in lighting fixtures. M. Luckiesh. diags Elec R 77:395-9 S 11 '20

Report of the Illuminating engineering society committee on progress. Illum Eng Soc 15:463-71 no 7 '20

Residence lighting; abstract. M. Luckiesh. Illum Eng Soc 15:268-9; Discussion. 269-82 no 4 '20

See also Electric light fixtures; Gas fixtures; Street lighting fixtures

Cleaning

Maintenance of indirect lighting equipment. J. L. Stair. Illum Eng Soc 15:292-300; Discussion. 300-2 no 5 '20

Restoring a lighting system. W. Harrison and J. R. Colville. il Textile World 59:3271+ My 14 '21

Symposium—maintenance of lighting equipment. J. L. Stair and others. Illum Eng Soc 15:291-347 no 5 '20

Exhibitions

Success crowns lighting fixture conventions. Elec R 78:349-56 F 26 '21

Standards

Lighting fixture standardization. C. H. Hofrichter. Elec R 77:405-6 S 11 '20

Lighting sets, Electric. *See* Electric lighting sets; Farm lighting sets

Lightning

Causes and effects of lightning. C. P. Steinmetz. Elec R 77:648 O 23 '20

Effect of lightning striking an acid tank. P. de Wolf. il Chem & Met Eng 25:336 Ag 24 '21

Lightning in unwired Cochran mine sets fire to gas. A. F. Brosky. il Coal Age 20:674-5 O 27 '21

Lightning; its nature. J. Lachenbruch. il Sci Am 125:26 J1 9 '21

Shots fired by lightning discharges. M. Ferey. Coal Age 17:272-3 F 5 '20

See also Atmospheric electricity; Electricity, Injuries from; Lightning detectors

Lightning arresters

Accidents caused by aluminum cell arresters left on charge. N E L A Bul 8:288 My '21

Alternating-current lightning arresters. V. E. Goodwin. il Gen Elec R 23:429-32 My '20

Aluminium electrolytic arrester, with an introduction on electrical disturbances. A. G. Ramsey. diags Inst E E J 57:sup306-11 '19

Filling and testing aluminum-cell arresters. diags Elec R 77:219-20 Ag 7 '20

Life and performance tests of O F lightning arresters. N. A. Lougee. il diags Am Inst E E J 39:944-8 N '20; Same. Gen Elec R 23:928-33 N '20

Lightning arrester employs oxide film. il Elec R 76:1029-30 Je 19 '20

Lightning arrester spark gaps; their relation to the problem of protecting against impulse voltages. C. T. Allcutt. il diags pt 1 Am Inst E E Pro 37:519-40 My '18; pt 2 Am Inst E E J 39:939-43 N '20

Lightning arresters. F. L. Hunt. Am Inst E E J 40:687-9 Ag '21

Lightning arresters. V. E. Johnson. il diags Power Pl Eng 25:1053-8, 1148-52 N 1, D 1 '21

Lightning arresters on overhead power systems. A. Still. il diags Elec R 79:192-6 Ag 6 '21

Lightning; the effect of lightning voltages on arrester gaps, insulators and bushings on transmission lines. F. W. Peek, jr. diags Gen Elec R 22:900-6 N '19

Maintenance of aluminum-cell lightning arresters. Elec R 77:105 J1 17 '20

Operation of lead-oxide lightning arresters. diag Elec R 78:75 Ja 8 '21

Oxide-film lightning arrester. il Power 51:956 Je 15 '20; Same. Power Pl Eng 24:656-7 J1 1 '20

Protecting from abnormal voltages. C. E. Bennett. il diags Elec W 75:365-8 F 14 '20

Protection of electric equipment in coal-mining service. B. F. Grimm. il Coal Age 20: 291-5 Ag 25 '21

Studies in lightning protection on 4000-volt circuits. D. W. Roper. diags maps Am Inst E E J 39:960-75 N '20; Same cond. Gen Elec R 23:985-98 D '20; Discussion. C. P. Steinmetz and others. 23:998-1004; 24:253-7 D '20, Mr '21

Switching and protection of transmission circuits. S. Q. Hayes. il diags Elec J 17: 268-71 Je '20

See also Choke coils; Electric absorbers

Testing

Generator for making lightning; apparatus to give more definite knowledge concerning lightning phenomena. J. L. R. Hayden and N. A. Lougee. il diag Gen Elec R 24: 946-8 N '21

Lightning detectors

Anticipating thunder storms. H. W. Secor. diags Power Pl Eng 25:663-4 J1 1 '21

Lightning protection

Electric sparking in mines from lightning. G. S. Rice and L. C. Ilsley. Sci Am M 1:445 My '20; Same. Coal Age 17:594-5 Mr 25 '20

Lightning protection—Continued

Lightning protection on rural power lines. *il Elec R* 78:669 Ap 23 '21

Protecting lines against over-voltage surges. A. Still. *il Elec R* 78:733-6 My 7 '21

Studies in lightning protection on 4000 volt circuits. D. W. Roper. maps pt 1 *Am Inst E E Pro* 35:817-55 Je '16; pt 2 *Am Inst E E J* 39:960-75 N '20; Excerpts. *Elec W* 76:973-7 N 13 '20

Symposium on lightning protection. *Elec Ry J* 56:1069-70 N 20 '20; *Elec R* 77:810-12 N 20 '20; *Elec W* 76:1040 N 20 '20

Tests that prove metal roofs protect from lightning. *il Sheet Metal Worker* 12:315-18 Je 10 '21

See also Lightning arresters

Lignin

Determination of lignin. E. Heuser. Paper 27:24-6 F 9; 17-19+ F 16 '21

Experimental study of the significance of lignin color reactions. E. C. Crocker. *J Ind & Eng Chem* 13:625-7 JI '21; Abstract. Paper 28:22-3, 32 Ag 31 '21

Lignin investigations. K. H. A. Melander. Paper 28:19-21 JI 27 '21

Lignin: its composition and probable chemical reactions. P. Klason. Paper 26:20+ Je 30 '20

Methyl alcohol from lignin. E. Heuser and H. Schmelz. Paper 27:25+ N 17 '20

Über lignin und den sulfit-kochprozess. W. Fuchs. *Deutsche Chem Gesell Ber* 54:484-90 Mr '21

Work of cellulose research institute; methyl alcohol from lignin. E. Heuser. Paper 28:17-21+ Ag 24 '21

Lignite

American lignite coals; Canada blazes the way to put them on a par with anthracite. R. G. Skerrett. *il Sci Am* 124:344+ Ap 30 '21

Briquetting of lignites. L. R. Thomson. *Chem & Met Eng* 25:500 S 14 '21; Same. *Can Chem & Met* 5:287-8 O '21

Burning lignite on forced-draft chain grate. H. F. Gauss. *il diag Power* 50:798-9 D 16 '19

Burning of lignite fuel. H. F. Lawrence. *Am Soc Heat & V E J* 27:68-72 Ja '21

Carbonization of Canadian lignite. E. Stansfield. *diag J Ind & Eng Chem* 13:17-22; Discussion. 22-3 Ja '21

Carbonization of lignite to be tried in North Dakota. *Coal Age* 17:982 My 13 '20

Combustion of lignites and high-moisture fuels; abstracts. T. A. Marsh. *Power* 53:158-60 Ja 25 '21; *Power Pl Eng* 25:214-17 F 15 '21

Distillation of fuels as applied to coal and lignite. O. P. Hood. *Mech Eng* 43:23-4 Ja '21

Germany's brown coal. R. G. Skerrett. *il Sci Am* 124:304+ Ap 16 '21

Good efficiency obtained with low-grade lignites. *Elec R* 76:201 Ja 31 '20

Handling lignite coal to prevent spontaneous combustion. A. W. Morgan. *il Elec W* 76:74 JI 10 '20

Lignite bricks pave Canada's way to fuel independence. W. N. Burns. *Coal Age* 19:65-6 Ja 13 '21

Lignite carbonization research plant. *Chem & Met Eng* 22:999 My 26 '20

Lignite containing 23 per cent moisture develops 275 per cent boiler rating. *diag Elec W* 76:479-80 S 4 '20

Lignites of western states briquetted into new fuel. *Pop Mech* 35:372 Mr '21

Louisiana lignite. R. Glenk. 65p La. Department of conservation, New Orleans '21

New Salem lignite field Morton county, North Dakota. E. T. Hancock. *il diags maps U S Geol S Bul* 726—A:1-39 '21

Revolving kiln for making lignite into made-to-order fuel. E. L. Broome. *diag Coal Age* 17:1046-8 My 20 '20

Rise of lignite. map *Power Pl Eng* 24:413 Ap 15 '20

Steaming value of Alaska lignite. *Power Pl Eng* 24:378 Ap 1 '20; Same. *Coal Age* 17:707 Ap 8 '20

Sub-bituminous and lignite coals. S. M. Darling. *Ry R* 66:1096-8 Je 26 '20; Same cond. *Power* 52:313-14 Ag 24 '20; Excerpts. *Ry Age* 68:1509-10 My 28 '20; Same. *Ry Mech Eng* 94:448-9 JI '20

Les succédanés du charbon: bois, tourbe, lignite. E. Damour. *diag Chimie & Ind* 5:11-17 Ja '21

Using low grade fuels. diags *Power Pl Eng* 25:39-41 Ja 1 '21

See also Coal

Lignite, Pulverized

Pulverized lignite fuel in California. R. N. Buell. *il diag Chem & Met Eng* 22:605-7 Mr 31 '20; Same. *Coal Age* 17:799-801 Ap 22 '20

Use of pulverized lignite for fuel in Australia. *Chem & Met Eng* 23:663 O 6 '20; Same. *Sci Am* 123:440 O 23 '20

Limbs, Artificial. *See* Artificial limbs

Lime

Action of lime in magnesium oxychloride cements. M. Y. Seaton, C. R. Hill and L. C. Stewart. *Chem & Met Eng* 25:270-4 Ag 17 '21

Action of lime on greensand. R. N. Shreve. *J Ind & Eng Chem* 13:693-5 Ag '21; Abstract. *Chem & Met Eng* 24:831 My 11 '21

Dependence of the lime industry upon nature and science. A. D. Little. *Chem & Met Eng* 25:149-52 JI 27 '21

Étude des classifications des chaux et ciments. V. Bodin. *Chimie & Ind* 4:42-8 JI '20

Excess lime method of water sterilization. A. F. Girvan. *Eng & Contr* 53:762 Je 30 '20

Fine art of lime burning. G. B. Wood. *il diag Chem & Met Eng* 25:705-8 O 12 '21

How to slake lime. *Eng & Contr* 56:388 O 26 '21

Hydrated lime—a chemical engineering product. L. E. Allen. *Can Chem & Met* 5:99-101 Ap '21

Idiosyncrasies of building materials—lime. *Am Arch* 118:615-17 N 10 '20

Influence of insufficiently burnt lime in basic open hearth process. *Blast F & Steel Pl* 9:329 My '21

Lime-barium softener for treatment of boiler feed water. C. A. Mehring. diags *Chem & Met Eng* 21:629-32 N 12 '19

Lime—definitions and specifications. *U S Bur Stand Circ* 106:1-15 '20

Lime in 1918. G. F. Loughlin and H. Insley. map *U S Geol S Min Res of U S* 1918, pt 2:815-56 '20

Lime in 1919. G. F. Loughlin and A. T. Coons. *U S Geol S Min Res of U S* 1919, pt 2:405-18 '21

Lime in the United States. *Sci Am M* 3:374 Ap '21

Lime industry in 1919. *Concrete* 16:sup55-7 Ap '20

Lime: its properties and uses. W. E. Emley. *U S Bur Stand Circ* 30:1-25 '20

Manufacture of lime. W. J. Faber. *il Sci Am* S 88:316 N 29 '19

Manufacture of lime for chemical and metallurgical purposes. R. K. Meade. *il diags Chem & Met Eng* 23:841-4, 873-5, 929-32 O 27-N 10 '20

National lime association 3d annual convention, New York. *Chem & Met Eng* 24:1141-2 Je 29 '21; *Am Arch* 120:20-4 JI 6 '21

New lime calcining and hydrating plant of the Luckey lime & supply co. A. A. Weigel. *il Concrete* 19:sup53-5 O '21

New lime plant of the Ladd lime & stone co. *il diag Concrete* 17:sup79-82 D '20

Ohio hydrate and supply company expanding. E. G. Baker. *il diags Concrete* 17:sup1-5 JI '20

Outline of lime manufacturing operations. E. Holmes. *il Chem Age* 29:227-30 Je '21

Production of lime in 1920. *Concrete* 18:sup 50-1 Mr '21

Report of committee C-7 on lime. *Am Soc T M Pro v* 20 pt 1:271-4 '20

Lime—Continued

Rotary kiln lime burning plant; Granite City steel works of the National enameling and stamping company. *diag* Blast F & Steel Pl 9:467-8 Ag '21

Separation of lime from dolomite. H. G. Schurecht. *Am Cer Soc J* 4:558-69 Jl '21

Uses of lime in water purification. C. A. Brown. *Munic Eng* 61:109-11 S '21

Water softening by the cold lime-soda process. G. C. Cook. *Power* 54:92-4 Jl 19 '21

World's largest lime plant in construction. *il Concrete* 16:sup41-2 Mr '20

See also Cement

Analysis

Determination of available lime in quicklime and hydrated lime. A. I. Whitson. *Chem & Met Eng* 25:740 O 19 '21

Tentative methods for chemical analysis of limestone, lime and hydrated lime. *Am Soc T M Pro v* 20 pt 1:626-33 '20

Bibliography

Reading list on lime. C. J. West. *Special Lib* 12:71-87 Ap '21

Specifications

Importance of specifications for chemical lime. *Eng & Min J* 111:743 Ap 30 '21

Tentative specifications for Masons' hydrated lime. *Am Soc T M Pro v* 20 pt 1:605-8 '20;

Same. *U S Bur Stand Circ* 106:13-15 '20;

Same. *Am Inst Arch J* 9:256-7 Jl '21

Testing

Evaluation of lime by causticizing test. C. Moe. *Paper* 28:232 Ap 20 '21

Testing lime for causticizing soda. *Paper* 29:14-15+ O 26 '21

Lime chloride. *See* Calcium chloride

Lime kilns

Manufacture of lime for chemical and metallurgical purposes. R. K. Meade. *diag Chem & Met Eng* 23:873-5 N 3 '20

New features in limekiln construction. R. K. Meade. *il diags J Ind & Eng Chem* 13:722-7 Ag '21

Rotary kiln for lime burning. J. G. Jones. *Concrete* 19:sup25-8 Ag '21

Limestone

Dependence of the lime industry upon nature and science. A. D. Little. *Chem & Met Eng* 25:149-52 Jl 27 '21

Limestone ores of Manhattan, Nevada. H. G. Ferguson. *diags maps Econ Geol* 16:1-36 Ja '21

New limestone crushing plant at Cedar Hollow. I. Warner. *il diags plans Concrete* 16:sup87-93 Je '20

Our mineral supplies; limestone and lime. G. F. Loughlin. *U S Geol S Bul* 666:107-12 '19

Quarrying limestone having clay seams. O. Bowles. *il Concrete* 16:sup48-9 Mr '20

Story of limestone. G. B. McGrath. *il Am Arch* 117:319-22 Mr 10 '20

Voidage and weight of broken limestone. *Eng & Contr* 55:3-4 Ja 5 '21

What are the advantages, disadvantages and uses of limestone in highway construction? *Pub Works* 50:360-1 Ap 23 '21

'See also Dolomite; Marble

Analysis

Limestone analysis. W. E. B. Baker. *Paper* 26:70+ Ap 21 '20

Tentative methods for chemical analysis of limestone, lime and hydrated lime. *Am Soc T M Pro v* 20 pt 1:626-33 '20

Lincoln, Abraham

Abraham Lincoln; address delivered by Elihu Root on the occasion of the unveiling of the St Gaudens statue, the gift of America to the British people, at Westminster, on July 28, 1920. *Min & Sci P* 122:219-20 F 12 '21

Memorials

Daniel Chester French's new Lincoln. F. O. Payne. *il Arch Rec* 47:377-81 Ap '20

Lincoln memorial in Washington, D.C. G. Brown. *il Am Arch* 118:488-99, 503-6, 522-33, 537-9 O 20-27 '20

Lincoln highway

Construction methods and equipment on Lincoln highway job in Whiteside county, Illinois. *il Eng & Contr* 53:518-19 My 5 '20

Day labor construction on Lincoln highway at Frankfort, Ill. B. H. Peipmeier. *il Munic Eng* 61:sup 23-4+ O '21

Design of Ideal road; Lincoln highway association. *W Soc E J* 26:66-7 Mr '21

Lincoln highway ideal road specification. *Concrete* 18:295 Je '21

Pavements on the Lincoln highway. *Good Roads n s* 19:160 Mr 24 '20

Progress on the Lincoln highway; annual report of the Lincoln highway association. *Good Roads n s* 19:5-6 Ja 7 '20; *Motor Age* 37:19+ Ja 8 '20; *Eng N* 84:325 F 12 '20

Road conditions on the Lincoln highway better than ever. *Good Roads* 61:2+ Jl 6 '21

Wyoming makes fine Lincoln highway building record. *Pop Mech* 35:880 Je '21

Lincoln institute for vocational education

Government training ex-service men for trade. *il Sheet Metal Worker* 12:325-7 Je 10 '21

Lincoln motor company

Lincoln motor production plan. I. J. Beatty. *Factory* 24:440-2, 623-6, 793-6, 967-70, 1144-7, 1328-32, 1547-9, 1705-7, 1879-82; 25:38-41 F 15-Jl 1 '20

Lindo-Gladding method. *See* Potash**Linemen**

Accident prevention and first-aid work in the telephone field. F. M. Downey. *Safety Eng* 42:170-3 O '21

Care in construction and maintenance of overhead lines. A. B. Gates. *Elec Ry J* 58:655-6 O 8 '21

Graduating Mike as a lineman in three months. T. Blech. *Elec Ry J* 57:593-4 Mr 26 '21

Linemen's equipment

Device for changing insulators on high-voltage lines. *il Elec R* 77:741 N 6 '20

Handling high voltage with bare hands; the safety staging. G. Gaulois. *il Sci Am* 123:219+ S 4 '20

Linemen's gloves

Characteristics of linemen's gloves. *Power Pl Eng* 24:281 Mr 1 '20

Safety for the linemen. *il Sci Am* 123:407+ O 16 '20

Testing

Gloves withstand high voltage. *Am Mach* 52:616 Mr 18 '20

Oil and glove testing on large distribution system. D. Borden. *diag Elec W* 75:607-8 Mr 13 '20

Simple equipment for making voltage tests on rubber gloves. *Elec W* 76:930-1 N 6 '20

Linen

Booming Irish linens in United States. A. S. Moore. *Textile World* 57:956 F 7 '20

Dyeing and finishing dress linens. D. Wiltern. *Textile World* 60:2439+ O 29 '21

Linen trade in 1920. *Textile World* 59:1061 F 5 '21

New Jacquard pattern device. A. S. Moore. *il Textile World* 59:4071+ Je 18 '21

Recent improvements in the finish of linen and cotton goods. M. Fort. *Color Tr J* 9:142-5 O '21

Research plans of linen manufacturers. *Textile World* 57:1160 F 7 '20

See also Dyes and dyeing—Linen; Flax; Hemp; Textile fabrics

Lining, Concrete. *See* Concrete lining**Lining, Paper.** *See* Paper lining**Linolenic acid**

Linolenic and hexabromostearic acids and some of their derivatives. S. Coffey. *Chem Soc J* 119:1306-10 Ag '21

Mechanism of the oxidation of drying oils as elucidated by a study of the true oxygen absorption; linolenic and linolic acids. S. Coffey. *Chem Soc J* 119:1408-15 S '21

Linoleum

- Linoleum and its proper application. *il Am Arch* 119:565-8 My 11 '21
 Linoleum floor coverings. *il diags Bldg Age* 43:47-8+ Je '21
 Modern floor coverings. E. H. Howard. *il Arch Forum* 35:29-30, 63-4 Jl-Ag '21
 Rubber resins, paints and varnishes. R. S. Morrell and A. de Waele. 236p Baillière, Tindall & Cox, London '21
 Use of linoleum as a safety stair tread. *diags Am Arch* 118:31-2 Jl 7 '20

Advertising

- Intensive work with dealers keeps Blabon running at capacity. R. Cole. *Ptr Ink* 117:72+ O 6 '21
 Multiplying the uses of a one-purpose article. R. Cole. *Ptr Ink* 112:3-4+ Ag 26 '20

Linolic acid

- C₁₈ fatty acids—the non-identity of eleostearic acid tetrabromide from tung oil with ordinary linolic acid tetrabromide. B. H. Nicolet. *Am Chem Soc J* 43:938-40 Ap '21
 Mechanism of the oxidation of drying oils as elucidated by a study of the true oxygen absorption; linolenic and linolic acids. S. Coffey. *Chem Soc J* 119:1408-15 S '21

Linotype

- Linotype and intertype operator's manual. R. Phinney. 62p L. Maynard ptg. co., Le Mars, Ia. '21
 Linotype slugs and catalogues; printing a university library catalogue from linotype title-a-line slugs. H. S. Leach. *Sci Am* 125A:47 N '21
 Machine composition. E. M. Keating. See monthly numbers of *Inland printer*
 Matrices show damaged walls. E. M. Keating. *Inland Ptr* 65:476 Jl '20
 New linotype-matrix grip changes fonts quickly. *il Pop Mech* 33:854 Je '20
 New typesetting machine casts seven-inch slug. *il Pop Mech* 36:716 N '21

Linotype operators

- Kick that wasn't coming. J. E. Allen. *Inland Ptr* 66:182-3 N '20

Linseed oil

- Air required in baking cores made with linseed oil. A. A. Grubb and U. S. Jamison. *Chem & Met Eng* 25:793-5 O 26 '21
 Effect of variation in analytical constants of linseed and soy-bean oils upon the quantitative determination of linseed oil in mixtures of the two oils by means of the iodine and hexabromide numbers of the fatty acids. E. A. Tschudy. *J Ind & Eng Chem* 13:941-3 O '21
 Improved process of refining linseed oil. A. Schwarzman. *diag Chem Age* 29:280-2 Jl '21
 Laboratory letters. A. Schwarzman. 70p Spencer Kellogg & sons, Buffalo '21
 Manufacture of linseed oil. *Chem & Met Eng* 24:401 Mr 2 '21
 Mechanism of the oxydation of drying oils as elucidated by a study of the true oxygen absorption. S. Coffey. *Chem Soc J* 119:1152-61, 1409-15 Jl, S '21

Specifications

- Recommended specification for linseed oil—raw, refined, and boiled. *U S Bur Stand Circ* 82:1-9 '19
 Standard specifications for purity of raw linseed oil from North American seed; English and French. *U S Bur For & Dom Com Industrial Standards* 159:1-8 '21
 Tentative specifications for foots permissible in properly clarified pure raw linseed oil from North American seed. *Am Soc T M Pro v* 20 pt 1:678-9 '20

Testing

- Hexabromide values of linseed oil; including Steele and Washburn test. *Am Soc T M Pro v* 20 pt 1:395-404 '20
 New hexabromide method for linseed oil. L. L. Steele and F. M. Washburn. *J Ind & Eng Chem* 12:52-9 Ja '20
 Study on the oil bromide test of linseed oil. T. A. Davidson. *J Ind & Eng Chem* 13:801-6 S '21

Lintner scale

- New technical method for the estimation of the saccharogenic power of diastatic preparations. K. Oshima. *J Ind & Eng Chem* 12:991-3 O '20

Linton, Robert

- Sketch. *por Eng & Min J* 111:269 F 5 '21

Lipase

- Lipolytic activity of the castor and soy bean. A. W. Barton. *Am Chem Soc J* 42:620-32 Mr '20

Lippmann, J. F., 1845-1921

- Sketch. *J Fr Inst* 192:359 S '21

Lipton's tea. See Tea—Advertising**Liquefaction of gases. See Chlorine, Liquid; Gases—Liquefaction; Hydrogen, Liquid; Liquid air; Oxygen, Liquid****Liquid air**

- Blasting with liquid air. *diags Min & Sci P* 122:843-4 Je 18 '21
 Liquid air and the liquefaction of gases. T. O. Sloane. 3d ed. rev. and enl. 394p Henley '20
 Rectification de l'air liquide. F. Barbet. *diag Chimie & Ind* 4:147-50 Ag '20

Liquid chlorine. See Chlorine, Liquid**Liquid crystals**

- Anisotropic liquids. J. S. Van der Lingen. *il diags J Fr Inst* 191:651-74; Bibliography. 674-7 My '21
 X-ray and infra-red investigations of the molecular structure of liquid crystals. J. S. Van Der Lingen. *J Fr Inst* 192:511-14 O '21

Liquid fuel

- Calorimetry of liquid fuel. *diag Eng & Ind Management* 6:95-6 Jl 28 '21
 Le chauffage des foyers industriels et spécialement des chaudières à vapeur, par les combustibles liquides. Cauchois. *Génie Civil* 78:183 F 19 '21
 Chemical societies discuss liquid fuels at a joint meeting, Feb. 6. *Chem & Met Eng* 22:296-7 F 18 '20
 L'emmagasiner, la manipulation et la distribution pneumatiques des liquides combustibles. P. Maucière. *Génie Civil* 78:67 Ja 15 '21
 L'emploi des combustibles liquides dans les foyers industriels. *diag Génie Civil* 78:215-16 Mr 5 '21
 Forests of the United States as a source of liquid fuel supply. R. C. Hawley. *J Ind & Eng Chem* 13:1059-60 N '21
 Heating powers of different liquid combustibles. H. Decluy. *diag Power Pl Eng* 25:133-4 Ja 15 '21
 Liquid fuels—wanted: a national policy. R. S. McBride. *Eng & Min J* 110:823-5 O 23 '20
 La lutte pour les combustibles liquides. P. Petit. *Chimie & Ind* 6:383-6 S '21
 Le pouvoir calorifique des combustibles liquides. *Génie Civil* 77:319 O 16 '20
 Recherches physico-chimiques sur les carburants liquides. G. Baume and others. *diags Chimie & Ind* 3:761-8 Je '20
 Role of the chemist in relation to the future supply of liquid fuel. H. Hibbert. *J Ind & Eng Chem* 13:841-3 S '21
 Shall the corn fields run our cars? possibilities of synthetic fuels. R. G. Skerrett. *il Sci Am* 123:274+ S 18 '20
 Spontaneous-ignition temperatures of liquid fuels; abstracts. H. Moore. *Engineering* 109:151-2 Ja 30 '20; *Power* 52:24 Jl 6 '20
 Suggested schedule of petroleum priority. R. S. McBride. *il Eng & Min J* 110:869-71 O 30 '20
 Weighing liquid fuel in engine test. J. S. A. Johnson. *diag Power* 50:656 O 28 '19
 See also Acetol; Airplane engines—Fuel; Alcohol as fuel; Automobile engines—Fuel; Benzol; Fuel, Colloidal; Gas and oil engines—Fuel; Gasoline; Kerosene; Molasses as fuel; Naphthalene; Oil as fuel; Oil burners

Patents

- Recent patents on mixed fuels. *Sci Am* 123:593 D 11 '20
 Liquid hydrogen. See Hydrogen, Liquid

- Liquid measuring devices. See Measuring pumps
- Liquid oxygen. See Oxygen, Liquid
- Liquid soap. See Soap, Liquid
- Liquid spheres
Coalescence of liquid spheres—molecular diameters. W. Taylor. Philos Mag 6th ser 41:877-89 Je '21
- Liquids
Homogeneous liquid mixtures. diags Chem & Met Eng 22:329 F 18 '20
Mixing liquids by machine. J. Boyer. Sci Am 125:275 O 15 '21
New experimental studies in the liquid state. S. Skinner. Engineer 129:444 Ap 30 '20
Pressure and temperature relations for vapor of liquids. P. B. Williamson. Chem & Met Eng 22:1151-5 Je 23 '20
See also Boiling points; Drops; Emulsions; Fluids; Hydraulics; Hydrodynamics; Liquid fuel; Solution (chemistry); Viscosity
- Clarification
See Clarifiers
- Gaging
See Gaging
- Liquor laws
Dry officials define wholesale druggist for sales of alcohol. Oil Paint & Drug Rep 99:25+ sec 1 F 21 '21
Industrial alcohol under the new law and regulations. B. R. Tunison. Chem & Met Eng 22:513-18 Mr 17 '20
Supplemental regulations for dealing in and use of alcohol. Oil Paint & Drug Rep 99:39+ sec 1 Ja 10 '21
See also Prohibition
- Liquor traffic
Dodging prohibition along the Mexican border. J. E. Hogg. il Pop Mech 33:807-11 Je '20
Wholesaling liquor is limited to druggists and manufacturers. Oil Paint & Drug Rep 99:26 sec 2 F 7 '21
See also Liquor laws; Prohibition
- Propaganda
Fighting pussyfoot with paid space. T. Russell. Ptr Ink 110:82+ Mr 4 '20
- Liquors
See also Distillation; Wine
- Litchfield, Electus D.
Reminiscences of an architectural practice. il Am Arch 120:177-82 S 14 '21
- Literary landmarks
Dickens' haunts to be pulled down. Am Arch 118:603 N 10 '20
- Lith board
Heat-insulating value of cork and lith board. A. A. Potter and others. il diags Mech Eng 42:624-6+ N '20; Abstract. Power Pl Eng 25:285-6 Mr 1 '21; Excerpt (tables). Power 52:995 D 21 '20; Same. Eng & Ind Management 5:165 F 10 '21
- Lithium
Lithium minerals in 1919. H. Insley. U S Geol S Min Res of U S 1919.pt 2:37-40 '20
- Lithium chloride
Free energy of dilution and the transference numbers of lithium chloride solutions. D. A. MacInnes and J. A. Beattie. diags Am Chem Soc J 42:1117-28 Je '20
- Lithium nitrate
Vapor pressure of lithium nitrate:ammonia system. R. O. E. Davis, L. B. Olmstead and F. O. Lundstrum. Am Chem Soc J 43:1575-80 Jl '21
- Lithographers
American lithographers of today. J. A. Heppes. Ptg Art 36:329-30 D '20
- Lithography
From easel to cover: offset lithography. A. C. Lescarbours. il Sci Am 125A:18-19+ N '21
Lithography. P. Ashbrook. Ptg Art 38:30-1 S '21
New lithography. il Ptg Art 36:510-12 F '21
- Photography and the lithographic press. S. H. Horgan. Inland Ptr 64:699 Mr '20
Some points of interest regarding offset lithography. Inland Ptr 67:503-4 Jl '21
Value of quality. J. A. Heppes. Ptg Art 36:419-20 Ja '21
See also Engraving; Zincography
- Study and teaching
Teaching of lithography at the Ohio mechanics institute. J. T. Faig. il Ptg Art 37:35-9 Mr '21
- Lithopone
Barytes, barium chemical, and lithopone industries, including costs of production, 1919. 90p U. S. Tariff commission '20
Lithopone. Eng & Min J 110:122 Jl 17 '20
Lithopone. D. Ross. India Rubber W 64:495-6 Ap '21
Lithopone production and the zinc industry. J. F. Williams, jr. Chem Age 29:333-6 Ag '21
Making lithopone at Collinsville, Ill. C. H. Jones. il Chem & Met Eng 22:497-500 Mr 17 '20
Technical analysis of lithopone. J. A. Wyler. Color Tr J 7:58 Ag '20; Same. India Rubber W 63:29 O '20
- Lithopone, Cadmium. See Cadmium lithopone
- Lithuania
Intimate view of Lithuania. J. Vileisis. Am Ind 21:36-8 O '20
- Little Rock, Arkansas
Railroads
Missouri Pacific rebuilds station in record time. E. A. Hadley. il plans Ry Age 71:617-18 O 1 '21
- Little Salt Lake
Changing a salt lake into a fresh-water basin. F. Kinney. il Pop Mech 35:86-7 Ja '21
- Live stock
\$50,000,000 pool in aid of live stock industry. Comm & Fin Chr 112:2593; 113:244-5 Je 18, Jl 16 '21
Governor Harding of Federal reserve board proposes \$50,000,000 be made available for cattle raisers. Comm & Fin Chr 112:2478-9 Je 11 '21
Live stock industry. T. E. Wilson. Comm & Fin Chr 111:1808-9 N 6 '20
Representations to Federal reserve board as to financial needs of live stock industry. Comm & Fin Chr 111:1229-30 S 25 '20
See also Feeding and feeding stuffs
- Transportation
Reduction of live stock rates proposed. Ry Age 71:165-6 Jl 23 '21
- Live stock associations
How associations built the livestock business. J. Y. Beaty. Ptr Ink 116:69-71 S 1 '21
- Live stock corrals
Modern methods in live-stock corral construction. H. A. Shearer: diags plans Pop Mech 33:617-18 Ap '20
- Live wire club
Club inaugurated by the National trade extension bureau of the plumbing and heating industry. Mercantile bank building, Evansville, Ind. Dom Eng 91:249-50 My 8 '20
- Liverpool, England
See also Electric plants (central stations)—Liverpool
- Llanoria. See Geology—Gulf coastal plain
- Load (mechanics)
Analysis of double footing pressures. F. K. Esling. Eng N 86:232-3 F 3 '21
Chart for determining safe loads. J. B. Conway. chart Am Mach 53:1241-2 D 30 '20
Dispersion of load in stone and brick piers and templates. Eng & Contr 55:644 Je 29 '21
Doubly eccentric load pressure on rectangular footings. M. G. Findley. diags Eng N 85:494-5 S 9 '20

Load (mechanics)—Continued

Reduction of girder and column live loads. C. R. Young. diags Can Eng 39:565-9 D 2 '20; Same. Eng & Contr 54:610-13 D 22 '20

See also Strains and stresses

Load dispatching. *See* Electric plants (central stations)—Load dispatching

Load factor. *See* Electric plants—Load factor

Load line

Drawing load lines on vessel in dry dock. diags Marine Eng 25:938 N '20

Freeboard and strength of ships. J. Bruhn. diag Int Marine Eng 25:500-3 Je '20; Same. Engineering 109:807-8 Je 11 '20; Excerpts. Engineer 129:343 Ap 2 '20; Discussion. Engineering 109:438-9 Ap 2 '20

New Board of trade survey fees. Marine Eng 26:437 Je '21

Rules and regulations for freeboard. D. Arnot. Marine Eng 26:306-14 Ap '21; Same. Marine R 51:268-74 Je '21

Loading and unloading

Austin wagon loader. il Munic Eng 58:39+ Ja '20

Barber-Greene bucket-loader. il Min & Sci P 121:930 D 25 '20

Barber-Greene snow loader has successful trial on Chicago streets. il Munic Eng 60: sup 30+ Ja '21; Eng N 86:176 Ja 27 '21; Eng & Contr 55:215-16 Mr 2 '21; Eng & Ind Management 5:588 My 19 '21

Bulk-cargo handling on the Atlantic coast. H. N. Turnbull. il Coal Age 18:394-6 Ag 19 '20; Same. Iron Age 106:385-7 Ag 12 '20; Same. Blast F & Steel Pl 8:521-2 S '20; Same. Int Marine Eng 25:740-3 S '20; Same. Marine R 50:525-7 S '20; Same cond. Iron Tr R 67:522-3 Ag 19 '20

Car loading hopper for draglines and grab buckets. R. E. Post. il Eng N 84:979 My 13 '20

Clever unloading scheme. I. B. Rich. il Am Mach 53:517 S 9 '20

Coal loader based on a new principle. il plan Coal Age 17:900-2 My 6 '20

Cost of loading gravel by mechanical loaders and by hand. P. Philips. Eng & Contr 53:639 Je 2 '20

Costs of scraper loading and conditions under which it works best. A. B. Benedict. il Coal Age 19:222-6 F 3 '21

Culbuteurs pour le déchargement rapide des wagons de marchandises. diags Génie Civil 76:131 Ja 31 '20

Developing of crane facilities for discharging vessels of the largest size. H. J. Deane. Engineering 112:31-2; Discussion. 21-3, 38-40 Jl 1-8 '21

Dillig tractor loader. G. F. Dillig. diag Coal Age 19:63-4 Ja 13 '21

Doing away with the loafing charge: loading and unloading apparatus keeps the truck busy. V. W. Pagé. il Sci Am 124: 24+ Ja 8 '21

Economical handling of railway waste material. il Eng & Contr 54:597 D 15 '20

Electrifying facilitates port operation. C. S. McDowell. il Elec W 77:365-7 F 12 '21

Floating pneumatic grain elevator at Avonmouth dock. G. F. Zimmer. il diags Eng & Ind Management 6:221-5 Ag 25 '21

How long should a vessel stay in port for discharging and loading cargo? H. M. Harding. Int Marine Eng 25:611 Jl '20

L'installation de chargement du charbon à bord des navires, à Curtis Bay (Maryland, E.-U.). il diags plan Génie Civil 79:341-5 O 22 '21

Jeffrey radial type loader for handling loose materials. il Eng & Contr 53:417 Ap 7 '20

Joy loading machine. diag plan Eng & Ind Management 5:59-60 Ja 13 '21

Labor-saving devices for loading and unloading. il Ry R 67:950-1 D 18 '20

Loading device doubles value of trucks. il Pop Mech 36:732-3 N '21

Loading machines for underground use. A. M. Gow. il diags Eng & Min J 109:319-37 Ja 31 '20; Same. Sci Am M 1:357-65 Ap '20

Machine vs. hand loading of ships with coal for foreign markets. W. S. Campbell. il diags Coal Age 19:573-5 Mr 31 '21

Mechanical appliances and labour in loading and unloading ships' cargoes. A. Musker. Engineering 112:81; Discussion. 52-4 Jl 8 '21

Mechanical box car loader and unloader. il Ry R 68:606-8 Ap 16 '21; Ry Age 70:999-1000 Ap 22 '21

Mechanical coal trimmers solve ship loading problem. P. G. Lang, jr. il diags Eng N 85:412-14 Ag 26 '20

Mechanical handling of gravel or broken stone. A. M. Jackson. il Can Eng 38:273-5 Mr 11 '20; Excerpt. Eng & Contr 53:412 Ap 7 '20

Mechanical loading of petrol cans into ships. G. F. Zimmer. il diag plan Eng & Ind Management 6:45-7 Jl 14 '21

Mechanical loading of ships. H. J. Smith. il diags Engineering 111:117-20, 149-51, 184-6 Ja 28-F 11 '21; Excerpts. Engineer 131: 103-5 Ja 28 '21; Excerpts. Eng & Ind Management 5:420-4, 529-33 Ap 7, My 5 '21; Discussion. Engineering 111:111-12 Ja 28 '21; Engineer 131:91, 126-7 Ja 28-F 4 '21

New grain unloader saves time at elevators. il Ry Age 69:93-4 Jl 16 '20

New radical type loader for loose materials. il Engineer 131:577 My 27 '21

Les nouvelles installations de déchargement du port de Bordeaux. H. Martin. il diags plans Génie Civil 77:1-8, 25-30, pl 1-2 Jl 3-10 '20

Pneumatic boat unloader eliminates much labor. il Pop Mech 36:99 Jl '21

Portable car-unloader for bulk materials. il Ry Age 69:577-8 O 1 '20

Radial type loader. il Textile World 57:4397 Je 12 '20

Reducing truck loading time. il Ind Management 61:22-3 F 15 '21

Rocking cableway. diags Ind Management 60:78 Jl '20

Rotary shovel that clears wide path but delivers to fixed point of discharge. S. H. Hunt. il diag plan Coal Age 19:789-91 My 5 '21; Excerpts. Eng & Contr 55:593 Je 15 '21

Ship and harbour design and equipment as affecting the rapid loading and discharging of cargo vessels. A. R. T. Woods. Engineering 112:31; Discussion. 21-3, 38-40 Jl 1-8 '21

Slip scraper with A-frame used for unloading rock and sand. W. B. Albertson. il Eng N 86:86 Ja 13 '21

Tilting grain cars in all directions to empty them. J. A. Ford. il Sci Am 124:361+ My 7 '21

Unloading device removes material by suction. il Pop Mech 33:206 F '20

Unloading of coal and ore from railway trucks. diags Eng & Ind Management 5: 592 My 19 '21

Unloading tanks from flat cars. J. E. Chrisman. Pop Mech 35:459 Mr '21

See also Conveying machinery; Dump cars; Dumping appliances; Freight handling; Mechanical handling; Ore handling

Safety devices

Safety methods as applied in the loading and unloading of steamships. W. E. Welch. Safety Eng 41:113-14 Mr '21

Loans

See also Building loans; Interest; Investments; Morris plan banks

Loans, Foreign

Bankers prepare for a big year in foreign financing. Annalist 17:107-8 Ja 17 '21

Duty with dividends. W. E. Edge. Nation's Business 9:26+ My '21

Mass financing not bankers' way to aid Europe. J. Oakwood. Annalist 17:637+ Je 13 '21

New York strengthening position as world money centre. Annalist 17:569 My 23 '21

President Harding and Secretary Hughes find U.S. obligated to extend loan to Liberia. Comm & Fin Chr 113:588 Ag 6 '21

See also Debts, Public

Lobinol

Lobinol—a dermatitant from Rhus diversiloba (poison oak). J. B. McNair. Am Chem Soc J 43:159-64 Ja '21

Local government

Local government in the United States. H. G. James. 482p Appleton '21

See also Municipal government

Locating devices

Tool-room laying-out instrument. il diag Mach 27:697-8 Mr '21

Using compound slide in jig and die making. il Mach 27:630-1 Mr '21

Locating machines

Hansen electrocator. il Mach 28:154 O '21; Am Mach 55:575-6 O 6 '21

S. I. P. locating machine. il Mach 27:294 N '20

Location of factories. *See* Factories—Location

Location of stores. *See* Stores—Location

Lockers

Lockers in steel plant. il Iron Age 108:69 JI 14 '21

Locking devices

Indicator locking device. diags plans Marine Eng 26:769-70 O '21

Locks

Timing combination used on common door locks. il Pop Mech 36:672 N '21

Locks (hydraulic engineering)

Lift locks on the Canal du Centre, Belgium. diags Engineer 132:208-9, 218 Ag 26 '21

Murray river improvement between Lake Victoria and Blanchetown. il diags plan Engineer 130:171-3, 180 Ag 20 '20; Same, without table. Eng & Contr 54:302-4 S 29 '20

Progress on new Welland ship canal. il diags plans (supp) Can Eng 39:319-30 S 9 '20

Résultats du concours interdépartemental de projets pour un canal latéral à l'Allier; puits-écluses, système Maire. diags map plans Génie Civil 78:307-11 Ap 9 '21

Unwatering the lock site of New Orleans harbor canal. G. R. Goethals. diag plan Eng N 84:940-3 My 13 '20

Control

Control for canal locks is virtually foolproof. il Elec W 78:210 JI 30 '21

Model of canal used as control and indicating board. il Elec R 78:477-8 Mr 19 '21; Marine Eng 26:302 Ap '21; Sci Am 124:453+ Je 4 '21

Locomotive boilers

Block magnesia vs. asbestos cement in boiler lagging. W. H. Bosworth. Ry R 67:388-9 S 11 '20

Care of locomotive boilers. W. G. Bishop. Engineer 131:50-1 Ja 14 '21; Abstract. Ry Mech Eng 95:87 F '21

Chief boiler inspector's 8th annual report. il Ry R 65:957-9 D 27 '19; Ry Mech Eng 93:697-9 D '19

Coleman's no-leak safe tube end. il diag Power 52:468 S 21 '20

Curious case of spontaneous combustion. il Sci Am M 1:148 F '20

Design and maintenance of locomotive boilers; committee report. Ry Age 68:1748-52 Je 12 '20; Ry R 66:1033-4 Je 19 '20

Fractures in locomotive boiler tubes. H. Fowler. il diags Engineering 111:466-7 Ap 15 '21

Handholes vs. washout plugs. A. Lipetz. diags Ry Mech Eng 94:192 Ap '20

Insulation of locomotive boilers. W. N. Allman. Ry R 68:349-50 Mr 5 '21

Locomotive boiler code. Ry R 68:667-8 Ap 30 '21

Locomotive feedwater heating. T. C. McBride. il diags Ry R 66:1067-72 Je 19 '20; Same cond. Mech Eng 42:283-6+ My '20; Same cond. Ry Mech Eng 94:441-4 JI '20; Abstract. Ry Age 69:59-60 JI 9 '20

Master boiler makers' 12th annual convention. Ry Age 68:1579-82 Je 4 '20; Ry Mech Eng 94:482-6 JI '20

Methods to locate blows. E. A. Lacy. Ry R 66:164-5 Ja 31 '20

Operating locomotive boilers using treated water. F. W. Dunning. Ry Age 67:1116-17 D 5 '19

Parker scale-proof locomotive crane boiler. diag Iron Age 107:257 Ja 27 '21; Iron Tr R 68:293 Ja 27 '21; Ry Mech Eng 95:133 F '21; Sci Am M 3:282-3 Mr '21; Génie Civil 78:555 Je 25 '21

Standard specifications for boiler and fire-box steel for locomotives; English and French. diag U S Bur For & Dom Com Industrial Standards 125:1-16 '21

Treatment of water for locomotives. W. M. Barr. Ry R 65:953-7 D 27 '19; Same cond. Ry Age 67:1158-60 D 12 '19

Water level indication on locomotive boilers. A. G. Pack. diags Ry R 67:120-4, 149-52 JI 24-31 '20; Same. Ry Mech Eng 94:575-9, 630-3 S-O '20; Abstract. Ry Age 69:359-62 Ag 27 '20; Abstract. Mech Eng 42:695 D '20; Same. Sci Am M 2:375-6 D '20

See also Feed water heaters; Locomotive fireboxes; Locomotive grates; Locomotives

Cleaning

Baird flue rattler which cleans by friction. il Ry Mech Eng 94:303-4 My '20

Flue handling equipment, Columbus shops, Pennsylvania R. R. il diags Ry R 67:293-4 Ag 21 '20

Home made flue cleaning machine. C. W. Geiger. il Ry R 66:513-14 Mr 27 '20

Locomotive steam blower cleans boiler tubes. il Pop Mech 35:843 Je '21

Operate locomotive 7,800 miles without dumping fire. il diag plan Ry R 69:323-6 S 10 '21

Repair

Repairing cracks in the copper tube-plates of locomotive boilers. A. Wrench. diags Engineering 112:251-2 Ag 12 '21; Excerpt. Ry Mech Eng 95:704 N '21

Rules for autogenous welding. Power 51:471 Mr 23 '20

Rules for locomotive boiler welding. diags Ry R 66:165 Ja 31 '20

See also Locomotive shops

Testing

Heat transfer in flues. L. H. Fry. Engineering 110:265-8 Ag 27 '20; Abstract. Mech Eng 42:628-9 N '20; Discussion. Engineering 110:802-3; 111:137-8 D 17 '20, F 4 '21

Locomotive boiler tests. L. H. Fry. Engineering 111:125-6 F 4 '21

Locomotive cab signals. *See* Railroads—Signals

Locomotive cabs

Safety platform for the erecting shop. diags Ry Mech Eng 94:536 Ag '20

Locomotive engineers

Comprehensive method of employing, educating and examining engineers and firemen. Ry R 69:330-1 S 10 '21

Goggles for locomotive enginemen. G. J. Soderberg. il Safety Eng 41:102-4 Mr '21

Locomotive feed water heaters. *See* Feed water heaters

Locomotive fire doors

Franklin no. 9 automatic fire door. il Ry Mech Eng 94:492 JI '20; Ry R 67:216 Ag 7 '20

Laco air, steam or hand operated fire door. il Ry R 69:27-8 JI 2 '21; Ry Age 68:1618 Je 9 '20

Quick opening door in front end netting. il diags Ry Mech Eng 94:671 O '20

Locomotive fireboxes

Deflection of staybolts in locomotive boilers. G. L. Fowler. il diags Ry Age 67:1088-94 D 5 '19; Same. Ry Mech Eng 93:701-7 D '19; Same cond. Ry R 65:949-53 D 27 '19

Steel fireboxes in European locomotives. W. G. Landon. Ry Mech Eng 93:645 N '19

Structural merits of the thermic syphon. diags Ry R 66:74-5 Ja 10 '20

Locomotive grates

Hulson shaking dump grate. il Ry Mech Eng 94:733-4 N '20; Same. Ry Age 70:339-40 F 4 '21

Locomotive headlights

- Locomotive headlight with separate hinged grid door and green mirror reflector. *il* Coal Age 20:606 O 13 '21
- Locomotive headlights and classification lamps; committee report. *Ry Age* 68:1737-9 Je 12 '20; *Ry R* 66:1031-2 Je 19 '20
- Locomotive turbines for flood lighting night construction. *il Eng N* 87:206 Ag 4 '21
- Lucas headlight and marker lamps. *diags Ry Mech Eng* 93:683-4 N '19
- Westinghouse mine-locomotive headlights. *il Min & Sci P* 122:211 F 5 '21

Locomotive industry

- Quick delivery favors export locomotive business. *il Ry R* 69:50-1 J1 9 '21

China

- China buys locomotives. *Iron Age* 108:588 S 8 '21

India

- Construction of locomotive engines in India. *Engineer* 132:380 O 7 '21

Russia

- Russia's orders for railroad supplies. *V. Leitis. Am Mach* 55:120g J1 21 '21

United States

- Importance of exports of American locomotives. *Ry Age* 71:39 J1 2 '21
- Propaganda in Belgium against American locomotives. *Ry Age* 70:462-3 F 25 '21
- Twelve-wheeled locomotives popular type for export. *il Ry R* 69:144-5 J1 30 '21

See also American locomotive company

Locomotive resistance

- Locomotive resistance and mechanical efficiency. *K. Asakura. Ry Age* 71:211-16 J1 30 '21

Locomotive shops

- Electric welding on the New York Central. *H. A. Currie. il Ry R* 65:867-9 D 13 '19
- Electrical distribution for modern engine terminals. *diags plans Ry R* 66:919-24 Je 5 '20
- English locomotive repair system. *H. E. O'Brien. il Ry Mech Eng* 95:119-22 F '21
- Hospitals for disabled locomotives. *il Sci Am* S 88:352-3+ D 13 '19
- Interesting shop employees in shop output. *Ry Mech Eng* 94:535-6 Ag '20
- Locomotive repair shop scheduling system. *G. Gibson. chart Ry Mech Eng* 95:243-7 Ap '21
- Locomotive repair shops of the B. & O. at Glenwood, Pa. *il plan Am Mach* 54:147-50 Ja 27 '21
- Locomotive shop organization and methods. *A. F. Vivian. Ry Mech Eng* 94:727-8 N '20
- Management of a locomotive repair shop; English railway practices. *H. E. O'Brien. il Ry Mech Eng* 95:42-6 Ja '21
- Manufacturing standard locomotive repair parts. *M. H. Williams. diags Ry Mech Eng* 95:451-5, 511-12 J1-Ag '21
- Methods at the Big Four shops. *il Am Mach* 54:592-3 Ap 7 '21
- Methods used in locomotive driving wheel, axle and crankpin work. *F. A. Stanley. il diag Am Mach* 54:1070-2 Je 23 '21
- Les ponts roulants électriques à commande système Ward Leonard des ateliers de réparations de locomotives de l'état à Sotteville-les-Rouen. *il Génie Civil* 79:281-3 O 1 '21
- Practice in the Chicago & Alton shops. *il Am Mach* 54:594-6 Ap 7 '21
- Preparation of locomotives at terminals and shops: with discussion. *L. R. Pyle. Ry Age* 68:293-7 Ja 23 '20; *Same. Ry Mech Eng* 94:106-10 F '20; *Same abr. Ry R* 66:550-3 Ap 3 '20
- Production work in the locomotive shop. *il diags Mach* 28:102-5, 228-30 O-N '21
- Reducing cost of car and locomotive repairs. *Ry R* 67:419-22 S 18 '20; *Same. Ry Mech Eng* 94:637-9 O '20
- Reducing cost of locomotive repairs. *S. W. Mullinix. Ry R* 66:795-7, 1012-13 My 15, Je 12 '20; *Same. Ry Mech Eng* 94:540-4 Ag '20

- Repairing locomotives in our oldest city. *F. H. Colvin. il Am Mach* 53:428-30 Ag 26 '20
- Scheduling and routing systems for locomotive repair shops. *il Ry R* 66:968-71 Je 12 '20

- Shop scheduling vs. old-fashioned methods. *Ry Mech Eng* 94:289-90 My '20

- Some New England railroad shop repairs. *F. H. Colvin. il Am Mach* 54:911-13 My 26 '21
- Union Pacific shops at Cheyenne, Wyo. *E. A. Hancock. Ry R* 66:127-9 Ja 24 '20

- Wiring layout for large repair shop. *H. L. Cornelison. il diags plan Elec W* 75:944-6 Ap 24 '20

See also Locomotive terminals; Locomotive works; Locomotives—Repair; Railroads—Shops

Equipment

- Electric drop tables, Phila. & Reading R.R. *il diags Ry R* 66:47-9 Ja 10 '20
- Jigs and devices for locomotive and car shops. *il Ry Mech Eng* 94:657-9 O '20
- Jigs and special devices in locomotive repair shops. *J. C. Bevelle. il diags Ry Mech Eng* 93:725-7 D '19
- Locomotive shop equipment on wheels. *J. V. Hunter. il Am Mach* 54:403-4 Mr 10 '21
- Micrometer calipers in railway shops. *M. H. Williams. il diags Ry Mech Eng* 94:597-600 S '20
- Modern equipment facilitates flue shop work. *il diag Ry Mech Eng* 95:554-8 S '21
- New type of erecting aisle saves shop headroom. *diags Ry Age* 70:521-2 Mr 4 '21
- Repair shop and enginehouse equipment needs. *Ry Age* 70:50-2 Ja 7 '21
- Special equipment in a retail boiler shop. *J. V. Hunter. il Am Mach* 54:852-3 My 19 '21
- Tools for locomotive steam pipe joints. *F. A. Stanley. il diags plans Am Mach* 54:218-20 F 10 '21

Locomotive tenders

- Steam tenders on American locomotives. *il diags Engineer* 128:558-9 D 5 '19
- Tender for 2-8-0 type locomotive for the Ministry of munitions. *diags Engineering* 110:177 Ag 6 '20
- To prevent freezing in tender hose. *S. W. Williams. diags Ry R* 67:796 N 20 '20; *Correction.* 67:833 N 27 '20
- Two engines for one. *H. T. Walker. il diags Sci Am* 122:619+ Je 5 '20
- Welded locomotive tender tank. *J. W. Murphy. il diag Ry Mech Eng* 95:550 S '21

Locomotive terminal equipment association

- Corporation formed by manufacturers. *Ry R* 65:882 D 13 '19

Locomotive terminals

- Ashmore engine terminal, Lehigh Valley R. *il diags plans Ry R* 66:904-9 Je 5 '20
- Engine terminal for mountain division in Utah. *diags plans Eng N* 84:1159-61 Je 10 '20
- Engine terminals. *F. F. Gaines. plan Ry R* 67:803-6 N 27 '20
- Field for improvement in terminal design. *C. C. Lance. Ry R* 69:499-51 O 15 '21
- Ideal engine terminal. *diags Ry R* 67:307-10, 493-6 Ag 28, O 2 '20
- Improving terminals for Mallet operation; facilities for Norfolk & Western at Roanoke, Va. *il diags plans Ry Age* 70:1063-8 My 6 '21
- Increasing the engine terminal output. *Ry Age* 70:1319-20 Je 10 '21
- Intensive operation of locomotive terminals. *L. G. Plant. il Ry R* 68:641-4 Ap 23 '21
- Locomotive terminal as an operating factor. *L. G. Plant. il Ry Age* 69:877-9, 929-31, 985-8 N 19-D 3 '20; *Excerpts. Ry Mech Eng* 94:765-7; 95:15-17 D '20-Ja '21
- M. C. builds engine terminal at Niles, Mich. *il diags plans Ry Mech Eng* 94:339-43 Je '20
- M. C. West division engine terminal at Niles, Mich. *il diags plans Ry R* 66:709-17 My 1 '20
- M. K. & T. improves its facilities at Oklahoma City; engine terminals and yards reconstructed. *il diags plan Ry Age* 71:713-16 O 15 '21

Locomotive terminals—Continued

- Modern engine terminals and repair shops; abstracts. H. E. Stitt. *il diags Ry R* 68:449-54 Mr 19 '21; *Ry Age* 70:829-32 Ap 1 '21
- Modern vs. obsolete engine terminals. C. C. Lance. *il Ry Mech Eng* 94:454-5 Jl '20
- Modernizing locomotive terminals. G. W. Rink. *il plans Ry R* 67:881-7 D 11 '20; Same cond. *Am Mach* 53:1081-2 D 9 '20; Same cond. *Ry Age* 69:1024-7 D 10 '20; Same cond. *Mech Eng* 43:13-16 Ja '21; Same cond. *Ry Mech Eng* 95:73-6 F '21; Discussion. *Ry Age* 69:1027 D 10 '20; *Mech Eng* 43:256-8+ Ap '21; *Ry R* 68:85-8 Ja 15 '21
- New engine terminal for Lehigh Valley railroad. *il diags plans Eng N* 84:514-16 Mr 11 '20
- New locomotive terminal for the M. K. & T. Ry., at Oklahoma City. *il diags map plans Ry R* 68:959-66 Je 25 '21
- New terminal facilities for the Pere Marquette railroad at New Buffalo, Plymouth and Saginaw, Mich. *il diags plans Ry R* 68:591-7 Ap 16 '21
- Oklahoma engine terminal and line revision; M., K. & T. Ry. *il diags plans Eng N* 87:440-3 S 15 '21
- Report on engine terminals, design and operation. *Ry Age* 68:1752-4 Je 12 '20; *Ry R* 66:1034-5 Je 19 '20
- Roundhouse up to date. H. C. Prentice. *il Ry Mech Eng* 95:337-40 Je '21
- Save money in consolidation of locomotive terminals. *il plans Ry R* 69:391-6 S 24 '21
- Saving money and time at engine terminals. H. L. Cornelison. *il diag Ry Age* 69:483-4 S 17 '20
- Small engine terminal embodies novel details; Pere Marquette roundhouse at New Buffalo, Mich. *il diags plan Ry Age* 70:543-6 Mr 11 '21
- Stark engine terminal, Pennsylvania lines West. *il diags plans Ry R* 66:1-11, 86-9 Ja 3, 17 '20
- Terminal facilities for modern locomotives. *Ry Age* 71:333-4 Ag 20 '21
- Union Pacific overhauls its engine terminals. *il diags plan Ry Age* 69:557-61 O 1 '20
- Up-to-date engine terminal management. *il diags plans Ry R* 67:345-56 S 4 '20
- Watching the performance of an engine terminal. *Ry Age* 69:190-2 Jl 30 '20
- See also* Locomotive shops; Roundhouses

Lighting

- Electrical distribution for modern engine terminals, diags plans *Ry R* 66:919-24; 67:314 Je 5, Ag 28 '20
- Saving money and time at engine terminals. H. L. Cornelison. *il diag Ry Age* 69:483-4 S 17 '20

Water supply

- Consumption of water at locomotive terminals. F. D. Yeaton. *Eng & Contr* 53:655 Je 9 '20

Locomotive works

- Armstrong locomotive building at Scotswood. *il (supp) diag Engineer* 128:536-7, 540 N 28 '19
- Beardmore's locomotive works. *il Engineer* 130:149-50 Ag 13 '20

Locomotives

- Advantages of a liberal motive power policy. *il diags Ry R* 68:559-65 Ap 9 '21
- Advantages of steam and electric locomotives. J. E. Muhlfeld. *Ry R* 67:653-9 O 30 '20; Same cond. *Elec Ry J* 56:866-70 O 23 '20; Excerpts. *Ry Age* 69:739-42 O 29 '20; Excerpts. *Am Inst E E J* 39:1044-5 D '20; Excerpts. *Mech Eng* 42:680-4 D '20; Abstract. *Eng N* 85:853-4 O 28 '20; Abstract. *Ry Mech Eng* 94:757-9 D '20
- Advantages of the modern electric locomotive. A. H. Armstrong. *Gen Elec R* 23:878-85 N '20; Same. *Ry R* 67:661-5 O 30 '20; Excerpts. *Elec Ry J* 56:871-4 O 23 '20; *Elec W* 76:878-80 O 30 '20; *Eng N* 85:855-6 O 28 '20; *Ry Age* 69:742-4 O 29 '20; *Am Inst E E J* 39:1046 D '20; *Mech Eng* 42:685-7 D '20; *Ry Mech Eng* 94:759-61 D '20

- Advantages of the steam locomotive. F. J. Cole. *Ry R* 67:659-61 O 30 '20; Same cond. *Elec Ry J* 56:924-5 O 30 '20; Abstract. *Am Inst E E J* 39:1047 D '20
- American-built locomotives abroad. *Ry R* 69:30-1 Jl 2 '21
- A.R.A. Mechanical section second annual convention proceedings. *Ry Age* 68:1629-44, 1737-54 Je 10, 12 '20; *Ry R* 66:1027-34 Je 19 '20
- Assigning locomotives. G. N. Clouser. *Ry Mech Eng* 94:684 N '20; Discussion. J. H. Brookes. 95:71-2 F '21
- Association of railway executives demonstrate need of more locomotives. *Ry R* 67:705 N 6 '20
- Baldwin builds forty locomotives for Southern Pacific. *il Ry R* 68:966-8 Je 25 '21
- Baldwin built locomotives in Spain. *il Ry R* 69:474-5 O 8 '21
- Baldwin narrow gage mountain type freight locomotives for the South African railways. *il Ry R* 66:201-2 F 7 '20; *Ry Age* 68:1455-6 My 21 '20
- Best friend of Charleston. *Ry Age* 69:793 N 5 '20
- British locomotives for Belgian state railways. F. C. Coleman. *diag Ry R* 66:917 Je 5 '20
- Case for the steam locomotives; improved efficiency an alternative to railroad electrification. C. F. Carter. *Sci Am* 124:66 Ja 22 '21
- Comparison of dimensions and proportions of British locomotives. E. C. Poultney. *il Ry Mech Eng* 95:539-42, 621-5 S-O '21
- Conservation of supplies and in operation of locomotive appurtenances. *Ry Age* 71:533-5 S 17 '21
- Consolidation locomotives for the Western Maryland. *il diags Ry Age* 70:1117-20 My 13 '21; Same. *Ry Mech Eng* 95:419-22 Jl '21; Same cond., with table. *Ry R* 68:735-7 My 14 '21
- Constructive motive power policy. *Ry Age* 71:327-9 Ag 20 '21
- Converting cross compound locomotives to simple. *Ry Age* 67:1062 N 28 '19; Same. *Ry Mech Eng* 93:700 D '19
- Dynamical reflections of a ride on a footplate. G. Greenhill. *Engineer* 130:193 Ag 27 '20
- Economic advantages of large freight locomotives. A. F. Stuebing. *Ry Age* 70:1161-3 My 20 '21; Same. *Ry Mech Eng* 95:346-8 Je '21; Same cond. *Mech Eng* 43:459-60 Jl '21; Excerpts. *Eng & Contr* 56:163 Ag 17 '21
- Engine driver describes first trip of passenger train in 1831. D. Matthew. *Eng N* 87:573-4 O 6 '21
- Enginemen's manual. W. P. James. 463p W. P. James pub. co., Louisville, Ky. '21
- English built locomotives for Indian railways equipped for burning fuel oil. F. C. Coleman. *il Ry R* 68:406-7 Mr 12 '21
- L'évolution et les progrès de la mécanique appliquée; canons, moteurs d'aviation et locomotives à vapeur. *Génie Civil* 77:420-2 N 20 '20
- Famous 999 still doing duty. *il Ry R* 67:690-1 N 6 '20
- Garratt type locomotive for a South African railway. F. C. Coleman. *Ry R* 66:640-1 Ap 17 '20
- Getting the most out of locomotives. *Ry Age* 70:1312-14 Je 10 '21
- Great Central railway four-cylinder engines. *il diags (supp) Engineer* 131:660-1 Je 24 '21
- Heavier Mikado type locomotives cut operating costs on the Baltimore & Ohio. *il Ry R* 69:83-5 Jl 16 '21
- Heavy locomotives for the Southern Pacific. *il diags Ry Mech Eng* 95:481-3 Ag '21; Same. *Ry Age* 71:15-17 Jl 2 '21
- Heavy switching locomotives for the Grand Trunk. *il Ry Age* 70:338-9 F 4 '21
- High-pressure geared locomotives from the Bell locomotive works, New York. *il Engineer* 130:461 N 5 '20
- Historic locomotive for the Chicago pageant. *il Ry R* 69:180-1 Ag 6 '21
- How the need for more motive power will be met. *il Ry Age* 70:43-6 Ja 7 '21

Locomotives—Continued

- I. C. motive power program includes heavy switchers. il Ry R 69:103-4 JI 23 '21
- Important Indian locomotive development. F. C. Coleman. diag Ry R 66:129 Ja 24 '20
- Jamaica railways, eight-coupled locomotive. il diag Engineer 132:48 JI 8 '21
- Kitson Meyer locomotives, Colombian National Rys. F. C. Coleman. il Ry R 66:31 Ja 3 '20
- Locomotive as an investment. G. M. Basford. Ry R 66:978-83 Je 12 '20; Same, with discussion. Ry Age 68:1743-8 Je 12 '20; Abstract. Elec Ry J 55:1204-5 Je 12 '20
- Locomotive footplate experiences. Engineer 129:545, 591-2; 130:75, 243-4, 260, 324, 346-7, 367-8, 482-3, 588-9, 654; 131: 155-6, 365-6, 449-50, 561, 609-10; 132:102 My 28, Je 11, JI 23, S 10, O 1-15, N 12, D 10, 31 '20, F 11, Ap 8, 29, My 27, Je 10, JI 22 '21
- Locomotive used as a shell press. diags Engineering 109:214 F 13 '20
- Locomotives for Federated Malay states railways. il Ry Age 71:119-20 JI 16 '21
- Locomotives for Norway and China. Engineering 109:448 Ap 2 '20
- Locomotives for the Far East. il Ry Age 68: 1451-2 My 21 '20
- Locomotives of American design for use in Spain. il Ry Age 71:167-8 JI 23 '21
- Locomotives recently exported to Roumania. il Ry Age 69:567-8 O 1 '20
- Locomotives, steam vs. electric. C. H. Quinn. Ry R 67:696-8 N 6 '20; Same cond. Elec Ry J 56:929-30 O 30 '20
- Locomotives, steam vs. electric; debate on relative merits of types of motive power. Ry R 67:651-65, 692-704 O 30-N 6 '20; Mech Eng 42:680-8+ D '20
- Mechanical advantages of electric locomotives compared with steam; abstracts V. L. Raven. Electrician 87:47-8 JI 8 '21; Engineering 112:164-5 JI 22 '21; Engineer 132:87-8 JI 22 '21; Elec R (Lond) 89:194 Ag 5 '21; Discussion. Electrician 87:48-9 JI 8 '21; Engineering 112:138-9 JI 22 '21; Elec R (Lond) 89:194-5 Ag 5 '21
- Mechanical characteristics of high-speed, high-power locomotives. A. W. Gibbs. il diags J Fr Inst 192:469-95 O '21; Same. Ry Age 71:987-9, 1057-60 N 19-26 '21
- Mikado type locomotives on the Great Northern. il Ry R 68:405 Mr 12 '21
- Mountain type freight locomotives for the South African railways. Ry Mech Eng 94: 574 S '20
- Mountain type locomotives for South African railways. il Ry R 66:201-2 F 7 '20
- Mountain type locomotives for the C. R. I. & P. Ry. il Ry R 68:127-8 Ja 22 '21
- Mystery of Trevithick's London locomotives. L. Pendred. il diags Engineer 131:242-5 Mr 4 '21
- New Canadian Pacific locomotives. W. A. Newman. il diags Ry Mech Eng 93:631-6 N '19; Same. Ry Age 68:173-7 Ja 9 '20
- New locomotives for the Santa Fe railroad. il Ry R 65:947-9 D 27 '19
- New locomotives for the Union Pacific system. il Ry R 67:975-6 D 25 '20
- New meter gage locomotives for South America; Mallet, Mikado and Santa Fe type. il Ry Age 69:839-41 N 12 '20
- New power for rehabilitation of Mexican railways. il Ry R 69:578-80 O 29 '21
- New power for the United railways of Havana. il Ry Age 70:897-8 Ap 8 '21
- New ten-wheel helping engine on the Midland railway. F. C. Coleman. il Ry R 66: 657 Ap 17 '20
- Northern Pacific converts Prairie type to Mikado. il diags Ry Age 67:960-2 N 14 '19; Ry Mech Eng 93:694-6 D '19
- Old 999 still in service. R. Howard. il Sci Am 123:635 D 25 '20
- Operating economy of stoker fired locomotives. D. F. Crawford. Ry Age 68:701-4 Mr 5 '20; Same. Ry Mech Eng 94:127-30 Mr '20
- Operation of American built Pacifics in Spain. E. Maristany. il diags Ry R 69:229-31 Ag 20 '21
- Pacific type locomotives for the Reid Newfoundland. il Ry R 68:318 F 26 '21; Same. Ry Age 70:994 Ap 22 '21
- Practical locomotive running and management. W. G. Knight. 541p W. G. Knight, Bedford, Mass. '20
- Recent New Zealand locomotives. il Engineer 130:142 Ag 6 '20
- Relative advantages of modern steam and electric locomotives. A. W. Gibbs. Elec Ry J 56:1019-21 N 13 '20; Excerpts. Ry Age 69:919-20 N 26 '20; Excerpts. Ry Mech Eng 94:763-4 D '20
- Relative advantages of steam and electric locomotives. F. H. Shepard. Elec R 77: 671-3 O 30 '20; Same. Elec Ry J 56:870-1 O 23 '20; Same. Ry R 67:692-3 N 6 '20; Same. Mech Eng 42:684-5 D '20; Same abr. Ry Age 69:744-6 O 29 '20; Same cond. Ry Mech Eng 94:761-2 D '20; Excerpts. Eng N 85: 854-5 O 28 '20; Excerpts. Am Inst E E J 39:1045-6 D '20; Discussion. Ry R 67:693-6 N 6 '20; Same. Elec Ry J 56:926-8 O 30 '20
- Righting a wrecked engine without a crane. il Pop Mech 35:566 Ap '21
- Scientific development of the steam locomotive. J. E. Muhlfeld. Ry Age 67:1139-43, 1197-1202 D 12-19 '19; Same cond. Ry Mech Eng 94:76-80, 131-6 F-Mr '20; Same cond. Mech Eng 41:864-9 N '19; Excerpts. Ry R 65:833-5, 871-4 D 6-13 '19
- Seventy-three-year-old locomotive Cornwall in service in England. E. C. Poultney. il Ry Mech Eng 94:691 N '20
- Standard locomotives for the Argentine state railways. il Ry Age 70:722 Mr 18 '21
- Steam locomotive as a punch-press. il Sci Am 124:467+ Je 11 '21
- Steam locomotive construction and maintenance. E. L. Ahrons. 134p Pitman '21
- Steam locomotive of the future. Engineer 132:172-3 Ag 12 '21
- Steam locomotives of the present time. R. Garbe. 2d ed. 2 vols. Julius Springer, Linstrasse 23, Berlin W. 9, Germany
- Suggestions for improvements in locomotives. J. Mitchell. Ry Mech Eng 95:434 JI '21
- Suppose the 999 was modernized. L. F. Wilson. Ry R 69:390-1 S 24 '21
- Switching locomotives for the Cambria steel co. il Ry R 67:542-3 O 9 '20
- Three-cylinder 4-6-0 type superheater locomotive for the Northeastern railway. il diag Engineering 111:222-3, pl 10 F 25 '21
- Transportation by sea and land; review of seventy-five years of progress. il diags Sci Am 123:327-30+ O 2 '20
- Trevithick's locomotives. E. A. Forward. diags Engineer 132:211-12 Ag 26 '21
- Trevithick's London locomotives. Engineer 131:268-9 Mr 11 '21; Discussion. 131:273, 301 Mr 11-18 '21
- 2-8-0 type superheater locomotive for the Belgian state railways. Engineering 110: 733, 772, pl 71-2 D 3-10 '20
- Two engines for one. H. T. Walker. il diags Sci Am 122:619+ Je 5 '20
- L'utilisation rationnelle des forces naturelles; moteurs à explosion à rendement élevé et dispositifs améliorant le rendement des locomotives à vapeur. L. Pierre-Guédon. diags Génie Civil 76:178-80 F 14 '20
- Virginian Mallet locomotives. il Engineer 128:618 D 19 '19
- Vitalizing locomotives to improve operation. G. M. Basford. diags Ry Age 70:1227-31 My 27 '21; Same. Ry Mech Eng 95:357-61 Je '21; Same cond. Ry R 68:816-20 My 28 '21; Abstract. Elec Ry J 57:1036 Je 4 '21; Discussion. Ry Mech Eng 95:361 Je '21
- See also Electric locomotives; Locomotive boilers, and other headings beginning Locomotive; Motor cars (railroad); Railroads; Railroads—Rolling stock; Roundhouses; Steam engines; Stokers, Mechanical; Tractors

Axles

- Pollack methods of axle manufacture. il Ry R 66:266-7 F 14 '20

Locomotives—Continued

Bearings

Shop methods of casting locomotive bearings. J. V. Hunter. *il diags Am Mach* 54:590-2 Ap 7 '21

Boosters

Booster tests on Temiskaming & Northern Ontario. *Ry Age* 71:447-8 S 3 '21
Increasing efficiency and capacity of locomotives. B. B. Milner. *chart Ry Age* 68:1251-4 Ap 23 '20
Locomotive booster. *il Ry R* 67:356-8 S 4 '20
Locomotive booster. *Ry Age* 71:537-8 S 17 '21; Same. *Ry Mech Eng* 95:618-19 O '21; Excerpt. *Ry R* 69:334 S 10 '21
Locomotive booster. J. S. Bell. *diag Ry R* 67:387-8 S 11 '20
Locomotive booster as an operating factor; increases operating capacity of locomotives on Temiskaming and Northern Ontario. *il charts diags map plan Ry R* 69:461-9 O 8 '21
More starting power for the steam locomotive; the locomotive booster. *il Sci Am* 123:295+ S 25 '20
Operating tests of a Pacific type booster locomotive. *il Ry Age* 69:699-702 O 22 '20; Same. *Ry R* 67:613-16 O 23 '20
Tiny auxiliary engine aids locomotive in starting. *il Pop Mech* 35:12-13 Ja '21

Brasses

Improved method of fitting brasses. *diags Ry Mech Eng* 94:302 My '20
Railway machine shop practice. *il Mach* 27:945-8 Je '21

Cost

Cost of British locomotives. R. E. Thayer. *Ry Mech Eng* 93:643 N '19
Cost of locomotives for valuation purposes. *Ry Age* 69:387-90 S 3 '20

Counterbalancing

Effect of locomotive counterbalancing on stresses in rails. *Ry Age* 68:1084 Ap 2 '20
Modern counterbalancing in locomotives. F. Williams. *Eng & Contr* 55:591 Je 15 '21

Cut off

Automatic cut-off control by back pressure vs. speed. E. S. Pearce. *Ry R* 69:326-8 S 10 '21
Automatic operation of reverse lever accomplished. E. S. Pearce. *il diag Ry R* 68:763-70 My 21 '21; Same cond. *Ry Mech Eng* 95:488-93 Ag '21; Same cond. *Ry Age* 70:1451-6 Je 24 '21; Discussion. P. A. Lindeman. *Ry R* 69:167-8 Ag 6 '21
Factors limiting automatic locomotive cut-off control. *charts Ry R* 69:165-7 Ag 6 '21

Design

Comparison of locomotive dimensions. L. H. Fry. *Ry Mech Eng* 95:211-15 Ap '21
Design and tests of freight locomotives on the Pennsylvania railroad. L. H. Fry. *diags Engineering* 111:190-1, 218-19, 245-6 F 18-Mr 4 '21
Design of large locomotives. M. H. Haig. *il diags Ry Mech Eng* 95:277-82 My '21; Same. *Mech Eng* 43:311-14+ My '21; Excerpts. *Ry Age* 70:1073-4 My 6 '21; Discussion. *Mech Eng* 43:467-8 Jl '21
Designing locomotives for economical operation. J. Partington. *il Ry Age* 71:899-903 N 5 '21; Same. *Ry Mech Eng* 95:673-7 N '21; Same. *Engineering* 112:743-5 N 25 '21; Same cond. *Ry R* 69:599-602 N 5 '21; Same abr. *Mech Eng* 43:729-30 N '21; Discussion. *Ry Age* 71:1151-2 D 10 '21
✓ Features of locomotive design affecting wear on track. F. Williams. *diags Ry R* 68:737-9 My 14 '21
4-6-4-type tank locomotive for the Furness railway. *il diags Engineering* 111:356-7, pl 16 Mr 25 '21
German standard heavy freight locomotive. *diags Ry R* 67:197-9 Ag 7 '20
Great Northern three-cylinder engine no. 1000. *il diags plan Engineer* 129:466-72 My 7 '20

Great Western railway eight-coupled mixed traffic engine. *il diags (supp) Engineer* 129:582 Je 4 '20

Heavy switching locomotive, West Pullman & Southern railroad. *il diag Ry R* 67:358-9 S 4 '20

Heavy ten-wheel locomotives for switching service for the C. & O. *il diags plan Ry Age* 68:359-63 Ja 30 '20; Same. *Ry Mech Eng* 94:11-15 Ja '20

High capacity Consolidation type locomotives. *il diags Ry R* 69:197-205 Ag 13 '21; Abstract. *Sci Am M* 4:381-2 O '21

Increasing locomotive operating efficiency. R. S. Mounce. *Ry Age* 68:1191-6 Ap 16 '20; Same abr. *Ry Mech Eng* 94:270-4 My '20

✓ Inertia forces of the revolving and reciprocating parts in an Atlantic type locomotive. E. L. Coster. *Ry Mech Eng* 94:208 Ap '20

Locomotive booster as an operating factor; increases operating capacity of locomotives on Temiskaming and Northern Ontario. *il charts diags map plan Ry R* 69:461-9 O 8 '21

Locomotives for the Belgian state railways. *il diags Ry R* 66:555-7 Ap 3 '20; Same. *Ry Age* 68:1144 Ap 9 '20; Same. *Ry Mech Eng* 94:274 My '20

London and South-Western railway—new six-coupled goods locomotive. *il diag Engineer* 129:458 Ap 30 '20

Mallet locomotives for the Virginian railway. *il diags (supp) Engineer* 129:381 Ap 9 '20

Metropolitan railway four-coupled tank engines. *diags Engineer* 131:120-1 F 4 '21

Mikado and Santa Fe type locomotives for the Chicago Rock Island & Pacific Ry. *il diags Ry R* 68:207-8, 209 F 5 '21

Mikado type locomotive for C. M. & St P. Ry. *il diags Ry R* 67:729-31 N 13 '20

Mountain type features new Rock Island power. *diags Ry Age* 70:447-50 F 25 '21; Same. *Ry Mech Eng* 95:147-50 Mr '21

Mountain type locomotives for the N. Y. N. H. & H. R. R. *il diags Ry R* 67:665-7 O 30 '20

Necessity for improvement in the design and operation of present-day locomotives. H. W. Snyder. *Ry Mech Eng* 95:282-5 My '21; Same. *Mech Eng* 43:455-8 Jl '21; Excerpts. *Ry Age* 70:1023-6 Ap 29 '21; Discussion. *Mech Eng* 43:468 Jl '21

New Canadian Pacific locomotives. W. A. Newman. *il diags Ry Mech Eng* 93:631-6 N '19; Same. *Ry Age* 68:173-7 Ja 9 '20

New departure in locomotive design. G. F. Berg. *diag Ry R* 65:844-5 D 6 '19

New locomotive for Great Northern railway. *diags (supp) Engineer* 130:663-4 D 31 '20

New locomotives for the Missouri Pacific. *il diags Ry Age* 71:495-8 S 10 '21; Same. *Ry Mech Eng* 95:609-13 O '21

New locomotives for the Northern Pacific. *il diags Ry Age* 71:767-9 O 22 '21

New Mountain type locomotives for fast freight. *il diags Ry Age* 69:608-11 O 8 '20; Same. *Ry Mech Eng* 94:685-8 N '20

New Standard Pacific type locomotive designed for rigorous operating conditions. W. H. Winterrowd. *il diags Ry R* 68:929-36 Je 18 '21

North Eastern builds mineral locomotives. R. E. Thayer. *il diags Ry Mech Eng* 94:505-12 Ag '20

North-Eastern railway—three-cylinder fast-goods locomotive. *il diag Engineer* 129:524 My 21 '20

North-Eastern railway—three-cylinder mineral locomotive. *il diags (supp) Engineer* 130:186 Ag 20 '20

0-10-0 type superheater locomotive for the Midland railway. *il diags (supp) Engineering* 109:311, 314 Mr 5 '20

Prairie type locomotives for the Kin Han Ry. *il diag Ry R* 66:163-4 Ja 31 '20; *Ry Age* 68:479 F 13 '20; *Ry Mech Eng* 94:142 Mr '20

Recent designs of twelve-wheel locomotives. *il Ry Age* 71:251-2 Ag 6 '21

Recent trend of locomotive design in Europe. *diags Mech Eng* 43:189-91 Mr '21

Short histories of famous firms; Messrs. B. Hick and son, Bolton. E. L. Ahrons. *diags Engineer* 130:102-3 Jl 30 '20

Locomotives—Design—Continued

Three-cylinder 0-8-0 type superheater locomotive; North-Eastern railway. diags (supp) *il* Engineering 109:50, 208 Ja 9, F 13 '20

2-8-0 type superheater locomotive for the Ministry of munitions. diags Engineering 110:176, pl 20 Ag 6 '20

2-10-0 type locomotive; Pennsylvania railroad. *il* diags Engineering 110:538-9, 586-7, pl 64 O 22-29 '20

Draft

Draft appliances; committee report. Ry R 67:500-1+ O 2 '20

Lewis draft appliance. diags Ry Age 68:1582-3 Je 4 '20

Lewis front end arrangement. diag Ry R 66:951-2 Je 5 '20

Le tirage continu par turbine, système Daubois, dans les locomotives. H. Daubois. Génie Civil 78:116-17 Ja 29 '21

What are the most suitable draft appliances? Ry Age 69:520-2 S 24 '20; Same. Ry Mech Eng 94:627-9 O '20

Driving boxes

Driving box gage. diag Ry Mech Eng 95:178 Mr '21

Driving box grooving device. *il* diags Ry Mech Eng 95:192 Mr '21

Driving box liner. A. G. Johnson. diags Ry Mech Eng 94:130 Mr '20

Novel chuck arrangement for holding driving box. G. Barnstricker. *il* Ry Mech Eng 94:159 Mr '20

Driving wheels

Forming hub liners on the bulldozer. F. G. Lister. diags Ry Mech Eng 93:736 D '19

Gage for calipering driving wheels and tires. E. A. Miller. diags Ry Mech Eng 95:242 Ap '21

Locomotive driving wheel quartering gage. *il* diag Ry Mech Eng 95:658-9 O '21

Methods used in locomotive driving wheel, axle and crankpin work. F. A. Stanley. *il* diag Am Mach 54:1070-2 Je 23 '21

Sharp tire flanges. Ry Mech Eng 95:70 F '21

Straight vs. coned treads for driving wheels. C. F. Prescott. diag Ry Mech Eng 95:145-6 Mr '21

Welding a worn driving wheel flange. *il* Ry R 66:338 F 28 '20; Same. Ry Mech Eng 94:223-4 Ap '20

Equipment and supplies

Air consumption of locomotive auxiliaries; report. Ry Mech Eng 94:395-8 Je '20; Abstracts. Ry Age 68:1403-5 My 14 '20; Ry R 66:805-6 My 15 '20

Conservation of supplies and in operation of locomotive appurtenances. Ry Mech Eng 95:614-16 O '21

Dittman safety locomotive cold water sprinkler. diags Ry Mech Eng 95:196 Mr '21

Instrument records movements of locomotive. *il* Pop Mech 33:545 Ap '20

Loco-recorder for road locomotives. *il* Ry Mech Eng 94:306-7 My '20

Locomotive recording instruments. *il* Ry Age 69:457 S 10 '20

Maintenance of air operated auxiliaries. Ry Mech Eng 95:484-7 Ag '21

New hand rail column designs. diags Ry R 69:609-10 N 5 '21

Pyrometers promote locomotive efficiency. *il* Ry Mech Eng 95:433 Jl '21

Recording instruments for switchers. *il* Ry Mech Eng 94:489-90 Jl '20

Recording locomotive operation. C. N. Winter. *il* Sci Am 125A:52 N '21

Smoke duct for tunnel service. *il* Ry R 66:244 F 14 '20

Special locomotive devices on the Ann Arbor. diags Ry Mech Eng 94:444-5 Jl '20

Standard location for water glasses and gage cocks. diag Ry R 66:337-8 F 28 '20

Why mechanical men object to modernizing motive power. F. P. Roesch. Ry R 69:291-2 S 3 '21

See also Feed water heaters; Injectors; Locomotive boilers; Locomotive fireboxes; Locomotive grates; Locomotive headlights;

Locomotives—Boosters; Locomotives—Gearing; Locomotives—Superheaters; Lubricators, Flange; Rail washers; Stokers, Mechanical; Tachograph

Failures

Crown sheet failure without an explosion. *il* diag Ry Age 70:885-6 Ap 8 '21; Ry R 68:574-5 Ap 9 '21

Locomotive failures. J. F. Donellon. Ry Mech Eng 93:735 D '19

Report of the Bureau of locomotive inspection. Ry Age 69:1071-3 D 17 '20; Same. Ry Mech Eng 95:18-20 Ja '21

Standardization of engine failures; abstract of committee report. Ry R 67:417-18 S 18 '20

What is a locomotive failure? Ry R 69:297-300 S 3 '21

Flue blowers

See Locomotive boilers—Cleaning

Frames

Curing troublesome frame failures. F. Roberts. diags Ry Mech Eng 95:252 Ap '21

How a long steel flask is assembled. G. W. Childs. diags Foundry 48:923-4 N 15 '20

Front ends

Fuel loss caused by front end air leaks. diags Ry Age 69:101-2 Jl 16 '20

How front end air leaks can be prevented. diags Ry Mech Eng 94:515-16 Ag '20;

Same cond. Ry Age 69:101-2 Jl 16 '20

Lewis draft appliance. diags Ry Age 68:1582-3 Je 4 '20

Lewis front end arrangement. diag Ry R 66:951-2 Je 5 '20

Quick opening door for locomotive spark arrester. *il* diags Ry Age 68:1480-1 My 21 '20

Report on front ends, grates and ash pans. Ry Age 68:1511-13 My 28 '20; Same. Ry Mech Eng 94:450-2 Jl '20

See also Locomotives—Repair

Fuel

Bringing the wood-burning locomotive up to date. *il* Sci Am 124:353 Ap 30 '21

Le chauffage aux huiles lourdes appliqué aux locomotives. L. Pierre-Guédon. diags plans Génie Civil 76:329-33 Ap 3 '20

Design and operation of locomotive fuel oil stations. *il* diags plans Eng N 87:183-7 Ag 4 '21

Effect of car weight and speed on coal consumption. G. S. Chiles. Ry R 69:575-8 O 29 '21

Effect of fuel on operating costs; committee report. Ry R 67:503-5 O 2 '20

English railways experiment with fuel oil; Scarab fuel oil burning apparatus tested. *il* diags Ry Mech Eng 94:692-4 N '20

Essais de chauffage des foyers de locomotives à l'huile lourde. L. Bigourat. Génie Civil 78:484-5 Je 4 '21

Fuel conditions on the French railways. M. de Boysson. Ry Age 70:1237-40 My 27 '21;

Excerpts. Ry Mech Eng 95:562-4 S '21

Fuel economy on locomotives. 51p American railway association, New York, Chicago '21

Fuel economy on the D. and H. is a live issue. *il* chart Ry R 68:776-9 My 21 '21

Fuel economy on the Denver & Rio Grande R. R. Ry R 66:554-5 Ap 3 '20

Fuel oil burning apparatus on the A. T. & S. F. Ry. W. Bohnstengel. diags Ry R 66:1009-11 Je 12 '20; Same cond. Ry Age 68:1510-11 My 28 '20; Same. Ry Mech Eng 94:449-50 Jl '20

Fuel oil versus coal on French railways. *il* Sci Am 123:427 O 23 '20

Fuel prices and railroad operation. J. E. Woodbridge. J Elec 44:384-6 Ap 15 '20

Handling heavy oils at locomotive fuel stations. J. L. Starkie. diags plan Ry Age 68:1147-8 Ap 9 '20

Installing facilities for handling locomotive fuel oil. R. M. Stubbs. *il* diags plan Ry Age 69:346-8 Ag 27 '20

Locomotives—Fuel—Continued

International railway fuel association 12th annual meeting. Ry Age 68:1507-14 My 28 '20; Ry R 66:871-8 My 29 '20; Ry Mech Eng 94:445-53 Jl '20

Kinds of fuel and operating costs. Ry Mech Eng 94:767-8 D '20

Locomotive operation and fuel economy. R. Collett. Ry R 66:49-53 Ja 10 '20; Same. Ry Mech Eng 94:65-9; Discussion. 69-70 F '20

Locomotive powdered fuel burning apparatus, Great Central Ry. diags Ry R 66:410-11 Mr 13 '20

Mechanical stoker and fuel economy in locomotives. F. P. Roesch. Ry Mech Eng 94:697-8 N '20

Oil as a locomotive fuel. C. N. Winter. Sci Am 123:203 Ag 28 '20

Oil-burning locomotives as used in England. il Pop Mech 35:658 My '21

Oil fuel burners on Midland locomotives. diags Engineer 131:601 Je 3 '21

Oil fuel experiments on the London & North Western Ry. diags Ry R 67:580-2 O 16 '20

Oil fuel on the Paris, Lyons and Mediterranean railway. diags Engineer 129:494-6 My 14 '20

Operation and maintenance of oil burning locomotives. Ry R 69:334-6 S 10 '21; Same. Ry Mech Eng 95:747-8 D '21

Practical propaganda for fuel conservation on the Delaware & Hudson. Ry Age 70:843-5 Ap 1 '21

Pulverized coal burning equipment for Europe. il Ry Mech Eng 94:581-2 S '20

Pulverized coal for Italian locomotives. il Ry Age 68:1363-4 My 7 '20

Pulverized coal installation on the Lehigh Valley railroad. W. D. Wood. il Ry R 66:1013-14 Je 12 '20

Pulverized lignite as locomotive fuel. Ry Mech Eng 95:487 Ag '21

Railway fuel economy in Sweden. C. E. Uddenberg. Engineer 132:127 Jl 29 '21

Scarab system of oil fuel burning on locomotives. diags Engineering 110:324 S 3 '20; Abstract (Locomotive anglaise chauffée au pétrole par le système Scarab). Génie Civil 78:90 Ja 22 '21

Steam locomotives and the coal bill. Sci Am 122:564 My 22 '20

Storage of locomotive fuel oil. A. M. Schoen. Ry R 66:93-4 Ja 17 '20

Value of an individual fuel performance. J. N. Clark. il Ry R 69:493-6 O 15 '21

Value of individual fuel performance records. R. Collett. Ry Mech Eng 95:426; Discussion. 427 Jl '21

Venezuela's mountain-climbing oil-burning locomotives. H. C. Plummer. il Sci Am 123:597+ D 11 '20

See also Oil bunkering stations

Gearing

Tests of Franklin precision power reverse gear. il Ry Age 70:1043-4 Ap 29 '21; Same. Ry Mech Eng 95:470-1 Jl '21

Inspection

Chief boiler inspector's 8th annual report. il Ry R 65:957-9 D 27 '19; Ry Mech Eng 93:697-9 D '19

I.C.C. locomotive defects; diagram. L. S. Cunningham. Ry Mech Eng 94:450a Jl '20

Operation and maintenance of mechanical stokers. Ry R 67:455-7 S 25 '20

Report of the Bureau of locomotive inspection. il Ry Mech Eng 95:18-20 Ja '21

Systematic locomotive inspection. diags Ry R 67:152 Jl 31 '20

Lubrication

Mechanical improvement in oil and waste lubrication. il diags Ry R 69:272-4 Ag 27 '21

Plugless grease cup. J. P. Risque. diag Ry Mech Eng 94:141 Mr '20

Pneumatic grease gun. N. McCleod. diag Ry Mech Eng 95:455 Jl '21

See also Lubricators, Flange

Manufacture

Beardmore's locomotive works. il Engineer 130:149-50 Ag 13 '20

Belgian locomotive order completed promptly. il Ry Age 69:1069 D 17 '20

Cast iron for locomotive-cylinder parts. C. H. Strand. il diags U S Bur Stand Tech Pa 172:1-25 '20; Abstracts. Ry Age 69:619-20 O 8 '20; Ry Mech Eng 94:694 N '20; Am Mach 53:1221-2 D 30 '20

Field for heat treated locomotive forgings. J. C. Marsh and C. B. Beck. Ry Mech Eng 94:663-5 O '20

Locomotive building in an English shop. J. W. Chubb. il Am Mach 54:713-19 Ap 28 '21

Pressures for mounting wheels and applying crank pins. J. Partington. Ry Mech Eng 94:34 Ja '20

Short histories of famous firms; Hick, Hargreaves and co. il diags Engineer 129:644-5 Je 25 '20

Short histories of famous firms; Jones and Potts, Newton-le-Willows. E. L. Ahrons. il diags Engineer 129:508-9 My 14 '20

Short histories of famous firms; Messrs. George and John Rennie, Blackfriars, London. diags Engineer 131:366-7 Ap 8 '21

Short histories of famous firms; Messrs. George England and co., Hatcham iron-works, London. il Engineer 132:58-9 Jl 15 '21

Short histories of famous firms; Messrs. R. B. Longridge and co., Bedlington, Northumberland. E. L. Ahrons. il diags Engineer 131:68-70 Ja 21 '21

Short histories of famous firms; Messrs. Rothwell and co., Bolton. E. L. Ahrons. il Engineer 129:598-9 Je 11 '20

Short histories of famous firms; Messrs. W. and A. Kitching, Hope Town foundry, Darlington. E. L. Ahrons. il diags Engineer 130:419-21 O 29 '20

Short histories of famous firms; Nasmyth, Wilson and co., limited. il diags Engineer 129:287-9 Mr 19 '20

Short histories of famous firms; The railway foundry, Leeds (E. B. Wilson and company). E. L. Ahrons. il diags Engineer 130:369-72 O 15 '20

Short histories of famous firms, Vulcan works. il diag Engineer 129:84-5 Ja 23 '20

Short histories of famous firms, W. Fairbairn & sons, Manchester. E. L. Ahrons. il diag Engineer 129:184-5 F 20 '20

Tools for fusible plugs and other locomotive parts. F. A. Stanley. il diags Am Mach 51:985-7 D 11 '19

See also Locomotive works

Operation

Increasing locomotive mileage. F. P. Roesch. Ry Age 71:498-9 S 10 '21

Locomotive operation. T. J. Hartnett. Ry R 66:31-3 Ja 3 '20

Operation and maintenance of oil burning locomotives. Ry R 69:334-6 S 10 '21; Same. Ry Mech Eng 95:747-8 D '21

Performance

Are modern locomotives efficiently used? il Ry Age 70:359-62 F 11 '21

Great Northern three-cylinder engines. Engineer 131:593 Je 3 '21

Increasing efficiency and capacity of locomotives. B. B. Milner. chart Ry Age 68:1251-4 Ap 23 '20; Same. Ry Mech Eng 94:265-8 My '20; Same. Ry R 66:717-20 My 1 '20

Locomotive coal consumption. Engineer 131:618, 651, 664 Je 10-24 '21

Locomotive resistance and mechanical efficiency. K. Asakura. Ry Age 71:211-16 Jl 30 '21

Making motive power management more efficient. L. G. Plant. il Ry R 68:664-7 Ap 30 '21

Need for increased locomotive efficiency. Ry Age 69:1099-1100 D 24 '20

Operating economies in longer runs. F. M. Nellis. il Ry R 68:535-6 Ap 2 '21

Some recent locomotive work on the L. and N.-W. railway. E. C. Poultney. Engineer 132:344-5, 367-8 S 30-O 7 '21

Stoker fired locomotive makes continuous run over three divisions. Ry Age 70:708 Mr 18 '21

Locomotives—Performance—Continued

Trials of 0-8-0 type superheater locomotive; North-Eastern railway; charts. Engineering 109:209 F 13 '20

Utilizing motive power on the lines of the Delaware & Hudson; effective methods of terminal management permit constant control of locomotives. F. P. Gutelius. Ry R 67:961-7 D 25 '20

See also Locomotives—Boosters

Prices

Car and locomotive prices reach peak in 1920. Ry Age 70:87-91 Ja 7 '21; Same. Ry Mech Eng 95:80-3 F '21

Rating

Tonnage rating for locomotives. K. D. Ramsay. Ry R 67:737 N 13 '20

Reconstruction

Increasing the capacity of old locomotives. C. B. Smith. diags plans Ry R 67:846-9 D 4 '20; Same. Am Mach 53:1094-5 D 9 '20; Same. Mech Eng 43:12+ Ja '21; Excerpts. Ry Age 69:1115 D 24 '20; Excerpts. Ry Mech Eng 95:84 F '21; Discussion. Ry R 67:927-33 D 18 '20; Ry Age 69:1115-18 D 24 '20; Ry Mech Eng 95:84-7 F '21; Mech Eng 43:255-6 Ap '21

Repair

Advantages of gas for expanding locomotive tires an entering wedge for business in railroad shops. R. G. Monroe. Am Gas Eng J 113:304-7 O 16 '20; Excerpt. Gas Age 46:319 O 25 '20

Application of limit gages and progressive sizes in railway machine shops. H. E. O'Brien. Ry Mech Eng 95:177-8 Mr '21

Burner removes locomotive tires in ten minutes. il Pop Mech 33:187 F '20

Efficient car straightening frame. il diags Ry Mech Eng 95:31-3 Ja '21

Electric arc welding in railroad shops. A. M. Candy. il Ry Mech Eng 95:456-8 Jl '21

English locomotive repair system. H. E. O'Brien. il Ry Mech Eng 95:119-22 F '21

Frame making and repairing. F. F. Hoeffle; G. W. Kelly. diags Ry Mech Eng 94:603-4 S '20

Hearing on Pennsylvania locomotive repairs. Ry Age 70:1461-2 Je 24 '21

Hospitals for disabled locomotives. il Sci Am S 88:352-3+ D 13 '19

Ideal engine terminal. diags Ry R 67:307-10, 493-6 Ag 28, O 2 '20

Labor-saving devices on the Santa Fe. J. R. Phelps. il diags Ry Mech Eng 94:721-2, 795-6 N-D '20

Lining driving box shoes and wedges. J. McAllister. il diags Ry Mech Eng 94:788-91 D '20

Locomotive as an investment. G. M. Basford. Ry R 66:978-83 Je 12 '20; Same, with discussion. Ry Age 68:1743-8 Je 12 '20

Manufacturing standard locomotive repair parts. M. H. Williams. diags Ry Mech Eng 95:451-5, 511-12 Jl-Ag '21

Measurement record for railroad shops. H. L. Burrhus. diags charts Ry Mech Eng 94:299-301 My '20

Money-saver in locomotive repair; outfit for casting hubliners. il Sci Am 124:493 Je 18 '21

Outside repairs kept Pennsylvania's motive power in service. Ry R 68:602-3 Ap 16 '21

Portable locomotive-frame thermit welding outfit. J. V. Hunter. il Am Mach 54:59 Ja 13 '21

Practical reconstruction of old locomotives. il diags Ry Age 70:237-40 Ja 21 '21

Preparation of locomotives at terminals and shops; with discussion. L. R. Pyle. Ry Age 68:293-7 Ja 23 '20; Same. Ry Mech Eng 94:106-10 F '20; Same abr. Ry R 66:550-3 Ap 3 '20

Railway machine shop practice. E. K. Hammond. il Mach 27:721-9, 855-8, 945-8 Ap-Je '21

Reducing cost of car and locomotive repairs. Ry R 67:419-22 S 18 '20; Same. Ry Mech Eng 94:637-9 O '20

Reducing cost of locomotive repair work. Mach 27:356-7 D '20

Reducing cost of locomotive repairs. S. W. Mullinix. Ry R 66:795-7, 1012-13 My 15, Je 12 '20; Same. Ry Mech Eng 94:540-4 Ag '20

Reducing maintenance cost of valve chamber bushings and packing. F. Roberts. diags Ry Mech Eng 95:513-14 Ag '21

Reduction of locomotives unfit for service. F. H. Hardin. Ry Age 69:527 S 24 '20

Repetition of work reports. F. C. Groom. Ry R 66:115-16 Ja 17 '20

Some notes on erecting shop practice. C. P. Hubbard. il Ry Mech Eng 94:480-1 Jl '20

Speeding up locomotive main rod repairs. M. H. Williams. il diags Ry Mech Eng 95:543-6 S '21

Squaring the frames of French locomotives. C. E. Lester. il diags plan Ry Mech Eng 94:291-2 My '20

Standardization of engine failures and terminal delays. Ry Mech Eng 94:634-6 O '20

Successful methods used in repairing side rods. M. H. Williams. il diags Ry Mech Eng 95:639-43 O '21

Suggestions for simplifying locomotive maintenance. diags Ry R 69:274-5 Ag 27 '21

Surgical operation performed on a locomotive valve port. M. R. Feeley. diags Ry Mech Eng 95:508 Ag '21

Three column frame milling machine. il Ry Mech Eng 95:83 F '21

Up-to-date engine terminal management. il diags plans Ry R 67:345-56 S 4 '20

Use of gunpowder for removing engine bolts. il Mach 26:963 Je '20

Welding locomotive cylinders. C. E. Farley. il Ry Mech Eng 95:247 Ap '21

Welding locomotive frames. M. C. Whelan. diag Ry Mech Eng 94:301-2 My '20; Same. Ry R 67:460-1 S 25 '20

Why we were forced to contract locomotive repairs. F. Hardin. Ry R 68:969-73 Je 25 '21

See also Locomotive shops

Rods

Accomplishment in light reciprocating locomotive parts. diags Ry Mech Eng 95:286 My '21

Locomotive main rod angularity. W. Ulrich. diags Ry Mech Eng 95:519-20 Ag '21

New rod design. diag Ry Mech Eng 95:218 Ap '21

Speeding up locomotive main rod repairs. M. H. Williams. il diags Ry Mech Eng 95:543-6 S '21

Shops

See Locomotive shops

Specifications

Tentative specifications for non-ferrous alloys for railway equipment in ingots, castings, and finished car and tender bearings. Am Soc T M Pro v 20 pt 1:528-32 '20

Springs

Equalization of spring rigging. J. McAllister. diag Ry Mech Eng 95:38-9 Ja '21

Standards

Standardization of locomotive parts. F. J. Hookham. Eng & Ind Management 5:328-9 Mr 17 '21

Statistics

Adequate motive power for railroads a necessity. il chart Ry Age 68:33-6 Ja 2 '20

Few railroad orders for locomotives in 1919. il Ry Age 68:125-7 Ja 2 '20; Excerpt. Ry Mech Eng 94:15 Ja '20

Locomotive orders show increase in 1920. Ry Age 70:135-41 Ja 7 '21; Excerpts. Ry Mech Eng 95:77-8 F '21

Locomotives and rolling stock in 1919. il Engineer 129:18-20 Ja 2 '20

Locomotives and rolling stock of 1920. il (supp) diag Engineer 131:10-12, 14 Ja 7 '21

Stokers

See Stokers, Mechanical

Locomotives—Continued

Superheaters

- Application of superheaters to small locomotives. *il diag Ry R* 69:5-6 J1 2 '21
 Handling superheaters on locomotive. P. R. Duffey. *Power* 50:670 O 28 '19
 Installation, operation, care and maintenance of superheater equipment for locomotives; committee report. *Ry R* 66:1029-31 Je 19 '20
 Repairs to superheater units; report of the committee. *Ry R* 67:418-19 S 18 '20; *Ry Mech Eng* 94:636-7 O '20

Testing

- Design and tests of freight locomotives on the Pennsylvania railroad. L. H. Fry. *diags Engineering* 111:190-1, 218-19, 245-6 F 18-Mr 4 '21
 Electric vs. steam—a tug of war. *il Sci Am* 121:552 D 6 '19
 Long stroke cylinder tests on Southern Pacific. *diags Ry Mech Eng* 95:613 O '21
 Nicholson thermic syphon. H. Clewer. *Ry Mech Eng* 94:629-30 O '20; *Test data. Ry R* 67:502-3 O 2 '20
 Operating tests of a Pacific type booster locomotive. *il Ry Age* 69:699-702 O 22 '20; Same. *Ry R* 67:613-16 O 23 '20
 Pennsylvania Decapod develops 3,500 horsepower. *diags Ry Age* 68:1097-1103 Ap 2 '20; Same. *Ry Mech Eng* 94:193-9 Ap '20
 Tests demonstrate precision of new power reverse gear. *il Ry R* 68:668-70 Ap 30 '21
 Tests of a Lancashire and Yorkshire passenger engine. G. Hughes. *il Engineer* 131:410-11 Ap 15 '21
 Tests of a Pacific type booster locomotive. *il Ry Mech Eng* 94:753-6 D '20
 Tests of an American locomotive with driven trailing axle. *Engineer* 131:593-4 Je 3 '21

Valves and valve gear

- Automatic exhaust pipe and blower valve. *diags Ry Mech Eng* 95:468-9 J1 '21
 By-pass relief and drifting valves. *Ry Mech Eng* 94:625-7 O '20; *Excerpt. Ry R* 67:457-8 S 25 '20
 Design of an improved locomotive throttle valve. W. J. Knox. *diags Ry Mech Eng* 95:216-18 Ap '21
 Development of locomotive valve gear. J. Dunlop. *diags Engineer* 129:618-19; 130:15-17, 49-50 Je 18, J1 2, 16 '20
 Diameter and travel ratios for locomotive valves and cylinders. O. W. Young. *Ry R* 66:924-6 Je 5 '20
 Distribution pour locomotives à simple expansion et à surchauffe. L. Pierre-Guédon. *diags Génie Civil* 77:109-13 Ag 7 '20
 Drifting valve. S. H. Lewis. *Ry Mech Eng* 94:391 Je '20
 Exhaust pipe valve. *diags Ry Mech Eng* 94:358 Je '20
 Fuel economy by accurate valve setting. J. McAllister. *Ry Mech Eng* 95:311-12 My '21
 Locomotive main rod angularity. W. Ulrich. *diags Ry Mech Eng* 95:519-20 Ag '21
 Locomotive valve motion. F. Williams. *diags Ry R* 66:832-6 My 22 '20
 Method for squaring Walschaert valve gear. W. J. Dixon. *Ry Mech Eng* 95:189-90 Mr '21
 New drifting valve uses air pump exhaust. *diags Ry R* 69:29 J1 2 '21
 Ripken automatic drifting valve for locomotives. *diags Ry Age* 67:1079-80 N 28 '19; Same. *Ry Mech Eng* 93:645-6 N '19
 Setting locomotive slide valves. G. W. Childs. *diags Power Pl Eng* 24:560 Je 1 '20
 Setting locomotive valves. L. D. Freeman. *diags Ry Mech Eng* 93:669-74 N '19
 Shop work on locomotive cylinder and valve parts. J. V. Hunter. *il diags Am Mach* 55:305-8 Ag 25 '21
 Short cut in squaring locomotive valves. W. Ulrick. *il diags Ry Mech Eng* 95:123-4 F '21
 Standard motion work aids valve setter. J. McAllister. *diags Ry Mech Eng* 94:166-7 Mr '20

Standard valve motion pins and bushings. M. H. Williams. *diags Ry Mech Eng* 95:39-41 Ja '21

Tests demonstrate precision of new power reverse gear. *il Ry R* 68:668-70 Ap 30 '21
 Use and abuse of globe valves. *diags Ry R* 67:946-8 D 18 '20

Water supply

Chart for discharge of water columns supplying locomotives. F. D. Yeaton. *chart Eng N* 84:1013 My 20 '20

Wedges

Self-adjusting wedge. *Ry R* 69:331-2 S 10 '21; *Ry Age* 71:535-6 S 17 '21; *Ry Mech Eng* 95:616-17 O '21

Weighing

Large capacity locomotive weighing plant. C. C. Bailey. *il diag Ry Age* 71:453-5 S 3 '21; Same. *Ry Mech Eng* 95:749-50 D '21; Same cond., with plans. *Eng N* 87:808-9 N 17 '21
 Weighing a monster locomotive. H. T. Wade. *il Sci Am* 122:211 F 28 '20

Wheels

Features of locomotive design affecting wear on track. F. Williams. *diags Ry R* 68:737-9 My 14 '21
 Locomotive wheel balancing machine. *il diags Engineer* 129:354-5 Ap 2 '20; *Ry Mech Eng* 94:719-20 N '20
 Practical points on truck performance of locomotives. L. K. Sillcox. *diags Ry R* 67:970-2 D 25 '20
 Railway wheels and axles. T. H. Sanders. *Engineering* 109:99-100 Ja 16 '20

See also Locomotives—Driving wheels; Tires, Locomotive

Locomotives, Electric. See Electric locomotives

Locomotives, Gas and oil

American gasoline locomotive. *il Am Mach* 54:434-5 Mr 10 '21
 4-ton h. p. American industrial gasoline locomotive. *il Eng & Contr* 54:666 D 29 '20
 Gasoline locomotive for industrial works. *il Foundry* 49:167 F 15 '21; *Iron Tr R* 68:909 Mr 31 '21; *Eng & Contr* 54:666 D 29 '20; *Iron Age* 106:1676 D 23 '20
 German internal-combustion locomotives. *diags Mech Eng* 43:192 Mr '21

Locomotives, Industrial

Eight-coupled switcher for industrial service. *il Eng & Contr* 54:628-9 D 29 '20
 Fireless locomotives for the Eastman kodak company. *il Ry R* 67:406-7 S 11 '20
 Gasoline locomotive for industrial works. *il Foundry* 49:167 F 15 '21; *Iron Tr R* 68:909 Mr 31 '21; *Eng & Contr* 54:666 D 29 '20; *Iron Age* 106:1676 D 23 '20
 German internal-combustion locomotives. *diags Mech Eng* 43:192 Mr '21
 Heavy narrow-gage locomotives on concrete road work. B. H. Piepmeier. *il Eng N* 87:568 O 6 '21
 Heavy power for industrial switching service. *il diag Ry Age* 69:797-9 N 5 '20

See also Electric locomotives, Industrial; Locomotives, Mine; Tractors

Locomotives, Mine

Advice to those who propose to install locomotives for gathering purposes. R. L. Kingsland. *Coal Age* 19:570-2 Mr 31 '21
 Ball-bearing mine locomotives need few repairs. *il Coal Age* 17:914-15 My 6 '20
 Care of storage-battery locomotives. H. D. Smith. *Coal Age* 17:264-8 F 5 '20
 Changes in electric locomotives to meet demands for heavier duty. G. Bright. *il Coal Age* 19:51-6 Ja 13 '21
 Changes in electric mine-locomotive design during past quarter century to meet present-day needs. N. D. Levin. *il Coal Age* 19:1157-60 Je 30 '21
 Changes that experience has dictated in details of combination locomotives. J. B. Hicks. *Coal Age* 18:20-2 J1 1 '20
 Comparaison entre la traction animale et la traction par locomotive pour les transports souterrains. *Génie Civil* 76:65-8 Ja 17 '20

Locomotives, Mine—Continued

- Comparison of combination and cable-reel locomotives as gathering units. J: B. Hicks. Coal Age 18:111-12 Jl 15 '20
- Converting a storage-battery locomotive to one of trolley type. Coal Age 18:893 O 28 '20
- Designing the storage-battery locomotive to meet conflicting needs. C. W. Smith. il Coal Age 19:795-7 My 5 '21
- Electric mine haulage. diag Coal Age 17:147, 193, 241-2, 282, 323, 502-3 Ja 15-F 12, Mr 11 '20
- Electric mining locomotive has service record. Elec R 77:994 D 25 '20
- Experience results in radical changes in mine locomotives for heavy duty. B. S. Beach. il Coal Age 19:792-4 My 5 '21
- Gasoline mine locomotive operates with efficiency despite heavy grade. A. C. Paul. il Coal Age 17:927-8 My 6 '20
- Gathering in coal mines. R. L. Kingsland. Am Inst E E J 40:786-8 O '21
- Gathering locomotive with new features to lengthen life and save power. J: Liston. il Coal Age 17:895-8 My 6 '20; Same. Gen Elec R 23:446-50 My '20
- How to operate combination storage battery and trolley locomotives. J: B. Hicks. il Coal Age 18:59-62 Jl 8 '20
- How to secure life and duty from frame and mechanism of mine locomotives. W. T. Clark. il Coal Age 18:166-9 Jl 22 '20
- Kingston plant designs its locomotives to suit its needs and charges them all in a single station. D. C. Ashmead. il Coal Age 19:989-90 Je 2 '21
- Locomotive de mines, à air comprimé, à triple expansion et à récupération aux freinages. système Leroux. L. Pierre-Guédon. diags plan Génie Civil 78:312-15 Ap 9 '21
- Locomotive in Rock Springs, Wyo., has seen 27 years of active service. il Coal Age 19:358 F 24 '21
- Locomotive pulling vs. pushing trip. S. A. Bowes. Coal Age 19:1165-6 Je 30 '21
- Maintenance of trolley-type mine locomotive. F: Krug. il Elec W 78:925-6 N 5 '21
- Mechanical and engineering considerations determining the selection of an electric locomotive. H. H. Johnston. il Coal Age 20:679-81 O 27 '21
- Methods that will make electrical parts of mine locomotives run efficiently. W. A. Clark. il Coal Age 18:226-9 Jl 29 '20
- Midget mine locomotive. il Eng & Min J 109:1358 Je 19 '20
- Miniature mine locomotive, weighing under a ton, gathers coal from low places. D. J. Baker. il Coal Age 18:535-6 S 9 '20
- Modifications of gathering reels which will prevent destruction of cables. D. E. Shroyer. il diags Coal Age 18:286-9 Ag 5 '20
- Pennsylvania will provide more electrical safeguards. F. Hall. Coal Age 17:445 Mr 4 '20
- Performance of storage battery mine locomotives. J. Somers. Coal Age 16:938 D 25 '19
- Record of long service for mine-locomotives. il Min & Sci P 122:143 Ja 22 '21
- Selecting electric haulage equipment. R. H. Bacon. il Elec W 75:831-3 Ap 10 '20
- Selecting electric locomotives for metal mines. T. H. Arnold. il Elec W 77:209-11 Ja 22 '21
- Storage battery locomotives. Coal Age 17:25 Ja 1 '20
- Storage-battery locomotives in mine work. J. Appleton. il Coal Age 16:744-50 N 6 '19
- Storage-battery locomotives in mines displace trolleys. il Elec R 75:978 D 13 '19
- Storage-battery locomotives reduce cost of gathering cars in anthracite field. K. A. Meyer. Coal Age 19:667 Ap 14 '21
- Successive stages in the development of the storage-battery locomotive. J. Appleton. il Coal Age 17:935-6 My 6 '20
- Twenty years of experience have made mine locomotives reliable and efficient. M. S. Beddow. Coal Age 18:438-40 Ag 26 '20
- Underground haulage for mines of moderate size. G. B. Rosenblatt. il Min & Sci P 122:785-8 Je 4 '21; Excerpts. Eng & Min J 111:832-3 My 14 '21

- Use of electric locomotives in coal mines. il Elec R 77:603-4 O 16 '20
- Use of electricity in Pennsylvania coal mines discussed. Coal Age 17:310-11 F 12 '20
- Locomotives, Steam turbine**
- Steam turbine locomotive. il Mech Eng 43:214 Mr '21
- Turbine drive for locomotives. G: W. Swallow. il Ry R 68:603 Ap 16 '21
- Zoelly steam turbine condensing locomotive. il Engineering 112:292 Ag 19 '21
- Locomotives, Storage battery.** See Electric locomotives, Storage battery
- Locomotives, Toy.** See Toy locomotives
- Loft buildings**
- Co-operative method of financing buildings. Arch Forum 32:128-9 Mr '20
- Garment center' realty buildings, Seventh avenue, 36th to 38th streets, New York city. Arch & Bldg 52:82-3, pl 101-3 S '20
- Good design increases rental values. il plan Am Arch 119:151-4 F 9 '21
- Largest concrete loft building on Manhattan Island. W: F. Lockhardt. il diags plan Concrete 18:165-8 Ap '21
- Log cabins**
- Log cabins of 1860 in a 1920 dress. il Concrete 16:272 Je '20
- Log houses. il diags plans Bldg Age 42:19-24 Ap '20
- Log piling machine**
- Log piling machine as manufactured by Stephens-Adamson mfg. co. diags Eng & Ind Management 6:337-8 S 22 '21
- Log sheets**
- Planning operating log sheets. Power Pl Eng 24:34-43 Ja 1 '20
- Logarithms**
- Aids to the construction of logarithmic charts. J: L. Alden. diags Am Mach 53:496 S 9 '20; Same. Eng & Contr 54:286 S 22 '20
- How Napier invented logarithms. R. Fleming. Eng & Contr 55:419 Ap 27 '21
- Règle logarithmique, système Rieger, pour le calcul des constructions en béton armé. J. Rieger. diags Génie Civil 79:6-9 Jl 2 '21
- Logging.** See Lumbering
- Logic**
- Automatic induction and deduction. H. P. Gillette. Eng & Contr 53:88-90 Ja 28 '20
- Logs (ships)**
- Automatic ship's log. il diag Marine R 50:301-2 My '20
- Logwood**
- Technology of garment dyeing and cleaning. J. Loeb. Color Tr J 8:223-5 Je '21
- Use of organic dyestuffs in the manufacture of lakes; gamboge, indigo and logwood. B. De Puyster. Color Tr J 6:43-6 F '20
- L'Ombrellino.** See Pian de'Giullari, Italy
- London, England**
- London of the future. A. Webb, ed. 286p Dutton
- Architecture**
- Rebuilding of Regent street. Am Arch 118:817 D 22 '20
- See also Bush buildings, London; Crystal palace, London
- Bridges**
- New Southwark bridge. Engineer 131:611 Je 10 '21
- New Southwark bridge. il diags plans Engineering 111:280-3, 294, pl 12 Mr 11 '21
- Reconstruction of Ebury-street bridge. il diags Engineering 112:162-3 Jl 22 '21
- Reinforced concrete bridge; Regent's canal. il Engineering 110:683 N 19 '20
- Strengthening Cannon street bridge. G: Ellison. Engineer 131:150 F 11 '21; Same. Engineering 111:169-70 F 11 '21
- Churches**
- Threatened London city churches. il Am Arch 118:370-2 S 22 '20
- See also Westminster Abbey

London, England—Continued

Harbor

History of the port of London. J. G. Broodbank. 2v. D. O'Connor, London '21
 Port of London; opening of new Albert dock extension. il (supp) diags plan Engineer 132:29-30, 40 Jl 8 '21
 Royal Albert dock extension (South). il diags Engineering 112:2-7, 16, pl 1-4 Jl 1 '21

Railroads

Enlarged Waterloo station, London and Southwestern Ry. il diags plans Eng N 86:426-30 Mr 10 '21

Rapid transit

Ealing and Shepherd's Bush railway. il diag Electrician 85:154-6 Ag 6 '20
 English design and operation of the motor bus. M. W. Bourdon. il diags Automotive Ind 43:258-60 Ag 5 '20
 Increased traffic on London railways fails to offset increase in operating expenses. Elec Ry J 58:111 Jl 16 '21
 London companies organize. chart Elec Ry J 57:679-80 Ap 9 '21
 London county council tramways. Engineer 129:275-6 Mr 12 '20
 London motor bus myth again. Elec Ry J 57:760 Ap 23 '21
 London traffic. Engineer 129:407-8 Ap 16 '20
 London traffic increasing. Elec Ry J 55:620 Mr 20 '20
 London's traffic problem. Lord Ashfield. Elec Ry J 56:271-4 Ag 7 '20
 Maintenance of way work on London underground railways. A. R. Cooper. il diags Eng & Contr 53:348-9 Mr 31 '20
 Motor bus in urban transportation; comparisons between bus and tramway service in London and United States. G. J. Shave and F. C. Pick. Elec Ry J 56:789-94 O 16 '20
 New type of cars for London subways. il plans Elec Ry J 57:441-4 Mr 5 '21
 Operating London's underground railways. W. Jackson. il diags map Elec Ry J 55:276-83 F 7 '20
 Place of the bus. W. Jackson. il Elec Ry J 55:685-9 Ap 3 '20
 Rapid transit arithmetic; the principle of the economic unit applied to large cities' utilities. J. Lathrop. Sci Am 125:185+ S 10 '21
 Relieving London's congestion. il Elec Ry J 56:675-9 O 2 '20
 Report issued on London traffic. Elec Ry J 56:9-10 Jl 3 '20

Streets

Comment on London's traffic procedure. Eng N 87:238 Ag 11 '21
 Transport ministry to issue regulations for London traffic control. Eng N 87:230-1 Ag 11 '21

Suburbs

Unpopulating London. J. I. Bright. diags Am Inst Arch J 8:354-6 O '20

Water supply

Rapid filtration of water. A. C. Houston. il diag Engineer 130:218-20 S 3 '20; Same cond. Eng & Contr 54:309-12 S 29 '20

London, Ontario

Sanitary affairs

City of London (Ont.) sewerage and sewage disposal. H. S. Philips. il plan Can Eng 40:297-301 Mr 17 '21

Water supply

Water-supply projects at London, Ont. E. V. Buchanan. Can Eng 39:558 N 25 '20

London and Birmingham railway

Early railroad engineering; the London and Birmingham railway—a story of its difficulties, failures and success. H. T. Walker. il Sci Am M 4:157-64 Ag '21

London guild of builders

London guild of builders is factor in housing. C. H. S. Tupholme. Eng N 86:614 Ap 7 '21

Long Island, New York

See also Water supply—Long Island

Architecture

Nine illustrations of old houses on Long Island. Am Inst Arch J 9:front, 161-8 My '21

Long Island railroad

Handling suburban traffic at congested centers. C. F. Harding. il map plan Elec Ry J 56:662-74 O 2 '20

Large decrease in net income. Elec Ry J 56:336-7 Ag 14 '20

39th annual report—year ended Dec. 31, 1920. Comm & Fin Chr 113:525-6 Jl 30 '21

Longevity

Modern elixir of life; experiments in the rejuvenation of aged animals by the grafting of special organs. D. McClure. il Sci Am M 2:202-4 N '20

Longitude

Practical navigation guide. V. G. Iden. Marine R 50:390-1, 467-9 Jl-Ag '20

Longmont, Colorado

Rocky mountain town which runs its own plant. il Sci Am 124:413 My 21 '21

Longridge, R. B., and company

Short histories of famous firms; Messrs R. B. Longridge and co., Bedlington, Northumberland. E. L. Ahrons. il diags Engineer 131:68-70 Ja 21 '21

Longshoremen

British report on dock labor. Monthly Labor R 10:1128-36 My '20

Looms

Box chain building for pick and pick looms. T. Nelson. diags Textile World 59:343+ Ja 15 '21

Circular looms for weaving tubular fabrics. il India Rubber W 64:902-4 S '21

Elastic and non-elastic narrow fabrics. S. Brown. il diags Textile World 60:979+, 1507+, 2173+ Ag 13, S 10, O 15 '21

Individual gear drive for heavy looms. G. F. Sills. il diags Electrician 86:150-3 F 4 '21; Abstract. Mech Eng 43:335 My '21

New Jacquard pattern device. A. S. Moore. il Textile World 59:4071+ Je 18 '21

New type of loom for weaving wide fabrics. diag Textile World 58:909 Ag 7 '20

Novel tape loom. il Textile World 57:1397 F 14 '20

Production chart. J. L. Alden. chart Textile World 57:1851 Mr 6 '20

Roller bearings on looms. il plans Textile World 60:853+ Ag 6 '21

Lorentz transformation

Lorentz transformation. L. A. Pars. Philos Mag 6th ser 42:249-58 Ag '21

Loring, William J., 1869-

Mine operators of note. Eng & Min J 112:617 O 15 '21

Lorraine

Industries and resources

Lorraine iron field and the war. A. H. Brooks. il map Eng & Min J 109:1065-9 My 8 '20

Lorraine steel works in French hands. J. F. Butler. Iron Age 105:1023-4+ Ap 8 '20

La situation de la métallurgie en Lorraine. Génie Civil 79:293-4 O 1 '21

See also Coal mines and mining—Lorraine; Iron mines and mining—Lorraine

Los Angeles, California

Industrial Los Angeles. C. F. Stern. Comm & Fin Chr 113:1220 S 17 '21

Some engineering and economic features of the municipal electric system of Los Angeles. E. F. Scattergood. Munic Eng 59:216+ D '20

Architecture

House on the hill with front door in the valley. J. L. Von Blon. il Sci Am 122:487+ My 1 '20

Jury of artists appraises the architecture of Los Angeles. J. T. Boyd, jr. Arch Rec 48:461-2 N '20

Los Angeles, California—*Continued*

Description

Observations on a Pacific coast trip; Los Angeles the crowded. F. C. Wight. Eng N 86:56-7 Ja 13 '21

Hotels

Hotel Ambassador; with views and plans. Arch & Bldg 53:46-7, pl 83-6 Je '21

Lighting

New intensive street lighting. W. D'A. Ryan. il J Elec 44:151-2 F 15 '20

Railroads

Los Angeles terminal plan is ordered. Eng N 86:829-30 My 12 '21

Los Angeles terminal station rehearing resumed. Elec Ry J 58:26 Jl 2 '21

Rapid transit

Union terminal for Los Angeles. Elec Ry J 55:896 My 1 '20

Zones suggested for Los Angeles. Elec Ry J 58:756 O 22 '21

Sanitary affairs

Los Angeles accepts hog feeding method of garbage disposal. Eng N 87:81-2 Jl 14 '21

Sewerage

Findings of Los Angeles sewage disposal commission. Eng N 86:1117-18 Je 30 '21

New ocean outfall and screens for Los Angeles sewage. W. T. Knowlton. map Eng N 86:331-2 F 24 '21

Water supply

Water supply of Los Angeles. 209p U.S. Congress. House. Committee on public lands, Washington, D.C. '19

Los Angeles aqueduct

Electrical energy from city water supply. D. J. McCormack. il plans Elec W 78:161-5 Jl 23 '21

Hydroelectric plants on the Los Angeles aqueduct. il Elec R 77:19-20 Jl 3 '20

Louderback, George Davis

Sketch. por Eng & Min J 110:621 S 25 '20

Loughborough technical college

Loughborough technical college. plans Engineering 110:199-202, 232-6, pl 21-2 Ag 13-20 '20

Louisiana

Industries and resources

See also Petroleum industry and trade—Louisiana; Salt mines and mining—Louisiana

Public service commission

Public service commission created in Louisiana. N E L A Bul 8:516-17 S '21

Louisville & Nashville railroad

69th annual report. Comm & Fin Chr 110:1756-9 Ap 24 '20

70th annual report for 1920. map Ry Age 70:921-2 Ap 15 '21

70th annual report for the year ended December 31, 1920. Comm & Fin Chr 112:1756-9 Ap 23 '21

Low temperature. See Temperature, Low

Lowell textile school

Lowell textile school commencement. Textile World 57:4383+ Je 12 '20

Lowney, Walter M.

Walter M. Lowney had abiding faith in the national market. por Ptr Ink 115:25-7 Ap 14 '21

Loyal labor legion of New York city

New labor body announced. Eng N 87:212 Ag 4 '21

Loyall, George R.

To succeed J. H. Young as president of the Norfolk Southern. por Ry Age 70:1241 My 27 '21

Lubanyl benzoate

Constituents of resins; lubanyl benzoate from Siamese benzoin; abstract. A. Zinke and J. Dzrimal. Chem Soc J 120 pt 1:187-8 Mr '21

Lubricating engineers, American society of. See American society of lubricating engineers

Lubrication and lubricants

Advances in the practice of lubrication. H: M. Wells and J. E. Southcombe. Can Chem & Met 5:10-13 Ja '21

Air-compressor lubrication. W. F. Osborne. Power 51:495-7 Mr 30 '20

American lubricants from the standpoint of the consumer. L. B. Lockhart. 2d ed. 341p Chemical pub. co., Easton, Pa. '20

Automatic compressor oiling. il Elec Ry J 56:724 O 9 '20

Automatic journal lubrication. diags Ry Age 70:1242 My 27 '21

Automatic lubrication; how the demands of machinery for pumping oils to bearings have been met. A. H. Noyes. diag Power Pl Eng 24:1083-4 N 15 '20

Avoiding compressor troubles. A. D. Risteen. Iron Tr R 69:489-92+ Ag 25 '21

British lubrication—research report. Chem & Met Eng 24:294 F 16 '21

Campaign for better oiling. W. B. Bennett. Am Mach 53:165 Jl 22 '20

Carbonization of lubricating oils. diags U S Bur Stand Circ 99:1-44 '20

Carbonisation of lubricating oils in internal-combustion engines. F. H. Garner. diag Inst Pet Tech J 7:98-126; Bibliography. 139-48; Discussion. 126-38 Ap '21

Cement mill lubrication in raw grinding department. Concrete 19:sup63 O '21

Central oiling systems for power plants. R. E. Langston. Power Pl Eng 25:383-5 Ap 1 '21

Compounded lubricating oils; abstracts. H: M. Wells and J. E. Southcombe. Engineer 129:145 F 6 '20; Engineering 109:184-5 F 6 '20

Conservation of lubricating oil. G. R. Volz. il Motor Age 38:12-13+ Ag 19 '20

Conserving oil supply through cooperation. G. R. Volz. Motor Age 38:15-16 Ag 26 '20

Crude petroleum and lubricating oils. J. D. Roberts. Power 51:842-4 My 25 '20

Determination of resistance of lubricating oils to emulsification. diags Am Soc T M Pro v 20 pt 1:416-23; Discussion. 424-6 '20

Dilution of motor lubricants, causes and possible remedies. G. A. Kramer. Nat Pet N 12:31-4 Ja 28 '20; Same. Soc Auto Eng J 6:123-8 F '20; Discussion. 6:335-8 My '20

Drill bushings with lubricant retaining feature. F. W. Shumard. diag Mach 27:1097 Ag '21

Effect of lubricants upon worm-gear efficiency. J. H. Hyde. Eng & Ind Management 5:46-8 Ja 13 '21

Effect of usage on lubricants for internal combustion engines. J: R. Battle. Nat Pet N 12:51+ Ja 28 '20

Efficient lubrication reduces power waste. H. A. Buzby. il Blast F & Steel Pl 9:404-5 Je '21

L'état actuel de nos connaissances sur le graissage. Génie Civil 78:443-4 My 21 '21

Examination of lubricating oils. Engineering 109:653-4 My 14 '20

Extraction des huiles de graissage de la houille. A. Sander. Chimie & Ind 6:188-9 Ag '21

Formulaire du graissage industriel. J. Fritsch. 2d ed. 366p A. Legrand, Paris '21

Friction and fuel. W: N. Berkeley. Power 53:390-2 Mr 8 '21

Friction and lubrication. R. M. Deeley. diag Engineer 131:78 Ja 21 '21; Same. Sci Am M 3:319-20 Ap '21; Same cond. Mech Eng 43:265 Ap '21

Graissage automatique des poulies, système Lawrence, Dorman and co. diag Génie Civil 78:509 Je 11 '21

Grease lubrication. T. J. Holmes. Ry Mech Eng 95:76 F '21

Handbook of industrial oil engineering. J: R. Battle. 1131p Lippincott '20

Heat and soda ash method of reclaiming crank case oil. J: R. Battle. il Nat Pet N 12:77-8 Mr 3 '20

Lubrication and lubricants—Continued

- How much lubricant does an engine need? W. F. Schaphorst. *Am Gas Eng J* 112:344+ My 1 '20; Same. *Power Pl Eng* 24:470 My 1 '20
- Importance of lubrication. A. H. Noyes. *Paper* 27:174+ N 10 '20
- Improvement of the lubricating properties of mineral oils. J. H. Hyde. *il diag Engineering* 111:708-9 Je 10 '21
- Is lubrication a chemical phenomenon? *Soc Auto Eng J* 9:194 S '21
- Keeping steam turbine lubricating oil in good condition. C. H. Bromley. *chart il diags Gen Elec R* 24:414-21 My '21; Abstracts. *Elec Ry J* 57:813 Ap 30 '21; *Engineer* 132:490-1 N 4 '21
- Lubricants and lubrication; abstracts of committee report. *Engineer* 130:605 D 17 '20; *Engineering* 110:869-70 D 31 '20; Discussion. E. G. Acheson. *Engineering* 111:194-5 F 18 '21
- Lubricating and industrial oil engineering. J. R. Battle. *Nat Pet N* 12:59+ Mr 17; 49+ Ap 7; 57+ Ap 28; 51+ My 12; 49+ Je 16; 105+ Jl 7; 89+ Jl 21; 93+ Ag 11 '20
- Lubricating oil temperature charts. *Gas Age* 48:201-2 Ag 20 '21
- Lubricating the world. E. Griffiths. *Sci Am* 123:84 Jl 24 '20
- Lubricating troubles; failures of grease cups and how they were remedied. H. A. Jahnke. *diags Power Pl Eng* 24:943-4 O 1 '20
- Lubrication. *Engineering* 110:437 O 1 '20
- Lubrication. *Sci Am M* 3:374-5 Ap '21
- Lubrication and lubricants. G. B. Upton. *diags Sibley J* 34:58-69 My '20; Excerpt. *Power Pl Eng* 24:838-40, 875-7 S 1-15 '20; Abstract. *Elec Ry J* 56:219-23 Jl 31 '20
- Lubrication as applied to power-plant operation. R. June. *diags Elec R* 76:1021-4; 77:89-91 Je 19, Jl 17 '20; Same (pt. 1). *Sci Am M* 2:158-60 O '20
- Lubrication; discussion. C. W. Stratford. *Soc Auto Eng J* 9:279-81 O '21
- Lubrication, its importance to industry. A. H. Noyes. *diag Blast F & Steel Pl* 8:644 D '20; Same. *Paper* 27:174+ N 10 '20; Same cond. *Metal Ind* 18:570 D '20
- Lubrication of car journals without the use of waste. *diags Ry R* 69:267-71 Ag 27 '21
- Lubrication of cavity-type mine-car wheels. *Min & Met* 175:40 Jl '21
- Lubrication of electric railway equipment. *Elec Ry J* 56:1058-9 N 20 '20
- Lubrication of gears and pinions. W. F. Osborne. *Blast F & Steel Pl* 9:470-1 Ag '21
- Lubrication of paper mill machinery. J. E. Teschner. *il Paper* 27:125-7 N 10 '20
- Lubrication of refrigeration equipment. J. R. Battle. *plan Nat Pet N* 13:33+ Ag 17 '21
- Lubrication of rolling stock. L. W. W. Morrow. *diags Elec Ry J* 58:674-80 O 15 '21
- Lubrication of soft metal bearings. W. K. Frank. *Eng Soc W Pa* 35:350-7 N '19; Same. *Ry Mech Eng* 94:362-3 Je '20
- Lubrication of steam cylinders with oil emulsions; abstract. E. Hilliger. *Mech Eng* 43:332-3 My '21
- Lubrication of steam-engine bearings. W. F. Osborne. *diags Power* 51:215-17 F 10 '20
- Lubrication of steam heated bearings. S. J. Sharp. *il diag Textile World* 59:3539 My 28 '21
- Lubrication problem on shipboard. P. M. Robinson. *il diags Marine Eng* 26:458-62 Je '21
- Maschinenschmierung an walzwerken. F. Linzen. *il Stahl & Eisen* 41:45-8 Ja 13 '21
- Milk and petroleum. E. G. Acheson. *Sci Am M* 1:324-5 Ap '20
- Mineral wax; ozocerite as a lubricant. H. Pomeranz. *Sci Am M* 3:150 F '21
- Modern lubrication methods. E. N. Percy. *Mach* 26:886-7 My '20
- Molecular attractions of contact. *Power* 53:408 Mr 8 '21; Discussion. 54:111, 461, 499 Jl 19, S 20-27 '21
- New self-lubricating material; cellugraph. *Textile World* 58:1691 S 11 '20
- Oil consumption of turbo-generator sets. *chart Power* 52:561 O 5 '20
- Oil that makes the wheels go 'round. H. A. Mount. *Sci Am* 125:44 Jl 16 '21
- Oiliness of lubricants—what it is and what it does; abstract. *Mech Eng* 42:115-16 F '20
- Oils for power plants. F. G. Klock. *Power* 54:97 Jl 19 '21
- Oils for power plants. C. B. Whitman. *Power* 52:37 Jl 6 '20; Excerpts. *Soc Auto Eng J* 8:415 My '21
- Paper mill lubrication. T. C. Porteus. *Paper* 28:14-15+ Je 29 '21
- Physical characteristics of lubricating oils as applied to refrigerating machinery. W. F. Osborne. *A S R E J* 7:161-6 S '20
- Positive lubrication of machinery. *il Am Mach* 55:639 O 20 '21
- Possible improvements in lubrication methods. C. A. Trask. *diags Mach* 26:433-4 Ja '20
- Practical lubrication—oils and their physical characteristics. W. F. Osborne. *diags Power* 51:66-9 Ja 13 '20
- Practice of lubrication. T. C. Thomsen. 607p McGraw-Hill '20
- Preventing emulsification in oil-circulation systems in power plants. R. E. Langston. *il Power* 52:740-1 N 9 '20
- Problems of lubrication. W. B. Hardy. *Engineering* 109:333-4 Mr 12 '20
- Proper balancing of fuel, lubricant and motor. W. F. Parish. *Mech Eng* 42:164-8+ Mr '20; Same cond. *Automotive Ind* 42:464-7 F 12 '20; Same cond. *Nat Pet N* 12:30-3 F 11 '20; Same cond. *Power Pl Eng* 24:293-7 Mr 1 '20; Same cond. *Power* 51:565-8 Ap 6 '20
- Reducing friction loss in transmission. N. P. Winchell, jr. *il Paper* 25:17-20 Ja 21 '20
- Refrigerating-machinery lubrication. *Power* 51:647-9 Ap 20 '20; Same. *Power Pl Eng* 24:483-4, 578-9 My 1, Je 1 '20
- Research in lubrication conducted by British. *Nat Pet N* 13:88+ Mr 30 '21
- Rubber mill and calender lubrication. *il India Rubber W* 64:646 Je '21
- Saponification, emulsification and adhesion characteristics of lubricating oils. *Power* 53:200-1 F 1 '21
- Semi-fluid greases offer field for jobber to expand his business. J. R. Battle. *Nat Pet N* 13:71+ Mr 9 '21
- Semi-fluid lubricants and their marketing possibilities. J. R. Battle. *Nat Pet N* 13:73+ Mr 23 '21
- Sixty per cent of lubricating oil bought by textile mills is wasted. J. R. Battle. *Nat Pet N* 13:75+ Ap 13 '21
- Some features of forced lubrication. *Am Mach* 54:1075 Je 23 '21
- Some recent experiments on lubrication made by the English National research laboratory. J. H. Blakey. *Power Pl Eng* 25:917 S 15 '21
- Standard lubricating oil systems for geared turbines; abstracts. J. E. Schmeltzer and B. G. Fernald. *Power* 51:194-5 F 3 '20; *Int Marine Eng* 25:508-10 Je '20
- Static friction and lubricating properties. *Sci Am* 123:575 D 4 '20
- Steam-cylinder lubrication. W. F. Osborne. *Power* 51:140-3 Ja 27 '20
- Steam-engine operation and maintenance. H. Hamkens. *diags Power* 52:258-60, 329-30 Ag 17, 31 '20
- Steam-turbine lubrication. W. F. Osborne. *Power* 51:322-4 Mr 2 '20
- Storing and distributing grease, using air under pressure. F. J. Eager. *diags Eng & Min J* 111:711 Ap 23 '21
- Theory and practice of lubrication. H. M. Wells and J. E. Southcombe. *diags Sci Am M* 2:32-6 Jl '20; Abstract. *Mech Eng* 42:356-7 Je '20
- Theory and practice of lubrication; the germ process. H. M. Wells and J. E. Southcombe. *Nat Pet N* 12:48+ Ap 28 '20; Same. *Ry R* 67:45-8 Jl 10 '20; Same cond. *Am Mach* 52:1112-14 My 20 '20; Abstract. *Ind Management* 59:438 Je '20; Abstract. *Power* 51:826 My 18 '20; *Power Pl Eng* 24:618-20 Je 15 '20
- Theory of lubrication. R. M. Deeley. *Sci Am* 122:615 Je 5 '20
- Use of grease in lubricating mine cars. *Coal Age* 17:47 Ja 8 '20

Lubrication and lubricants—Continued

Use of solid lubricants. Elec Ry J 56:544 S 18 '20

Viscosities at high temperatures of California and eastern lubricants. Nat Pet N 13:90 Ag 3 '21

Volatility of lubricating oils. H. R. Smith. Power 53:597-8 Ap 12 '21

What determines lubricants? Factory 25:294+ Jl 15 '20

What you ought to know about lubricating oils. G. W. Friedrich. Factory 26:728-32 Mr 15 '21

See also Air compressors—Lubrication; Automobile engines—Lubrication; Automobiles—Lubrication; Bearings; Castor oil; Diesel engines—Lubrication; Electric generators, Alternating current—Lubrication; Electric motors—Lubrication; Gas and oil engines—Lubrication; Graphite; Locomotives—Lubrication; Lubricators; Motor trucks—Lubrication; Oil reclamation; Pneumatic tools—Lubrication; Steam turbines—Lubrication; Wire rope—Lubrication

Bibliography

Carbonisation of lubricating oils in internal-combustion engines. F. H. Garner. diag Inst Pet Tech J 7:98-126; Bibliography. 139-48; Discussion. 126-38 Ap '21

Manufacture

Manufacture of lubricating greases more an art than a science. Nat Pet N 12:115+ N 24 '20

Specifications

Development of oil specifications: what the future holds. W. F. Parish. Nat Pet N 12:121-2+ S 22 '20; Same. Soc Auto Eng J 7:313-15 O '20

Lubricating oils for Diesel engine air compressors. Electrician 86:558 My 6 '21; Same. Engineer 131:508 My 13 '21

Official specifications for all government lubricating oils. Nat Pet N 12:41-2+ My 19 '20

Specifications and nomenclature of lubricating oils. W. F. Parish. Nat Pet N 12:49-50 O 6 '20

Specifications for lubricants. Power 51:812 My 18 '20

Standards for lubricants for government purchasing. Nat Pet N 12:30 My 5 '20

Variance in viscosity specifications for same grades of motor oils. Nat Pet N 13:35-6 Je 24 '21

Writing specifications for lubricating oils and greases. A. A. Potter and A. J. Mack. Elec W 76:281-2 Ag 7 '20

Testing

Catalytic oxidation of petroleum oils. C. E. Waters. J Ind & Eng Chem 13:901-3 O '21

Comparison of qualities of castor and mineral oils. F. C. Ziesenheim. Automotive Ind 43:612-13 S 23 '20

Les essais de viscosité et la standardisation des huiles aux États-Unis. diags Génie Civil 78:16-17 Ja 1 '21

Government standards for oils and greases. diags Power 52:99-103 Jl 20 '20

Investigation into properties of lubricating oils. Automotive Ind 45:16-17 Jl 7 '21

Lubricating and industrial oil engineering. J. R. Battle. diag Nat Pet N 12:89+ Jl 21; 93+ Ag 11 '20

Lubricating oil tests. W. H. Herschel. Soc Auto Eng J 8:481 My '21

Lubrication as applied to power-plant operation. R. June. Elec R 77:89-90 Jl 17 '20

Lubrication of ball bearings. H. R. Trotter. Mech Eng 41:811-15 O '19; Abstract. Power 50:848-9 D 16 '19; Abstract. Iron Tr R 65:1583-5 D 11 '19; Abstract. Textile World 57:521+ Ja 24 '20; Abstract. Iron Age 105:264-5 Ja 22 '20; Abstract. Am Mach 52:730-2 Ap 1 '20

Methods for testing lubricating oils for government purchase. diags Nat Pet N 12:55-6+ My 12; 41-2+ My 19 '20

Simple method for testing engine lubricating oil. Motor Age 37:42-3 My 20 '20

Testing lubricating oils. Aviation 10:147-8 Ja 31 '21

Testing steam cylinder oils. W. F. Osborne. Power 53:229-30 F 8 '21

Tests of lubricants for the internal combustion engine. F. C. Ziesenheim. Automotive Ind 42:960-2 Ap 22 '20

Tests on lubricating oil for two-stroke-cycle semi-Diesel engines. T. M. Robie. Power 53:588-90 Ap 12 '21

Lubrication and lubricants (cutting and grinding)

Cutting oil filtration and sterilization. il Power Pl Eng 24:1152 D 1 '20

Cutting oils are cause of infection. L. T. Bryant. Iron Tr R 67:444 Ag 12 '20

Fulflo portable coolant circulating unit. il Mach 26:579 F '20

Metal cutting tools. A. L. DeLeeuw. diags Am Mach 55:222-5, 267-70 Ag 11-18 '21

Prevention of skin troubles from cutting oils and emulsions. J Ind Hygiene 3:sup128-9 O '21

Reconditioning cutting oils. il Ry R 67:482 S 25 '20

Sterilization of cutting solution. il diags Automotive Ind 43:973 N 11 '20

Sterilizing cutting oils by pasteurization and centrifugal separation. il Mach 26:378+ D '19

Sulphur in cutting lubricant for monel metal. J. Mancuso. diags Am Mach 53:123 Jl 15 '20

Lubricators

Le graisseur Conus. diag Génie Civil 78:199 F 26 '21

How a capillary oiler works. il diags Elec R 78:714 Ap 30 '21

Mechanical improvements in oil and waste lubrication. il diags Ry R 69:272-4 Ag 27 '21

Mechanically driven gravity-feed lubricator. H. H. Parker. diags Power 52:696 N 2 '20

Meyeringh proportional lubricator. C. J. Mason. Power 50:672 O 28 '19

New pump lubricator. diags plan Engineer 131:161 F 11 '21

New type vacuum oiler. il diag Elec Ry J 58:781 O 29 '21

Positive mechanical journal lubricator. diags Ry Mech Eng 95:466-7 Jl '21

Sharp automatic oiler. il Textile World 58:1321 Ag 28 '20

Lubricators, Flange

Pneumatic crude oil flange lubricator. il Ry Mech Eng 95:525 Ag '21

Ludlow, Edwin, 1858-

President of the A.I.M.E. Eng & Min J 111:350-1 F 19 '21

Lugs. *See* Airplanes—Lugs

Lukens odometer. *See* Odometer

Lumber

Chemical dips prevent blue stain in lumber. Chem & Met Eng 25:286 Ag 17 '21; Same. Paper 28:22+ Ag 17 '21

Lumber industry—a flagrant waster. E. H. Clapp. Chem & Met Eng 25:446-7 Ag 31 '21

Method of determining the moisture content of wood. Ry Mech Eng 93:717-18 D '19

Production of lumber, lath, and shingles in 1918. F. H. Smith and A. H. Pierson. U S Agric Bul 845:1-47 '20

Some phases of lumber manufacture. R. S. Whiting. il Am Arch 118:28-30 Jl 7 '20

Supplies and production of aircraft woods. W. N. Sparhawk. maps U S Nat Advisory Com for Aeronautics 1919:411-71 '20

Swedish forests, lumber industry, and lumber export trade. A. H. Oxholm. il diags maps plans U S Bur For & Dom Com 195:1-282 '21

Wasteful use of lumber. E. E. Hollenbeck. Bldg Age 42:33 Mr '20

Where the lumber goes. S. R. Winters. Sci Am 123:563 D 4 '20

See also Hard woods; Lumbering; Planing mills; Sawmills; Timber; Wood

Cost

Lumber costs. E. M. Meyer. J Account 32:113-19 Ag '21

Lumber—Continued**Grading**

How lumber is graded. H. S. Betts. il map
U S Agric Circ 64:1-39 '20

Prices

Details of forest service report in response
to Capper resolution. Am Lumberman 2355:
65-8 Jl 3 '20
Price of lumber. Am Arch 117:820 Je 30
'20

Short lengths

Mill employee makes kindling wood house
from waste. Am Lumberman 2350:79+ My
29 '20

Standards

Standard lengths, sizes and quality of lum-
ber as related to economic designs. Eng
& Contr 53:721 Je 23 '20
Structural service department; lumber—
standards. Am Inst Arch J 8:96-8 F '20

Testing

Testing kiln-dried lumber. diags Pop Mech
36:450 S '21

Transportation

Turntable on truck speeds lumber transport.
il Pop Mech 33:269 F '20

Lumber associations

Lumber associations in unified institutional
campaign. G. A. Nichols. Ptr Ink 114:17-20
F 3 '21
Organization of the American wholesale
lumber association. Am Lumberman 2349:
47-51+ My 22 '20
Southern pine association 5th annual meet-
ing. Am Lumberman 2340:55-61; 2341:69 Mr
20-27 '20

Lumber camps

Boarding cars for lumber camps. il plans
Ry R 67:39-42 Jl 10 '20
Plan for logging camp in woods. R. C. Leibe.
diags Am Lumberman 2328:77 D 27 '19

Lumber drying

Airplane demand and the art of kiln drying.
T: D. Perry. Aviation 7:305-7 N 1 '19
Drying lumber with superheated steam. Eng
& Contr 54:410 O 27 '20
Drying periods of various woods. Eng &
Contr 53:711 Je 23 '20
Effect of kiln drying on the strength of air-
plane woods. il diags U S Nat Advisory Com
for Aeronautics 1919:477-537 '20
How to tell when lumber is ready to be taken
from the kiln. diags Arch & Bldg 53:15-
16 F '21
Kiln drying of lumber. H. D. Tiemann. 3d
ed. 318p Lippincott '20
Kilndrying of wood in the airplane industry.
M. A. Lee. diags Sibley J 33:66-7 Je '19
Kiln drying of woods for airplanes. H. D.
Tiemann. il U S Nat Advisory Com for
Aeronautics 1919:357-83 '20
Kiln-drying specifications for airplane lum-
ber. H. D. Tiemann. il Sci Am S 88:104 Ag
16 '19; Same. Aviation 7:352-4 N 15 '19
Minimizing waste in the handling of lumber.
E. E. Collison. Automotive Ind 45:369-70
Ag 25 '21
Phenomena of drying wood. H. D. Tiemann.
il diags J Fr Inst 188:27-50; 189:645-8 Jl
'19, My '20
Progressive and compartment dry kilns for
timber compared. Chem & Met Eng 25:746
O 19 '21
Right and wrong kiln drying. H. D. Hender-
son. Am Lumberman 2344:68 Ap 17 '20
Successful commercial kiln drying. F.
Graham. Am Lumberman 2323:44 N 22 '19

Lumber handling
Amos log-loader that works. il Am Lumber-
man 2329:68 Ja 3 '20
Conveyor system designed for lumber yards.
il Pop Mech 33:40 Ja '20
Minimizing waste in the handling of lumber.
E. E. Collison. Automotive Ind 45:369-70
Ag 25 '21

Time study in unloading lumber. C. C. Her-
mann. Ind Management 62:16-17 Jl '21

See also Log piling machine; Motor trucks
in lumber handling

Lumber mills. See Sawmills

Lumber sheds

Composite plan with a good office. diag plans
Am Lumberman 2350:64 My 29 '20
Design of first prize winner in American
Lumberman shed plan contest. diags plans
Am Lumberman 2343:56-8 Ap 10 '20
Design of second prize winner in American
Lumberman shed plan contest. L. M. Neff.
diags plans Am Lumberman 2344:56-7 Ap
17 '20
Hoosier shed plan provides attractive of-
fice and efficient alley arrangement. plans
Am Lumberman 2348:50 My 15 '20
Judges are busy picking winners in Amer-
ican Lumberman shed plan contest. plan
Am Lumberman 2341:74-5 Mr 27 '20
Retail plant designed for an odd shaped plot
of ground. plan Am Lumberman 2349:61
My 22 '20
Shed designed to meet special conditions.
diags plan Am Lumberman 2347:58 My 8
'20
Shed plan proved by years of use. F. S.
Smith. il diags Am Lumberman 2353:57
Je 19 '20
Texas plan which won a special prize. il
plan Am Lumberman 2345:57 Ap 24 '20
Wyoming plan which won a special prize.
plan Am Lumberman 2346:58 My 1 '20

Lumber storage

Care of the lumber pile in chemical plants.
Chem & Met Eng 22:16 Ja 7 '20

Lumber trade

How city dealer expands business. il Am
Lumberman 2325:44 D 6 '19
Illuminating resumé of production and price
conditions. F. H. Farwell. Am Lumberman
2339:51-2 Mr 13 '20
Inventories for taxation purposes. C. D.
Moore. Am Lumberman 2334:67 F 7 '20
Lumber business, organization, production,
distribution. W. M. Ritter. 108p Southern
lumberman, Nashville, Tenn. '20
Place of the retailer in the lumber industry.
J: D. P. Kennedy. Am Lumberman 2336:
51+ F 21 '20
Realm of the retailer. il Am Lumberman
2348:51-3 My 15 '20
Reconstructing the lumber industry. J. Up-
ham. Am Lumberman 2348:64 My 15 '20
Research and boards; need of establishing
laboratories to study the problems of the
lumber industry. O. M. Butler. il Sci Am
M 3:59-62 Ja '21
Some office and display room features. il
plan Am Lumberman 2355:54-5 Jl 3 '20
Successful retailer shows how to increase
sales thru service. W. E. Cox. il Am Lum-
berman 2353:51-3 Je 19 '20
Tips to lumbermen on how to sell to women.
B. B. Trosper. diags Am Lumberman 2332:
56 Ja 24 '20
Women and the lumber business. B. B. Tros-
per. diags Am Lumberman 2326:1+ D 13
'19
Wood toys and the lumber industry. Am
Lumberman 2328:64 D 27 '19
See also Lumber—Prices; Lumbering; also
American hardwood manufacturers' asso-
ciation

Accounting

Cost of doing business. J. W. Trieschmann.
Am Lumberman 2350:63 My 29 '20
Uniform accounting for retail coal and lum-
ber trade. R. S. Pasley. J Account 29:118-
22 F '20
Uniform accounting system for retail
dealers. G. A. Torrence. Am Lumberman
2350:60-1; 2351:56-7; 2352:60-60a; 2353:50-1
My 29-Je 19 '20

Advertising

How a raw material can be advertised; the
Pacific lumber co. employs advertising to
scout for new markets. J: A. Murphy. Ptr
Ink 116:3-4+ Ag 18 '21

Lumber trade—Advertising—Continued

Lumber industry sets public right upon fundamental facts. C. M. Harrison. *Ptr Ink* 112:110+ S 2 '20

Mail-order house and retailers join in fight on prices. *Ptr Ink* 114:41-3 F 24 '21

Making the birds sell cypress. *Ptr Ink* 111:109-10 Ap 8 '20

To prove to dealers that advertising interests their customers, West coast lumbermen's association institutes prize contest. W. Brindley. *Ptr Ink* 116:65-6 S 15 '21

What shingle advertising means. C. P. Constantine. *Am Lumberman* 2328:68-9 D 27 '19

Directories

Directory of the logging industry (Pacific coast). Timberman, Portland, Ore. '21

Statistics

Comparative statement of St Louis lumber receipts and shipments for 1918 and 1919: tabulation. *Am Lumberman* 2330:45 Ja 10 '20

Comparative table of Chicago receipts and shipments of lumber and shingles for a series of years. *Am Lumberman* 2331:57 Ja 17 '20

Movement of principal softwoods during the last year illustrated. *Am Lumberman* 2330:40 Ja 10 '20

Tables, calculations, etc.

D and H pulpwood decimal computing-table. C: W. Stribley. 104p H. L. Donahue, Kaukauna, Wis. '20

Practical lumberman. 4th ed. Properties and uses of Douglas fir, California redwood and the leading commercial woods of the Pacific coast. B. J. S. Brereton. 144p B. Brereton, Tacoma, Wash. '21

Ready reference table makes it easy to compare square and thousand shingle units and prices. *Am Lumberman* 2355:64 Jl 3 '20

Finland

Forest resources, lumber industry and lumber export trade of Finland. A. H. Oxholm. il maps U S Bur For & Dom Com 207:90-144 '21

Italy

Lumber market in Italy and reconstruction requirements. N. C. Brown. il diags U S Bur For & Dom Com 182:1-184 '19

Portugal

Lumber markets of Spain and Portugal. N. C. Brown. il U S Bur For & Dom Com 201:124-40, 147-51 '21

Spain

Lumber markets of Spain and Portugal. N. C. Brown. il U S Bur For & Dom Com 201:1-123, 141-6 '21

Sweden

Swedish forests, lumber industry, and lumber export trade. A. H. Oxholm. il map U S Bur For & Dom Com 195:170-282 '21

United States

American lumber industry. *Am Arch* 118:212, 215-16 Ag 18 '20

Forests and national prosperity. W. B. Greeley. *Am Ind* 21:13-16 O '20

Lumber for export. J. J. Donovan. *Am Lumberman* 2349:65 My 22 '20

Lumber manufacturer's view of the market. F. H. Farwell. *Am Lumberman* 2345:60-1 Ap 24 '20

Manufacturers propose change in method of estimating inventory. I. D. Foos. *Paper* 27:9-10 D 22 '20

Present economic status of the lumber industry. C: S. Keith. charts *Am Lumberman* 2340:50-3 Mr 20 '20

Senate requests report on lumber industry. *Am Lumberman* 2337:1+ F 28 '20

Lumber waste. See Wood waste

Lumber yards

See also Lumber sheds

Lumbering

Efficient log-train snubber has novel feature. L. W. Pedrose. il *Pop Mech* 36:178-80 Ag '21

Electric applications in the logging industry of the Northwest. E. P. Whitney. il *Gen Elec R* 24:631-8 Jl '21

Electric logging equipment adopted by Snoqualmie company. il *Elec W* 77:265 Ja 29 '21

Electrical logging. R. E. Gray. il *J Elec* 43:492-4 D 1 '19

Electricity in the lumber industry. E. F. Whitney and W. C. Heston. il *J Elec* 46:114-16 F 1 '21

Giant redwood tree moved in upright position. O. C. Davis. il *Pop Mech* 36:518 O '21

Improvement of logging operations. E. Wilson. *Paper* 27:26-8 N 24 '20

Logging by electricity. A. Longville. il *Sci Am* 124:285 Ap 9 '21

Logging industry of the river bottoms. R. P. Lincoln. il *Pop Mech* 35:389-90 Mr '21

Logging with belt tread tractors. C. D. Metcalf. il *Sci Am M* 1:42-4 Ja '20

Lumbering in Rhodesia. C. C. Fuller. il *Am Lumberman* 2324:63+ N 29 '19

Lumbering in the great Northwest. R. W. Vinnedge. il *Am Ind* 21:7-9 N '20

Lumberjacks who live on houseboats. J. B. Woods. il *Pop Mech* 33:727-9 My '20

Military tanks used for logging in France. il *Pop Mech* 35:581 Ap '21

Pole and concrete track roads for logging. W. H. Chapin. *Eng & Contr* 54:437 N 3 '20

Portable electric logging yarder and loader. il *Eng & Contr* 55:159 F 16 '21; Same. *Elec R* 78:460 Mr 19 '21

Swedish forests, lumber industry, and lumber export trade. A. H. Oxholm. il map plan U S Bur For & Dom Com 195:62-95 '21

Tracklayer for logging railways. diag *Eng N* 84:373-4 F 19 '20

Twentieth-century lumber-jack. J. F. Springer. il *Sci Am* 123:34+ Jl 10 '20

Unloading logs with compressed air. il *Sci Am* 124:249 Mr 26 '21

See also Lumber handling; Lumber trade; Woodworking machinery

Cost

Methods, costs and results of survey for logging railroad. *Eng & Contr* 53:454-5 Ap 21 '20

Safety devices and measures

Results obtained from plan of safety organization for lumbering operations. V. A. Griffith. *Eng & Contr* 54:592-4 D 15 '20

Lumbermen

Descriptions of occupations; logging camps and sawmills. 32p '18 U.S. Bureau of labor statistics, Washington, D.C.

Luminescence

Cold light; luminescence, fluorescence and phosphorescence. J. J. Birch. *Sci Am M* 2:355-6 D '20

Colloidal metals and bioluminescence. E. N. Harvey. *J Fr Inst* 192:110-11 Jl '21

Flame excitation of luminescence. E. L. Nichols and D. T. Wilber. diags *Phys R* 17:453-68 Ap '21

Flowers that flash. *Sci Am M* 4:35-6 Jl '21

Inorganic luminescence phenomena; luminescent boron nitride (Balmain's aethogen) and the excitation of luminescence by flames; abstract. E. Tiede and F. Büscher. *Chem Soc J* 120 pt 2:74-5 F '21

Luminescence of certain oxides sublimed in the electric arc. E. L. Nichols and D. T. Wilber. diags *Phys R* 17:707-17 Je '21

Luminescence of samarium. H. L. Howes. *Phys R* 17:60-3 Ja '21

Oxidation and luminescence of phosphorus. H. B. Weiser and A. Garrison. diag *J Phys Chem* 25:61-81, 349-84, 473-90 Ja, My-Je '21

Spectral structure of the luminescence excited by the hydrogen flame. H. L. Howes. *Phys R* 17:469-74 Ap '21

See also Phosphorescence; Phosphorus

Luminosity

- Critical electron velocities for the production of luminosity in atmospheric neon. F. Horton and A. C. Davies. *diag Philos Mag* 6th ser 41:921-40 Je '21
- Luminosity of mercury vapor distilled from the arc in vacuo. N. H. Ricker. *diags Phys R* 17:195-226 F '21

Lumlnoslty of animals. See Phosphorescence**Luminous materials.** See Luminescence; Radioactive substances**Lunch rooms and cafeterias**

- Fountain lunch room at 82 Broad street, New York. *il Arch & Bldg* 52:91-2 O '20
- Knickerbocker cafeteria. *il Arch & Bldg* 52:38-40, pl 32-3 Mr '20
- Lunch room as a money maker. C. A. Patterson, comp. 163p Patterson pub. co., Chicago '21

Lunch rooms and cafeterias, Employees'

- Canteen versus the cold dinner pail. E. F. Hoyer. *Ind Management* 61:440-1 Je '21
- Factory restaurant as a service nucleus. S. DeHart. *Ind Management* 61:338-40 My 1 '21
- Furnishing a standard lunch. *Factory* 25:1822+ D 1 '20
- Handling the lunch problem. C. F. Carter. *chart Administration* 2:355-66 S '21
- Novel employees' restaurant plan. F. L. Prentiss. *Iron Age* 105:591-2 F '26 '20
- Restaurant facilities for shipyard workers. F. S. Crum. (2d ed.) 67p bibliog *il diags plans U.S. Shipping board, Emergency fleet corporation, Philadelphia* '18
- Three hundred meals in five minutes. R. J. Snell. *il Factory* 26:188-9 Ja 15 '21
- True function of an employees' lunch room. N. G. Shidle. *Automotive Ind* 44:513-15 Mr 3 '21
- Westinghouse cafeteria solves problem of feeding army of workers. *il Iron Age* 106:1527-30 D 9 '20
- Westinghouse opens large cafeteria. *il Iron Tr R* 66:1206-7 Ap 22 '20

Lunches

- Do mid-period lunches pay? *il Factory* 26:480-1 F 15 '21
- Six ways to provide lunches. *Factory* 25:396 Ag 1 '20
- Tin dinner pail again? *Am Mach* 53:778 O 21 '20

Lungs

- Lung ventilation with the use of gas masks; abstract. H. Dreser. *J Ind Hygiene* 2:sup 221-2 Ap '21
- Power of holding the breath as a test for lung capacity. *Sci Am M* 3:129 F '21

Dust diseases

- Study of pulmonary silicosis. E. L. Middleton. *bibliog J Ind Hygiene* 2:433-49 Mr '21

Luster ware

- Lustre pottery. M. M. Evans. 148p Methuen & co., London '20

Luxemburg**Industries and resources**

- Luxemburg is in economic flux. F. Miltoun. *map Iron Tr R* 66:226-7 Ja 15 '20

See also Iron industry and trade—Luxemburg; Iron mines and mining—Luxemburg; Steel industry and trade—Luxemburg

Lych gates. See Lich gates**Lye**

- Using lye to remove old insulation. J. E. Hester. *il Elec Ry J* 58:14 Jl 2 '21

Lyman, Benjamin Smlth, 1835-1920

- Sketch. F. Lyman. *Min & Met* 170:23-4 F '21

Lynch, Kentucky

- Lynch plant of United States coal and coke co. H. N. Eavenson. *il diags plans Coal Age* 20:532-6 O 6 '21

Lynchburg, Virginia**Water supply**

- Pressure filters at Lynchburg on gravity supply. R. Messer. *il plan Eng N* 84:1205-7 Je 17 '20

Lynchburg traction & light company, Lynchburg, Virginia

- \$4,936,976 fixed as Lynchburg value. *Elec Ry J* 57:912 My 14 '21

Lynn, Massachusetts**Bridges**

- Bridge building record; how cities, officials and an industrial works pooled interests, and rebuilt bridge in 10 days. E. W. Davidson. *il Sci Am* 125:220 S 24 '21

- Build 400-foot pile bridge in fourteen days. E. W. Davidson. *il Eng N* 87:339-40 Ag 25 '21

Water supply

- Application of engineering principles to water works operations to offset increased cost of labor and materials. R. J. Newsom. *Can Eng* 38:416-17 Ap 29 '20; Same. *Eng & Contr* 53:429 Ap 14 '20

- Modern pumping station design and operation. R. J. Newsom. *N E Water Works Assn J* 35:46-50 Mr '21; Excerpt. *Eng N* 85:660 S 30 '20

Lyon, Dorsey A., 1871-

- Metallurgists of note. P. Wooton. *por Eng & Min J* 110:997 N 20 '20

Lyons, France

- Lyons, the second largest city in France, and its sample fairs. R. G. Franklyn. *il Americas* 7:26-9 Jl '21

Lysalbinic acid

- Gold numbers of protalbinic and lysalbinic acids. R. A. Gortner. *Am Chem Soc J* 42:595-7 Mr '20

Lyster, Anthony George, 1852-1920

- Sketch. *por Engineering* 109:387-8 Mr 19 '20

M**Macadamized roads.** See Roads, Macadamized**McCabe, John C.**

- Detroit's director of safety engineering. *por Power* 53:697 My 3 '21

McCabe sleeve. See Cable joints**McChord, Charles Caldwell, 1859-**

- Chairman of Interstate commerce commission. *por Ry Age* 71:681-2 O 8 '21

McClellan, William, 1872-

- President elect of A. I. E. E. *por Am Inst E E J* 40:533 Je '21; *Elec W* 78:2 Jl '21

McCook field

- McCook field and American aeronautics. L. Cammen. *il Mech Eng* 42:441-4 Ag '20

McDuffie, Duncan

- Builders of the West. *por J Elec* 47:39 Jl 1 '21

McElwain company, W. H.

- Largest non-retailing shoe firm turns to consumer advertising. E. T. Tandy. *Ptr Ink* 112:41-2+ S 30 '20

McFadden, Louls T., 1876-

- Government officials influential in mining. P. Wooton. *por Eng & Min J* 110:1044 N 27 '20

McFadden bill. See Gold bonus bill**McGinnis, Joseph, 1882-1919**

- Rotch traveling scholarship. *Am Arch* 117:537-41, 543-6 My 5 '20

McGinty, George B., 1878-

- Secretary of the I.C.C. *por Ry R* 66:941 Je 5 '20

McGraw, James H.

- McGraw declares for sound publishing principles. *por Ptr Ink* 117:57-8 N 3 '21

- Portrait. *Elec W* 76:4 Jl 3 '20

Machilol

- Sesquiterpene groups: machilol and atractylol; abstract. S. Takagi. *Chem Soc J* 120 pt 1:732-3 O '21

Machine guards. See Machinery—Safety devices

Machine guns

- Aircraft machine guns. W. T. Gorton. il diags Aviation 10:724-7 Je 6 '21
 First machine gun. diag Metal Ind 18:360 Ag '20
 Long range machine gun developed by ordnance department. Am Mach 53:1211-12 D 23 '20
 Old machine-gun patent. E. A. Dixie. il Am Mach 54:146 Ja 27 '21
 Romance of invention; one-man machine gun and its inventor. C. H. Claudy. il Sci Am 122:160+ F 14 '20
 Some factors affecting the life of machine-gun barrels. W. W. Sveshnikoff. il U S Bur Stand Tech Pa 191:1-27 '21

Machine knives. See Knives, Machine**Machine operators**

- Automatic machine operators. Eng & Ind Management 5:194-5 F 17 '21
 Machine tender. J. W. Brassington. Paper 25:24-5 Ja 28 '20

Machine shop management

- Analyzing tool production problems. A. A. Dowd and F. W. Curtis. diags Iron Age 107:1671-3 Je 23 '21
 Arranging functions to fix responsibility. A. Whitehead. Engineering 110:204-6, 236-7 Ag 13-20 '20
 Cabinet of spare parts. P. F. O'Shea. il Am Mach 51:1025-6 D 18 '19
 Combating excessive manufacturing costs. S. P. Keator. Mach 26:543 F '20
 Combining quantity production with the making of special parts. P. F. O'Shea. Am Mach 53:443-4 S 2 '20
 Determination of the optimum number of machines a workman should operate. A. S. Otis. Ind Management 58:438-40 D '19
 Economical interchangeable manufacturing practice. E. Buckingham. Mach 26:636-41 Mr '20
 Economy of standard quantities. P. E. Holden. Ind Management 62:34-6 Jl '21
 Effective time study methods increase individual production. N. G. Shidle. Automotive Ind 43:421-4 Ag 26 '20
 Handling and routing large work. il Mach 27:358-64 D '20
 Handling material at the plant of the Greenfield tap and die corporation. P. F. O'Shea. il Am Mach 52:880-3 Ap 22 '20
 Honesty in the machine shop. P. Campbell. Ind Management 61:89-90 F 1 '21
 How factory investigations reduce costs. A. A. Dowd and F. W. Curtis. diags Mach 28:208-12 N '21
 Improving shop methods by analysis. L. V. Estes. Ind Management 59:306-10, 367-71 Ap-May '20
 Increased production by the use of proper gages. G. T. Trundle, jr. Am Mach 52:80-1 Ja 8 '20
 Increasing production by teamwork. diag Mach 26:854 My '20
 Inspection and progress system. E. A. Allcutt. diag Eng & Ind Management 6:58-61+ Jl 21 '21
 Jig and fixture storage. il Am Mach 54:1005 Je 9 '21
 Keeping records of automatic screw machines. S. Helweg. diags Mach 26:659-61 Mr '20
 Keeping tab on machines that loaf. A. B. Burgess. il Factory 24:1339 My 1 '20
 Lumsden system for lathe-type tools. il Engineering 112:183-6, 213-15 Jl 29, Ag 12 '21
 Machine tool shop in time of depression. E. J. Kearney. Am Mach 54:663-4 Ap 14 '21
 Manufacture of household appliances. J. V. Hunter. il Am Mach 52:1173-4 Je 3 '20
 Mapping idle time. Factory 24:638 Mr 1 '20
 Methods of a production office. Eng & Ind Management 5:483-5 Ap 28 '21
 Modern production methods. W. R. Basset. Am Mach 52:761-4, 873-6, 1003-8, 1087-90, 1177-82, 1285-8; 53:17-20, 63-6, 215-19, 619-25, 709-11, 798-802, 889-91; 54:99-103, 187-91, 398-402, 858-63, 1032-6; 55:57-60, 184-7, 604-8 Ap 8, 22, My 6, 20, Je 3, 17, Jl 1-8, 29, S 30, O 14, 28, N 11 '20, Ja 20, F 3, Mr 10, My 19, Je 16, Jl 14, Ag 4, O 13 '21
 Progress control as a staff function. J. W. McConnell. Am Mach 53:970-1 N 18 '20

Progress or planning? Eng & Ind Management 5:403-4 Ap 7 '21

- Records of machine tool equipment. H. E. Darby. diags Mach 27:67 S '20
 Reducing fatigue in tool rooms. F. B. Gilbreth and L. M. Gilbreth. il diag Iron Tr R 69:1004-6 O 20 '21
 Routing and estimating cost of gears and machine parts. Mach 26:1097 Jl '20
 Routing 1600 parts through a typewriter plant; Royal typewriter co., Hartford, Conn. H. R. Simonds. il Iron Tr R 68:1031-6 Ap 14 '21
 Service department in a machine tool plant. il Mach 27:261-3 N '20
 Simplified recording system for maintenance work. A. F. Owen. Mach 26:1154-5 Ag '20
 Small-quantity production methods; application of interchangeable manufacturing principles. E. Buckingham. il Mach 27:246-9 N '20
 System for production control; methods employed in the plant of the American multi-graph co. il Mach 27:647-50 Mr '21
 Taking up the slack in production. E. T. Spidy. il charts Ry Mech Eng 94:392-4 Je '20
 Test of comparative production in a shop under a 9-hr. and 8-hr. day. Iron Age 105:1513 My 27 '20
 Time study in small part manufacture. P. Bernstein. Ind Management 60:401-6 D 1 '20
 Tool and fixture control in woodworking. C. M. Bigelow. il diags Ind Management 59:284-7 Ap '20
 Tool storage in a gas-engine factory. il Am Mach 52:183-4 Ja 22 '20
 Toolroom system. E. E. Hirschhauser. diags Am Mach 53:358-60 Ag 19 '20
 Waste and salvage. E. F. Creager. Am Mach 52:740-2 Ap 1 '20
 What can be made in idle machine-tool plants during times of slack demand for regular products. H. L. Flather. Am Mach 55:726-8 N 3 '21
 Wheelbarrow standards. E. W. Leach. Am Mach 52:1145-7 My 27 '20
 Where management was at fault. A. L. Barrett. Ind Management 59:272 Ap '20
See also Electric railroads—Shops; Industrial management; Inspection; Locomotive shops; Machine shop practice; Mechanical handling; Railroads—Shops; Repair shops; Routing systems; *also* Bullard machine tool company

Machine shop practice

- Another method of machining connecting rods. F. H. Colvin. il Am Mach 54:1068-9 Je 23 '21
 Application of interchangeability to drill chuck manufacture. F. R. Daniels. il diags Mach 27:509-15, 674-9 F-Mr '21
 Are you a before-and-after or a single-track man? H. L. Wittstein. il diags Am Mach 53:67-8 Jl 8 '20
 Assembling Liberty motor connecting-rods. H. A. Carhart. il Am Mach 51:995-8 D 11 '19
 Automatic control employed in spring production. J. E. Schipper. il Automotive Ind 44:506-9 Mr 3 '21
 Automobile cylinders in the machine shop; how they are handled at five big shops. F. H. Colvin. il diags Am Mach 52:705-18 Ap 1 '20
 Automobile engine pistons as a stock proposition. E. Sheldon. il Am Mach 53:437-41 S 2 '20
 Axle machining equipment. il Engineer 130:512 N 19 '20
 Bench lathes and millers as production tools. il diags Mach 28:130-4 O '21
 Boring and facing pistons in a lathe. il diags Mach 26:525-6 F '20
 British Thomson-Houston magneto methods. I. W. Chubb. il Am Mach 52:670-4 Mr 25 '20
 Building a small track-laying tractor. F. H. Colvin. il Am Mach 52:407-10 F 19 '20
 Building Diesel engines on the Pacific coast. F. A. Stanley. il Am Mach 55:41-3 Jl 14 '21

Machine shop practice—Continued

- Building Diesel marine engines for seagoing vessels. F. B. Jacobs. *il* Marine R 51:220-8 My '21
- Building motors on the Pacific coast; Hall-Scott motor car company, Berkeley, Calif. F. H. Colvin. *il* Am Mach 53:1117-21, 1215-20; 54:46-7, 133-6 D 16, 30 '20, Ja 13, 27 '21
- Building saw mill machinery. F. H. Colvin. *il* Am Mach 53:1030-2 D 2 '20
- Cadillac grinding practice; description of methods employed in the grinding department of a plant building high-grade automobiles. E. K. Hammond. *il* Mach 27:103-7 O '20
- Case designs production machines for unit frames. P. M. Heldt. *il* diags plan Automotive Ind 43:562-8 S 16 '20
- Cast-iron and aluminum pistons; the Studebaker and Oakland. F. H. Colvin. *il* diags Am Mach 53:416-21 Ag 26 '20
- Caterpillars and their construction. K. H. Condit. *il* diags Am Mach 52:33-6, 233-7, 287-91, 343-8 Ja 1, 29-F 12 '20
- Combined trimming and shaving dies. F. A. Stanley. *il* diags plans Am Mach 52:297-9 F 5 '20
- Comparative methods of machining automobile engine connecting rods; Packard, Cadillac, Peerless, Chandler, Franklin. F. H. Colvin. *il* diags Am Mach 52:1023-35 My 13 '20
- Construction and repair of sugar machinery. F. A. Stanley. *il* diags Am Mach 54:677-82 Ap 21 '21
- Continuous milling of pump bodies. *il* chart Am Mach 54:108-9 Ja 20 '21
- Converting a machine shop to emergency production. E. Sheldon. *il* diags Am Mach 52:431-7 F 26 '20
- Cutting costs with the power press. E. K. Hammond. *il* diags Mach 28:96-101 O '21
- Cutting power of lathe turning tools; abstract with discussion. G. W. Burley. Engineer 128:640-1 D 26 '19
- Cutting rolling mill driving gears. F. R. Daniels. *il* Mach 28:1-4 S '21
- Cutting triple gears with accurate tooth alignment. C. C. Marsh. *il* diags Mach 26:309-13 D '19
- Cylinder blocks manufactured in an efficient manner. J. E. Schipper. *il* plan Automotive Ind 44:72-7 Ja 13 '21
- Design of sub-presses. D. H. Chason. diags Mach 26:841-3 My '20
- Details of airplane manufacture. F. H. Colvin. *il* Am Mach 52:201-4 Ja 22 '20
- Details of crankcase work. *il* Am Mach 54:1088-90 Je 23 '21
- Elementary machine shop practice. T. J. Palmateer. 123p Manual arts press '20
- Elementary machine shop practice. J. A. Pratt. 320p Van Nostrand '21
- Elements of gagemaking. C. A. Macready. diags Am Mach 47:491-3, 661-4, 1112-18; 48:149-52; 49:329-34, 511-19; 51:1033-6, 1101-3; 53:167-9, 253-5 S 20, O 18, D 27 '17, Ja 24, Ag 22, S 19 '18, D 18-25 '19, J1 22, Ag 5 '20
- Equipment for interchangeable manufacturing. E. Buckingham. *il* diags Mach 26:754-60, 828-33, 927-32 Ap-Je '20
- Ford differential spider and gear case. *il* Am Mach 54:371-3 Mr 3 '21
- Ford multi-automatic practice. E. K. Hammond. *il* diags Mach 26:299-308 D '19
- Frames for Fords. F. H. Colvin. *il* Am Mach 54:368-71 Mr 3 '21
- Franklin transmission case. F. H. Colvin. *il* Am Mach 53:1001-4 N 25 '20
- Gears for motor transmissions. F. H. Colvin. *il* Am Mach 54:606-9 Ap 7 '21
- Graduating, engraving and etching. 60p Industrial press, New York '21
- Hand screw machine practice. *il* diags Mach 26:620-4, 742-4, 850-4 Mr-My '20
- Hispano-Suiza airplane engine. H. O. C. Isenberg. *il* diags Am Mach 51:703-10, 849-56, 1091-6 O 9, N 13, D 25 '19
- Hobbing scroll chuck jaws. C. O. Herb. *il* diag Mach 27:951 Je '21
- How precision gage-blocks are made. F. D. Jones. *il* diags Mach 26:697-708 Ap '20
- How the racks on the ram of the Greenerd arbor press are cut. A. Ferber. *il* Am Mach 54:918 My 26 '21
- How we make automobile cylinders. F. H. Colvin. *il* diags Am Mach 52:123-6 Ja 15 '20
- Indexing milling fixtures. *il* diags plan Mach 26:527-31, 617-19, 721-4 F-Ap '20
- Large machine work at the Puget Sound navy yard. F. H. Colvin. *il* Am Mach 54:801-3 My 12 '21
- Libby turret lathe practice. *il* diags Mach 26:1132-9 Ag '20
- Liberty motor connecting-rods. H. A. Carhart. *il* diags Am Mach 52:1148-52 My 27 '20
- Little journeys of an editor; repairing steamboats. E. Sheldon. *il* Am Mach 54:53-9 Ja 13 '21
- Locomotive building in an English shop. I. W. Chubb. *il* Am Mach 54:713-19 Ap 28 '21
- Machining a gear-type water pump. F. A. Stanley. *il* diag Am Mach 53:61-2 J1 8 '20
- Machining a grooved and tapered part. E. P. Sacrey. *il* diags Mach 27:880-1 My '21
- Machining airplane engine parts. *il* diags plans Mach 27:233-8 N '20
- Machining aluminum automobile parts. *il* diags Mach 27:115-19 O '20
- Machining aluminum pistons. P. T. Lennon. diags Am Mach 52:1175-6 Je 3 '20
- Machining an eight-cylinder crankcase. J. E. Schipper. *il* Automotive Ind 45:220-5 Ag 4 '21
- Machining and inspecting transmission cases. F. H. Colvin. *il* diags Am Mach 55:143-7 J1 28 '21
- Machining auto starter frames. R. Mawson. *il* Am Mach 55:296-8 Ag 25 '21
- Machining automobile engine pistons. R. E. Flanders. *il* diags Mach 26:710-13 Ap '20
- Machining automobile steering knuckles. R. E. Flanders. *il* diags plans Mach 26:911-15 Je '20
- Machining automobile transmission gears. R. E. Flanders. *il* diags Mach 26:644-7 Mr '20
- Machining car-wheel borer frames. *il* diag Mach 27:456-7 Ja '21
- Machining clutch parts on turret lathes; tooling equipment used in the plant of the Borg & Beck co., Chicago, Ill. *il* diags Mach 27:156-9 O '20
- Machining Columbia rear-axle housing. F. H. Colvin. *il* Am Mach 54:27-9 Ja 6 '21
- Machining cone pulleys. R. E. Flanders. *il* diags Mach 26:1140-1 Ag '20
- Machining cream separator bowls; De Laval separator co., Poughkeepsie, N.Y. F. R. Daniels. *il* diags Mach 27:333-7, 444-8 D '20-Ja '21
- Machining cylinders for the Fordson tractor. F. H. Colvin. *il* diags Am Mach 52:269-73 F 5 '20
- Machining electric fan spindles. *il* diags Electrician 87:492-3 O 14 '21
- Machining Essex crankshafts; methods used by the Hudson motor car co. *il* diag Mach 27:449-51 Ja '21
- Machining Hudson super-six pistons. *il* Mach 28:225-7 N '21
- Machining impeller pump cylinders. *il* diags plan Mach 26:330-1 D '19
- Machining large water turbines. F. H. Colvin. *il* Am Mach 53:1234-6 D 30 '20
- Machining methods in Pierce-Arrow shop. F. H. Colvin. *il* diags Am Mach 53:221-5 J1 29 '20
- Machining molds and cores for auto tires. W. O. Francis. *il* diags Am Mach 52:1099-1102 My 20 '20
- Machining monel-metal castings. A. J. Hanlon. *il* diags Am Mach 53:341-3 Ag 19 '20
- Machining motor pistons. C. H. Dengler. diags Mach 27:878-9 My '21
- Machining motor pistons. A. A. Dowd. diag Mach 27:1151 Ag '21
- Machining motor truck wheels. *il* diags Mach 27:349-55 D '20
- Machining Nash flywheels. E. K. Hammond. *il* diags Mach 27:954-9 Je '21
- Machining operations on die stocks. J. V. Hunter. *il* Am Mach 52:231-2 Ja 29 '20

Machine shop practice—*Continued*

- Machining operations on locomotive connecting rods. F. A. Stanley. *il Am Mach* 54:811-13 My 12 '21
- Machining operations on Reed pipe dies. J. H. Vincent. *il Am Mach* 52:29-31 Ja 1 '20
- Machining operations on the Nash motor. E. K. Hammond. *il diag Mach* 26:1069-72 Jl '20
- Machining over 200 cylinder blocks per hour. F. H. Colvin. *il diags Am Mach* 52:563-9 Mr 11 '20
- Machining Packard connecting-rods. *il Mach* 26:953-7 Je '20
- Machining problems solved in gun making. J. V. Hunter. *il Am Mach* 51:949-52; 52:39-43, 133-7, 613-16, 733-5 N 27 '19, Ja 1, 15, Mr 18, Ap 1 '20
- Machining rudders for troopships. A. Fischer. *il Am Mach* 52:610-12 Mr 18 '20
- Machining steering arms on Daniels automatics. *il Mach* 27:714 Mr '21
- Machining the connecting rods of two well known motors; Oakland and Studebaker. *il diags Am Mach* 53:829-34 N 4 '20
- Machining the Ford transmission drum. *il Am Mach* 54:173-4 F 3 '21
- Machining the gas engine for a lighting unit. J. V. Hunter. *il Am Mach* 52:765-7, 995-8 Ap 8, My 6 '20
- Machining the gear-shaper saddle. D. T. Hamilton. *il Am Mach* 53:293-7 Ag 12 '20
- Machining the Liberty crankcases. H. A. Carhart. *il diag Am Mach* 52:1247-52, 1361-5 Je 10, 24 '20
- Machining the Peerless lower crankcase and front cover. F. H. Colvin. *il diags Am Mach* 55:436-8 S 15 '21
- Machining the Peerless upper crankcase. F. H. Colvin. *il diags Am Mach* 55:376-80 S 8 '21
- Machining the Rolls-Royce cylinders. F. H. Colvin. *il Am Mach* 54:785-6 My 5 '21
- Machining the Wrigley automobile transmission gear. I. W. Chubb. *il diags Am Mach* 55:176-8, 252-5, 333-8 Ag 4, 18, S 1 '21
- Machining tractor camshafts. R. E. Flanders. *il diags plan Mach* 26:825-7 My '20
- Machining two Peerless rear-axle parts. F. H. Colvin. *il Am Mach* 55:510-12 S 29 '21
- Making a gear shifter fork. F. H. Colvin. *il Am Mach* 55:328 Ag 25 '21
- Making a sheet-steel universal joint cover. W. A. Flumerfelt. *diags Am Mach* 54:171-3 F 3 '21
- Making an accurate Acme thread nut. B. M. W. Hanson. *il Mach* 28:197-9 N '21
- Making connecting-rods for Franklin cars. F. D. Jones. *il diag Mach* 27:470-4 Ja '21
- Making Curvex milling cutters. *il diags Mach* 27:250-8 N '20
- Making eccentric-headed studs. F. S. Ward. *diags Am Mach* 53:1083-4 D 9 '20
- Making master grinding cams. J. McIntosh. *diags Am Mach* 54:125-6 Ja 27 '21
- Making some ball-ended plugs. E. A. Dixie. *il diags plan Am Mach* 53:453-5 S 2 '20
- Making the Coventry self-opening diehead. *il Am Mach* 55:678-81 O 27 '21
- Making the Peerless ring gear, spider and gears. F. H. Colvin. *il Am Mach* 55:465-7 S 22 '21
- Making Thor quick-action air line couplers. J. V. Hunter. *il Am Mach* 53:931-3 N 18 '20
- Making 21,000 pistons a day. F. H. Colvin. *il diags Am Mach* 52:819-28 Ap 15 '20
- Making Whitworth thread gages. C. E. Allen. *il diags Mach* 26:1157-60 Ag '20
- Manganese steel and methods of machining it. S. A. Hand. *il Am Mach* 54:43-5 Ja 13 '21
- Manufacture of accurate camshafts. E. K. Hammond. *il diags Mach* 28:175-80 N '21
- Manufacture of ball bearings. *il diags Engineering* 111:415-18, 445-9, pl 18-21 Ap 8-15 '21
- Manufacture of flue tube superheaters. *il Engineer* 131:438-40 Ap 22 '21
- Manufacture of household appliances. J. V. Hunter. *il Am Mach* 52:1300-2, 1349-52 Je 17-24 '20
- Manufacture of sewing machine needles. C. Ruiz. *il diags plan Mach* 26:834-6 My '20
- Manufacture of single-cylinder gasoline engines. J. V. Hunter. *il Am Mach* 52:1079-83, 1237-9 My 20, Je 10 '20
- Manufacture of socket wrenches. P. Baldus. *diags Mach* 27:868-9 My '21
- Manufacturing applications of Ingersoll drum-type milling machines. J. V. Hunter. *il diags Am Mach* 55:23-7 Jl 7 '21
- Manufacturing automobile pistons in a jobbing shop. R. Mawson. *il Am Mach* 55:493-6 S 29 '21
- Manufacturing ball casters. F. R. Daniels. *il diag Mach* 26:1062-6 Jl '20
- Manufacturing Clark rear axles. E. K. Hammond. *il diags Mach* 26:801-6, 936-40 My-Je '20
- Manufacturing Krasco spring motors. *il diags Mach* 26:863-8 My '20
- Manufacturing methods on a light car. *il Automobile Eng* 11:206-11 Je '21
- Manufacturing oil-well tools in Texas. F. H. Colvin. *il diags Am Mach* 54:932-8 Je 2 '21
- Manufacturing three-area contact ball bearings. F. R. Daniels. *il diags Mach* 26:1107-11; 27:34-6 Ag-S '20
- Manufacturing with special machines vs. standard equipment. G. F. Jenks and M. H. Christopherson. *diag Am Mach* 55:37-9, 97-101, 228-33, 349-53, 475-9 Jl 7, 21, Ag 11, S 1, 22 '21
- Mephisto bits; how they are made. S. A. Hand. *il Am Mach* 52:11-14 Ja 1 '20
- Methods in a tractor engine plant; Avery co., Milwaukee, Wis. *il diags Mach* 27:424-7, 516-18. 641-4 Ja-Mr '21
- Methods in shipbuilding plant. F. H. Colvin. *il Am Mach* 54:672-6 Ap 21 '21
- Methods of making the Winton, Franklin, White, Packard pistons. F. H. Colvin. *il diags Am Mach* 52:927-34 Ap 29 '20
- Methods used by transmission specialists. F. H. Colvin. *il Am Mach* 54:537-40 Mr 31 '21
- Methods used in locomotive driving wheel, axle and crankpin work. F. A. Stanley. *il diag Am Mach* 54:1070-2 Je 23 '21
- Milling machines designed to fulfill unusual requirements in quantity production. *il diags Mach* 26:856-62 My '20
- Milling operations on Herbert lathes in English shops. I. W. Chubb. *il Am Mach* 53:945-50 N 18 '20
- Modern methods facilitate ax manufacturing. F. B. Jacobs. *il diags Iron Tr R* 69:747-52 S 22 '21
- Multiple drilling in automobile plants. *il Mach* 26:958-63 Je '20
- Obtaining production on the vertical turret lathe. *il diags Mach* 27:534-40 F '21
- Operations in building tractors. F. H. Colvin. *il Am Mach* 53:877-83 N 11 '20
- Peculiar lathe jobs. J. T. Slocumb. *diags Am Mach* 54:563-4 Mr 31 '21
- Piston ring work in a railroad shop. F. A. Stanley. *il diags Am Mach* 53:426-7 Ag 26 '20
- Piston work in motor repairing. *diags Am Mach* 55:473-4 S 22 '21
- Pistons for the Fordson tractor. F. H. Colvin. *il diags Am Mach* 52:675-9 Mr 25 '20
- Precision machine work in the production of aluminum pistons. J. E. Schipper. *il Automotive Ind* 45:722-5 O 13 '21
- Press tools for a toothed cam. F. A. Stanley. *il diags plans Am Mach* 51:1075-7 D 25 '19
- Producing engines in quantity. E. F. Ross. *il plan Iron Tr R* 68:479-84 F 17 '21
- Producing 17,000 connecting rods a day; methods used by the Ford motor co. F. H. Colvin. *il diags Am Mach* 52:1199-1203, 1305-9 Je 3, 17 '20
- Production of accurate cams. E. A. Dixie. *il diags Am Mach* 54:553-6 Mr 31 '21
- Production of automotive parts in the small town. J. E. Schipper. *il Automotive Ind* 42:865-8 Ap 8 '20
- Production planing in machine tool plants. E. K. Hammond. *il diags Mach* 27:409-18, 552-9, 659-64, 732-7, 833-7, 966-71 Ja-Je '21
- Production shaping. *il Mach* 28:89-93, 186-90, 272-6 O-D '21
- Production work in the locomotive shop. *il diags Mach* 28:102-5, 228-30 O-N '21

Machine shop practice—Continued

- Quantity in production. C: S. Pettit. Eng & Ind Management 5:680-1 Je 16 '21
- Quantity production in a gear shop; Dittmer gear & mfg. corporation. F. R. Daniels. il diags Mach 27:763-6, 863-7 Ap-My '21
- Quantity production of combination limit plug gages. il diags Mach 27:59-61 S '20
- Railroad shop turret lathe practice. H. Volz. il diags Ry Mech Eng 95:111-13 F '21
- Railway machine shop practice. E: K. Hammond. il Mach 27:721-9, 855-8, 945-8, 1015-17, 1098-9 Ap-Ag '21
- Rapid machining of multi-cylinder camshafts. diags Automotive Ind 42:462-3 F 12 '20
- Rear-axle housing that is different. F. H. Colvin. il Am Mach 51:919-21 N 27 '19
- Results obtained with crank-driven planers. E: K. Hammond. il Mach 27:1052-6 Jl '21
- Rolls-Royce connecting rods. F. H. Colvin. il Am Mach 54:1041-3 Je 16 '21
- Rolls-Royce crankshaft. F. H. Colvin. il Am Mach 55:453-4 S 22 '21
- Rotary swaging machines and their work. E. A. Suverkrop. il diags Am Mach 51:973-8 D 11 '19
- Seventy-five operations give accuracy in connecting rod production. J. E: Schipper. il Automotive Ind 43:522-6 S 9 '20
- Sheet metal work for automobiles. F. H. Colvin. il Am Mach 53:1165-8 D 23 '20
- Shop arithmetic for the machinist. E. V. Oberg. 116p Industrial press, New York '21
- Shop mathematics. E. V. Oberg and F. D. Jones. 280p The Industrial press, New York '20
- Shop practice for home mechanics, use of tools, shop processes, construction of small machines. R. F. Yates. Henley '20
- Shop practice in an axle plant. il Mach 27:166-8 O '20
- Shop work on locomotive cylinder and valve parts. J. V. Hunter. il diags Am Mach 55:305-8 Ag 25 '21
- Short cut in squaring locomotive valves. W: Ulrick. il diags Ry Mech Eng 95:123-4 F '21
- Simple method of milling dovetail grooves. D. A. Hampson. il diags Mach 27:273-4 N '20
- Some operations on caramel knives. D. A. Hampson. il diags Am Mach 52:601-2 Mr 18 '20
- Some sheet metal body work; operations involved in making metal bodies for Ford cars. il Am Mach 54:318-19 F 24 '21
- Some unusual machine operations on textile machinery. E. Sheldon. il Am Mach 54:665-71 Ap 21 '21
- Special features in cylinder block production. J. E: Schipper. il Automotive Ind 45:116-22 Jl 21 '21
- Special fixtures in the Peerless shop. il Am Mach 55:549-50 O 6 '21
- Special machines and fixtures in the Franklin plant, Syracuse, N.Y. F. D. Jones. il diags Mach 27:823-30 My '21
- Special machines and tools in the Chandler plant. il diags plan Mach 27:565-8 F '21
- Special machines in a tractor shop. E: K. Hammond. il Mach 26:1147-50 Ag '20
- Special work and tools at the Puget Sound navy yard. F. H. Colvin. il diags Am Mach 54:1126-30 Je 30 '21
- Stanley steam car power plant. F. H. Colvin. il Am Mach 54:955-8 Je 2 '21
- String milling fixtures. E. K. Hammond. il Mach 26:337-41, 443-7 D '19-Ja '20
- Supplement to Frederick W. Taylor's On the art of cutting metals. C. G. Barth. Ind Management 58:169-75, 282-7, 369-74, 483-7, 59:49-53, 153-5, 222-6, 395-9, 483-6; 60:49-52, 218-25, 365-72 S '19-Mr, My-Jl, S, N '20
- Swaging machine and toolroom methods of making the dies. W. E. Thompson. diags Am Mach 52:275-7 F 5 '20
- Third power kink book. 264p McGraw-Hill '21
- Tool and machine setting for milling, drilling, tapping, boring, grinding and press work. P. Gates. 93p Pitman '21
- Tooling Acme turret lathes. il diags Mach 27:5-9 S '20
- Tools and methods for manufacturing precision bench lathes; the S. A. Potter tool & machine works. F. R. Daniels. il diags Mach 27:668-72, 751-4 Mr-Ap '21
- Transplanting Rolls-Royce methods to the U.S. F. H. Colvin. il diags Am Mach 54:625-7 Ap 14 '21
- Turbine work at the Puget Sound navy yard. il Am Mach 54:1044-5 Je 16 '21
- Turret lathe practice. E. Oberg. il diags plan Mach 26:99-109, 227-35, 344-51, 514-20, 941-5, 1055-60 O-D '19, F. Je-Jl '20
- Unit tooling for flat turret lathes. il plan Mach 27:749-50 Ap '21
- Unusual methods of securing extreme accuracy. A. L. De Leeuw. il diags Am Mach 52:595-9, 937-41, 1049-53, 1094-7 Mr 18, Ap 29, My 13-20 '20
- Use of paper in the machine shop; hinders shippage, protects machine tables from injury. E. A. Dixie. il Am Mach 54:849-51 My 19 '21
- Valve work on turret lathe. E. Oberg. il diags Mach 26:419-23 Ja '20
- Vertical turret machine and its work. F. R. Daniels. il diags Mach 26:398-403 Ja '20
- Wood blocking and boring-bar work. J: Slocumb. diags Am Mach 54:868-70 My 19 '21
- Works of the Daimler co., ltd. il Automobile Eng 11:285-90 Ag '21
- Works practice of Messrs. Wolseley motors, ltd. il diag Automobile Eng 11:306-13 S '21
- See also* Arbors and mandrels; Broaching; Chucks; Drafting room practice; Drilling and boring (metal working, etc.); Electric driving; Forging; Foundry practice; Gages; Gear cutting; Grinding and polishing; Indexing (machine work); Lathes; Locomotive shops; Machine shop management; Machine tools; Machinery; Metal cutting; Milling; Pantograph; Pattern making; Railroads—Shops; Riveting; Rolling mills; Scraping machines (metal work); Sheet metal work; Steel works; Welding

Study and teaching

- Real school shop for boys. F. H. Colvin. il Am Mach 52:1335-7 Je 24 '20
- Status of the school shop. Am Mach 50:1026; 51:122, 650; 52:169-70 My 29, Jl 17, O 2 '19, Ja 22 '20
- Training men for the machine industry; departments established by the Norton co. E. Oberg. il diag plan Mach 27:779-82 Ap '21
- Machine shops**
- Accessibility, convenience and cleanliness make this machine shop efficient. D. C. Ashmead. il plan Coal Age 18:1269-71 D 23 '20
- Automobile gear making centralized; new works of General motors corporation. il Iron Age 106:245-50 Jl 29 '20
- Automobile work and the machine shop. D. A. Hampson. Am Mach 52:1001-2, 1059-60 My 6-13 '20
- Building machine tools in a new plant; Colburn machine tool co., Cleveland. F. L. Prentiss. il plan Iron Age 108:1070-5 O 27 '21
- Cramp's floating machine shop. L: P. Maier. il diags plans Int Marine Eng 25:428-30 My '20
- Features of German machine tool plant; Fritz Werner co., Marienfelde, Germany. il Iron Age 108:256-8 Ag 4 '21
- High and low bay type of machine shop. F. H. Colvin. il diags Am Mach 55:91-3 Jl 21 '21
- Little journeys of an editor; shop of William J. Kenton, Pittsburgh. E. Sheldon. il Am Mach 53:995-7 N 25 '20
- Locating a general machine shop. L. W. Alwyn-Schmidt. Am Mach 52:465-7 F 26 '20
- Machine shop built across creek; new plant of Saco-Lowell shops at Biddeford, Maine. il Textile World 58:1537+ S 4 '20
- Machine shop extensions at Witton works. il Engineer 129:558 My 28 '20
- Machine tool shop of unusual construction; Colburn machine tool co., Ivanhoe Road, Cleveland, Ohio. F. H. Colvin. il diags plan Am Mach 55:668-70 O 27 '21; Excerpts. Eng & Contr 56:479 N 23 '21

Machine shops—Continued

- Machine tool works at Broadheath. il diags plan Engineer 131:346-7, 350 Ap 1 '21
- Modern jig and tool works. il Automobile Eng 11:138-41 Ap '21
- Modern multi-storied shop for building machine tools; the American tool works co., Cincinnati. F. H. Colvin. il plans Am Mach 54:1114-18 Je 30 '21
- Modern tractor building machine shop. J. V. Hunter. il Am Mach 54:804-7 My 12 '21
- Pioneer ordnance machine shop. H. D. Parker. diags plan Am Mach 51:1103-8 D 11 '19
- Power plant machine shops. W. O. Rogers. il diags Power 54:12-19 Jl 5 '21
- San Francisco shops. F. H. Colvin. Am Mach 53:28-9 Jl 1 '20
- Works of Messrs. Marshall, sons and co., ltd., Gainsborough. il plans Engineering 109:635-41, 652, pl 34-7 My 14 '20
- See also* Electric driving; Electric railroads—Shops; Locomotive shops; Machine shop management; Machine shop practice; Machine tools; Railroads—Shops

Accidents

- Accident prevention in machine building. Eng & Ind Management 5:743-5 Je 30 '21
- Forms for reporting injuries of workmen. G. F. Kuhne. Mach 27:275 N '20

Accounting

See Factories—Accounting

Employees

- Training operators in a machine shop; methods employed in the plant of the Norton company, Worcester, Mass. J. C. Spence. il Mach 27:421-3 Ja '21
- What are the worker's prospects in the machinery building industry? A. W. Forbes. Am Mach 55:667 O 27 '21

Equipment

- Caring for tools at Puget Sound navy yard. il Am Mach 55:94-6 Jl 21 '21
- Machine shop equipment for trade schools. Mach 27:47 S '20
- Special machines and fixtures in the Franklin plant, Syracuse, N.Y. F. D. Jones. il diags Mach 27:823-30 My '21
- See also* Machine tools

Layout

- Economy of horizontal space by the machine layout; in the Holley carbureter factory. J. E. Schipper. il Automotive Ind 43:964-7 N 11 '20
- Factory lay-out as an aid in reducing costs; new plant of the Colburn machine tool co., Cleveland. il Mach 28:182-5 N '21
- Layout of a modern machine-tool plant. F. H. Colvin. il Am Mach 55:173-5 Ag 4 '21
- M. C. builds engine terminal at Niles, Mich. il plan Ry Mech Eng 94:341-2 Je '20
- Modern production methods. W. R. Basset. Am Mach 52:1285-8 Je 17 '20
- Monitor-type shop for building lathes. F. H. Colvin. il diag plan Am Mach 54:1030-1 Je 16 '21
- Shop layouts. J. Jacobs. Am Mach 54:406 Mr 10 '21
- Suggestion to machine-tool builders; use of photostat of layout. T. F. Githens. plan Am Mach 53:1137-8 D 16 '20

Lighting

- Electricity in the machine shop. H. L. Todd. il J Elec 46:135-6 F 1 '21
- Illumination of a machine shop. plans Elec R 78:277-8 F 12 '21
- Illumination of machine tools. G. Wagschal. il Elec W 76:925-6 N 6 '20

Moving

- Plant equipment moved by truck. H. R. Simonds. il Iron Tr R 68:549-52 F 24 '21

Power

See Electric driving

Safety devices and measures

- Hazards and dangers of the small hand tool. C. A. Briggs. il Automotive Ind 42:1114-15 My 13 '20
- Hospital work in a large machine-tool plant. S. De Hart. il Am Mach 52:658-60 Mr 25 '20
- How the safety engineer helps to boost production. C. A. Briggs. il Automotive Ind 42:1261-2 Je 3 '20
- Preventing accidents in the shop. J. E. Bullard. Am Mach 52:503-4 Mr 4 '20
- Safety in the machine shop. 188p il diags '20 Travelers insurance co., Hartford, Conn.
- Safety organisation in machine shops. Eng & Ind Management 5:232-3 F 24 '21

See also Machinery—Safety devices

Machine tenders. *See* Machine operators

Machine tool builders association, National. *See* National machine tool builders association

Machine tool industry

- Automobile industry stimulates development of tools. F. K. Hendrickson. Iron Tr R 68:1593-4 Je 9 '21
- Better relations between machine tool manufacturer and dealer. O. R. Adams. Mach 27:743 Ap '21
- Co-operation between manufacturer and dealer. C. A. Herberts. Am Mach 53:604d-e S 23 '20
- Fluctuations in the machine tool industry. F. A. Scott. Mach 27:431-2 Ja '21
- Foreign machine tool trade and credits. A. W. Henn. Mach 26:924 Je '20
- Foreign situation and the machine tool industry. J. Kucera. Mach 28:108-9 O '21
- Machine tool exports analyzed. W. H. Rastall. Iron Tr R 69:956-7 O 13 '21; Same. Am Mach 55:614-15 O 13 '21; Same. Iron Age 108:949-50 O 13 '21
- Machine tool industry, past and present. A. H. Tuechter. Am Mach 55:720-2 N 3 '21
- Machine tool prices. Mach 27:527 F '21
- Machine tool prices—are they too high? Am Mach 53:864 N 4 '20
- Machinery dealers on trade recession at the fall meeting of the National supply and machinery dealers' association. Iron Age 106:1325-6 N 18 '20
- National machine tool builders' association 20th annual convention, New York. Iron Age 108:1026-8 O 20 '21
- Principles of sound financing for the machine tool industry. F. A. Geier. Am Mach 54:753-4 Ap 28 '21
- Problems of the machine tool builder. C. R. Rosborough. Mach 27:1115 Ag '21
- Promise of the machine tool industry. F. A. Scott. Mach 26:910 Je '20
- Selling machine tools. H. W. Dunbar. Mach 27:927-8 Je '21
- Tool builders review half year. Iron Tr R 66:1531-2 My 27 '20

Accounting

- Cost accounting for the machine builder; report of Scovell, Wellington & co. to the National machine tool builders' association. chart Am Mach 54:726-31 Ap 28 '21; Discussion. 55:49, 178 Jl 14, Ag 4 '21
- Report on the uniform cost of accounting plan. Iron Age 107:563-5 Mr 3 '21; Iron Tr R 68:642-3 Mr 3 '21

Advertising

- Advertising machine tools. J. M. Henry. Mach 28:94 O '21

Exhibitions

- American machine tools at Olympia: what is the lesson? S. Haughton. Am Mach 53:788a-d O 21 '20

Service

- Cost of unnecessary service. S. O. Livingston. Am Mach 54:237-8 F 10 '21
- Machine tool service—for nothing. J. R. Godfrey. Am Mach 54:1122 Je 30 '21

Machine tool industry—Continued

Statistics

Census of the machine tool industry. Mach 27:1088 J1 '21

Used tools

How to get machine tools available under the provisions of the Caldwell bill. Am Mach 52:48-9 Ja 1 '20

Asia

Orient as a machine-tool market. W. H. Rastall. Am Mach 55:730-5 N 3 '21; Abstract. Mach 28:191 N '21

Austria

Die österreichische eisen- und maschinen-industrie im jahre 1920. Stahl & Eisen 41:140 Ja 27 '21

Belgium

Belgian machine tool trade. S: H. Cross. Mach 27:1113 Ag '21
U.S. government sales and Belgian machine tool conditions. A. Luchars. Am Mach 52:283-6 F 5 '20

Bolivia

Machine-tool market in Bolivia. Am Mach 53:924f N 11 '20

California

Machine-tool business in southern California. Am Mach 53:29-30 J1 1 '20

China

China as a machine tool market. J. Arnold. Mach 26:616 Mr '20
Developing a machine tool market in China. O. H. Broxterman. Mach 27:838-9 My '21
Possibilities for machine tools in China. F. A. Foster. il Mach 26:1126-7 Ag '20
Problems of industry and trade. C. W. Park. Am Mach 52:906-7 Ap 22 '20

Czechoslovakia

Situation of the machine-tool market in Czecho-Slovakia. C. A. Heise. Am Mach 53:938 N 18 '20

Egypt

Field for American machine tools. G. P. Kievenaar. Am Ind 21:40-3+ Ja '21

Europe

Business conditions in Europe. G: R. Woods. il Am Mach 52:393-5 F 19 '20
Conditions in Europe. J. H. Drury. Am Mach 55:735-6 N 3 '21
Observations during a trip to Europe. D. C. Watson. Mach 27:841-2 My '21
Outlook in European machinery trades. A. Luchars. Iron Age 106:855-7 S 30 '20

Far East

Rapid increase of exports to Far East. Iron Age 108:1081-2 O 27 '21
Tool markets in the Far East. W. H. Rastall. Iron Tr R 68:1448-9 My 26 '21

France

Comment on the machine-tool business in France. B. Erichson. Am Mach 55:120d J1 21 '21
New French tariff on machine tools. Mach 27:944 Je '21
Prospects of the French machine tool trade. Mach 27:1116 Ag '21

Germany

Conditions improve in the German machine-tool industry—American tools popular in Austria and Hungary. H. O. Herzog. Am Mach 54:206-7 F 3 '21
German machine-tool competition in Holland, Belgium and France. Am Mach 52:153-4 Ja 15 '20
German machine tool industries in 1919. A. Luchars. Iron Age 104:1190-3 D 11 '19
German machine tool industry. Mach 26:1079-80; 27:21, 232, 465, 532-3, 1152 J1, S, N '20, Ja-F, Ag '21

German machine-tool industry today. Am Mach 53:923-4 N 11 '20
German machine tools. Eng & Ind Management 5:174-5 F 10 '21
German machine trade conditions. Am Mach 53:1208-9; 54:581-2 D 23 '20, Mr 31 '21
German machinery and small tool trades. Iron Age 107:327-8 F 3 '21
German small tool prices the lowest. P. M. Tyler. Iron Age 108:341-3 Ag 11 '21
German's view of the industrial situation in Germany. Am Mach 52:365-8 F 12 '20
Leipzig technical fair and the outlook of the German machine industry. Am Mach 53:828d O 28 '20
Present conditions in the German machine industry. Am Mach 54:800b-c My 5 '21

Great Britain

British machine tool imports and exports. diags Mach 27:143 O '20
British machine tool industry. Mach 26:709, 890-1, 1027; 27:23-4, 175-6, 332, 481, 525, 689-90, 845-6, 978, 1064, 1149; 28:17, 195-6, 320-1 Ap-My, J1, S-O, D '20-Mr, My-S, N-D '21
Improvements in British machines. I. W. Chubb. il Am Mach 54:141-5 Ja 27 '21

India

Demand for machine tools in India. G: Cecil. Mach 28:62 S '21
Demand for machinery in India. G: Cecil. Am Mach 54:1063 Je 16 '21
Notes on the machine tool industry in India. C. F. Meyer. Am Mach 55:22 J1 7 '21

Italy

Industrial conditions in Italy. E. Vaghi. Mach 26:720 Ap '20

Netherlands

Conditions affecting the selling of machine tools in Holland. J. Spaander. Am Mach 54:800d My 5 '21
Machine shop industries in Holland. Mach 27:744 Ap '21

Scandinavia

Industrial conditions in Scandinavia. G. A. Lindstedt. Mach 26:817 My '20
Machine tool situation in Scandinavia. C. E. Simon. Mach 27:876-7 My '21

South America

Future of machine trade with South America. Mach 26:404-5 Ja '20

Spain

American machine tools in Spain. R. Casals. Mach 26:316-17 D '19

Sweden

Machine tool situation in Sweden. O. Lindbom. Mach 26:1130 Ag '20
Machine tool trade in Sweden. G. A. Lindstedt. Mach 26:328-9 D '19
Swedish machine tool industry. S. E. Osmar. Mach 27:227 N '20

Switzerland

•Swiss machinery industry in critical condition. Am Mach 54:1024b Je 9 '21

United States

American machine tool trade abroad. Mach 26:509-10 F '20
American machinery and foreign markets. L: E. Pierson. Am Mach 54:700-1 Ap 21 '21
Big demand opens to machine tools in 1920. W. H. Lloyd. il Iron Tr R 66:53-9 Ja 1 '20
Census of machine tools manufactured in 1919. Iron Age 107:1707 Je 23 '21
Center of the machine tool industry. Mach 27:939-40 Je '21
Detailed statistics concerning the manufacture of machine tools in the U.S. Am Mach 54:1148 Je 30 '21
Domestic exports from the United States by countries, during October, 1920; metal-working machinery; tabulation. Am Mach 53:1260 D 30 '20

Machine tool industry—United States—Cont.

- European conditions as affecting the American machine-tool trade. C. F. Dietz. *Am Mach* 53:75-7 Jl 8 '20
- Future of the machine tool business. F. E. Cardullo. *Iron Age* 107:511-13 F 24 '21
- Machine tool industry had good year in 1920. *Iron Age* 107:113-16 Ja 6 '21
- Machine tool outlook is bright. W. H. Lloyd. *Iron Tr R* 68:160-1 Ja 13 '21
- Machine tool situation analyzed. J. J. Ralph. *Iron Age* 107:365-7 F 10 '21
- Machine tool trade. *Mach* 26:465-6 Ja '20
- Peace and the American machine-tool industry. L. W. Alwyn-Schmidt. *Am Mach* 52:9-10 Ja 1 '20
- Prices and wages in the machine tool industry. *Mach* 27:692 Mr '21
- Prospects for American products in Europe. *Iron Age* 105:1519-21 My 27 '20
- Machine tool trades association**
- Annual general meeting, London, Jan. 19. *Engineer* 131:101 Ja 28 '21
- Machine tools**
- Adapters designed to increase the output of various machine tools. *il Automotive Ind* 45:476-7 S 8 '21
- Analysing tool production problems. *diags Eng & Ind Management* 6:370-3 O 6 '21
- Automotive service methods and equipment. H. Campbell. *il Am Mach* 55:619-23, 710-13, 789-91, 870-3 O 20, N 3, 17, D 1 '21
- Cost of operating obsolete machine tools. R. S. Mennie. *Ry Mech Eng* 95:551-3 S '21
- Cutting edges. R. E. Crompton. *Engineer* 130:207-8 Ag 27 '20; Same. *Engineering* 110:292 Ag 27 '20
- Cutting power of lathe turning tools; abstract. G. W. Burley. *Mech Eng* 42:117-18 F '20
- Cutting the rotating rack for a breech block. L. E. Olsen. *diags Am Mach* 51:1063-4 D 18 '19
- Demonstrating machine tools. H. W. Dunbar. *Mach* 28:14-15 S '21
- Evolution of the workshop. H. H. Manchester. *il Am Mach* 51:781-4; 52:115-17, 245-8, 389-92, 449-52, 545-8, 726-9, 889-91, 1187-9; 53:71-4, 205-8, 311-14, 353-7, 459-63 O 30 '19, Ja 15, 29, F 19-26, Mr 11, Ap 1, 22, Je 3, Jl 8, 29, Ag 12-19, S 2 '20
- Exhibits at the motor-boat show at Olympia. *il diags Engineering* 109:375 Mr 19 '20
- Finding the age of machine tools. L. L. Thwing. *Am Mach* 52:379 F 19 '20
- Future machine tools. A. L. DeLeeuw. *Iron Age* 107:444 F 17 '21
- Geometrical progression of speeds in machine tools. C. C. Stutz. *Am Mach* 52:117-18 Ja 15 '20
- High-speed-steel tools for turning tires. F. A. Stanley. *il diags Am Mach* 53:265-6 Ag 5 '20
- Improvements in British machines. I. W. Chubb. *il Am Mach* 54:141-5 Ja 27 '21
- Influence exerted by the automobile on the machine-tool industry. *Mech Eng* 43:529-34 Ag '21
- Large work at the Poole engineering and machine co.'s shop. E. A. Suverkrop. *il diags plan Am Mach* 52:143-5 Ja 15 '20
- Lumsden system for lathe-type tools. *il Engineering* 112:183-6, 213-15 Jl 29, Ag 12 '21
- Machine tools and educational institutions; list of disposals under Caldwell act. *Am Mach* 55:645-6 O 20 '21
- Machine tools in electrical manufacture. P. V. Vernon. *Electrician* 86:623-4 My 20 '21
- Metal cutting tools. A. L. DeLeeuw. *diags Am Mach* 54:1-7, 87-93, 166-70, 276-80, 316-17, 360-4, 418-20, 452-5, 508-10, 541-4, 610-13, 635-40, 732-5, 807-10, 897-902, 985-90; 55:4-9, 134-40, 222-5, 267-70, 461-4, 517-20, 551-4, 600-3, 640-4, 682-6 Ja 6, 20, F 3, 17, Ap 14, 28, My 12, 26, Je 9, Jl 7, 28, Ag 11-18, S 22-O, 27 '21
- New machinery designed for railway shops. *il Ry R* 69:452-4 O 1 '21
- Old English machine tools at Soho, Birmingham. I. W. Chubb. *il Am Mach* 52:443-7 F 26 '20
- Quality versus first cost in machine tools. A. H. Ingle. *Mach* 27:637-8 Mr '21

- Railroads need modern machine tools. R. V. Wright. *il Ry Mech Eng* 94:359-62 Je '20; Same cond. *Mach* 26:975-6 Je '20
- Recent machine tool developments. J. Horner. *il diags Engineering* 109:103-5, 169-71, 236-9, 505-8, 707-10; 110:169-72, 268-70, 494-8, 660-4; 111:66-9, 382-4; 112:33-6, 364-7, pl 4, 5 Ja 23, F 6, 20, Ap 16, My 28, Ag 6, 27, O 15, N 19 '20, Ja 21, Ap 1, Jl 8, S 9 '21
- Rejuvenating obsolete machine tools. E. A. Dixie. *il Am Mach* 52:255-6 Ja 29 '20
- Series of feeds and speeds. M. J. Androuin. *diag Engineer* 128:556-7+ D 5 '19
- Small machines for building optical instruments. J. V. Hunter. *il Am Mach* 53:1045-7 D 2 '20
- Some products of a modern tool-room. C. O. Herb. *il diags Mach* 27:1048-50 Jl '21
- Some tools used in making phonograph tonearms. S. A. Hand. *il diags Am Mach* 54:353-6 Mr 3 '21
- Special machines and tools in the Chandler plant. *il diags plan Mach* 27:565-8 F '21
- Special-purpose machines in the LeBlond plant. *il diags Mach* 27:144-50 O '20
- Special work and tools at the Puget Sound navy yard. F. H. Colvin. *il diags Am Mach* 54:1126-30 Je 30 '21
- Speeding up machine tools with compressed air. F. A. McLean. *il Am Mach* 53:963-4 N 18 '20
- Splitting hairs with close-limit tools. A. Longville. *il Sci Am* 123:243+ S 11 '20
- Standardised feeds and speeds for machine tools. *Engineer* 128:567-8 D 5 '19
- Taper-turning tool for spinning machine spindles. W. B. Bennett. *il diags Mach* 27:757-9 Ap '21
- Tools for boring and turning locomotive tires. F. H. Colvin. *diags Am Mach* 55:218-20, 313-17 Ag 11, 25 '21
- Tools for fusible plugs and other locomotive parts. F. A. Stanley. *il diags Am Mach* 51:985-7 D 11 '19
- Tools from a railroad blacksmith shop. F. H. Colvin. *diags Am Mach* 53:795-7 O 28 '20
- Tools used in the manufacture of the P & W adjustable limit snap-gage. E. Sheldon. *il diag Am Mach* 55:428-31, 456-60 S 15-22 '21
- Turret tool for ball turning. H. Mohay. *diags plan Am Mach* 53:557 S 16 '20
- L'usinage rapide des arbres à manivelles par une machine à outils multiples. *il diags Génie Civil* 76:576-7 Je 26 '20
- Using two tools at once. H. F. Pusep. *diags Am Mach* 52:398 F 19 '20
- What is a high-grade machine? F. W. Shaw. *Am Mach* 53:169-70 Jl 22 '20

See also Arbors and mandrels; Bending machines; Broaches; Cut-off tools; Cutting machines; Drilling and boring machinery; Electric driving; Facing tools; Feed mechanism; Forming tools; Gear cutting machines; Grinding and polishing; Grinding machines; Lathes; Locating devices; Machine shop practice; Machine tool industry; Metal cutting; Milling cutters; Milling machines; Planing machines; Pneumatic tools; Punching machinery; Reamers; Recessing tools; Roller tools; Saws; Screw machines; Shapers; Shears; Slotting machines; Tapping machines; Thread cutting machines; Tool steel

Definition

- What is a machine tool? *Am Mach* 53:106, 126, 297, 364, 924c Jl 15, Ag 12-19, N 11 '20
- What is a machine tool? *Mach* 27:155 O '20
- What is a machine tool? E. H. Knight. *Soc Auto Eng J* 8:346 Ap '21

Design

- Automobile influences design of machine tools. *Iron Tr R* 68:1539-40 Je 2 '21
- Designing a special drilling machine. F. E. Johnson. *diags plans Mach* 26:946-52 Je '20
- Formulas for formed tools. W. E. Thompson. *diags Mach* 26:424-6 Ja '20

Machine tools—Design—Continued

- Instructions for designing fixtures. H. P. Losely. Mach 28:20-1 S '21
- Machine tool counterweights. F. Horner. il diags Mach 27:108-14 O '20
- Qualifications and training of a tool designer. C: S. Pettit. Eng & Ind Management 5: 660-1 Je 9 '21
- Recessing tool design. C. Ruiz. diags Mach 26:972-4 Je '20
- Should jigs and fixtures be designed? L: A. Schlossstein. Am Mach 54:832 My 12 '21
- Suggested improvements in machine tool design. C: A. Trask. diags Mach 26:352-3 D '19
- Tables for depth of steps on straight forming tools measured at right angles to the front face, corresponding to various differences between radii on the work. Mach 27:560-4 F '21
- Tests for tool designers. A. A. Dowd. Mach 27:65-6 S '20
- Tools show marked tendencies. O. E. Perrigo. il diags Iron Tr R 68:61-6 Ja 6 '21
- Trigonometry for toolmakers. R. H. Worthy. diags Am Mach 54:8-11 Ja 6 '21
- War had only slight influence on lathe practice. R. E. Flanders. Iron Tr R 68:1595-6 Je 9 '21

Electric driving

- Adapting machine tools to motor and silent chain drive. E: H. Tingley. Mach 28:129 O '21
- Convenient adaptation of motor drive to screw machine. il Elec W 77:1375-6 Je 11 '21
- Electric drive for machine shops. B. S. Pero. il Gen Elec R 24:528-9 Je '21
- Electricity in the machine shop. H. L. Todd. il J Elec 46:135-6 F 1 '21
- Installation of motor drives on old tools. J. H. Vincent. il Am Mach 54:1000-1 Je 9 '21
- Machine tools and motor drive in implement factory. W. A. Scott. Elec R 78:652 Ap 23 '21
- Motor drive applied to crank planer. il Ry Mech Eng 95:392-3 Je '21
- Motor for individual drive mounted on milling machine. il Elec W 78:525 S 10 '21
- Newton-Derby mechanical reversing drive for planing machines. il diags Engineer 132: 124-5 Jl 29 '21
- Power consumption of machines. H. E. Collins. Ind Management 60:35-7 Jl '20
- Power requirements of machine tools. A. G. Humphreys. Elec W 78:226-7 Jl 30 '21; Same. Am Mach 55:802-3 N 17 '21
- Selection of remote control for machine tools. W. B. Atchinson. il Elec W 78:224-5 Jl 30 '21
- Standardization of electrical equipment on machine tools. F. H. Foster. Iron Age 106: 1322-4 N 18 '20
- Standardizing motors for tools. H. R. Weedon. il Iron Tr R 68:555-7 F 24 '21
- Unusual frequency obtained for driving foreign machines. H. L. Wolf. diags Elec W 78:426 Ag 27 '21
- Using portable electric tools. E. L. Connell. il Iron Tr R 66:1333-5 My 6 '20

Exhibitions

- L'exposition de machines-outils de L'Olympia, à Londres (4-25 septembre 1920). il Génie Civil 77:316-18, 330-5, 345-52, 367-70 O 16-N 6 '20
- Machine tool and engineering exhibition at Olympia. il Engineering 110:301-9, 316, 333-41, 348, 363-72, 397-403, 430-6, pl 27-57 S 3-O 1 '20; Engineer 130:228, 232-5, 244-8, 269-72, 274, 291-6, 302, 328, 331-5, 357-61 S 3-O 8 '20; Electrician 85:332-3, 375-7 S 17-24 '20; Iron Tr R 67:864-5 S 23 '20; Mach 27:123-4 O '20; Ry Mech Eng 94:660 O '20
- Machine tools at the Basle fair, in Switzerland. Am Mach 54:976a Je 2 '21
- See also Leipsic engineering fair

Fixtures

- Building jigs and fixtures on a manufacturing basis. W. H. Vockell and H. C. Uihlein. il diags Mach 27:632-5 Mr '21

- Data for the design of jigs and fixtures. A. Moses. diags Am Mach 51:1000-1 D 11 '19
- Edlund automatic nut-facing fixture. il Am Mach 54:750-1 Ap 28 '21
- Equipment for interchangeable manufacturing. E. Buckingham. il diags Mach 26:754-60, 828-33, 927-32 Ap-Je '20
- Fixture for line-reaming wrist-pin holes in pistons. W: Owen. diags Mach 27:1137 Ag '21
- Fixture for milling an ellipse. A. A. Fredericks. diags Am Mach 53:752-4 O 21 '20
- Fixture for milling clutch rings. M. J. Schmitt. il diags Am Mach 52:254 Ja 29 '20
- Fixtures for continuous milling. L. Ferenci. diags Am Mach 54:381-2 Mr 3 '21
- Fixtures for testing automobile gears. il Mach 27:270-3 N '20
- Four simple fixtures for motor work. F. C. Hudson. il Am Mach 52:291-2 F 5 '20
- Grinding attachment for a milling machine; with a complete set of drawings for its construction. J. Finlay. il diags Am Mach 53: 114-16 Jl 15 '20
- High-production pneumatic milling fixture. P. A. Udall. il diags Am Mach 52:664 Mr 25 '20
- Holding fixtures for railroad-shop work. il Am Mach 54:1050-1 Je 16 '21
- Indexing milling fixtures. il diags plan Mach 26:527-31, 617-19, 721-4 F-Ap '20
- Instructions for designing fixtures. H. P. Losely. Mach 28:20-1 S '21
- Interchangeable jigs and fixtures. S. Helweg. diags Mach 26:557-8 F '20
- Internal grinding fixture. A. H. Boehm. diags Mach 26:870-1 My '20
- Lathe fixture for facing pump packing rings. A. C. Cole. diags Am Mach 54:961 Je 2 '21
- Maintenance work on aviation engines. J: Houssman. diags Am Mach 54:30-1 Ja 6 '21
- Making or manufacturing? E. A. Dixie. diags Am Mach 52:399-402 F 19 '20
- Milling claw notches. W. Owen. diags Mach 26:1175 Ag '20
- Milling fixture for circular segments. il diag Mach 27:229-30 N '20
- Milling fixture for crank-case gear cover. I. B. Rich. il diags Am Mach 52:292 F 5 '20
- Milling slender castings. F. D. Jones. il diags plan Mach 27:935-7 Je '21
- Planer fixture for holding trailer-box shells. N. McCleod. diags Mach 26:619 Mr '20
- Rotary fixture for milling bushings. il diag Mach 27:249 N '20
- Should jigs and fixtures be designed? P. A. Fredericks. Am Mach 54:26 Ja 6 '21; Discussion. H. W. Armstrong. 54:359 Mr 3 '21
- Some products of a modern tool-room; fixture for assembling tungsten tip on brass screw. C: O. Herb. il diags Mach 27:1049-50 Jl '21
- Special fixture for milling rails for automobile frames. R. A. Wilson. il diags Am Mach 52:1353-4 Je 24 '20
- Station index adapter table for milling machines. J. Blakey and J. Shankley. diags Eng & Ind Management 5:436-7 Ap 14 '21
- Straddle-milling fixture for connecting-rods. C. M. Schleh. diags Mach 28:63-4 S '21
- Time-saving boring-mill fixtures for truck steering knuckles. il diags Am Mach 51: 922-3 N 27 '19
- Tool holders for machining packing rings on a boring mill. diags Ry Mech Eng 94:224 Ap '20
- Two Winton milling fixtures used on motor parts. F. C. Hudson. il Am Mach 51:923 N 27 '19
- Work-holding fixture for broaching machine. F. W. Stein. diag Mach 27:46 S '20
- See also Arbors and mandrels; Chucks; Jigs

Manufacture

- B.S.A. tool works at Sparkbrook. Engineering 109:319-20 Mr 5 '20; Engineer 129:266-7, 274 Mr 12 '20
- Grinding lathe and planer tools. J. W. Barritt. il diag Mach 26:917-19 Je '20

Machine tools—Manufacture—Continued

- Heat-treatment of high-speed steel cutting tools of intricate design. A. J. Langhammer. *il Chem & Met Eng* 25:30 J1 6 '21
- Machine tool plant of new design; new plant of Foote-Burt co., Cleveland. F. L. Prentiss. *il plan Iron Age* 107:311-16 F 3 '21
- Making tipped tools. *diag Mach* 26:1060 J1 '20
- New plant of the Foote-Burt company, Cleveland, O. *il plan Mach* 27:528-30 F '21
- Preventing distortion in hardening tools. *diags Mach* 27:56-8 S '20
- Production of lathe and planer tools. E. G. Blake. *il diag Ry Mech Eng* 94:384-5 Je '20
- Tool engineering. A. A. Dowd and F. W. Curtis. *diags Am Mach* 54:720-5, 770-2, 816-19, 864-7, 905-8, 939-42, 997-9, 1037-40, 1078-80, 1119-22; 55:18-22, 61-4, 102-6, 126-30, 179-83, 211-17, 256-61, 299-304, 391-4, 432-5, 541-4, 588-91, 629-32, 716-19, 765-7, 797-9, 843-6, 874-8, 915-18 *Ap* 28-*Ag* 25, S 8-15, O 6-20, N 3-D 8 '21
- Tool plant of Foote-Burt co., Cleveland, reflects new ideas. D. O. Taber. *il diags plan Iron Tr R* 68:344-9 F 3 '21

Repair

- Service department and the superannuated machine tool. G. M. Meyncke. *Mach* 27:776 *Ap* '21

Speed control

- See* Oil gear system

Used tools

- See* Machine tool industry—Used tools

Valuation

- Practical methods of appraisal. L. L. Thwing. *Am Mach* 52:1355-7 *Je* 24 '20

Machine tools, Portable

- Using portable electric tools. E. L. Connell. *il Iron Tr R* 66:1333-5 *My* 6 '20

Machine work

- Effects of scratches in materials. E. G. Coker. *Engineering* 112:81-2 J1 8 '21; *Same. Eng & Ind Management* 6:145 *Ag* 11 '21

Tables, calculations, etc.

- New shop rule showing graduations for solving various machining problems. *Iron Tr R* 69:40 J1 7 '21

- Volume removed from a sphere by boring. F. M. Weston, jr. *diag Am Mach* 55:109-10 J1 21 '21

Machinery

- Ancient principles of modern machinery. K. S. Twitchell. *il Eng. & Min J* 110:151-3 J1 24 '20

- Cloth for mechanical uses. J. W. Cox, jr. *il Textile World* 60:674+, 1205+, 1921+, 2423 J1 30, *Ag* 27, O 1, 29 '21; *Excerpts. Sibley J* 35:4-12 *Ja* '21; *Same. Mech Eng* 43:177-80+ *Mr* '21; *Same. Chem & Met Eng* 24:613-18 *Ap* 6 '21

- Effects of increased use upon machine depreciation. L. W. Alwyn-Schmidt. *Ind Management* 59:313-14 *Ap* '20

- L'évolution et les progrès de la mécanique appliquée; canons, moteurs d'aviation et locomotives à vapeur. *Génie Civil* 77:420-2 N 20 '20

- Machine depreciation described. G. E. Dombhart. *Iron Tr R* 67:1815-16 D 30 '20

- Method for the depreciation of machinery. H. C. Harris. *Eng & Ind Management* 5:426 *Ap* 14 '21

- Perfection of mechanical apparatus developed during the last fifty years. J. R. Bibbins. *W Soc E J* 24:491-6 O '19

- Reminiscences of an old school machinist. R. T. Huntington. *Am Mach* 53:533-5, 766-7; 54:80a-b, 328-9; 55:427, 632, 934 S 16, O 21 '20, *Ja* 13, F 24, S 15, O 20, D 8 '21

- Scrapping good machinery for better service. H. A. Mount. *il Sci Am* 123:103+ J1 31 '20

- What is a high-grade machine? G. T. Trundle, jr. *Am Mach* 51:933-4 N 27 '19

- What is your plant worth? C. W. McKay. *Factory* 24:639-40, 800-2 *Mr* 1-15 '20

See also Agricultural machinery; Assembling methods; Balancing machines; Balancing of machinery; Ball bearings; Bearings; Belting; Bolts and nuts; Bottle-making machinery; Brakes; Bushings; Calculating machines; Casting machines; Centering machines; Clamps; Clutches; Coal mining machinery; Coke-oven machinery; Conveying machinery; Cotton machinery; Couplings; Cranes, derricks, etc.; Crankpins; Crankshafts; Crushing machinery; Cutting machines; Cylinders (engines); Dredges; Drilling and boring machinery; Dyeing machines; Electric engineering; Electric machinery; Engineering; Engines; Excavating machinery; Fans, Mechanical; Feed mechanism; Fits (machinery); Forging machinery; Foundry machinery; Friction; Gas and oil engines; Gear cutting machines; Gearing; Grinding machines; Harvesting machinery; Hoisting machinery; Hydraulic machinery; Hydraulic motors; Hydraulic presses; Ice cutters; Interchangeable mechanism; Inventions; Ironing machines; Jacks; Jigs; Keys and keyways (machinery); Knitting machines; Lathes; Laundry machinery; Linotype; Locomotives; Looms; Lubrication and lubricants; Machine shop practice; Machine tools; Mechanical drawing; Mechanical engineering; Mechanical handling; Mechanics; Milling machines; Mining machinery; Molding machines; Moving picture machines; Packing; Patents; Pattern making; Planing machines; Power transmission; Presses; Printing presses; Pulleys; Pumping machinery; Pumps; Refrigeration and refrigerating machinery; Road making machinery; Scraping machines (metal work); Screw machines; Screws; Sewing machines; Shafting; Shafts; Shapers; Shoveling machines; Slotting machines; Spinning machinery; Springs (mechanism); Steam engines; Steam turbines; Tabulating machines; Testing machines; Textile machinery; Thread cutting machines; Tolerance; Tools; Trenching machinery; Turbines; Turning; Typesetting machines; Typewriters; Valves; Water wheels; Winches; Windmills; Woodworking machinery; Woolen and worsted machinery

Cleaning

- Blowing your troubles away. *il Factory* 27:321 S '21

Design

- Cardboard machinery models. G. C. Hanne-man. *il diags Mach* 26:869 *My* '20

- Common causes of errors in machine design. R. H. McMinn. *diags Mach* 27:466-9, 541-5, 623-5, 761-2, 847-9, 963-5, 1045-7, 1123-4; 28:38-9 *Ja-S* '21

- Designing a locking device. V. M. Summa. *diag Mach* 26:494 F '20

- Machine design again. *Am Mach* 53:626 S 30 '20

- Mathematical problem; design of a field pole tip. J. Young. *diags Mach* 26:666-7 *Mr* '20

- Question of design; locating a screw for moving a unit on its slide. P. A. Fredericks. *diags Am Mach* 54:382 *Mr* 3 '21

- Some examples of early machine design. E. Sheldon. *il Am Mach* 53:1-8 J1 1 '20

- Some thoughts on early machine design. W. D. Forbes. *Am Mach* 53:458 S 2 '20

See also Bearings; Belting; Bushings; Cams; Clutches; Drafting room practice; Engines—Design; Gearing; Interchangeable mechanism; Keys and keyways (machinery); Machine tools—Design; Shafts

Drawing

- Drawings for factory use. H. H. Armstrong. *diags Am Mach* 52:335-6 F 12 '20

- Indicating and recording changes on drawings. F. R. Daniels. *diags Mach* 26:605-8 *Mr* '20

- Machine shop drawings. H. Bentley. *Eng & Ind Management* 6:156 *Ag* 11 '21

Machinery—Drawing—Continued

- Modern production methods. W. R. Basset. diag Am Mach 52:1087-90 My 20 '20
Practice in making component drawings for interchangeable manufacture. E. Buckingham. diags Mach 26:438-42, 521-4 Ja-F '20

Exhibitions

- Shipbuilding, engineering and electrical exhibition at Glasgow. il diags Engineer 130: 504-6, 538-41 N 19-26 '20; Engineering 110: 634-7, 678-81, 696-700, 729-33, 761-5, 774 N 12-D 10 '20
Shipping, engineering and machinery exhibition at Olympia. il diags Engineering 112: 374-5, 412, 414-17, 435-9, 470-4 S 9-30 '21; Engineer 132:262-4, 266, 290-2, 294, 316-18, 320, 339-42, 370-1, 396-8 S 9-O 14 '21
See also Foundry machinery—Exhibitions; Rubber machinery—Exhibitions

Foundations

- Elements of design for foundation bolts of machines. T. Croft. diags Coal Age 20: 45-51, 95-9, 176-9 J1 14-21, Ag 4 '21
Engine foundations. diags Locomotive 33:164-75 Ap '21
Fastening machines to concrete floors and foundations. A. F. Owen. diags Mach 26: 820-1 My '20
Foundations for machinery. N. W. Akimoff. diags Mech Eng 42:671-2+ D '20; Same. Am Mach 53:1145-8 D 16 '20; Same cond. Power 52:994-5 D 21 '20; Same cond. Power Pl Eng 25:119-21 Ja 15 '21; Abstract. Iron Age 106:1730-1 D 30 '20
Foundations; template, forms and process for mixing and placing concrete. J. C. Hawkins. diags Power Pl Eng 25:760-2 Ag 1 '21
Methods of computing machinery foundations. W. H. Gilleland and A. H. Cunningham. diags Elec J 17:387-92 S '20; Correction. 17:589 D '20
Remedying troubles in concrete foundations. Coal Age 20:342-3 S 1 '21
Small engine foundations. H. Blomgren. diags plans Power 54:684-6 N 1 '21

Law

- Judicial construction of machinery of every description. L. Childs. Am Mach 53:409-10 Ag 26 '20
Measure of damages for loss caused by negligence in repairing machinery. L. Childs. Am Mach 53:1051 D 2 '20
When machinery must be guarded. C. C. Sherlock. Mach 26:450-1 Ja '20

Manufacture

- Record of materials used in machine construction. H. Levine. Mach 27:1133-5 Ag '21
Works of Messrs. Robey and co., limited, Lincoln. il diags plan Engineering 110:65-71, 104-6, pl 9-13 J1 16-23 '20
See also Machine tools—Manufacture

Painting

- White paint—an aid to cleanliness. il Factory 24:1342 My 1 '20

Repair

- Application of arc welding in machinery construction. A. M. Candy. il diag Elec R 79: 1-5 J1 2 '21
Electro-deposition as a repairing process. W. R. Barclay. Metal Ind 19:117-19, 159 Mr-Ap '21
Restoration of worn machine parts. Engineering 111:655 My 27 '21; Excerpt. Automobile Ind 44:1440 Je 30 '21
Strengthening machine parts. H. A. Jahnke. diags Power Pl Eng 25:282-3 Mr 1 '21

Safety devices

- Chemical danger-signs for the machine operator. H. T. Pinnock. Sci Am S 88:315 N 29 '19; Excerpts. Eng & Min J 108:615 O 11 '19
Guard railings. G. E. Dougherty. diag Coal Age 17:299 F 12 '20

- Judicial construction of machinery of every description. L. Childs. Am Mach 53:409-10 Ag 26 '20

- Machine-tool safety standards for Pennsylvania. Am Mach 52:1114 My 20 '20
Safety about transmission machinery. il diags Power Pl Eng 24:661-2 J1 1 '20
Safety designing of machines urged. Iron Tr R 67:105-6 J1 8 '20

- Safety in the machine shop. 188p Travelers insurance co., Hartford, Conn. '20

- Safety shield moves with the indexing lever. P. F. O'Shea. il Ind Management 59:48 Ja '20

- Sheet metal protections in a large plant; National conduit & cable plant at Hastings-on-Hudson, N.Y. E. H. Custer. il diags Sheet Metal Worker 12:181-2+ Ap 15 '21

- Simple and effective press guard. L. W. Allison. il Am Mach 52:1303-4 Je 17 '20

- When machinery must be guarded. C. C. Sherlock. Mach 26:450-1 Ja '20

- Wooden machine guards. F. S. Benedict. Safety Eng 41:176-7 Ap '21

- See also* Belt guards; Cranes, derricks, etc.—Safety devices; Grinding machines—Safety devices; Machine shops—Safety devices; Punching machinery—Safety devices; Saws—Safety devices; Textile machinery—Safety devices

Testing

- Machine running recorder. il diags plan Engineering 111:580-2 My 13 '21; Abstract. Pop Mech 36:194 Ag '21

- See also* Testing laboratories

Transportation

- Convenient shipping crate diagram for machinery. il Am Mach 54:69 Ja 13 '21

- Insuring the safe shipment of machinery. Am Mach 54:1029 Je 16 '21

- Insuring the safe shipment of machinery. F. H. Colvin. il diags Am Mach 53:712-18 O 14 '20

- Packing machinery for export. B. Caldwell. il Am Mach 52:1147 My 27 '20

- See also* Machine shops—Moving

Weight

- Machinery weights. Int Marine Eng 25:73 Ja '20

Machinery, Automatic

- Automatic machines an aid to economy. G. W. Armstrong. il Ry Mech Eng 94:344-7 Je '20

- Automatic machines in a watch factory. F. R. Daniels. il diag Mach 27:1093-7; 28:25-9, 125-8 Ag-O '21

- Development and influence of automatic machinery in the printing industry. F. W. Gage. Inland Ptr 67:663-4 Ag '21

- Die sinking and metal patternmaking by automatic machine. J. F. Keller. il Mech Eng 43:584-8+ S '21

- Duplex multi-spindle turret machine. il Mach 28:239 N '21

- Electrical speed control for Cleveland automatics. il diags Mach 27:81-4 S '20

- Eliminating manufacturing wastes with machinery. J. E. Hires. Chem & Met Eng 25: 410-12 Ag 31 '21

- Ford multi-automatic practice. E. K. Hammond. il diags Mach 26:299-308 D '19

- Influence of the automatic and semi-automatic machine on the skill and resourcefulness of the mechanic and operator. A. H. Hall. Engineering 112:80-1 J1 8 '21; Same. Electrician 87:45-6 J1 8 '21; Same. Eng & Ind Management 6:128 Ag 4 '21; Discussion. Engineering 112:50-2 J1 8 '21

- Magazine feed mechanisms. E. K. Hammond. il diags plans Mach 26:593-601 Mr '20

- Reconciling automatic machinery and men. Ind Management 60:156 Ag '20

- Trend toward automatic production. A. L. De Leeuw. Ind Management 61:250-5 Ap 1 '21

- When does automatic machinery pay? A. A. Dowd. Mach 27:952-3 Je '21

- See also* Screw machines

Machinery, Kinematics of

Acceleration determinations. H: N. Bonis. diags Am Mach 53:977-81, 1027-9 N 25-D 2 '20

Kinematics and kinetics of machinery. J: A. Dent and A. C. Harper. 383p Wiley '21

Kinematics of the universal joint. P. Cor-

mack. diags Automobile Eng 11:301-5 S '21

Law of Coriolis; determining the acceleration of a point on a flyweight link without the use of the fictitious acceleration of Coriolis. diags Am Mach 53:928-30 N 18 '20

Mechanism. R. M. Keown. 2d ed. 173p McGraw-Hill '21

Méthode graphique pour l'étude des trains épicycloïdaux. P. Ravigneaux. Génie Civil 78:200 F 26 '21

Machinery, Used

Buying of used equipment requires care. T: R. Hay. Iron Age 107:981-2 Ap 14 '21; Elec W 78:520 S 10 '21

See also Machine tool industry—Used tools

Machinery handling association

What advertising can do for the Machinery handling association. P. C. Gunion. Ptr Ink 110:165+ Mr 4 '20

Machinery in industry

Human factor in industry; how the man grew above the machine. C. H. Northcott. il Ind Management 62:195-8 O '21

Machinery as an aid to labor conservation and increased production. R. W. Scott. Coal Age 17:939-40 My 6 '20

More labor is employed in mines mechanically equipped. Coal Age 18:294-5, 641, 1095 Ag 5, S 23, N 25 '20

Machinery industry

Joint meeting of three supply and machinery dealers associations. Iron Age 107:1382-3, 1429-32 My 26 '21; Iron Tr R 68:1466-7 My 26 '21

Machinery makers' opportunities. W: M. Benney. Am Ind 22:37-8 S '21

See also Agricultural machinery industry; Automobile industry and trade; Machine tool industry; Motor truck industry and trade; Tractor industry and trade; *also* International association of machinists

Advertising

Mechanics of the technical handbook. R. B. Lockwood. Ptr Ink M 2:51-2 D '20

Realism in mechanical illustrations. L. N. Burnett. il Ptr Ink M 2:68+ My '21

What constitutes a good mechanical drawing? Ptr Ink 115:105-6+ Ap 14 '21

Statistics

Output of contractors' machinery for 1919 valued at \$186,000,000. Eng N 86:1141 Je 30 '21

Production of engineering and construction machinery in 1914 and 1919. Eng & Contr 56:101 Ag 3 '21

Belgium

Industrial machinery in France and Belgium. C: P. Wood. bibliog il map U S Bur For & Dom Com 204:1-61 '20

See also Machine tool industry—Belgium

China

Transport and the machinery market in China. M. Smith. Engineer 128:604-5 D 19 '19

See also Machine tool industry—China

Europe

Scramble for European trade in lumber machinery. J: B. Woods. il Am Mach 51: 1053-5 D 18 '19

Selling machinery in Europe since the armistice. O. F. Allen. il Am Mach 54:393-7, 462-6 Mr 10-17 '21

France

Industrial machinery in France and Belgium. C: P. Wood. bibliog il map U S Bur For & Dom Com 204:1-61 '20

See also Machine tool industry—France

Germany

Mechanical engineering industry in Germany. Engineer 130:351 O 8 '20

See also Machine tool industry—Germany

Latin America

Art of selling machinery in Latin America. Eng & Ind Management 5:687-8, 716-17, 746+ Je 16-30 '21

United States

Exports of machinery in February 1919 and 1920 and for eight months ending February 1920; tabulation. Iron Age 105:969 Ap 1 '20

Pacific countries demand American machinery. il Power Pl Eng 24:637-44 Jl 1 '20

Selling American machinery in foreign markets. H. M. Hein. Am Mach 53:913-14 N 11 '20

See also Machine tool industry—United States; Sugar machinery

Vermont

History of machine industries of Windsor, Vt., now in preparation. il Mech Eng 43: 355-6 My '21

Machinists

Correlation of shop and classroom work in training machinists. il Automotive Ind 42: 1463-5 Je 24 '20

Modern contemporary of an old-time machinist. J. Tate. Am Mach 53:914 N 11 '20

Training apprentices for permanent jobs. N. G. Shidle. diags Automotive Ind 43:923-5+ N 4 '20

Training machinists reduces amount of spoiled work. N. G. Shidle. il Automotive Ind 43:74-6 Jl 8 '20

What is a first-class machinist? R. McHenry. Am Mach 53:858 N 4 '20

What is a first-class machinist? J: M. May. Am Mach 54:447 Mr 17 '21

What is a first-class machinist? J. Vose. Am Mach 54:777 My 5 '21

See also Airplane mechanics; Automobile mechanics

Machinists, International association of. *See* International association of machinists

Machinists' levels. *See* Levels, Machinists'

McIntire, Samuel, 1757-1811

Samuel McIntire, housewright-architecture, Salem, Mass. W. H. Hunt. il Am Arch 119: 415-22, pl 428a-e Ap 6 '21

Maclaurin, Richard Cockburn, 1870-1920

Sketch. por Elec W 75:229-30 Ja 24 '20; Eng N 84:203 Ja 22 '20; Mech Eng 42:132 F '20

MacNaughton, James, 1864-

Sketch. por Eng & Min J 110:475 S 4 '20

McNeill, Thomas W.

Sketch. por Power Pl Eng 24:1119-20 D 1 '20

McVann, E. J. 1869-

Legal authority on Interstate commerce and coal affairs. por Coal Age 18:886 O 28 '20

Madagascar

See also Mines and mineral resources—Madagascar

Madden, Martin Barnaby, 1855-

Engineer of the budget. W: A. Du Puy. por Nation's Business 9:24-5 O '21

Madge Evans hat company

Stage managing the dealers' displays. R. Bostick. Ptr Ink 116:128+ Ag 4 '21

Madison, Wisconsin

Rapid transit

Selling the safety car in Madison. il plan Elec Ry J 57:489-91 Mr 12 '21

Water supply

Algae cause odors from Monona lake at Madison. Eng N 85:907-8 N 4 '20

Madras

Water supply

Water filtration in Madras. J. W. Madeley. Eng & Contr 56:218-19 Ag 31 '21

Madrid, Spain

Madrid's scheme of city planning. *Am Arch* 118:173 Ag 11 '20

Rapid transit

Le métropolitain "Alphonse-XIII" de Madrid. J. E. Ribera. *il diags plans Génie Civil* 76:251-4 Mr 6 '20

Magnesia

Block magnesia vs. asbestos cement in boiler lagging. W. H. Bosworth. *Ry R* 67:388-9 S 11 '20

Conservation of heat in power and heating systems; 85 per cent magnesia insulation. E: R. Weidlein. flow sheet *il Chem & Met Eng* 24:295-300 F 16 '21; Same. *Heat & Ven* 18:30-4 F; 32-4 Mr '21; Abstract. *Mech Eng* 43:262 Ap '21

Crystal structure of magnesium oxide. R. W. G. Wyckoff. *il Am J Sci* 5th ser 1:138-52 F '21

Magnesia cement to protect mine-timbers. W. C. Phalen. *Min & Sci P* 120:538 Ap 10 '20; Same cond. *Eng & Contr* 54:65 Jl 21 '20

Plastic magnesia cements. P. H. Bates and R. N. Young. *Am Cer Soc J* 4:570-96 Jl '21

Re-using magnesia pipe covering. A. W. Kramer. *Power Pl Eng* 24:808 Ag 15 '20

Magnesite

American magnesite. A. R. Surface. *il Sci Am* 124:427 My 28 '21

Analysis of magnesite. W. C. Riddell. *Min & Sci P* 120:943-4 Je 26 '20

Converting dolomite into magnesite. D. Eyoub. *Eng & Min J* 112:619 O 15 '21

Crude magnesite produced and sold or treated in the United States; 1913-1920. *Foundry* 49:308 Ap 15 '21

Domestic magnesite industry grows. *Iron Tr R* 66:346 Ja 29 '20

Electric furnace refractories. A. F. Greaves-Walker. *Chem & Met Eng* 23:933-6 N 10 '20; Discussion. 23:1148, 1196-7 D 15-22 '20

Experiments in dead-burning dolomite and magnesite. H. G. Schurecht. *diags Am Cer Soc J* 4:127-51 F '21

Extraction of calcium oxide from calcined magnesite. L. H. Duschak. *Chem & Met Eng* 23:628 S 29 '20

Glory holes and magnesite. R. A. Bankson. *il Eng & Min J* 111:49-52 Ja 8 '21

Increased production of magnesite in 1920. *Concrete* 18:sup86 My '21

Magnesite as raw material; abstract. T: Crook. *Am Cer Soc J* 3:161-2 F '20

Magnesite in 1919. W. C. Phalen. *Eng & Min J* 109:217-19 Ja 17 '20

Magnesite in 1919. C: G. Yale and R. W. Stone. *U S Geol S Min Res of U S* 1919,pt 2:227-35 '21

Magnesite in 1920. R. W. Stone. *Eng & Min J* 111:158 Ja 22 '21

Magnesite in 1920. C: G. Yale and R. W. Stone. *diag U S Geol S Min Res of U S* 1920,pt 2:1-16 '21

Magnesite industry in Austria. *Chem & Met Eng* 21:671-2 N 26 '19

Magnesite industry in 1919. *Chem & Met Eng* 22:1026 Je 2 '20

Magnesite industry in 1920. *Chem & Met Eng* 24:744 Ap 27 '21

Magnesite industry of Washington. R. A. Laird. *il Iron Age* 106:574-5 S 2 '20

Magnesite production almost double in 1920. *Eng & Min J* 111:947 Je 4 '21

Magnesite refractories. J. S. McDowell and R. M. Howe. *il Am Cer Soc J* 3:185-237; Bibliography. 237-46 Mr '20; Abstract. *Chem & Met Eng* 22:1214 Je 30 '20

Magnesite situation described by Tariff commission. *Eng & Min J* 109:417 F 7 '20

Magnesite stucco. *il Bldg Age* 43:52-4 N '21

Magnesite tariff bill. *Eng & Min J* 109:1-4 Ja 3 '20

Magnesite tariff bill. F. F. Colcord. *Eng & Min J* 109:379-80, 367 F 7, Ap 10 '20

Our mineral supplies; magnesite. H. S. Gale. *U S Geol S Bul* 666:171-3 '19

Outlook for the magnesite industry. *il J Elec* 46:245-6 Mr 1 '21

Output of magnesite in 1919. *Iron Tr R* 66:1471 My 20 '20

Production and use of magnesite. *Am Arch* 118:553 O 27 '20

Production of domestic magnesite grows. *Foundry* 48:274 Ap 1 '20

Refractories for electric furnace; use of magnesite brick. R. M. Howe. *Chem & Met Eng* 23:1217-18 D 22 '20

Status of the Austrian magnesite industry. *Iron Tr R* 69:161-2 Jl 21 '21

Successful building in stucco; magnesite stucco—its characteristics and application. *il Am Arch* 117:711-14 Je 2 '20

Why Washington magnesite mines shut down. R. W. Stone. *Eng & Min J* 111:464 Mr 12 '21

Magnesium

Magnesium as a scavenger of metals. J. T. Rooney. *Metal Ind* 17:511 D '19

Magnesium in 1919. R. W. Stone. *bibliog U S Geol S Min Res of U S* 1919,pt 1:29-32 '20

Le magnésium, le calcium et le sodium; leur métallurgie, leurs applications. *Génie Civil* 79:57-9 Jl 16 '21

Magnesium, its production, uses, and prospects. *Eng & Min J* 112:460 S 17 '21

Magnesium; patent. *Chem & Met Eng* 24:133-4 Ja 19 '21

Magnesium powder; patent. *Chem & Met Eng* 23:892 N 3 '20

Materials and chemicals used in brass foundry practice. C: Vickers. *Brass W* 17:33-5 F '21

Present status and outlook of the magnesium industry. J. T. Rooney. *Chem & Met Eng* 22:60-1 Ja 14 '20

Reduction by metals in acid solutions; the reduction of acid ferric sulphate solutions by zinc and magnesium. S: Sugden. *Chem Soc J* 119:233-8 Mr '21

Use of organic solvents in the quantitative separation of metals; the separation of magnesium from sodium and potassium chlorides. S. Palkin. *Am Chem Soc J* 42:1618-21 Ag '20

Magnesium alloys

Constitution of the alloys of aluminum and magnesium. D. Hanson and M. L. V. Gayler. *il diags Engineering* 110:788-91, 819-21 D 10-17 '20

L'emploi des alliages légers et ultra-légers dans la construction mécanique et notamment dans l'industrie automobile. *Génie Civil* 79:86-7 Jl 23 '21

New alloy of magnesium. E. J. Jenkins. *il Iron Age* 106:193-4 Jl 22 '20

New high magnesium alloys. *Automotive Ind* 42:1343 Je 10 '20

New light piston alloy; Dow metal. *Automotive Ind* 42:967 Ap 22 '20

New magnesium alloy for motor pistons. G: Gaulois. *il Sci Am* 123:519+ N 20 '20; Same cond. *Mach* 27:652 Mr '21

New metallic alloy is lighter than aluminum. *il Pop Mech* 36:675 N '21

Properties of magnesium alloys. S. Beckinsale. *Foundry* 49:821 O 15 '21

Magnesium carbonate

Magnesium carbonate as a compounding ingredient in rubber. *India Rubber W* 65:112-13 N '21

See also Magnesite

Magnesium chloride

Equilibria in solutions containing mixtures of salts; the system water and the chlorides and sulfates of sodium and magnesium at 25°. W. C. Blasdale. *diags J Ind & Eng Chem* 12:164-7 F '20

Magnesium compounds

Accelerated formation of magnesium alkyl and aryl haloids. H. Hepworth. *Chem Soc J* 119:1249-56 Ag '21

Über die einwirkung von organomagnesiumverbindungen auf arylsulfochloride. E. Wedekind and D. Schenk. *Deutsche Chem Gesell Ber* 54:1604-12 Jl '21; Abstract. *Chem Soc J* 120 pt 1:664 S '21

Über die konstitution der Grignardschen magnesiumverbindungen. J. Meisenheimer and J. Casper. *Deutsche Chem Gesell Ber* 54:1655-65 Jl '21; Abstract. *Chem Soc J* 120 pt 1:654-5 S '21

- Magnesium oxide.** See *Magnesia*
- Magnesium oxychloride**
Action of lime in magnesium oxychloride cements. M. Y. Seaton, C. R. Hill and L. C. Stewart. *Chem & Met Eng* 25:270-4 Ag 17 '21
Plastic calcined magnesite and oxychloride cements. M. Y. Seaton. *Chem & Met Eng* 25:233-6 Ag 10 '21
- Magnesium phenyl haloids**
Action of magnesium phenyl haloids on diphenylchloroacetyl chloride; constitution of triphenylvinyl alcohol. A. McKenzie and J. S. W. Boyle. *Chem Soc J* 119:1131-40 Jl '21
- Magnesium sulfate**
Equilibria in solutions containing mixtures of salts; the system water and the chlorides and sulfates of sodium and magnesium at 25°. W. C. Blasdale. *diags J Ind & Eng Chem* 12:164-7 F '20
- Magnetic analysis.** See *Magnetic testing*
- Magnetic chucks.** See *Chucks, Magnetic*
- Magnetic circuits**
Energy in the magnetic circuit of a magneto. N. W. McLachlan. *diags Electrician* 85:128-30, 156-8 Jl 30-Ag 6 '20
- Magnetic clutches.** See *Clutches, Magnetic*
- Magnetic contactors**
Arc splitter doubles life of magnetic contactor tips. *il diag Power Pl Eng* 24:1106 N 15 '20
Line of contactors for use with d-c. motors. *il Elec R* 79:447-8 S 17 '21
Types of contactors and relays for motor control. G. J. Kirkgasser and E. W. See-ger. *il diags Elec R* 79:273-8 Ag 20 '21
- Magnetic field**
Does the magnetic field constitute an industrial hazard? C. K. Drinker and R. M. Thomson. *bibliog il diags J Ind Hygiene* 3: 117-29 Ag '21
Effect of a uniform magnetic field on the motion of electrons between coaxial cylinders. A. W. Hull. *Phys R* 18:31-57 Jl '21
Effect of magnetic field on electric furnace spectra. A. S. King. *Sci Am M* 1:577-8 Je '20
Magnetic field. A. G. Warren. *Elec R (Lond)* 88:199 F 18 '21
Magnetic field of circular currents. H. Nagaoka. *Philos Mag* 6th ser 41:377-88, pl 6 Mr '21
See also Hall effect
- Magnetic flux**
Flux distribution in the core of a turbo alternator. C. J. Fechheimer. *diags Am Inst E E J* 39:669-73 Jl '20
- Magnetic induction**
Faraday's magnetic lines as quanta. H. S. Allen. *Philos Mag* 6th ser 42:523-37 O '21
Variation of residual induction and coercive force with magnetizing force. R. L. Sanford and W. L. Cheney. *U S Bur Stand Sci Pa* 384:291-8 '20
See also Electromagnetism; Electromagnets; Hysteresis; Magnetic flux
- Magnetic materials**
Development of magnetic materials. T. D. Yensen. *Elec J* 18:93-5 Mr '21
- Magnetic measurements**
Calculation of magnetic force on disconnecting switches. H. B. Dwight. *diags Am Inst E E J* 39:550-2 Je '20
Calculation of tooth reluctance: a suggested improvement of Hird's method. S. Neville. *Inst E E J* 58:61-3 D '19
Determination of "H." W. A. Jenkins. *diags Philos Mag* 6th ser 41:454-62 Mr '21
Direct recording method of measuring magnetic flux distribution. F. S. Dellenbaugh, jr. *il diags Am Inst E E J* 39:583-7 Je '20
Induction motor core losses. P. L. Alger and R. Eksergian. *bibliog diags Am Inst E E J* 39:906-20 O '20
Magnetic susceptibility of nickel and cobalt chloride solutions. L. Brant. *diag Phys R* 17:678-99 Je '21
- Measurement of hysteresis values from high magnetizing forces. W. L. Cheney. *U S Bur Stand Sci Pa* 383:281-9 '20
- Method of measuring the magnetic hardness of ferrous metals and its utility for carrying out research work on thermal treatment. L. A. Wild. *diag Electrician* 84:320-2 Mr 19 '20
- Reactive power and magnetic energy. J. Slepian. *diags Am Inst E E J* 39:448-54 My '20
- Theory of magneto-mechanical systems as applied to telephone receivers and similar structures. R. L. Wegel. *diags Am Inst E E J* 40:791-802 O '21
See also Magnetic testing; Magnetomotive force
- Magnetic-proof laboratories.** See *Laboratories, Non-magnetic*
- Magnetic pulleys.** See *Magnetic separator pulleys*
- Magnetic rotation**
Magnetic rotatory dispersion in transparent liquids. R. A. Castleman, jr. and E. O. Hulburt. *Phys R* 18:143-4 Ag '21
- Magnetic separation of ores**
Future of the Lake Superior district as an iron ore producer. E. W. Davis. *Iron Tr R* 67:301-4 Jl 29 '20
Magnetic separation of bismuth, tin, and tungsten concentrates in Tasmania. W. E. Hitchcock and J. R. Pound. *Min & Sci P* 120:379-82 Mr 13 '20
Wet magnetic concentration important. F. H. Mason. *diag Pop Mech* 34:436-7 S '20
- Magnetic separator pulleys**
Magnetic pulleys protect rock-crushing plant. C. H. Fobian. *il Elec R* 79:347-50 S 3 '21
Magnetic separator pulleys in coal plants. W. H. Costello. *il diags Blast F & Steel Pl* 9:401-3 Je '21
- Magnetic separators**
Dings magnetic separator. *Power Pl Eng* 25:832-3 Ag 15 '21
Dings magnetic separator for wet concentration. *il Min & Sci P* 121:218-19 Ag 7 '20
Magnetic tube concentrator. *il Min & Met* 177:61-2 S '21
New process for reclaiming coal from combustion residue. H. O. Herzog. *diag Elec W* 77:486-7 F 26 '21; Same. *Coal Age* 19: 580 Mr 31 '21
Reclaiming iron from non-ferrous material. H. Hermanns. *il diags Blast F & Steel Pl* 8: 442-7 Ag '20
Reclaiming metal parts from sand. G. H. Manlove. *il Foundry* 48:426-8 Je 1 '20
- Magnetic surveying**
Dip needle in stratigraphy; abstract. H. R. Aldrich. *Min & Met* 163:33 Jl '20; Same. *Eng & Contr* 54:170 Ag 18 '20
Magnetometer as an aid in the development of mines. A. Gibson. *bibliog il Min & Sci P* 123:437-40 S 24 '21
- Magnetic testing**
Application of magnetic analysis to rock drills. C. W. Burrows. *il Min & Met* 174: 42-3 Je '21
Location of flaws in rifle-barrel steel by magnetic analysis. R. L. Sanford and W. B. Kouwenhoven. *il diags Am Mach* 52:892-5 Ap 22 '20
Magnetic analysis of steel; new method of locating defects without subjecting the piece to a destructive test. C. W. Burrows. *il Sci Am M* 2:341-3 D '20
Magnetic and electrical properties of iron-nickel alloys. T. D. Yensen. *il Am Inst E E J* 39:396-405 Ap '20; Same cond. *Elec W* 75:774-7 Ap 3 '20; Abstract. *Chem & Met Eng* 22:1039-40 Je 2 '20
Magnetic and mechanical testing of iron. *diags Engineering* 109:136-8 Ja 30 '20
Magnetic properties of inhomogeneous material; abstract. *Elec W* 76:1179 D 11 '20
Magnetic reluctivity relationship as related to certain structures of a eutectoid-carbon steel. C. Nusbaum, W. L. Cheney and H. Scott. *U S Bur Stand Sci Pa* 404:739-57 '20

Magnetic testing—Continued

- Magnetic susceptibility. Engineering 109:316-17 Mr 5 '20
- Magnetic testing of straight rods in intense fields. W. L. Cheney. il diags U S Bur Stand Sci Pa 361:625-37 '20
- Methods of magnetic testing. T: Spooner. bibliog diags Elec J 18:316-22, 351-5, 548-53 Jl-Ag, D '21
- New magnetic testing apparatus of steel; the defectoscope. il Iron Age 106:1125-8 O 28 '20
- Recent work on chromium:tungsten steel—methods of magnetic analysis. diags Chem & Met Eng 24:573-5 Mr 30 '21

Magnetism

- Absorption of gamma rays by magnetized iron. A. H. Compton. Phys R 17:38-41 Ja '21
- Advanced text-book of magnetism and electricity. R. W. Hutchinson. 2d ed. W. B. Clive, London '20
- Electricity and magnetism for advanced students. S. G. Starling. 4th ed. 589p Longmans '20
- How could a rotating body such as the sun become a magnet? J. Larmor. Sci Am S 88:287 N 15 '19
- Magnetic and electrical properties of iron-nickel alloys. T. D. Yensen. il Am Inst E E J 39:396-405 Ap '20; Same cond. Elec W 75:774-7 Ap 3 '20
- Magnetic electron. A. H. Compton. il J Fr Inst 192:145-55 Ag '21
- Magnetic properties of compressed powdered iron. B. Speed and G. W. Elmen. bibliog il Am Inst E E J 40:596-609 Jl '21; Abstract. Sci Am M 4:374 O '21
- Magnetic susceptibility of low order. E. Wilson. diags Inst E E J 59:319-29 Mr '21; Abstracts. Electrician 86:298-9 Mr 11 '21; Elec R (Lond) 88:246-7, 354 F 25, Mr 18 '21; Engineer 131:241 Mr 4 '21
- Die magnetischen eigenschaften von elektrolyteisen. E. Gumlich. Stahl & Eisen 41:1249-54 S 8 '21
- Die magnetisierbarkeit der seltenen erden. E. Wedekind. Deutsche Chem Gesell Ber 54:253-8 F '21
- New physics. A. C. Crehore. J Elec 43:466-8, 516-18, 561-3 N 15-D 15 '19
- Les phénomènes de magnétisme produits par la traction du fer et de l'acier. A. Vieren-deel. Génie Civil 78:203 F 26 '21
- Possible connexion between the magnetic state of iron and its photo-electric properties. J. H. J. Poole. diags Philos Mag 6th ser 42:339-51 S '21

See also Compass; Electricity; Electromagnetic theory; Electromagnetism; Electromagnets; Hysteresis; Magnetic field; Magnetic measurements; Magnetic separation of ores; Magnetic surveying and other headings beginning Magnetic; Magnetite; Magnetomotive force; Magnets; Paramagnetism

Therapeutic use

- Bacteria being killed by magnetic fields. Sci Am 125:221 S 24 '21

Magnetism, Terrestrial

- Electrical phenomena occurring at high levels in the atmosphere. S. Chapman. diags Inst E E J 57:sup209-16 '19; Same. Sci Am S 88:198-9, 202, 323 S 27, N 29 '19; Discussion. Inst E E J 57:217-22 '19
- Electrostatic charges of the earth and sun and their relation to terrestrial magnetism. F. Sanford. Phys R 17:243-5 F '21
- Vertical electric currents and the relation between terrestrial magnetism and atmospheric electricity. L: A. Bauer. Phys R 17:424-6 Mr '21

See also Auroras; Compass; Laboratories, Non-magnetic; Magnetic surveying

Magnetite

- Concentration of magnetite ore. Min & Sci P 121:122 Jl 24 '20
- Copper and magnetite in copper smelter slags. C: G. Maier and G. D. Van Arsdale. il Chem & Met Eng 22:1101-7, 1157-62 Je 16-23 '20; Discussion. R. C. Canby. 23:48 Jl 14 '20

- Drifting in magnetite iron mines at Mineville, N.Y. Eng & Min J 109:1073 My 8 '20

- Magnetic iron ores of Clinton county, New York. D. H. Newland. Econ Geol 15:177-80 Mr '20

- Magnetite town on eastern Mesabi to be known as Argo. Iron Tr R 66:436-7 F 5 '20

- Magnetitic ores of North Carolina—their origin. W. S. Bayley. il Econ Geol 16:142-52 Mr '21

- Organize big sintering project; company with \$3,000,000 formed to mine and concentrate low-grade magnetite. Iron Tr R 66:229 Ja 15 '20

- Origin of Adirondack magnetite deposits. W: J. Miller. Econ Geol 16:227-33 Ap '21

See also Iron sand

Magneto-optics

See also Polarization (light)

Magnetometers

- Magnetometer as an aid in the development of mines. A. Gibson. bibliog il Min & Sci P 123:437-40 S 24 '21

See also Magnets—Testing

Magnetomotive force

- Magnetomotive force calculations for cylindrical-field alternators under steady short-circuit conditions. A. E. Clayton. diags Inst E E J 57:sup68-84 '19

- Magnetomotive-force diagram of the synchronous motor. E. S. Henningsen. diags Gen Elec R 23:122-4 F '20

Magnetos

- Advantages of magneto ignition. A. D. T. Libby. il diags Soc Auto Eng J 7:277-87; Discussion. 287-90 S '20

- Bosch magneto type B is simple construction. il Automotive Ind 42:851 Ap 8 '20

- Characteristics of high-tension magnetos. F. B. Silsbee. diags U S Nat Advisory Com for Aeronautics 1919:191-213 '20

- Effect of shunted resistance, or plug leakage, on the sparking performance of an electrical ignition system. G. E. Bairsto. Inst E E J 58:507-22 Je '20; Abstract. Electrician 85:683-5 D 10 '20

- Effective inductance, effective resistance, and self-capacity of magneto windings. N. W. McLachlan. diags Philos Mag 6th ser 41:33-80 Ja '21

- Energy in the magnetic circuit of a magneto. N. W. McLachlan. diags Electrician 85:128-30, 156-8 Jl 30-Ag 6 '20

- Features of mechanical interrupters for ignition systems. H. F. Geist. diags Automotive Ind 44:1051-6; 1109-13 My 19-26 '21

- Few Splitdorf details. S. A. Hand and K. H. Condit. il diags Am Mach 53:78-80, 127-30 Jl 8-15 '20

- Influence of the magnetic circuit on magneto performance. H. F. Geist. diags Automotive Ind 42:1309-13, 1408-12 Je 10-17 '20

- Magneto design. Electrician 86:476-7 Ap 22 '21

- Magnetos for ignition purposes in internal combustion engines. A. E. Watson. bibliog Inst E E J 59:445-67 My '21; Abstracts. Elec R (Lond) 88:598-9, 632 My 6-13 '21; Electrician 86:482-4 Ap 22 '21; Sci Am M 4:185 Ag '21; Discussion. Am Inst E E J 59:467-90 My '21; Elec R (Lond) 88:632-3, 665-6; 89:28-30 My 13-20, Jl 1 '21; Electrician 86:487-90, 753 Ap 22, Je 17 '21

- Magnetos; the theory and practice of magneto ignition for all forms of internal combustion engines. A. P. Young. 2d ed. 240p Iliffe & sons, London '20

- Method of determining magneto primary current at break. N. W. McLachlan. Automotive Ind 42:617 Mr 4 '20

- New Swiss magneto of the inductor type. il Automotive Ind 45:607-8 S 29 '21

- Oscillating high-tension magneto. il Engineer 129:600 Je 11 '20

- Researches on the operating conditions of magnetos. A. Contet. diags Automotive Ind 41:1218-21+ D 18 '19

- Safety of high tension magnetos in explosive atmospheres. Automotive Ind 43:1054 N 25 '20

Magnetos —Continued

Splitdorf eighteen-cylinder magneto. *il* Motor Age 37:35 Ap 8 '20

Two types of magneto that employ the magnetic bridge principle. *il* diags Automotive Ind 43:256-7 Ag 5 '20

Underlying principles of electrical ignition. B: F. Bailey. diags Soc Auto Eng J 8:570-5; Discussion. 575-6+ Je '21

See also Spark gaps

Manufacture

British magneto manufacture. *il* Electrician 84:500 Ap 30 '20

British Thomson-Houston magneto methods. I. W. Chubb. *il* Am Mach 52:670-4 Mr 25 '20

Manufacture of the Fellows magneto. *il* Electrician 86:721-2 Je 10 '21

Testing

British Thomson-Houston magneto methods. I. W. Chubb. *il* Am Mach 52:670-4 Mr 25 '20

Magneto testing and the choice of a spark gap. A. P. Young. *il* diags Engineering 110:725-7 D 3 '20

See also Magnets—Testing

Magnetron

Four functional parameters of the triode as extended to the magnetron. M. Latour. diags Electrician 87:543 O 28 '21

Magnetron. A. W. Hull. *il* diags Am Inst E E J 40:715-23 S '21

Magnets

Liberty universal magnet. *il* Am Mach 54:436 Mr 10 '21

Partial demagnetisation; its influence upon the permanency of magnets. C. Shenfer. diags Electrician 87:263-6 Ag 26 '21

Permanent magnets in theory and practice. S. Evershed. diags Inst E E J 58:780-825 S '20; Same cond. Electrician 84:591-2, 616-18, 643-5 My 28-Je 11 '20; Discussion. Inst E E J 58:825-37 S '20

Steels for permanent magnets. Electrician 86:327 Mr 18 '21

See also Electromagnets; Lifting magnets

Manufacture

Manufacture of magneto magnets. P. M. Heldt. *il* Automotive Ind 44:221-3 F 3 '21

Testing

Criteria for the testing of magneto magnets. J. D. Morgan. diags Electrician 84:4-6 Ja 2 '20

Testing magnetic moment of compass magnets. *il* Pop Mech 34:893 D '20

Magnets, Lifting. *See* Lifting magnets

Maiden, North Carolina

Water and sewers for Maiden. W. A. Hardenbergh. *il* plans Pub Works 51:149-50 Ag 20 '21

Maiden plum tree

Mountain pride of Jamaica. *il* Sci Am M 2:332 D '20

Mail. *See* Postal service

Mail advertising. *See* Advertising, Mail

Mail bags

Hospital for mail bags. S. R. Winters. *il* Sci Am 124:332+ Ap 23 '21

Mail handling

Aeromarine aerial mail delivery system. P. G. Zimmermann. diags Aviation 7:262 O 15 '19

Container car expedites mail service. *il* Ry Age 70:1128-9 My 13 '21; Ry R 68:811-12 My 28 '21

Mail handling methods due for an overhauling. *il* Ptr Ink 112:103-4 Ag 12 '20

Metered-service postal plan saves time. *il* Pop Mech 35:217 F '21

See also Motor trucks in postal service; Postal service, Aerial

Mail order business

Can any one plan of marketing monopolize our distributing system? *il* Ptr Ink 113:26-7+ N 18 '20

Conducting a mail order business. A. E. Bull. 99p Pitman '21

Encourages small mail orders to cut selling costs. *il* Ptr Ink 115:108 Je 9 '21

Even coal can be sold by mail. *il* Ptr Ink 116:109-10 Ag 18 '21

Free tobacco samples build big mail-order business. M. Hubbard. *il* Ptr Ink M 2:35-6 My '21

How big bird conservation plant was built by mail. G. A. Nichols. *il* Ptr Ink M 3:23-4+ Ag '21

How long should a mail-order inquirer be followed up? *il* Ptr Ink 115:73-4 Ap 14 '21

How to meet mail order house competition. T: F. Moffett. Dom Eng 94:493-4+ Mr 5 '21

How to meet mail order house competition; prize letters. Dom Eng 93:102-4 O 16 '20

How to successfully combat mail order houses. F. B. Holbrook. Dom Eng 93:513 D 11 '20

Instalment selling by mail. G. A. Nichols. *il* Ptr Ink M 2:45-6 Ja '21

Mail order advertiser's flood of personal letters. J: T. Bartlett. *il* Ptr Ink 115:117-18+ My 19 '21

Mail-order, as an expedient to tide over dull times. *il* Ptr Ink 114:138+ Ja 6 '21

Mail-order department—a flexible sales outlet. D. H. Steele. Administration 1:763-7 Je '21

Meet mail order house competition by being a merchant. R. J. Rucker. Dom Eng 93:567 D 18 '20

Meet mail order house competition by systematic advertising. C. H. Jodar. Dom Eng 94:189 Ja 22 '21

Meeting mail order house competition. L: Friday. Dom Eng 94:286 F 5 '21

Meeting mail order house competition. H. E. Jones. Dom Eng 93:403 N 27 '20

New development in selling fish by mail. *il* Ptr Ink 110:35-6+ Mr 4 '20

New merchandising methods of a big mail-order house. *il* Ptr Ink 112:137+ S 23 '20

Routine of customers' orders. C. R. Gray. *il* Administration 1:437-42 Ap '21

Sales picked up promptly when we junked a tradition. L. T. Apple. *il* System 39:657-9+ My '21

Suggestions for successfully competing with mail order houses. E. H. Tiffany. Dom Eng 94:7 Ja 1 '21

When jobbers frown at selling to catalogue houses. *il* Ptr Ink 114:12 F 3 '21

When not to go into the retail mail-order business. *il* Ptr Ink 115:25-6 Je 2 '21

Where is retail mail-order business the thickest? I. S. Rosenfels. *il* Ptr Ink 114:53-4 F 3 '21

Who buys from the mail-order catalogue? *il* Ptr Ink 111:90+ Ap 15 '20

See also Advertising, Mail; Catalogs

Advertising

Business built on letters from satisfied customers. M. Hussobee. *il* Ptr Ink M 2:73-4 D '20

Classified advertising substituted for mail order price list. J: T. Bartlett. *il* Ptr Ink 112:57-8+ Jl 22 '20

How much of the line should be featured in mail-order advertising? *il* Ptr Ink 115:44+ My 5 '21

Mail-order house and retailers join in fight on prices. *il* Ptr Ink 114:41-3 F 24 '21

Retail mail-order houses make real fight for business. *il* Ptr Ink 114:113-14 Ja 27 '21

Single mail-order advertisement that pulled over 80,000 inquiries. *il* Ptr Ink 115:142+ My 12 '21

Mail order business, Wholesale

Prodded by dull times, finds success in new outlets. E: T. Tandy. *il* Ptr Ink 114:107-8 Ja 6 '21

Mail order catalogs. *See* Catalogs

Mail service. *See* Postal cars; Railway mail service

Mail steamers

Le paquebot Paris de la compagnie générale transatlantique. C. Dantin. *il* plans Génie Civil 79:73-80, pl 1 Jl 23 '21

Mailing lists

- Building up your mailing lists. J. K. Novins. Dom Eng 92:165-6 Jl 24 '20
 How Larkin co. gets names for mail-order lists. R. P. Rope. Ptr Ink 113:33-5 N 4 '20
 How shall we build a mailing list? M. Droke. Ptr Ink M 3:38+ N '21
 How to get a list of dealers when you sell only through jobbers. Ptr Ink 114:89-90+ F 17 '21
 Subject mailing list as a library tool. R. Agg. Special Lib 12:44-5 Mr '21
 When the credit man censors the mailing list. G. A. Nichols. Ptr Ink M 2:13-14+ Ap '21
 Where mailing lists come from. Ptr Ink 111:122+ Ap 22 '20

Main, Charles Thomas, 1856-

- Consultant of national reputation in the industrial and power plant fields. por Elec W 77:1464 Je 25 '21
 Sketch. por Power 51:847-8 My 25 '20

Maine

See also Roads—Maine; Water power—Maine

Architecture

- Survey of existing colonial architecture in Maine. F. H. Porter. il Am Arch 120:149-51 Ag 31 '21

Maine Central railroad

- Financial statistics. map Ry Age 70:780 Mr 25 '21

Maine. University

Pulp and paper school

- Pulp and paper school of the University of Maine. C. A. Brautlecht. Paper 27:21+ S 22 '20

Maintenance of way. *See* Electric railroads—Track; Railroads—Track

Maintenance of way master painters' association

- 16th annual convention, St Louis, Mo., Oct. 23-26. Ry Age 67:1107-9 D 5 '19
 17th annual convention, Detroit, Oct. 5-7. Ry Age 69:649-50 O 15 '20

Major, Howard

- Interior decoration. H. C. Candee. il Arch Forum 32:189-94 My '20

Malachite green

- Electrolytic oxidation of the leuco-base of malachite green. A. Lowy and E. H. Haux. diag Am Electrochem Soc Trans v 40 (preprint 6):99-104 S '21
 Manufacture of malachite green. J. R. Minevitch. il Color Tr J 9:114-18, 154-7 S-O '21

Malaria

- Anti-malaria work in Mississippi. J. L. Clarke. Eng & Contr 55:568 Je 8 '21
 Cost of anti-malaria work in Port Arthur, Texas. R. G. Upton. map Eng N 87:401 S 8 '21
 Malaria control. Sci Am 123:260 S 11 '20
 Malaria parasite; how the mosquito actually carries the germs of malaria. B. Mayne. il Sci Am M 2:217-20 N '20
 Robbing the mosquito of her breeding places. Sci Am 121:579 D 13 '19
 What can a community afford to rid itself of malaria? L. M. Fisher. Eng N 85:77 Jl 8 '20
See also Mosquitoes

Malay states. *See* Federated Malay states

Malaya

See also Rubber industry—Malaya; Tin mines and mining—Malaya

Maleic acid

- Applications of maleic and fumaric acids and their salts in the textile industry. J. H. Carpenter. J Ind & Eng Chem 13:410-13 My '21
 Production of coumarins from maleic and malic acids. G. C. Bailey and F. Boettner. J Ind & Eng Chem 13:905-6 O '21

Malic acid

- Production of coumarins from maleic and malic acids. G. C. Bailey and F. Boettner. J Ind & Eng Chem 13:905-6 O '21

Malleable iron. *See* Cast iron; Iron founding

Mallet, Anatole, 1737-1919

- Sketch. por Mech Eng 42:131-2 F '20; Ry Mech Eng 94:199 Ap '20

Malonic acid

- Umwandlung von malonsäure in glykokoll und von methyl-malonsäure in α -alanin. T. Curtius and W. Sieber. Deutsche Chem Gesell Ber 54:1430-7 Jl '21

Malononitrile

- Über den verlauf der reaktion zwischen malonitril und salpetriger säure. O. Diels and E. Borgwardt. Deutsche Chem Gesell Ber 54:1334-43 Je '21

Malonyl compounds

- Quantitative reduction by hydriodic acid of halogenated malonyl derivatives; the amides and s.-di-alkyl- and- aryl-substituted amides of mono- and di-bromomalonic acid. J. V. Backes, R. W. West and M. A. Whiteley. Chem Soc J 119:359-79 Ap '21

Malt

- Properties of a specially prepared enzymic extract, pölyzime, comparing its starch liquefying power with malt diastase. J. Takamine, jr., and K. Oshima. Am Chem Soc J 42:1261-5 Je '20

Mammals, Fossil

- Later Cenozoic mammalian remains from the Meadow Valley region, southeastern Nevada. C. Stock. diags map Am J Sci 2:251-64 N '21

Man

- Manhood of humanity, by A. Korzybski. Review. Comm & Fin Chr 113:1196-7 S 17 '21

See also Anthropology; Anthropometry; Heredity

Man, Prehistoric

- Tertiary man in Flanders fields; fossil footprints that show the evolution of the human foot. W. Freudenberg. Sci Am M 3:303-5 Ap '21

Management

See Boiler plants—Management; Business management; Electric plants (central stations)—Management; Electric utilities—Management; Employment management; Factory management; Foundry management; Gas companies—Management; Industrial management; Machine shop management; Mine management; Motor trucks—Management; Office management; Organization in industry; Power plants—Management; Railroads—Management; Shop management; Waterworks—Management

Management education, Council of. *See* Council of management education

Manati sugar company

- Annual report for the fiscal year ended October 31 1920. Comm & Fin Chr 112:269-71 Ja 15 '21

Manchester, England

Sewerage

- Development of activated sludge process at Manchester. Can Eng 38:245-7 F 26 '20; Same. Eng & Contr 53:280-2 Mr 10 '20

Manchuria

See also Coal mines and mining—Manchuria

Economic conditions

- Economic history of Manchuria. 303p Bank of Chosen, Seoul '21

Mandrels. *See* Arbors and mandrels

Manganese

- Abundant power favors electrometallurgical industries in Washington. C. D. Grier. Iron Tr R 66:1755-7 Je 17 '20; Excerpt. Min & Sci P 121:132 Jl 24 '20
 Basic open hearth process. F. L. Toy. Blast F & Steel Pl 9:157-61 F '21; Same cond. Iron Age 106:1193-5 N 4 '20; Same cond. Iron Tr R 67:1275-7 N 4 '20
 Chemical analysis of plain carbon steel. Foundry 49:610a Ag 1 '21
 Costa Rica and Panama produce manganese. Iron Tr R 66:702 Mr 4 '20

Manganese—Continued

- Deposit of manganese ore in Wyoming. E: L. Jones, jr. U S Geol S Bul 715—C:57-9 '20
- Deposits of manganese ore in Arizona. E. L. Jones, jr. and F. L. Ransome. il diags maps U S Geol S Bul 710—D:93-184 '20
- Deposits of manganese ore in Costa Rica and Panama. J. D. Sears. diags maps U S Geol S Bul 710—C:61-91 '19
- Deposits of manganese ore in Montana, Utah, Oregon, and Washington. J. T. Pardee. diags maps plans U S Geol S Bul 725—C:141-243, pl 7-10 '21
- Deposits of manganese ore in Nevada. J. T. Pardee and E. L. Jones, jr. diag map plan U S Geol S Bul 710 pt 1:209-42 '20
- Deposits of manganese ore in New Mexico. E: L. Jones, jr. map U S Geol S Bul 710: pt 1:37-60 '20
- Deposits of manganese ore in southeastern California. E: L. Jones, jr. map U S Geol S Bul 710 pt 1:185-208 '20
- Deposits of manganese ore in the Batesville district, Arkansas. H. D. Miser. diags maps U S Geol S Bul 715—G:93-124 '20
- Einfluss des mangans auf die festigkeitseigenschaften des schmiedbaren gusses. E. Leuenberger. Stahl & Eisen 41:285-7 Mr 3 '21; Abstract. Chem & Met Eng 24:751-2 Ap 27 '21
- Electric furnace smelting of Montana manganese ores. E. S. Bardwell. Am Electrochem Soc Trans v 38 (preprint 14):137-52 O '20; Same. Chem & Met Eng 22:681-5 Ap 14 '20; Same. Iron Age 106:973-6 O 14 '20
- Exploitation of manganese deposits. Min & Sci P 121:237 Ag 14 '20
- Latin-American manganese. K. Thomas. Iron Age 106:721 S 16 '20
- Manganese. W. C. Phalen. Sci Am M 1:338 Ap '20
- Manganese almost free of silica in Madison county, Mont. Iron Tr R 68:349 F 3 '21
- Manganese and manganiferous ores in 1918. D. F. Hewett. bibliog U S Geol S Min Res of U S 1918, pt 1:607-56 '20
- Manganese and manganiferous ores in 1919. H. A. C. Jenison. diag map U S Geol S Min Res of U S 1919, pt 1:93-148 '21
- Manganese at Tschiatura, Russia. Eng & Min J 109:1111 My 15 '20
- Manganese battery ore. Eng & Min J 110:315 Ag 14 '20
- Manganese deposits in the southern United States. Eng & Min J 111:230 Ja 29 '21
- Manganese deposits near Bromide, Oklahoma. D. F. Hewett. diags maps U S Geol S Bul 725—E:311-29 '21
- Manganese deposits near Volta Grande, Brazil. H. E. Williams. diags map Eng & Min J 111:1019-20 Je 18 '21
- Manganese deposits of Colorado. G. A. Muilenburg. (Bul. 15). 72p map '19 Colorado geological survey, Boulder
- Manganese in commonly grown legumes. J. S. Jones and D. E. Bullis. J Ind & Eng Chem 13:524-5 Je '21
- Manganese in Spain. Min & Sci P 123:164 Jl 30 '21
- Manganese mining in Argentina. Min & Sci P 122:389 Mr 19 '21
- Manganese-ore mining in India. E. N. T. Slater. il Eng & Min J 109:1155-9 My 22 '20
- Manganese ore supply of the world. O. R. Kuhn. maps Iron Tr R 69:425-9+ Ag 18 '21
- Manganese ores of the Southern states. G: W. Stose. il map Eng & Min J 110:256-63 Ag 7 '20
- Manganese; uses, preparation, mining costs and the production of ferro-alloys. C. M. Weld and others. bibliog U S Bur Mines Bul 173:1-209 '20
- Mining manganese in Georgia. M. Haney. il Iron Tr R 66:1762-3+ Je 17 '20
- Our mineral supplies; manganese. D. F. Hewett. diags U S Geol S Bul 666:23-34 '19
- Sharp cuts in Cuyuna manganiferous ores. Iron Age 105:817 Mr 18 '20
- Some deposits of manganese ore in Colorado. E: L. Jones, jr. U S Geol S Bul 715—D:61-72 '20
- Tervalent manganese. J. Meyer and R. Nerlich. Chem Soc J 120 pt 2:509-10 Ag '21

Manganese alloys

See also Manganese bronze; Manganese steel; Manganin

Manganese bronze

- Art of casting in high tensile brass. N. J. Maclean. il Engineering 109:388-91 Mr 19 '20
- Behavior of wrought manganese bronze exposed to corrosion while under tensile stress. P. D. Merica and R. W. Woodward. il diag U S Bur Stand Tech Pa 135: 1-9 '19
- Manganese bronze for water-works valve stems. W: R. Conard. Eng N 87:575 O 6 '21
- Manganese bronze formula. Foundry 48:692 S 1 '20
- Metallurgy of manganese bronze. E. J. Davis. il diag Foundry 48:109-11 F 1 '20
- Methods of casting manganese-bronze test bars as a check on melts of small castings. E. H. Dix, jr. il Metal Ind 19:315-17 Ag '21; Same. Foundry 49:734-6 S 15 '21
- Note on a failure of manganese bronze. J. H. S. Dickenson. il Engineering 110:556-8 O 22 '20
- Propellers cast in British shop. W. J. Lambert. il diags Foundry 49:351-5 My 1 '21
- Recently patented nonferrous alloys. Foundry 48:566a Jl 15 '20
- Standard specifications for manganese-bronze ingots for sand castings. Foundry 49:152a F 15 '21
- Standard specifications for manganese-bronze ingots for sand castings; English and French. diag U S Bur For & Dom Com Industrial Standards 158:1-10 '21
- What is manganese bronze, how made and its uses? Eng & Min J 110:1220 D 25 '20
- Manganese carbonate.** See Rhodochrosite
- Manganese dioxide**
- Equilibrium conditions of the reaction between manganate, permanganate and manganese dioxide. C: E. Ruby. Am Chem Soc J 43:294-301 F '21
- Preparation of colloidal manganese dioxide. E. J. Cuy. J Phys Chem 25:415-17 My '21
- Manganese industry and trade**
- Against restrictions on manganese imports. Iron Age 108:288-9 Ag 4 '21
- Manganese in 1919. D. F. Hewett. Eng & Min J 109:208-9 Ja 17 '20
- Manganese in 1920. W. R. Crane. Eng & Min J 111:145-6 Ja 22 '21
- Manganese industry in Japan. Eng & Min J 110:524 S 11 '20
- Manganese ore imports in gross tons and British supplies of ore. Iron Age 107:1390 My 26 '21
- Manganese output in 1919 declines greatly. H. A. C. Jenisen. Iron Tr R 67:168 Jl 15 '20
- Manganese production gains in 1920. Iron Tr R 107:1311 My 12 '21
- Production of manganese in the United States in 1919. Min & Sci P 120:874 Je 12 '20; Same cond. Foundry 48:943 D 1 '20
- Proposed protective tariff on manganese ore. Iron Age 107:576 Mr 3 '21
- Protest manganese tariff rates. Iron Tr R 69:155-6 Jl 21 '21
- Reaction of the manganese industry. H. A. C. Jenisen. Min & Sci P 120:21-2 Ja 3 '20
- Steel makers oppose duties on manganese. Iron Age 108:155-6 Jl 21 '21
- Manganese steel**
- Grinding manganese steel. R. M. Johnson. il Iron Tr R 66:999-1001 Ap 1 '20; Same. Foundry 48:659-61 Ag 15 '20
- Grinding manganese steel castings. F. B. Jacobs. il Foundry 49:767-70 O 1 '21
- Making manganese steel by the open-hearth process. E. L. Shaner. il Iron Tr R 65:1701-5 D 25 '19; Same. Foundry 48:63-6 Ja 15 '20
- Manganese steel and methods of machining it. S. A. Hand. il Am Mach 54:43-5 Ja 13 '21
- Manganese steel in track work. J. B. Strong. Ry Age 69:928 N 26 '20; Same. Eng & Contr 54:499 N 17 '20
- Nine million Hadfield manganese steel helmets. il Min & Met 157:(sec 1) 33-4 Ja '20

Manganese sulfates

Some minerals of the melanterite and chalcantite groups with optical data on the hydrous sulphates of manganese and cobalt. E. S. Larsen and M. L. Glenn. *J Ind & Eng Chem* 12:225-33 S '20

Manganin

Controlling temperature coefficient of manganin. *Elec W* 75:941 Ap 24 '20

Manganous chloride

Ternary system ammonium chloride-manganous chloride-water. F. W. J. Clendinnen and A. C. D. Rivett. *Chem Soc J* 119:1329-39 Ag '21

Mangers, Concrete

Standards for concrete manger construction. *diags Concrete* 18:78 F '21

Mangrove bark

Mangroves of tropical America. C. D. Mell. *il Sci Am S* 88:388 D 27 '19

Manhole cutting. See Ellipsograph**Manhole ring**

Sewer ring castings made in open sand. M. E. Duggan. *diags Foundry* 49:450-1 Je 1 '21
Sewer rings molded by short cut method. F. E. McKanna. *diag Foundry* 49:723-4 S 15 '21

Manholes

Payment for sewer manholes. *Pub Works* 50:105 Ja 29 '21

Cost

Estimating manhole costs. E. E. George. *chart Eng N* 84:231-3 Ja 29 '20

Manifolds. See Automobile engines—Manifolds**Manila, Philippine Islands****Rapid transit**

Manila railway business growing. *il Elec Ry J* 58:356-8 S 3 '21

Manila hemp. See Hemp, Manila**Manila rope**

How manila rope is manufactured. *il Marine R* 50:563-6 O '20
Manila and wire rope. *Power Pl Eng* 25:115-18 Ja 15 '21

Manitoba**Capitol**

Manitoba dedicates its new capitol. *il Pop Mech* 35:41-2 Ja '21

Industries and resources

See also Mines and mineral resources—Manitoba

Manjak

Properties and uses of manjak. *Sci Am* 123:635+ D 25 '20

Manna

What is manna? T. A. Marchmay. *Sci Am M* 3:414 My '21

Manning formula. See Hydraulics**Manning of ships.** See Ships—Manning**Mannite**

Study of the vapor pressure of aqueous solutions of mannite. J. C. W. Frazer, B. F. Lovelace and T. H. Rogers. *diags Am Chem Soc J* 42:1793-1808 S '20

Mannose

Preparation of mannose from ivory-nut shavings. P. M. Horton. *J Ind & Eng Chem* 13:1040-1 N '21

Manometers

Appareil pour la mesure du débit des conduites d'air comprimé et la consommation des outils pneumatiques. Piette. *diags Génie Civil* 78:65 Ja 15 '21

Manomètre à mercure inversable, à oscillations amorties. P. Ménard. *diag Génie Civil* 77:515 D 18 '20

Multiple-tube manometer. A. F. Zahm. *il J Fr Inst* 188:771-4 D '19

Pioneer low pressure manometer. *il Aviation* 10:407 Mr 28 '21

Production and measurement of high vacua; manometers for low gas pressures. S. Dushman. *il diags Gen Elec R* 23:731-40, 847-55 S-O '20

Recording instrument for use in wind tunnels. A. A. Merrill. *il diags Aviation* 8:190-1 Ap 1 '20

Short manometer for measuring high pressures. *il diag Power* 51:658-9 Ap 27 '20

Tilting manometer. F. H. Norton and D. L. Bacon. *diag Aerial Age* 12:585 F 14 '21

Manta

Monster devil fish; curious habits of the manta. M. Tevis. *il Sci Am M* 3:215-17 Mr '21

Mantels

Early architecture of Pennsylvania. A. L. Kocher. *il diags Arch Rec* 50:26-43, 146-57, 214-26 Jl-S '21

Manual training

Boys trim and outfit school office. F. Hall. *il Pop Mech* 34:732-3 N '20

Miniature house building should be part of manual training course. *il Am Lumberman* 2341:70-1 Mr 27 '20

See also Industrial education; Technical education; Trade schools

Manufacturers

How manufacturers aided San Antonio trade during the flood. J. R. Sprague. *Ptr Ink* 117:17-20 O 6 '21

Should manufacturers run their own retail stores? S. C. Lambert. *Ptr Ink* 114:3-4+ F 3; 101-2+ F 10 '21

Directories

Chicago manufacturers and distributors. Reuben H. Donnelly corp., Chicago '21

Manufacturers aircraft association

Grand jury investigation of M.A.A. requested. H. Woodhouse. *Aerial Age* 11:607-8+ Jl 12 '20

M.A.A. misrepresents patent situation. *Aerial Age* 11:639-40 Jl 19 '20

Manufacturers association of Connecticut, inc.

Declarations of principle. *Am Mach* 54:1064 Je 16 '21

Manufacturers' association of Hartford county

Association lessens labor difficulties. G. Frazar. *Iron Age* 106:654-7 S 9 '20

Manufacturers' associations

Commercial and industrial organizations of the United States. *U S Bur For & Dom Com misc ser* 99:1-121 '20

Organizing the association to hold the big executive's attention. C. H. Rohrbach and J. A. Murphy. *Ptr Ink* 110:43-4+ F 26 '20

Reasons for the rapid growth of manufacturers' associations. C. H. Rohrbach and J. A. Murphy. *Ptr Ink* 110:3-4+ F 5 '20

See also Advertising, Association

Accounting

Cost plans for associations. H. S. Bartholomew. *Textile World* 57:3245+ My 1 '20

Manufacturers' liability

Automobile held to be inherently dangerous instrument; court holds manufacturer liable for injuries to purchaser or dealer. W. Gustin. *Motor Age* 37:51 Ap 15 '20

Manufactures

Avoiding industrial traffic jams. W. R. Basset. *Ind Management* 61:342-6 My 1 '21

Manufacturing statistics; value of products per establishment. *Gas Age* 47:477 Je 10 '21

Selling what the factory is best equipped to make. W. R. Basset. *Ptr Ink* 110:3-4+ Mr 25 '20

Where are my 1921 customers coming from? R. Dickinson. *Ptr Ink* 114:3-4+ Ja 6 '21

Why we put selling first. G. M. Brown. *System* 39:509-13 Ap '21

See also Brickmaking; Catalogs; Chemistry, Technical; Clothing; Coke manufacture; Commerce; Commercial products; Competition, Unfair; Cost accounting; Cotton manufacture; Factories; Factory management; Foundries; Fuel; Gas manufacture and works; Glass manufacture; Home labor; Inspection; Interchangeable mechanism; Knit goods; Labor and laboring classes; Leather; Machine shops; Machin-

Manufactures—Continued

ery; Metal work; Metals; Paper making; Patents; Porcelain; Pottery; Prices; Production; Rubber; Soap; Specifications; Textile fabrics; Toys; Trade marks; Waste products; *also* subdivision Manufacture under names of articles manufactured, e.g. Automobile engines—Manufacture, Automobiles—Manufacture, Locomotives—Manufacture, Machine tools—Manufacture, Sugar—Manufacture, Wire—Manufacture

Costs

Comparison of pre-war and post-war production costs in engineering. R. J. A. Pearson. *Engineering* 111:537-40 Ap 29 '21; Same. *Eng & Ind Management* 5:713-15, 740-2; 6:11-13 Je 23-Jl 7 '21; Abstract. *Elec R (Lond)* 88:637-8 My 20 '21
Economics of production. D. A. McCabe. *Am Mach* 55:381-2 S 8 '21
Manufacturing costs must be reduced. S. E. Thompson. *Chem Age* 29:373-4 S '21
Non-productive costs; symposium. *Am Mach* 55:396-8 S 8 '21
Reducing manufacturing costs by studying power demand. R. S. Lowry. *Elec W* 78:257-8 Ag 6 '21

United States

American manufactures now comprise more than 40 per cent of world's total. O. P. Austin. *Americas* 7:1-5 Je '21
Census of manufactures; products of iron and steel plants, 1914 and 1919. *Iron Age* 107:1475 Je 2 '21
Manufactured outputs 1919 and 1914. *Eng & Contr* 55:556 Je 8 '21
Manufactures in Colorado, Montana and Utah for 1919. *J Elec* 46:427-8 My 1 '21
Manufactures in Idaho, Alaska and Hawaii for 1919. *J Elec* 47:37 Jl 1 '21
Manufacturing industries in America; fundamental economic factors. M. Keir. 324p Ronald press '20
Preliminary statement of the 1920 census of manufacturers. *Oil Paint & Drug Rep* 99:23 sec 1 Je 6 '21
Preliminary summaries of 1919 census of manufactures. *Chem & Met Eng* 25:465-70 S 7 '21
When will manufacturing pick up? nine bankers answer from the manufacturer's viewpoint. *Factory* 26:311-15 F 1 '21
Manufacturing chemists association
Annual meeting, New York city, June 9. *Chem & Met Eng* 23:36 Jl 7 '20
Report of the Executive committee for the year ending June 15, 1921. H. Howard. *Chem Age* 29:238-40 Je '21
Manufacturing perfumers' association of the United States
27th annual meeting, New York, May 10-12. *Oil Paint & Drug Rep* 99:27+ sec 1 My 16 '21

Manuscripts

La reconstitution des documents écrits, effacés ou brûlés. *Génie Civil* 78:483-4 Je 4 '21
Recovery of manuscripts. W. R. Reinicke. *Paper* 28:11-12+ Je 22 '21
Roger Bacon manuscript; investigations into its history, and the efforts to decipher it. J. M. Bird. *il Sci Am M* 3:492-6 Je '21
Roger Bacon manuscript; what it looks like, and a discussion of the probabilities of decipherment. *il Sci Am* 124:421, 432+ My 28 '21; Discussion. L. Thorndike. 124:509 Je 25 '21

See also Palimpsests

Reproduction

See also Photostat

Manutius, Aldus, 1450-1515

Biography of Aldus Manutius, greatest of all printers H. L. Bullen. por (front) *Inland Ptr* 66:477-80 Ja '21

Map drawing

See also Map projection; Maps; Spherical projection

Map filing. *See* Files and filing (documents)

Map projection

Rectangular co-ordinates used in surveys and maps. H. A. Foster. *diag Eng N* 84:962-3 My 13 '20

Some investigations in the theory of map projections. A. E. Young. 76p Royal geographical society, London '20; Review by S. G. Burchard. *Eng & Contr* 55:634 Je 29 '21

Use of aerial photographs in topographic mapping. 31p (U.S. Air service (War dept.) Air service information circ. (Aviation) vol. II, no. 184) U.S. Board of surveys and maps. Committee on photographic surveying, Washington, D.C. '21

Mapes, Emery

Emery Mapes, of cream of wheat fame, dead. *Ptr Ink* 117:128-9 O 13 '21

Maple

Load tests of end joints in maple flooring. C. A. Petry. *diags Eng N* 85:149 Jl 22 '20

Maple sugar

Maple-products industry of Quebec province. *Chem & Met Eng* 22:1080 Je 9 '20

Mapother, Wible L., 1872-

Sketch. por *Ry Age* 70:800 Mr 25 '21

Maps

Conference of map-making organization of the U.S. government. *Eng & Contr* 52:629-32 N 26 '19

Government maps. E. B. Matthews. *Sci Am M* 1:369-70 Ap '20

Mapping with the squeeze of a bulb. *il Sci Am* 122:34+ Ja 10 '20

Mounting a large map. *Eng & Min J* 109:313 Ja 31 '20

Recommend consolidation of all government mapping. *Eng N* 87:665-6 O 20 '21

See also Geology—Maps

Advertising

Upset in Europe's boundary line leads to advertising. A. Cobb, jr. *Ptr Ink* 114:134+ Ja 20 '21

Maps, Aeronautic. *See* Aeronautic maps

Maps, Military

Field survey troops: their work at the front. E. W. Berry. *diags Can Eng* 38:317-20 Mr 25 '20

Heavy coast artillery. D. A. Tomlinson. *diags W Soc E J* 24:375-98 Je '19

See also Map projection

Maps, Relief. *See* Relief maps

Maps, Road. *See* Road maps

Marble

Marble resources of southeastern Alaska. E. F. Burchard and T. Chapin. *il maps U S Geol S Bul* 682:1-118 '20

Mechanical aids for the sculptor; modern machine tools for carving and cutting marble. G. Van der Veer. *il Sci Am S* 88:288 N 15 '19

Thermal conductivity and diffusivity of concrete. A. P. Carman and R. A. Nelson. *il diags Ill U Eng Exp Sta Bul* 122:1-32 '21; Abstract. *Eng & Contr* 56:391-2 O 26 '21

Marbling**Bibliography**

Bibliography of marbled paper. D. Hunter. *Paper Trade Journal* 72:52+ Ap 28 '21

Marconi, Guglielmo

Floating radio laboratory seeks new facts. *il Pop Mech* 34:189 Ag '20

Marconi's wireless telegraph company, limited
Annual report. *Elec R (Lond)* 89:318-19 S 2 '21; *Electrician* 87:310-11 S 2 '21

Margarine. *See* Oleomargarine

Marine barometers. *See* Barometers, Marine

Marine biology

See also Halobates

Marine boilers. *See* Boilers, Marine

Marine borers. *See* Borers (animals)

Marine draftsmen

Influence of the marine draftsman on a vessel's earning power. H. H. Thayer, jr. *Sibley J* 34:18-21+ F '20

Marine engineering

- Board of trade orals and marine engineering knowledge, steam and oil. W: C. MacGibbon. 552p J. Munro & co., Glasgow '20
- Encouragement of invention in workshop practice. J. H. Gibson. il diags Engineering 109:700-2 My 21 '20
- Marine engineering in 1919. Engineer 129:22 Ja 2 '20
- Marine engineers' handbook; ed. by F. W. Sterling. 1486p McGraw-Hill '20
- Modern marine engineering. H. G: Cisin. Van Nostrand '21
- Present-day marine engineering equipment. J: C. Mc Kenzie. Int Marine Eng 25:511-12 Je '20
- Present trend of marine engineering. H. G. Donald. Int Marine Eng 25:296-300, 303-4 Ap '20
- 20th century guide for marine engineers, questions and answers. J. A. Ramsey and J. Rosbloom. 537p McKay '20

See also Boilers, Marine; Diesel engines, Marine; Gas and oil engines, Marine; Marine engines; Naval architecture; Propellers; Salvage; Ship propulsion; Ship resistance; Shipbuilding; Ships—Electric equipment; Steam turbines, Marine; Towing

Bibliography

- Society of naval architects and marine engineers; index to titles of papers. 27p
- Society of naval architects and marine engineers, 29 W. 39th st., New York Jl '21

Exhibitions

- Chicago marine exposition, Oct. 18-23. il plan Marine Eng 25:791-3 O '20

Study and teaching

- General electric company's school of marine engineering. J. L. Booth. il Gen Elec R 24:105-7 F '21
- University education in ship construction and marine transportation. L. B. Chapman. Marine Eng 25:1005-6 D '20

Marine engineers

- Are you a marine engineer, Edison standard? Marine Eng 26:588-9, 755-7 Ag, O '21
- Designers and operators of our ships. J: Flodin. Int Marine Eng 25:7-10 Ja '20
- Do not kill the goose that lays the golden egg. Marine Eng 25:895-6 N '20
- Wage agreements. Monthly Labor R 13:156-9 Jl '21

Marine engineers' beneficial association, National. *See* National marine engineers' beneficial association

Marine engines

- L'emploi des roulements à billes dans les constructions navales. H. Bursée. diags plan Génie Civil 76:487-90 My 29 '20
- Geared turbines, reciprocating engines and motor ships. Marine Eng 26:259 Mr '21
- Preliminary computations for marine steam engine. Int Marine Eng 25:231 Mr '20
- Les récents progrès dans la construction des machines marines en Angleterre. A. Poidlouë. Génie Civil 77:525-7 D 25 '20
- Small generating sets for marine service. il Power Pl Eng 25:231-2 F 15 '21
- Theory of the Michell thrust bearing. diags Engineering 109:233-6 F 20 '20

See also Boilers, Marine; Diesel engines, Marine; Diesel engines, Submarine; Gas and oil engines, Marine; Marine engineering; Motor ships; Ship propulsion; Steam turbines, Marine

Design

- Curves of effective horsepower for typical destroyers, yachts, gunboats and tugs, covering speeds of from 10 to 20 knots. J. L. Bates. Marine Eng 26:678-84 S '21
- 7,500-h.p. quadruple-expansion engines for the P. and O. liner Naldera; side and end elevation. Engineering 110:pl 58 O 1 '20

Fuel

See Boilers, Marine—Gas firing; Boilers, Marine—Oil firing; Oil bunkering

Lubrication

- Forced lubrication for marine engines. W. C. Owen. diags Int Marine Eng 25:662-4 Ag '20

Manufacture

- Building marine engines in Denver. F. H. Colvin. il Am Mach 54:687-9 Ap 21 '21
- Machining and erecting marine engines. W: Wylde and R. M. Sherman. il diags Int Marine Eng 25:305-18 Ap '20
- Short histories of famous firms; Hick, Hargreaves and co. il diags Engineer 129:644-5 Je 25 '20

Testing

- New valve gear adds power. H. Penton. Marine R 50:138-40 Mr '20

Marine equipment association of America

- Equipment association of America organizes permanent body for marine field. Marine Eng 26:342 Ap '21; Marine R 51:218 My '21

Marine exposition. *See* Shipbuilding—Exhibitions

Marine fauna

See also Coelenterata; Fishes; Mollusks

Marine fire hazard. *See* Fires at sea

Marine flora

- Les plantes marines. Chimie & Ind 3:370 Mr '20

See also Plankton

Marine insurance. *See* Insurance, Marine

Marine railways. *See* Ship railroads

Marine steam turbines. *See* Steam turbines, Marine

Marine terminals. *See* Terminals

Marine workers

- Strike of marine workers. Comm & Fin Chr 112:2038-40 My 14 '21

See also Longshoremen; Seamen

Maritime law

- How law affects fuel suppliers. Marine R 51:287 Je '21
- Law of the sea. G: L. Canfield and G: W. Dalzell. 315p Appleton '21
- Law relating to the mortgage of ships. B: Constant. 182p Syren & Shipping, London '20
- Maritime law. A. Saunders. 2d ed., enl. 470p E. Wilson, London '20
- Old laws and new ships. N. S. Myrick. Nation's Business 8:42+ F '20
- Provisions of the Jones shipping bill. il Int Marine Eng 25:529-31 Je '20
- What the Jones act contains. Marine R 50:379-80 Jl '20

See also Insurance, Marine; Seamen; Steamboat inspection service

Markers, Survey. *See* Survey markers

Market buildings

- Combined bank and market building. F. A. Schilling. il diags plan Bldg Age 43:26-8 My '21

Market reports

- Distribution of market news by radiophone. D. C. Rogers. Wireless Age 8:20+ S '21
- Informing the farm by wireless. C. B. Sherman. Nation's Business 9:52 Je '21

Market street railway company, San Francisco, California

- Digest of official statements made to New York stock exchange as of April 20, 1921. Comm & Fin Chr 112:2093-7 My 14 '21

Market surveys

- Helping your dealer visualize his market. G. C. Breidert. Ptr Ink 117:25-7 O 27 '21
- Show the dealer his market. K. B. White. Ptr Ink M 3:42 N '21
- Smoothing the salesman's way in a difficult market. E: T. Tandy. Ptr Ink 116:61-a+ Ag 11 '21

Marketing

- Cutting the costs of marketing. P. Nystrom. Textile World 59:3058+ My 7 '21
- Difference between distribution and sales. R: Walsh. Ptr Ink 112:157-8+ Ag 5 '20

Marketing—Continued

- Do we face a change in distributing methods? A. R. Howell. *Ptr Ink* 111:81-2+ My 13 '20
- Elements of marketing. P. T. Cherington. 238p Macmillan '20
- Elimination of waste in marketing. W: R. Basset. *Chem & Met Eng* 25:420-2 Ag 31 '21
- Getting the jobber to distribute another macaroni. *Ptr Ink* 116:120+ J1 21 '21
- How changing a policy multiplied our sales by 8. G: M. Gillette. *System* 39:362-4+ Mr '21
- How fundamental wrongs in distribution hurt advertising. C. M. Wright. *Ptr Ink* 115:3-4+ Ap 21 '21
- Increasing the jobber's profit by reducing his discount; campaign of the Joseph Burnett company. R. Cole. *Ptr Ink* 117:3-4+ N 3 '21
- Klim changes from mail to jobber distribution. R. Cole. *Ptr Ink* 116:3-4+ Ag 4 '21
- Makes traveling warehouse of its salesmen. H. E. Agnew. *Ptr Ink* 116:137-8+ S 15 '21
- Manufacturer's distributors should not be his competitors. *Ptr Ink* 115:81-2 Ap 21 '21
- Manufacturer's marketing problem. P. W. Ivey. *Administration* 1:341-7 Mr '21
- Marketing a product by the easiest way; the Thermopak finds in ice cream a natural ally. *Ptr Ink* 111:97-8 Je 24 '20
- Marketing information the basis for successful sales policy. C: C. Parlin. *Special Lib* 12:164-5 S '21
- Marketing, its problems and methods. C. S. Duncan. 500p Appleton '20
- Marketing problems. M. T: Copeland. 363p A. W. Shaw co., New York, Chicago '20
- Principles of marketing. P. W. Ivey. 351p Ronald press '21; Excerpt. *Ptr Ink* 117:154-66 O 13 '21
- Retail buying association—an issue that will not down. *Ptr Ink* 115:17-18 Je 16 '21
- Salesmen and advertising work best as a team. *Ptr Ink* 115:77-8 My 12 '21
- Striving to get closer to the point of sale; Proctor & Gamble and the National biscuit company. C. P. Russell. *Ptr Ink* 114:93-4+ Mr 17 '21
- They had to create 17 new markets for their product; the Mint products co. E: T. Tandy. *Ptr Ink M* 2:19-20+ D '20
- What we have learned in marketing Ever-sharp. C. A. Frary. *Ptr Ink* 116:3-4+ Ag 11 '21
- What we learned from two changes in policy. E: Freschl. *il System* 40:541-3+ N '21
- What's wrong with the existing market system? P. W. Ivey. *Ptr Ink* 117:154+ O 13 '21
- When your market goes back on you. *Ptr Ink* 117:77-8+ O 27 '21
- Where a single product has to buck the family-of-products tradition. *Ptr Ink* 116:19-20 S 1 '21
- See also* Consignment selling; Exclusive agencies; Farm produce—Marketing; Jobbers; Market reports; Market surveys; Retail trade; Salesmanship
- Marketing, Cooperative**
- Bernard M. Baruch developing plans for tobacco marketing organization. *Comm & Fin Chr* 112:428 Ja 29 '21
- British Columbia poultrymen try experiment in distribution. *Ptr Ink* 110:149-50+ Ja 15 '20
- Closed shop for the farmer? G: W. Alger. *il Nation's Business* 9:18-19 My '21
- Co-operation in industry. C: S. Pettit. *Eng & Ind Management* 6:9-10 J1 7 '21
- Co-operative marketing of cotton. D. S. Murph. *Textile World* 59:873+ F 5 '21
- Eliminating the middleman in hay. J: T. Bartlett. *Ptr Ink* 111:65-6+ My 6 '20
- Farmer's protest against the high cost of distribution. J. R. Howard. *Ptr Ink* 112:3-4+ Ag 12 '20
- Grain, cotton and co-operative marketing. H: M. Robinson. *Comm & Fin Chr* 111:103-7 sec 2 N 20 '20
- Grain marketing plan. H: C. Wallace. *Comm & Fin Chr* 112:1472-3 Ap 9 '21

- House passes bill permitting combines of farmers and planters; text. *Comm & Fin Chr* 112:2360-1 Je 4 '21
- How will marketing organizations affect methods of distribution? C. W. Burkett. *Ptr Ink* 115:116+ Je 23 '21
- Principles and practice in cooperation. G. H. Powell. *il J Elec* 46:381-2 Ap 15 '21
- Scheme for cooperative marketing of grain in the United States. *Monthly Labor R* 13:219-20 J1 '21
- Straighter road to market. J. H. Barnes. *Nation's Business* 9:15-16 Ap '21
- Suggested limitations of Federal trade commission for marketing associations. H. E. Agnew. *Ptr Ink* 115:153+ My 12 '21
- What's behind the wheat strike. R. Yarnell. *Nation's Business* 9:32-4 F '21

See also American farm bureau federation; Northwest wheat growers, associated; United States grain growers, inc.

Markets. Municipal

- How Los Angeles handles its wholesale produce market. *il Motor Age* 37:33 F 26 '20

Markings of shipments. See Shipment of goods**Marquette, Michigan****Water supply**

- Elimination of tastes in water at Marquette. W. C. Brockway. *map Eng N* 87:72-3 J1 14 '21

Mars

- Are Martians people? C. F. Talman. *Sci Am* 122:301 Mr 20 '20
- Interplanetary radio signals? *Wireless Age* 7:11-15 Mr '20
- Life on Mars? D. P. Beard. *Sci Am* 123:277 S 18 '20
- Perhaps Mars is signaling earth. P. H. Woodruff. *il Pop Mech* 33:495-9 Ap '20
- Some doubts about the Martians. H. Maxim. *Sci Am* 122:361 Ap 3 '20
- Those Martian radio signals. *Sci Am* 122:156; 125:194 F 14 '20, S 17 '21
- What shall we say to Mars? H. W. Nieman and C. W. Nieman. *Sci Am* 122:298+ Mr 20 '20

Marseille, France**Harbor**

- Enlarging the facilities of the harbor of Marseilles. T. Saville. *il diags map plan Eng N* 85:1046-9 N 25 '20
- L'extension du Port de Marseille et l'aménagement des étangs de Berre et de Caronte. A. Pawlowski. *il map plans Génie Civil* 76:57-65 Ja 17 '20

Marshall plan. See Irrigation—California**Marshall, sons and company, ltd., Gainsborough**

- Works of Messrs. Marshall, sons and co., ltd. *il plans Engineering* 109:635-41, 652, 670-5, 686, pl 34-8 My 14-21 '20

Marshes

- Swamp drained by conduits under floor of culvert. R. C. Hardman. *diag Eng N* 84:925 My 6 '20

Marshmallows**Advertising**

- Changing a confection into staple article of cookery. *Ptr Ink* 114:97-8+ Ja 27 '21
- Martens, Ludwig C. A. K.**
- Decision of Secretary of labor in the case of Ludwig C. A. K. Martens. *Monthly Labor R* 12:187-94 Ja '21
- Martensite**
- Constitution of martensite and troostite. D. J. McAdam, jr. *diags plan Chem & Met Eng* 25:613-18 S 28 '21
- Slip interference theory of hardening. A. Sauveur. *Chem & Met Eng* 25:509-12 S 14 '21
- Slip interference theory of the hardening of metals. Z. Jeffries and R. S. Archer. *Chem & Met Eng* 24:1064-7 Je 15 '21

Martin, Glenn L., 1886-

Who's who in American aeronautics. Aviation 10:528 Ap 25 '21

Martin, Glenn L., company, Cleveland

Home of the Martin bomber. il Aviation 10:772-9 Je 20 '21

Martin oven. See Open hearth process

Martinsville, Virginia

Streets

Street paving in Martinsville. il Pub Works 51:249-51 O 1 '21

Maryland (battleship)

Maryland—our first 16-inch gun battleship. il Sci Am 122:699+ Je 26 '20

Masaryk, Thomas Garrigue, 1870-

Masaryk, master builder of Czechoslovakia. J: W. Harrington. Annalist 18:369 O 17 '21

Masks

Masks find new place in Thespian art. il Pop Mech 35:91 Ja '21

Masks, Rubber

Progress in rubber mask production. il India Rubber W 65:27 O '21

Rubber masks and faces. il India Rubber W 64:571 My '21

Masonic temples

Extracts from competition program of Scottish Rite cathedral competition, Portland, Oregon. il diags plans Am Arch 119:358-63 Mr 23 '21

Masonry

Art of masonry in a steel plant. Blast F & Steel Pl 9:182 F '21

Better building methods. L. S. Keir. diags plan Bldg Age 43:37-8 My '21

How to lay stone. V: D. Abel. il Bldg Age 41:358-60, 295-8; 42:25-30 N '19-Ja '20

Masonry structures. F: P. Spalding. 404p Wiley '21

See also Arches; Brick construction; Bricklaying; Bricks; Bridges—Foundations and piers; Bridges, Concrete; Building; Cement; Concrete construction; Dams; Foundations; Mortar; Plaster and plastering; Retaining walls; Sea walls; Stone cutting; Walls

Mass

Mass in terms of velocity of electrons. A. C. Crehore. J Elec 44:178 F 15 '20

New physics. A. C. Crehore. J Elec 44:27-9, 75 Ja 1-15 '20

Planetary attraction and the helium atom. A. C. Crehore. J Elec 44:325-6 Ap 1 '20

Mass action, Law of

Application of the law of mass action to strong electrolytes, and the derivation of the general equation of the ionization isotherm. W: Hughes. Philos Mag 6th ser 42:428-31 S '21

Undamped oscillations derived from the law of mass action. A. J. Lotka. diag Am Chem Soc J 42:1595-9 Ag '20

Mass production. See Factory management

Mass psychology. See Crowds

Massachusetts

See also Electric plants (central stations)—Massachusetts; Electric railroads—Massachusetts; Roads—Massachusetts

Public service commission

Public service commissions of the Bay State. il Elec Ry J 56:1276-82 D 25 '20

State board of health

Work of the water and sewerage laboratories of the Massachusetts state board of health. Eng & Contr 53:552-3 My 12 '20

Massachusetts accident prevention congress

1st annual congress, Worcester, Mass., March 9-11. Iron Age 105:809-11 Mr 18 '20; Am Mach 52:919-20 Ap 22 '20

Massachusetts college of pharmacy, Boston

Massachusetts college of pharmacy, Boston; views and plans. Arch Forum 32:pl 17-21 F '20

Massachusetts institute of technology

Division of industrial cooperation and research of the Massachusetts institute of technology. W: H. Walker. J Ind & Eng Chem 12:394 Ap '20

Dr Walker. heads M.I.T. industrial division. Elec W 75:230-1 Ja 24 '20

Industrial engineering at the Massachusetts institute of technology. H. C. Haskell. Ind Management 60:184 S '20

Linking the technical school with the shop. H. R. Simonds. il Iron Tr R 67:646-51 S 2 '20

Requirements of the engineering industries and the education of engineers; the Schneider plan as applied to the cooperative plan between the General Electric and M.I.T. M. W. Alexander and D. C. Jackson. Mech Eng 43:391-5+ Je '21

Technology plan. W: H. Walker. Chem & Met Eng 22:463-4 Mr 10 '20

University in industry. Sci Am 122:328 Mr 27 '20

School of chemical engineering practice

New contacts between the University and industry. W. K. Lewis. Chem Age 29:47-9 F '21

School of chemical engineering practice of the Massachusetts institute of technology. R. T. Haslam. il J Ind & Eng Chem 13:465-8 My '21

Master boiler makers' association

12th annual convention, Minneapolis, Minn., May 25. Ry Age 68:1579-82 Je 4 '20; Ry Mech Eng 94:482-6 Jl '20

Master car and locomotive painters' association. See American railroad association—Equipment painting division

Master cotton spinners' and manufacturers' associations, International federation of. See International federation of master cotton spinners' and manufacturers' associations

Master plumbers, National association of. See National association of master plumbers

Masts and rigging

Speeding up the shaping of masts and spars. il Sci Am 124:434 My 28 '21

Standing rigging for signal masts. diag Int Marine Eng 25:777 S '20

Stresses in rigging of mast. diag Marine Eng 26:258-9 Mr '21

Matches

Manufacture

Match-making industry. il Ind Management 60:12-15 sec 2 O '20

Material handling machinery manufacturers' association

Annual meeting, New York city, Feb. 26-27. Elec R 76:407-9 Mr 6 '20

Materials, Purchasing of. See Purchasing

Materials, Strength of. See Strength of materials

Maternity insurance. See Insurance, Maternity

Mathematical notation

Octaval notation and the measurement of binary inch fractions. A. Watkins. diags Am Mach 52:685-8 Mr 25 '20; Same cond. Mech Eng 41:870-1+ N '19

Mathematical physics

Method of analysis suitable for the differential equations of mathematical physics. W. L. Cowley. diag Philos Mag 6th ser 41:584-607 Ap '21

See also Elasticity; Electricity; Gas, Kinetic theory of; Hydrodynamics; Magnetism; Maxwell's equations; Optics; Thermodynamics

Mathematics

A propos de la formation des chimistes. E. Grandmougin. Chimie & Ind 4:252-4 Ag '20

Arithmetic, elementary algebra and logarithms. E. V. Oberg. 121p Industrial press, New York '21

De l'influence des spéculations mathématiques sur les progrès de la chimie. H: Le-Chatelier. Chimie & Ind 3:555-65 My '20;

Mathematics—Continued

- Same (Education of chemists). *Sci Am M* 2:229-34 N '20; *Abstract. Chem & Met Eng* 23:437 S 8 '20
- Every-day mathematics. F. Sandon. 260p Hodder & Stoughton, London '20
- Introduction to mathematical analysis. F. L. Griffin. 512p Houghton '21
- Mathematics for electrical students. H. M. Keal and C. J. Leonard. 230p Wiley '21
- Mathematics for shop and drawing students. H. M. Keal and C. J. Leonard. 213p Wiley '21
- Mathematics for the engineer. *Engineering* 109:795-6 Je 11 '20
- Practical trade mathematics. J. A. Moyer and C. H. Sampson. 172p Wiley '20
- Preparatory mathematics for use in technical schools. H. B. Ray and A. V. Doub. 68p Wiley '21
- Problems and solutions; associateship examinations, parts I and II, 1915-1919. 133p Actuarial society of America, New York '21
- Le rôle des mathématiques en chimie. E. Fleurent. *Chimie & Ind* 4:525-8 O '20
- Le rôle des mathématiques en chimie. H. Le Chatelier. *Chimie & Ind* 4:678-9 N '20
- Teaching machine shop mathematics. G. Heald. *charts Am Mach* 53:421 Ag 26 '20
- See also* Algebra; Arithmetic, Commercial; Bessel's functions; Calculus; Coordinates; Curves; Decimal system; Decimals; Differential equations; Dynamics; Equations, Cubic; Errors, Theory of; Fourth dimension; Functions, Exponential; Geometry; Graphic methods; Graphic statics; Groups, Theory of; Harmonic analysis; Hyperspace; Interest tables; Least common multiple; Logarithms; Mechanics; Mensuration; Metric system; Numbers, Theory of; Probabilities; Trigonometric functions; Trigonometry; Vector analysis
- Mather, Stephen Tyng, 1867-
Builders of the West. *por J Elec* 46:454 My 1 '21
- Mathews, Arthur
Arthur Mathews—painter. *il Am Inst Arch J* 8:214-19 Je '20
- Mathewson, Edward Payson, 1864-
Leaders in metallurgical practice. *por Eng & Min J* 109:1312 Je 12 '20
- Matita asphaltum. *See* Asphalt
- Matte settlers
Inverted siphon tap for matte settler. J. H. Gillis. *diags Eng & Min J* 112:300-1 Ag 20 '21
- Matter**
Atoms and metals. Z. Jeffries and R. S. Archer. *Chem & Met Eng* 24:507-12 Mr 23 '21
- Crystals, solids and vitreous matter. A. Portevin. *diags Sci Am M* 4:137-41 Ag '21
- Electricity and matter. E. Rutherford. *il diags Engineering* 111:296-7, 345-7, 379-81 Mr 11, 25-Apr 1 '21; *Abstract. Electrician* 86:157-9 Ap 15 '21
- Five states of matter; radiant and ionic conditions must also be recognized. *Sci Am* 123:521 N 20 '20
- Nature of matter; principle of force and demonstration of the existence of the atom. H. Maxim. *Sci Am M* 4:4-6 Jl '21
- New theory of matter. A. C. Crehore. *diags J Elec* 44:568-71 Je 1 '20
- Relation of radiant energy to matter, space and time. J. D. Ross. *diags Am Inst E E J* 39:985-94 N '20
- Text-book of physics. J. H. Poynting and J. J. Thomson. 8th ed. 228p C. Griffin & co., London '20
- See also* Adsorption; Atoms; Brownian movement; Capillarity; Chemistry; Colloids; Compressibility; Critical point; Diffusion; Dissociation; Dynamics; Elasticity; Electromagnetic theory; Electrons; Flocculation; Force and energy; Gases; Gravitation; Hardness; Ions; Langmuir postulates; Molecules; Physics; Solution (chemistry); Specific gravity; Viscosity

Mattresses**Advertising**

- Making a product a national issue. *Ptr Ink* 112:142+ S 9 '20
- Mattresses (hydraulic engineering)**
Protection of river banks by mattresses. E. P. Girdwood. *il diags Can Eng* 39:147-9 Jl 15 '20
- River bank protection work on the Wabash Ry. *il diags plan Ry R* 67:759-60 N 20 '20; *Abstract. Eng & Contr* 54:588-9 D 15 '20
- Mausoleums. *See* Tombs
- Maxim, Hiram, 1840-1916
Life and work of Sir Hiram Maxim. P. F. Mottelay. 230p John Lane company, New York '20
- Maxim, Hudson, 1853-
Romance of invention. C. H. Claudy. *il Sci Am* 122:8+ Ja 3 '20
- Maxims
Crumbs of wisdom from the long ago. R. Harris. *Ptr Ink* 116:61-2 S 29 '21
- Maxwell, James Clerk, 1831-1879
Four great British electric lights: Faraday—the discoverer; Maxwell—the interpreter; Kelvin—the measurer; Silvanus Thompson—the teacher. L. B. Atkinson. *Inst E E J* 59:667-76 Je '21
- Maxwell's distribution law
Thermionic current between parallel plane electrodes; velocities of emission distributed according to Maxwell's law. T. C. Fry. *Phys R* 17:441-52 Ap '21
- Maxwell's law
Absolute significance of Maxwell's equations. F. D. Murnaghan. *Phys R* 17:73-88 F '21
- Significance of Maxwell's theory. A. Press. *diags Electrician* 85:177-8 Ag 13 '20
- Mayer, Francis R.
Steps to the front in marine activities in creating U.S. mail. V. G. Iden. *por il map Marine R* 51:259-64 Je '21
- Mayflower (ship)
Finding of the Mayflower. *il Am Arch* 118:595-7 N 10 '20
- Mayonnalse
Mystery of mayonnaise. *Sci Am M* 1:291 Ap '20
- Mazda lamps. *See* Electric lamps, Tungsten
- Mears, Otto, 1840-
Pathfinder of the San Juan. *por Eng & Min J* 109:1021 My 1 '20
- Measurement**
Infinitely small and infinitely great; lengths, volumes, masses, velocities, etc., at the limits of measurement. G. Estoppey. *Sci Am M* 3:388-91 My '21
- New light on internal measurements. J. Bath. *il diags Am Mach* 54:1110-13 Je 30 '21
- See also* Area measurement; Calorimeters and calorimetry; Coal measurement; Colorimeters and colorimetry; Electric measurement; Gages; Gas flow; Gas measurement; Measuring instruments; Meters; Micrometers; Oil measurement; Pitot tube; Pyrometers and pyrometry; Surveying; Temperature—Measurement; Thermometers and thermometry; Water flow; Water measurement; Water meters; Weights and measures
- Measurement, Electric. *See* Electric measurement
- Measurement, Magnetic. *See* Magnetic measurement
- Measurement of color. *See* Colorimeters and colorimetry
- Measurement of fuel oil. *See* Oil measurement
- Measurement of light. *See* Photometry
- Measuring instruments**
Changes in Pratt & Whitney measuring machines. *il Am Mach* 54:965-6 Je 2 '21
- Deflecting a 4½-inch bar with a visiting card; measuring the amount of deflection by bands of light. R. W. Porter. *il diags Am Mach* 55:557-8 O 6 '21

Measuring instruments—Continued

- Difficulty in connection with small length measurements. *Sci Am M* 3:79 Ja '21
- Engineering instruments and meters. E. A. Griffiths. 360p Van Nostrand '21
- Extension for a steel scale. E. A. Dixie. *il Am Mach* 52:1153-4 My '20
- Increasing the scope of projection apparatus. L. E. King. *il Mach* 27:463-4 Ja '21
- Instrument for measuring the hiding power of paints. R. L. Hallett. *il Am Soc T M Pro v* 20 pt 2:426-35; Discussion. 436-9 '20
- Machine à mesurer universelle pour la vérification des calibres de précision. *diags Génie Civil* 77:485-7 D 11 '20
- Machine for the measurement of internal diameters. G. A. Tomlinson. *il diags Engineering* 112:558-60 O 21 '21
- Microscopic measuring machine developed. *il Iron Tr R* 67:1752 D 23 '20
- Neuere forschungen über kerbwirkung, insbesondere auf optischem wege. E. Heyn. *diags Stahl & Eisen* 41:541-6, 611-17 Ap 21, My 5 '21
- New precision measuring device. *il Mach* 27:657-8 Mr '21
- New precision measuring machine. *il Automotive Ind* 43:711 O 7 '20
- Nouvel appareil optique ou électrique pour la mesure des oscillations de vitesse et des écarts angulaires. M. A. Blondel. *diags Génie Civil* 77:218-19 S 11 '20
- Octaval notation and the measurement of binary inch fractions. A. Watkins. *diags Am Mach* 52:685-8 Mr 25 '20; Same cond. *Mech Eng* 41:870-1+ N '19
- Optical flat—a practical measuring tool. H. L. Van Keuren. *il diags Am Mach* 53:107-12 Jl 15 '20
- Precision measuring and inspection devices; optical methods developed at the British national physical laboratory. R. J. Whibley. *il diags plan Mach* 27:135-9, 242-5 O-N '20; Discussion. 27:258 N '20
- Products of the Rudge-Whitworth research laboratory. *il Engineer* 131:430-1 Ap 22 '21; *Engineering* 111:487-8 Ap 22 '21
- Refinishing anvils on measuring instruments. W. C. Betz. *Am Mach* 55:524 S 29 '21
- Universal measuring machine. *il diags (supp) Engineer* 129:472-3, 476 My 7 '20; *Am Mach* 53:49-53 Jl 8 '20
- Van Keuren optical measuring equipment. *il Mach* 26:991 Je '20
- Vérification pratique, par les franges d'interférences, des blocs de précision Hoke. *il diags Génie Civil* 77:276-8 O 2 '20
- Wickman gear pitch and concentricity measuring machine. *il Am Mach* 53:1068a-b D 2 '20
- Wickman universal gage measuring machine. *il Am Mach* 53:1068a D 2 '20
- See also* Calipers; Crescograph; Dilatometer; Electric instruments; Gages; Inclinator; Meters; Micrometers; Protractors; Slide rule; Tachometers; Timing devices
- Measuring pumps**
- Specifications and tolerances for liquid-measuring devices as adopted by the thirteenth annual conference on weights and measures of the United States. U S Bur Stand misc pub 43:193-200; Discussion. 67:111, 127-37, 142-63, 189-90 '21
- Meat**
- Application of gas to the smoking, curing and preparation of meat and fish products. W. T. Hudson. *diags Am Gas Assn Commercial sec v* 2:151-61; Discussion. 162-4 '20
- Diminishing supply of hard woods makes better market for gas in curing meats and fish. W. T. Hudson. *Am Gas Eng J* 113:324-6+ O 23 '20; Excerpts. *Gas Age* 46:446-7 N 25 '20
- Fungi on frozen meat. *Sci Am* 125A:57 N '21
- Meat and milk in the food supply. *Sci Am M* 1:463-4 My '20

Utilization of kid, rabbit, horse, and seal meats as food. A. D. Holmes and H. J. Deuel, jr. *J Ind & Eng Chem* 12:975-7 O '20

See also Fish as food; Packing industry; Smokehouses; Whale meat

Meat industry and trade

\$4,246,290,000 in meats. *Am Ind* 21:14 Jl '21

Wages and hours of labor in the slaughtering and meat-packing industry, 1917. U S Bur Labor Statistics Bul 252:1-1114 '19

See also Cold storage; Packing houses; Stock yards

Advertising

Advertising aids meat industry. J. Henle. *Ptr Ink* 115:36+ Je 9 '21

Meat markets

Meat counter is shop's refrigerator. *il Pop Mech* 36:568-9 O '21

Mechanical analogs. G. R. Schuck. *diags J Elec* 45:180-1, 226-7, 283-4, 334-5, 431-2 Ag 15-O 1, N 1 '20

Mechanical draft

Automatic draft regulation. J. L. Kimball. *Power Pl Eng* 25:123-4 Ja 15 '21

Elements of efficient combustion. N. P. Winchell, jr. *il Paper* 26:21-2 S 1 '20

Modern power plant management; natural and mechanical draft. R. June. *il diags Blast F & Steel Pl* 8:686-9 D '20; Same cond. *Textile World* 58:3197+ N 6 '20

See also Blowers; Fans, Mechanical; Pneumatic injectors

Mechanical drawing

Advanced shop drawing. V. C. George. 1st ed. 147p McGraw-Hill '20

Component drawings for interchangeable manufacture. E. Buckingham. *diags Mach* 26:259-63, 332-6 N-D '19

How a blind man makes drawings. W. D. Forbes. *diag Am Mach* 55:284-5 Ag 18 '21

Mechanical drafting in mining and metallurgy. H. E. West. *diags Eng & Min J* 109:400 F 7 '20

Mechanical drawing. F. D. Jones. 342p Industrial press, New York '20

Mechanical drawing for beginners, giving the fundamental technic of modern practice. C. H. Bailey. 93p Manual arts press, Peoria, Ill. '20

Putting motion into mechanical drawings; how motion picture films of hidden mechanisms are made for industrial and educational purposes. H. Greene. *il Sci Am* 124:464+ Je 11 '21

See also Architectural drawing; Drafting room practice; Geometrical drawing; Graphic methods; Machinery—Drawing

Mechanical engineering

Engineering during the great war. H. R. Sankkey. *Engineering* 110:583-6 O 29 '20; Same. *Engineer* 130:418-19, 451-2 O 29-N 5 '20

The engineering enquiry (electrical and mechanical) a new pocket book for engineers. T. Thompson. J. W. Arrowsmith, ltd., Bristol; Simpkin, Marshall, Hamilton, Kent & co., ltd., London '20

Engineering fallacies. H. Morton. *Stevens Ind* 38:99-151 Ap '21

Engineering of power plants. R. H. Fernald and G. A. Orrok. 2d ed. 595p McGraw-Hill '21

Handbook of standard details for engineers, draftsmen and students. C. H. Hughes. 312p Appleton '21

Succeeding in railway mechanical engineering. R. F. Yates. *Sci Am* 123:152 Ag 14 '20

See also Aeronautics; Automobile engineering; Automobiles; Boilers; Chemical engineering; Electric engineering; Fuel; Horsepower; Hydraulic engineering; Locomotives; Lubrication and lubricants; Machine shop practice; Machine tools; Machinery; Mail handling; Marine engineering; Mechanical draft; Mechanical handling; Mechanical movements; Motor trucks; Packing; Power; Power transmission; Pumping; Standardization; Steam engineering; Steam engines; Tolerance; Trucks

Mechanical engineering—Continued

Textbooks

From the notebook of an engineer. R. Fleming. Eng Educ 11:298-309 F '21

Mechanical engineers

Mechanical engineer the heir of all the ages. Power 52:720-1 N 2 '20

Standardization of compensation and classification for mechanical engineering, automotive engineering, ordnance engineering and for machinist work. Am Mach 52:855-8 Ap 15 '20

Mechanical fans. See Fans, Mechanical

Mechanical handling

Advantages of mechanical handling. E. Reed. il diag Electrician 86:9-14 D 31 '20

Applications of the drum and cable in a brick plant. R. Twells, jr. Am Cer Soc J 4:213-18 Mr '21; Same. Brick & Clay Rec 58:1084-6 Je 28 '21

Bedienungsvorrichtungen für wärm- und glühöfen. diags Stahl & Eisen 41:533-8, 617-24, 648-56 Ap 21, My 5-12 '21

Brief directory of material handling apparatus. R. H. McLain. il diags Gen Elec R 24:306-17 Ap '21

Conveying of rifle stocks in Germany during the seasoning process. diags Eng & Ind Management 5:123-4 Ja 27 '21

Cutting costs in handling materials by trucking on the ceiling. Brass W 17:221 Ag '21

Cutting costs in handling, packing and shipping paper. N. P. Winchell, jr. il Paper 26:15-19 My 5 '20

Does improved machinery cut handling costs? photographs. Ind Management 61:8-23 Mr 15 '21

Ease of operation governs design of new Seattle pier. G. F. Nicholson. il diags plan Eng N 84:1101-3 Je 3 '20

Economies in handling materials in industrial plants. J. S. Tuthill. il Elec W 77:200-2 Ja 22 '21

Efficient handling of heavy castings in tractor plant. N. G. Shidle. il Automotive Ind 43:1328-30 D 30 '20

Electric machinery for all handling—an opportunity. Z. W. Carter. il N E L A Bul 7:458-72 Jl '20

Electrical equipment of Fowey harbour; handling china clay by modern methods. il diags plan Electrician 85:269-75 S 3 '20

Electro-mechanical transference—a panacea. Z. W. Carter. Gen Elec R 24:285-7 Ap '21

Field for electrically operated material handling machinery. F. T. Smith. il Gen Elec R 24:361-5 Ap '21

Hand-labor minimized at modern foundry. J. E. McDonald. il Iron Age 107:429-31 F 17 '21

Handling devices in connection with modern vertical retorts. C. Naske. diags Eng & Ind Management 5:121-2 Ja 27 '21

Handling machinery the backbone of industry. J. S. Tuthill. il Textile World 59:3267+ My 14 '21

Handling material economically. M. H. Potter. Iron Tr R 66:784-5 Mr 11 '20

Handling materials in an automobile plant. F. H. Colvin. il plans Am Mach 55:292-6 Ag 25 '21

Handling materials with machines. J. S. Tuthill. il Am Ind 21:13-18 F '21

Handling 90-ton sections of emergency canal dam. il Pub Works 51:187-8 S 3 '21

Handling of goods at the port of Manchester warehouses. il diags Engineering 111:541-4, 576-7 pl 25, 27-8 My 6-13 '21

Handling of materials in industrial plants. R. H. Whitehead. il diags Gen Elec R 24:318-22 Ap '21

Heavy handling in textile mills. E. N. Hescock. il Textile World 57:4229+ Je 5 '20

Improvements in methods of handling railway shop material. F. A. Stanley. il Am Mach 54:511-13 Mr 24 '21

Lightening the stevedore's load. C. W. Geiger. il Sci Am 122:267+ Mr 13 '20

Machinery at the steel works of the Société Normande de métallurgie, Caen, France. il diags (supp) Engineering 109:180, 182 F 6 '20

Material handling cyclopedia. R. V. Wright and J. G. Little, ed. 850p Simmons-Boardman pub. co., New York '21

Material-handling in Brooklyn army base. il Textile World 57:1199+ F 7 '20

Material handling machinery. W. Schack. il Paper 27:190+ N 10 '20

Material handling machinery manufacturers' association annual meeting, New York city. Elec R 76:407-9 Mr 6 '20

Mechanical handling. il Ind Management 60:16-20 sec 2 O '20

Mechanical handling in paper mills. N. P. Winchell. il Eng & Ind Management 5:248-51 F 24 '21

Mechanical handling of steel mill material. C. F. Poppleton. il diag Blast F & Steel Pl 9:291-8 My '21

Mechanical manipulator for heavy forgings. il diags Engineering 112:151, 154 Jl 22 '21

Mechanical tie handling at treating plants. il diags Ry R 66:279-82 F 21 '20

Les monte-charges á commande automatique de l'entrepôt de Brooklyn (E.-U.). plan Génie Civil 79:175-6 Ag 20 '21

L'outillage mécanique des ports; les appareils de manutention des minerais et des charbons aux Etats-Unis. il diags map plans Génie Civil 76:169-77 F 14 '20

Pont roulant électrique de 5 tonnes pour le transport de profilés au moyen d'électro-aimants de levage. il Génie Civil 76:314-15, pl 6 Mr 27 '20

Possibilities of material handling machinery load for central stations. J. A. Jackson. Gen Elec R 24:592-4 Je '21

Practical ideas for the engineer. F. T. Chambers. il Marine R 50:422-3, 477-8 Jl-Ag '20

Putting the factory floor on wheels. il Factory 26:475-80 F 15 '21

Savings through use of mechanical conveyors; statistics. J Elec 47:195 S 1 '21

Straight line—finished stores to packing box. G. W. Wolfe. il Factory 26:965-6 Ap 15 '21

Survey of material-handling equipment for chemical manufacture. R. H. McLain. diags Chem Age 29:427-31 O '21

Where men are replaced by rollers. il Factory 27:624-5 N '21

See also Ash handling; Cement handling; Chutes; Coal handling; Coke handling; Concrete handling; Conveying machinery; Cranes, derricks, etc.; Dump cars; Dumping appliances; Electric trucks, Industrial; Freight handling; Fruit handling; Grain handling; Gravel handling; Hoisting; Hoisting machinery; Lifting magnets; Loading and unloading; Lumber handling; Mail handling; Mine haulage; Motor trucks; Oil handling; Ore handling; Pneumatic conveying; Rail handling; Runways; Sand handling; Telpherage; Trucks

Bibliography

Bibliography on freight handling. R. F. Emerson. Gen Elec R 24:371-80 Ap '21

Cost

Efficiency in material handling; cost of handling 600 tons of molding sand. Marine Eng 26:552 Jl '21

Mechanical inspectors, American society of. See American society of mechanical inspectors

Mechanical laboratories. See Engineering laboratories; Testing laboratories

Mechanical movements

Acceleration determinations. H. N. Bonis. diags Am Mach 53:977-81, 1027-9 N 25-D 2 '20

Mechanical movement of novel design. R. H. Kasper. diags Mach 27:475-7 Ja '21

See also Cams; Gearing; Machinery, Kinematics of; Pulleys

Mechanical rubber goods. See Rubber goods, Mechanical

Mechanical stokers. See Stokers, Mechanical

Mechanical toys. See Toys

Mechanics

Agreed-upon units in mechanics. E. V. Huntington. Eng Educ 11:171-7 D '20

Mechanics—Continued

- Elements of mechanism. P: Schwamb, A. L. Merrill, W. H. James. 3d ed. 372p Wiley '21
- Fundamental mechanical and electrical laws. R. W. Kent. 135p Dunwoody press, Minneapolis '21
- Physics for plumbing and heating contractors. T. E. Fenner. Plumber 95:63-4+, 132, 241-2, 338-9 F 11, Mr 11, Ap 22, Je 3 '21; (cont. in) Sanitary & Heat Eng 96:165-6+ S 9 '21
- Simple facts concerning units in mechanics; how can agreement be reached? W: S. Franklin and B. MacNutt. Eng Educ 11:67-71 O '20
- Statistical mechanics and chemistry. E. P. Adams. Am Chem Soc J 43:1251-4 Je '21
- Units in mechanics. W. H. Schurman. Eng Educ 11:178-81 D '20
- See also* Center of gravity; Deformations (mechanics); Dynamics; Elasticity; Engineering; Fluids; Force and energy; Friction; Gases; Horsepower; Hydraulics; Hydrodynamics; Liquids; Load (mechanics); Machinery; Mathematical physics; Mechanical movements; Moments of inertia; Physics; Power; Power transmission; Pressure; Pulleys; Rotation; Steam engines; Strains and stresses; Strength of materials; Thermodynamics; Torsion; Vibration; Viscosity
- Mechanics (persons)**
- Must unite to train mechanics for future. S. Scrimshaw. Metal Work 92:576-7 N 14 '19
- Training future mechanics. E. Oberg. il Mach 27:26-30 S '20
- Young engineer as master mechanic. K. McFarlin. Ind Management 59:221 Mr '20
- See also* Airplane mechanics; Automobile mechanics
- Mechanics, Analytic**
- Analytic mechanics for engineers. F. B. Seely and N. E. Ensign. 486p Wiley '21
- Higher mechanics. H. Lamb. 272p University press, Cambridge, England '20
- See also* Dynamics; Elasticity; Hydrodynamics
- Mechanics, Applied**
- Examples in applied mechanics. Admiralty (Advisor on education) 217p H. M. Stationery off., London '20
- Introduction to applied mechanics. E. S. Andrews. 316p University press, Cambridge, England '20
- Mechanics. J. E. Boyd. 417p McGraw-Hill '21
- Statique; machines simples, balances et balances, frottement, freins, graissage, statique graphique. H: P. M. Bouasse. 515p Delagrave, Paris '20
- Mechanics, Celestial**
- Determinate orbital stability: its mechanism and some of its functions in celestial mechanics. F. B. Taylor. Am J Sci 5th ser 1: 295-314 Ap '21
- See also* Orbits
- Mechanics' liens**
- Except by special arrangement, lien for plumbing work done is subject to a mortgage already on the property. Dom Eng 95: 112 Ap 16 '21
- Mechanic's lien held good against donated building in hands of donee. Dom Eng 97: 60 O 8 '21
- Plumbing contractor's right to enforce a mechanic's lien when owner sells to a third person. Dom Eng 96:65-6 Jl 9 '21
- When and how to perfect right to mechanic's lien under the Missouri laws. Dom Eng 97:208-9 O 29 '21
- When does a lien arise and when is it lost, for work done on a gas water heater? Dom Eng 90:439-40 F 28 '20
- Mechanism, Interchangeable.** *See* Interchangeable mechanism
- Mechanotherapy**
- See also* Orthopedic apparatus
- Medals**
- Pennsylvania railroad awards war medals. il Ry R 67:86-8 Jl 17 '20; Excerpt. Ry Age 69: 99-100 Jl 16 '20

Medals, Military and naval

- Pomp and circumstance. A. A. Hopkins. il Sci Am M 4:228-34 S '21
- Medical botany.** *See* Botany, Medical
- Medical chemistry.** *See* Chemistry, Medical
- Medical instruments and apparatus**
- Some notes on the electro-cardiograph. R. S. Whipple. il diags Inst E E J 57:sup13-26; Discussion. 26-8 '19
- When the heart tells its story. M. A. Henry. il Sci Am 122:676+ Je 19 '20
- See also* Electrotherapeutics—Apparatus and appliances; Orthopedic apparatus; Surgical instruments and apparatus

Exhibitions

- Electro-medical exhibition. il Elec R (Lond) 88:40-1 Ja 14 '21
- Medical libraries**
- See also* United States—Surgeon general's office—Library
- Medical research**
- Les médicaments allemands. A. Lumière. il plan Chimie & Ind 4:435-42 O '20
- Medical service, Industrial**
- Art, not the science, of industrial medicine. C. C. Burlingame. J Ind Hygiene 2:368-73 F '21
- Care of human machinery. R. M. Wilson. 238p H. Frowde, Hodder & Stoughton, London '21
- Corrected eyesight—how it increased production. H. Brown. Factory 25:55-6 Jl 1 '20
- Doctor in modern industry; survey made by the United States public health service. C. C. Martin. il Am Ind 21:31-4 Jl '21
- Doctors and industry. Engineering 111:750-2 Je 17 '21
- Emergency hospital and lecture room of Pittsburgh terminal company. il diags plans Coal Age 18:745-6 O 7 '20
- Experience of the medical department at Nitro, West Virginia; abstract. J. A. Watkins. J Ind Hygiene 2:sup178-80 Ja '21
- Factory eye room saves workers' sight and increases output. S. DeHart. il Ind Management 61:23-4 Ja 1 '21
- Field hospitals and their value. Safety Eng 42:201-2 O '21
- Framingham health demonstration and industrial medicine. D. B. Armstrong. J Ind Hygiene 3:183-6 O '21
- Health and production. C. McCord. N E L A Bul 7:593-6 S '20
- Health service in industry. 61p (Research report, no. 34) National industrial conference board, New York '21; Abstract. J Ind Hygiene 3:sup118-20 S '21
- Health service side of personnel management. E. B. Morgan and S. J. Repplier. il Ind Management 62:43-7 Jl '21
- Hospital work in a large machine-tool plant. S. De Hart. il Am Mach 52:658-60 Mr 25 '20
- How the factory nurse helps the employment manager. S: N. Comly. il Factory 25:694-5 S 1 '20
- Human waste in industry. H. E. Mock. il Chem & Met Eng 25:369-74 Ag 31 '21
- Industrial medicine. R. R. Sayers. Min & Met 166:18-19 O '20
- Industrial medicine and the immigrant. M. M. Davis, jr. and L. James. bibliog J Ind Hygiene 2:397-422 Mr '21
- Industrial nurse of the South. R. A. Dodd. Textile World 58:1174+ Ag 21 '20
- Industrial physician and the qualifications essential to his success. W: J. McConnell. bibliog J Ind Hygiene 3:130-4 Ag '21
- Industrial physician as an educational factor. Factory 25:1885 D 15 '20
- Industrial relations work at Champion coated paper plant. W. Webb. Paper 27:19-22 N 3 '20
- Keeping workers well. Factory 24:1758+ Je 1 '20
- Machine shop hospital. S. DeHart. il plan Mach 27:38-40 S '20
- Medical attendance in relation to compensation. T. W. Konop. Automotive Ind 44: 1170-1 Je 2 '21

Medical service, Industrial—Continued

- Medical supervision in industry. C. W. J. Brasher. *J Ind Hygiene* 3:179-82 O '21
- Mill retains osteopath to keep workers fit. *il Textile World* 57:3633+ My 15 '20
- Necessary qualifications and activities of an industrial physician. *Monthly Labor R* 11:549-50 S '20
- Origin and development of the factory medical service in Belgium. D. Gilbert and W. F. Dearden. *J Ind Hygiene* 2:353-60 F '21
- Physical education from the standpoint of the industrial physician. R. W. Elliott. *J Ind Hygiene* 3:168-72 S '21
- Physical examination of industrial workers—results of an investigation by the Conference board of physicians in industry. F. L. Rector. *N E L A Bul* 8:44 Ja '21
- Physical examinations in industry. C. D. Selby. *Ind Management* 58:444 D '19
- Place industrial medicine has in a labor policy. O. P. Geier. *Factory* 25:1416-17 N 1 '20
- Practices and functions of the medical department. R. E. Andrews. *il Ind Management* 62:206-11 O '21
- Reducing lost time by the shop hospital. S. DeHart. *Mach* 27:777-8 Ap '21
- Room that stops sneezing. S. De Hart. *il Factory* 27:482-3 O '21
- What do you know about your factory doctor? *Automotive Ind* 44:870-1 Ap 21 '21
- Why a factory doctor's salary costs less than nothing. G. L. Howe. *il Factory* 24:618-21 Mr 1 '20
- Why we have physical examinations at our plant. A. A. Bureau. *Factory* 25:1575-7 N 15 '20
- See also* Dental service, Industrial; Mental hygiene, Industrial; Nurses and nursing, Public health

Cost

- Cost of health service in industry. 33p (Research report, 37.) National industrial conference board, New York '21
- Cost of industrial medical service. *Monthly Labor R* 31:195-7 Jl '21

Study and teaching

- Opportunities for the study of industrial medicine in the United States. A. Shuford. *Monthly Labor R* 10:1216-28 My '20

Medicated paper. *See* Iodoform paper

Medicine

- Group medicine; a recent development in medical practice which groups specialists for diagnosis and treatment. M. E. Jameson. *Sci Am* 125:201+ S 17 '21
- See also* Bacteriology; Chemistry, Medical and pharmaceutical; Chemotherapy; Diseases, Industrial; First aid in illness and injury; Hospitals; Hygiene, Industrial; Leprosy; Medical service, Industrial; Patent medicine; Pharmacy; Poisons; Surgery
- Medicine, Industrial. *See* Medical service, Industrial
- Medicines, Patent and proprietary. *See* Patent medicine
- Megaphone, Wireless. *See* Wireless megaphone
- Meln, William Wallace
- Mining engineers of note. *por Eng & Min J* 110:166 Jl 24 '20

Melanterites

- Some minerals of the melanterite and chalcantite groups with optical data on the hydrous sulphates of manganese and cobalt. E. S. Larsen and M. L. Glenn. *J Ind & Eng Chem* 12:225-33 S '20

Melbourne, Australia**Railroads**

- Electrification of Melbourne suburban railways. *il diags map plans Engineer* 129:40, 44-7, 66, 70-2 Ja 9-16 '20; *Engineering* 109:6-10, 16, 40-6 Ja 2-9 '20; *Ry Age* 68:403-12 F 6 '20; *Elec Ry J* 54:902-6; 55:136-42 N 15 '19, Ja 17 '20; *Electrician* 84:32-4, 55-9, 90-1 Ja 9-23 '20

- Exploitation électrique des chemins de fer suburbains de Melbourne (Australie). *il Génie Civil* 77:85-8 Jl 31 '20
- Melbourne suburban electrification. W. D. Bearce. *il map Gen Elec R* 23:662-8 Ag '20

Melene

- Brodie's hydrocarbon, melene, $C_{30}H_{60}$. Y. Funcke. *Chem Soc J* 120 pt 1:533-4 Ag '21

Melezitose

- Crystallography of melezitose. E. T. Wherry. *diags Am Chem Soc J* 42:125-8 Ja '20
- Occurrence of melezitose in honey. C. S. Hudson and S. F. Sherwood. *Am Chem Soc J* 42:116-25 Ja '20
- Sugar from the Douglas fir. *il Sci Am* 122:165+ F 14 '20

Melitose. *See* Raffinose

Mellon institute. *See* Pittsburgh university. Mellon institute

Melon trees. *See* Papaws

Melting points

- Apparatus for the determination of melting points. L. M. Dennis. *diags J Ind & Eng Chem* 12:366-8 Ap '20
- Approximate determination of the melting-point diagram of the system zirconia-silica. E. W. Washburn and E. E. Libman. *diags Am Cer Soc J* 3:pt 1,634-40 Ag '20
- Determination of melting points. C. D. Carpenter. *diag Chem & Met Eng* 24:569-71 Mr 30 '21
- Determination of the composition of mixtures of eugenol and isoeugenol benzoates by means of melting points. P. V. McKie. *Chem Soc J* 119:777-9 Je '21
- Effect of pressure, and of dissolved air and water on the melting point of benzene. T. W. Richards, E. K. Carver and W. C. Schumb. *diag Am Chem Soc J* 41:2019-28 D '19
- Estimating impurities by means of the melting point curve. W. P. White. *diags J Phys Chem* 24:393-416 My '20
- Melting point methods at high temperatures. L. I. Dana and P. D. Foote. *diags Chem & Met Eng* 22:23-8, 63-70 Ja 7-14 '20
- Melting point of ammonium sulfate. J. Kendall and A. W. Davidson. *diag J Ind & Eng Chem* 13:303-4 Ap '21
- Melting point of diphenylamine. H. Rogers, W. C. Holmes and W. L. Lindsay. *J Ind & Eng Chem* 13:314-16 Ap '21
- Melting point of refractory materials. L. I. Dana. *diag Min & Met* 153:1571-86 S '19; Discussion. 156:3153 D '19; 157:(sec 12) 7 Ja '20
- Melting points and chemical elements, and other standard temperatures. *U S Bur Stand Circ* 35:1-2 '19
- Melting points and thermoelectric behavior of lead isotopes. T. W. Richards and N. F. Hall. *Am Chem Soc J* 42:1550-6 Ag '20
- Melting points of mixtures of *o*- and *p*-toluenesulphonyl chlorides. L. Harding. *Chem Soc J* 119:260-2 Mr '21
- Ein neuer fall von anisotropie im schmelzpunkt. A. Müller. *Deutsche Chem Gesell Ber* 54:1481-2 Jl '21
- Preheating and expansion of metals. *il Motor Age* 38:36-7 S 16 '20
- Setting and melting points of gelatins. S. E. Sheppard and S. Sweet. *diags J Ind & Eng Chem* 13:423-6 My '21
- Some anomalies in the solidification point of tristearin. B. H. Nicolet. *J Ind & Eng Chem* 12:741-3 Ag '20

See also Softening points

Melton finish. *See* Woolen and worsted finishing

Memorial tablets

- Memorial tablet to John Pierpont Morgan erected by trustees in the Metropolitan museum, New York, N.Y. *Arch Forum* 34:75, pl 21 F '21

Memorials

- Architects—war memorials—competitions. H. V. Magonigle. *Am Inst Arch J* 8:162-3 Ap '20
- Battle of Atlanta; Memorial museum. *il Am Arch* 118:210-11 Ag 18 '20

Memorials—Continued

- Belgian memorial, London. *il Am Arch* 118: 819-20 D 22 '20
- Canadian Pacific Ry. memorials to its war heroes. *il Ry R* 67:543 O 9 '20
- How the war memorial problem has been solved. M. Candler. *il plans Bldg Age* 41: 370-6+ N '19
- Memorial at Kansas City, Missouri. H. V. Magonigle. *il plans Am Inst Arch J* 9:266-70 Ag '21
- Memorial of American intervention in the war at Pointe de Grave, France. *il Pop Mech* 36:483 O '21
- Memorial room at Quantico, Va. to Captain Phillips Brooks Robinson. *il Arch Rec* 50: 235-40 S '21
- Memorial temple at Washington to the men of '17 and '76. R. H. Moulton. *il plan Arch Rec* 49:187-9 F '21
- Monumental memorials. C: O. Cornelius. *il Arch Rec* 47:118-31 F '20
- Notes from London. *il plan Am Arch* 116:491-502 O 15 '19
- Prize winning designs for memorial for New York city. *Am Arch* 118:148g-k Ag 4 '20
- Revising our notions of war memorials. R: F. Bach. *Arch Rec* 47:191-2 F '20
- Soldiers and sailors memorial hospital, Penn Yan, New York. *il plans Arch Rec* 47:265-7 Mr '20
- Valley Forge memorial nearing completion. G. F. Paul. *il Pop Mech* 33:49-50 Ja '20
- War memorials. C. Gilbert, jr. *Am Arch* 119: 33-6 Ja 12 '21
- War memorials; community buildings for large cities. C: O. Cornelius. *il plans Arch Rec* 47:39-57 Ja '20
- War memorials; community houses for towns and small cities. C: O. Cornelius. *il diag plans Arch Rec* 46:535-55 D '19
- War memorials in England. *il Am Arch* 117: 459-60 Ap 14 '20
- William McKinley memorial, Niles, Ohio. *il diag Arch Forum* 31:205-6, pl 81-4 D '19
- See also* Arlington amphitheater; Lincoln, Abraham—Memorials; Soldiers' monuments

Memory

- How to improve the memory. H. P. Gillette. *Eng & Contr* 54:360 O 13 '20

Memphis, Tennessee**Rapid transit**

- Appraisal of Memphis street railway. *Elec Ry J* 55:120-1 Ja 10 '20
- Service at cost in Memphis. *Elec Ry J* 55:712-14 Ap 3 '20

Water supply

- Water supply of Memphis. J. N. Chester and D. E. Davis. *Am Water Works Assn J* 8:377-96 Jl '21

Mendelism

- Mendelian law and tobacco. Setchell, Goodspeed and Clausen. *Sci Am M* 4:272 S '21
- Relation of Mendelism and the mutation theory to natural selection. L. L. Nutting. *Sci Am M* 3:369 Ap '21

Menoher, Charles Thomas, 1862-

- Sketch. *Aviation* 10:366 Mr 21 '21

Mens' furnishing goods

See also Clothing trade; Collars

Mensuration

- Problem in mensuration. E. Latshaw. *diags Mach* 26:497 F '20

See also Area measurement; Circles; Coal measurement; Gages; Gaging; Measuring instruments; Metric system; Oil measurement; Rectangles; Standards of length; Surveying; Tanks—Measurement; Weights and measures

Mental arithmetic. *See* Arithmetic, Mental

Mental discipline

- Mentalics, the science of memory and understanding. E. R. Knapp. *Eng Educ* 11:143-50 N '20

See also Education

Mental hygiene, Industrial

- Les conditions psychologiques du travail industriel. P. Juquelier. *Chimie & Ind* 3:689-91 My '20
- Industrial unrest a problem for the psychiatrist. *Monthly Labor R* 11:162-4 Jl '20
- Mental factors in industry. T: T. Read. *Min & Met* 164:9-10 Ag '20
- Mental hygiene of industry. E. E. Southard. *Ind Management* 59:100-6 F '20
- Trade unionism and temperament; the psychiatric point of view in industry. E. E. Southard. *Ind Management* 59:265-70, 462-6 Ap, Je '20

Mental tests. *See* Ability tests

Menthol

- Menthol figures from Japan. *Oil Paint & Drug Rep* 99:25 sec 1 F 14 '21
- Studies in the resolution of racemic acids by optically active alcohols; the resolution of atrolactic and α -hydroxy- β -phenylpropionic acids by *l*-menthol. H: Wren and E: Wright. *Chem Soc J* 119:798-803 Je '21

Menthyl esters

- Menthol and phenylhydrazine derivatives of the higher fatty acids. D. H. Brauns. *Am Chem Soc J* 42:1478-81 Jl '20

Mercantile agencies

- Commercial agencies and your business. C. H. Lewis. *Dom Eng* 94:456-7 F 26 '21
- See also* Exclusive agencies

Mercantile buildings

- Bush terminal building in London. *il Am Arch* 117:407-8 Mr 31 '20
- Eastern store of Sears, Roebuck & company at Philadelphia. G: C. Nimmons. *il plan Arch Rec* 50:118-32 Ag '21
- Eaton's Winnipeg mail order building. *il Can Eng* 39:315-16 S 9 '20
- Philadelphia plant of Sears, Roebuck & co. *il plan Am Arch* 117:7-9+ Ja 7 '20
- See also* Department stores; Store buildings; Warehouses

Mercantile system

- Position of the laborer in a system of nationalism. E. S. Furniss. 260p Houghton '20

Mercaptans

- Catalytic preparation of mercaptans. R. L. Kramer and E. E. Reid. *Am Chem Soc J* 43:880-90 Ap '21
- Iodometric estimation of mercaptans. J. W. Kimball, R. L. Kramer and E. E. Reid. *Am Chem Soc J* 43:1199-1200 My '21
- Some derivatives of butyl mercaptan and their mercuric iodide compounds. T. C. Whitner, jr. and E. E. Reid. *Am Chem Soc J* 43:638-42 Mr '21

Mercerizing

- New southern mercerizing plant; Dixie mercerizing company, Chattanooga. W. C. Clark. *il Textile World* 59:1519+ F 26 '21

Mercerizing machines

- Mercerizing machine. *diag Color Tr J* 9:20-1 Jl '21

Merchandizing

- Adding an advertisable specialty to lead the unknown line. *Ptr Ink* 113:116+ O 7 '20
- Adding an allied product leads to new market. *Ptr Ink* 114:61-2+ Mr 31 '21
- Another merchandizing heresy for advertising to fight; sacrificing quality for price. G. A. Nichols. *Ptr Ink* 115:118+ My 26 '21
- Beating the buying slump by bold merchandizing. *Ptr Ink* 114:25-6 Mr 3 '21
- Bringing an article of merchandise into dignified company; toy balloon placed with the established merchant. R. Cole. *Ptr Ink* 112:20+ Ag 12 '20
- Building a national business out of a local need; Duxbak togs. E: T. Tandy. *Ptr Ink* 116:61-2+ Ag 4 '21
- Buying back products to hold a market. S. C. Lambert. *Ptr Ink* 114:109-10 F 24 '21
- Easy money; selling diamonds. J. R. Sprague. *Ptr Ink M* 3:25+ Ag '21
- Finding out facts about business. R. O. Eastman. *Ptr Ink M* 3:31+ Jl '21
- Fostering consumer good-will by factory and sales co-operation. F. L. Willis. *Ptr Ink* 117:137+ O 13 '21

Merchandizing—Continued

- Getting orders right now. I. A. Berndt. *Ptr Ink* 115:177+ Ap 21 '21
- Group advertising helps cash in on good-will. G. A. Nichols. *Ptr Ink* 114:41-2+ Ja 13 '21
- How many customers make a market? R. Giles. *Ptr Ink* 114:3-4+ Mr 24 '21
- How we keep our sales volume growing. L. K. Liggett. *il System* 39:355-9+ Mr '21
- Making a market for an article of many functions. H. E. Agnew. *Ptr Ink* 113:103-4+ O 7 '20
- Making the dollar work faster. J. Simpson. *System* 39:53-5 Ja '21
- Merchandising studies of the states; their resources and development. A. W. Douglas. 178p Ronald press '20
- Merchandising the advertising campaign to the consumer; the Fuller brush company. A. McClure. *Ptr Ink* 112:33-6 S 23 '20
- Merchandising—what is it? C. P. Russell. *Ptr Ink* 114:53-4+ Mr 3 '21
- Organization and management of the small shop. E. W. Leach. *Am Mach* 55:262-6 Ag 18 '21
- Reduction of merchandising expense. 21p Domestic distribution dept., Chamber of commerce of the U.S., Washington, D.C. Ap '21
- Selling sets. M. Hastings, jr. *Ptr Ink M* 3: 26-7+ Ag '21
- This is the way some national advertisers fight substitution. J. M. Schlachter. *Ptr Ink* 114:177+ Mr 17 '21
- Three policies that make steady profits. E. L. Rhodes. *System* 39:544+ Ap '21
- Trading downward—the greased chute to commercial disaster. W. R. Hotchkin. *Ptr Ink* 116:10+ Ag 11 '21
- Venida finds a way to merchandise a rival line. E. B. Weiss. *Ptr Ink* 116:117-18+ S 29 '21
- What's wrong with distribution? N. M. Clark. *il System* 39:191-4+, 370-2+, 533-6+, 673-5+, 808-11+; 40:40-2+, 159-61+ F-Ag '21
- When a business outgrows its short pants; how Van Raalte company solved the problem of expansion. E. T. Tandy. *Ptr Ink* 113:93-4+ D 9 '20
- When the public refuses to respond. A. L. Townsend. *Ptr Ink* 114:73-4+ Mr 17 '21
- Where are my 1921 customers coming from? R. Dickinson. *Ptr Ink* 114:3-4+ Ja 6 '21
- Why have so many products in the line? C. M. Lemperly. *Ptr Ink* 113:101-2+ N 11 '20
- Why we put selling first. G. M. Brown. *System* 39:509-13 Ap '21
- Would better merchandising solve most of our problems? R. Dickinson. *Ptr Ink* 112: 3-4+ S 16 '20

See also Advertising; Cancellation of orders; Chain stores; Consignment selling; Electric apparatus and appliances—Merchandizing; Jobbers; Marketing; Price guarantees; Purchasing; Retail trade; Returned goods; Salesmanship; Seasonal products; Turnover

Bibliography

- Which—the family of products or the bachelor product? *Ptr Ink* 116:68+ S 15 '21
- Merchant marine**
- Functions of the merchant ship. N. Hill. *Engineering* 110:59-60; Discussion. 53-4 J1 9 '20; Same cond. *Engineer* 130:38-9 J1 9 '20
- War work of the merchant marine. *Sci Am* 122:320 Mr 20 '20
- World's merchant marine. *Sci Am* 125:110 Ag 13 '21
- See also* Free harbors; Insurance, Marine; Seamen; Ship subsidies; Shipping; Ships—Manning; Steamboat lines; also International mercantile marine company, New York

France

- Les constructions navales dans le monde entier en 1919; la situation de la flotte commerciale française. E. Gouault. *Génie Civil* 76:231-3 F 28 '20
- France lays plans for future. F. Miltoun. *il Marine R* 50:68-9 F '20

La situation maritime actuelle au point de vue commercial, de Rousiers. *Génie Civil* 78:446-7 My 21 '21

See also Shipping—France

Germany

- Despite efforts the German merchant marine has made up little of war loss. *Annalist* 17: 497 My 2 '21
- Le tonnage mondial de la marine marchande; la reconstitution de la flotte de commerce allemande. A. Poidlouë. *Génie Civil* 79:191-3 Ag 27 '21
- See also* Shipping—Germany

Italy

- Italy is fifth in world shipping. *il Marine R* 51:73-4 F '21

United States

- Activities of the National marine league of the U.S.A. F. Riesenbergh. *Gen Elec R* 24: 99-101 F '21
- American cement industry affected by merchant marine situation. L. A. Alwyn-Schmidt. *Concrete* 16:sup60-1 Ap '20
- America's maritime progress. G. Weiss. 525p New York marine news co. '20
- Are supercargoes a necessity? V. G. Iden. *Marine R* 50:7-10 Ja '20
- Aroused interest in our merchant marine is coming through advertising. A. E. Haase. *Ptr Ink* 111:73-4+ My 13 '20
- Brace up, America! don't give up the ships!! C. A. McAllister. *Marine Eng* 26:31-3 Ja '21
- Congress seeks a merchant marine policy. W. Fawcett. *Int Marine Eng* 25:41-2, 101-3, 219-20+ Ja-Mr '20
- Current shipping board expenditures will influence merchant marine policy. W. Fawcett. *Marine Eng* 26:232-3+ Mr '21
- Designers and operators of our ships. J. Flodin. *Int Marine Eng* 25:7-10 Ja '20
- Disdain of our marine displacing dread abroad. R. Bean. *Annalist* 18:391 O 24 '21
- Do conditions justify the Shipping board's policy? S. G. Riggs. *Annalist* 17:735-6 J1 11 '21
- Egyptian cotton controversy; Alexandria episode discloses monopoly for the exclusive benefit of the British merchant marine. W. L. Marvin. *Marine Eng* 26:655-6 S '21
- Federal ship operation absurd. H. M. Robinson. *Marine R* 50:317-18 Je '20
- Financing the new merchant marine. W. Fawcett. *Int Marine Eng* 25:437-9 My '20
- Flying the flag on a deficit; the costly failure of the Shipping board. J. B. Morrow. *il Nation's Business* 8:11-13 D '20
- Giving effect to the merchant marine act. W. Fawcett. *Marine Eng* 25:849-51 O '20
- How United States government reorganization will affect the merchant marine. W. Fawcett. *Marine Eng* 26:128-30 F '21
- Jones bill wins general favor. R. A. Lewis. *Marine R* 50:319-22 Je '20
- Keeping our ships on the seas. I. G. Campbell. *Am Ind* 21:15-17 Je '21
- Labor problem and its influence upon the merchant marine of the future. W. Fawcett. *Int Marine Eng* 25:513-15 Je '20
- Life of the American merchant marine depends on oil supply. W. S. Benson. *Nat Pet N* 12:57-8 N 24 '20
- Light on the American shipping problem. J. A. Farrell. *Iron Age* 107:1249-50+ My 12 '21; Same cond. *Iron Tr R* 68:1308 My 12 '21
- Maritime legislation before Congress. *Int Marine Eng* 25:293-5 Ap '20
- Merchant marine act a reality at last. W. Fawcett. *Int Marine Eng* 25:600-2 J1 '20
- Merchant marine and its needs. W. G. Harding. *Comm & Fin Chr* 111:2291 D 11 '20
- Merchant marine hearings in Washington. W. Fawcett. *Int Marine Eng* 24:793-5 D '19

Merchant marine—Continued

National merchant marine association annual convention, Washington, D.C. Marine Eng 26:158-60+ F '21

Nautical schoolships; training officers for U.S. merchant marine. J. S. Baylis. il Gen Elec R 24:102-4 F '21

New administration assumes responsibility for the American merchant marine. W. Fawcett. Marine Eng 26:34-7 Ja '21

The new merchant marine. E. N. Hurley. 296p Century '20

Operating economy and the merchant marine. R. H. M. Robinson. Marine Eng 26:799-800 N '21

Our American merchant marine. W. S. Benson. Gen Elec R 24:93-7 F '21

Our fleets and the future. N. S. Myrick. il Nation's Business 8:28-9+ Ja '20

Practical U.S. ship problems. R. E. Annin. il Marine R 51:206-8, 254-7, 335-6, 370-1+, 408-10, 440-1+, 499-501 My-N '21

Present and future prospects of our merchant marine. Sci Am 122:180 F 21 '20

Progress of our merchant marine. Sci Am 122:536 My 15 '20

Provisions of the Jones shipping bill. il Int Marine Eng 25:529-31 Je '20

Railroads can aid U.S. shipping. Marine R 50:376-8 Jl '20

Relation of our merchant marine to business. F. H. Sisson. Marine Eng 26:653-4+ S '21

Sea legs for Uncle Sam. S. Bent. il Nation's Business 9:24-5 Ja '21

Ship board plans. J. B. Payne. Marine R 50:25-6 Ja '20

Ship operator's interest in foreign trade. J. L. Binda. Marine Eng 26:727-8 O '21

Shipping act and Merchant marine act, 1920, Suits in admiralty act, emergency shipping legislation and other laws, proclamations and executive orders relating to the Shipping board and Emergency fleet corporation. 151p Pub. by the United States Shipping board. Govt. print. off., Washington '20

Shipping board operation of its fleet imperils merchant marine. Marine R 50:622-32 D '20

Shipping independence won for America by the war. W. S. Benson. Annalist 17:14+ Ja 3 '21

Shipping under the new administration. W. Fawcett. Marine Eng 25:979-81 D '20

Some pertinent remarks by "Old Scotch." Int Marine Eng 25:559-60 Jl '20

Suggestions for the profitable operation of the American merchant marine. H. C. Dinger. Int Marine Eng 24:806-10 D '19

Suggestions from the shipbuilders. Int Marine Eng 25:289-92 Ap '20

Tabloid history of American merchant marine. S. G. Koon. Sci Am 122:41 Ja 10 '20

To keep the flag afloat. Nation's Business 9:39-40 Je '21

To save our shipping fleet. Sci Am 123:588 D 11 '20

Uncle Sam impossible as a ship owner. Am Ind 21:17-18 Ag '20

U.S. ship sales can be financed. J. W. Hill. Marine R 50:366-70+ Jl '20

U.S. Shipping board divorced from Emergency fleet corporation—foreign interests seek to undermine American merchant marine. A. D. Lasker. Comm & Fin Chr 113:1643 O 15 '21

Wage subsidy proposed for the merchant marine. W. Fawcett. Marine Eng 26:803-4+ N '21

We have the ships! what next? C. A. McAllister. Int Marine Eng 25:285-7 Ap '20

What the steamship owners recommend. H. H. Raymond. Int Marine Eng 25:287-8+ Ap '20

Who should run our ships? J. R. Morrow. il Nation's Business 8:15-17 O '20

Why has the merchant marine act been nullified? W. L. Marvin. Marine Eng 26:577-8 Ag '21

Why west coast fears ship act. R. C. Hill. Marine R 50:497-8 S '20

See also Insurance, Marine; Ship subsidies; Shipbuilding—United States; Shipping

—United States; Ships—Inspection; *also* American bureau of shipping; American steamship owners association

National marine league of the United States, 268 Pearl st, New York, publishes for free distribution articles on American merchant marine problems

Merchant marine association, National. *See* National merchant marine association

Merchant mills. *See* Rolling mills

Mercuric chloride. *See* Mercury chlorides

Mercuric oxide. *See* Mercury oxide

Mercury

Almadén quicksilver mine. C. De Kalb. Econ Geol 16:301-12 Je '21

Almaden quicksilver mine in Spain. H. W. Gould. il Min & Sci P 122:567-9 Ap 23 '21

Assaying quicksilver ores. R. G. Place. diags Eng & Min J 109:1313 Je 12 '20

Decline in quicksilver production in 1920. Eng & Min J 111:543 Mr 26 '21

Declining quicksilver production. M. Innes. Eng & Min J 110:768 O 16 '20

Experimental flotation of low-grade quicksilver ore. E. G. Stowell and W. H. Coghill. flow sheet Min & Sci P 120:117-21 Ja 24 '20

Frenziel finance in quicksilver. W. Gustin. Eng & Min J 109:75-8 Ja 10 '20

Huancavelica mercury deposits, Peru. J. T. Singewald, jr. il map Eng & Min J 110:518-22 S 11 '20

Interesting experiment. Min & Sci P 120:929; 121:115-16, 226 Je 26, Jl 24, Ag 14 '20

Italian quicksilver industry. Min & Sci P 120:424 Mr 20 '20

Mining of quicksilver. Min & Sci P 122:553-4 Ap 23 '21

Our mineral supplies; quicksilver. F. L. Ransome. U S Geol S Bul 666:211-19 '19

Overvoltage; a comparison of the methods of determination, especially as applied to the mercury cathode. S. Dunnill. Chem Soc J 119:1081-8 Jl '21

Possibility of separating mercury into its isotopic forms by centrifuging. J. H. J. Poole. Philos Mag 6th ser 41:818-22 My '21

Production of quicksilver from April 1 to June 30, 1920. Min & Sci P 121:880 D 18 '20

Purifying and storing mercury. T. W. Benson. Pop Mech 36:138 Jl '21

Quicksilver. A. E. Kellogg. Min & Sci P 123:254-5 Ag 20 '21

Quicksilver in California in 1920. F. Hamilton. Eng & Min J 111:148 Ja 22 '21

Quicksilver in 1919. F. L. Ransome. diag U S Geol S Min Res of U S 1919, pt 1:149-77; Bibliography. I. P. Evans. 177-80 '21

Quicksilver mining in California during 1919. F. Hamilton. Eng & Min J 109:123-4 Ja 17 '20

Remarkable conduct of a drop of mercury. Sci Am 125:64 Jl 23 '21

Sampling and estimation of quicksilver ore. C. N. Schuette. diags Min & Sci P 122:293-5 F 26 '21

Separation of mercury from other elements by distillation from hydrochloric acid solution; abstract. W. Strecker and K. Conradt. Chem Soc J 120 pt 2:64-5 Ja '21

Surface energy of mercury and the energy relations at the interface between mercury and other liquids. W. D. Harkins and W. W. Ewing. diags Am Chem Soc J 42:2539-47 D '20

Surface tension and molecular attraction: on the adhesional work between mercury and organic liquids. W. D. Harkins and E. H. Grafton. Am Chem Soc J 42:2534-8 D '20

Thermoelectric electric effects in iron and mercury due to asymmetric heating. J. M. Benade. diags Phys R 18:199-205 S '21

Value of the surface tension of mercury when surrounded by different gases. J. Popesco. J Fr Inst 192:544 O '21

X-ray bulb with a liquid mercury anticathode, and on wave-length measurements of the L-spectrum of mercury. A. Müller. diags Philos Mag 6th ser 42:419-27, pl 14 S '21

See also Amalgamation; Amalgams

Mercury—Continued**Analysis**

Determination of mercury. C. M. Bouton and L. H. Duschak. bibliog il U S Bur Mines Tech Pa 227:1-41 '20

Prices

Quicksilver market in 1919. Eng & Min J 109: 124 Ja 17 '20

Mercury arc rectifiers. See Electric current rectifiers

Mercury boilers. See Boilers, Mercury

Mercury chlorides

Analysis of mercuric chloride; abstract. I. M. Kolthoff and J. Keijzer. Chem Soc J 120 pt 2:66 Ja '21

Apparent irreversibility of the calomel electrode. A. W. Laubengayer. Am Electrochem Soc Trans v 39 (preprint 31):355-9 Ap '21; Same. J Phys Chem 25:332-6 Ap '21

Interaction of acetylene and mercuric chloride. W. J. Jenkins. Chem Soc J 119:747-9 My '21

Studies on hypophosphorous acid; its reaction with mercuric chloride. A. D. Mitchell. Chem Soc J 119:1266-77 Ag '21

Thiophen-mercury compounds. W. Steinkopf. Chem Soc J 120 pt 1:630-2 Ag '21

Mercury compounds

Aromatic mercuri-organic derivatives. M. S. Kharasch and J. F. Piccard. Am Chem Soc J 42:1855-64 S '20

Mercuri-organic derivatives: nitrobenzene mercury compounds; an indirect method of mercurizing organic compounds. M. S. Kharasch and L. Chalkley, jr. Am Chem Soc J 43:607-12 Mr '21

Mercury compounds of some phenyl carbinols. M. C. Hart and A. D. Hirschfelder. Am Chem Soc J 42:2678-86 D '20

Mercury derivatives of phthaleins. E. C. White. Am Chem Soc J 42:2355-66 N '20

Organic compounds of mercury. F. C. Whitmore. 397p Chemical catalog co., New York '21

Preparation of 5,5'-mercuri-bis-3-nitro-4-hydroxy-phenyl-arsonic acid. J. Stieglitz, M. Kharasch and M. Hanke. Am Chem Soc J 43:1185-93 My '21

Reaction of alkali halides with mercury derivatives of phenol. F. C. Whitmore and E. B. Middleton. Am Chem Soc J 43:619-24 Mr '21

3-nitro-4-hydroxy-5-iodo-benzoic acid and the mercury derivative of para-hydroxy-meta-nitrophenyl carbinol. M. S. Kharasch. Am Chem Soc J 43:1203-5 My '21

Über die konstitution der quecksilberverbindungen des kohlenoxyds und des äthylens. W. Manchot. Deutsche Chem Gesell Ber 54:571-4 Mr '21

Über die mercurierung aromatischer Verbindungen. O. Dimroth. Deutsche Chem Gesell Ber 54:1504-10 Jl '21

Mercury fulminate

Behaviour of mercuric fulminate with various solvents; abstract. A. Langhans. Chem Soc J 120 pt 1:99 F '21

Mercury iodide compounds

Some derivatives of butyl mercaptan and their mercuric iodide compounds. T. C. Whitner, jr., and E. E. Reid. Am Chem Soc J 43:638-42 Mr '21

Wismut und quecksilberjodid-verbindungen von ammoniakaten. F. Ephraim and P. Mosimann. Deutsche Chem Gesell Ber 54: 396-401 Mr '21

Mercury nitrate

Rôle of mercuric nitrate in the catalyzed nitration of aromatic substances. T. L. Davis and others. diag Am Chem Soc J 43:594-607 Mr '21

Mercury oxide

Solubility of mercuric oxide in sodium hydroxide solutions. G. Fuseya. Am Chem Soc J 42:363-71 Mr '20

Mercury pumps. See Vacuum pumps

Mercury vapor

Luminosity of mercury vapor distilled from the arc in vacuo. N. H. Ricker. diags Phys R 17:195-226 F '21

Mercury vapor lamps. See Electric lamps, Mercury vapor

Mercury vapor pumps. See Vacuum pumps

Mercury vapor turbines. See Boilers, Mercury

Meredith, Edwin Thomas

Uncle John Meredith's grandson. J. B. Morrow. Nation's Business 8:50+ Ap '20

Mergenthaler linotype company, Brooklyn, New York

Programs of apprenticeship and special training in representative corporations. J. V. L. Morris. Am Mach 53:765-6 O 21 '20

Meridian

Altitude observation of the sun for meridian. J. D. Adams. diags Eng N 84:864-5 Ap 29 '20

Determining a meridian from the sun. J. D. Adams. il diags plan Sci Am M 1:549-51 Je '20

Merrimac (steamship)

First American iron-clad—the Merrimac. diag Marine Eng 25:983 D '20

Mesa Verde national park

Ancient remains in Colorado; the Mesa Verde national park, landmark of a lost race. J. W. Fewkes. il Sci Am 122:598+ My 29 '20

Excavating cliff dwellings in Mesa Verde. il Sci Am M 3:9-13 Ja '21

Mesitol

Univalent oxygen; preparation and oxidation of mesitol. C. W. Porter and F. H. Thurber. Am Chem Soc J 43:1194-8 My '21

Mesopotamia

Yankee goods in Garden of Eden. M. N. Wyse. il Am Ind 21:35-7 D '20

See also Petroleum—Mesopotamia

Industries and resources

La Haute-Mésopotamie et ses richesses naturelles. J. Naayem. map Chimie & Ind 3: 684-8 My '20

Mesothorium

Concentration of radium and mesothorium by fractional crystallization. J. L. Nierman. J Phys Chem 24:192-200 Mr '20

Isotopism of mesothorium and radium and the separation of these elements from barium. R. K. Strong. Am Chem Soc J 43: 440-52 Mr '21

Mesquite

Protection of mesquite cordwood and posts from borers. F. C. Craighead and G. Hofer. (Farmers' Bul. 1197) 12p U.S. Dept. of agric., Washington '21

Mesquite trees

Historical mesquite tree. C. S. Judd. il Sci Am 122:165+ F 14 '20

Messina, Sicily

Messina: a city arising from its own ruins. il Bldg Age 42:61-2 D '20

Metabolism

Function of vitamins in the metabolism of sclerotinia cinerea. J. J. Willaman. diags Am Chem Soc J 42:549-85 Mr '20

See also Nutrition; Urea

Metal cleaning

Cleaning as an essential manufacturing operation. A. W. Endter. il Automotive Ind 43: 968-9 N 11 '20

Cleaning as an essential manufacturing operation. B. W. Gilchrist. Metal Ind 18: 415 S '20

Cleaning metals for electro-plating. J. H. Richards. Metal Ind 18:518 N '20

Electric cleaning of metals for enameling purposes. W. C. Lindemann. Am Cer Soc J 3:252-5 Mr '20

Is cleaning an essential manufacturing operation? O. A. Hillman. Metal Ind 19: 78 F '21

It is the finish and appearance that make the sale of manufactured articles. P. W. Blair. il Metal Ind 19:326 Ag '21

Metal cleaning—Continued

Preparing sheets for enameling. R. R. Danielson. *Iron Tr R* 66:1399-1401 My 13 '20

Theory of cleaners. O. P. Watts. *Brass W* 17:102-3 Ap '21

See also Brass work; Car trucks—Cleaning; Sand blast

Metal coating

Coatings for metal patterns. W. H. Parry. *Metal Ind* 18:162 Ap '20

Lead coated iron. C. Baskerville. *J Ind & Eng Chem* 12:152-4 F '20

New process for plating artificial stone with metal. *Sci Am M* 1:112 F '20

Painting with metal spray. R. G. Skerrett. *il Sci Am* 125:128+ Ag 20 '21

Phosphatic coatings for rust proofing iron and steel. L. E. Eckelmann. *il Chem & Met Eng* 21:787-9 D 24 '19

Les progrès de la métallisation; procédé Schoop par pulvérisation de métaux ou alliages fondus. P. Nicolardot. *il diags Chimie & Ind* 5:619-35 Je '21

Protective metallic coatings for the rust-proofing of iron and steel. *il diags U S Bur Stand Circ* 80:1-34 '19; Conclusions. *Am Arch* 117:93 Ja 21 '20

Relative values of protective metallic coatings for iron and steel; abstracts. S. O. Cowper-Coles. *Electrician* 87:50-1 Jl 8 '21; *Engineering* 112:167 Jl 22 '21; *Engineer* 132:86 Jl 22 '21; Discussion. *Engineering* 112:142 Jl 22 '21

Schoop process of metal spraying. *il diag Am Mach* 55:647-8 O 20 '21

Slushing oils. P. H. Walker and L. L. Steele. *U S Bur Stand Tech Pa* 176:1-23 '20

See also Calorizing; Electroplating; Enamel and enameling; Galvanizing; Plating; Zinc plating

Metal coloring

Bluing and browning steel articles. S. Cornell. *Chem & Met Eng* 24:301-3 F 16 '21

Chemical, commercial and common names of chemicals used in dipping, plating and coloring of metals. C. H. Proctor. *Metal Ind* 19:280-2 Jl '21

Gas has various uses in browning and bluing of metals. G. C. Shadwell. *il Am Gas Eng J* 111:553-7 D 13 '19

Patina—natural and artificial. C. P. Karr. *il Sci Am M* 3:229-31 Mr '21; Excerpts. *Brass W* 17:225-6 Ag '21

Procédé électrolytique de décapage et d'oxydation des métaux. *il Génie Civil* 76:124-6 Ja 31 '20

See also Bronzing; Gilding

Metal corrosion. *See* Corrosion and anti-corrosives

Metal cutting

Adapting a machine to a special job; notching with Fellows gear-shaping machine. A. Ferber. *il diags Am Mach* 52:955-6 Ap 29 '20

Cast iron cutting. *Ry Mech Eng* 95:310-11 My '21

Castings cut economically by electric arc process. *Elec W* 77:545 Mr 5 '21

Chart for determining the pressure on a cutting tool. J. B. Conway. *chart Am Mach* 54:655-6 Ap 14 '21

Competitor for acetylene. *Sci Am* 122:61 Ja 17 '20

Cutting cast iron by oxyacetylene torch. *il Iron Age* 108:951 O 13 '21

Cutting cast iron with the oxygen blowpipe. *il Power Pl Eng* 25:331-2 Mr 15 '21

Cutting metal with a steel disc. A. W. Allen. *Min & Sci P* 122:487-8 Ap 9 '21

Cutting tools which contain no iron. *Sci Am* 124:367 My 7 '21; Same. *Brass W* 17:133 My '21; Abstract. *Pop Mech* 36:232 Ag '21

Cutting up German guns; demolition of Kiel armament by oxy-hydrogen torch. C. A. Heise. *il Iron Age* 107:912 Ap 7 '21

Data on depths of cuts on big work. W. K. Stamets. *Am Mach* 54:990 Je 9 '21

Efficiency of gases in cutting operations. D. B. McCloud. *Sci Am* 122:485 My 1 '20

How to use stellite. G. L. Kronfeld. *diags Am Mach* 52:293-5 F 5 '20

Metal cutting tools. A. L. DeLeeuw. *diags Am Mach* 54:1-7, 87-93, 166-70, 276-80, 316-17, 360-4, 418-20, 452-5, 508-10, 541-4, 610-13, 635-40, 732-5, 807-10, 897-902, 985-90; 55:4-9, 134-40, 222-5, 267-70, 461-4, 551-4, 640-4, 682-6 Ja 6, 20, F 3, 17-Ap 14, 28, My 12, 26, Je 9, Jl 7, 28, Ag 11-18, S 22, O 6, 20-27 '21

Modern welding and cutting. E. Viall. *il diags Am Mach* 52:1343-6; 53:54-9 Je 24, Jl 8 '20

New cutting gas, calorene, with fine properties. *Brass W* 17:111-12 Ap '21

New cutting gas is powerful and economical. *Ry R* 68:791 My 21 '21

Oxy-acetylene manhole cutting machine. *il diags Engineering* 109:606 My 7 '20

Oxy-acetylene welding and cutting at Anaconda. T. W. Cunningham. *Min & Sci P* 122:425-6 Mr 26 '21

Recent developments in oxygen cutting. S. Plumley and F. J. Napolitan. *il Iron Age* 105:1505-6 My 27 '20; Same. *Am Mach* 53:173-5 Jl 22 '20; Same. *Foundry* 48:567-8 Jl 15 '20

Recent welding and cutting developments. R. M. Rush. *il Blast F & Steel Pl* 8:198-202+ Mr '20

Severing metals by oxidation; problems of flame cutting. P. E. Haynes. *il Sci Am M* 3:142-5 F '21

Supplement to Frederick W. Taylor's On the art of cutting metals. C. G. Barth. *Ind Management* 58:169-75, 282-7, 369-74, 483-7; 59:49-53, 153-5, 222-6, 395-9, 483-6; 60:49-52, 218-25, 365-72 S '19-Mr, My-Jl, S, N '20

Traversing mechanism for oxyacetylene cutting torch. *il Mach* 27:500 Ja '21; *Iron Age* 106:1666 D 23 '20; *Gas Age* 47:9-10 Ja 10 '21

Welding and cutting plant at Balboa. R. D. Gatewood. *il Am Mach* 51:1023-5 D 18 '19

Welding as applied to the plumbing and heating field. *il Dom Eng* 92:428-30+ Ag 28 '20

See also Cut-off tools; Cutting machines; Ellipsograph; Gear cutting; Lubrication and lubricants (cutting and grinding); Milling cutters; Oxyacetylene flame; Oxy-hydrogen flame; Saws; Screw machines; Shears; Steel cutting; Thread cutting; Thread cutting machines

Metal finishing

Finish of metallic materials. S. Cornell. *Chem & Met Eng* 24:209-12 F 2 '21

See also Metal coloring; Scraping machines (metal work)

Metal lath

Correct application of metal lath to avoid plaster cracks. *il Am Arch* 119:246-50 Mr 2 '21

House built like a battleship. W. Clay. *il diags plans Concrete* 17:47-8+ Ag '20

How to use metal lath. C. O. Powell. *diags Bldg Age* 41:386-7 D '19

Preventing cracks in plaster walls. *il Am Arch* 119:186 F 16 '21

See also Partitions

Metal polishing. *See* Grinding and polishing

Metal prices. *See* Metals—Prices

Metal protection

Andrews rustproofing process. *il Mach* 27:50-1 S '20

Calorizing as a protection for metals; abstracts. A. V. Farr. *il Iron Age* 107:251-3 Ja 27 '21; *Brass W* 17:71-2 Mr '21; *Iron Tr R* 68:1724-7 Je 23 '21; *Blast F & Steel Pl* 9:431-3 Jl '21

Calorizing process to prevent oxidation. G. F. Burger. *il Blast F & Steel Pl* 8:109-10, 212-13 Ja, Mr '20

Choosing paint for metal structures. H. A. Gardner. *Iron Tr R* 68:1250 My 5 '21

Control of corrosion in iron and steel pipe. F. N. Speller. *il diag Can Eng* 40:359-62 Ap 7 '21; Same. *Mech Eng* 43:661-2+ O '21

Heat-proof rust-proofing. *Sci Am* 124:307 Ap 16 '21

Metal protection—Continued

- Metal protective paints. H: A. Gardner. *Am Electrochem Soc Trans* v 39 (preprint 11): 85-7 Ap '21; Same. *Chem & Met Eng* 24: 931 My 25 '21; Same. *Brass W* 17:204 Jl '21; Same. *Eng & Contr* 56:95 Jl 27 '21
- Methods for preventing the corrosion of metal parts of aeroplanes. *Aerial Age* 13: 369-70 Je 27 '21
- Prevention and removal of rust. J. F. Springer. *Gas Age* 47:11-12 Ja 10 '21
- Procédé électrolytique de décapage et d'oxydation des métaux. *il Génie Civil* 76:124-6 Ja 31 '20
- Protecting iron and steel standpipes from corrosion. C: W. Sherman. *Eng N* 84:285-6 F 5 '20
- Protection of iron with paint against atmospheric corrosion. N. Friend. *Eng & Ind Management* 5:711-12 Je 23 '21
- Protection of metal structures by painting. J. R. Shean. *Eng & Contr* 52:621 N 26 '19; Same. *Can Eng* 38:180 Ja 29 '20; Abstract. *Sci Am* 123:171 Ag 21 '20
- Report on paint exposure tests at Atlantic City, New Jersey. H: A. Gardner. *il Am Arch* 118:445-9 O 6 '20
- Rust prevention by Browning process. W. C. Marshall. *Automotive Ind* 44:556-8 Mr 10 '21

See also Calorizing; Corrosion and anti-corrosives; Galvanizing; Metal coating

Metal tariff. *See* Tariff—United States—Metal schedule

Metal trade

- American industry in the war. *Min & Sci P* 122:554-5 Ap 23 '21
- Can British firms replace American goods in the Canadian metal market? *Eng & Ind Management* 6:129-30 Ag 4 '21
- Control of the metal market. *Eng & Min J* 109:478-9 F 21 '20
- Developments in the non-ferrous markets. E. F. Cone. *Iron Age* 105:53-4 Ja 1 '20
- Exports sustain metal markets. *Iron Tr R* 66: 113-14 Ja 1 '20
- How the automotive industries fared in 1920 metal market. W: C. Hirsch. *Automotive Ind* 44:407-11 F 17 '21
- Imports and exports of metals and ores for the first eleven months of 1920 and 1919. *Eng & Min J* 111:136 Ja 22 '21
- Imports and exports of the more important metals and ores to and from the United States for March, 1921, and 1920. *Eng & Min J* 111:781 My 7 '21
- Iron, steel and non-ferrous metals; a market retrospect and prospect. W: C. Hirsch. *Automotive Ind* 42:251-8 Ja 15 '20
- Metal market review of 1919—outlook for 1920. W. T. Partridge. *Metal Ind* 18:58-60 Ja '20
- Metal market review of 1920—outlook for 1921. W. T. Partridge. *Metal Ind* 19:54-6 Ja '21
- Movements of metals and minerals during October 1919 and 1920. *Eng & Min J* 111:11 Ja 1 '21
- Movements of metals and ores in August, 1920. *Eng & Min J* 110:902 N 6 '20
- National metal trades association 23d annual convention, New York. *Iron Age* 107:1106-13 Ap 28 '21; *Iron Tr R* 68:1190-2 Ap 28 '21
- Ore contracts. C. A. Grabill. *Eng & Min J* 108:806-13, 859-65 N 22-D 6 '19
- Pig iron and metal products of the United States, calendar years 1910-1918 (1919 estimated). *Metal Ind* 18:63 Ja '20
- Pig iron and metal products of the United States; calendar years 1911-1919 (1920 estimated). *Metal Ind* 19:59 Ja '21
- Secondary metals in 1919. J. P. Dunlop. *U S Geol S Min Res of U S* 1919, pt 1:51-85 '21
- Uncommon ores and metals. H. C. Meyer. *Eng & Min J* 109:233-4 Ja 17 '20
- Uncommon ores and metals in 1920. H. C. Meyer. *Eng & Min J* 111:150-1 Ja 22 '21
- Year, 1920, unsatisfactory in metals. *Iron Tr R* 68:96 Ja 6 '21

See also Copper industry and trade; Hardware; Iron industry and trade; Lead industry and trade; Metal workers; Metals

—Prices; Scrap metal; Sheet metal trade; Steel industry and trade; Tariff—United States—Metal schedule; Tin plate; Zinc industry and trade

Metal waste

- Briquetting of metal scrap. A. Bregman. *il diag Metal Ind* 18:400-2 S '20
- Evaluation of aluminum dross. F. K. Bezenberger. *J Ind & Eng Chem* 12:78-9 Ja '20
- Putting waste metals to work. R. G. Skerrett. *il Sci Am* 124:404-5+ My 21 '21
- Reclamation of metal from brass-foundry refuse. F. L. Wolf and G. E. Alderson. *flow sheets Metal Ind* 18:452-5 O '20; Abstract. *Min & Met* 165:19 S '20
- Reclamation of metals from foundry waste. J. P. Norrie. *diags Can Chem & Met* 5: 77-9 Mr '21
- Recovering precious metals from waste liquid residues. G: E: Gee. 380p Spon '20
- Utilization of scrap and residues in metal foundries. C. Diegel. *Metal Ind* 19:196-7, 247-8 My-Je '21

See also Scrap metal; Tailings

Metal work

- Elementary outline of mechanical processes. G: W. Danforth. 3d ed., rev. 425p U.S. naval institute, Annapolis, Md. '20
- Hot drawing on the mandril. E. Schneider. *Iron Age* 108:930 O 13 '21
- Influence of cold rolling on the physical properties of copper. F. Johnson. *diags Engineering* 110:257-60 Ag 20 '20
- Study stresses in cold rolling. H: M. Howe and E. C. Groesbeck. *diags Iron Tr R* 66: 1824-5 Je 24 '20; Same. *Metal Ind* 18:353-4 Ag '20
- Tin, sheet-iron and copper-plate worker. L. J. Blinn. 334p Baird '20
- See also* Brass founding; Brass work; Bronze; Bushings; Dies; Electroplating; Engraving; Forging; Foundries; Foundry practice; Goldsmithing; Heat treatment; Ironwork; Jewelry; Keys and keyways (machinery); Machine tools; Metal coloring; Pickling (metals); Plating; Punching machinery; Rolling (metal work); Sheet metal work; Solder and soldering; Swaging; Tin plate; Welding; Wire

History

- Evolution of the workshop. H. H. Manchester. *il Am Mach* 51:781-4; 52:115-17, 245-8, 389-92, 449-52, 545-8, 726-9, 889-91, 1187-9; 53:71-4, 205-8, 311-14, 353-7, 459-63 O 30 '19, Ja 15, 29, F 19-26, Mr 11, Ap 1, 22, Je 3, Jl 8, 29, Ag 12-19, S 2 '20

Tables, calculations, etc.

- Chart for determining the weight of brass or steel bar stock. L. de L. Berg. *Mach* 26:979 Je '20
- Weight chart for bar stock articles. H. Ernst. *Am Mach* 52:351 F 12 '20

Metal work, Artistic

- Application of decoration to art metal ware. A. F. Saunders. *il Metal Ind* 19:21-2, 313-14 Ja, Ag '21
- Design value of decorative motifs. A. F. Saunders. *il Metal Ind n s* 15:15-16, 390-1, 513-14; 16:163-5, 349-51, 504-6; 17:10-12, 214-16; 18:176-7 Ja, S, D '17, Ap, Ag, N '18, Ja, My '19, Ap '20
- Ecclesiastical metal work of Ireland. W. H. McGinty. *il Am Arch* 118:437-9 O 6 '20
- Summer exhibition of American metal-work and fixed decorations at the Metropolitan museum of art. *il Am Arch* 120:73-5 Ag 3 '21

See also Damascening

Metal workers

- Causes of skin sores and boils among metal workers; abstract. *J Ind Hygiene* 2:sup215-17 Ap '21
- Descriptions of occupations; metal working, building and general construction, railroad transportation, shipbuilding. 123p '18 U.S. Bureau of labor statistics, Washington. D.C.
- Labor crisis in Italian metal trades. *Iron Age* 106:395-6 Ag 12 '20

Metal workers—Continued

Metal worker's wages; National industrial conference board's report. Iron Tr R 68:1400-1 My 19 '21

Open shop wins at Golden Gate. D. Partridge. il Iron Tr R 68:418-22 F 10 '21

Standardizing the job. M. R. Lott. chart Factory 23:1290-2; 24:54-5 D '19-Ja '20

Wages and hours in automobile, car, electrical apparatus, foundry, machinery, machine tool, and typewriter industries. Monthly Labor R 10:1388-1400 Je '20

Wages and hours of labor in the metal trades in Massachusetts 1914-1919. (Labor Bul. 132) 72p '20 Mass. Dept. of labor and industries, Division of statistics, Boston

Metal working machinery

See also Bar folding machine; Cornice brake machine; Machine tools; Scraping machines (metal work)

Metal working plants

Co-operation tends to the increase of output. Iron Age 106:131-3 Jl 15 '20

Industrial expansion heralds future prosperity. W. M. Rooney. il chart Iron Tr R 66:48-52 Ja 1 '20

Plant expansion in 1921 will be ruled by normal needs of industry. W. M. Rooney. il Iron Tr R 68:29-31 Ja 6 '21

See also Iron works; Rolling mills; Steel works

Metallic films. *See* Films, Metallic

Metallography

Castings of light aluminum alloys. R. J. Anderson. bibliog il Iron Age 107:433-6 F 17 '21

Constitution and metallography of aluminum and its light alloys with copper and with magnesium. P. D. Merica, R. G. Waltenberg and J. R. Freeman, jr. il diags U S Bur Stand Sci Pa 337:105-19 '19; Same. Min & Met 151:1031-49 Jl '19; Abstract. Chem & Met Eng 21:551-2 O 29 '19; Discussion. Min & Met 157:(sec 12) 85-9 Ja '20

Crystal growth and recrystallisation in metals. H. C. H. Carpenter and C. F. Elam. il diags Engineering 110:385-9, 424-6, 486-90 S 17-24, O 8 '20; Abstract. Chem & Met Eng 24:224-5 F 2 '21; Discussion. Engineering 110:403-4 S 24 '20

Crystalline structure of metals. Z. Jeffries and R. S. Archer. il diags Chem & Met Eng 24:771-9 My 4 '21

Differential crystallization in a cast-steel runner. F. B. Foley. il Am Inst Min Bul 151:1117-21 Jl '19; Same. Iron Tr R 65:30 Jl 3 '19; Same. Iron Age 104:1273-4 D 18 '19

Effects of metallic structure upon properties. H. S. Rawdon. il Chem & Met Eng 24:523-7 Mr 23 '21

Fehlstellen in legiertem stahl. E. H. Schulz. Stahl & Eisen 41:160-3 F 3 '21

Improved method of electrolytic etching for microstructure. W. Velguth. il Chem & Met Eng 25:567 S 21 '21

Internal stresses in relation to micro-structure. J. C. W. Humfrey. il diags Engineering 111:419-20; Discussion. 430-2 Ap 8 '21

Macroscopic examination of metals. H. S. Rawdon. il Chem & Met Eng 24:385-7 Mr 2 '21

Metallographic etching reagents: for copper. H. S. Rawdon and M. G. Lorentz. il U S Bur Stand Sci Pa 399:641-68 '20

Metallography—the microscopic study of the structure of metals. H. S. Rawdon. il Am Mach 55:659-64 O 27 '21

Metals and common alloys. (Pt. 2). S. L. Hoyt. 462p McGraw-Hill '21

Mixed orientation developed in crystals of ductile metals by plastic deformation. E. C. Bain and Z. Jeffries. il diag Chem & Met Eng 25:775-7 O 26 '21

Neuere arbeiten über rekristallisation. P. Oberhoffer and H. Jungbluth. diags Stahl & Eisen 41:1153-7 Ag 18 '21

Preparation of small pieces for microscopic examination. H. S. Rawdon. il Chem & Met Eng 24:475-6 Mr 16 '21

Les progrès récents des méthodes de controle des produits métallurgiques. L. Guillet. il Génie Civil 77:214-18, pl 3 S 11 '20

La radiométallographie sa pratique et ses applications industrielles. Pilon. il diag Génie Civil 79:321-3 O 15 '21

Structure of gold amalgams as determined by metallographic methods. S. A. Braley and R. F. Schneider. diag Am Chem Soc J 43:740-6 Ap '21

Studies of crystal structure with X-rays. E. C. Bain. il diags Chem & Met Eng 25:657-64 O 5 '21

Unusual grain growth due to critical strain. A. P. Knight. il Chem & Met Eng 25:829-30 N 2 '21

See also Alloys; Aluminum—Metallography; Critical point; Iron—Metallography; Steel—Metallography

Metallurgical analysis

Comparison of accuracy in analysis of metallurgical materials during the past twenty-five years. E. D. Campbell and G. F. Smith. J Ind & Eng Chem 12:1020-2 O '20

Determination of molybdenum. J. B. Bonardi and E. P. Barrett. bibliog U S Bur Mines Tech Pa 230:1-32 '20

Methods in metallurgical analysis. C. H. White. 2d ed. 356p Van Nostrand '20

Methods of analytical control of electrolytic zinc production. H. F. Bradley. il Chem & Met Eng 22:651-4 Ap 7 '20

Methods of the chemists of the United States steel corporation for the sampling and analysis of fluxes, cinders, and refractories. 64p United States steel corp., Pittsburgh '21

Les progrès récents des méthodes de controle des produits métallurgiques. L. Guillet. il diags Génie Civil 77:172-8 Ag 28 '20

Rapid and systematic method for the analysis of light aluminium casting alloys. R. M. Berry. J Ind & Eng Chem 12:998-1000 O '20

Les sels complexes organiques en analyse; emploi du cupferron. A. Kling and A. Lassieur. Chimie & Ind 4:326-9 S '20

Tentative methods for chemical analysis of alloys of lead, tin, antimony and copper. Am Soc T M Pro v 20 pt 1:589-98 '20

Use of cupferron in quantitative analysis. G. E. F. Lundell and H. B. Knowles. J Ind & Eng Chem 12:344-50 Ap '20

See also Alloys; Assaying; Brass—Analysis; Iron—Analysis; Mercury—Analysis; Monel metal—Analysis; Steel—Analysis

Metallurgical apparatus

Electric melting apparatus. il Automotive Ind 42:664 Mr 11 '20

G. E. 25-pound bench-type electric metal melter. il Am Mach 52:371 F 12 '20

Inverted siphon tap for matte settler. J. H. Gillis. diags Eng & Min J 112:300-1 Ag 20 '21

See also Classifiers; Crushing machinery; Stamp mills; Thickeners

Metallurgical furnaces. *See* Furnaces, Metallurgical

Metallurgical laboratories

New laboratory at Union drawn steel co. plan Blast F & Steel Pl 8:60-1 Ja '20

Smelter laboratory of the United Verde extension. H. O. Hammond. il plan Eng & Min J 110:991-3 N 20 '20

Metallurgical patents

Metallurgical patents. Engineer 130:455-6 N 5 '20

See also Flotation process—Patents

Metallurgical plants

Examination of mill returns. D. Lay. Eng & Min J 109:847-8 Ap 10 '20

Graphic metallurgical control. H. M. Merry. Am Inst Min Bul 153:sup2313-21 S '19; Excerpt. Eng & Min J 108:512 S 20 '19; Excerpt. Eng & Contr 52:675-6 D 10 '19

New mining and metallurgical construction in 1919. Eng & Min J 109:149-54 Ja 17 '20

See also Cyanide plants; Iron works; Metallurgical laboratories; Smelting works; Steel works

Metallurgical plants—*Continued*

Accidents

- Accidents at metallurgical works in the United States during the calendar year 1918. A. H. Fay. U S Bur Mines Tech Pa 256:1-21 '20; Excerpts. Min & Sci P 120: 574 Ap 17 '20
- Accidents at metallurgical works in the United States during 1919. W. W. Adams. U S Bur Mines Tech Pa 280:1-29 '21
- Accidents in Utah ore-dressing plants. Eng & Min J 112:409 S 10 '21

California

- Metallurgical progress in Shasta county, G. J. Young. il map Eng & Min J 112:286-90 Ag 20 '21

France

- Les destructions systématiques, par les Allemands, des usines métallurgiques du Nord et de l'Est de la France. il Génie Civil 77: 385-91 N 13 '20
- Devastation of France. il Engineering 111: 670-4, pl 37-40 Je 3 '21
- Metallurgical industries of France. L. Guillet. Eng & Ind Management 6:404-8 O 13 '21
- Metallurgical plants destroyed by Germans in France. Min & Met 176:11-12 Ag '21

Great Britain

- Modern calcining plant in Great Britain at its Irthlingborough iron mines. J. Horton. il diags Iron Tr R 66:351-3 Ja 29 '20

New York

- Electric ferroalloy plant at Niagara Falls. il plan Iron Tr R 66:706-7 Mr 4 '20; Iron Age 105:663 Mr 4 '20
- Metallurgical plants in the vicinity of New York. E. H. Robie. map Eng & Min J 109: 1299-1301 Je 12 '20

Russia

- Russia's ruined metallurgical industry. E. R. Wilner. Iron Age 107:1297-8 My 19 '21

Metallurgical research

- Metallurgical research department of the Utah State school of mines. L. W. Chapman. il Chem & Met Eng 22:877-81 My 12 '20

Metallurgy

- Chloride volatilization experiments on ore from Tintic district, Utah. Chem & Met Eng 22:52-3 Ja 14 '20
- Chloridizing processes. H. R. Layng. charts Min & Sci P 120:77-83 Ja 17 '20; Discussion. 120:259, 520 F 21, Ap 10 '20
- Le déplacement des métaux dans les solutions salines. Barlot. Génie Civil 78:200 F 26 '21
- Development of the chloride volatilization process by the U.S. Bureau of mines; abstracts. T. Varley and C. C. Stevenson. il Eng & Min J 111:991-3 Je 11 '21; Min & Sci P 123:159-62 Jl 30 '21; Discussion. Min & Sci P 123:284 Ag 27 '21
- French observation of progress in American metallurgy. M. M. Altmayer. il Min & Met 157:(sec 1) 23-4 Ja '20
- Future of oxygen enrichment of air in metallurgical operations. F. G. Cottrell. Chem & Met Eng 23:53-6 Jl 14 '20; Same cond. Iron Age 105:1791-2 Je 24 '20; Same cond. Iron Tr R 67:312-14 Jl 29 '20; Abstract. Sci Am M 2:253 N '20; Discussion. C. A. Meissner. Iron Age 105:1792-3 Je 24 '20; Same. Iron Tr R 67:314-15 Jl 29 '20
- Gas and the composition and treatment of alloys and eutectics. G. C. Shadwell. Am Gas Eng J 113:177-80, 186-8 S 4 '20
- Handbook of metallurgy. C. Schnabel. 3d ed., rev. Macmillan '21
- Manufacture of pure tungsten metal—operations at the Fansteel products company. C. H. Jones. il diags Chem & Met Eng 22:9-16 Ja 7 '20
- Metallurgy in 1919. Engineer 129:36-7 Ja 9 '20
- Metallurgy of the common metals, gold, silver, iron (and steel) copper, lead and zinc. L. S. Austin. 5th ed., rev. and enl. 615p Wiley '21

- New process claimed for extracting metal. Iron Tr R 68:1790 Je 30 '21

Les progrès récents des méthodes de contrôle des produits métallurgiques. L. Guillet. il Génie Civil 77:214-18, 232-6, 255-7, 291-3, 313-16 S 11-25, O 9-16 '20

Recovering precious metals from liquid residues. G. E. Gee. 380p Spon '20

Reducing tungsten ore. T. Singleton. Eng & Min J 109:879-80 Ap 10 '20

Relations entre les réactions métallurgiques et les lois physico-chimiques. L. Guillet. diags Génie Civil 78:104-8, 126-30, 151-3, 169-73. 190-2 Ja 29-F 26 '21

Separating metallics from Pacific Coast sands. H. E. Wood. Eng & Min J 109:398-9 F 7 '20

Volatilization of metals. Min & Sci P 123: 145-6 Jl 30 '21

Volatilization process at the Pope-Shenon mine. R. H. Bradford. flow sheet il Min & Sci P 123:263-6 Ag 20 '21

See also Alloys; Amalgamation; Assaying; Blast furnaces; Chemical engineering; Chemistry, Technical; Chloridizing processes; Copper metallurgy; Cyanide process; Dental metallurgy; Electrometallurgy; Filters and filtration (metallurgy); Flotation process; Flue dust; Flux; Furnaces, Metallurgical; Gold metallurgy; Hydrometallurgy; Iron metallurgy; Lead metallurgy; Magnetic separation of ores; Manganese bronze; Metallurgical analysis; Metallurgical apparatus; Metallurgical laboratories; Metallurgical plants; Metallurgical research; Metals; Nodulizing; Ore treatment; Ores; Refractory materials; Silver metallurgy; Smelting; Steel metallurgy; Titanium; Zinc metallurgy

Bibliography

Mining and metallurgical index. See monthly numbers of Mining and metallurgy

Study and teaching

Shop courses in metallurgy at the Michigan agricultural college. H. B. Dirks. il Am Mach 52:961-2 Ap 29 '20; Same. Iron Age 105:1245-6 Ap 29 '20

Tables, calculations, etc.

Calculation of equilibrium in metallurgical reactions. P. D. Merica. Chem & Met Eng 25:608-12 S 28 '21

Formulas for determining the tonnage of products from metallurgical operations. A. H. Heller. Min & Sci P 120:575-6 Ap 17 '20

Recovery formulae. H. R. Robbins. Min & Sci P 121:422 S 18 '20

Metallurgy, Dental. See Dental metallurgy

Metals

Amorphous metal hypothesis. Z. Jeffries and R. S. Archer. bibliog Chem & Met Eng 25:697-704 O 12 '21

Atomic structure of metals in solid solution. A. L. Feild. Chem & Met Eng 21:566-70 O 29 '19; Discussion. 22:100, 580-1 Ja 21, Mr 31 '20

Atoms and metals. Z. Jeffries and R. S. Archer. Chem & Met Eng 24:507-12 Mr 23 '21

Colloidal state in metals and alloys. J. Alexander. Min & Met 166:22 O '20

Conversion factors for weights of metals. C. E. Josselyn. Am Mach 53:1236 D 30 '20

Determination of the coefficient of normal viscosity of metals. K. Honda and S. Konno. diags Philos Mag 6th ser 42:115-23, pl 3-6 Jl '21

Effect of temperature on platinum black and other finely-divided metals. R. Wright and R. C. Smith. Chem Soc J 119:1683-8 O '21

Effect of temperature on the modulus of rigidity, and on the viscosity of solid metals. K. Iokibe and S. Sakai. diags Philos Mag 6th ser 42:397-418 S '21

Electric super-conducting state of metals. H. K. Onnes. Engineering 110:826-7 D 24 '20

Hardness and strength of metals. Engineer 130:535-6 N 26 '20; Discussion. 130:580 D 10 '20

Metals—Continued

- Investigation of physical properties of metals at high temperatures preceding their interval of plasticity; abstract. *Mech Eng* 43:680 O '21
- Kolloidaler zustand in metallen und legierungen. H. Meyer. *Stahl & Eisen* 41:696-8 My 19 '21
- Metal substitutes; use of various metals and alloys in Germany to replace those made scarce by the war. A. Wuerth. *Sci Am M* 3:54-8, 145-9 Ja-F '21; Abstract. *Mech Eng* 42:464-5 Ag '20
- Metal supply problem in Germany. C. A. Heise. *Iron Age* 106:1295-7, 1328-30 N 11-18 '20
- Mixed orientation developed in crystals of ductile metals by plastic deformation. E. C. Bain and Z. Jeffries. *il diag Chem & Met Eng* 25:775-7 O 26 '21
- Non-ferrous metal failures under stress. *Iron Age* 107:1233-4 My 12 '21
- Non-ferrous metals and compositions. H. H. Thayer. *Marine Eng* 26:524-32 Jl '21
- Our mineral supplies; the rarer metals. F. L. Hess. *U S Geol S Bul* 666:123-35 '19
- Physical properties of materials; strengths and related properties of metals and certain other engineering materials. *U S Bur Stand Circ* 101:1-52 '21
- Recent progress in thermo-electricity; abstracts. C. Benedicks. *diags Engineer* 129:617-18 Je 18 '20; *Engineering* 109:831-2 Je 18 '20; *Sci Am M* 3:182-3 F '21
- Resonance potentials and low-voltage arcs for metals of the second group of the periodic table. F. L. Mohler, P. D. Foote and W. F. Meggers. *U S Bur Stand Sci Pa* 403:725-37 '20
- Slip interference theory of the hardening of metals. Z. Jeffries and R. S. Archer. *il diags Chem & Met Eng* 24:1057-67 Je 15 '21; Summary. *Sci Am M* 4:274 S '21; Discussion. *Chem & Met Eng* 25:641, 728 O 5, 19 '21
- Solubility of metals in acids containing formaldehyde. R. C. Griffin. *J Ind & Eng Chem* 12:1159-60 D '20
- Structural properties of metals and alloys. R. W. Woodward. *il diag Am Mach* 55:596-9, 636-8 O 13-20 '21
- Substitute metals in electrotechnical industries in Germany. A. Feckinghaus. *Chem & Met Eng* 21:740-1 D 10 '19
- Tarnishing of metals. G. Tammann. *Engineering* 110:884 D 31 '20
- Thermostatic metal. H. Herrman. *il Gen Elec R* 23:57-9 Ja '20
- Use of non-ferrous metal in naval machinery; abstracts. G. Goodwin. *Engineering* 109:354-5 Mr 12 '20; *Engineer* 129:268-9 Mr 12 '20
- Welding various metals and the fluxes used. E. Viell. *il Am Mach* 52:223-30 Ja 29 '20
- Year's progress in metals. *Metal Ind* 18:16-17, 85-6 Ja-F '20
- Year's progress in metals, 1920. C. P. Karr. *Metal Ind* 19:18-20 Ja '21

See also Alloys; Aluminum; Amalgams; Annealing; Antimony; Assaying; Babbitt metal; Bismuth; Brass; Bronze; Cadmium; Cast iron; Cesium; Chromium; Cobalt; Copper; Corrosion and anti-corrosives; Earths, Rare; Electrometallurgy; Elektron metal; Fatigue in metals; Foundry practice; Gallium; Geology; Gold; Hardening; Hardness; Heat treatment; Iron; Lead; Manganese; Mercury; Metal trade; Metallography; Metallurgy; Mineralogy; Mines and mineral resources; Molybdenum; Monel metal; Nickel; Ore deposits; Ores; Pickling (metals); Platinum; Plymetl; Precious metals; Radium; Slag; Smelting; Solder and soldering; Solutions, Solid; Steel; Stellite; Strength of materials; Strontium; Thallium; Tin; Titanium; Tungsten; Vanadium; Welding; Zinc

Nomenclature

- Nomenclature and standardization of metals and alloys. R. E. Search. *Metal Ind* 18:553-5 D '20

Prices

- Annual average prices of metals. Brass W 17:307 O '21
- Average monthly prices of pig iron, rolled products and old material in principal districts in 1919; tabulation. *Iron Tr R* 66:96 Ja 1 '20
- Chart of metal prices for 1918-1919. *Metal Ind* 18:62 Ja '20
- Chart of metal prices for 1919-1920. *Metal Ind* 19:58 Ja '21
- Diagrams of three months' fluctuations in prices of metals; compiled from official reports of London metal markets. *Engineering* 109:188-9, 308-9, 488-9; 110:360 F 6, Mr 5, Ap 9, S 10 '20
- Fluctuations in prices of pig tin, aluminum, antimony, lake copper, zinc, lead, tin plate and galvanized sheets, 1901-1919; chart. *Iron Tr R* 66:104a Ja 1 '20
- Fluctuations in prices of pig tin, aluminum, antimony, lake copper, zinc, lead, tin plate and galvanized sheets, 1902-1920. *Iron Tr R* 68:96a Ja 6 '21
- Metal prices. See monthly numbers of Metal industry
- Metal statistics; monthly average prices of metals. *Eng & Min J* 111:87 Ja 8 '21
- Metal, tin-plate and sheet prices for twenty-one years, 1899-1919. chart (supp) *Iron Age* 105:60 Ja 1 '20
- Metal, tin-plate and sheet prices for twenty-one years, 1900-1920; with supplement. *Iron Age* 107:64 Ja 6 '21
- Monthly average metal prices; 1917, 1918, 1919; charts. *Eng & Min J* 109:108, 111 Ja 17 '20

Standards

- Nomenclature and standardization of metals and alloys. R. E. Search. *Metal Ind* 18:553-5 D '20

Testing

- Apparatus for delicate flexure tests and some results of such tests. W. J. Francke. *diag Am Soc T M Pro v* 20 pt 2:372-86 '20; Same. *Am Mach* 54:48-52 Ja 13 '21; Discussion. *Am Soc T M Pro v* 20 pt 2:387-91 '20
- Apparatus for the determination of the porosity of metals. F. K. Bezzenberger and R. A. Wilkins. *diag Chem & Met Eng* 22:1031-2 Je 2 '20
- Aus der metallographischen praxis. M. v. Schwarz. *Stahl & Eisen* 41:548-52 Ap 21 '21
- Behavior of wrought manganese bronze exposed to corrosion while under tensile stress. P. D. Merica and R. W. Woodward. *il diag U S Bur Stand Tech Pa* 135:1-9 '19
- Bericht über die tätigkeit des materialprüfungsamtes Berlin-Lichterfelde im jahre 1919 (20). *Stahl & Eisen* 41:765-7 Je 2 '21
- Chemical influences in the failure of metals under stress. C. H. Desch. *Engineering* 111:418; Discussion. 430-2 Ap 8 '21
- Cross-relations of strengths of metals in tension, compression, torsion and transverse loading. G. B. Upton. *Sibley J* 35:129-33 S '21
- Effect of temperature, deformation, grain size and rate of loading on mechanical properties of metals; abstracts. W. P. Sykes. *Min & Met* 168:38 D '20; *Mech Eng* 43:261-2 Ap '21
- Effect of temperature on some of the properties of materials. F. C. Lea. *il diags Engineering* 110:293-8 Ag 27 '20
- Failure of metals under internal and prolonged stress. *Engineer* 131:371-2, 396-8, 427-8 Ap 8-22 '21; *Engineering* 111:429-32, 443-5 Ap 8-15 '21; *Elec R (Lond)* 88:793-4 Je 17 '21; *Mech Eng* 43:398-400 Je '21
- Failure of metals under internal and prolonged stress. W. Rosenhain. *Engineer* 131:477-9, 523-4 My 6-13 '21; Same. (pt. 1). *Eng & Contr* 55:642-4 Je 29 '21
- Fatigue in metals under repeated stress. H. F. Moore. *il diag W Soc E J* 24:331-6; Discussion. 336-40 Je '19

Metals—Testing—Continued

- Hardness testing of metals; report of committee of the National research council. *il Mech Eng* 43:445-9 J1 '21; Discussion. R. H. Coolidge. 43:690-1 O '21
- Impact testing of metals. F. C. Thompson. *Sci Am M* 1:138-40 F '20
- Improvements in methods of fatigue testing. H. J. Gough. *diags Engineer* 132:159-62 Ag 12 '21; Abstract. *Mech Eng* 43:677-80 O '21
- Instrument to measure elongation of broken tensile specimens. R. W. Woodward. *il Chem & Met Eng* 25:756 O 19 '21
- Mechanism of failure of metals from internal stress. W. H. Hatfield. *Engineering* 111:435; Discussion. 430-2 Ap 8 '21
- Neuere forschungen über kerbwirkung, insbesondere auf optischem wege. E. Heyn. *diags Stahl & Eisen* 41:541-6, 611-17 Ap 21, My 5 '21
- Notched-bar impact tests; abstracts. T. E. Stanton and others. *Engineering* 110:735 D 3 '20; *Eng & Contr* 56:223-4 Ag 31 '21
- Notched-bar impact tests and toughness of monel metal. R. G. Waltenberg. *Chem & Met Eng* 25:322-3 Ag 24 '21
- Position of tensile tests in the foundry. W. A. Gibson. *diag Iron Age* 105:725-8 Mr 11 '20
- La pratique des essais mécaniques des métaux. J. Durand. *il Génie Civil* 77:8-11 J1 3 '20
- Les progrès récents des méthodes de controle des produits métallurgiques. L. Guillet. *il diags Génie Civil* 77:172-8, 185-90, 214-18, 232-6, 255-7 268-73, 291-3, 313-16 Ag 28-O 16 '20
- Properties of white metal bearing alloys at elevated temperatures. J. R. Freeman, jr., and R. W. Woodward. *il diags U S Bur Stand Tech Pa* 188:1-16 '21; Same. *Soc Auto Eng J* 8:149-54+ F '21; Abstract. *Metal Ind* 19:68 F '21
- Reliability of materials and mechanism of fractures. C. De Freminville. *il diags Mech Eng* 42:207-12 Ap '20; Same. *Chem & Met Eng* 22:983-7 My 26 '20
- Specification and testing of castings. W. Rosenhain. *Automotive Ind* 45:217-19 Ag 4 '21
- Strengthening metals by cold-work. E. Heyn. *diags. Chem & Met Eng* 25:735-6 O 19 '21
- Stress results within elastic limit; abstracts. R. G. Guthrie. *il Iron Age* 106:649-51 S 9 '20; *Iron Tr R* 67:843-5 S 23 '20; *Soc Auto Eng J* 8:65-8 Ja '21
- Study of impact tests on alloys. A. B. Wilson. *il Foundry* 48:616-17+ Ag 1 '20
- Tensile test in the aluminum factory. W. A. Gibson. *diags Automotive Ind* 41:1176-9 D 11 '19
- Tension tests of materials. E. G. Coker. *il diags Engineering* 111:1-4, pl 1 Ja 7 '21
- Test shows little variation of metal in electric furnace. *il Elec R* 79:169 J1 30 '21
- Testing of castings. *Engineer* 132:70 J1 15 '21
- Ueber die härteprüfung weicher metalle, insbesondere der lagermetalle. P. Bardenheuer. *diag Stahl & Eisen* 41:927-8 J1 7 '21
- Ueber elastische nachwirkung und elastische hysteresis bei metallen. H. von Wartenberg. *Stahl & Eisen* 41:56-7 Ja 13 '21
- Use of the scleroscope on light specimens of metals. F. S. Tritton. *il diags Engineering* 112:492-3; Discussion. 483-4 S 30 '21
- See also* Brinell hardness test; Charpy impact test; Magnetic testing; Microhardness; Modulimeter; Shock tests; Testing machines; *also* subdivision Testing under names of metals, e.g. Sheet metal—Testing, Steel—Testing
- Metamorphic rocks.** *See* Rocks, Crystalline and metamorphic
- Meta-phenylene-diamine.** *See* Phenylenediamine
- Metastannic acid**
- Adsorption of arsenious oxide by metastannic acid. T. R. Briggs and W. J. Bartlett. *Am Electrochem Soc Trans v* 37: (preprint 34):449-59 Ap '20

Metazoa

- Why metazoa die. R. W. Conant. *Sci Am* 122:389 Ap 10 '20

Meteorites

- Ballistics of volcanoes. E. Belot. *il diags Sci Am M* 1:292-7 Ap '20
- Bombardments from the skies. *il Sci Am* 121: 584 D 13 '19

Meteorograph

- Getting a line on the higher atmospheres. S. R. Winters. *il Sci Am* 125:233+ O 1 '21
- Lightest meteorograph for rocket exploration. S. R. Winters. *il Pop Mech* 34:827-8 D '20

Meteorological instruments

- Getting a line on the higher atmospheres. S. R. Winters. *il Sci Am* 125:233+ O 1 '21
- Lightest meteorograph for rocket exploration. S. R. Winters. *il Pop Mech* 34:827-8 D '20
- Turning show windows into weather bureaus. H. L. McCredie. *Ptr Ink* 110:113-14 Ja 8 '20
- See also* Altimeter; Anemometer; Barometers; Hygrometer; Nephoscope; Thermometers and thermometry

Meteorological optics

- Relative spectral transmission of the atmosphere. E. Karrer and E. P. T. Tyndall. *il diags U S Bur Stand Sci Pa* 389:377-408 '20

Meteorological society, American. *See* American meteorological society**Meteorology**

- Bumpiness in flying; effects of winds and other weather conditions on the flight of airplanes. C. Brooks and others. *diags Sci Am M* 1:126-30 F '20
- Climatological factors governing the selection of air routes and flying fields. C. L. Meisinger. *Aerial Age* 12:368-9+ D 13 '20; Same. *Aviation* 9:423-5 D 13 '20; Same. *Sci Am M* 3:68-70 Ja '21
- Contribution to the meteorology of the English channel. H. D. Grant. *il diags Aeronautical J* 25:25-38 Ja '21
- Elgie's weather book for the general reader. J. H. Elgie. 251p Wireless press, New York '20
- Flying weather in the southern plains states. J. A. Reihle. *Aviation* 10:339-40 Mr 14 '21
- Handbook of meteorology. J. W. Redway. 294p Wiley '21
- Meteorological acoustics. W. J. Humphreys. *il diags J Fr Inst* 191:581-617 My '21
- Meteorology in the service of aviation. G. Dobson. *Aeronautical J* 25:223-9 My '21; Excerpts. *Aerial Age* 13:350 Je 20 '21; Discussion. *Aeronautical J* 25:230-3 My '21
- Physics of the air. W. J. Humphreys. 665p Lippincott '20
- Supply of meteorological information. H. G. Lyons. *il Aviation* 7:346-8 N 15 '19
- What airmen can do for meteorology. *Aviation* 10:397-8 Mr 28 '21
- See also* Air; Atmosphere; Atmospheric electricity; Atmospheric temperature; Auroras; Climate; Clouds; Earth temperature; Floods; Fog; Frost; Humidity; Ice on rivers, lakes, etc.; Lightning; Magnetism, Terrestrial; Rain and rainfall; Snow; Solar radiation; Storms; Thunderstorms; Weather; Weather forecasts; Winds

Meteors

- Height and velocities of meteors; sources of the dust and debris which our earth encounters in its orbit. W. F. Denning. *Sci Am M* 2:196-7 N '20

Meter reading

- Bonus system increased number of meters read by 50 per cent. *Elec W* 75:1488 Je 26 '20; Same. *Eng & Contr* 54:46 J1 14 '20
- Bonus yields 6,000 meter readings per man per month. *Elec W* 77:270 Ja 29 '21
- Meter reading and collections. *Elec W* 77: 1251-4 My 28 '21
- New York company conducts school for meter readers. *Elec W* 77:160 Ja 15 '21
- Piece-work system in meter reading. J. A. A. Beaudin. *Munic Eng* 58:40+ Ja '20; Same. *Eng & Contr* 53:159-60 F 11 '20
- Rules and regulations for water meter readers. *Eng & Contr* 56:42-6 J1 13 '21

Meter reading—Continued

What does the meter read? H. Mulford. Power 51:641 Ap 20 '20

Meters

Power plant instruments and meters. E. G. Bailey. *il diags* Eng Soc W Pa 36:381-99 Jl '20; Same cond. Power Pl Eng 24:1067-9 N 15 '20; Discussion. Eng Soc W Pa 36:400-8 Jl '20

Selection of steam plant meters. J. W. Andree. *il Elec W* 76:1014-17 N 20 '20

See also Air flow; Electric meters; Flow meters; Frequency meters; Gas meters; Meter reading; Micrometers; Petrometer; Steam meters; Tachometers; Venturi meters; Viscosimeters; Volumeters; Water meters; Weirs

Meters, Current. *See* Current meters

Meters, Electric. *See* Electric meters

Meters, Graphic. *See* Graphic meters

Meters, Steam. *See* Steam meters

Methane

Catalytic methane from blue gas. M. Meredith. Gas Age 47:7-8 Ja 10 '21

Preparation of methane; patent. Chem & Met Eng 23:1132 D 8 '20

Propagation of flame in mixtures of methane and air. W. Mason and R. V. Wheeler. Mech Eng 42:239-40 Ap '20

See also Firedamp

Methanetetra-acetic acid

Experiments on the synthesis of the poly-acetic acids of methane; some abnormal condensations of malonic and cyanoacetic esters with halogenated methanes. C. K. Ingold and W. J. Powell. Chem Soc J 119:1222-31 Ag '21

Methanetriacetic acid

Experiments on the synthesis of the poly-acetic acids of methane; the conditions controlling synthesis by the cyanoacetic ester method. C. K. Ingold and E. A. Perren. Chem Soc J 119:341-54, 1582-1601 Mr, O '21

Methanol. *See* Alcohol, Wood

Methiodides

Methiodides of the condensation products of some cyclic aldehydes with quinaldine and alpha picoline, and their possible value as indicators in acidimetry. L. F. Werner. Am Chem Soc J 42:2309-14 N '20

Methyl alcohol. *See* Alcohol, Wood

Methylacetone. *See* Methyleneethylketone

Methylamines

Methyl amines from methyl alcohol and ammonium chloride. W. D. Turner and A. M. Howald. Am Chem Soc J 42:2663-5 D '20

Methylaminoethylglyoxaline

4-β-methylaminoethylglyoxaline. R. G. Fargher and F. L. Pyman. Chem Soc J 119:734-40 My '21

Methyl anthranilate

Detection of methyl anthranilate in fruit juices. F. B. Power. Am Chem Soc J 43:377-81 F '21

Methylation

Methylation of cellulose; homogeneity of product and limit of methylation. W. S. Denham. Chem Soc J 119:77-81 Ja '21

Methyl-benzophenone chloride

4-methyl-benzophenone chloride and its condensation with phenol. F. C. Hahn. Am Chem Soc J 43:175-9 Ja '21

Methyl bromide

Methyl bromide poisoning. F. Rohrer. J Ind Hygiene 2:sup193-4 F '21

Methylcyclohexane-dionedicarboxylate

Synthese des cyclohexan-1.4-dion-2.3-dicarbonsäure-dimethylesters, eines *ortho*-isomeren des succinyl-bernsteinsäure-esters. B. Helferich. Deutsche Chem Gesell Ber 54:155-62 Ja '21

Methylene group

Investigation on the influence of negative groups of different character on the reac-

tivity of hydrogen atoms carried by the same carbon atom. B. M. Gupta. Chem Soc J 119:298-304 Mr '21

Methylenedioxyphenylethylamine

β-hydroxy-β-3:4-methylenedioxyphenylethylamine and its derivatives. F. A. Mason. Chem Soc J 119:1077-81 Jl '21

Methylethylketone

Manufacture of methylethylketone from normal butyl alcohol. T. C. Newman. Chem & Met Eng 22:811 Ap 28 '20

Methyl iodide

Über die einwirkung von methyljodid auf α- und γ-amino-chinolin. A. E. Tschitschibabin. Deutsche Chem Gesell Ber 54:822-5 Ap '21

Methylmalonic acid

Umwandlung von malonsäure in glykokoll und von methyl-malonsäure in α-alanin. T. Curtius and W. Sieber. Deutsche Chem Gesell Ber 54:1430-7 Jl '21

Methylpentosans

Determination of methylpentosans in plant materials. E. Heuser. Paper 28:26-7 My 4 '21

Methyluric acid. *See* Uric acid

Metric system

Adoption by the colleges of standard metric units. E. C. Bingham. J Ind & Eng Chem 13:1068-70 N '21

Adoption of the metric system would do untold damage. H. R. Towne. Ind Management 59:473-4 Je '20

Against a compulsory metric law. Am Mach 52:631-4 Mr 18 '20

Anti-metric resolutions of representative industrial bodies. E. Viall. Am Mach 53:916-17 N 11 '20

Are the South American countries metric? C. C. Stutz. Mach 27:871-2 My '21

British scientific societies' committee reports against compulsory metrics. Am Mach 54:40-a Ja 6 '21

Committee on technical standards, recommends use of English measuring system. Am Mach 53:647-8 S 30 '20

Cost of changing to the metric system. Ind Management 61:202 Mr 1 '21; Same. Am Mach 54:584b Mr 31 '21

Cost of the metric system to the machinist. C. C. Stutz. Am Mach 54:735 Ap 28 '21

Danger of compulsory metric standards. H. S. Demarest. Am Mach 54:949-50 Je 2 '21

Decimals and their application to costing. G. E. M. Johnson. Eng & Ind Management 5:13-14 Ja 6 '21

Eight-digit system. G. H. Cooper. Sci Am 122:111 Ja 31 '20

English and the metric measuring system—a comparison. C. C. Stutz. *diags* Am Mach 53:911-13 N 11 '20

English opinion on the metric system. H. F. Hemmings. Mach 27:150 O '20

Experience with the metric system. L. C. Sharpe. Am Mach 52:1063 My 13 '20

High cost of metric measurements. W. B. Bennett. Am Mach 53:1017 N 25 '20

Inches versus millimeters. J. Hartness; H. D. Sharpe; C. H. Norton. *il Mach* 26:715-19 Ap '20

Latin-American situation regarding weights and measures. L. D. Burlingame. Mech Eng 43:277-8 Ap '21

Meters and inches. C. H. Peabody. Int Marine Eng 25:483 Je '20

Metric attack on industry. Ind Management 59:425-6 My '20

Metric bill in Congress. Min & Met 173:4-5 My '21

Metric bill is introduced in the House of representatives, April 11, 1921; text. Am Mach 54:800c-d My 5 '21

Metric chaos in daily life. Iron Age 105:679 Mr 4 '20; Same. Am Mach 52:917 Ap 22 '20

Metric conversion tables, English equivalents to metric weights and measurements. 39p Carnegie steel co., Pittsburgh '21

Metric equivalent scheme. F. A. Halsey. *diags* Mach 27:665-7 Mr '21

Metric fallacy. F. A. Halsey. Int Marine Eng 25:146 F '20

Metric system—Continued

- Metric non sequitur. Sci Am 122:111 Ja 31 '20
 Metric system and the lumber industry in South America. Am Mach 53:1068h D 2 '20
 Metric system applied to the rubber industry. C. C. Stutz. India Rubber W 62:481-5 My '20
 Metric system, attitude of the Westinghouse company. M. C. Turpin. Ry R 67:316-17 Ag 28 '20
 Metric system bill introduced in the Senate. Am Mach 53:1248-9 D 30 '20
 Metric system favored. Iron Age 108:1010 O 20 '21
 Metric system hocus-pocus. Am Ind 20:22-5 My '20
 Metric system in an American shop; advantages. T. H. Miller. Mach 26:1128-9 Ag '20
 Metric system in Japan. Eng & Ind Management 5:482 Ap 28 '21
 Metric system in Japan. J. H. Blakey. Power Pl Eng 25:673 Jl 1 '21
 Metric system not wanted in British optical industry. Am Mach 53:1162 D 16 '20
 Metric system; why we should measure in meters, grams and liters, without reservations. H. T. Wade. Sci Am 123:119, 125 Ag 7 '20
 Metric trouble. A. D. Lee. Am Mach 53:618 S 30 '20
 New units in the metric system—legally adopted in France. Sci Am M 2:152 O '20
 Pan-Americanism in weights and measures. F: A. Halsey. Am Mach 52:784-6 Ap 8 '20
 Present status of the metric argument. F: A. Halsey. Am Mach 54:815 My 12 '21
 Report of the Cleveland Chamber of commerce on the metric system. map Am Mach 53:283-7 Ag 5 '20
 Report of the special committee of N.W.D. A. on metric weights and measures. Oil Paint & Drug Rep 100:17 O 4 '21
 Resolution passed against compulsory adoption of metric system. Soc Auto Eng J 7: 155; Discussion. 155-6 Ag '20
 Scientific England and the metric system. Ind Management 61:154 Mr 1 '21
 Some effects of compulsory use of the metric system. C. C. Stutz. Am Mach 52:693-4 Mr 25 '20
 Some experience with the metric system. F: A. Pope. Am Mach 52:1298-9 Je 17 '20
 Veracity of pro-metric statements. Am Mach 52:472-3 F 26 '20
 What leaders in the electrical field think of the compulsory metric system. Am Mach 52:523-4 Mr 4 '20
 What real he men think of the compulsory metric system. Am Mach 52:360-4, 415-20 F 12-19 '20
 Why has the metric system not been adopted in America? Eng & Contr 54:176 Ag 25 '20
 Why it should be done the metric way. H. Richards, jr. Min & Met 173:13-14 My '21
 Why the metric system should not be adopted. W. R. Ingalls. Min & Met 173:15-16 My '21
 Why the Westinghouse company does not use the metric system. Mach 27:22 S '20; Same. Textile World 58:1539+ S 4 '20
See also Decimal system

Bibliography

- Metric literature clues: a list of references to books, pamphlets, documents and magazine articles on standardization of weights and measures. C. Hildebrand. 64p '20 World Trade Club, 681 Market St., San Francisco
Metropolitan district railway
 Steel rolling stock for the Metropolitan district railway. il diags Engineering 111:12-14, 37, 102, pl 2-3, 5 Ja 7-14, 28 '21
Metropolitan life insurance company, New York
 Personnel management of the Metropolitan life insurance company. L. Washington. Ind Management 62:27-32 Jl '21
 Tuberculosis sanatorium at Mount McGregor, N.Y., for the employees of the Metropolitan life insurance company. D. E. Waid. il diags plans Arch Forum 32:15-20, pl 1-6 Ja '20
Metropolitan museum of art. *See* New York (city)—Metropolitan museum of art

Metropolitan railway of London

- New coaches for Metropolitan railway of London. F: C. Coleman. il plans Ry Age 68: 1037-40 Mr 26 '20; Abstract. Ry Mech Eng 94:211-13 Ap '20

Metropolitan-Vickers electrical company, ltd.

- Metropolitan-Vickers electrical co., ltd.—Trafford Park works. il Elec R (Lond) 89: 75-6 Jl 15 '21
 21st annual report. Elec R (Lond) 88:559-60 Ap 29 '21

Meuse river

- Projet de voies de transport pour les houillères du Limbourg hollandais. plan Génie Civil 76:279 Mr 13 '20

Mexican border

- Dodging prohibition along the Mexican border. J: E. Hogg. il Pop Mech 33:807-11 Je '20

Mexicans

- Management of Mexican labor. A. Crittenden. Min & Sci P 123:267-9 Ag 20 '21
 Mexican miner's dinner-pail and its relation to production. C. M. Wright. Ptr Ink 112: 101-2 S 9 '20
 Mexicans: who and what they are. il Min & Sci P 121:443-51 S 25 '20
See also Labor and laboring classes—Mexico

Mexicans in the United States

- Results of admissions of Mexican laborers, under departmental orders, for employment in agricultural pursuits. Monthly Labor R 11:1095-7 N '20

Mexico

- Administration must display force in dealing with Obregon. A. R: Hinton. Nat Pet N 13: 33+ F 9 '21
 Government of Mexico to acquire utility properties. Elec R 77:610 O 16 '20
 Industrial conditions in Cuba and Mexico. E. H. Farrell. Mach 27:839 My '21
 Mexican port improvements. Engineer 131: 348 Ap 1 '21
 Mexicans: who and what they are. il Min & Sci P 121:443-51 S 25 '20
See also Architecture—Mexico; Banks and banking—Mexico; Geology—Mexico; Railroads—Mexico; United States—Foreign relations—Mexico; *also* American association of Mexico

Commerce

- Friendly visit to Mexico. Nation's Business 9: 57+ F '21
 Mexico—a great coming market for American manufacturers. il Americas 7:6-12 Ja '21
 Our new market in Mexico. E. R. Murphey. map System 39:194-5+ F '21
 Register trade-marks now in Mexico. Ptr Ink 112:85-6 Ag 5 '20

Economic conditions

- Conditions in Mexico. il Min & Sci P 121: 345-8 S 4 '20
 Economic and banking conditions in Mexico. Comm & Fin Chr 113:1301-2 S 24 '21
 Economic conditions in Mexico. Comm & Fin Chr 111:1630 O 23 '20
 Economic Mexico of to-day. il Am Ind 21:37-40+ Jl '21
 Economic situation in Mexico. Min & Sci P 122:266 F 19 '21
 Growing confidence in Mexico's economic development. J. Moritzen. Annalist 17:233+ F 14 '21
 Interviews with governors of Zacatecas and Durango. A. T. Benitez. Min & Sci P 121: 667-8 N 6 '20
 Mexican peon problem. G. F. Campbell. Eng & Min J 109:1056-7 My 8 '20
 New Mexican government to encourage automotive sales. H. H. Dunn. Automotive Ind 42:1203+ My 27 '20
 Ore buying in Mexico. C. A. Grabill. Eng & Min J 109:694-7 Mr 20 '20
 Our financial relations with Mexico. J. Speyer. Comm & Fin Chr 112:15-16 Ja 1 '21; Same. Annalist 17:17 Ja 3 '21
 Present conditions in Mexico. Annalist 18: 172 Ag 22 '21

Mexico—Economic conditions—Continued

- Present conditions in Mexico. J: B. Glenn. Comm & Fin Chr 113:1020 S 3 '21
 Prospects in Mexico. Min & Sci P 120:855-6 Je 12 '20
 Reconstruction in Mexico. Min & Sci P 122:501-3 Ap 9 '21
 Reports on visit to Mexico. R. W. Wier. Am Lumberman 2339:50 Mr 13 '20
 Sales follow in the train of peace in Mexico. C. M. Wright. Ptr Ink 113:28+ O 21 '20
 Through Villa territory. il Eng & Min J 110:463-6 S 4 '20
 What's ahead for business in Mexico. A. Obregon. il System 40:401-4+ O '21
See also Finance—Mexico; Labor and laboring classes—Mexico

Foreign relations

- President Obregon declares treaty with U.S. neither possible nor necessary—re-opening of banks. Comm & Fin Chr 113:1019-20 S 3 '21
See also United States—Foreign relations—Mexico

Industries and resources

- American engineer in Mexico. D: Stock. Ind Management 61:84 F 1 '21
 Mexico, a petroleum storehouse. Power 51:78-9 Ja 13 '20
 Mexico's industrial progress since Diaz. J: E. Kelly. Eng & Min J 110:941-3 N 13 '20
 Mining industry of Mexico: a historical sketch. R. G. Cleland. il map Min & Sci P 123:13-20 Jl 2 '21
 Oil men deserve U.S. protection in Mexico; intervention unnecessary. F: R. Kellogg. Nat Pet N 12:47-8 N 24 '20
 Smelting practice in the Zimapan district, Mexico. R. B. Brinsmade. il Min & Sci P 123:433-6 S 24 '21
See also Iron ores—Mexico; Mines and mineral resources—Mexico; Petroleum—Mexico; Petroleum industry—Mexico; Silver mines and mining—Mexico; Steel works—Mexico

Law

- Further comments on the Naica case. H: Bruere. Eng & Min J 111:976 Je 11 '21
 Laws affecting oil exploitation in Mexico. C. A. Grabill. Min & Sci P 122:635-8 My 7 '21
 Naica case. Eng & Min J 111:816 My 14 '21
 Naica controversy. Eng & Min J 111:320-1, 576-7 F 12, Ap 2 '21
 Reclamation of Mexican mining titles. P. W. Meyers. Eng & Min J 112:406-9, 685-7 S 10, O 29 '21

Politics and government

- Mexican revolution. il Min & Sci P 121:7-10 Jl 3 '20
 Stable government for Mexico. Min & Sci P 120:148-52 Ja 31 '20

Railroads

See Railroads—Mexico

Meyercord, George R.

- George R. Meyercord, who built an outstandingly successful group of four companies, all from one first idea. J. H. McCullough. por System 39:814+ Je '21

Miami river

- Costs of concrete, and organization, employed on the Taylorville works of Miami conservancy district. il chart plans Eng & Contr 55:152-4 F 16 '21
 High-speed block-laying on Miami river levees. il Eng N 85:248-9 Ag 5 '20
 Highest Miami flood since 1913 tests conservancy works. il Eng N 84:944-5 My 13 '20
 Miami valley flood protection rapidly progressing. Eng N 85:978-9 N 18 '20

Mica

- Ground mica. Eng & Min J 110:911 N 6 '20
 Indian mica industry. Chem & Met Eng 23:960 N 17 '20
 Mica in 1918. W. T. Schaller. U S Geol S Min Res of U S 1918, pt 2:629-94 '20

- Mica in 1919. H. Insley. U S Geol S Min Res of U S 1919, pt 2:269-77 '21
 Mica in 1919. J. V. Lewis. Eng & Min J 109:237-8 Ja 17 '20
 Mica industry in 1920. J. V. Lewis. Eng & Min J 111:158 Ja 22 '21
 Mining and preparation of Rhodesian mica. Eng & Min J 111:313 F 12 '21
 Our mineral supplies; mica, monazite, and lithium minerals. W. T. Schaller. U S Geol S Bul 666:153-5 '19
 Some facts regarding mica for commutator insulation. il Elec R 79:346 S 3 '21
 Templet for cutting commutator mica segments. W. A. Harris. diag Power 51:635 Ap 20 '20

Testing

- X-ray in the shop. G: Gaulois. il Sci Am 122:271+ Mr 13 '20

Mice. *See* Field mice

Michigan

See also Mines and mineral resources—Michigan

Michigan agricultural college

- Shop courses in metallurgy at the Michigan agricultural college. H. B. Dirks. il Am Mach 52:961-2 Ap 29 '20; Same. Iron Age 105:1245-6 Ap 29 '20

Michigan Central railroad

- Annual report of the Michigan Central for 1920; editorial. Ry Age 71:476-7 S 10 '21
 74th annual report for the year ended December 31, 1919. Ry Age 69:385, 422-4 S 3 '20; Same abr. Comm & Fin Chr 111:803-4 Ag 21 '20
 75th annual report for the year ended December 31, 1920. Comm & Fin Chr 113:1063-4 S 3 '21; Same abr. Ry Age 71:513-14 S 10 '21

Michigan college of mines

- Michigan college of mines in the nineteenth century. M. E. Wadsworth. Eng Educ 11:230-56 Ja '21

Michigan university

- University of Michigan gas course. J. G. Ames. il Gas Age 48:45-9 Jl 25 '21

Micro-balance. *See* Balances

Microcharacter

- Testing hardness of bearings and journals. il diags Iron Age 106:1727-30 D 30 '20

Microchronograph

- Microchronograph at the Royal observatory, Edinburgh. R. A. Sampson. diags Engineering 112:500-1 O 7 '21

Micrometers

- Bath internal micrometer and master ring gages. il Iron Age 107:857-8 Mr 31 '21; Iron Tr R 68:1046-7 Ap 14 '21; Ry Mech Eng 95:326 My '21
 Bath internal thread micrometer. il Am Mach 54:1102 Je 23 '21; Ry Mech Eng 95:463 Jl '21
 Converting micrometer readings into metric measure; table. C. E. Josselyn. Am Mach 53:1149 D 16 '20
 Handy micrometer attachments. H. H. Parker. diags Mach 27:275-6 N '20
 Improvement in inside micrometers. W: S. Rowell. diags Mach 26:423 Ja '20
 Interesting old micrometer. W: Older. il Am Mach 53:780 O 21 '20
 Levelling micrometer for testing and balancing of turbines. il Engineering 110:210 Ag 13 '20
 Making the Almond micrometer. E. Viall. il diag Am Mach 53:605-11 S 30 '20; Correction. Am Mach 53:927 N 18 '20
 Measuring the two-hundred millionth part of an inch; the ultra-micrometer. Mech Eng 43:59 Ja '21
 Micrometer calipers in railway shops. M. H. Williams. il diags Ry Mech Eng 94:597-600 S '20
 Micrometer for setting cutter in boring-bar. N. McCleod. diags Mach 26:456 Ja '20
 Micrometer reading direct to a ten-thousandth inch. M. Jacker. diag Mach 26:1162 Ag '20
 Micrometer replaces plug gauges. il Pop Mech 36:399 S '21

Micrometers—Continued

- Recording ultra-micrometer. J: J. Dowling. Engineering 112:395 S 9 '21
 Ultra-micrometer; abstracts. R. Whiddington. diags Mech Eng 43:49-50 Ja '21; Sci Am M 3:90-1 Ja '21; J Fr Inst 191:569-70 Ap '21

Testing

- Checking the accuracy of micrometer measurements. E. Sheldon. Am Mach 55:562-3 O 6 '21
 Precision measuring and inspection devices; optical methods developed at the British national physical laboratory. R. J. Whibley. il diags plan Mach 27:135-9, 242-5 O-N '20; Discussion. 27:258 N '20
 Testing the accuracy of micrometers in common use. C. A. Hubbell. Am Mach 53:209-10 Jl 29 '20

Microorganisms

- Laboratory manual in general microbiology. 2d ed. 472p Wiley '21
 Microbes two thousand years old; Methuselahs of the microscopic world found in papyrus of the Ptolomaic era. Sci Am M 2:11 Jl '20
 Microscopic water contaminators. M. C. Kahn. il Sci Am M 2:28-32 Jl '20
 Symbiotes or benevolent microbes and vitamins. M. Tevis. Sci Am S 88:282-3 N 15 '19
See also Bacteriology; Protozoa

Microphone for the deaf

- New microphone for the deaf. Sci Am M 3:364 Ap '21

Microphones

- Meniscus microphones. diag Engineer 131:442 Ap 22 '21
 Microphone stethoscope for bearings. il diags Engineering 111:546 My 6 '21

Microphotometer

- New microphotometer for photographic densities. W. F. Meggers and P. D. Foote. il diag U S Bur Stand Sci Pa 385:299-308 '20
 New registering microphotometer. W. J. H. Moll. Electrician 86:493-4 Ap 22 '21; Same. Engineering 111:562 My 6 '21

Microscope and microscopy

- Approximate quantitative microscopy of pulverized ores, including the use of the camera lucida. W. H. Coghill and J. P. Bonardi. bibliog il U S Bur Mines Tech Pa 211:1-17 '19
 Better light for microscopy. H. E. Howe. il Sci Am 122:223+ F 28 '20
 Compound microscope and its value in the mill. I. L. Gartland. Paper 27:14-17+ Mr 2 '21
 Foods under the microscope. L. A. Hausman. il Sci Am M 3:513-16 Je '21
 Handy form of measuring microscope. T. F. Connolly. diags Engineering 111:355 Mr 25 '21
 Microscope: its design, construction, and application; symposium. Engineer 129:85-7 Ja 23 '20; Engineering 109:86-7, 106-7 Ja 16-23 '20
 Microscope, its design, construction and applications. F: S. Spiers. 260p [Bibliog. p 30-36] C. Griffin & co., ltd., London '20
 Microscopy with ultra-violet light; increased resolution obtained by using the short-wave light beyond the visible spectrum. J. E. Barnard. il Sci Am M 3:219-20 Mr '21
 New illuminator for microscopes. A. Silverman. il J Ind & Eng Chem 12:1200-2 D '20
 New illuminator for microscopes; the Silverman. il Textile World 57:2009 Mr 13 '20
 New microscope illuminator. diag Chem & Met Eng 22:281 F 11 '20
 Reflecting microscope for the mining engineer. W. M. Davy. diag Min & Met 163:30-1 Jl '20; Same. Sci Am M 2:95 Jl '20
 Romance of the microscope. C: A. Ealand. 314p Lippincott; Seeley, Service & co., ltd., London '21
See also Metallography; Photomicrography

Middle West utilities company

- Improved service to 500 communities. il maps Elec W 77:1210-19 My 28 '21
 Relations between management and public. il Elec W 77:1221-3 My 28 '21

Middle western states

- See* Electric plants (central stations)—Middle Western states

Midvale steel and ordnance company

- 4th annual report—for the fiscal year ended December 31, 1919. Comm & Fin Chr 110:1199-1200 Mr 20 '20; Excerpt. Iron Age 105:815 Mr 18 '20

Midwest refining company

- Seventh annual report—for the year ending December 31 1920. Comm & Fin Chr 112:2097 My 14 '21

Migratory cells. *See* Cells, Migratory**Mildew**

- Testing the mildew resistance of textiles. B. S. Levine and F. P. Veitch. J Ind & Eng Chem 12:139-41 F '20; Same. Textile World 57:1633+ F 28 '20

Miles-acid process. *See* Tanning—By-products**Military administration**

- Les transformations de l'armée. A. Ranc. Chimie & Ind 5:88-95 Ja '21

Military aeronautics. *See* Aeronautics, Military**Military airplanes. *See* Airplanes, Military****Military art and science**

- Mechanical warfare on land and sea. Engineering 111:31-2 Ja 14 '21

See also Aeronautics, Military; Artillery; Camps, Military; Chemical warfare; Disarmament; Gases in warfare; Guns (ordnance); Intrenchments; Mines, Military; Mines, Submarine; Naval art and science; Projectiles; Smoke screens; Submarine boats; Tractors, Military; Transportation, Military

Military engineering

See also Armies—Water supply

Military explosives. *See* Explosives, Military**Military medals. *See* Medals, Military and naval****Military mines. *See* Mines, Military****Military roads. *See* Roads, Military****Military service****Physical fitness**

- Health of the British population judged by the examination of recruits in 1917 and 1918. Int Labour R 1:241-57 F '21

- Physical disabilities in military and industrial life. Monthly Labor R 12:812-16 Ap '21

Military telegraph. *See* Wireless telegraph in war**Military topography**

- Field survey troops: their work at the front. E. W. Berry. diags Can Eng 38:317-20 Mr 25 '20

Military tractors. *See* Tractors, Military**Military training, Compulsory**

- National life insurance on the endowment plan. T. McIlvane. Sci Am 122:426 Ap 17 '20
 Taking chances. Sci Am 122:416 Ap 17 '20

Military transportation. *See* Transportation, Military**Milk**

- Battle for health. Sci Am 124:367 My 7 '21
 Cryoscopy of milk. J. Hortvet. il J Ind & Eng Chem 13:198-208 Mr '21
 Food versus feed; the benefits to be derived from eating skim milk instead of giving it to the barnyard stock. A. L. Dahl. il Sci Am 121:632+ D 27 '19
 Meat and milk in the food supply. Sci Am M 1:463-4 My '20
 Milk and petroleum. E: G. Acheson. Sci Am M 1:324-5 Ap '20
See also Cheese; Cream separators; Milk supply

Milk—Continued

Analysis

Volumetric method for the detection and estimation of neutralizers in butter and in certain allied products. L. W. Ferris. diag J Ind & Eng Chem 12:757-60 Ag '20

Pasteurization

Refrigeration study course—applications of refrigeration. H. J. Macintire. diags Power 52:943-4 D 14 '20

Prices

Further advance in milk prices. Comm & Fin Chr 110:39-40 Ja 3 sec 1 '20

Testing

Making the milkman fear the pump. J. Anderson. il Sci Am 122:643+ Je 12 '20

Transportation

Glass-lined steel tank-body for motor transport of milk. il Sci Am 124:154 F 19 '21

Trucking milk long distances without spoilage and at lower cost. Sci Am 125:187 S 10 '21

Use of car tanks for transporting milk. il Ry R 69:543-4 O 22 '21

Milk, Condensed

Condensing of milk. R. G. Skerrett. Sci Am 125:11+ J1 2 '21

Advertising

Advertising sells canned milk to farmers. Ptr Ink 110:154+ Mr 25 '20

Waste and how to stop it; advertising and merchandising plan of Indiana condensed milk company is lesson in food conservation. C. M. Harrison. Ptr Ink 116:114+ J1 7 '21

Milk, Dried

Dehydration of milk. Am Soc Heat & V E J 26:672-3 O '20

Milk, Pasteurized

Precipitation of grain-curd casein from pasteurized milk, including sweet cream buttermilk. H. F. Zoller. J Ind & Eng Chem 13:510-14 Je '21

Milk, Reconstructed

Milk without cows. S. R. Winters. il Sci Am 124:325+ Ap 23 '21

Milk houses

Combined ice and milk house for the farm. J. H. Van Nice. diag Pop Mech 33:443-4 Mr '20

Milk plants, Municipal. See Milk supply—Municipal distribution

Milk river

Irrigation water divided between United States and Canada. B: E. Jones. il map Eng N 85:1277-9 D 30 '20; Same. Can Eng 40:347-9 Mr 31 '21

St Mary and Milk river dispute. Can Eng 40:137 Ja 13 '21

Water supply of St Mary and Milk rivers, 1898-1917. B. E. Jones and R. J. Burley. il map U S Geol S Water-supply Pa 491:1-590 '20

Milk supply

Clean milk for consumers; present-day technique in the production and care of milk. M. Tevis. il Sci Am M 4:56-60 J1 '21

Marketing of whole milk. H: E. Erdman. 333p Macmillan '21

Municipal distribution

Municipal milk for Jamestown. P. A. Davis. Pub Works 49:284 S 25 '20

Municipal milk plant for Jamestown. Eng N 85:792 O 21 '20

New York

State milk commission to regulate milk supply recommended to Governor Smith. Comm & Fin Chr 110:36-9 Ja 3 sec 1 '20

Milk trade

High cost of milk. D. B. Devendorf. Sci Am 123:61 J1 17 '20

How big milk company checks up deliveries. Ptr Ink 112:85-6 S 2 '20

Milk-by-the-can plan. Sci Am 125:153 Ag 27 '21

Summary of report of the Federal trade commission on milk and milk products, 1914-1918. 19p U.S. Federal trade commission. Washington '21

See also Milk—Prices

Advertising

Co-operative campaign to educate public to advantages of milk. Ptr Ink 110:70+ Ja 22 '20

Giving the consumer a voice in price determination. A. E. Haase. Ptr Ink 111:73-4+ Je 3 '20

More milk for children, purpose of this campaign. Ptr Ink 110:117-18 F 12 '20

Regulation

State milk commission to regulate milk supply recommended to Governor Smith. Comm & Fin Chr 110:36-9 Ja 3 sec 1 '20

Milking machines

Period of suspicion in introducing labor-saving devices. M. Martin. Ptr Ink 110:3-4+ Ja 22 '20

Milkweed

Experiment with milkweed. G. R. Merrill. Textile World 57:2155+ Mr 20 '20

Utilization of the common milkweed; possibilities of the oil as a paint oil. A. C. Neish and J. W. Burns. Can Chem & Met 5:316-19 N '21

Miller, Edward F.

Real steam man. por Power 51:927-8 Je 8 '20

Miller, Fred J., 1857-

Newly elected president of the A. S. M. E. por Mach 26:407 Ja '20

Portrait. Mech Eng 42:front Ja '20

Sketch. por Power 50:729 N 11 '19; Iron Tr R 65:1602 D 11 '19

Miller, John Barnes, 1869-

Sketch. por Elec W 78:702 O 8 '21

Millikan, Robert Andrews, 1868-

Sketch. por Elec W 78:502 S 10 '21

Milline

Constructive side of milline. B: H. Jefferson. Ptr Ink 117:17-20 O 20 '21

Milline—a new term for the measure of advertising. B: H. Jefferson. Ptr Ink 112:25-6 S 9 '20

Milline applied to papers of small circulation. B: H. Jefferson. Ptr Ink 115:114 Je 16 '21

Milline rate of a piece of cheese. Ptr Ink 117:149-50+ O 20 '21

Milline system does away with awkward decimals. B: H. Jefferson. Ptr Ink 116:25-8 J1 7 '21

Questions asked and answered regarding millines. B: H. Jefferson. Ptr Ink 115:17-19 My 12 '21

Millinery industry

Health hazards in the millinery industry in New York city. Monthly Labor R 11:319-21 Ag '20

Advertising

Movie star's personality centre of advertising campaign. H. A. Ballard. Ptr Ink 110:140+ F 19 '20

Milling

Application of new Ingersoll milling machines. il diags Mach 26:810-16 My '20

Cam milling attachment. W. C. Steuart. il diags Mach 27:574 F '21

Continuous milling of pump bodies. il chart Am Mach 54:108-9 Ja 20 '21

Continuous versus station milling. G: M. Meyncke. il diags Mach 27:151-3 O '20

Fixture for milling an ellipse. A. A. Fredericks. diags Am Mach 53:752-4 O 21 '20

Fixture for milling cam grooves. il plan Mach 26:410 Ja '20

Machining operations on a six-cylinder and crankcase block. P. M. Heldt. il Automotive Ind 43:712-16 O 7 '20

Milling a splined shaft. J. B. Gray. diags Mach 27:76 S '20

Milling and boring Winton cylinders. I. B. Rich. il Am Mach 52:623-4 Mr 18 '20

Milling—Continued

- Milling automobile connecting-rods. J. M. Henry. *il Mach* 27:1104-5 Ag '21
- Milling dovetail slots in armature spiders. *il diag Mach* 26:1052 J1 '20
- Milling internal threads in wood. L. B. Robbins. *diags Pop Mech* 35:136-7 Ja '21
- Milling operations on Herbert lathes in English shops. I. W. Chubb. *il Am Mach* 53:945-50 N 18 '20
- Milling peripheral cams on a lathe. E. Viall. *il Am Mach* 55:148 J1 28 '21
- Milling slender castings. F. D. Jones. *il diags plan Mach* 27:935-7 Je '21
- Milling square-stem pinions. *il diags Mach* 27:849-51 My '21
- Power consumed in milling. F. A. Parsons. *Am Mach* 53:315-16 Ag 12 '20
- Reducing costs by rotary milling. *il Mach* 28:202-5 N '21
- Right things wrongly applied. P. A. Fredericks. *diags Am Mach* 52:579-80 Mr 11 '20
- Unusual methods of securing extreme accuracy. A. L. De Leeuw. *il diags Am Mach* 52:595-9 Mr 18 '20

Milling (metallurgy). See Ore treatment

Milling cutters

- Adjustable milling cutter. S. B. Royal. *diags Pop Mech* 33:290 F '20
- Adjustable milling cutters. *il Ry Mech Eng* 94:167 Mr '20
- Attachment for grinding circular-formed teeth on milling cutters. E. E. Henry. *il Am Mach* 52:1357 Je 24 '20
- Characteristics of the forged milling cutter. W. G. Calkins. *il Am Mach* 55:424-7 S 15 '21
- Chrobalitic cast milling cutters. E. K. Hammond. *il Mach* 26:354-8 D '19
- Cutting teeth of special rack for sight mechanism. C. Hardy. *il diags Mach* 27:74 S '20
- Formed milling cutters with spiral teeth. *il Iron Age* 106:1197-8 N 4 '20; *Iron Tr R* 67:1283-4 N 4 '20
- Making a milling cutter in a railroad shop. F. A. Stanley. *il diags Am Mach* 53:504-5 S 9 '20
- Making Curvex milling cutters. *il diags Mach* 27:250-8 N '20
- Metal cutting tools. A. L. DeLeeuw. *diags Am Mach* 54:541-4, 610-13, 635-40, 732-5, 807-10, 897-902, 985-90 Mr 31-Apr 14, 28, My 12, 26, Je 9 '21
- Some applications of alloy steels in the automotive industry. H. J. French. *il Mech Eng* 42:504-5 S '20
- Spiral milling cutter for side rods. F. A. Stanley. *il diags Am Mach* 52:455-6 F 26 '20
- Spiral tooth milling cutter. *il Automotive Ind* 43:1317 D 30 '20
- Two new Goddard & Goddard high speed milling cutters. *il Ry Mech Eng* 94:420-1 Je '20

See also Boring-bars

Milling machinery. See Crushing machinery; Flour mills; Tube mills

Milling machines

- American milling machine co. no. 1½ plain and universal milling machines. J. V. Hunter. *il Am Mach* 53:690-1 O 7 '20
- Apparatus measures cutter pressure. *il Iron Tr R* 69:173 J1 21 '21
- Application of new Ingersoll milling machines. *il diags Mach* 26:810-16 My '20
- Archdale milling machines. *il Engineer* 130:244-5 S 10 '20
- Automatic multiple spindle milling machine with transfer table. *il Iron Age* 106:1388 N 25 '20; *Iron Tr R* 67:1483-4 N 25 '20
- Automatic profile milling machine is production tool. *il diags Iron Tr R* 66:1694 Je 10 '20
- Bench lathes and millers as production tools. *il diags Mach* 28:130-4 O '21
- Betts vertical multiple spindle milling machine of continuous operation. *il Iron Tr R* 67:385 Ag 5 '20; *Iron Age* 106:397 Ag 12 '20
- British standards for milling cutters and reamers. 67p British engineering standards association, London '20

Broadening the scope of a milling machine vise. D. A. Hampson. *diag Mach* 26:341 D '19

Brown & Sharpe high speed milling attachment. *il Iron Age* 106:1674 D 23 '20; *Mach* 27:483-4 Ja '21; *Ry Mech Eng* 95:51-2 Ja '21

Brown and Sharpe horizontal milling machine. *il diags Engineering* 111:484-6 Ap 22 '21

Brown & Sharpe no. 21 automatic milling machine. *il Ry Mech Eng* 94:409-10 Je '20

Brown & Sharpe no. 21 automatic milling machine. E. L. Dunn. *il Am Mach* 52:649-52 Mr 25 '20

Craftsman continuous rotary milling machines. *il Mach* 27:290-1 N '20

Cylinder milling fixture. *il diags Am Mach* 55:628 O 20 '21

Davis duplex continuous milling machine. *il Mach* 27:285-6 N '20; *Iron Age* 106:1266 N 11 '20

Ford-Smith no. 4 plain miller equipped with cone drive. *il Ry Mech Eng* 95:259 Ap '21

Gabrielson milling machine. *il diag Mach* 26:682-3 Mr '20

Garvin 12-in. cam milling machine. *il Iron Age* 105:345 Ja 29 '20; *Am Mach* 52:317-18 F 5 '20

Garvin 12-in. cam milling machine: a suggested improvement. J. Blakey and J. A. H. Shankley. *diags Eng & Ind Management* 5:566-8 My 19 '21

Horizontal milling machine, constructed by Alfred Herbert, Limited. *il Engineering* 110:834-6 D 24 '20

How to make group time studies for batteries of milling machines. P. Bernstein. *Ind Management* 61:187-9 Mr 1 '21

Indicating attachment for locating and boring holes on the milling machine. R. H. Kasper. *diags Am Mach* 53:556 S 16 '20

Ingersoll circular-table continuous milling machines. J. V. Hunter. *il diags Am Mach* 51:915-18 N 27 '19

Ingersoll continuous milling machines. *il diags Engineering* 110:222-4 Ag 13 '20

Ingersoll reciprocating type milling machines. *il Am Mach* 52:1217-18 Je 3 '20

Jackson vertical milling machines. *il Am Mach* 55:530-1 S 29 '21; *Iron Age* 108:803 S 29 '21; *Mach* 28:161 O '21

Johnson die milling machine. *il Am Mach* 55:367 S 1 '21

Kemp Smith no. 4 vertical maximiller. *il Am Mach* 52:582-3 Mr 11 '20; *Iron Age* 105:738 Mr 11 '20; *Iron Tr R* 66:714 Mr 4 '20; *Mach* 26:675-6 Mr '20; *Ry Mech Eng* 94:404-5 Je '20

Kemp Smith no. 2 plain maximiller for medium heavy work. *il Iron Age* 106:1474 D 2 '20; *Iron Tr R* 67:1417 N 18 '20; *Am Mach* 53:1065 D 2 '20

Machine for milling off crankshaft and camshaft ends. *il Automotive Ind* 43:1316-17 D 30 '20

Milling fixture for continuous circular milling. L. Ferenci. *diags Mach* 28:142 O '21

Milling machine dynamometer. *il Iron Age* 108:142 J1 21 '21

Milling machines designed to fulfill unusual requirements in quantity production. *il diags Mach* 26:856-62 My '20

Milling machines displayed at Machine tool and engineering exhibition. *il Engineering* 110:334-7 S 10 '20

Newton continuous miller does facing work. *il Iron Tr R* 67:1548-9 D 2 '20; *Am Mach* 53:1067 D 2 '20; *Iron Age* 106:1477-8 D 2 '20; *Mach* 27:387-9 D '20

Newton continuous milling machine. *il diags Mach* 27:192-5 O '20; *Automotive Ind* 43:664-5 S 30 '20; *Iron Age* 106:851 S 30 '20; *Iron Tr R* 67:936 S 30 '20

Newton drum type continuous milling machine. *il Iron Age* 107:375 F 10 '21; *Automotive Ind* 44:818 Ap 14 '21

Newton miller for crankshafts. *il Iron Tr R* 66:713-14 Mr 4 '20; *Mach* 26:678 Mr '20

Newton ring-table continuous milling machine. *il Am Mach* 53:824 O 28 '20; *Automotive Ind* 43:886-7 O 28 '20; *Iron Age* 106:1134 O 28 '20; *Ry Mech Eng* 94:804-5 D '20

Milling machines—Continued

- Newton straddle milling machine for facing off ends of crankshaft bearings. *il* Auto-motive Ind 45:362 Ag 25 '21
- Nouveau type de fraise à tailler les pièces profilées. Bozonnet. *Génie Civil* 77:443 N 27 '20
- Nut castellating fixture. *il* diags *Am Mach* 55:235-6 Ag 11 '21
- Oesterlein speed milling machines. *il* *Iron Age* 108:1014 O 20 '21
- Ohio constant-speed-drive milling machines. *il* *Am Mach* 55:693-4 O 27 '21
- Origin of the milling machine. L. L. Thwing. diags *Am Mach* 54:1085-7 Je 23 '21; Discussion. F. P. Terry. 55:496 S 29 '21
- Production milling of group parts. G. M. Meyncke. *il* *Mach* 26:1036-7 Jl '20
- Recent machine tool developments; Kemp-smith milling machines. J. Horner. *il* diags *Engineering* 110:494-8 O 15 '20
- Recent machine tool developments; Parkinson universal milling machine. *il* diags *Engineering* 110:268-70 Ag 27 '20
- Reducing costs by rotary milling. *il* *Mach* 28:202-5 N '21
- Rockford milling machine. *il* *Iron Age* 107:1039-40 Ap 21 '21; *Ry Mech Eng* 95:393 Je '21
- Rockford no. 3 high-power milling machine. J. V. Hunter. *il* *Am Mach* 54:585-7 Ap 7 '21
- Rockford no. 3 milling machine. *il* diags *Mach* 26:670-2 Mr '20
- Rockford number three milling machine. J. V. Hunter. *il* diags *Am Mach* 52:377-9 F 19 '20
- Ryerson-Conradson no. 3 high-power milling machine. *il* *Am Mach* 52:581-2 Mr 11 '20; *Iron Age* 105:747-8 Mr 11 '20; *Iron Tr R* 66:712 Mr 4 '20; *Ry Mech Eng* 94:175-6 Mr '20
- Setting the milling machine vise in alignment. C. D. Folsam, jr. diag *Am Mach* 53:81-2 Jl 8 '20
- Small bench miller. J. V. Romig. diag plan *Pop Mech* 35:449-50 Mr '21
- Stamets crankshaft milling machine. E. Viall. *il* diags *Am Mach* 53:245-8 Ag 5 '20
- Stamets no. 44 vertical milling machine. *il* *Am Mach* 51:935 N 27 '19
- Station index adapter table for milling machines. J. Blakey and J. Shankley. diags *Eng & Ind Management* 5:436-7 Ap 14 '21
- String milling fixtures. E. K. Hammond. *il* *Mach* 26:337-41, 443-7 D '19-Ja '20
- Taylor & Fenn two-spindle spline milling machine. *il* *Am Mach* 52:210-11 Ja 22 '20; *Iron Age* 105:405 F 5 '20; *Iron Tr R* 66:425 F 5 '20; *Mach* 26:563-4 F '20; *Ind Management* 59:255 Mr '20
- Toledo vertical milling machine. *il* *Mach* 26:363-4 D '19; *Am Mach* 52:807-8 Ap 8 '20
- Tool engineering; design of milling fixtures—types of milling machines. A. A. Dowd and F. W. Curtis. diags *Am Mach* 55:102-6, 126-30, 179-83, 211-17 Jl 21-Ag 11 '21
- Two automatic milling machines. F. R. Shaw. diags *Am Mach* 54:1093-4 Je 23 '21
- Universal milling and shaping machine for precision work. *il* diags *Engineering* 109:784-6 Je 11 '20
- Waltham automatic thread milling machine. *il* *Am Mach* 55:367-8 S 1 '21
- See also Gear cutting machines; Machine tools

Manufacture

- Making milling machine tables. L. M. Sherwin. *il* *Foundry* 48:953-6 D 1 '20
- Manufacturing applications of Ingersoll drum-type milling machines. J. V. Hunter. *il* diags *Am Mach* 55:23-7 Jl 7 '21

Testing

- Testing methods employed at the Becker milling machine co.'s plant. E. L. Dunn. *il* *Am Mach* 52:833-5 Ap 15 '20
- Milling of ores. See Ore treatment
- Millivoltmeter**
- Precision galvanometric instrument for measuring thermoelectric e.m.f.s. T. R. Harrison and P. D. Foote. *il* diags *Am Inst E* E J 39:165-76 F '20

Mills, Hiram Francis, 1836-1921

Sketch. *por* *Eng N* 87:627-8 O 13 '21

Milton (chemical)

Making a market for an article of many functions. H. E. Agnew. *Ptr Ink* 113:103-4+ O 7 '20

Milwaukee, Wisconsin**Harbor**

- City surveys of rivers and harbors at Milwaukee. *il* diag maps *Eng N* 87:558-61 O 6 '21
- Lake harbor planned at Milwaukee. map *Eng N* 85:28-9 Jl 1 '20

Rapid transit

- Service-at-cost recommended for Milwaukee. *Elec Ry J* 58:253-4 Ag 13 '21

Sewerage

- Activated-sludge plant for the city of Milwaukee. T. C. Hatton. plan *Eng N* 84:990-6 My 20 '20
- Recovery of flooded sewer tunnels at Milwaukee. charts diags plan *Eng N* 87:4-8 Jl 7 '21

Water supply

- Milwaukee chemists say postpone water filtration. *Eng N* 86:604 Ap 7 '21
- Milwaukee experience with compound meters. H. P. Bohmann. *Am Water Works Assn J* 7:852-4 N '20
- Milwaukee water works. *Pub Works* 50:173 F 19 '21
- New study of the Milwaukee water-supply situation. H. P. Eddy. *Eng N* 87:26-7 Jl 7 '21
- Novel and economical mixing devices for applying economical coagulant to water recommended after tests at Milwaukee. J. W. Ellms. *Munic Eng* 59:67-9 Ag '20
- Report on Milwaukee's water supply. J. W. Ellms. plan *Pub Works* 49:167-70, 191-8 Ag 21-28 '20
- Water filtration experiments and devices. J. W. Ellms. diags *Pub Works* 49:215-18 S 4 '20
- Milwaukee electric railway & light company**
- Milwaukee income increases. *Elec Ry J* 55:773 Ap 10 '20

Mind. See Intellect**Mine accidents**

- Accident prevention in the mines of Butte, Montana. D. Harrington. *il* *U S Bur Mines Tech Pa* 229:1-57 '20
- Accidents in iron mines of the United States in 1920. *Iron Tr R* 69:670 S 15 '21
- Amsterdam mine disaster. *il* *Coal Age* 16:792 N 13 '19
- Blasting accidents from missed holes. *Min & Sci P* 120:277 F 21 '20
- Danger from explosives fume in metal mining. D. Harrington and B. W. Dyer. *Min & Sci P* 121:308-9 Ag 28 '20
- Failure of a man-engine at the Levant mine, Cornwall. diags plan *Engineering* 109:352-4 Mr 12 '20
- Fatal blasting accident due to careless tamping. O. Bowles and J. E. Crawshaw. *Eng & Min J* 110:29-30 Jl 3 '20
- Hazards met in open-cut mining. D. E. A. Charlton. *Eng & Min J* 110:665-9 O 2 '20
- Imprisoned underground. G. Huston. *il* *Min & Sci P* 120:53-4 Ja 10 '20
- Long-flooded timbered metal mines form an unusual hazard. *Eng & Min J* 112:25 Jl 2 '21
- Metal mine accidents decrease. *Iron Tr R* 66:1268-9 Ap 29 '20
- Metal-mine accidents in the United States during the calendar year 1918. A. H. Fay. *U S Bur Mines Tech Pa* 252:1-112 '20
- Metal-mine accidents in the United States during the calendar year 1919. W. W. Adams. *U S Bur Mines Tech Pa* 286:1-99 '21
- Mine accidents: English speaking vs. non-English speaking employees. A. H. Fay. *Coal Age* 16:777-82 N 13 '19; Same, with-out tables. *Eng & Min J* 108:726-9 N 1 '19

Mine accidents—Continued

Two deaths from blackdamp. D. J. Baker. il Coal Age 16:885-6 D 11 '19

See also Blasting—Safety devices and measures; Coal mines and mining—Accidents and explosions; Coal mines and mining—Safety measures; Firedamp; Mine explosions; Mine fires; Mine rescue work; Mine subsidences; Mining engineering—Safety measures; Safety lamps

Mine accounting

Accurate information on coal-production costs of prime importance to operating department. R. W. Gardiner. Coal Age 20:578-9 O 13 '21

Anthracite mine accounting. H. C. McCluskey. J Account 32:16-23 J1 '21

Auditing features of the mining industry. J. C. Hooker. J Account 29:241-59 Ap '20

Coal mining accounts. Engineering 111:493-4 Ap 22 '21

Iron mine accounting. C: F. Bomer. J Account 30:180-5 S '20

Metal-mine accounting. C. B. Holmes. U S Bur Mines Tech Pa 250:1-60 '20; Excerpt. Min & Sci P 120:804 My 29 '20

Mine accounting and cost principles. T: O. McGrath. 257p McGraw-Hill '21

Mine accounting in relation to federal taxes. W. Kurtz. J Account 29:30-42 Ja '20

Mine bookkeeping. C. B. Holmes. Eng & Min J 109:24-6 Ja 3 '20

Mine bookkeeping. R. McGarraugh. 118p McGraw-Hill '20

Perfecting uniform cost accounting in the bituminous coal industry. W: B. Reed. Coal Age 18:760-2 O 7 '20

Standard mine cost statement. H. J. C. MacDonald. Eng & Min J 112:126-31 J1 23 '21

Standard system of accounting and analysis of cost of production. Min & Met 167:36-7 N '20

Tax problem effect on mine accounting. H: B. Fernald. Min & Met 160:16-18 Ap '20

Underground mine development, its definition and valuation. J: B. Dilworth. Min & Met 175:26-7 J1 '21; Same. Sci Am M 4:93-4 J1 '21

Mine air

Ascertaining mine pressures with an aneroid. Coal Age 19:1084 Je 16 '21

Determining hydrostatic pressures in a mine with the aneroid. il diag Coal Age 20:461-2 S 22 '21

Physiological effect of high temperatures and high humidities in metal mines. R. R. Sayers and D. Harrington. Eng & Min J 110:401-4 Ag 28 '20

See also Mine dust; Mine gases; Mine ventilation

Mine animals. See Mules**Mine buildings**

Engineers visit copper and iron ranges. R. D. Hall. il Coal Age 18:530-2 S 9 '20

Gallup-American is erecting plant with a skip hoist and overturning cages. il Coal Age 20:339 S 1 '21

Gunitite forms an excellent material for covering mine buildings. il Coal Age 17:1185-8 Je 10 '20

Jubilee steel bankhead at Sydney mines will introduce many innovations in that type of structure. A. Daves. il diags plans Coal Age 20:327-32 S 1 '21

New surface-plant for the United Verde copper company. L. A. Parsons. il diags plans Min & Sci P 122:873-8 Je 25 '21

Portable buildings of fabricated steel are fireproof and inexpensive. il Coal Age 20:10 J1 7 '21

See also Concrete construction in mines; Mine shaft houses; Mine shops; Mine stables; Mine washhouses; Miners' houses

Mine cages. See Mine hoisting**Mine car couplings. See Car couplings****Mine car recorder**

Automatic mine-car recorder. diags Min & Sci P 122:390 Mr 19 '21

Mine cars

Alvarado-type ore skip. diags Eng & Min J 112:20-1 J1 2 '21

Cars without end gates can now be used on self-dumping cages. A. M. Simpson. il diags Coal Age 18:283-5 Ag 5 '20

Features that must be borne in mind in designing trucks for mine cars. I. E. Stevens. diags plans Coal Age 19:9-11 Ja 6 '21

Fifty-ton side-dump cars lighten labor at mines but might have wider use. il Coal Age 19:816-18 My 5 '21

How journal-box mine-car truck retains its alignment, thus reducing track accidents. F. C. Barks. il diags Coal Age 20:603-5 O 13 '21

Linn mine-car dump is largest in the world. R. W. Mayer. il Coal Age 17:1085-8 My 27 '20

M-Z automatic mine car. O. J. Zook. il Min & Sci P 120:932 Je 26 '20

Ore car capacity increased 50 per cent. il Iron Tr R 68:290-1 Ja 27 '21

Plain- vs. roller-bearing tests. A. C. Callen. Coal Age 20:459 S 22 '21

Quarter century of mine-car evolution. diags plan Coal Age 19:361-2 F 24 '21

Rock larries build their own dumps and provide economical disposal. D. C. Ashmead. il diags Coal Age 19:813-14 My 5 '21

Roller bearings for mine cars. Coal Age 16:545, 805, 901; 17:147-9, 455-6, 823; 18:449-50, 1095-6 S 25, N 13, D 11 '19, Ja 15, Mr 4, Ap 22, Ag 26, N 25 '20

Skip hoist for coal mining. A. Allen and J: A. Garcia. diags plan Coal Age 19:529-33 Mr 24 '21

Solid-car crossover dump which clamps on wheels; loaded car returns empty to original position. il diag plan Coal Age 20:137-9 J1 28 '21

Special cars at Illinois mine promote safety and aid operation. D. J. Baker. il Coal Age 18:223-5 J1 29 '20

Steel mine car designed to suit anthracite conditions. D. C. Ashmead. il diags Coal Age 20:337-8 S 1 '21

Two pins keep car door shut, one being freed while trip stands. il diags Coal Age 18:391-2 Ag 19 '20

Use of grease in lubricating mine cars. Coal Age 17:47 Ja 8 '20

What cars and bearings should we select? H. G. Nash. il Coal Age 17:851-2 Ap 29 '20

See also Car couplings; Dump cars; Mine haulage

Mine caves. See Mine subsidences**Mine construction**

Homestake mine construction. R. G. Wayland. diags plans Min & Sci P 122:539-40 Ap 16 '21

See also Concrete construction in mines; Mine buildings; Mine doors; Mine shafts; Mine timbering; Mine tipples

Mine dams

If a mine dam gathers refuse behind it, how can it be cleared? D. C. Ashmead. diags plan Coal Age 18:174 J1 22 '20

Strength of a mine dam. plan Coal Age 18:26 J1 1 '20

Mine doors

Build your mine-door frames of brick. R. W. Mayer. Coal Age 20:131 J1 28 '21

Eliminate mine doors. O. H. Jones. Coal Age 20:383 S 8 '21

Even lightest of cars opens mine door without shock. diags Coal Age 19:624-6 Ap 7 '21

Finding a mine door set open. Coal Age 16:462, 626-8, 660-1, 757-8, 759-60, 805-6, 896-7, 939; 17:23-4, 196, 243-4, 284, 326 S 11, O 9-16, N 6-13, D 11, 25 '19-Ja 1, 22-F 12 '20

Mine door set automatically into action by weight of trip. il Coal Age 18:169-70 J1 22 '20

Right and wrong in hanging mine doors. E. E. Hughes. il Coal Age 18:751-2 O 7 '20

Ventilation doors in Arizona copper mines operated by compressed air. E. D. Gardner. diags Min & Met 178:58 O '21

Mine doors—Continued

Water gage and an open door. Coal Age 17:720 Ap 8 '20

Why overcasts are better than mine doors. W. E. Dickson. Coal Age 19:1160 Je 30 '21

Mine drainage

Concrete drain and vitrified-pipe or precast-cement sumps for mines. O. H. Hampsch. diags Coal Age 20:251 Ag 18 '21

Eliminating mine pumps. L. A. Riggs. il Coal Age 16:926-9 D 25 '19

Old Newcastle mine, flooded and filled with washery waste, is drained by diamond drill-holes. H. S. Ash. il diags Coal Age 19:1069-73 Je 16 '21

Run-off and mine drainage. H. N. Eavenson. Min & Met 169:30 Ja '21

See also Mine pumping

Mine dust

Dust control and ventilation in metal mines. D. Harrington. il charts Eng & Min J 111:738-43 Ap 30 '21

Dust in metal mines. Min & Sci P 121:352 S 4 '20

Dust-ventilation studies in metal mines. D. Harrington. Min & Met 170:29 F '21; Same. Sci Am M 3:187 F '21

Method of sampling mine dust. Eng & Min J 111:508 Mr 19 '21

See also Coal dust; Mine air; Mine explosions

Mine equipment

Guarantee of mining equipment. L. S. Youngling. Coal Age 17:282-3 F 5 '20

Waste materials in the mining industry. G. T. Harley. Eng & Min J 109:1304-6 Je 12 '20

See also Electricity in mining; Fans, Mine; Mine cars; Mine doors; Mine hoisting; Mining machinery

Mine examination

Systematizing large mine examinations. M. Webber. Min & Sci P 121:233-7 Ag 14 '20

See also Mine inspection; Mine surveying; Mine valuation; Prospecting

Mine explosions

Mine, shut down over Sunday, explodes when power is turned on. D. J. Baker. il Coal Age 18:250-1 Jl 29 '20; Discussion. 18:593 S 16 '20

Often unfair to blame the fireboss when explosion is mysterious. W. H. Noone. Coal Age 17:1317-18 Je 24 '20

See also Coal mines and mining—Accidents and explosions; Mine accidents; Mine fires; Mine gases

Mine fans. See Fans, Mine**Mine firebosses**

Daily routine of an efficient fireboss. Coal Age 17:1107 My 27 '20

Firebosses' examination held at Pittsburg, Kan., March 20, 1920. Coal Age 18:180 Jl 22 '20

Give the fireboss a fair chance and you will get a far safer mine. D. Harrington. Coal Age 18:943-4 N 4 '20; Discussion. 18:1335 D 30 '20

Indiana mine bosses' examination, Indianapolis. Coal Age 17:557, 608, 665 Mr 18-Apr 1 '20

Lawful examination of a mine. Coal Age 16:244-5, 285, 334, 503-4, 693, 723; 17:149-50, 415-16, 605-6 Ag 7-21, S 18, O 23-30 '19, Ja 15, F 26, Mr 25 '20

Mine bosses' and firebosses' examination Indianapolis, Ind., 1920. Coal Age 18:1006, 1050 N 11-18 '20

Mine examiner's examination, Springfield, Ill., Nov. 11, 12, 1919. Coal Age 17:27, 198 Ja 1, 22 '20

Pennsylvania bituminous firebosses' examination, April 5-8, 1921. Coal Age 20:61 Jl 14 '21

Mine fires

At Minnie mine methane was left in the gob; is this why an explosion occurred? J. Ashworth. plan Coal Age 19:267-9 F 10 '21

Bad fire at Kathleen mine is rapidly extinguished. E. McAuliffe. il Coal Age 20:247-51 Ag 18 '21

Bunker Hill enterprise. T. A. Rickard. il diags plan Min & Sci P 120:342-4 Mr 6 '20

Burning mines of Hocking Valley. H. A. Mount. il Sci Am 124:445+ Je 4 '21

Causes and prevention of fires and explosions in bituminous coal mines. E. Steidle. il U S Bur Mines Miners' Circ 27:1-74 '20

Copperopolis fire. B. O. Pickard. Min & Sci P 121:737-8 N 20 '20

Detailed description of fight against two mine fires. D. Bunting. diags Coal Age 20:373-6 S 8 '21

Effective means of using rescue apparatus in the fighting of mine fires. J. T. Ryan. Coal Age 16:741-3 N 6 '19

Experiment in the use of carbon tetrachloride and foamite firefoam for extinguishing mine fires. A. C. Fieldner and S. H. Katz. Coal Age 20:7-9 Jl 7 '21

Fan equipment for metal-mine fires. T. H. Arnold. il Eng & Min J 111:590-1 Ap 2 '21

Fighting mine-fires. H. J. Rahilly. maps Min & Sci P 121:625-7 O 30 '20

Fighting mine fires in Pictou county, Nova Scotia. F. E. Notebaert. il Coal Age 18:161-5 Jl 22 '20

Fire hazards at mines. B. O. Pickard. Min & Sci P 122:191 F 5 '21

Fire hazards in metal mines. B. O. Pickard. Min & Sci P 123:297 Ag 27 '21

History of mine-fires in the South-west. C. A. Mitke. il Min & Sci P 121:155-60, 187-92 Jl 31-Ag 7 '20

Homestake fire of 1919. R. G. Wayland. Min & Sci P 120:84 Ja 17 '20

Lighted cigarettes in gas. Coal Age 18:1005, 1287-9; 19:70, 453-4 N 11, D 23 '20, Ja 13, Mr 10 '21

Make the mines safer. Coal Age 19:716, 956; 20:101-2, 218 Ap 21, My 26, Jl 21, Ag 11 '21

Mine fire prevention and fighting in bituminous coal mines. J. W. Reed. Safety Eng 42:174-6 O '21

Mine fires and the inert gas method by which they may be extinguished. J. J. Walsh. diag Am Soc Heat & V E 25:417-19 '19

Mine fires extinguished by sealing. D. Bunting. Min & Met 176:36-7 Ag '21

Possibilities of the geophone in locating mine fire areas. L. D. Tracy and A. Leighton. diags Coal Age 17:40-2 Ja 8 '20

Les procédés de lutte contre les feux souterrains. diags Génie Civil 76:375-7, 394-6 Ap 17-24 '20

Property owners try to control a city mine fire by strip pit and clay bank. D. J. Baker. il map Coal Age 17:1043-5 My 20 '20

Undermined city of Scranton and its underground fires. il Sci Am 124:309 Ap 16 '21

See also Firedamp; Mine accidents; Mine explosions; Mine gases; Safety lamps

Mine foremen

Anthracite foremen's examination, May 4, 1920; selected questions. Coal Age 18:1142+, 1194, 1242, 1290, 1337; 19:24, 73, 189, 235, 278, 322, 411, 456, 501, 545, 587, 630, 677, 828, 868 D 2-30 '20, Ja 6-13, 27-F 17, Mr 3-Apr 14, My 5-12 '21

Assistant mine foremen and safety. Coal Age 18:756-7, 1139, 1335-6 O 7, D 2, 30 '20

Bituminous (17th dist., Pa.) mine foremen's examination, April 6, 1920. Coal Age 17:1065, 1110 My 20-27 '20

Certification of mine officials. Coal Age 20:181-2 Ag 4 '21

Certification under the Pennsylvania revised mine law. Coal Age 19:1041-3 Je 9 '21

Concerning shift-bosses. Min & Sci P 121:752-3 N 27 '20

Examination, foremen and assistant foremen, fifteenth anthracite district. Coal Age 20:103, 143, 183 Jl 21-Ag 4 '21

Examination, mine foremen and firebosses, bituminous (Pa.), April 5-8, 1921. Coal Age 19:958, 1000, 1085, 1127, 1166; 20:19 My 26-Je 2, 16-Jl 7 '21

Examination, mine foremen and firebosses, Lexington, Ky., May 30, 1921. Coal Age 20:303, 343, 385, 425 Ag 25-S 15 '21

Foremen's and asst. foremen's examinations, Centralia, Pa., May 6, 7, 1920. Coal Age 18:404, 452 Ag 19-26 '20

Mine foremen—Continued

- Has the certification law lost its value? Coal Age 19:627-9 Ap 7 '21
- Illinois mine managers' examination, Springfield, May 2, 3, 1921. Coal Age 20:462, 498 S 22-29 '21
- Mine foreman. C. L. Green. Coal Age 17:9-10 Ja 1 '20
- Mine foremen's examination; selected questions and answers. Coal Age 18:137, 499, 595, 643, 691, 811, 955 Jl 15, S 2, 16-30, O 14, N 4 '20
- Mine managers' examination held at Springfield, Ill., Feb. 17, 18, 1920. Coal Age 17:1160 Je 3 '20
- Need for study; answers selected from replies made to various questions asked at recent mine foremen's examinations. J. T. Beard. Coal Age 17:701 Ap 8 '20
- Personnel of anthracite examining boards. Coal Age 19:188-9, 234-5, 585-6, 756-7 Ja 27-F 3, Mr 31, Ap 28 '21
- Problems of the mine foreman. R. Bowen. Coal Age 18:591-2 S 16 '20
- Things often overlooked that increase costs in mining. Coal Age 18:688-9 S 30 '20
- Ventilating engineer vs. mine foreman. O. H. Jones. Coal Age 20:495 S 29 '21
- With what authority should the fireboss be clothed? W. A. Ream. Coal Age 19:956-7 My 26 '21

See also Mine management

Mine gases

- Building brattice in rise headings to remove gas. diag Coal Age 20:587-8 O 13 '21
- Coal-mine gases. Fed Bd for Vocational Educ Bul 39:1-34 O '19
- Composition of natural gas. Coal Age 19:500-1 Mr 17 '21
- Height of flame cap as index of percentage of gas. Coal Age 17:1107-8 My 27 '20
- Hot mine gases at the Tintic Standard mine, Utah. A. J. May. Eng & Min J 112:664-5 O 22 '21
- Hydrocarbon gases found in British Columbia mines. J. Ashworth. Coal Age 17:587-9 Mr 25 '20
- Measuring gas at face heading. diag Coal Age 20:497 S 29 '21
- Mystery in mine explosions results from our lack of knowledge. W. M. Chambers. Coal Age 17:1010-11 My 13 '20
- Outbursts of methane and carbon dioxide in coal mines and the conditions under which they occur. H. Briggs. Coal Age 20:209-13 Ag 11 '21
- Singing flame employed as an indicator for explosive mixtures of gases. M. Tevis. Sci Am 124:11 Ja 1 '21
- Testing with the Burrell gas detector. il Coal Age 19:913-14 My 19 '21

See also Blackdamp; Carbon monoxide; Firedamp; Mine ventilation

Mine haulage

- Advice to those who propose to install locomotives for gathering purposes. R. L. Kingsland. Coal Age 19:570-2 Mr 31 '21
- After quarter century simple chain haul is still doing efficient work. D. C. Ashmead. il Coal Age 18:533-4 S 9 '20
- Allegheny steel co. by erecting big mine-car viaduct avoids freight rate and car shortage. il diags Coal Age 18:331-3 Ag 12 '20
- Ashley planes for handling freight traffic. C. H. Stein. Min & Met 177:45-6 S '21
- Burro transportation system of Colorado. G. N. Graves. il Sci Am 122:455 Ap 24 '20
- Caterpillar tractor supplants team at Pennsylvania coal mine. il Coal Age 18:629-30 S 23 '20
- Comparaison entre la traction animale et la traction par locomotive pour les transports souterrains. Génie Civil 76:65-8 Ja 17 '20
- Compressed-air gun shifts coal-mine cars. il Pop Mech 35:872 Je '21
- Dead-end in trolley haulage. Coal Age 17:602, 717-18, 770 Mr 25, Ap 8-15 '20
- Electric haulage and ventilating plant at the Easington colliery. il diags Engineering 110:804-6, 808 D 17 '20

- Electric locomotive haulage problem. diag Coal Age 20:384-5 S 8 '21
- Endless vs. tail-rope haulage on a slope. Coal Age 19:1126-7; 20:261-2 Je 23, Ag 18 '21
- Feedwire in locomotive haulage. plan Coal Age 17:827 Ap 22 '20
- Formulae for obtaining haulage efficiency. P. S. Couldrey. Eng & Min J 110:114 Jl 17 '20
- Gathering in coal mines. R. L. Kingsland. Am Inst E E J 40:786-8 O '21
- Haulage for metal mines of moderate size. G. B. Rosenblatt. Eng & Min J 111:832-3 My 14 '21
- How gravity is superseded by mechanical devices in movement of cars at Lytle colliery. D. C. Ashmead. il Coal Age 19:1155-7 Je 30 '21
- Labor and uncertainty in moving cars saved by the use of go-devils. D. C. Ashmead. il Coal Age 19:567-9 Mr 31 '21
- Labor-saving methods of handling cars at anthracite shaft stations. D. C. Ashmead. il diags plans Coal Age 17:1052-5 My 20 '20
- Lengthening the life of track rollers. R. Z. Virgin. diag plan Coal Age 17:307-8 F 12 '20
- Locomotive pulling vs. pushing trip. Coal Age 19:1165-6; 20:260-1, 541-2 Je 30, Ag 18, O 6 '21
- Mine-haulage proposition. diag Coal Age 16:27-8, 70-2, 202-3, 417-18; 17:193-4 Jl 3-10, 31, S 4 '19, Ja 22 '20
- Mine-locomotive-haulage proposition. diag Coal Age 19:321-2, 543 F 17, Mr 24 '21
- Mining section sessions of National safety council 10th annual safety congress. Eng & Min J 112:581-3 O 8 '21
- Operating conditions encountered in Iowa. D. J. Baker. il Coal Age 19:441 Mr 10 '21
- Rope-haulage methods and equipment that have given success at Lethbridge, Alta. J. B. De Hart and J. H. Turner. diags plans Coal Age 17:1081-4 My 27 '20
- Rope rollers must not be set too close and should be of manganese steel. J. S. Watts. Coal Age 19:1035-6 Je 9 '21
- Safety cut-out for trolley wires at loading chutes. E. D. Gardner. diag plan Sci Am M 4:94 Jl '21
- Safety in underground haulage. Min & Sci P 121:44 Jl 10 '20
- Selecting electric haulage equipment. R. H. Bacon. il Elec W 75:831-3 Ap 10 '20
- Shaft to replace chains in mule haulage. J. Cain. diag plans Coal Age 18:448-9 Ag 26 '20
- Shelter holes on haulage roads. Coal Age 19:825; 20:102 My 5, Jl 21 '21
- Simple derailing device affords safety and lessens damage from wild cars. il Coal Age 19:318 F 17 '21
- Single-sheave haulage gives reliable service. F. C. Stanford. il Elec W 75:1377 Je 12 '20
- Thoughts on locomotive haulage. J. Walls, sr. Coal Age 20:586-7 O 13 '21
- Tractors, trailers, and the loco-tractor system. W. Hoy. Min & Sci P 122:461-2 Ap 2 '21
- Trolley wire cut-out for mine safety. diags Safety Eng 41:281-2 Je '21
- Underground haulage for mines of moderate size. G. B. Rosenblatt. il Min & Sci P 122:785-8 Je 4 '21; Excerpts. Eng & Min J 111:832-3 My 14 '21

See also Locomotives. Mine; Mine cars; Mine hoisting; Mine tipples; Mine tracks

Mine heating

- Steam regenerators in mine plants save one-third the coal. W. H. Schacht. diags Power 52:836-8 N 23 '20; Excerpts. Min & Met 164:32-3 Ag '20

Mine hoisting

- Alvarado-type ore skip. diags Eng & Min J 112:20-1 Jl 2 '21
- Arranging a practical horsepower hoist. diag plan Coal Age 20:685-6 O 27 '21
- Automatic caging device. il Coal Age 17:647 Ap 1 '20
- Ayrshire's Oakland City shaft hoists coal in cages built to dump gateless cars. D. J. Baker. il Coal Age 19:799-801 My 5 '21

Mine hoisting—Continued

- Bunker Hill enterprise. T. A. Rickard. *Min & Sci P* 121:198 Ag 7 '20
- Cagers at shafts facilitate hoisting. N. L. Harmon. *il Coal Age* 17:941-2 My 6 '20
- Car handling at Valley View plane. E. G. Markley. *il Coal Age* 17:915-16 My 6 '20
- Changing skips at the Plymouth mine. *il diag Eng & Min J* 111:1071-2 Je 25 '21
- Counter-balancing the load in a single-compartment shaft. *Coal Age* 18:75 Jl S '20
- Dumping ore and water. C. E. Dutton. *diags Eng & Min J* 111:671-2 Ap 16 '21
- Emergency governor with hoist recorder gives data on safety and efficiency. G. F. Royer. *il chart Coal Age* 18:1079-84 N 25 '20
- Engine-plane haulage. *Coal Age* 18:1049 N 18 '20; Correction. 19:22 Ja 6 '21
- Engine-plane-haulage proposition. *Coal Age* 19:586-7, 757 Mr 31, Ap 28 '21
- Engineering features of modern large coal mines in Illinois and Indiana. C. A. Herbert and C. M. Young. *diags Min & Met* 153:sup 2452-7 S '19; Discussion. 155:3044-7 N '19; 157:(sec 12) 45-50 Ja '20
- Failure of a man-engine at the Levant mine, Cornwall. *diags plan Engineering* 109:352-4 Mr 12 '20
- Giant among mine hoists. *il Sci Am* 124:381 My 14 '21; *Pop Mech* 36:53 Jl '21; *Power Pl Eng* 25:832 Ag 15 '21
- Gravity plane to serve two mines. *diag Coal Age* 19:999-1000; 20:58-60, 219-20, 341 Je 2, Jl 14, Ag 11, S 1 '21
- Hoist designed specially for use in room work. *il Coal Age* 19:229-30 F 3 '21
- Hoisting engine has given service for a half century. F. H. Kneeland. *il Coal Age* 18:901-2 O 28 '20
- Hoisting equipment at Utah apex mining co; with cost table; abstract. J. A. Norden and A. R. Willson. *il diag Min & Met* 163:31-3 Jl '20; Same. *Eng & Contr* 54:166-7 Ag 18 '20; Same, without cost table. *Eng & Min J* 110:458-9 S 4 '20
- Jubilee steel bankhead at Sydney mines will introduce many innovations in that type of structure. A. Dawes. *il diags plans Coal Age* 20:327-32 S 1 '21
- Mine hoist to carry one hundred men. *diag plan Power* 52:456-7 S 21 '20
- New-Inman colliery has two hoists lifting coal twelve and fifteen hundred feet. D. C. Ashmead. *il Coal Age* 19:801-2 My 5 '21
- Nordberg winding engine. *il diags Engineering* 112:565-6, 572, 628-30, 694-5, 752-5, pl 32-4, 38, 40 O 21, N 4, 18, D 2 '21
- Plane head where hoistman places all cars. D. C. Ashmead. *il diag Coal Age* 20:11-12 Jl 7 '21
- Portable column hoists. *il Eng & Min J* 111:1011-12 Je 11 '21
- Quincy compound condensing steam-driven hoist. *il Eng & Min J* 110:1126 D 11 '20
- Quincy hoist—largest in world. T. Wilson. *il diags Power* 53:90-5 Ja 18 '21
- Relèvement de la durée et de la sécurité des câbles de mine par l'amortissement des efforts de torsion; attelage de cage anti-torsion. M. Durnerin. *diag Génie Civil* 78:235-7 Mr 12 '21
- Shaft rollers. *diags Eng & Min J* 112:102 Jl 16 '21
- Single-horn car feeder. *il Coal Age* 17:590 Mr 25 '20
- Skip hoisting for coal mines. A. Allen and J. A. Garcia. *diags plan Coal Age* 19:485-9, 529-33 Mr 17-24 '21; Abstract. *Min & Met* 170:35-6 F '21; Same. *Sci Am M* 3:284-5 Mr '21
- Steam versus electric winding. W. C. Mountain. *Engineering* 112:166-7; Discussion. 141-2 Jl 22 '21; Abstract. *Elec R (Lond)* 89:228 Ag 12 '21 Abstract. *Engineer* 132:86 Jl 22 '21
- See also Dumping appliances; Hoisting machinery; Mine cars; Mine haulage
- Safety devices**
- Safety crosshead for bucket shafts. J. E. Harding. *diags Eng & Min J* 109:805-6 Ap 3 '20
- Safety devices on winding engines. L. F. Milten. *Eng & Min J* 110:777 O 16 '20
- Shaft-testing apparatus. A. Gradenwitz. *diag Eng & Min J* 112:260-1 Ag 13 '21
- Mine hoisting, Electric**
- Alden coal co. installs large hoist which brakes itself if anything goes wrong. L. W. Le Grand. *il Coal Age* 19:797-8 My 5 '21
- Consumption records of electric mine hoists. *Elec W* 75:219 Ja 24 '20
- Designing an electric hoist to meet needs of a long mine slope. G. Bright. *il Coal Age* 17:890-4 My 6 '20
- Determination of electrical equipment for a mine hoist. G. Bright. *Min & Met* 177:49-50 S '21; Same. *Sci Am M* 4:260 S '21
- Electric controllers for mine hoists. W. C. Goodwin. *il diags Elec J* 17:119-22 Mr '20
- Electric hoist with electrolytic controller. M. Meredith. *Elec W* 75:1203 My 22 '20
- Electric mine hoists; abstract. Hacault. *diag Elec W* 75:504-5 F 28 '20
- Electric winding engines and mine hoists. H. H. Broughton. *diags Electrician* 84:286-9, 340-3, 390-2, 441-3, 514-16, 612-15, 638-41; 85:54-5, 104-6 Mr 12, 26, Ap 9, 23, My 7, Je 4-11, Jl 9, 23 '20
- Hoist for heavy duty on mine inclines. *il Coal Age* 19:317 F 17 '21
- Large American mine winding engine. *il diags Engineer* 131:540-2, 544 My 20 '21
- Machine d'extraction électrique des mines de Landres (Meurthe-et-Moselle) (Société des aciéries de Micheville). *Génie Civil* 76:517-18 Je 5 '20
- Mine-hoisting duty cycles in practical operation. M. A. Whiting. *Eng Soc W Pa* 36:345-65 Je '20; Same. *Coal Age* 18:630-7 S 23 '20; Discussion. *Eng Soc W Pa* 36:366-80 Je '20
- Modifications of gathering reels which will prevent destruction of cables. D. E. Shroyer. *il diags Coal Age* 18:286-9 Ag 5 '20
- New electrically-driven hoisting equipment at Kilton collieries. M. Meredith. *il Coal Age* 17:596-7 Mr 25 '20
- New hoisting-equipment at the Tonopah extension mine. *il Min & Sci P* 121:277-8 Ag 21 '20
- Petersburg coal hoist is electrically operated and controlled. *il Coal Age* 19:856-7 My 12 '21
- Power installation at Coverdale mine. C. M. Means. *Min & Met* 177:49 S '21; Same. *Sci Am M* 4:285 S '21
- Small portable electric hoist with new features. *il Coal Age* 17:913-14 My 6 '20
- Standard A.C. geared winding equipments. C. E. Raeburn. *il Electrician* 86:38-9 D 31 '20
- Steam versus electric winding. W. C. Mountain. *Engineering* 112:166-7; Discussion. 141-2 Jl 22 '21; Abstract. *Elec R (Lond)* 89:228 Ag 12 '21; Abstract. *Engineer* 132:86 Jl 22 '21
- Susquehanna installs electric slope hoist and at a shaft replaces steam by electric drive. L. W. Le Grand. *il Coal Age* 19:941-4 My 26 '21
- Typical installations of electric mine hoisting in South Africa. E. B. Bell. *il Gen Elec R* 23:775-82 S '20
- Mine inspection**
- Bituminous mine inspectors' examination, Pittsburgh, Pa., March, 1921. *Coal Age* 20:221, 263 Ag 11-18 '21
- Finding a mine door set open. *Coal Age* 16:462, 626-8, 660-1, 757-8, 759-60, 805-6, 896-7, 939; 17:23-4, 196, 243-4, 284, 326 S 11, O 9-16, N 6-13, D 11, 25 '19-Ja 1, 22-F 12 '20
- Illinois mine inspectors' examination, Springfield. Sept. 18, 1916. *Coal Age* 17:1213 Je 10 '20
- Mine inspectors' difficulties. J. H. Wiley. *Coal Age* 19:865 My 12 '21
- Mine inspectors' examination, Pottsville, Pa., March 30-31, 1920; selected questions. *Coal Age* 17:828, 875, 960 Ap 22-My 6 '20
- Water gage and an open door. *Coal Age* 17:720 Ap 8 '20
- See also Mining machinery—Inspection

Mine inspectors

State geological and mining officials; list. Eng & Min J 109:203 Ja 17 '20

See also Mine firebosses; Mine inspection

Mine inspectors' institute of America

11th annual meeting, Cleveland, Ohio, July

13. Coal Age 18:242-3 Jl 29 '20

12th annual meeting, Charleston, W. Va., July 12-14. Coal Age 20:306-8 Ag 25 '21

Mine lamps. *See* Mine lighting; Safety lamps

Mine lighting

At Gary working faces are illuminated by a permanent lighting system. il diags Coal Age 18:736-8 O 7 '20

Illumination in mines and miners' eyesight. Illum Engr 13:61-3 Mr '20

Illumination of coal mines. H. F. Barnes and J. H. Kurlander. il Elec R 77:41-9 Jl 10 '20; Excerpts. Illum Eng Soc 15:sup 84-6 no 6 '20

Lamp renewal and theft in mines are reduced. F. C. Stanford. diags Elec W 75:168 Ja 17 '20

Legislation restricting the use of open lights in mines. G. E. Daugherty. Coal Age 18:401-2 Ag 19 '20

Lighting conditions in mines. H. S. Elworthy. H: F. Joel. Illum Engr 13:215-16 Jl '20

Lighting conditions in mines, with special reference to the eyesight of miners. T. L. Llewellyn. bibliog il diags Illum Engr 13:67-79; Discussion. 80-108 Mr '20

Open lights and gas. W. H. Luxton. Coal Age 18:1193 D 9 '20

Was the mining law violated?; use of open lights. Coal Age 18:903-4 O 28 '20

Mine management

Assistant foremen and firebosses. Coal Age 19:408-9 Mr 3 '21

Bunker Hill enterprise. T. A. Rickard. il Min & Sci P 121:335-43, 413-18 S 4, 18 '20

Co-operation among mine officials. Coal Age 16:900-1; 17:242-3, 325-6, 661-2, 826, 872-3 D 11 '19, Ja 29, F 12, Ap 1, 22-29 '20

Co-operation of a kind that spells success. J: Rose. Coal Age 17:1155 Je 3 '20

Development methods at Morenci branch of Phelps Dodge corporation. J. P. Hodgson and P. B. Lord. Eng & Min J 111:620-2 Ap 9 '21

Give the fireboss a fair chance and you will get a far safer mine. D. Harrington. Coal Age 18:943-4 N 4 '20; Discussion. 18:1335 D 30 '20

How shall we get mining efficiency? E. H. Higgins. il Eng & Min J 109:1398-1406 Je 26 '20

Human element in mine operation. E. Higgins. Min & Sci P 120:346-8 Mr 6 '20

Human factor in mine management. S. A. Lewisohn. Min & Sci P 121:651-3 N 6 '20; Discussion. F. J. Bourne. 121:831-2 D 11 '20

Organization of mine-surveying work. F. L. Fisher. Eng & Min J 111:58-60 Ja 8 '21

Profit sharing in mining. L. O. Kellogg. Eng & Min J 112:124 Jl 23 '21

Shifting the worker. Coal Age 17:327, 504-5, 553, 770, 824-5, 958 F 12, Mr 11-18, Ap 15-22, My 6 '20

Standardization of mine work. R. Linton. Min & Sci P 121:312 Ag 28 '20

Superintendent vs. foreman. Coal Age 20:423-4 S 15 '21

Superintendent's plans disrupted by a worker's request for a change. S. D. Hainley. Coal Age 17:1011-12 My 13 '20

Two types of mine officials. G: N. Lantz. Coal Age 18:687 S 30 '20

Use and abuse of superintendents. H. E. Scott. Eng & Min J 109:553-4 F 28 '20

Welfare work at the Homestake mine. B. C. Yates. il Eng & Min J 110:198-203 Jl 31 '20

What should be the duties and authority of safety inspectors in mines? Coal Age 18:755-6, 1002 O 7, N 11 '20

Work councils and arbitration tribunals in the Czecho-Slovakian mining industry. Int Labour R 2:26-31 Ap '21

See also Coal mines and mining—Management; Mine accounting; Mine firebosses; Mine foremen; Mine signals

Mine maps

See also Mine surveying

Mine models

Details and cost of a mine model. V. Averill. Eng & Min J 108:824-5 N 22 '19

Mine officials. *See* Mine management

Mine pumping

Air lift for mine drainage. S. F. Shaw. il diags Eng & Min J 109:1263-8 Je 5 '20

By movement of a rotor three spaces enlarge and contract, thus drawing and expelling water. diags Coal Age 19:805-6 My 5 '21

By new operating methods estimated life of Seneca colliery has been tripled. D. C. Ashmead. il Coal Age 18:843-4 O 21 '20

Early steam pumping in Peru. W. B. Paley. diags Eng & Min J 111:666-7 Ap 16 '21

Fluorspar mining in the United States. il Iron Age 107:303-5 F 3 '21

Heavy-duty quintuplex mine pump driven by condensing steam turbine. E. L. Solomon. il diag plan Coal Age 17:943-4 My 6 '20

High-lift submersible motor pump. il Engineer 131:24 Ja 7 '21

Meeting difficulties of centrifugal pumping by suitable construction. il Coal Age 17:898-9 My 6 '20

Mine pumping in the Tonopah district. H. L. Williams. Min & Met 173:26-8 My '21

Proposed building of two dams to isolate a pumphoom in a mine. diags plan Coal Age 18:1097-8 N 25 '20

Pumping in the Rand mines. Min & Sci P 121:421 S 18 '20

Pumping on the Rand. G. H. Beatty. Min & Sci P 121:912 D 25 '20

Shifting the location of a slope pump. diag plan Coal Age 19:277-8 F 10 '21

Submersible electric motor pump. Sci Am M 1:471-2 My '20

Terms used in pumping. Coal Age 19:1084 Je 16 '21

Unwatering by air lift in Grass Valley, California. G: J. Young. il Eng & Min J 110:63-5 Jl 10 '20

Unwatering the Tiro general mine by air-lift. S. F. Shaw. diags Min & Met 158:(sec 35) 1-34 F '20; Excerpt. Sci Am M 1:185-6 F '20

Use of air lift for regular mine drainage. A. H. Reed. Eng & Min J 111:353 F 19 '21

Utilizing exhaust steam for mine pumping. D. J. Baker. il diags plan Coal Age 18:890-3 O 28 '20

What type of mine pump shall I specify. J: W. Hallock. diags Coal Age 18:1229-33 D 16 '20

Mine railroads. *See* Locomotives, Mine; Mine ties; Mine track

Mine refuse. *See* Culm

Mine rescue work

Airplanes in mine rescue work. F. J. Bailey. Sci Am M 1:547 Je '20; Same. Coal Age 17:1254-5 Je 17 '20

Bad fire at Kathleen mine is rapidly extinguished. E. McAuliffe. il Coal Age 20:247-51 Ag 18 '21

Don't attempt to travel too far in mine-rescue apparatus. G: S. Rice. Coal Age 18:330 Ag 12 '20

Effective means of using rescue apparatus in the fighting of mine fires. J. T. Ryan. Coal Age 16:741-3 N 6 '19

5th National first-aid meet at Denver. Sept. 9-11. Coal Age 18:606-7 S 16 '20; Eng & Min J 110:637-8 S 25 '20

Ford collieries co. reduced its accident insurance cost. D. J. Baker. il diag Coal Age 17:743-8 Ap 15 '20

International first-aid and mine-rescue contest. F. J. Bailey. il Coal Age 18:301-2 Ag 5 '20; Same. Min & Sci P 121:241-2 Ag 14 '20

Lives instead of monuments. A. T. Vogel-sang. il Nation's Business 8:56+ My '20

Mine rescue work and organisation. H. F. Bulman and F: P. Mills. Engineering 112:352-3 S 2 '21

Mine safety experts discuss at Milwaukee accidents, health and welfare. R. D. Hall. Coal Age 18:763-7 O 7 '20

Mine rescue work—Continued

- Nova Scotia co.'s rescue car: first firm in America to use breathing apparatus. F. H. Kneeland. *il* Coal Age 18:728-30 O 7 '20
- Practical mine rescue building. R. H. Seip. *diag* plan Eng & Min J 110:952-3 N 13 '20
- Preparedness for the unexpected. R. W. Lightburn. Coal Age 18:1240-1 D 16 '20
- Two new rescue apparatus. H. Briggs. *il* *diags* Engineering 112:568-9 O 21 '21; Discussion. 112:431 S 23 '21
- Use of the geophone for mine rescue work. Monthly Labor R 10:1013-14 Ap '20
- See also* Geophone; Mine telephones; Mining engineering; Safety measures

Mine roofs

- Avoiding roof troubles in mining. *diag* Coal Age 19:498-9, 826-7 Mr 17, My 5 '21
- Some peculiar roof conditions encountered in the central Pennsylvania bituminous field. A. E. Roberts. Coal Age 19:57-60 Ja 13 '21

Mine salting

- Dressing a mine for sale. Eng & Min J 110:442-3 S 4 '20
- Experiences of a custom assayer. E. C. D. Marriage. Eng & Min J 110:906 N 6 '20
- Pinch of salt. C. T. Hutchinson. Min & Sci P 121:123-31 Jl 24 '20
- Salting. Eng & Min J 110:507 S 11 '20
- Salting of mines. Min & Sci P 121:183-4 Ag 7 '20
- Stories from a laboratory. A. R. Ledoux. Eng & Min J 110:159-61 Jl 24 '20

Mine sampling. See Ore sampling**Mine shaft houses**

- Concrete shaft houses at Ishpeming iron mines. J. E. Hayden and L. Eaton. *il* Concrete 17:191-3 D '20; Abstract. Min & Met 164:25-6 Ag '20
- Engineers and architects in artistic collaboration. A. T. North. *il* *diags* Am Arch 118:783-7+ D 15 '20
- Shaft houses of imposing architecture at the Ishpeming (Michigan) mine of the Cleveland Cliffs iron company. T. L. Condron. *il* *diags* W Soc E J 26:22-32 Ja '21

Mine shafts

- Bucket and trolley form simple means for shaft sinking. B. G. Best. *diags* Eng N 86: 962 Je 2 '21
- Concreting the Chief Consolidated shaft at Eureka, Utah. R. D. Gardner. *il* *diags* Eng & Min J 110:460-2 S 4 '20
- Details of shaft lagging. J. L. Dynan. *diags* Eng & Min J 111:227 Ja 29 '21
- Illinois shaft 263 ft. deep is completed and timbered by the Johnson City coal co. in 35 days. Coal Age 17:804 Ap 22 '20
- Johannesburg mine shaft 7,000 feet deep. Pop Mech 35:834 Je '21
- Layout for dual shafts of large tonnage. R. Z. Virgin. plan Coal Age 18:388-9 Ag 19 '20
- Lining a shaft with concrete and gunite without interfering with operation. R. H. Gillespie. *diags* Coal Age 20:287-90 Ag 25 '21
- New concrete shaft of the Chief consolidated mining company. A. B. Parsons. *il* *diags* plan Min & Sci P 122:595-600 Ap 30 '21
- Rectangular shafts giving place to other types. Coal Age 18:951 N 4 '20
- Sinking and concreting of Pyne and Songa shafts. J. H. Stovel. *il* *diags* Eng & Min J 111:698-701 Ap 23 '21
- Susquehanna collieries co.'s improvements near Shamokin, Pa. *diags* plan Coal Age 17: 756-7 Ap 15 '20
- Triple compartment concrete-lined mine shaft. V. Brothers. *il* *diags* Concrete 17: 124-7 O '20
- Water problem in shaft sinking. J. E. Harding. *il* Eng & Min J 109:263-4 Ja 24 '20
- What barrier coal has been and should be left to protect anthracite mines. W. B. Richards. *diags* plans Coal Age 17:1135-40 Je 3 '20

See also Mine hoisting; Mine timbering; Mine ventilation; Shaft sinking

Mine shops

- Forge and equipment of a mine repair shop. *diags* plans Coal Age 19:717-18 Ap 21 '21
- Mine blacksmith shops. R. J. Day. *il* *diags* plans Eng & Min J 112:609-13 O 15 '21
- Mine shops at Kingston build storage-battery locomotives for colliery. D. C. Ashmead. *il* Coal Age 17:1312-13 Je 24 '20

Mine signals

- Deep-mine signal system which permits easy location of troubles. E. W. Fredell. *diag* Elec W 75:1201-2 My 22 '20
- Designing mine signal systems. R. H. Bacon. *diags* Eng & Min J 110:361-4 Ag 21 '20; Same cond. Elec W 76:372-5 Ag 21 '20
- Motor-haulage block-signal protection. T. H. Arnold. plan Eng & Min J 110:677 O 2 '20
- Motor haulage switch protection. T. H. Arnold. *diag* Eng & Min J 110:578 S 18 '20
- Signal to warn men at work at dump pit that mine cars are approaching. P. Broadt. *diag* Coal Age 19:1076 Je 16 '21
- Signaling and controlling mine hoists from moving cages. C. A. Allen. *diags* Coal Age 18:894-6 O 28 '20; Same abr. Min & Sci P 121:232 Ag 14 '20; Same abr. Eng & Min J 110:210 Jl 31 '20
- Use of the geophone for mine signalling. M. Meredith. Coal Age 17:312 F 12 '20

Cost

- Designing mine signal systems. R. H. Bacon. *diags* Eng & Min J 110:361-4 Ag 21 '20; Same cond. Elec W 76:372-5 Ag 21 '20

Mine stables

- Now even mules have wash houses. *il* Coal Age 18:12 Jl 1 '20

Mine subsidences

- Though free of legal obligation Scranton mines pay for mine-cave damages. D. C. Ashmead. *il* map Coal Age 19:354-8 F 24 '21
- Where the earth collapses. R. S. Bond. *il* Pop Mech 33:265-6 F '20

Mine surveying

- Determining dip of vein at depth. D. M. Stranahan. *diag* Eng & Min J 112:261 Ag 13 '21
- Further kinks in surveying. J. F. Hanst. *diags* Eng & Min J 111:551-2 Mr 26 '21
- Mine geological surveying. G. J. Mitchell. map Eng & Min J 111:423-5 Mr 5 '21
- Organization of mine-surveying work. F. L. Fisher. Eng & Min J 111:58-60 Ja 8 '21
- Setting sights in a Silesian mine. *il* Coal Age 19:569 Mr 31 '21
- Shaft surveying at the North Star mine, California. *diag* Eng & Min J 112:419 S 10 '21
- Stope measuring at Passagem mine. F. P. Caddy. *diags* plan Min & Met 178:45-7 O '21
- Wuensch bore-hole graviscopes. C. E. Wuensch. *diags* Eng & Min J 111:949-50 Je 4 '21

See also Mine examination

Mine sweeping devices. See Mines, Submarine**Mine taxation**

- Aid for mining in Colorado in act recently passed. Eng & Min J 111:679-80 Ap 16 '21
- Courts to decide ore tax issue; special law enacted by Minnesota legislature. D. E. Woodbridge. Iron Tr R 68:1163-4 Ap 28 '21
- Depreciation as a deduction for income-tax purposes. F. Schwertner. Coal Age 20:420-1 S 15 '21
- Federal tax reform and the mining industry. R. G. Wilson. Eng & Min J 111:98-100 Ja 15 '21
- Federal taxation of mines. L. C. Graton. Min & Met 155:2957-98 N '19; Discussion. 155: 2998-3007; 156:3079-3113; 157:(sec 12) 89-91; 159:(sec 2) 1-14 N '19-Ja, Mr '20
- Iron mine tax methods outlined. Iron Tr R 66:788-9 Mr 11 '20
- Mine accounting in relation to federal taxes. W. Kurtz. J Account 29:30-42 Ja '20
- Mine tax system; report of special committee representing National tax association. Iron Tr R 67:1005-6 O 7 '20; Abstract. Eng & Min J 110:778 O 16 '20
- Mine valuation for federal taxation. Min & Met 157:(sec 1) 24-8 Ja '20

Mine taxation—Continued

- National mine tax conference of the American mining congress. Eng & Min J 110:1041 N 27 '20
 New mine tax law of New Mexico. Eng & Min J 111:855 My 21 '21
 Pennsylvania mining statutes annotated. J. W. Thompson. U S Bur Mines Bul 185:886-951 '20
 Tax problem effect on mine accounting. H. B. Fernald. Min & Met 160:16-18 Ap '20
 Tonnage tax to be put on ore. Iron Tr R 67:1533-4 D 2 '20
 Valuation of mines for taxation. J. R. Finlay. Eng & Min J 109:547 F 28 '20

See also Coal—Taxation

Mine telephones

- Mine rescue telephones in England. Eng & Min J 111:307 F 12 '21
 Safety regulations in 16 states specify use of telephones in mines. Eng & Min J 112:185 Jl 30 '21

Mine temperature

- Rock temperatures in South Africa. Min & Sci P 122:424 Mr 26 '21
 Temperatures in deep mines. E. H. Clifford. Sci Am S 88:294 N 15 '19

Mine ties

- Steel mine tie that will not slip under stress of traffic. diags Coal Age 19:622 Ap 7 '21

Mine timbering

- Bunker Hill enterprise. T. A. Rickard. il diags plans Min & Sci P 120:337-45 Mr 6 '20
 Coal-mine timbering. il diags plans (Trade & Ind ser. 10) Fd Bd for Vocational Educ Bul 40:1-102 N '19
 Cut mine timbers to measure. J. H. Taylor. Coal Age 20:460 S 22 '21
 Decay of timber in return air courses. D. Harrington. il diag Eng & Min J 112:565-9 O 8 '21
 Failure of mine timbers. G. J. Young. il Eng & Min J 109:611-12 Mr 6 '20
 Growing scarcity of mine timber. Coal Age 17:769, 826 Ap 15-22 '20
 Gunite and creosote extend life of timber. Coal Age 20:675 O 27 '21
 Guniting at United Verde extension. E. E. Campbell. Eng & Min J 112:620-1 O 15 '21; Excerpt. Eng & Contr 56:467 N 16 '21
 Magnesia cement to protect mine-timbers. W. C. Phalen. Min & Sci P 120:538 Ap 10 '20; Same cond. Eng & Contr 54:65 Jl 21 '20
 Mining methods at the Butte & Superior. A. B. Parsons. il diags plan Min & Sci P 121:513-17 Q 9 '20
 Posting entries and roads. A. O. Bain. Coal Age 17:1275 Je 17 '20
 Preservation of mine timber. Coal Age 16:164, 377-8, 459, 760 Jl 24, Ag 28, S 11, N 6 '19
 Safe miner. G. E. Daugherty. Coal Age 18:1239-40 D 16 '20
 Safety in mine timbering. il Coal Age 15:919, 1175-6; 16:163, 378, 541, 587-8, 860 My 15, Je 26, Jl 24, Ag 28, S 25-O 2, N 27 '19
 Saving mine timbers from decay. Eng & Contr 54:501 N 17 '20; Same. Sci Am 124:393 My 14 '21
 Schedule-rating rules as applied to distance of timber from face. Coal Age 19:15 Ja 6 '21
 Standardizing rules in mine timbering. Coal Age 19:500 Mr 17 '21
 Steel timbers last as long as the mine. D. C. Ashmead. il Coal Age 20:51 Jl 14 '21
 Steel vs. wood for mine timbering. Coal Age 17:1108 My 27 '20
 Supporting mine roof. Coal Age 17:505, 554-6, 602-3 Mr 11-25 '20
 Three or twelve years for mine timber? D. C. Ashmead. il Coal Age 18:281-2 Ag 5 '20
 Timber booms or crossbars. diags Coal Age 17:874 Ap 29 '20
 Timber sizes used by Copper Queen mine. Eng & Min J 111:270 F 5 '21
 To conserve mine timber. R. W. Lightburn. Coal Age 17:1276 Je 17 '20
 Treatment of mine-timbers. Min & Sci P 122:336 Mr 5 '21

Why not save timber above and below ground by use of creosote oil? Coal Age 20:637 O 20 '21

Zinc mine timbering in General Grant's time. il Min & Met 169:17-18 Ja '21

See also Mine shafts; Props

Mine tipples

- Advantages of mechanical handling. E. Reed. il diag Electrician 86:9-14 D 31 '20
 Among other preparation devices at Diamond mines is one for picking each car separately. D. J. Baker. il Coal Age 19:1111-16 Je 23 '21
 Automatic tipple dumps car by gravity. il Pop Mech 36:729 N '21
 Coal tipple for a stripping operation. F. J. Schraeder, jr. il diag Coal Age 17:698-701 Ap 8 '20
 Description of the Kathleen mine plant at Duquoin, Illinois. A. Allen. il diags plans W Soc E J 25:525-40; Discussion. 540-4 O '20
 8,000-ton tipple with a 5,000-ton storage bin for coking coal erected at Lynch, Kentucky. H. N. Eavenson. il diags plans Coal Age 20:452-8 S 22 '21
 Eliminating one man at a coal tipple. il Coal Age 19:617 Ap 7 '21
 First ship-by-truck tipple to be constructed. D. J. Baker. il Coal Age 18:1173-7 D 9 '20
 Hillsboro wood tipple replaced by steel while shaft is hoisting coal. J. A. Garcia. il diag Coal Age 19:857-60 My 12 '21
 Lowering lump coal down a steep mountain on a moving bed of slack. D. J. Baker. il diags Coal Age 18:53-8 Jl 8 '20
 Lucerne mines, shaft and two drifts make current for thirty-two plants. R. W. Mayer. il Coal Age 18:481-4 S 2 '20
 Plant to prepare small-size locomotive fuel and coal for domestic purposes. C. M. Schloss. flow sheet plan Coal Age 20:414-15 S 15 '21
 Rail and river tipple dumps coal inside and conveys coal by belts. D. J. Baker. il Coal Age 18:683-6 S 30 '20
 Rebuilding burned tipple with a minimum loss of plant-operating time. R. T. Middleton. il diags Coal Age 19:313-16 F 17 '21
 Reconstruction of a burned tipple. R. W. Mayer. il Coal Age 17:269-70 F 5 '20
 Reinforced concrete coal tipple built in winter. H. B. Cooley. il Concrete 19:16-17 Jl '21
 Small but efficient tipple. W. Brasack. il Coal Age 17:645-7 Ap 1 '20
 Suggestions as to the design of a tipple to suit ordinary market conditions of the West. B. Shubart. il diags Coal Age 20:631-4 O 20 '21
 Transportation and preparation system at Nanty Glo. D. J. Baker. il Coal Age 17:791-5 Ap 22 '20

Mine tracks

- Ballasting mine tracks. C. McManiman. diag Coal Age 17:363 F 19 '20
 Designing and building track to avoid trouble and increase capacity. I. Dye. diags Coal Age 17:908-9 My 6 '20
 Experiences of a tracklayer. B. Deeble. Coal Age 19:71-2 Ja 13 '21
 Features in track planning that will aid in securing and increasing output. C. H. Partington. il Coal Age 17:917-19 My 6 '20
 Guardrails prevent derailment. diag Coal Age 19:1163; 20:261, 460 Je 30, Ag 18, S 22 '21
 Laying out mine track curve. diag Coal Age 20:302-3, 644-5 Ag 25, O 20 '21
 Selecting frogs in laying mine switches. diag Coal Age 19:629-30 Ap 7 '21
 Simple rules for measuring mine frogs. C. H. Hampsch. diags Coal Age 18:1179 D 9 '20
 Three-way switch in a mine. diags Coal Age 17:1319; 18:348 Je 24, Ag 12 '20
See also Mine ties

Mine valuation

- Method of calculating the average value of placer ground. J. Sen. Min & Sci P 122:704 My 21 '21
 Mine valuation for federal taxation. Min & Met 157:(sec 1) 24-8 Ja '20

Mine valuation—Continued

- Time factor in depletion of mines. J. W. Roberts. *Min & Met* 168:39-40 D '20
 Valuation of mines for taxation. J. R. Finlay. *Eng & Min J* 109:547 F '28 '20
 Valuation of ore. W. Crocker. *Min & Sci P* 123:531-2 O 15 '21
 Valuing partly exhausted mines. M. Webber. *diags Min & Sci P* 122:385-9, 489-94 Mr 19, Ap 9 '21; Discussion. 122:486, 524, 667-8, 703-4; 123:5-6, 568 Ap 9-16, My 14-21, Jl 2, O 22 '21

See also Prospecting

Mine ventilation

- Advantage of building overcasts. W. H. Luxton. *Coal Age* 18:133-4 Jl 15 '20
 Alteration in a ventilation shaft. J. H. Stovel. *il diag plan Eng & Min J* 111:96-7 Ja 15 '21
 Booster ventilation problems. *Coal Age* 20:204, 540 Ag 11, O 6 '21
 Coal-mine ventilation. *il diags maps (Trade & Ind. ser. 11) Fd Bd for Vocational Educ Bul* 41:1-62 N '19
 Considerations influencing mine ventilation. R. Z. Virgin. *diags Coal Age* 17:395 F 26 '20
 Double fan circulation. *diag Coal Age* 17:771 Ap 15 '20
 Dust control and ventilation in metal mines. D. Harrington. *il charts Eng & Min J* 111:738-43 Ap 30 '21
 Efficiency in ventilation. *diags Coal Age* 19:755-6, 1124; 20:18 Ap 28, Je 23, Jl 7 '21
 Electric haulage and ventilating plant at the Easington colliery. *il diags Engineering* 110:804-6, 808 D 17 '20
 Factors in mine ventilation. *Coal Age* 17:871-2 Ap 29 '20
 Fan installation. *Coal Age* 17:558 Mr 18 '20
 Fan ventilation in winter. J. Parker. *Coal Age* 17:245 Ja 29 '20
 Fatigue, and atmospheric conditions in mines. *Min & Sci P* 123:270 Ag 20 '21
 Fitting the fan to the needs of the mine. T. Chester. *Coal Age* 18:1326-9 D 30 '20
 Friction of ventilating currents. W. S. Weeks. *diags Min & Sci P* 120:607-10 Ap 24 '20
 Location of regulators in a mine. R. Z. Virgin. *Coal Age* 17:768-9 Ap 15 '20
 Measurement of ventilating air. W. S. Weeks. *il diags Min & Sci P* 120:895-901 Je 19 '20
 Mechanical ventilation at Lake Mine. L. Eaton. *map Min & Met* 164:28-9 Ag '20
 Mine gases and ventilation. 2d ed. J. T. Beard. 433p McGraw-Hill '20
 Mine ventilation. J. J. Walsh. *Am Soc Heat & V E* 23:659-64 '17; Discussion. 133-8 '19
 New air-shaft of the Davis-Daly copper company. *Min & Sci P* 121:880 D 18 '20
 Observed breathing of a sealed section of a mine. *Coal Age* 18:1336-7; 19:186-7, 409-10, 584-5 D 30 '20, Ja 27, Mr 3, 31 '21
 Octagonal ventilation shaft of Davis-Daly copper co. J. L. Bruce. *diag plan Min & Met* 177:50-1 S '21
 Physiological effect of high temperatures and high humidities in metal mines. R. R. Sayers and D. Harrington. *Eng & Min J* 110:401-4 Ag 28 '20
 Portable direct-reading anemometer for the measurement of ventilation of coal mines. J. T. MacGregor-Morris. *il diag Electrician* 85:227-9 Ag 27 '20; Same. *Engineering* 110:279-80 Ag 27 '20
 Power consumption is increased when the air is short-circuited. C. R. Clark. *Coal Age* 18:351 Ag 12 '20
 Problems in mine ventilation. W. S. Weeks. *chart diags Min & Sci P* 121:117-22 Jl 24 '20
 Proper and efficient ventilation of a slope mine. *plan Coal Age* 17:1109 My 27 '20
 Regulating the distribution of air in rise workings in mines. A. O. Bain. *Coal Age* 18:134 Jl 15 '20
 Relation of metal-mine ventilation to safety and efficiency. D. Harrington. *Am Soc Heat & V E J* 26:661-4 O '20
 Rules for prevention of gas explosions. R. A. Walter. *Coal Age* 18:945-7 N 4 '20
 Safety in planning circulation system. R. Bowen. *Coal Age* 18:450 Ag 26 '20

Short-circuiting or obstructing air in fan ventilation. *Coal Age* 17:606-7, 1009-10 Mr 25, My 13 '20

Size of opening in regulator to reduce quantity of air passing. *Coal Age* 19:957 My 26 '21

Testing and application of ventilating-fans. W. S. Weeks. *il diags Min & Sci P* 121:11-15 Jl 3 '20

Theory of the centrifugal fan. W. S. Weeks. *il diags Min & Sci P* 120:858-62 Je 12 '20

Value of the coefficient of friction in mine ventilation. *Coal Age* 19:410-11 Mr 3 '21

Ventilating a four-entry system. *plan Coal Age* 19:1043-4 Je 9 '21

Ventilating an extensive thin-coal mine. D. J. Baker. *il Coal Age* 18:103-5 Jl 15 '20

Ventilating two seams by a single fan. *Coal Age* 20:542-3 O 6 '21

Ventilation and miners' phthisis. *Min & Sci P* 122:770-1 Je 4 '21; Discussion. C. L. Berrien. 123:223-4 Ag 13 '21

Ventilation doors in Arizona copper mines operated by compressed air. E. D. Gardner. *diags Min & Met* 178:58 O '21

Ventilation in metal mines. D. Harrington. *U S Bur Mines Tech Pa* 251:1-43 '21

Ventilation of mines. *Min & Sci P* 121:186 Ag 7 '20

Ventilation studies in metal mines. D. Harrington. *Am Soc Heat & V E J* 27:495-509; Discussion. 509-10 Jl '21

Water-gage reading re speed of fan. *Coal Age* 19:867 My 12 '21

See also Coal dust; Fans, Mine; Fire-damp; Mine air; Mine doors; Mine dust; Mine gases

Mine washhouses

Lynch plant of the United States coal and coke co. H. N. Eavenson. *diags plans Coal Age* 20:676-8 O 27 '21

An oddity in washhouses. *il Coal Age* 17:648-9 Ap 1 '20

Standard washhouse design of Reading co. *il diags plan Coal Age* 17:992-4 My 13 '20

What H. C. Frick coke co.'s experience shows to be the best type of bathhouse. D. J. Baker. *il diags plans Coal Age* 19:349-54 F 24 '21

Mine water

Analysis of mine water. A. G. Blakeley. *Coal Age* 17:284 F 5 '20

Dumping ore and water. C. E. Dutton. *diags Eng & Min J* 111:671-2 Ap 16 '21

Mine-water neutralizing plant at Calumet mine. L. D. Tracy. *diags plans Coal Age* 18:13-16 Jl 1 '20; Abstract. *Min & Met* 161:29-30 My '20

Neutralizing mine-waters on the Rand. F. Wartenweiler and E. H. Croghan. *Min & Sci P* 120:376-8 Mr 13 '20

Pollution of river water in the Pittsburgh district. C. M. Young. *map Am Water Works Assn J* 8:201-17 My '21

Problem in levels; how the shafts and workings of coal mines are kept free of water. J. F. Springer. *il Sci Am* 125:198+ S 17 '21

Slush breaker and mine-water problems. J. Griffin. *il diag plan Coal Age* 17:349-53 F 19 '20

Tapping body of water in adjoining mine. *Coal Age* 20:644 O 20 '21

See also Mine drainage; Mine pumping

Mineral industries

Byproduct expansion in non-metallic mineral industries. O. Bowles. *Eng & Min J* 111:392 F 26 '21; Same cond. *Min & Met* 169:27 Ja '21

International mineral problems. C. K. Leith. *Econ Geol* 16:222-6 Ap '21

Mineral production curves. G. M. Schwartz. *Eng & Min J* 111:903 My 28 '21

See also Metal trade; Metallurgy; Mineralogy; Mines and mineral resources; Mining industry and finance; *also* names of minerals, e.g. Coal trade, Iron industry and trade, Oil industries; Petroleum industry and trade, Potash

Terminology

Glossary of the mining and mineral industry. A. H. Fay. *U S Bur Mines Bul* 95:1-754 '20

Mineral industries—Terminology—Continued

Non-metallic mineral industries of the United States. R. B. Ladoo. *il Eng & Min J* 111: 215-21 Ja 29 '21

France

Mineral industries of France. M. Altmayer. *Eng & Min J* 109:12-16 Ja 3 '20

Japan

Minerals produced in Chosen (Korea) and Japan, 1918 and 1919. Oil Paint & Drug Rep 99:24 sec 1 Je 27 '21

United States

War problems in minerals. *Eng & Min J* 112: 500-2, 570-5, 651-6 S 24, O 8, 22 '21

Mineral lands

Abstract of current decisions on mines and mining; reported May-August, 1919. J. W. Thompson. *U S Bur Mines Bul* 183:1-165 '20
Geology in the law. J. F. Kemp. *Econ Geol* 15:259-65 Ap '20

Mineral-land classification. M. W. Ball. *Min & Met* 179:25-6 N '21

Mining bonds and leases. *Eng & Min J* 110: 999 N 20 '20

Mining opportunities in Siberia. C. W. Purington. *Eng & Min J* 110:982-3 N 20 '20

Regulations governing the issuance of leases for coal deposits under Mineral land leasing bill—text of the measure. *Comm & Fin Chr* 110:1600-5 Ap 17 '20

See also Coal lands; Gas, Natural; Mines and mineral resources; Mining law; Oil lands; Ore deposits; Petroleum—Laws and regulations

Mineral oil. *See* Petroleum

Mineral waters

Data of geochemistry. F. W. Clarke. *U S Geol S Bul* 695:175-211 '20

Determination of iodide and bromide in mineral waters and brines. W. F. Baughman and W. W. Skinner. *J Ind & Eng Chem* 12: 358 Ap '20

Mineral waters in 1918. A. J. Ellis. *map U S Geol S Min Res of U S* 1918, pt 2:495-531 '20

Mineral waters in 1919. A. J. Ellis. *U S Geol S Min Res of U S* 1919, pt 2:115-49 '21

Mineral waters of Colorado. R. D. George and others. 474p (Bul. no. 11) Colorado geological survey, Denver '20

Mineral wax. *See* Ozocerite

Mineral Wells, Texas

Bituminous macadam pavements in Mineral Wells. W. W. McClendon. *il Pub Works* 49:272-4 S 25 '20

Mineral wool

Felted mineral wool blocks for insulating. *il Sheet Metal Worker* 12:113 Mr 18 '21

Limestone wool made into heat insulators. *il Pop Mech* 36:97-8 Jl '21

Mineralogy

Economic mineralogy; a practical guide to the study of useful minerals. T. Crook. 492p Longmans '21

Guide to the mineral collections in the Illinois state museum. A. R. Crook. 294p Ill. state museum of natural history, Springfield '20

Introduction to the study of minerals and rocks. A. F. Rogers. 2d ed. 527p McGraw-Hill '21

Mineralogy. E. H. Kraus and W. F. Hunt. 561p McGraw-Hill '20

Reflecting microscope for the mining engineer. W. M. Davy. *diag Min & Met* 163: 30-1 Jl '20; Same. *Sci Am M* 2:95 Jl '20

Tables for the determination of the common minerals and rocks. W. A. Tarr. Rev. and enl. 32p Missouri book co., Columbia '21

See also Anisotropy; Crystallography; Gems; Geology; Metals; Mines and mineral resources; Phosphorescence; Precious stones; Rocks; *also* names of minerals, e.g. Coal, Feldspar, Graphite, Mica

Minerals

Data of geochemistry. F. W. Clarke. *U S Geol S Bul* 695:316-414 '20

See also Metals; Mineral lands; Mineralogy; Mines and mineral resources; Ores; Precious stones; *also* names of minerals, e.g. Coal, Mica, Quartz

Minerals Separation, limited

Defence of Minerals Separation. A. A. Cook. *Min & Sci P* 122:89-94 Ja 15 '21

Flotation conference in Denver. *Eng & Min J* 110:1038-9, 1070 N 27-D 4 '20

Flotation conference of the American mining congress at Denver. *Min & Sci P* 121: 790-1 D 4 '20

Miami copper co. not in contempt in flotation case. *Eng & Min J* 110:179-80 Jl 24 '20

Minerals Separation before the Federal trade commission; excerpt from the record of proceedings. *Min & Sci P* 121:263-9 Ag 21 '20

Minerals Separation hearings before Federal trade commission opened in New York. *Eng & Min J* 109:1037-9 My 1 '20; Same. *Min & Sci P* 120:710-12 My 15 '20

Minerals Separation in Chile. *Min & Sci P* 121:723-4 N 20 '20

Minerals Separation v. Butte & Superior. *Min & Sci P* 123:492 O 8 '21

Minerals Separation v. Miami copper company; affidavit of Theodore J. Hoover and William S. Stevens. *Min & Sci P* 120:911-12 Je 19 '20

Minerals Separation's position under the patent laws and the anti-trust laws. G. H. Montague. *Min & Sci P* 121:833-40 D 11 '20

Mr Sulman and Minerals Separation. *Min & Sci P* 120:891-2 Je 19 '20

Objectionable practices of Minerals Separation. G. L. Nye. *Min & Sci P* 121:873-80 D 18 '20

Present status of flotation litigation. T. A. Rickard. *Min & Sci P* 122:119-24 Ja 22 '21

Proceedings against Minerals Separation before the Federal trade commission. *Min & Sci P* 120:909-10 Je 19 '20

Royalties charged by Minerals Separation too high. *Eng & Min J* 109:1229-31 My 29 '20

Western hearings of Minerals Separation case by Federal trade commission. G. H. Montague. *Eng & Min J* 110:815-18 O 23 '20

What constitutes unfair trade practice? *Chem & Met Eng* 23:877-8 N 3 '20

Miners

Americanization methods at coal and metal mines. R. Linton. *Min & Met* 179:19-22 N '21

Comparison of non-ferrous metal miners' wages in the United States. *Eng & Min J* 111:1082 Je 25 '21

Contract system in mines. E. Hedburg. *Min & Sci P* 120:667-8 My 8 '20

Contract wage system for mines. A. K. Knickerbocker. *Min & Met* 158:(sec 32) 1-8 F '20; Same. *Min & Sci P* 120:497-500 Ap 3 '20; Excerpt. *Eng & Contr* 53:299-300 Mr 17 '20; Discussion. *Min & Met* 159:(sec 2) 15-16 Mr '20

Descriptions of occupations; mines and mining. 37p '18 U.S. Bureau of labor statistics, Washington, D.C.

Deutsche bergarbeiterlöhne 1913 bis 1920. *Stahl & Eisen* 41:771-3 Je 2 '21

Education needed to correct abuse of privileges by miners. R. Bowen. *Coal Age* 18: 74 Jl 8 '20

Human element in mine operation. E. Higgins. *Min & Sci P* 120:346-8 Mr 6 '20

Industrial relations in mining industry. *Min & Sci P* 120:517-18 Ap 10 '20

Labor situation in 1919. *Eng & Min J* 109:242 Ja 17 '20

Mexico miner's dinner-pail and its relation to production. C. M. Wright. *Ptr Ink* 112: 101-2 S 9 '20

Miners and progress. *Engineer* 131:407 Ap 15 '21

Miners and unemployment benefit. *Engineering* 111:462 Ap 15 '21

Miners' demands un-American. *Coal Age* 17: 275-6 F 5 '20

Miners—Continued

National coal association shows that miners make good wages. *Coal Age* 17:565-6 Mr 18 '20

Necessity for a mining and industrial education. H. H. Stoeck. *Coal Age* 16:850-2 N 27 '19

Welfare work at the Homestake mine. B. C. Yates. *il Eng & Min J* 110:198-203 J1 31 '20

Welfare work in the Coeur d'Alenes. H. W. Power. *il Eng & Min J* 112:295-7 Ag 20 '21

See also Coal miners; Mine firebosses; Mine foremen; Mine washhouses; Miners' houses; Mining camps; Mining towns

Diseases and hygiene

Final report of the South African miners' phthisis-prevention committee. E. M. Weston. *Eng & Min J* 108:944-7 D 27 '19

Health and industry. J; Rose. *Coal Age* 17:364-5 F 19 '20

Health of the underground worker. A. J. Lanza. *Min & Met* 170:30 F '21; Same. *Sci Am M* 3:187-8 F '21

Is the health of mine workers adversely affected by mine conditions? C. L. Green. *Coal Age* 17:598-9 Mr 25 '20

Lighting conditions in mines, with special reference to the eyesight of miners. T. L. Llewellyn. *bibliog il diags Illum Engr* 13:67-9; Discussion. 80-108 Mr '20

Miners' safety and health almanac for 1920. R. C. Williams. *il diags plan U S Bur Mines Circ* 26:1-46 '19

Miners' safety and health almanac for 1921. R. C. Williams, comp. *il diags U S Bur Mines* 45p '20

Miners' safety and health almanac for 1922. R. C. Williams, comp. *il U S Bur Mines* 49p '21

Pithead and factory baths. E. L. Chappell and I. A. Lovat-Fraser. *Engineering* 111:367-8 Mr 25 '21

Prevalence and causes of consumption among miners of Butte, Mont. *Monthly Labor R* 12:1229-32 Je '21

Ventilation and miners' phthisis. *Min & Sci P* 122:770-1 Je 4 '21; Discussion. C. L. Berrien. 123:223-4 Ag 13 '21

See also Miners' nystagmus

Miners' congress, International. *See* International miners' congress

Miners' houses

Building mining cities in South America. H. F. Guggenheim. *il Eng & Min J* 110:204-10 J1 31 '20

Dwellings in mining settlements: plans at Rosita. *Min & Sci P* 123:386-7 S 17 '21

Gunitite forms an excellent material for covering mine buildings. *il Coal Age* 17:1185-8 Je 10 '20

Lynch plant of United States coal and coke co. H. N. Eavenson. *il diags plans Coal Age* 20:532-6 O 6 '21

Miners' dormitories at the Engels mine. E. G. Gardner. *il Eng & Min J* 110:1124-5 D 11 '20

Reading co. completes new mining town of Lorraine, Pa. *diags plans Coal Age* 17:849-50 Ap 29 '20

Rosita, Mexico, a carefully-planned city; pleasing, comfortable and hygienic. H. E. Skougors. *il plans Coal Age* 19:1037-40 Je 9 '21

Wallboard much used in anthracite company houses, especially for repairs. *Coal Age* 18:1093-4 N 25 '20

Miners' lamps. *See* Safety lamps

Miners' nystagmus

Campaign against miners' nystagmus in the colliery district of Liege, Belgium. N. Stassen. *J Ind Hygiene* 2:451-5 Ap '21

Economic aspect of miners' nystagmus: abstract. T. L. Llewellyn. *J Ind Hygiene* 2:sup218-19 Ap '21

Lighting conditions in mines, with special reference to the eyesight of miners. T. L. Llewellyn. *bibliog il diags Illum Engr* 13:67-79; Discussion. 80-108 Mr '20

Mines, Bureau of. *See* Ontario—Mines. Bureau of; United States—Mines, Bureau of

Mines, Experimental

Demonstration coal mines. J. J. Rutledge. *Min & Met* 158:(sec 17) 1-4 F '20; Same. *Coal Age* 17:386-8 F 26 '20

Mines, Military

Military mining in France. A. H. Brooks. *il diags plan Eng & Min J* 109:606-10 Mr 6 '20

Mines, Submarine

American ordnance production in the Great War. *Engineer* 132:232-3 S 2 '21

German submarine minelayers. *Engineer* 129:415-16 Ap 23 '20

Prince of Monaco determines course taken by floating mines. F. Miltoun. *il chart Marine R* 50:150-1 Mr '20

Recording submarine depth-meter. G. Cook. *diag Engineering* 109:333 Mr 12 '20; Same. *Eng & Contr* 53:743 Je 30 '20

Mines and mineral resources

Effect of the war on mineral supplies. T. Crook. *Engineering* 112:165; Discussion. 139-40 J1 22 '21; Abstract. *Engineer* 132:85 J1 22 '21

Political and commercial geology, and the world's mineral resources. J. E. Spurr. 561p McGraw-Hill '20

Romance of mining discovery. T. A. Rickard. *Min & Sci P* 120:669-76 My 8 '20

Status of the metal mining industry: an interrogatory. *Min & Sci P* 123:508-12, 539-44, 573-6 O 8-22 '21

Who owns the earth? J. E. Spurr. *Eng & Min J* 109:388-91 F 7 '20

World atlas of commercial geology. U.S. Geological survey, Washington, D.C. '21

See also Asbestos; Coal; Coal mines and mining; Copper mines and mining; Diamonds; Geology; Gold mines and mining; Hydraulic mining; Iron mines and mining; Iron ores; Lead mines and mining; Magnesite; Manganese; Mercury; Metals; Mine accidents; Mine management; Mine ventilation; Mine water, and other headings beginning Mine; Mineral lands; Miners; Mining engineering; Mining industry and finance; Mining law; Mining machinery; Molybdenite; Molybdenum; Ore deposits; Ore sampling; Ores; Petroleum; Phosphates; Potash; Precious metals; Prospecting; Quarries and quarrying; Salt; Salt domes; Silver; Silver mines and mining; Sulfur; Talc; Tin; Tin mines and mining; Tungsten; Zinc; Zinc mines and mining

Bibliography

Mining and metallurgical index. *See* monthly numbers of Mining and metallurgy

Government ownership

Problem of nationalization. R: B. H. Haldane. 48p G. Allen & Unwin, London '21

Will Germany nationalize coal mines or merely establish new trusts? H. O. Herzog. *Coal Age* 19:184-5 Ja 27 '21

Bibliography

Nationalization of coal mines: a list of references in the New York public library, comp. by A. Sawyer. 11p N.Y. Pub. Lib. '20

Abyssinia

Mining industry of Abyssinia. *Eng & Min J* 110:107 J1 17 '20

Africa

Mineral production of former German Southwest Africa. *Eng & Min J* 110:610 S 25 '20

See also Mines and mineral resources—South Africa

Alabama

Iron mining in the Birmingham district. G. J. Young. *il map Eng & Min J* 110:249-55 Ag 7 '20

Alaska

Alaska's mineral supplies. A. H. Brooks. *U S Geol S Bul* 666:89-102 '19

Fairhaven silver-lead district. L: A. Levensaler. *il Min & Sci P* 122:195-6 F 5 '21

Mines and mineral resources—Alaska—Cont.

Future of Alaska mining and the Alaskan mining industry in 1919. A. H. Brooks and G. C. Martin. map U S Geol S Bul 714—A: 1-103 '21

Future of mining in Alaska. A. H. Brooks. Min & Sci P 123:202 Ag 6 '21

Geology of the ore deposits of Kennecott. A. M. Bateman and D. H. McLaughlin. il diags maps plans Econ Geol 15:1-80 Ja '20; Discussion. 16:333-4 Je '21

Gold, silver, copper, and lead in Alaska in 1919. A. H. Brooks and G. C. Martin. U S Geol S Min Res of U S 1919, pt 1:227-33 '21

Kantishna mining district, Alaska. J. A. Haney. map Min & Sci P 122:881-2 Je 25 '21

Marble resources of southeastern Alaska. E. F. Burchard and T. Chapin. il maps U S Geol S Bul 682:1-118 '20

Mineral resources of Alaska, 1917. G. C. Martin and others. maps U S Geol S Bul 692:1-400 '19

Mineral resources of Alaska; report on progress of investigations in 1918. G. C. Martin and others. maps U S Geol S Bul 712:1-198 '20

Mineral resources of the Goodnews Bay region. G. L. Harrington. map U S Geol S Bul 714—E:207-28 '21

Mining in Alaska in 1919. Eng & Min J 109: 155-6 Ja 17 '20

Mining in Alaska in 1920. maps Min & Sci P 122:163-5 Ja 29 '21

Mining in Alaska in 1920. G. J. Young. Eng & Min J 111:165 Ja 22 '21

Mining in the Ketchikan district. J. Ulmer. map Min & Sci P 121:493-4 O 2 '20

Notes on the Salmon-Unuk river region. J. B. Mertie, jr., comp. map U S Geol S Bul 714:129-42 '21

Production of base metals for 1919. maps Min & Sci P 120:273-7 F 21 '20

Value of Alaska mine production in 1919 and 1920. Eng & Min J 112:213 Ag 6 '21

See also Coal mines and mining—Alaska; Copper mines and mining—Alaska; Petroleum—Alaska; Tin mines and mining—Alaska

Alsace

Les mines de potasse d'Alsace et le traitement des minerais. Génie Civil 78:197-9 F 26 '21

Potash deposits of Alsace. H. S. Gale. il diag map U S Geol S Bul 715—B:1-55 '20

Les projets d'amodiation des mines de potasse d'Alsace mises sous séquestre. Génie Civil 78:444 My 21 '21

Argentina

Mining in Argentina. M. R. Walker. il map Eng & Min J 112:291-4 Ag 20 '21

See also Petroleum—Argentina

Arizona

Deposits of manganese ore in Arizona. E. L. Jones, jr. and F. L. Ransome. il diags maps U S Geol S Bul 710—D:93-184 '20

Gold, silver, copper, lead, and zinc in Arizona in 1918. V. C. Heikes. U S Geol S Min Res of U S 1918, pt 1:329-68 '20

Gold, silver, copper, lead, and zinc in Arizona in 1919. V. C. Heikes. U S Geol S Min Res of U S 1919, pt 1:331-71 '21

M. B. Dudley interests reopening old producers in Mohave county, Ariz. S. F. Eaton. Eng & Min J 110:486-8 S 4 '20

Mineral production of Arizona in 1919; tabulation. Min & Sci P 121:664 N 6 '20

Mining in Arizona in 1919. Eng & Min J 109: 157-8 Ja 17 '20

Mining in Arizona in 1920. C. A. Mitke. Eng & Min J 111:161-2 Ja 22 '21

Old Golconda being reopened near Chloride, Ariz. S. F. Eaton. il Eng & Min J 109: 1086-7 My 8 '20

Ore deposition in the Warren district, Arizona. G. J. Mitchell. Eng & Min J 109:874-5 Ap 10 '20

See also Copper mines and mining—Arizona; Gold mines and mining—Arizona; Silver mines and mining—Arizona

Arkansas

Diamonds in Arkansas. S. W. Raeburn and S. H. Zimmerman. il Eng & Min J 109:938 Ap 24 '20

Mining in Arkansas in 1920. J. G. Ferguson. Eng & Min J 111:177-8 Ja 22 '21

Asia

Mining in the Asiatic Near East. L. Dominian. map Eng & Min J 109:309-13 Ja 31 '20

Australasia

Mining in Australasia in 1919. W. P. Geary. Eng & Min J 109:243-4 Ja 17 '20

Australia

Australiens bergbau und eisenindustrie in den jahren 1913 bis 1919. Stahl & Eisen 41: 61 Ja 13 '21

Mining industry in Australia. F. H. Bathurst. Min & Sci P 120:158-60 Ja 31 '20; Discussion. E. A. Weinberg. 120:297-8 F 28 '20

Belgium

Belgiens bergwerks- und eisenindustrie im jahre 1919. Stahl & Eisen 41:169-70 F 3 '21

See also Iron mines and mining—Belgium; Petroleum—Belgium

Bolivia

Bolivia; a commercial and industrial handbook. W. L. Schurz. U S Bur For & Dom Com 208:102-43 '21

Mining activities in the Potosi district, in Bolivia. Eng & Min J 110:1176 D 18 '20; Min & Sci P 121:192 Ag 7 '20

Mining industry of Bolivia. G. W. Schneider and B. L. Miller. il map Eng & Min J 109: 786-90 Ap 3 '20

Ore deposition in the Bolivian tin-silver deposits. W. M. Davy. il diags map Econ Geol 15:463-96 S '20; Discussion. J. T. Singewald, jr. 16:60-9 Ja '21

Revival of the Colquechaca silver-tin district, in Bolivia. J. T. Singewald, jr. il map Eng & Min J 110:763-7 O 16 '20

Some unique Bolivian tungsten deposits. F. L. Hess. il Eng & Min J 112:492-9 S 24 '21

See also Petroleum—Bolivia; Tin mines and mining—Bolivia

Brazil

Brazil as a mining country. G. A. Packard. il maps Eng & Min J 112:45-52 Ji 9 '21

Chromite deposits of Bahia, Brazil. H. E. Williams. il maps Eng & Min J 111:376-8 F 26 '21

High-level diamond deposits of Brazil. A. M. Pontie. Min & Sci P 122:397-8 Mr 19 '21

Mining in Brazil in 1920. F. L. Garrison. Eng & Min J 111:188 Ja 22 '21

South American mining fields and practice. W. H. Staver. Eng & Min J 111:544-5 Mr 26 '21

See also Gold mines and mining—Brazil; Petroleum—Brazil

British Columbia

British Columbia mineral production for 1918 and 1919. Eng & Min J 110:354 Ag 21 '20

Mining in British Columbia in 1919. R. Dunn. Eng & Min J 109:185 Ja 17 '20

Mining in British Columbia during 1920. Min & Sci P 122:61-2 Ja 8 '21

Mining in British Columbia in 1920. R. Dunn. Eng & Min J 111:182 Ja 22 '21

Salmon river mining district. C. E. Prior. il Min & Sci P 121:518-20 O 9 '20

Similkameen district of British Columbia. C. M. Campbell. il map Eng & Min J 111:702-5 Ap 23 '21

See also Coal mines and mining—British Columbia; Gold mines and mining—British Columbia; Petroleum—British Columbia; Silver mines and mining—British Columbia

British Guiana

See also Gold mines and mining—British Guiana

Burma

Burma corporation. map Min & Sci P 121: 327-8 S 4 '20

Mines and mineral resources—*Continued*

California

- California mining in 1919. G: J. Young. Eng & Min J 109:159-60 Ja 17 '20
- California's metal output in 1920. Min & Sci P 122:97-8 Ja 15 '21
- Deposits of manganese ore in southeastern California. E: L. Jones, jr. map U S Geol S Bul 710 pt 1:185-208 '20
- Gold mining in California. G: J. Young. il diag Eng & Min J 109:439-45 F 14 '20
- Gold, silver, copper, lead, and zinc in California and Oregon in 1918. C: G. Yale. U S Geol S Min Res of U S 1918 pt 1:405-45 '20
- Gold, silver, copper, lead, and zinc in California and Oregon in 1919. C: G. Yale. U S Geol S Min Res of U S 1919, pt 1:181-215 '21
- Metal mining in California. C. G. Yale. Min & Sci P 121:344; 123:200 S 4 '20, Ag 6 '21
- Metal production in California for 1919. C: G. Yale. Min & Sci P 120:91-2 Ja 17 '20
- Mine and mill of the Belmont Shawmut mining company. A. B. Parsons. il diags map Min & Sci P 121:619-24, 659-64 O 30-N 6 '20
- Mining in California in 1920. G: J. Young. Eng & Min J 111:166-7 Ja 22 '21
- Origin of the colemanite deposits of California. W: F. Foshag. Econ Geol 16:199-214 Ap '21
- Paddy Pride mine. il Min & Sci P 121:276 Ag 21 '20
- See also* Gold mines and mining—California; Petroleum—California; Petroleum industry and trade—California

Canada

- Black Lake asbestos area. W. D. Hubbard. il diags Eng & Min J 112:365-8 S 3 '21
- Canada reports mineral production gain in 1920. Iron Tr R 68:905 Mr 31 '21
- Canadian institute of mining and metallurgy meeting at Winnipeg. R. C. Wallace. Min & Sci P 121:773-4 N 27 '20
- Canadian institute of mining and metallurgy 2d annual western convention, Winnipeg. Eng & Min J 110:963-4 N 13 '20
- Canadian mineral production for 1919. Chem & Met Eng 22:855-6 My 5 '20
- Canadian mining in 1920. maps Min & Sci P 122:197-8 F 5 '21
- Canadian mining institute 22d annual meeting, Toronto. Eng & Min J 109:654-8 Mr 13 '20
- Final report of the work of the commission, November, 1915, to March, 1919. 260p il diags maps plans '20 Munition resources commission. Toronto, Canada
- Iron-ore deposits on the Belcher islands. D. E. Woodbridge. il Eng & Min J 112:251-4 Ag 13 '21
- Metal and mineral production during 1920. Min & Sci P 122:395 Mr 19 '21
- Mineral production of Canada during 1919. J. McLeish. maps Min & Sci P 120:571-4 Ap 17 '20
- Ore deposits of Arctic Canada. E. S. Moore. il map Eng & Min J 110:396-400 Ag 28 '20
- Some Canadian occurrences of pyritic deposits in metamorphic rocks. G: Hanson. il map plan Econ Geol 15:574-609 N '20
- Synopsis of present situation in production of Canadian industrial minerals. Can Chem & Met 5:263-4 S '21
- See also* Asbestos; Petroleum—Canada; Petroleum industry and trade—Canada

Bibliography

- Catalogue of Mines branch publications. 29p (10th ed) '19 Canada. Dept. of mines, Ottawa

Central America

- Mining in Central America in 1920. M. B. Huston. Eng & Min J 111:186-7 Ja 22 '21

Chile

- Future of small-scale mining and smelting in Chile. W. Strache. Eng & Min J 112:97-8 Jl 16 '21
- See also* Saltpeter, Chile

China

- China and Japan in 1920. T: T. Read. Eng & Min J 111:195 Ja 22 '21
- Chinese tungsten and the American market. H. Koppel. Eng & Min J 111:308-9 F 12 '21
- Mineral enterprise in China. T: T. Read. il Eng & Min J 110:298-301 Ag 14 '20
- Problems fundamental to mining enterprise in the Far East. H. F. Bain. il Min & Met 170:5-13 F '21
- See also* Iron mines and mining—China; Silver mines and mining—China; Tungsten

Colombia

- Mining in Colombia in 1920. L: G. Johnson. Eng & Min J 111:187 Ja 22 '21
- Platinum in Colombia. J. Ovalle. Eng & Min J 110:907-8 N 6 '20
- See also* Petroleum—Colombia

Colorado

- Gold, silver, copper, lead, and zinc in Colorado in 1917. C. W. Henderson. U S Geol S Min Res of U S 1918 pt 1:797-853 '20
- Gold, silver, copper, lead, and zinc in Colorado in 1918. C: W. Henderson. U S Geol S Min Res of U S 1918, pt 1:819-75 '20
- Low-grade and complex ores in Colorado. Min & Sci P 122:263 F 19 '21
- Mineral deposits of the western slope. H. A. Aurand. 78p [Bibliography: p. 62-72] (Col. Geol. survey. Bul. 22) Eames bros., Denver '20
- Mining in Colorado in 1919. G: E. Collins. Eng & Min J 109:161-3 Ja 17 '20
- Mining in Colorado in 1920. G: E. Collins. Eng & Min J 111:167-8 Ja 22 '21
- See also* Carnotite; Gold mines and mining—Colorado

Costa Rica

- Deposits of manganese ore in Costa Rica. J. D. Sears. diags maps U S Geol S Bul 710—C:61-83 '19
- Mining events in Costa Rica. Eng & Min J 109:621-2 Mr 6 '20

Dutch East Indies

- Mineral resources of the Dutch East Indies. il map Eng & Min J 110:1085-8 D 4 '20

Dutch Guiana

- Gold, bauxite, and quicksilver in Dutch Guiana. Eng & Min J 110:1214 D 25 '20

Europe

- See also* Iron ores—Europe

Finland

- Recent work at Archæan sulphide ores in Fennoscandia. P. Geijer. Econ Geol 16:279-88 Je '21

Florida

- Phosphate mining in Florida. S. L. Lloyd. il Eng & Min J 112:86-90 Jl 16 '21

France

- Mineral industries of France. M. Altmayer. Eng & Min J 109:12-16 Ja 3 '20
- See also* Coal mines and mining—France; Metallurgical plants—France; Petroleum—France

Georgia

- Mining manganese in Georgia. M. Haney. il Iron Tr R 66:1762-3+ Je 17 '20
- See also* Gold mines and mining—Georgia

Germany

- Germany's brown coal. R. G. Skerrett. il Sci Am 124:304+ Ap 16 '21
- See also* Coal mines and mining—Germany; Petroleum—Germany

Great Britain

- Mineral production of the United Kingdom and the Isle of Man, 1918 and 1919. Oil Paint & Drug Rep 99:85 sec 1 Mr 21 '21
- Mines and quarries general report and statistics for 1918. Engineer 129:390-1 Ap 16 '20

Mines and mineral resources—Great Britain

—Continued

Our mineral statistics. Engineer 131:254-5 Mr 11 '21

Ownership and valuation of mineral property in the United Kingdom. R. A. S. Redmayne and G. Store. 256p Longmans '20

Tin, lead, and zinc mining in Great Britain. Min & Sci P 121:311 Ag 28 '20

See also Coal mines and mining—Great Britain; Iron mines and mining—Great Britain; Petroleum—Great Britain; Petroleum industry and trade—Great Britain

Guatemala

Mining in Guatemala. B. T. Wells. Eng & Min J 109:647 Mr 13 '20

See also Petroleum—Gautemala

Harz mountains

Mines of the Upper Harz from 1514 to 1589. H. Boyce. 122p George Banta pub. co., Menasha, Wis. '20

Idaho

Boise basin district in Idaho. S. M. Ballard. il Eng & Min J 109:881-2 Ap 10 '20

Bunker Hill enterprise. T. A. Rickard. il maps Min & Sci P 120:5-13, 41-6, 109-16, 185-94, 261-8, 337-45, 485-93, 525-30, 703-9, 791-8; 121:195-200, 227-31, 335-43, 413-18 Ja 3-10, 24, F 7, 21, Mr 6, Ap 3-10, My 15, 29, Ag 7-14, S 4, 18 '20

Coeur d'Alene district of Idaho in 1919. S. A. Easton. Eng & Min J 109:183-4 Ja 17 '20

Geography, geology, and mineral resources of the Fort Hall Indian reservation. G. R. Mansfield and W. B. Heroy. il maps U S Geol S Bul 713:1-152 '20

Gold, silver, copper, lead, and zinc in Idaho and Washington in 1918. C. N. Gerry. U S Geol S Min Res of U S 1918 pt 1:461-95 '20

Gold, silver, copper, lead and zinc in Idaho and Washington in 1919. C. N. Gerry. U S Geol S Min Res of U S 1919, pt 1:451-83 '21

Mining in Idaho in 1919. R. N. Bell. Eng & Min J 109:165-70 Ja 17 '20

Mining in Idaho in 1920. R. N. Bell. Eng & Min J 111:168-9 Ja 22 '21

Reconnaissance of the Pine Creek district. E. L. Jones, jr. map U S Geol S Bul 710 pt 1:1-36 '20

See also Gold mines and mining—Idaho

Illinois

Mining in Illinois in 1920. L. A. Mylius. Eng & Min J 111:177 Ja 22 '21

See also Coal mines and mining—Illinois; Petroleum—Illinois

India

India's steel industry expanding. C. P. Perin. Iron Tr R 67:1273-4 N 4 '20

Iron and steel in India. E. F. O. Murray. Min & Sci P 121:654 N 6 '20

Manganese-ore mining in India. E. N. T. Slater. il Eng & Min J 109:1155-9 My 22 '20

See also Gold mines and mining—India; Iron industry and trade—India

Indiana

See also Gas, Natural—Indiana; Gold mines and mining—Indiana

Italy

L'influence de la guerre sur l'industrie minérale italienne. Génie Civil 77:380-1 N 6 '20

Italy's mineral production in 1920. Min & Sci P 122:538 Ap 16 '21

See also Petroleum—Italy

Japan

China and Japan in 1920. T. T. Read. Eng & Min J 111:195 Ja 22 '21

War upbuilds Japan in steel. J. A. Rabbitt. il map Iron Tr R 66:21-4 Ja 1 '20

Jugoslavia

Mineral wealth of the kingdom of Jugoslavia. G. Gordon-Smith. il map Eng & Min J 110:705-12 O 9 '20

Kansas

See also Petroleum—Kansas

Kongo, Belgian

Mineral resources of the Belgian Congo. S. H. Ball and M. K. Shaler. il map Eng & Min J 110:804-10 O 23 '20

Louisiana

See also Salt mines and mining—Louisiana

Lower California

Baja California and oil possibilities. V. H. Wilhelm. map Min & Sci P 123:125-7 Jl 23 '21

See also Gold mines and mining—Lower California

Madagascar

Economic minerals of Madagascar. G. F. Kunz. Eng & Min J 111:14-16 Ja 1 '21

Manitoba

Knee lake district in northern Manitoba. map Min & Sci P 121:306-7 Ag 28 '20

Mining progress in Manitoba in 1919. R. C. Wallace. Eng & Min J 109:185 Ja 17 '20

Mexico

Las Chispas mine, in Sonora, Mexico. F. Montijo, jr. diags. Min & Sci P 121:58-60 Jl 10 '20

Metal prices and mining in Mexico. H. G. Nichols. il Min & Sci P 121:655-8 N 6 '20

Mineral resources of Durango. M. Rangel and A. Terrones. il map Eng & Min J 112:168-74 Jl 30 '21

Mining activities near San Luis Potosi. R. B. Brinsmade. il Min & Sci P 123:61-3 Jl 9 '21

Mining and smelting near Matehuala. R. B. Brinsmade. il diags plans Min & Sci P 120:85-9 Ja 17 '20

Mining conditions in Mexico. D. R. Thomas. Min & Met 178:39-40 O '21

Mining districts near Zimapan, Hidalgo, Mexico. R. B. Brinsmade. il maps Min & Sci P 123:293-7 Ag 27 '21

Mining in Mexico in 1920. Eng & Min J 111:184-5 Ja 22 '21

Mining in Sonora. B. R. Russell. Eng & Min J 109:973 Ap 24 '20

Mining industry of Mexico: a historical sketch. R. G. Cleland. il map Min & Sci P 123:13-20 Jl 2 '21

Ore deposits of Mexico. S. J. Lewis. maps Min & Sci P 120:412-20, 443-50, 933-9; 121:16-20, 375-83, 521-8 Mr 20-27, Je 26-Jl 3, S 11, O 9 '20

Production of metals and minerals in Mexico for the years 1917 to 1920. Min & Sci P 122:360 Mr 12 '21

Production of metals in Mexico during 1920. Eng & Min J 111:1020 Je 18 '21

Silver and gold production in Mexico for the first six months of 1920 and 1921. Min & Sci P 123:272 Ag 20 '21

See also Petroleum—Mexico; Silver mines and mining—Mexico

Michigan

Mining in Michigan in 1920. D. E. A. Charlton. Eng & Min J 111:163-4 Ja 22 '21

Minnesota

See also Iron mines and mining—Minnesota; Iron ores—Minnesota

Missouri

See also Lead mines and mining—Missouri

Montana

Cooke City and the New World mining district. L. H. Brooks, jr. map Min & Sci P 122:682-4 My 14 '21

Gold, silver, copper, lead and zinc in Montana in 1918. C. N. Gerry. U S Geol S Min Res of U S 1918 pt 1:265-302 '20

Mining in Montana in 1920. F. A. Linforth. Eng & Min J 111:162-3 Ja 22 '21

See also Petroleum—Montana

Mines and mineral resources—*Continued***Morocco**

See also Petroleum—Morocco

Near East

Mining in the Near East in 1920. L. Dominian. Eng & Min J 111:193-4 Ja 22 '21

Nevada

Deposits of manganese ore in Nevada. J. T. Pardee and E. L. Jones, jr. diag map plan U S Geol S Bul 710 pt 1:209-42 '20

Divide silver district, Nevada. A. Knopf. map U S Geol S Bul 715—K:147-70 '21

Divide silver-gold district of Nevada. G. J. Young. il Eng & Min J 109:62-6 Ja 10 '20

Metal production in Nevada in 1920. map Min & Sci P 122:200 F 5 '21

Mining in Nevada in 1919. G. J. Young. Eng & Min J 109:164-5 Ja 17 '20

Mining in Nevada in 1920. Eng & Min J 111:170-1 Ja 22 '21

Tonopah Divide. Eng & Min J 109:1101-2 My 15 '20

Yellow Pine mine at Goodsprings, Nevada. il map Min & Sci P 121:239-40 Ag 14 '20

See also Gold mines and mining—Nevada

New Brunswick

American capital in New Brunswick. C. McKay. Min & Sci P 121:412 S 18 '20

New Jersey

See also Iron mines and mining—New Jersey

New Mexico

Deposits of manganese ore in New Mexico. E. L. Jones, jr. map U S Geol S Bul 710 pt 1:37-60 '20

Gold, silver, copper, lead, and zinc in New Mexico and Texas in 1918. C. W. Henderson. U S Geol S Min Res of U S 1918 pt 1:303-28 '20

Mining in New Mexico in 1920. J. P. Porteus. Eng & Min J 111:172 Ja 22 '21

Mogollon district, New Mexico. H. G. Ferguson. diags map U S Geol S Bul 715—L:171-204 '21

Ore deposits of the Mogollon district. D. B. Scott. il diags map Min & Met 158:(sec 33) 1-22 F '20; Abstract. Min & Sci P 120:420 Mr 20 '20; Abstract. Eng & Min J 109:571 F 28 '20

New York

Mineral resources of the state of New York. D. H. Newland. 315p diags maps (New York state museum bul. no. 223, 224) Univ. of the State of New York, Albany '19

Nicaragua

New mining fields in eastern Nicaragua. L. Garbrecht. il map Eng & Min J 109:791-7 Ap 3 '20

See also Gold mines and mining—Nicaragua

Norway

Mining and metallurgical industry of Norway. M. R. Elish. Eng & Min J 110:856-8 O 30 '20

Molybdenum mines in Norway. E. O. Falkenberg. Eng & Min J 111:1021-3 Je 18 '21

Ohio

See also Coal mines and mining—Ohio

Oklahoma

Mining in Oklahoma in 1920. C. W. Shannon. Eng & Min J 111:178-9 Ja 22 '21

See also Petroleum—Oklahoma

Ontario

Mining in Ontario in 1920. G. C. Bateman. Eng & Min J 111:183-4 Ja 22 '21

Ontario's gold and silver production increasing. Eng & Min J 111:266 F 5 '21

Ontario's metalliferous production, first nine months of 1920. Eng & Min J 111:54 Ja 8 '21

Ontario's mineral production for the first quarter of 1921. Eng & Min J 112:290 Ag 20 '21

Ontario's mineral wealth. W. R. Rogers. il map Can Chem & Met 5:261-3 S '21

Ontario's mining industry in 1920. Min & Sci P 121:451 S 25 '20

See also Gold mines and mining—Ontario

Oregon

Gold, silver, copper, lead, and zinc in California and Oregon in 1918. C. G. Yale. U S Geol S Min Res of U S 1918 pt 1:447-59 '20

Gold, silver, copper, lead, and zinc in California and Oregon in 1919. C. G. Yale. U S Geol S Min Res of U S 1919, pt 1:217-26 '21

Mining in Oregon in 1919. H. M. Parks. Eng & Min J 109:175-6 Ja 17 '20

Mining in Oregon in 1920. H. M. Parks. Eng & Min J 111:173-4 Ja 22 '21

See also Gold mines and mining—Oregon; Petroleum—Oregon

Panama

Deposits of manganese ore near Boqueron river, Panama. J. D. Sears. maps U S Geol S Bul 710—C:85-91 '19

See also Petroleum—Panama

Pennsylvania

Mineral resources of Pennsylvania. G. H. Ashley. Eng Soc W Pa 37:1-17; Discussion. 18-20 F '21

See also Coal mines and mining—Pennsylvania; Oil industries—Pennsylvania

Peru

Mining in Peru in 1920. il Eng & Min J 111:75-6 Ja 8 '21

Vanadiferous asphaltites of central Peru. J. G. Baragwanath. il map Eng & Min J 111:778-81 My 7 '21

Vanadium corporation of America improving Minasragra property in Peru. il Eng & Min J 109:814-16 Ap 3 '20

See also Iron ores—Peru; Petroleum—Peru

Philippine Islands

Mining in the Philippines in 1919. C. M. Eye. map Min & Sci P 120:479-80 Ap 3 '20

Mining progress in the Philippines. C. M. Eye. il Eng & Min J 111:936-7 Je 4 '21

Poland

See also Petroleum—Poland

Quebec

Report on mining operations in the province of Quebec during the year 1919. 160p il maps plan '20 Canada department of colonization, mines and fisheries, Quebec

Queensland

Mineral resources of Queensland. Min & Sci P 122:462 Ap 2 '21

Queensland's mineral output in 1920. Eng & Min J 111:989 Je 11 '21

Rhodesia

Industrial resources of Rhodesia. Engineering 111:381-2 Ap 1 '21

Lead-zinc ores at Rhodesia Broken Hill mine. S. J. Speak. Min & Met 157:(sec 1) 44 Ja '20

Rhodesia Broken Hill development. Min & Sci P 121:757 N 27 '20

Rumania

See also Iron industry and trade—Rumania

Russia

Coal, iron and steel industries of South Russia. A. W. Richards. Electrician 85:539-40 N 5 '20

Mining conditions in Russia. R. S. Botsford. il Eng & Min J 109:70-4 Ja 10 '20

Russian metallurgical industries. Eng & Min J 112:696 O 29 '21

See also Gold mines and mining—Russia; Iron mines and mining—Russia; Petroleum—Russia

Mines and mineral resources—*Continued*

Scandinavia

Recent work on Archæan sulphide ores in Fenno-Scandia. P. Geijer. *Econ Geol* 16: 279-88 Je '21

Sicily

Sulphur industry of Sicily. *Min & Sci P* 123: 431 S 24 '21
Sulphur mining in Sicily. *Engineer* 130:50-1 J1 16 '20

Silesia

German-Polish contest for upper Silesian mineral riches. J. E. Orchard. *il map Eng & Min J* 109:383-7 F 7 '20

South Africa

Glamour of prospecting. F. C. Cornell. 334p Stokes '20
Mineral industry of South Africa. O. Letcher. maps *Min & Sci P* 123:298-302 Ag 27 '21
Mining in South Africa in 1920. H. F. Marriott. *Eng & Min J* 111:190-1 Ja 22 '21
South African iron. *Engineer* 130:206 Ag 27 '20
South African mineral production for 1919 and 1920. *Eng & Min J* 112:96 J1 16 '21
South Africa's mineral production increasing. *Eng & Min J* 110:664 O 2 '20
Talc mining in South Africa. *Eng & Min J* 110:860 O 30 '20
See also Gold mines and mining—South Africa; Gold mines and mining—Transvaal

South America

Mining in South America in 1920. *Eng & Min J* 111:187-90 Ja 22 '21

South Dakota

Mining in South Dakota in 1920. O. Ellerman. *Eng & Min J* 111:172-3 Ja 22 '21

Southern states

Some developed mineral resources and chemical industries of the Southern states. A. M. Fairlie. *il Chem & Met Eng* 22:307-12 F 18 '20
See also Gold mines and mining—Southern states

Spain

Almadén quicksilver mine. C. De Kalb. *Econ Geol* 16:301-12 Je '21
Almadén quicksilver mine in Spain. H. W. Gould. *il Min & Sci P* 122:567-9 Ap 23 '21
Ore of the Almadén mine. F. L. Ransome. *Econ Geol* 16:313-21 Je '21
Potash deposits in Spain. H. S. Gale. *il maps U S Geol S Bul* 715—A:1-16 '20; Same cond. *Eng & Min J* 108:758-63 N 8 '19
Pyrite in the Huelva district. C. De Kalb. *il map Min & Sci P* 122:125-30 Ja 22 '21
Spain's mineral production. C. B. Hurst. *Eng & Min J* 110:996 N 20 '20
Visit to some of King Solomon's mines. C. De Kalb. *Min & Met* 167:15-17 N '20
See also Iron mines and mining—Spain; Iron ores—Spain

Tasmania

Mineral products during the year ended Dec. 31, 1919. *Eng & Min J* 111:371 F 19 '21
Tasmania's mineral production during the year ended Dec. 31, 1920. *Eng & Min J* 111: 667 Ap 16 '21

Tennessee

Mining in Tennessee in 1920. W. A. Nelson. *Eng & Min J* 111:176-7 Ja 22 '21

Texas

Geology and mineral resources of Bexar county. E. H. Sellards. *il maps Tex U Bul* 1932:1-197 '19
Geology and mineral resources of Medina county. R. A. Liddle. *il diags maps Texas U Bul* 1860:1-177, pl 1-9 '21
Many metals are found in Texas area. W. D. Hornaday. *Iron Tr R* 69:30 J1 7 '21
See also Petroleum—Texas

Transvaal

See also Gold mines and mining—Transvaal

Trinidad

Mineral production of Trinidad 1918, and 1919. *Oil Paint & Drug Rep* 99:85 sec 1 Mr 21 '21

United States

Mineral industry during 1920. G. F. Loughlin. *Min & Sci P* 123:266 Ag 20 '21
Mineral production of the United States in 1917. H. D. McCaskey and M. B. Clark. *U S Geol S Min Res of U S* 1917,pt 1:17a-76a '20
Mineral resources of the United States in 1919. G. F. Loughlin and M. B. Clark. *U. S. Geol S* 128p '20
Mining exploration. J. H. Farrell. *Min & Sci P* 120:269-72 F 21 '20; Discussion. 120:406-8 Mr 20 '20
Mining industry in the South. *diag Eng & Min J* 110:245-7 Ag 7 '20
Our mineral supplies. *bibliog diags U S Geol S Bul* 666:1-278 '19
Past production of the principal metals in the the United States. *Min & Sci P* 122:444-6 Ap 2 '21
Relief for war minerals producers. Hearings before the Committee on mines and mining, House of representatives, Sixty-sixth Congress, second session, on H. J. res. 170. 594p Govt. print. off., Washington '20
Statistical review; production of base metals for 1919. maps *Min & Sci P* 120:125-6, 163-6, 273-7 Ja 24-31, F 21 '20
Tariff on minerals. M. Pawl. *Eng & Min J* 111:977-83 Je 11 '21; Same. *Chem & Met Eng* 24:1002-8 Je 8 '21; Discussion. C. W. Potts. *Eng & Min J* 112:4-5 J1 2 '21
Work on mineral resources done by the United States geological survey. E. S. Bastin and H. D. McCaskey. *Min & Sci P* 121:166-8 J1 31 '20
See also Coal mines and mining—United States; Gold mines and mining—United States; Iron mines and mining—United States; Petroleum—United States

Bibliography

Our mineral resources. G. M. Wood. *U S Geol S Bul* 666:221-78 '19 [Also published separately]

Utah

East Tintic district. L. H. Goodwin. *il diag Eng & Min J* 109:79-81 Ja 10 '20
Gold, silver, copper, lead, and zinc in Utah in 1918. V. C. Heikes. *U S Geol S Min Res of U S* 1918,pt 1:369-403 '20
Gold, silver, copper, lead, and zinc in Utah in 1919. V. C. Heikes. *U S Geol S Min Res of U S* 1919,pt 1:417-49 '21
Mining in Utah in 1919. E. R. Zalinski. *Eng & Min J* 109:173-4 Ja 17 '20
Mining in Utah in 1920. E. R. Zalinski. *Eng & Min J* 111:169-70 Ja 22 '21
Ophir mining district, Utah. F. M. Wichman. *il map Eng & Min J* 110:560-3 S 18 '20
Ore deposits of Utah. B. S. Butler and others. *il diags maps U S Geol S Prof Pa* 111:1-672 '20
Salines in Utah. *Chem & Met Eng* 23:1244-5 D 29 '20
See also Coal mines and mining—Utah; Petroleum—Utah

Wales

Roman mining in Wales. W. B. Paley. *il diags Eng & Min J* 110:944-5 N 13 '20

Washington

Dominant features controlling ore deposits of Washington. E. N. Patty. *il Eng & Min J* 110:467-70 S 4 '20
Gold, silver, copper, lead and zinc in Idaho and Washington in 1918. C. N. Gerry. *U S Geol S Min Res of U S* 1918,pt 1:497-511 '20
Gold, silver, copper, lead and zinc in Idaho and Washington in 1919. C. N. Gerry. *U S Geol S Min Res of U S* 1919,pt 1:485-96 '21
Mining in Washington in 1919. *Eng & Min J* 109:176-7 Ja 17 '20

Mines and mineral resources—Washington—Cont.

Mining in Washington in 1920. E. N. Patty.
Eng & Min J 111:174 Ja 22 '21

West Virginia

See also Coal mines and mining—West Virginia

Wisconsin

See also Zinc mines and mining—Wisconsin

Wyoming

See also Petroleum—Wyoming

Minimeters

Precision measuring and inspection devices; the minimeter. R. J. Whibley. il diags
Mach 27:242-3 N '20

Minimum wage

Another phase of the living wage. A. B. Trench. Ind Management 58:461-2 D '19

Minimum wage. See monthly numbers of
Monthly labor review

Minimum wage for women in hotels and restaurants in District of Columbia. C. E. Mortenson. Monthly Labor R 10:726-30 Mr '20

Minimum wage laws of the United States. Int Labour R 2:205-17 My '21

Minimum-wage laws of the United States. L. D. Clark. Monthly Labor R 12:485-504 Mr '21

Minimum-wage laws of the United States: construction and operation. L. D. Clark. U S Bur Labor Statistics Bul 285:1-345 '21

Minimum wages for printers in Switzerland. Monthly Labor R 12:797-8 Ap '21

New minimum wage in the mercantile industry, Fort Smith, Ark. Monthly Labor R 11:775 O '20

What will happen to minimum wage laws? W. L. Stoddard. map Factory 27:187-9 Ag '21

Mining and metallurgical society of America

Schneider medal presented. E. H. Robie. Eng & Min J 108:949 D 27 '19

Mining and scientific press (periodical)

Chapter in journalism. T. A. Rickard. Min & Sci P 120:745-56 My 22 '20

60th anniversary. Min & Sci P 120:737-8 My 22 '20

Why is the Mining and scientific press? C. T. Hutchinson. Min & Sci P 120:758-60 My 22 '20

Mining as seen by Herodotus; a belated review.

S. H. Ball. Eng & Min J 112:614-16 O 15 '21

Mining camps

Industrial morale. R. V. Ageton. il Min & Sci P 123:27-9 Jl 2 '21

Miners' dormitories at the Engels mine. E. G. Gardner. il Eng & Min J 110:1124-5 D 11 '20

See also Oil camps

Libraries

Books in coal and metal mining towns. T. S. De Ponte. il Eng & Min J 110:211-13 Jl 31 '20

Mining companies

Barnsdall corporation; 1st annual report. Comm & Fin Chr 110:1204-6 Mr 20 '20

Further comments on the Naica case. H. Bruere. Eng & Min J 111:976 Je 11 '21

Pennsylvania mining statutes annotated. J. W. Thompson. U S Bur Mines Bul 185:402-562 '20

See also Mining industry and finance; also Butte & Superior mining company

Mining companies, Cooperative

Coal mining on a co-operative basis. J. J. Bourquin. Eng & Contr 55:259-60 Mr 16 '21

Hungarians successfully conduct co-operative mine in Kentucky, having two million dollars invested. J. R. Haworth. il Coal Age 20:412-14 S 15 '21

Mining congress, American. See American mining congress**Mining convention, International. See International mining convention****Mining costs**

American operations of the Consolidated gold fields of South Africa. Min & Sci P 121:881-2 D 18 '20

Bunker Hill enterprise. S. F. Shaw. Min & Sci P 121:185-6 Ag 7 '20

Comparative cost of mining supplies in the years 1914, 1917, 1918, 1919, and in April and December, 1920. Eng & Min J 111:630 Ap 9 '21

Cost of mine supplies. Min & Sci P 123:385 S 17 '21

Cost of mining as influenced by poor development. A. G. Wolf. Eng & Min J 110:565-6 S 18 '20

Cost of mining; new ed. J. R. Finlay. 532p McGraw-Hill '20

Estimates of Mesabi range orebodies. map Eng & Min J 110:350-4 Ag 21 '20

Gold mining in California. G. J. Young. il Eng & Min J 109:442-3 F 14 '20

Hand vs. machine development. G. L. Schmutz. Eng & Min J 110:13 Jl 3 '20

High cost of mining. Eng & Min J 111:775 My 7 '21

Mine and mill of the Belmont Shawmut mining company—the mine. A. P. Parsons. Min & Sci P 121:624 O 30 '20

Mining at Cerro de Pasco, Peru. M. R. Walker. il Eng & Min J 109:318 Ja 31 '20

Nevada consolidated copper company. A. B. Parsons. Min & Sci P 122:534 Ap 16 '21;

Same. Eng & Contr 55:502-3 My 18 '21

Oil-shale and shale-oil. H. McRae. Min & Sci P 121:616-17 O 30 '20

Operations of the Nevada wonder mining company during four years of war. E. E. Carpenter. Min & Sci P 120:537-8 Ap 10 '20

Piz Piz gold district, Nicaragua. R. Hawxhurst, jr. il Min & Sci P 122:353-60 Mr 12 '21

Rosario mines, in Honduras. il Eng & Min J 110:1163-4 D 18 '20

Standard mine cost statement. H. J. C. MacDonald. Eng & Min J 112:126-31 Jl 23 '21

See also Coal mines and mining—Cost

Mining discovery, Romance of.

T. A. Rickard. Min & Sci P 120:669-76 My 8 '20

Mining dividends. See Mining industry and finance**Mining engineering**

Address to mining students; commencement of the Colorado school of mines at Golden on June 10, 1921. F. Laist. Min & Sci P 123:21-6 Jl 2 '21

Athens system of mining. S. R. Elliott. diags plan Min & Met 164:23-4 Ag '20

Bunker Hill enterprise. T. A. Rickard. il diags plans Min & Sci P 120:337-45 Mr 6 '20

Churn drilling of disseminated copper deposits. E. R. Rice. il Eng & Min J 111:1058-64; 112:11-18 Je 25-Jl 2 '21

Circular 20-ft. vertical shaft 7000 ft. deep. E. H. Clifford. Min & Met 173:43 My '21; Same. Eng & Contr 55:587 Je 15 '21

David W. Brunton; consulting engineer; an interview by T. A. Rickard. il diags Min & Sci P 122:745-56 My 28 '21

Deepest mine in the world, Morro Velho in Brazil. diag plan Min & Sci P 121:477-8 O 2 '20

Engineering features of modern large coal mines in Illinois and Indiana. C. A. Herbert and C. M. Young. il diags Coal Age 16:820-5, 870-5 N 27, D 11 '19

Fifty kinks in metal mining. 62p McGraw-Hill '20

How shall we get mining efficiency? E. H. Higgins. il Eng & Min J 109:1398-1406 Je 26 '20

Increasing the use of mechanical devices underground. Eng & Min J 109:590-1 Mr 6 '20

Mining as a business. H. F. Bain. Min & Sci P 122:641-3 My 7 '21

Mining engineering in the United States in 1919. P. E. Barbour. Eng & Min J 109:139-41 Ja 17 '20

Mining in narrow stopes. E. A. Colburn, jr. diags Min & Sci P 120:715-16 My 15 '20

Mining methods at the Butte & Superior. A. B. Parsons. il diags plan Min & Sci P 121:513-17 O 9 '20

Mining engineering—*Continued*

- Nevada consolidated mining company; underground mining at Ruth. A. B. Parsons. il diags Min & Sci P 122:709-16 My 21 '21
- Operating conditions at Tonopah extension mine. J. L. Dynan. diags Min & Met 170:26-8 F '21
- Operations of the Engels copper mining company. A. B. Parsons. il diags Min & Sci P 123:151-8 J1 30 '21
- Pack train of eagles; use of aircraft in mining operations. E. S. Bisbee. il Eng & Min J 109:920-3 Ap 17 '20; Same. Sci Am M 1:544-6 Je '20
- Panel system of stoping at the Herman mine. S. H. Brockunier. diags Eng & Min J 108:856-8 D 6 '19
- Quarry mining methods at Fresnillo, Mexico. D. B. McAllister. il diags Eng & Min J 111:789-91 My 7 '21
- Recovery of caved stopes. D. Lay. diags Eng & Min J 109:599-600 Mr 6 '20
- Rock drifting at the Barnes-Hecker mine; Drifting in magnetite iron mines at Mineville, N.Y. Eng & Min J 109:1073 My 8 '20
- Sand-filling in stopes. E. D. Gardner. Eng & Min J 111:378 F 26 '21
- Shrinkage stoping. D. Lay. diag Eng & Min J 109:878 Ap 10 '20
- Soundings through water and mud. J. C. Trautwine. diag Can Eng 39:221-2 Ag 5 '20; Same cond. Eng & Contr 54:262-3 S 15 '20
- Straightening a crooked boundary. A. Richardson. diag Eng & Min J 110:953 N 13 '20
- Succeeding in mining engineering. R. F. Yates. Sci Am 122:516+ My 8 '20
- Training for foreign exploration; commencement address, Missouri school of mines, April 29, 1921. H. F. Bain. Min & Sci P 123:55-60 J1 9 '21
- See also* Airplanes in mining; Blasting; Coal mines and mining; Copper mines and mining; Dorr ore washer; Drilling and boring (earth and rocks); Electricity in mining; Hydraulic mine filling; Hydraulic mining; Iron mines and mining; Mine construction; Mine drainage; Mine haulage; Mine hoisting; Mine management; Mine shafts; Mine shops; Mine surveying; Mine timbering; Mine ventilation; Mines and mineral resources; Mining engineers; Mining machinery; Mining schools and education; Ore handling; Ore sampling; Prospecting; Rock drills; Salt mines and mining; Shaft sinking; Tin mines and mining; Tunnels and tunneling; Water supply for mines; Zinc mines and mining

Dictionaries

- Glossary of the mining and mineral industry. A. H. Fay. U S Bur Mines Bul 95:1-754 '20

Power

- Cutting power costs at an anthracite mine by utilizing exhaust steam. D. C. Ashmead. il diags plans Coal Age 17:983-6 My 13 '20
- Demand factor of coal mining loads. C. Lee. W Soc E J 26:350-9 O '21
- Electric power for mining. F. S. Viele. il J Elec 45:71-3 J1 15 '20
- Electricity in gold and silver mining. B. B. Beckett. il J Elec 44:263-5 Mr 15 '20
- Horsepower installation and fuel costs for mining, quarrying and well drilling; tabulation. Power 54:139 J1 26 '21
- Hydraulic equipment of Granby mine. C. H. Tallant. il J Elec 45:275-7 S 15 '20
- Load equalization. F. L. Stone and T. W. Kennedy. Gen Elec R 24:501-4 Je '21
- Mining and electrical men discuss power rates and gathering problems. Coal Age 17:316-17 F 17 '21
- Power requirements for coal mining. R. Anthony. il Elec W 76:14-15 J1 3 '20
- Power supply of the Witwatersrand. M. Edward. il Eng & Min J 112:667-8 O 22 '21
- Scheduling mine-operations to suit a power-contract. B. B. Beckett. Min & Sci P 123:545-6 O 15 '21
- Serving Indiana's mining fields; Edwardsport power plant. il diags plan Power Pl Eng 24:409-13 Ap 15 '20

- Standard oil mine plant at Schoper. il diags plans Power 54:312-17 Ag 30 '21
- Use of central station power in mines and steel plants. K. A. Pauly. Gen Elec R 24:479-83 Je '21
- West Virginia-Kentucky mine, mechanical and electrical engineers 1st annual meeting, Huntington, W. Va. R. D. Hall. Coal Age 20:505-7, 537-9 S 29-O 6 '21
- See also* Electricity in mining

Safety measures

- Accident prevention in the mines of Butte, Montana. D. Harrington. il U S Bur Mines Tech Pa 229:1-57 '20
- Electric sparking in mines from lightning. C. S. Rice and L. C. Ilsley. Sci Am M 1:445 My '20; Same. Coal Age 17:594-5 Mr 25 '20
- Hazards met in open-cut mining. D. E. A. Charlton. Eng & Min J 110:665-9 O 2 '20
- Ignition tests of explosives. W. J. Montgomery. il Coal Age 17:43-7 Ja 8 '20
- Illinois mines guard their timbered shaft bottoms by fusible-plug sprinklers. D. J. Baker. il plan Coal Age 18:719-22 O 7 '20
- Les mesures de sécurité nécessaires dans l'exploitation des gisements pétrolifères par puits et galeries; abstract. Langrogne. Génie Civil 78:559 Je 25 '21
- Mine fire prevention and fighting in bituminous coal mines. J. W. Reed. Safety Eng 42:174-6 O '21
- Mine safety experts discuss at Milwaukee accidents, health and welfare. R. D. Hall. Coal Age 18:763-7, 801-6, 845-50, 899 O 7-28 '20
- Mine safety orders. 125p California industrial accident commission, Sacramento '20
- Miners' safety and health almanac for 1920. R. C. Williams. il diags plan U S Bur Mines Circ 26:1-46 '19
- Miners' safety and health almanac for 1921. R. C. Williams, comp. il diags U S Bur Mines 45p '20
- Miners' safety and health almanac for 1922. R. C. Williams, comp. il U S Bur Mines 49p '21
- National safety council holds ninth annual congress Sept. 29-Oct. 1. Eng & Min J 110:730-2 O 9 '20
- Les procédés de lutte contre les feux souterrains. diags Génie Civil 76:375-7 Ap 17 '20
- Safe practice in using wire ropes in mines. R. H. Kudlich and O. P. Hood. U S Bur Mines Tech Pa 237:1-11 '19; Same. Eng & Contr 52:697-9 D 17 '19
- Safety device for shaft station. diag plan Coal Age 17:580 Mr 25 '20
- Safety in trolley-wire protection. W. H. Noone. Coal Age 18:178 J1 22 '20
- 2d annual meeting of the Lake Superior prevention of accidents conference. Duluth, Minn., June 23-25. E. E. Anderson. Eng & Min J 110:33-4 J1 3 '20
- Shaft-testing apparatus. A. Gradenwitz. diag Eng & Min J 112:260-1 Ag 13 '21
- Special cars at Illinois mine promote safety and aid operation. D. J. Baker. il Coal Age 18:223-5 J1 29 '20
- Stenches for detecting leakage of blue water gas and natural gas. S. H. Katz and V. C. Allison. U S Bur Mines Tech Pa 267:1-22 '20
- Stiff hats for protection of miners against falling rock. C. L. Colburn. Eng & Contr 54:154 Ag 18 '20; Same. Min & Sci P 121:116 J1 24 '20
- Trolley-wire guards. G. E. Daugherty. Coal Age 17:1277-8 Je 17 '20
- Two thousand five hundred members attend sessions of National safety council's congress in Boston. F. H. Kneeland. Coal Age 20:640-3 O 20 '21
- Use of stenches as a warning in mines. S. H. Katz, V. C. Allison and W. L. Egv. il diags plan U S Bur Mines Tech Pa 244:1-27 '20; Same cond. Sci Am M 2:241-3 N '20
- See also* Blasting—Safety devices and measures; Coal mines and mining—Safety measures; Mine rescue work; Mine signals; Mine telephones

Mining engineering—Continued

Standards

Standardizing at North Butte mining co. R. Linton. *diags Min & Met* 164:31-2 Ag '20

Stripping method

Mining by the opencast or stripping method. R. E. Palmer. *Min & Met* 170:42-3 F '21
Steam shovel mining, including a consideration of electric shovels and other power excavators in open-pit mining. R. Marsh, Jr. 258p McGraw-Hill '20

Mining engineers

Albert Burch: a western engineer. T. A. Rickard. *il Min & Sci P* 121:299-305 Ag '20

American mining engineers. C. H. MacDowell. *W Soc E J* 25:163-4 Mr 5 '20

Arthur DeWint Foote, of Grass Valley. T. A. Rickard. *il Min & Sci P* 121:901-6 D 25 '20

Canadian mining engineer—his status. J. McEvoy. *Eng & Min J* 109:659-60 Mr 13 '20

Co-ordination of the mining industry. J. E. Spurr. *Eng & Min J* 110:505-6 S 11 '20

Incidents in a mining engineer's life. E. T. McCarthy. *Min & Sci P* 120:561-6 Ap 17 '20

James L. Bruce, of Butte; an interview. T. A. Rickard. *il Min & Sci P* 123:353-64 S 10 '21

Louis Davidson Ricketts, of Arizona; an interview. T. A. Rickard. *il Min & Sci P* 123:463-73 O 1 '21

Making mining engineers from disabled soldiers. W. A. Clark. *il Eng & Min J* 111:706-8 Ap 23 '21

Mining engineer in India and the Gold Coast. P. T. Bruhl. *il Eng & Min J* 109:1160-3 My 22 '20

Mining engineer in South America. P. T. Bruhl. *il Eng & Min J* 109:1408-10 Je 26 '20

Seeley W. Mudd, and copper mining in Cyprus. T. A. Rickard. *il diag Min & Sci P* 121:689-97 N 13 '20

See also Hoisting engineers; Mining schools and education

Directories

Directory of the American institute of mining and metallurgical engineers. *Min & Met* 161:(sec 2) 1-277 My '20

Salaries

Increase of Washington salaries. *Eng & Min J* 109:783 Ap 3 '20

Mining experiment stations. See United States—Mines, Bureau of—Experiment stations

Mining industry and finance

Chronology of mining in 1919. *Eng & Min J* 109:146-9 Ja 17 '20

Hints to speculators and investors in mines from a Cornish book published in 1857. *Min & Sci P* 123:127 Jl 23 '21

Investing in mining prospects. K. Thomas. *Eng & Min J* 110:14-16 Jl 3 '20

Mining enterprise in 2020. J. Verne IV, jr. *Eng & Min J* 110:813-14 O 23 '20

Moving pictures in the mining industry. *Eng & Min J* 110:1083-4 D 4 '20

Not so very long ago. K. Thomas. *Eng & Min J* 110:861-3 O 30 '20

Present value of deferred profits. Mrs E. L. Waite. *Eng & Min J* 110:854-5 O 30 '20

Protection for the promoter. S. Norman. *Min & Sci P* 122:673-6 My 14 '21

Shall Americans go abroad to mine? H. F. Bain. *il Min & Sci P* 120:761-4 My 22 '20

Some principles of finance. R. S. Lewis. *Min & Sci P* 121:487-92 O 2 '20

See also Metal trade; Mine accounting; Mine taxation; Mine valuation; Mining companies; Mining companies, Cooperative; Mining costs; also Barnsdall corporation; Consolidated gold fields of South Africa, Limited

Statistics

Company reports. See weekly numbers of Engineering and mining journal

Dividends from mines, United States and Canada. *Min & Sci P* 122:310-11; 123:243-4 F 26, Ag 13 '21

Dividends of mining and metallurgical companies in the United States, 1919 and 1920 and Canadian, Mexican, South and Central American mining companies; tabulation. *Eng & Min J* 111:204-5 Ja 22 '21

Mining dividends in 1919. *Eng & Min J* 109:134-6 Ja 17 '20

Mining in Europe in 1920. W. A. Doman. *Eng & Min J* 111:192-3 Ja 22 '21

Mining stocks and bonds in 1919. *Eng & Min J* 109:137-8 Ja 17 '20

Statistical review; production of metal mines for 1919. *Min & Sci P* 120:125-6, 163-6 Ja 24-31 '20

Federated Malay states

Mining in Federated Malay states. *Eng & Min J* 109:1166 My 22 '20

Germany

Consumer ownership winning in Germany. H. O. Herzog. *Coal Age* 19:230-1 F 3 '21

Italy

Italy's mining industry during the war. *Eng & Min J* 110:905 N 6 '20

Mexico

Handbook of Mexican properties and securities, 1920-21. J. S. Curtiss. 390p J. S. Curtis & co., El Paso, Tex. '20

Interviews with governors of Zacatecas and Durango. A. T. Benitez. *Min & Sci P* 121:667-8 N 6 '20

Missouri

Joplin mining district's past, present and future. F. L. Garrison. *Eng & Min J* 111:858-61 My 21 '21

Ontario

New mining control in Ontario. J. B. Tyrrell. *Eng & Min J* 109:436-8 F 14 '20

Ontario's metal production. *Eng & Min J* 110:161 Jl 24 '20

South Africa

Rand mining industry. A. C. Key. *Eng & Min J* 109:1024-6 My 1 '20

South America

American mining capital in South America. *Eng & Min J* 110:951 N 13 '20

United States

Chronology of mining in 1920. *Eng & Min J* 111:135-6 Ja 22 '21

Old game with a new angle; Broken Hills silver corporation mining stocks. *Eng & Min J* 110:948 N 13 '20

Present condition of the mining industry. H. F. Bain. *Min & Met* 178:33-4 O '21

Value of the mines of the United States. W. R. Ingalls. *Min & Met* 178:7-11 O '21

See also United States—Mines, Bureau of

Mining law

Abstract of current decisions on mines and mining; reported May-August, 1919. J. W. Thompson. *U S Bur Mines Bul* 183:1-165 '20

Aid for mining in Colorado in act recently passed. *Eng & Min J* 111:679-80 Ap 16 '21

Are safety inspectors needed under the Indiana mining law? W. H. Luxton. *Coal Age* 18:1097 N 25 '20

Arkansas mining law. J. P. Hill. *Coal Age* 17:827 Ap 22 '20

Certification of all mine officials needed. S. A. Jones. *Coal Age* 20:342 S 1 '21

Certification under the Pennsylvania revised mine law. *Coal Age* 19:1041-3 Je 9 '21

Coal-mine compensation in Kentucky. H. M. Wilson. *Coal Age* 17:1259-62 Je 17 '20

Coal mining laws compared. A. Moss. *Coal Age* 17:171-2 Ja 22 '20

Compensation results achieved in Illinois and Pennsylvania. H. H. Wilson. *Coal Age* 17:1313 Je 24 '20

Defense of apex procedure. H. V. Winchell. *Eng & Min J* 112:163-4 Jl 30 '21

Mining law—Continued

- Deficiencies in American mining laws. A. E. Ring. Eng & Min J 109:597-8 Mr 6 '20
 Department seeks operators' help in leasing coal lands. A. T. Vogelsang. Coal Age 17:1103 My 27 '20
 Federal mining legislation in 1919. J. R. Jones. Eng & Min J 109:143-5 Ja 17 '20
 Has the certification law lost its value? Coal Age 19:627-9 Ap 7 '21
 Indefinite mining laws. R. Bowen. Coal Age 18:497 S 2 '20
 Law of the apex. Eng & Min J 111:254-5 F 5 '21
 Laws regulating mining concessions in Serbia. G. Gordon-Smith. Eng & Min J 110:1082 D 4 '20
 Legislation restricting the use of open lights in mines. G. E. Daugherty. Coal Age 18:401-2 Ag 19 '20
 Loopholes in mine laws are the frequent causes of accidents. G. F. Libiez. Coal Age 18:545 S 9 '20
 Loose end in blasting coal. diags Coal Age 20:142, 302, 645-6 Jl 28, Ag 25, O 20 '21
 Miner and the state. Engineer 129:43 Ja 9 '20
 Mining laws of the British empire and of foreign countries. G. Stone. vol. 1. 254p H. M. stationery off., London '20
 Mining laws on use of electricity in coal mines. Elec R 78:344 F 26 '21
 Mining legislation in British Columbia summarized. R. Dunn. Eng & Min J 109:1088-9 My 8 '20
 Mining litigation and common sense. A. B. Parsons. Min & Sci P 122:813-17 Je 11 '21; Discussion. 123:7-8 Jl 2 '21
 More apex litigation in Tonopah; Cash Boy sues Tonopah Extension. map Eng & Min J 111:799-800 My 7 '21
 Ore buying in Mexico. C. A. Grabill. Eng & Min J 109:694-7 Mr 20 '20
 Ownership of mine-water. Min & Sci P 121:614 O 30 '20
 Pennsylvania mining statutes annotated. J. W. Thompson. U S Bur Mines Bul 185:1-1221 '20
 Proposed mining law. Min & Sci P 123:480 O 1 '21
 Proposed revision of mining law. chart Min & Sci P 122:819-20 Je 11 '21
 Recent Supreme court interpretations of the mining law. H. V. Winchell. Eng & Min J 111:938-9 Je 4 '21
 Reclamation of Mexican mining titles. P. W. Meyers. Eng & Min J 112:406-9, 685-7 S 10, O 29 '21
 Reconciliation of science and law. H. V. Winchell. Eng & Min J 110:1159-62 D 18 '20
 Revision of mining laws. M. E. Rhodes. Min & Met 179:33-4 N '21
 Revision of the mining laws. Min & Met 178:27-31 O '21
 Revision of United States mining laws proposed. Eng & Min J 111:995-6 Je 11 '21; Same. Min & Sci P 122:845-9 Je 18 '21; Discussion. 123:83-4, 114-15, 150, 195-6, 252-4, 284-9, 336-7, 426, 459-60, 495-7, 529-31, 560-1, 563-4 Jl 16-Ag 6, 20-S 3, 24-O 22 '21
 Shelter holes on haulage roads. J. Northover. Coal Age 19:825 My 5 '21
 Standard in mine legislation. W. M. Chambers. Coal Age 20:382 S 8 '21
 State mining laws on the use of electricity in and about coal mines. L. C. Ilsley. U S Bur Mines Tech Pa 271:1-51 '20
 Tom Reed gold mines v. United Eastern company; abstract of decision by the Superior court of Mohave county, Arizona. Min & Sci P 122:677-81 My 14 '21; Eng & Min J 111:747-8 Ap 30 '21
 Tom Reed-United Eastern apex litigation; editorial. Eng & Min J 111:734-5 Ap 30 '21
 Utah Apex v. Utah Consolidated; abstract of the court's opinion. diags Min & Sci P 121:725-32 N 20 '20
 Utah Consolidated—Utah-Apex lawsuit. E. B. Jennings. il Eng & Min J 110:875-8 O 30 '20
 Was the mining law violated?; use of open lights. Coal Age 18:903-4 O 28 '20

Wilson's mining laws. C. Wilson, comp. 204p Fletcher Ford co., Los Angeles '21

See also Mine taxation; Mine telephones; Mineral lands; Petroleum—Laws and regulations

Mining literature

Indexing current technical literature. Min & Sci P 123:180-2, 283, 391-2 Ag 6, 27, S 17 '21

Indexing current technical literature. M. W. von Bernewitz. Min & Sci P 123:531 O 15 '21

Mining machinery

Lilliputian mining machine. il Sci Am 123:551 N 27 '20

Loading machines for underground use. A. M. Gow. il diags Eng & Min J 109:319-37 Ja 31 '20; Same. Sci Am M 1:357-65 Ap '20

Use of scrapers for handling material underground. L. Eaton. il diags Eng & Contr 56:56-61 Jl 20 '21

See also Coal mining machinery; Dorr ore washer; Electricity in mining; Hoisting machinery; Mine haulage; Mine hoisting; Rock drills

Catalogs

Mining catalog (metal and quarry edition). Keystone consolidated pub. co., Pittsburgh '21

Inspection

Mine inspection as it affects output. M. S. Beddow. Coal Age 17:305-7 F 12 '20

Standards

Opportunities for reducing mine costs by standardizing equipment. W. R. Roberts. Coal Age 17:1266-8 Je 17 '20

Standardization of mining and milling materials. E. A. Wraight. Min & Sci P 122:361-6 Mr 12 '21

Standardizing steel for mining and milling. R. C. Gosrow. Min & Sci P 123:147-9 Jl 30 '21

Mining research

Value of research in mining and metallurgy. S. H. Dolbear. Eng & Min J 111:384-5 F 26 '21

See also United States—Mines, Bureau of—Experiment stations

Mining schools and education

Columbia school of mines idea. G. J. Young. il Eng & Min J 111:744-6 Ap 30 '21

Educating versus drop-forging. W. H. Coghill. Min & Sci P 122:160 Ja 29 '21; Discussion. L. O. Howard. 122:285 F 26 '21

Education of the mining engineer. W. S. Weeks. Min & Sci P 122:321-3 Mr 5 '21

General mining. (Trade & Ind. ser. 8) Fd Bd for Vocational Educ Bul 38:1-168 O '19

Metallurgical research department of the Utah State school of mines. L. W. Chapman. il Chem & Met Eng 22:877-81 My 12 '20

Practical mining course at Copper Queen. G. J. Young. il Eng & Min J 110:1171-4 D 18 '20

See also Colorado school of mines; Michigan college of mines

Mining stocks. See Mining industry and finance**Mining terms**

Bad language. Min & Sci P 121:39-40 Jl 10 '20

Cornish mining terms. T. A. Rickard. Min & Sci P 121:459-60 S 25 '20

Glossary of the mining and mineral industry. A. H. Fay. U S Bur Mines Bul 95:1-754 '20

Vocabulary of Russian-English and English-Russian mining terms. C. W. Purington. Monthly Labor R 10:1260-9 My '20 and G. Todervich. Lippincott '20

Mining towns

Building mining cities in South America. H. F. Guggenheim. il Eng & Min J 110:204-10 Jl 31 '20

Company housing in anthracite region of Pennsylvania. L. Magnusson. il plans

Company housing in the bituminous coal fields. L. Magnusson. Monthly Labor R 10:1045-52 Ap '20; Excerpts. Coal Age 17:1057-8 My 20 '20

Mining towns—Continued

- Kaska, Pa., a mining town in the rebuilding. il diags plans Coal Age 18:747-50 O 7 '20
- Lynch plant of United States coal and coke co. H. N. Eavenson. il diags plans Coal Age 20:532-6 O 6 '21
- Madeira-Hill interests open a community club house for employees and public at the Natalie mine. D. C. Ashmead. il diags plans Coal Age 20:87-92 J1 21 '21
- New shaft operation of the Jamison coal & coke co. at Pleasant Unity, Pa. D. J. Baker. il Coal Age 17:212-15 Ja 29 '20
- Reading co. completes new mining town of Lorraine, Pa. diags plans Coal Age 17:849-50 Ap 29 '20
- Rosita, Mexico, a carefully-planned city; pleasing, comfortable and hygienic. H. E. Skougor. il diags map plans Coal Age 19: 983-7, 1037-40 Je 2-9 '21

See also Miners' houses; Mining camps

Minneapolis, Minnesota**Bridges**

- Longest concrete arch span being built at Minneapolis. diag Eng N 84:335 F 12 '20

Parks

- Concrete used to make cascade simulate nature; Loring Cascade, at Glenwood park, Minneapolis. H. Lindquist. il Concrete 16: 71-5 F '20

Minneapolis & St Louis railroad

- Corporate assets, December 31, 1919. Comm & Fin Chr 111:400 J1 24 '20

Minnesota

See also Geology—Minnesota; Roads—Minnesota

Industries and resources

See also Iron mines and mining—Minnesota; Iron ores—Minnesota

Minnesota river

- Flood control reservoirs on the Minnesota river. diags map Eng N 87:140-3 J1 28 '21

Minors. See Children—Law**Mint products company**

- They had to create 17 new markets for their product. E: T. Tandy. Ptr Ink M 2:19-20+ D '20

Mirrors

- Preservation of laboratory mirrors. L: Bell. Elec W 77:1165 My 21 '21

See also Reflectors

Advertising

- Selling to a market that was never nearly supplied. C. M. Harrison. Ptr Ink 113:133-4 D 16 '20

Misbranding

- Uncle Sam likely to champion truth in advertising. Ptr Ink 110:125-6 F 26 '20

Mission Inn. See Riverside, California—Mission Inn**Mississippi river**

- Controlling the lower Mississippi. R. Gott-hold. il Sci Am 124:485+ Je 18 '21
- Design of ore fleet for upper Mississippi. W: S. Mitchell. diags plans Mech Eng 42:379-82 J1 '20
- Emergency levee on Mississippi built in record time. A. L. Dabney. diags Eng N 87:62-4 J1 14 '21
- Enormous lock links lake and river at New Orleans. R. Morgan. il map Pop Mech 36: 170-4 Ag '21
- Expand plans for barge service. il Marine R 50:441-2 Ag '20
- Experiment in carrying merchandise freight on the Mississippi river. C: W. Baker. Eng N 84:85-7 Ja 8 '20
- Haulage costs not high on Mississippi. C. M. Townsend. Eng N 84:766-8 Ap 15 '20
- Hurt by government competition. F. B. Jacobs. il Marine R 50:172-3 Mr '20
- Levee construction on Mississippi and its effect on river section. C. McD. Townsend. diags Eng & Contr 53:36-8 Ja 14 '20; Abstract. Eng N 84:284-5 F 5 '20

- Mississippi river seeks new outlet. H. H. Dunn. il maps Pop Mech 34:831-6 D '20
- Mississippi's mouth; what New Orleans is doing to insure its permanent navigability. J. F. Springer. il Sci Am 124:84+ Ja 29 '21
- New river planned for flood protection and drainage along Mississippi. map Eng N 87:481-2 S 22 '21
- Practical ideas for the engineer. il Marine R 50:240-1 Ap '20
- Pulling the Mississippi's teeth; what is being done by way of making our longest river navigable. G: H. Dacy. il Sci Am 125:60+ J1 23 '21
- River transportation in the Mississippi valley. E. W. Schadek. il Mech Eng 42:270-2 My '20
- Ways and means to control the flood waters of the Mississippi river. Marine R 50:588 N '20

Missouri

See also Electric plants (central stations)—Missouri; Electricity supply—Missouri; Geology—Missouri; Lead mines and mining—Missouri; Roads—Missouri

Missouri, Kansas & Texas railway

- Lesson from the Missouri, Kansas & Texas. Ry Age 70:1305-6 Je 10 '21

- Progress since 1913. S: O. Dunn. Ry Age 70:1321-4, 1385-9 Je 10-17 '21

Missouri Pacific railroad

- Annual report for 1920. Comm & Fin Chr 112:1986-7 My 7 '21

- Missouri Pacific. map Ry Age 69:174-5 J1 30 '20

- 3d annual report for the twelve months ended December 31, 1919. Comm & Fin Chr 110:2496 Je 12 '20

Missouri river

- Missouri river improvement. C: W. Baker. Eng N 84:87-9 Ja 8 '20

- River protection work of the C. B. & Q. R. R. on the Missouri river. il Ry R 69: 39-43 J1 9 '21

- Stream bed enlargements in Kansas; eroded channels lead to culvert and bridge failures. D. Alkins, jr. il diags Eng N 85:882-3 N 4 '20

Mitchell, William, 1879-

- Sketch. Aviation 10:366 Mr 21 '21

Mitragynine

- Mitragynine and mitraversine, two new alkaloids from species of mitragyne. E. Field. Chem Soc J 119:887-91 Je '21

Mitraversine

- Mitragynine and mitraversine, two new alkaloids from species of mitragyne. E. Field. Chem Soc J 119:887-91 Je '21

Mnemonic symbols. See Symbols, Mnemonic**Mobilization**

- Economic aspects of mobilization; what it means to a modern nation to put an army in the field. J. C. Wise. Sci Am 125:184 S 10 '21

Model towns

- Attractive industrial home town; South Philadelphia. C. W. Brazer. il plan Iron Age 105:129-31 Ja 8 '20

- Model industrial town layout at Marysville, Mich. plan Eng N 85:613-14 S 23 '20

- Model town to house employes in Texas field; Humbletown. il Nat Pet N 12:82-3+ My 26 '20

- National shipyards' housing scheme at Chepstow. H. J. Birnstingl. il plans Arch Forum 33:167-70 N '20

- Pacific mills rehabilitate villages. il Textile World 58:2515+ O 9 '20

Models

- Cardboard machinery models. G: C. Hanne-man. il diags Mach 26:869 My '20

- Toys that do great work; the indispensable place occupied by models in the engineering of today. M. A. Henry. il Sci Am 123: 38+ J1 10 '20

See also Airplanes—Models; Architectural models; Bridge models; Mine models; Salesmanship—Models; Ship models

Modullmeter

Widney modulimeter. *il* Ind Management 60: 254-6 S '20; Same cond. Power Pl Eng 24: 1102-3 N 15 '20

Moffatt progress. See Steel metallurgy

Moffett, William Adger, 1869-

Director of naval aviation. *por* Aviation 10: 664 My 23 '21

Mohair velvet. See Velmo

Mohave desert region, California

Routes to desert watering places in the Mohave desert region. D: G. Thompson. *il* maps U S Geol S Water-supply Pa 490-B: 1-269, pl 1-4, 8-18 '21

Moisture

Relation of moisture to the properties of wood. *Sci Am M* 3:82 Ja '21

See also Evaporation; Humidity

Moisture of soils. See Soil moisture

Molasses

Alcohol production from molasses. G: M. Appell. *diag* Chem Age 29:53-7 F '21

Determination of moisture in beet-sugar factory products. V. L. Aikin. *J Ind & Eng Chem* 12:979-81 O '20

Picnometer for the determination of density of molasses. W. B. Newkirk. *diag* U S Bur Stand Tech Pa 161:1-7 '20

Recovery of sugar from beet molasses. W. Montgomery. *flow sheets il* Chem & Met Eng 24:605-8 Ap 6 '21

Bibliography

Reading list on molasses. C. J. West, comp. (Bibliographic ser. 5) 52p '20 Arthur D. Little, inc., Cambridge, Mass.

Molasses as fuel

Hawaiian motors run on molasses. *Sci Am* 123:147 Ag 14 '20

Molasses for fuel. S. R. Winters. *il* Sci Am 124:427+ My 28 '21

Molasses tank explosions

Bending stress in tank shells due to restraint of bottom. G: Roe. *diag* Eng N 85:909 N 4 '20

Boston molasses-tank trial: the case for the defense. *Eng N* 85:691-2 O 7 '20

Experts deny bomb caused collapse of Boston molasses tank. *Eng N* 87:372-3 S 1 '21

Molding (metal). See Foundry practice

Molding machines

Adapt machine to soil pipe molding. *il* Foundry 48:951-2 D 1 '20

Adaptable moulding and core-making machines. *il* *diags* plans Engineering 111: 164-6 F 11 '21

British shop operates American machines. H. C. Estep. *il* Foundry 49:186-7 Mr 1 '21

Electric molding machine. *il* Metal Ind 19: 131 Mr '21

Electrically heated pattern plates on molding machines. J: M. Strait. *il* Elec R 76:272-3 F 14 '20

European equipment progressive. H. C. Estep. *il* *diags* Foundry 48:818-25 O 15 '20; Correction. 49:215 Mr 15 '21

Gravity is utilized to roll flasks. *il* *diags* Foundry 49:571-2 Jl 15 '21

Howe-Teetor suspended molding machine. *il* Iron Age 107:845 Mr 31 '21; Foundry 49: 288 Ap 1 '21; Am Mach 55:118-19 Jl 21 '21

Installs 6-ton jar-ram rollover machine. *il* Foundry 49:517-18 Jl 1 '21

Inventor installs his own devices; suspended-type molding machines and uses trucks and pouring device. *il* Foundry 49:98-103 F 1 '21

Molding machine for pig iron. *il* Iron Age 105: 126 Ja 8 '20

Molding machine which throws the sand. *Sci Am* 122:444 Ap 17 '20

Neuere rüttelformmaschinen. U. Lohse. *diags* Stahl & Eisen 41:1209-14, 1367-75 S 1, 29 '21

Organizing for an increased output. K. V. Wheeler. *il* Foundry 48:85-7 F 1 '20

Refinements in sand throwing rig. G. H. Manlove. *il* Foundry 49:32-3 Ja 1 '21

Right molding machine for the brass foundry. W: H. Parry. *il* Metal Ind 19:61-3 F '21

Sand throwing molding rig developed by Beardsley & Piper, Chicago. *il* Iron Tr R 68: 164-5 Ja 13 '21

Suspended molding machine effects savings. *il* *diags* Iron Age 105:665-6 Mr 4 '20; Abstract. Mech Eng 42:235 Ap '20

Whiting corp. devise light motor operated machine. *il* Foundry 48:964-5 D 1 '20

Molding sand. See Sand, Foundry

Moldings

Few tips on the use of the cornice brake. L. Broemel. *il* *diags* Sheet Metal Worker 12:467-70 Ag 5 '21

Mitering rake and level mouldings. R: M. Van Gaasbeek. *il* *diags* Bldg Age 43:32-3 N '21

Study of circular raking moldings. W: Neubecker. *diags* plan Metal Work 93:16-19, 81-3, 145-6, 270-1 Ja 2, 16, 30, F 27 '20

Standards

Need of standardization in wood mouldings. *il* Bldg Age 42:65-6 N '20

Molds

Centrifugal castings. *il* Automotive Ind 45: 109 Jl 21 '21

Mold serves as electric furnace. E. C. Kreutzberg. *il* *diags* Iron Tr R 69:33-5 Jl 7 '21

Permanent molds; methods of making plaster molds for finished castings to eliminate machining operations. E: D. Gleason. Metal Ind 19:391-3 O '21

Steel and strawboard molds for test cylinders. D. A. Abrams. *il* Concrete 19:116 S '21

Molds, Cast iron

Cast-iron molds for bakelite products. L. C. Lotz. *diags* Mach 26:1061 Jl '20

Molds, Paper

Paper molds for concrete test blocks. S. R. Winters. *il* Sci Am 125:235 O 1 '21

Molds (botany)

Effect of certain agents on the development of some molds. *Sci Am M* 3:84-5 Ja '21

Effect of concentration on the deteriorative activity of mold spores in sugar. N. Kopeloff, S. Byall and L. Kopeloff. *J Ind & Eng Chem* 12:256-7 Mr '20

Effect of mold upon the oil in corn. F. Rabak. *J Ind & Eng Chem* 12:46-8 Ja '20

Effect of varying the amount of inoculum and concentration on the deterioration of sugar by molds. N: Kopeloff. *J Ind & Eng Chem* 12:455-7 My '20

Killing molds on lumber by steaming. *Eng & Contr* 55:422 Ap 27 '21

See also Fungi

Molecular attraction

Electrical doublet theory of the nature of the molecular forces of chemical and physical interaction. R. D. Kleeman. *Phys R* 18:303-12 O '21

Orientation of molecules in surfaces. W: D. Harkins and Y. C. Cheng. *Am Chem Soc J* 43:35-53 Ja '21

See also Adhesion

Molecular compounds. See Addition compounds

Molecular heat. See Thermochemistry

Molecular rearrangements

Benzilic acid rearrangement; the non-addition of hydrogen peroxide to diphenyl ketene. B. H. Nicolet and J. J. Pelc. *Am Chem Soc J* 43:935-7 Ap '21

Chemical mechanism of organic rearrangements. A. Michael. *diags* Am Chem Soc J 42:787-821 Ap '20

Molecular rearrangement in the acylation of certain aminophenols. L. C: Raiford. *Am Chem Soc J* 41:2068-80 D '19

Molecular rearrangement of unsaturated compounds in acid solution. A. Gillet. *Chem Soc J* 120 pt 1:533 Ag '21

Über asymmetrische umlagerung. H. Leuchs. *Deutsche Chem Gesell Ber* 54:830-4 Ap '21

Molecular refraction. See Refraction, Molecular

Molecules

- Analysis of molecular volumes from the point of view of the Lewis-Langmuir theory of molecular structure. R. N. Pease. *Am Chem Soc J* 43:991-1004 My '21
- Architecture of the molecule. O. R. Foster. *diags Sci Am* 122:596+ My 29 '20; Same. *Brass W* 17:10-11 Ja '21
- Chemical combination and the structure of the molecule. J. J. Thomson. *diags Engineering* 111:780-1 Je 24 '21
- Coalescence of liquid spheres—molecular diameters. W. Taylor. *Philos Mag* 6th ser 41:877-89 Je '21
- Critical energy increment and Trouton's rule. E. K. Rideal. *diag Philos Mag* 6th ser 42:156-63 Jl '21
- Is it possible to obtain images of molecules? Wolfke. *Sci Am M* 3:460 My '21
- Molecules and man. R. E. Rose. *Sci Am M* 2:275-6 N '20
- Orientation of molecules in surfaces, surface energy, adsorption, and surface catalysis; the adhesional work between organic liquids and water. W. D. Harkins, G. L. Clark and L. E. Roberts. *Am Chem Soc J* 42:700-12 Ap '20
- Some remarkable models of atomic and molecular structure. O. R. Foster. *il Chem & Met Eng* 23:690-2 O 6 '20
- Structure of molecules. I. Langmuir. *Engineering* 112:529-30 O 14 '21
- Structure of the molecule and chemical combination. J. J. Thomson. *diags Philos Mag* 6th ser 41:510-44 Mr '21
- See also* Atoms; Optical rotation; Stereochemistry

Mollusks

- How bivalves feed; effect of ions upon the movements of cilia. J. Gray. *diags Sci Am M* 3:511-12 Je '21
- Humbler relatives of the oyster; clams, cockles, scallops, mussels, shipworms and other bivalve molluscs. M. Tevis. *il Sci Am M* 2:223-8 N '20
- See also* Octopus

Mollusks, Fossil

- Certain fossil shells in the boulder clay of Boston basin. E. S. Morse. *il Am J Sci* 49:157-65 Mr '20

Molybdenite

- Flotation of molybdenite. C. E. Oliver. *flow sheet Eng & Min J* 109:840 Ap 10 '20
- Flotation of molybdenite at Empire, Col. W. H. Coghill and J. P. Bonardi. *Eng & Min J* 109:1210-14 My 29 '20
- Molybdenum mines in Norway. E. O. Falkenberg. *Eng & Min J* 111:1021-3 Je 18 '21
- Positive and negative photoelectrical properties of molybdenite and several other substances. W. W. Coblentz. *diags U S Bur Stand Sci Pa* 398:595-639 '20
- R and S molybdenum mine, Toas county, New Mexico. E. S. Larsen and C. S. Ross. *Econ Geol* 15:567-73 N '20; Excerpts. *Min & Sci P* 122:132 Ja 22 '21
- Some optical and photoelectric properties of molybdenite. W. W. Coblentz and H. Kähler. *diags U S Bur Stand Sci Pa* 338:121-62 '19; Summary. *Sci Am S* 88:373 D 20 '19
- Wonbah molybdenite mine and mill, Queensland, Australia. J. H. Reid. *Eng & Min J* 110:947 N 13 '20

Molybdenum

- Application of the rotating zinc reductor in the determination of molybdenum. W. Scott. *J Ind & Eng Chem* 12:578-80 Je '20
- Behavior of copper in molybdenum ores. J. P. Bonardi and M. Shapiro. *Chem & Met Eng* 24:847-50 My 11 '21
- Cobalt, molybdenum, tantalum, titanium, radium, uranium, and vanadium in 1918. F. L. Hess. *U S Geol S Min Res of U S* 1918,pt 1:791-817 '20
- Determination of molybdenum. J. P. Bonardi and E. P. Barrett. *U S Bur Mines Tech Pa* 230:1-30 '20; Abstract. *Min & Sci P* 121:343 S 4 '20
- Effect of molybdenum in chrome and nickel steels. *il Ry Age* 68:955-7 Mr 19 '20; Same. *Ry Mech Eng* 94:205-7 Ap '20

- Element molybdenum. *Automotive Ind* 42:358 Ja 29 '20
- Industrial applications of hydrogen; manufacture of tungsten and molybdenum. H. L. Barnitz. *diags Sci Am M* 3:347-8 Ap '21
- Molybdenum and its applications. R. E. Search. *Metal Ind* 18:355-6 Ag '20
- Molybdenum and molybdenum steel. A. H. Hunter. *Blast F & Steel Pl* 9:356-8, 426-9 Je-Jl '21; Same abr. *Iron Age* 107:1469, 1511-12 Je 2 '21; Same cond. *Iron Tr R* 68:1523-5+ Je 2 '21
- Molybdenum and molybdenum-steel. A. Kisko. *Min & Sci P* 120:184 F 7 '20
- Molybdenum and molybdenum steel. W. E. Simpson. *Iron Age* 105:268-9 Ja 22 '20
- Molybdenum deposits of Colorado with general notes on the molybdenum industry. P. G. Worcester. (Bul. 14) 131p maps '19
- Colorado geological survey, Boulder
- Molybdenum in 1917. F. L. Hess. *U S Geol S Min Res of U S* 1917,pt 1:907-15 '20; Abstract. *Chem & Met Eng* 23:1029-30 N 24 '20
- Molybdenum in 1919. H. C. Morris. *Eng & Min J* 109:216 Ja 17 '20
- Molybdenum market in 1919. C. Hardy. *Eng & Min J* 109:215 Ja 17 '20
- Molybdenum mines in Norway. E. O. Falkenberg. *Eng & Min J* 111:1021-3 Je 18 '21
- R and S molybdenum mine, Toas county, New Mexico. E. S. Larsen and C. S. Ross. *Econ Geol* 15:567-73 N '20; Excerpts. *Min & Sci P* 122:132 Ja 22 '21
- War-tried alloy gains attention. J. O. Arnold. *Iron Tr R* 66:349-50 Ja 29 '20
- See also* Molybdenite; Wulfenite

Bibliography

- Determination of molybdenum. J. P. Bonardi and E. P. Barrett. *U S Bur Mines Tech Pa* 230:31-2 '20

Molybdenum alloys

- Analysis of molybdenum, cobalt, and chromium alloys. J. R. Camp and J. W. Marden. *J Ind & Eng Chem* 12:998 O '20

Molybdenum steel

- Are yield point determinations accurate? J. A. Mathews. *Iron Tr R* 68:1597-8 Je 9 '21
- Calcium molybdate as an addition agent in steel making. A. Kisko. *Chem & Met Eng* 22:1018-20 Je 2 '20
- Constituents found in tungsten and molybdenum steels. A. M. Portevin. *il Engineering* 112:372-3 S 9 '21
- Effect of molybdenum in chrome and nickel steels. *il Ry Age* 68:955-7 Mr 19 '20; Same. *Ry Mech Eng* 94:205-7 Ap '20
- Latest word in steel; how molybdenum has gained a place among the foremost of alloying agents. W. N. Bratton. *il Sci Am* 122:336+ Mr 27 '20
- Molybdenum and molybdenum steel. A. H. Hunter. *Blast F & Steel Pl* 9:356-8, 426-9 Je-Jl '21; Same abr. *Iron Age* 107:1469, 1511-12 Je 2 '21; Same cond. *Iron Tr R* 68:1523-5+ Je 2 '21; Excerpts. *Chem & Met Eng* 25:21-2 Jl 6 '21
- Molybdenum and molybdenum-steel. A. Kisko. *Min & Sci P* 120:184 F 7 '20
- Molybdenum and molybdenum steel. W. E. Simpson. *Iron Age* 105:268-9 Ja 22 '20
- Molybdenum as an alloying element in structural steels. G. W. Sargent. *il Am Soc T M Pro v* 20 pt 2:5-28 '20; Abstracts. *Chem & Met Eng* 22:1190-1 Je 30 '20; *Iron Age* 106:579-81 S 2 '20; *Eng & Contr* 54:419-20 O 27 '20; Discussion. *Am Soc T M Pro v* 20 pt 2:29-30 '20
- Molybdenum in commercial alloy steel. *Iron Age* 105:407-9 F 5 '20; Abstract. *Mech Eng* 42:172 Mr '20
- Molybdenum steel and its application. M. H. Schmid. *Chem & Met Eng* 24:927-9 My 25 '21; Same. *Iron Tr R* 69:559-61 S 1 '21; Excerpts. *Iron Age* 107:1444-5 Je 2 '21
- Molybdenum steel in the motor car; reducing weight in high-power cars by the use of new steel alloys. *il Sci Am* 125:62-3 Jl 23 '21

Molybdenum steel—Continued

- Present status of molybdenum steels. J: A. Mathews. Iron Age 107:505-6 F 24 '21; Same. Iron Tr R 68:547-8 F 24 '21; Same. Chem & Met Eng 24:395-6 Mr 2 '21; Abstract. Min & Met 170:39 F '21
- Properties of molybdenum steels. H. J. French. Chem & Met Eng 25:713-14 O 12 '21
- Qualities of the molybdenum steels. il Automotive Ind 42:358-61 Ja 29 '20; Same. Sci Am M 1:429-32 My '20; Abstract. Aviation 8:281-2 My 1 '20
- Review of molybdenum commercial steels. J. A. L. Waddell. Eng & Contr 53:482-3 Ap 28 '20
- Some properties of molybdenum steels. Engineering 112:350-1 S 2 '21
- Tungstenless tool steel. Iron Age 105:339 Ja 29 '20
- War-tried alloy gains attention. J: O. Arnold. Iron Tr R 66:349-50 Ja 29 '20

Molybdenum sulfide. See Molybdenite

Molybdenum trioxide. See Molybdate

Molybdate

Molybdate: its occurrence, detection and determination in partly oxidized molybdenite ores. J. P. Bonardi. Chem & Met Eng 23:205-6 Ag 4 '20

Moments of inertia

Calculating the strength of unsymmetrical sections. G. S. Chiles and R. G. Kelley. diags Mach 27:345-8 D '20

Symposium on the moment of inertia. R. Fleming. diags Eng Educ 11:377-89 Ap '21

Monascus purpureus Went

Laboratory experiments on the manufacture of Chinese ang-khak in the United States. M. B. Church. J Ind & Eng Chem 12:45-6 Ja '20

Monasteries

See also Cloisters

Monastic art. See Art, Monastic

Monazite

Consumption of monazite. Eng & Min J 112:698 O 29 '21

Monazite. Min & Sci P 121:557, 688 O 16, N 13 '20

Monazite in 1920. H. C. Meyer. Eng & Min J 111:158 Ja 22 '21

Our mineral supplies; mica, monazite, and lithium minerals. W. T. Schaller. U S Geol S Bul 666:155-7 '19

Uses and associations of monazite sand. Eng & Min J 112:658 O 22 '21

Mond process. See Gas manufacture and works—By-products

Monel metal

Formula for monel metal. Foundry 49:775 O 1 '21

Foundry standardizes nickel alloy. H. E. Diller. il Foundry 48:209-12 Mr 15 '20

Impact strength of monel metal and aluminum bronze. G: F. Comstock. Chem & Met Eng 25:816 N 2 '21

Latent heats of fusion of nickel and monel metal. W. P. White. il diag Chem & Met Eng 25:17-21 Jl 6 '21

Machining monel-metal carbureter float points. W. H. Addis. il Am Mach 52:629 Mr 18 '20

Machining monel-metal castings. A. J. Hanlon. il diags Am Mach 53:341-3 Ag 19 '20

Monel metal. P. D. Merica. il Chem & Met Eng 24:291-4 F 16 '21

Monel-metal blades in destroyer turbines. W. F. Rice. il diag Power 51:908-11 Je 8 '20

Monel metal for engine valves. Automotive Ind 42:904 Ap 15 '20; Same. Aviation 8:245 Ap 15 '20; Same. Chem & Met Eng 22:1084 Je 9 '20

Monel metal has definite magnetic properties. C: W. Burrows. il Elec W 78:115-16 Jl 16 '21; Same cond. Elec R (Lond) 89:292-3 Ag 26 '21

Monel metal; its properties and uses. chart Power Pl Eng 24:244 F 15 '20

Monel metal; properties, methods of melting and casting, uses, etc. A. Bregman. il diags Metal Ind 19:9-10, 64-5 Ja-F '21

Notched bar impact tests and toughness of monel metal. R. G. Waltenberg. Chem & Met Eng 25:322-3 Ag 24 '21

Pointers on casting monel metal. R. Traut-schold. il Foundry 48:649-51 Ag 15 '20

Reflecting power of monel metal, stellite, and zinc. W. W. Coblenz. U S Bur Stand Sci Pa 379:249-52 '20

Sulphur in cutting lubricant for monel metal. J. Mancuso. diags Am Mach 53:123 Jl 15 '20

Welding monel metal. Metal Ind 18:513 N '20

Working monel metal; abstract. H. R. Williams. diags Mech Eng 42:522-3 S '20

Analysis

Rapid method for the analysis of monel metal. P. Covitz. Chem & Met Eng 22:31-2 Ja 7 '20

Rapid method for the analysis of monel metal. H. A. Horner. Chem & Met Eng 22:436 Mr 10 '20

Money

Advocate of bimetallism. H. W. Miller. Eng & Min J 110:1117 D 11 '20

Brief facts about money, with a suggestion for making it better able to perform its work. C: E. Duryea. Sci Am 124:206 Mr 12 '21

Brief fallacies about money. C: E. Duryea. Sci Am 124:488 Je 18 '21

Changes in the value of the dollar. Eng N 83:937-9 N 27 '19

Currency, banking and exchange. A. H. Putney. 418p Lincoln institute of business, Chicago '21

Development of the silver market. C. W. Wheelock. Eng & Min J 111:105-7 Ja 15 '21

Dirty money and disease. J. Boyer. il Sci Am M 4:344-6 O '21

Fallacy of the stabilized dollar. B. M. Anderson. Comm & Fin Chr 111:743-4 Ag 21 '20

Fiscal and currency standards as measure of credit. P. M. Warburg. Comm & Fin Chr 110:306-8 Ja 24 '20

Fisher's stable money plan results in league for action. I. Fisher. Annalist 17:591-2 My 30 '21; Abstract. Comm & Fin Chr 112:2363 Je 4 '21

Functions of money. W: F. Spalding. 168p Pitman '21

International gold settlement fund like federal reserve's. G. H. Zimmerman. Annalist 17:112+ Ja 17 '21

Is increased currency the cause or the effect of high prices? Eng & Contr 53:587-8, 589 My 26 '20

Is the quantitative theory of money and prices discredited by recent events? Eng & Contr 55:98 F 2 '21

Money and prices. J. F. Johnson. Administration 1:477-82 Ap '21

Need of sound money. S. R. Wagel. Eng & Min J 109:555-7 F 28 '20

Our temperamental money. A. H. Ulm. Nation's Business 8:16-17+ Ja '20

Passing of the gold reserve. G: Koehler. 87p Importers First Aid Service, 1423 New York Ave., Washington, D.C. '20

Platinum or nickel money. Eng & Min J 109:686 Mr 20 '20

Quantitative analysis of all factors that affect average prices and a formula for predicting price changes. H. P. Gillette. Eng & Contr 53:381-402 Ap 7 '20

Quantity theory of money. A. W. Douglas. Administration 2:98-101 Jl '21

Rehabilitation of silver. C: S. Thomas. Eng & Min J 109:917-18 Ap 17 '20

Silver as money. H. W. Miller. Min & Sci P 122:39-41 Ja 8 '21

Stabilizing the gold dollar. Comm & Fin Chr 112:2463-4 Je 11 '21

Unimetallists, bimetalists, and sinemetallists. Eng & Min J 109:306, 593-4 Ja 31, Mr 6 '20

Money —Continued

What will come with cheaper money? System 40:547+ N '21

See also Banks and banking; Capital; Coins; Credit; Finance; Foreign exchange; Gold as money; Index numbers (economics); Inflation (finance); Investments; Paper money; Platinum as money; Porcelain as money; Prices; *also* Stable money league

Argentina

Argentinan and Paraguayan currencies. C: Evers. Annalist 18:129 Ag 8 '21

Brazil

History of the Brazilian milreis. C: Evers. Annalist 18:224 S 5 '21

Chile

Currencies of Colombia, Uruguay and Chile. C: Evers. Annalist 18:198 Ag 29 '21

China

Chinese currency and finance. A. W. Ferrin. U S Bur For & Dom Com 186:1-57 '19

Colombia

Currencies of Colombia, Uruguay and Chile. C: Evers. Annalist 18:198 Ag 29 '21

Czechoslovakia

Czecho-Slovak currency. C. S. Winans. Comm & Fin Chr 113:347-8 Jl 23 '21

Great Britain

British plea for restoration of English currency. R. S. Wilford. Annalist 17:397+, 420, 424+ Ap 4-11 '21

Report of British committee on currency—recommendation that effective gold standard be restored. Comm & Fin Chr 110:1029-35 Mr 13 '20

Paraguay

Argentinan and Paraguayan currencies. C: Evers. Annalist 18:129 Ag 8 '21

South America

Currencies of Peru, Bolivia, Ecuador and Venezuela. C: Evers. Annalist 18:270 S 19 '21

South American currencies. C: Evers. Annalist 18:103 Ag 1 '21

Uruguay

Currencies of Colombia, Uruguay and Chile. C: Evers. Annalist 18:198 Ag 29 '21

Money, International

How an international currency might be established. F: Todd. Annalist 17:113+ Ja 17 '21

Would remove the incubus of exchange from foreign trade. R. Estcourt. Annalist 17:145-6 Ja 24 '21

See also Paper money, International

Money back policy. *See* Salesmanship—Guarantees

Money handling machines

Handling paper money by push buttons. il Sci Am 123:407 O 16 '20

Money orders. *See* Express service—Money orders

Money raising campaigns

Appeal to local pride sells stock for a new hotel. W. K. Greenebaum. Ptr Ink 116:102-4 Ag 25 '21

Big telephone drive fills community chest. P. H. Woodruff. il Pop Mech 33:683-4 My '20

One letter that pulled over fifty per cent. Ptr Ink 116:91-2 Jl 7 '21

What one letter did for a school. Ptr Ink 115:49-50+ My 12 '21

Where does sentiment belong in advertising? W. L. Larned. Ptr Ink 110:185-6+ Ja 8 '20

Monnett, Osborn

Leader in smoke abatement. por Power 51:1047-8 Je 29 '20

Sketch. W. Painter. por Power Pl Eng 24: 602-3 Je 15 '20

Monograms

Paper die embosses monograms. diags Pop Mech 33:312 F '20

Monomolecular reactions

Theory of monomolecular reactions. R: C. Tolman. Am Chem Soc J 43:269-74 F '21
Thermal decomposition of gaseous nitrogen pentoxide; a monomolecular reaction. F. Daniels and E. H. Johnston. diag Am Chem Soc J 43:53-71 Ja '21

Monongah glass company

New factory of the Monongah glass company. E. W. Tillotson. il diags plan Am Cer Soc J 4:3-24 Ja '21

Monoplanes. *See* Airplanes; Seaplanes

Monopolies

Les monopoles. E: Payen. 428p O. Doin et fils, Paris '20

Monorail. *See* Telpherage

Montana

See Geology—Montana; Glacier national park; Mines and mineral resources—Montana; Petroleum—Montana; Water power—Montana

Montclair, New Jersey**Sewerage**

Montclair commission acts on sewage and water. Eng N 87:167-8 Jl 28 '21

Montgomery, Alabama**Water supply**

Temporary contamination of a deep well supply at Montgomery. G. H. Hazlehurst. Am Water Works Assn J 7:171-5 Mr '20; Same. Can Eng 38:424-5 Ap 29 '20

Montreal, Quebec**Railroads**

Electrification in Montreal. il Elec Ry J 56: 496-7 S 11 '20

Rapid transit

Remarkable financial progress at Montreal. Elec Ry J 56:1168-9 D 4 '20
Statistics on Montreal traffic. J. R. Bibbins. Elec Ry J 55:200-1 Ja 24 '20

Water supply

Experience of the Montreal water and power company in the manufacture of filter alum. J. O. Meadows. Am Water Works Assn J 7:841-3 N '20; Same. Can Eng 38:597 Je 24 '20; Same. Eng & Contr 54:42 Jl 14 '20; Same. Eng N 85:59-60 Jl 8 '20; Discussion. Am Water Works Assn J 7:843-4 N '20

Municipal water supply of Montreal. T. W. Le Sage. map Am Water Works Assn J 7:892-902 N '20; Same cond. Can Eng 38: 584-7 Je 24 '20

Some features of the works of the Montreal water and power company. F. H. Pitcher. il map Am Water Works Assn J 7:903-13 N '20; Same. Can Eng 39:116-18 Jl 1 '20

Montreal, Bank of. *See* Bank of Montreal

Monuments

Monument to commemorate Brazilian independence. il Pop Mech 34:352 S '20

Winning designs in the competition for the fellowship in architecture of the American academy in Rome. il Arch Rec 48:236-41 S '20

See also Memorials; Soldiers' monuments

Preservation

Preservation of Egyptian obelisk in Central Park, New York city. E: M. Caffall. Eng & Contr 53:87 Ja 28 '20

Moon

Craters of the moon; possible light on their origin from experiments with airplane bombs at Langley field. J. F. Springer. il Sci Am 124:490-1+ Je 18 '21

See also Tides

Moore, Philip North, 1849-
Mining engineers of note. por Eng & Min
J 110:864 O 30 '20

Moore, Richard Bishop, 1871-
Appointed chief chemist of the Bureau of
mines. por Chem & Met Eng 21:548-9 O
29 '19

Moore lamps

Gaseous conduction light from low-voltage
circuits. D. M. Moore. il diags Am Inst
E E J 39:733-42 Ag '20; Same. Gen Elec
R 23:577-88 Jl '20; Abstracts. Illum Engr 13:
225-7 Ag '20; Génie Civil 78:275-6 Mr 26
'21

Mops

Advertising

Mops move to the display shelf from under
the counter. A. E. Haase. Ptr Ink 114:
126+ Mr 17 '21

Moraines

Ancien lit glaciaire du Rhône entre Léaz et
le Pont-Rouge des Usses (Haute-Savoie).
M. Lugeon and J. Villemagne. map Génie
Civil 78:196-7 F 26 '21

See also Eskar

Moratorium

La liquidation du moratorium. A. Toulouse.
Chimie & Ind 5:224-9, 359-63 F-Mr '21
Moratorium in Cuba—a symposium. Am Ind
21:31-2+ N '20

Morocco

See also Roads—Morocco

Industries and resources

L'industrie du cuir au Maroc. C. Chaveau.
Chimie & Ind 4:409-18 S '20

Le Maroc et son industrie. C. Chaveau. il
map Chimie & Ind 3:831-40 Je '20

Turning up trade in Morocco. F. Miltoun. il
Iron Tr R 69:96-7 Jl 14 '21

See also Iron mines and mining—Morocco;
Petroleum—Morocco

Morphology

How motion affects form. K. Przibram. Sci
Am M 4:353-5 O '21

Morris & Essex canal

Power plants of the Morris & Essex canal.
H. G. Boutell. il Power 52:581 O 12 '20

Morris plan banks

How to finance time payment business. S. A.
Dennis. charts Metal Work 92:460-3, 494-5
O 17-24 '19

To finance time payment business. S. A.
Dennis. Gas Age 48:474-6 O 8 '21

Morse, Charles Hosmer, 1833-1921

Sketch. por Power 53:800 My 17 '21

Morse dry dock and repair company, Brooklyn, N.Y.

Morse dry dock and repair plant. il Int Ma-
rine Eng 24:781-92 D '19

Mortality

Preventable death in cotton manufacturing
industry. A. R. Perry. U S Bur Labor Sta-
tistics Bul 251:1-534 '19

Relation of the death rate to the wet bulb
temperature; a review of Dr Huntington's
interpretation of the death rate by climo-
graphs. E. V. Hill and J. J. Aeberly. Am
Soc Heat & V E J 26:471-9 My '20; Dis-
cussion. 26:575-9 Jl '20

Relation of wet bulb temperature to health.
O. W. Armspach. Am Soc Heat & V E J
26:480-8 My '20; Discussion. 26:575-9 Jl '20

Mortar

Measurement of plasticity of mortars and
plasters. W. E. Emley. il diags U S Bur
Stand Tech Pa 169:1-27 '20; Abstract. Am
Inst Arch J 9:27-9 Ja '21

Shrinkage of Portland cement mortars and
its importance in stucco construction. J.
C. Pearson. Eng & Contr 55:187-90 F 23 '21

Simple means of finding quantity of water
required for concrete or mortar. H. G.
Lloyd. Eng & Contr 53:750-1 Je 30 '20;
Same cond. Eng N 84:1211-12 Je 17 '20

See also Trass

Testing

Analyzing firebrick mortar. R. M. Howe. il
Iron Tr R 66:417-19 F 5 '20; Same. Blast F
& Steel Pl 8:157-60 F '20; Same. Gas Age
45:174-6 F 25 '20; Same. Chem & Met
Eng 23:232-4 Ag 11 '20; Same. Foundry
48:593-5 Ag 1 '20

Relation between tensile and compressive
strengths of cement mortars. J. R. Dwyer.
Concrete 18:sup99-101 Je '21

Tentative specifications and tests for com-
pressive strength of Portland-cement mor-
tars. diags Am Soc T M Pro v 20 pt 1:
599-602 '20

Mortars (ordnance)

Short histories of famous firms; Nasmyth,
Wilson and co., limited. il diags Engineer
129:287-9 Mr 19 '20

Mortgages

Real estate mortgages. R. R. Frazier. Comm
& Fin Chr 113:188 sec 2 O 29 '21

Mortuary chapels

Gate and chapel, Tod homestead cemetery,
Youngstown, Ohio. Arch Forum 34:pl 42-
3 Mr '21

Undertaking establishment and mortuary
chapel, Columbus, Ohio. H. D. Smith. il
plans Arch Forum 32:235-8, pl 93-6 Je '20

Mosaic disease

Mosaic disease of cabbage as revealed by its
nitrogen constituents. S. L. Jodidi, S. C.
Moulton and K. S. Markley. Am Chem Soc
J 42:1883-92 S '20

Mosaic disease of spinach as characterized by
its nitrogen constituents. S. L. Jodidi, S. C.
Moulton and K. S. Markley. Am Chem Soc
J 42:1061-70 My '20

Mosaic pavements. *See* Pavements, Mosaic

Mosaics

Mosaics in the frontal colonnade of the
Detroit public library. W. F. Paris. il Arch
Rec 49:300-9 Ap '21

Moses, Alfred Joseph, 1859-1920

Biographical sketch. G. F. Kunz. por Min
& Met 162:20-1 Je '20

Mosquitoes

Drainage as a malaria control measure. A.
Bresth. Eng & Contr 55:362 Ap 13 '21

Fly and mosquito elimination work in New
York city. J. M. Lonergan. Eng & Contr
54:241-4 S 8 '20

Formalin as a mosquito destroyer. Eng &
Contr 54:312 S 29 '20

Malaria parasite; how the mosquito actually
carries the germs of malaria. B. Mayne. il
Sci Am M 2:217-20 N '20

Mosquito extermination at Greenville, Texas.
Pub Works 49:475 N 20 '20

Mosquito extermination methods at Phila-
delphia navy yard. Eng & Contr 53:699 Je
23 '20

Mosquito suppression at Cambridge, Mass. L.
M. Hastings. Eng & Contr 55:367 Ap 13 '21

Niter cakes as a mosquito larvicide. Eng &
Contr 53:654 Je 9 '20; Correction. 54:29 Jl
14 '20

Observations on the anopheles mosquito and
sea water. T. H. D. Griffiths. Eng & Contr
55:575-6 Je 8 '21

Progress in malaria control. Eng & Contr 56:
257-8 S 14 '21

Robbing the mosquito of her breeding places.
Sci Am 121:579 D 13 '19

Moss superchargers. *See* Airplane engines—
Superchargers

Mother-of-pearl, Artificial

Imitating mother of pearl. O. W. Parkert.
Sci Am M 3:237-8 Mr '21

Mothers' pensions

Mothers' pension laws in the United States.
(Chart 10) 4 secs '19 U.S. Dept. of labor,
Women's bureau, Washington, D.C.

Moths

Do moths use wireless? S. L. Bastin. Sci Am
125:261 O 8 '21

Voice of the Death's Head moth. Prell. il
Sci Am M 3:13 Ja '21

Motion

How motion affects form. K. Przibram. Sci Am M 4:353-5 O '21

See also Mechanics

Motion study

Effect of motion study upon the workers. F. B. Gilbreth and L. M. Gilbreth. il Eng & Ind Management 5:314-16 Mr 17 '21

Human factor in industry. C. H. Northcott. Ind Management 62:294-5 N '21

Mind and work; movement study. C. S. Myers. p. 5-31 Putnam '21

Motion and time study and laboratory practice. F. B. Gilbreth. Eng & Ind Management 5:101 Ja 27 '21

Motion study. H. G. T. Cannons. p 70-2 Bibliography of industrial efficiency and factory management, Routledge '20

Motion study, its position and prospects in Great Britain. Eng & Contr 56:214-16 Ag 31 '21

Place of motion study in modern industrial administration. R. Stelling. il Eng & Ind Management 6:30-4 Jl 14 '21

Some limitations of motion study. Engineering 111:201-2 F 18 '21

Standard day's work. C. C. Herrman. Ind Management 59:288-9 Ap '20

Time study and motion study. F. B. Gilbreth and L. M. Gilbreth. 16p '20 Frank B. Gilbreth, 68 Eagle Rock Way, Montclair, N.J.; Same. Eng & Ind Management 5:168-73 F 10 '21

See also Time study

Motor age maintenance data sheets index. Motor Age 37:77 Ap 1 '20

Motor barges

Self-propelled barge for Mexican oil fields. il Pop Mech 36:525 O '21

Motor boats

Adapting truck and tractor engines to motor-boat use. J. Van Blerck. il Soc Auto Eng J 6:378-80 Je '20

Commercial motor boats and the Diesel engine. G. C. Davison. il Soc Auto Eng J 8:46-50 Ja '21

Contest for the Harmsworth motor boat trophy. il Sci Am 123:175 Ag 21 '20

Design curves for open motorboat. Marine Eng 26:173-4 F '21

Development of the motor lifeboat. il diags Engineer 129:294-6, 298 Mr 19 '20

Entirely electrically welded vessel. il Marine Eng 26:277 Ap '21

Fastest boat in the world. il Sci Am 123:383 O 9 '20

Harmsworth cup remains in America. il Sci Am 125:221 S 24 '21

Highest-powered motor boat afloat. il Sci Am 123:503 N 13 '20

Looping the North Atlantic in the Typhoon. W: W. Nutting. il Soc Auto Eng J 8:314-17 Ap '21

Magnetic reverse gear and petrol-paraffin carburettor. Engineering 109:786, pl 47 Je 11 '20

Miss America II—the fastest boat ever built. il Pop Mech 36:673 N '21

Motor boat and marine and stationary engine exhibition. Engineer 129:302-3, 320-2, 345-8 Mr 19-Ap 2 '20

Motor-boat exhibition at Olympia. il diags Engineering 109:372-5, 406-8 Mr 19-26 '20

Motor boat exports, fiscal years 1912 to 1919; tabulation. Automotive Ind 42:210-11 Ja 15 '20

Motor boat exports, 1914 to 1920; tabulation. Automotive Ind 44:384-5 F 17 '21

Motor-boat standardization from the naval-architect's viewpoint. W: J. Deed. Soc Auto Eng J 8:116-17 F '21

Motor boats and boat motors, design, construction, operation and repair. V: W. Page, ed. 524p A special chapter on seaplanes and flying boats is included. 374 il. Henley '20

Motor-wheel drive for rowboat. L. B. Robbins. diags Pop Mech 35:943-4 Je '21

New type of displacement speed boat. L. L. Tripp. il diag Sci Am 124:249 Mr 26 '21

Present problems of marine motor design. W: B. Rogers, jr. Automotive Ind 44:1294-5 Je 16 '21

Shallow-draft motorboat is houseboat and cruiser. diag plan Pop Mech 33:917 Je '20

Side-wheel motorboat with automobile-type drive. L. B. Robbins. diags Pop Mech 35:476-7 Mr '21

Skimming boat; Yarrow's new type of shallow draught vessel. il Eng & Ind Management 5:382 Mr 31 '21

Some features of the American motor boat show. il Sci Am 122:281 Mr 13 '20

Le XII^e meeting de canots automobiles de Monaco. G. Birlé. il diags plans Génie Civil 76:445-9 My 15 '20

See also Motor barges; Motor ships

Motor bungalows. *See Motor caravans*

Motor buses

Akron's motor bus route. il diag Elec Ry J 57:1164-7 Je 25 '21

Auto carrier competition in California. W. V. Hill. Elec Ry J 56:80-1 Jl 10 '20

Auto transportation in California. Elec Ry J 57:864 My 7 '21

Benzole-alcohol experiments on omnibuses. G. J. Shave. Engineering 110:623-4 N 5 '20; Abstract. Soc Auto Eng J 7:556-7 D '20

Bridgeport traffic analysis. Elec Ry J 56:323-4 Ag 14 '20

British single deck bus development. M. W. Bourdon. il diags Automotive Ind 43:606-9 S 23 '20

Bus and the trolley. H. B. Titcomb. Elec Ry J 57:81-3 Ja 8 '21

Bus for special service only. K. A. Simmon. il Elec Ry J 55:1312-13 Je 26 '20

Bus proposal accepted. Elec Ry J 58:796 O 29 '21

Bus, the trackless trolley or the trolley car for light traction—which? L. M. Aspinwall. Elec J 17:443-5 O '20

Buses do large business. Elec Ry J 58:319-20 Ag 27 '21

Buses in passenger transportation. Elec Ry J 55:146-7 Ja 17 '20

California motor carriers do large business—companies combine. il Eng N 87:322 Ag 25 '21

Camel-back motor bus. il Elec Ry J 56:839 O 16 '20

Change to buses progressing rapidly in Edinburgh. il map Elec Ry J 56:1110-11 N 27 '20

City without a street car. P. H. Gadsden. Nation's Business 9:28 O '21

Design innovations mark Detroit passenger bus. il Pop Mech 36:415 S '21

Detroit's motor bus system. il diag Elec Ry J 57:765-6 Ap 23 '21

Double deck buses for Chicago. il Automotive Ind 42:559 F 26 '20

Eight-wheeled bus; plan. Automotive Ind 43:171 Jl 22 '20

Electrification at Edinburgh; gasoline motor buses and electric railway cars replace cable operation. R. S. Pilcher. il Elec Ry J 58:12-14 Jl 2 '21

English design and operation of the motor bus. M. W. Bourdon. il diags Automotive Ind 43:258-60, 312-15+, 363-6, 463-5 Ag 5-19, S 2 '20

Facts regarding motor-omnibus service. A. R. Fearnley. map Elec Ry J 54:926-7 N 15 '19

Fifty-four seat bus for London. diags Elec Ry J 57:408-9 F 26 '21

Future of the autobus as it affects the electric railway. L. H. Palmer. Elec J 17:430-2 O '20

Good roads and motor buses to solve the rural school problem. Good Roads 61:32-3+ Jl 20 '21

How buses are run in Baltimore. L. H. Palmer. il Elec Ry J 55:13-17 Ja 3 '20

Imperial omnibus in service. il Elec Ry J 58:202 Ag 6 '21

Keeping a motor bus line running in Bridgeport, Conn. Motor Age 38:17+ Ag 26 '20

Lack of a specially designed motor bus chassis. A. F. Warner. Automotive Ind 43:981 N 11 '20

Motor buses—Continued

Massachusetts company starts buses. il plan Elec Ry J 55:853-5 Ap 24 '20

Metal-framed motor-omnibus body. diags Engineering 110:407-8 S 24 '20

Motor bus as a supplement to electric railways. R. G. Smith. Elec Ry J 56:784-6 O 16 '20

Motor bus body with a steel frame. diags Automotive Ind 43:959 N 11 '20

Motor bus field as a market for trucks. Automotive Ind 45:627-8 S 29 '21

Motor bus in urban transportation; comparisons between bus and tramway service in London and United States. G. J. Shave and F. C. Pick. Elec Ry J 56:789-94 O 16 '20

Motor bus problem discussed at electric railway convention. S. Gluck. Automotive Ind 45:726-8 O 13 '21; Abstract. Elec Ry J 58:856 N 12 '21

Motor bus service for consolidated rural schools. Munic Eng 61:sup 17-20 O '21

Motor-bus transportation in New York. G. A. Green. Soc Auto Eng J 7:67-74 Jl '20; Same cond. Elec Ry J 56:175-8 Jl 24 '20; Abstract. Automotive Ind 42:1448-9 Je 24 '20; Discussion. Soc Auto Eng J 7:461-2 N '20

Motor bus vs. the street car. R. E. Fulton. il Good Roads n s 18:223-4 N 19 '19; Same. Munic Eng 58:sup 30-1 Ja '20; Same. Sci Am 122:217 F 28 '20

Motor buses as railway auxiliaries. il Elec Ry J 56:707-9 O 9 '20

Motor omnibus for the London general omnibus company, limited. il diag plan Engineering 111:391-2, pl 17 Ap 1 '21

Motor vehicle—competitor or ally? G. M. Graham. National automobile chamber of commerce, Inc., 366 Madison ave., New York; Same cond. Elec Ry J 56:795-8 O 16 '20

New British bus chassis is equipped with body seating 54 passengers. M. W. Bourdon. il diags Automotive Ind 44:742-7 Ap 7 '21

New bus chassis developed by International motor co. H. Chase. il diags plan Automotive Ind 45:503-6 S 15 '21

New type bus installed in Baltimore. il Elec Ry J 58:778 O 29 '21

Omnibus automobiles in Rio de Janeiro. V. L. Havens. il Elec Ry J 56:467-8 S 4 '20

Operation of tramways and bus undertakings under statutory powers as affected by the Roads act, 1920; abstracts with discussion. J. B. Hamilton. Elec R (Lond) 39:482-5 O 7 '21; Electrician 87:487-9 O 14 '21

Place of the bus. W. Jackson. maps Elec Ry J 55:424-7, 683-9, 849-53, 1088-93; 56:11-15, 209-18 F 28, Ap 3, 24, My 29, Jl 3, 31 '20

Place of the bus defined at Edinburgh. map Elec Ry J 56:680 O 2 '20

Receivership may close Chicago bus controversy. Elec Ry J 55:1110-11 My 29 '20

Rubber shock insulators for buses. il diags India Rubber W 65:115-16 N '21

Six-wheel bus now used in Paris. il Automotive Ind 44:923 Ap 28 '21; Pop Mech 35:910 Je '21

Six-wheel motor bus. Eng & Contr 54:385 O 20 '20

Stability of motor omnibuses. Engineer 129:401-2 Ap 16 '20; Excerpt. Automotive Ind 42:1367 Je 10 '20; Abstracts. Mech Eng 42:413 Jl '20; Sci Am M 2:144 O '20; Sci Am 124:354 Ap 30 '21

Step ahead in motor bus development. il Sci Am 125:138 Ag 20 '21

Technical features of the motor bus. G. A. Green. Elec Ry J 56:1196 D 11 '20

Thermostat control in carburetor saves fuel for Fifth avenue buses. R. E. Fielder. diag Nat Pet N 13:69 Ja 26 '21

Transportation by motor bus in Gloucester. il map Elec Ry J 58:773-7 O 29 '21

Trolley or truck? H. C. Clark. Sci Am 122:453 Ap 24 '20

Urban and interurban motor bus service. R. W. Meade. Good Roads 61:22+ Jl 13 '21

Utility commissioners discuss motor buses. Elec Ry J 58:789-91 O 29 '21

See also Electric buses; Electric railroads—Motor bus auxiliaries; Fifth Avenue

coach company, New York; Jitney buses; Motor caravans; Street railroads—Motor bus auxiliaries

Cost of operation

Analysis of bus operation. Elec Ry J 58:777 O 29 '21

Bus and car costs compared. H. L. Andrews. Elec Ry J 58:769-71; Discussion. C. W. Stocks. 771-2 O 29 '21

Bus transportation field. C. W. Stocks. Elec Ry J 58:517-22 S 24 '21

Motor bus in urban transportation; with cost table. A. W. McLemont. Eng & Contr 56:373 O 19 '21

Motor buses or trackless trolleys. H. L. Andrews. il Gen Elec R 23:331-4 Ap '20; Abstract. Sci Am M 1:565-6 Je '20

Passengers and freight carried more cheaply by motor transport than by railway. K. Q. Volk. il Eng N 84:568-71 Mr 18 '20; Excerpt (table). Elec Ry J 55:941 My 8 '20

Place of the bus. W. Jackson. il Elec Ry J 55:683-9 Ap 3 '20

Pneumatic-tire and motor-truck development experiences. M. D. Scott. Soc Auto Eng J 7:376-7 O '20

Urban transportation field analyzed. J. C. Thirlwall. Elec Ry J 58:546-50 O 1 '21

Lighting

Interior lighting of busses. L. C. Porter and R. W. Jordan. il diags Illum Eng Soc 16:77-94 no 5 '21

Motor buses, Municipal

Buses begin on Staten Island. map Elec Ry J 55:430-2 F 28 '20

More municipal buses in New York. il Elec Ry J 58:114 Jl 16 '21

Proposed design for municipal bus; plan. Automotive Ind 43:414 Ag 26 '20

Motor caravans

Auto-bungalows may solve housing problem. W. H. Hunt. il Pop Mech 35:336-9 Mr '21

Big home on wheels built of air-craft materials. il Pop Mech 33:538-9 Ap '20

Complete camping outfit included in auto body. il Pop Mech 36:676-7 N '21

Homesteaders travel west by motor caravans. il Pop Mech 36:671 N '21

More comforts than Pullman affords are found in this vacation wagon. il Nat Pet N 13:49 Jl 15 '21

Motor bungalow. il Sci Am 122:139 F 7 '20

Palace car of the railless ways. W. H. Hunt. il Pop Mech 35:896-8 Je '21

Motor cars (railroad)

Airplane engines as railroad locomotives. il Sci Am 122:191 F 21 '20

Automotrice avec moteur à combustion interne, système Leroux. L. Pierre-Guédon. diags Génie Civil 78:438-41, pl 4 My 21 '21

Automotrices pétroléo-électriques à moteur Diesel des chemins de fer suédois. il diags plan Génie Civil 77:305-9 O 16 '20; Translation (Diesel engine in railroad service). Ry Mech Eng 95:156-9 Mr '21; Abstract. Engineer 130:511 N 19 '20

Bowen gasoline motor driven passenger car. il diags plan Ry Age 71:841-3 O 29 '21

Diesel-electric motor cars; abstract. L. Pahin. Elec W 77:1381-2 Je 11 '21

Field for gasoline railway motor cars. L. C. Josephs, jr. Ry Age 71:627-8 O 1 '21; Discussion. L. Klopman. 71:1025-6 N 26 '21

Gasoline driven motor omnibus for railroads. il Ry Age 70:1363-4 Je 10 '21

Handling light railway passenger traffic with motor trucks. D. A. Hampson. il diags Automotive Ind 45:155-8 Jl 28 '21

Henry Ford's railway car; interurban use. Elec Ry J 55:439-40 F 28 '20

Motor bus operates successfully on short line railroad; Winchester & Western R.R. from Winchester to Wardensville. il Eng N 86:648 Ap 14 '21; Sci Am 124:314 Ap 16 '21

Motor lorry converted into a railway motor coach. il diags Engineer 131:94-5, 98 Ja 28 '21

Motor cars (railroad)—Continued

- Motorizing light passenger train service. *il Ry R* 69:496-8 O 15 '21
- New gasoline motor car for Hetch Hetchy railroad. *il Elec Ry J* 55:428-9 F 28 '20
- One-man gasoline motor car. *il diags plan Elec Ry J* 57:407-8 F 26 '21
- Operating railway cars with gasoline engines. *il Automotive Ind* 43:1203 D 16 '20
- Petrol rail cars for India. *il diags Engineer* 132:44-5 J1 8 '21
- Problems presented in the operation of the railway motor car. D. A. Hampson. *il diags Automotive Ind* 42:1256-60 Je 3 '20
- Rail motor bus will reduce branch line operating cost. *il Ry R* 69:139-40 J1 30 '21
- Railway motor coach with internal combustion engine. *diags Engineer* 131:612-13 Je 10 '21
- Solving the problems of the railway motor car. D. A. Hampson. *il diags plan Automotive Ind* 42:21-5+ Ja 1 '20

Steam

- Is the non-electric street railway car a serious possibility? F. C. Cusani. *Elec Ry J* 55:893-5 My 1 '20
- Steam locomotive and passenger coach combined. *il Sci Am* 121:577 D 13 '19

Storage battery

- Building up branch line traffic in Canada. *il Ry R* 69:580-1 O 29 '21
- Storage battery cars for railway service. *il diag map plan Ry R* 66:926-7 Je 5 '20

Motor cars (street railroad)

- Motor bus successful in street railway use. D. A. Hampson. *diag Automotive Ind* 45:407-8 S 1 '21
- Petrol-driven tramcars for India. F. C. Coleman. *il Ry R* 66:202-3 F 7 '20
- Petrol tramcars for India. *il diags Engineer* 130:513 N 19 '20

Motor cultivators. See Cultivators, Motor

Motor cycle engines

- Light powered motorcycle has Vee type engine. P. M. Heldt. *il diags Automotive Ind* 41:1168-74 D 11 '19
- French bicycle motor said to be smallest made. *il Pop Mech* 36:644 N '21
- Horse-power calculations for motor cycles. *Automobile Eng* 11:230 Je '21
- Motor cycle engines. *il diags Automobile Eng* 11:299-300, 353-5 S-O '21

Motor cycle industry and trade

- Motorcycle exports covering eight years; tabulation. *Automotive Ind* 44:376-7 F 17 '21
- Motorcycle industry well started on the up-grade. N. G. Shidle. *Automotive Ind* 43:978-80 N 11 '20
- Summary concerning the motorcycle and bicycle industry in 1919. *Automotive Ind* 44:1440 Je 30 '21
- Where is the motorcycle going? N. G. Shidle. *Automotive Ind* 44:612-14, 662-4 Mr 17-24 '21

Motor cycles

- B.T.-H. improves motor cycling. *il diags Electrician* 87:245 Ag 19 '21
- Beardmore precision motor cycle. *il Engineering* 111:8 Ja 7 '21
- Bicycle engine drives front wheel by V-belt. *il Pop Mech* 36:32 J1 '21
- Breaking the world's motorcycle records. R. Howard. *il Sci Am* 122:649 Je 12 '20
- British motorcycle practice. M. W. Bourdon. *Automotive Ind* 44:370-1 F 17 '21
- British motorcycle trials. M. W. Bourdon. *Automotive Ind* 41:1162-3 D 11 '19
- Comparative motor cycle performances. D. S. Heather. *Automobile Eng* 11:187-94 My '21
- Cyclaid motor bicycle. *il Engineering* 110:735 D 3 '20
- Danish four-cylinder motorcycle has pressed steel frame. *il Automotive Ind* 43:275 Ag 5 '20
- Future development of the motorcycle in England. M. W. Bourdon. *il Automotive Ind* 44:812-13 Ap 14 '21

Le Grand-Prix de l'automobile-club de France en 1921; le circuit du Mans (24 et 25 juillet). *il map Génie Civil* 79:121-4 Ag 6 '21

Militor motorcycle models follow automobile practices. *il Automotive Ind* 42:850-1 Ap 8 '20

Motor-bicycle frame design. D. Leechman. *diags Automobile Eng* 11:112-15 Mr '21; *Abstract. Engineering* 111:49-50 Ja 14 '21; *Discussion. Automobile Eng* 11:115-16 Mr '21

Motor cycle handbook. H. P. Manly. 9-320p F. J. Drake & co., Chicago '20

Motor cycle performance. *Engineering* 111:590 My 13 '21

Motor scooters in Europe. *Automotive Ind* 43:605 S 23 '20

Motorcycle records. *Automotive Ind* 44:372-3 F 17 '21

Motorcycles and side cars; construction, management, repair. V. W. Pagé. 2d ed., rev. and enl. 693p Henley '20

Motorcycles show few radical changes. A. Black. *Automotive Ind* 42:193 Ja 15 '20

New French motorcycle has water-cooled engine. *il Pop Mech* 35:669 My '21

New lightweight motorcycle shows design development. M. W. Bourdon. *il diags Automotive Ind* 42:1326-8 Je 10 '20

Overgrown motorcycle of Europe. *il Sci Am* 122:43 Ja 10 '20

Recent development of motor-cycles in France. W. F. Bradley. *il diags Automotive Ind* 42:1394-6 Je 17 '20

Review of engineering features of British motorcycles. M. W. Bourdon. *diags Automotive Ind* 44:1376-81 Je 23 '21

Springing and other refinements in motorcycle design. G. H. Savage. *diags Automotive Ind* 45:560-3 S 22 '21

World's motorcycle record broken! *il Motor Age* 37:21 Mr 4 '20

See also Cycle cars; Motor cycle engines

Exhibitions

British motorcycle show. M. W. Bourdon. *il diags Automotive Ind* 42:3-10 Ja 1 '20

Cycle and motor-cycle show. *diags Engineering* 110:743-5 D 3 '20

Motor cycle show. *il diag Automobile Eng* 11:9-13 Ja '21

Manufacture

Dies for shaping a motorcycle part. J. Bingham. *diags Mach* 26:808-9 My '20

From the foundry to the speedway; castings for motorcycle frames. H. R. Simonds. *il Foundry* 49:459-62 Je 15 '21

Specifications

British motorcycle specifications for 1921; tabulation. M. W. Bourdon. *Automotive Ind* 44:374-5 F 17 '21

Detailed technical specifications of American motorcycles for 1920; tabulation. *Automotive Ind* 42:194-5 Ja 15 '20

Detailed technical specifications of American motorcycles for 1921; tabulation. *Automotive Ind* 44:372-3 F 17 '21

Springs

Springing and other refinements in motorcycle design. G. H. Savage. *diags Automotive Ind* 45:560-3 S 22 '21

Motor fuel. See Automobile engines—Fuel; Motor truck engines—Fuel

Motor generators. See Electric motor generators

Motor omnibuses. See Motor buses

Motor plows. See Plows, Motor

Motor ships

Cammellaird-Fullagar engined M. S. Malia. *Engineering* 112:503-4 O 7 '21; *Engineer* 132:378-9 O 7 '21

Cargo motorships vs. steamships. C. E. Lucke. *Int Marine Eng* 25:759-63, 837-41 S-O '20

Conversion of steamers to motor craft. *il Marine Eng* 25:999-1000 D '20

Motor ships—Continued

- Converting the Ferris-type wooden hulls into Diesel-electric driven motorships. R. Z. Dickie. diags plans Int Marine Eng 25:166-9 Mr '20
- Diesel-driven steel ore carrier. il Eng & Min J 112:52 Jl 9 '21
- Diesel motor yacht for Vincent Astor. diags plans Marine Eng 25:965-9 D '20
- Electrically welded motorship Esab IV. O. Kjellberg. diags plans Marine Eng 26:600-2 Ag '21
- Europe building motorships fast. il Marine R 50:71-2 F '20
- European motorship developments. Int Marine Eng 25:110-11 F '20
- First motor ship for Alaska run. diags Marine R 51:87 F '21
- First motorship with double-acting two-stroke-cycle engines; abstracts. R. Dreves. diags Mech Eng 43:472-4 Jl '21; Engineer 132:191-2 Ag 19 '21
- German motorship Zoppot. Marine Eng 26:388 My '21
- Historic cruise of the Cubore. W. B. Piersol. il Am Ind 21:21-3 N '20
- Internal combustion engines applied to propulsion; machinery equipment of motorship William Penn. J: F. Metten and J. C. Shaw. diags Marine Eng 26:542-5 Jl '21; Same. Marine R 51:300-4 Jl '21
- Italians improve the motorship; the Ansaldo San Giorgio I. il Marine R 50:663 D '20
- Largest motor boat afloat. il Sci Am 123:39 Jl 10 '20
- Motor-driven tanker. il plan Int Marine Eng 25:170-1 Mr '20
- Motor ship Asia for the East Asiatic company. il diags plans Engineering 109:12-14, pl 1 Ja 2 '20
- Motorship building in Europe. il Int Marine Eng 25:448, 517-18, 586-7+, 664-6, 834-6 My-Ag, O '20; (cont. as) Marine Eng 25:921-3; 26:154-6, 229-30, 776-8, 847-8 N '20, F-Mr, O-N '21
- Motorship building in Europe increases. il Marine Eng 26:468-70 Je '21
- Motorship building in the United States. Marine Eng 26:46-8 Ja '21
- Motor-ship Kangaroo. Engineering 111:614 My 20 '21
- Motorship Narragansett. il diags plans Marine Eng 26:16-20 Ja '21
- Motor ship Theodore Roosevelt. il Engineer 130:236 S 3 '20
- Motorship Tosca. il diags plans Marine Eng 26:280-3 Ap '21
- Motorship Yngaren. il Marine Eng 26:628-9 Ag '21
- Motorships being standardized in Europe. il Int Marine Eng 25:757-8 S '20
- Motorships not being laid up. il Marine Eng 26:389-90 My '21
- Motor tank-ship Conde de Churruca. il diags plan Engineer 132:297-301 S 16 '21
- Motor tanker Mexico. C. E. Spinnler. Marine Eng 25:1000-1 D '20
- Performance of the motorship Kennecott. F. Walker. il Marine Eng 26:780+ O '21
- Review of motorship and marine Diesel engine building in Europe. Int Marine Eng 25:323-6 Ap '20
- Review of motorship and marine Diesel engine building in Europe, 1920. il Marine Eng 26:49-54 Ja '21
- Review of motorship machinery problems. H. C. Verhey. Marine Eng 25:830-2 O '20
- 13,500 deadweight ton motorship Malaya. il Marine Eng 26:701-2 S '21
- Transporting oil in wooden ships. Marine Eng 26:488 Je '21
- Trial trip of the motor tanker Narragansett. il Engineer 129:501-2 My 14 '20
- Trials of the motor vessel Yngaren. Engineering 111:771-2 Je 24 '21; Engineer 131:642 Je 17 '21
- Twin-screw motor ship Afrika. il Engineering 109:546, 550 Ap 23 '20
- Twin screw motorship Formosa. il diags plans Marine Eng 26:739-43 O '21
- Twin-screw motorship Malaya. Engineering 112:195 Jl 29 '21
- Winch motors of the motorship William Penn. G. A. Pierce. il Marine Eng 26:831-3 N '21
- Working results from the motor ship Se-lene. Engineer 128:639 D 26 '19; Same cond. Power 52:274 Ag 17 '20
- See also* Diesel engines, Marine; Gas and oil engines, Marine; Motor boats

Motor sleds

- Auto engine and air screw drive motorized sled. il Pop Mech 35:697 My '21
- Light motor-driven snow speedster. L. B. Robbins. il diags Pop Mech 33:148-50 Ja '20
- Motor-driven sleds. R. B. Brown. il diag Pop Mech 35:149-50 Ja '21
- Motor sled versus the dog sled. G. Gaulois. il Sci Am 124:85 Ja 29 '21
- Motor sleigh attachment. il Automotive Ind 43:922 N 4 '20
- Motoring in a new style. il Motor Age 37:30 Mr 18 '20

Motor sweepers. See Street cleaning apparatus, Motor

Motor transport corps. See United States—Army—Motor transport corps

Motor truck drivers

Instrument to check truck drivers. il Elec Ry J 56:1063-4 N 20 '20

Motor truck driving

- Abuse versus the use of motor truck. W. A. Mahon. Plumber 94:536-7 D 3 '20
- Driver most important factor in life of motor truck. Nat Pet N 12:30+ Jl 21 '20
- Highway traffic etiquette. Eng N 85:532 S 16 '20
- How to get motor trucks out of ditches. Eng & Contr 53:6 Ja 7 '20
- Supervision, lubrication, maintenance of motor trucks. O. W. C. Coffin. Nat Pet N 12:51-2 O 6 '20

Motor truck engines

- Analysis of truck and tractor engine governors. F. C. Ziesenheim. il diags Automotive Ind 43:1010-15 N 18 '20
- Dorman 25-h.p. four-cylinder petrol or paraffin engine for commercial vehicles. il diags Engineering 109:342-4 Mr 12 '20
- Heavy-duty high-speed engine; with discussion. O. E. Griner and M. A. Smith. il Soc Auto Eng J 7:89-95 Jl '20
- Hercules has new heavy duty engine. il Motor Age 37:33+ Ja 8 '20
- Jackson heavy duty heavy fuel engine. il diags Motor Age 37:54-5 F 12 '20
- Pierce-Arrow motor trucks. P. M. Heldt. il diags Automotive Ind 43:510-18 S 9 '20
- Some of the changes in the new engine models of the Waukesha motor co. J. E. Schipper. il diags Automotive Ind 42:702-3 Mr 18 '20
- Stabilized governing; for auto-truck radio plants. O. C. Roos. il diag Sci Am M 2:141-4 O '20

Fuel

- Coke as a fuel for commercial vehicles. T. Clarkson. Engineering 112:579-80 O 21 '21
- Producer gas as a fuel for automotive vehicles. P. M. Heldt. il diags Automotive Ind 45:507-11 S 15 '21
- Producer gas for lorries. Eng & Ind Management 5:549 My 12 '21
- Suction gas-producer plant for motor vehicles. il diags Engineering 111:739-41 Je 17 '21

Fuel feeding

- Paraffin vaporiser; new system for utilising heavy fuel on commercial vehicles. il diags Automobile Eng 11:252-3 Jl '21

Mufflers

- Departure in truck muffler design. diag Automotive Ind 45:522 S 15 '21

Radiators

- Another improvement in truck and tractor radiators. diags Automotive Ind 43:215 Jl 29 '20
- Radiators and cooling fans on the German war trucks. K. F. Walker. il diags Automotive Ind 43:960-1 N 11 '20

Motor truck engines—Continued

Specifications

1921 specifications of stock engines for passenger cars, trucks and tractors; tabulation. Automotive Ind 44:388-9 F 17 '21

Motor truck industry and trade

Bad roads and hard usage feature truck use in petroleum industry. Automotive Ind 43:471 S 2 '20

Coolie politics bars automotive transport in East. R. Alden. Automotive Ind 43:1024-5 N 18 '20

Educating the truck dealer to sell transportation. N. G. Shidle. Automotive Ind 45:377-9 Ag 25 '21

Engineering analysis applied to truck selling. N. J. Ocksreider. Soc Auto Eng J 9:37-8 J1 '21

How we budget our production before we get the orders. A. Macauley. il Factory 40:46-8+ J1 '21

Methods of merchandising the motor truck. C. Jennings. Automotive Ind 42:1466-7 Je 24 '20

Motor car industry dangerously inflated, says manufacturer. F. R. Pleasonton. Annalist 17:541-2 My 16 '21

Selling trucks by solving transportation problems. N. J. Ocksreider. Automotive Ind 44:1164-6 Je 2 '21

Things to consider if you would sell trucks. Automotive Ind 44:639-41 Mr 24 '21

Trailer's place in transportation merchandising. H. W. Perry. il Automotive Ind 45:123-5, 175-7 J1 21-28 '21

Using greenhorns to sell a mechanical product. C. B. McCuaig. Ptr Ink 110:57-8+ F 5 '20

What is wrong with the truck industry? C. B. Thorpe. Motor Age 36:34 D 18 '19

See also Automobile industry and trade; also International motor truck corporation

Advertising

How an intensive selling campaign revived a business that was marking time. G. A. Nichols. Ptr Ink 113:17-20+ N 11 '20

Parts manufacturer advertises the whole product; the Ross gear company. Ptr Ink 113:154+ N 4 '20

Where advertising and high-priced dollars won't mix. G. A. Nichols. Ptr Ink 114:124+ Ja 6 '21

Service

Finding a truck prospect is easy—selling him is a real job. il Motor Age 37:14-15+ Je 17 '20

Meeting truck owners all the way. Motor Age 37:16-17 Ap 15 '20

Periodic inspections avoid crowding service work; system in the Fulton truck co., Philadelphia. il Motor Age 37:10-12 Mr 4; 19-21 Mr 11 '20

Servicing the motor truck. il Motor Age 37:36 Ap 1 '20

Truck inspection system. Motor Age 37:13 Mr 11 '20

What the service department expects of and owes to the owner. H. R. Seldon. Motor Age 37:15+ Je 24 '20

What truck service should be and how it should be rendered. H. Paulman. Motor Age 37:91-2 Ja 29 '20

Statistics

Commercial motor car production shows large increase. Eng N 85:462-3 S 2 '20

British Honduras

As a Central American sees truck export problem. O. C. Gould. Automotive Ind 43:876-8 O 28 '20

Canada

Canada has 403,111 cars and trucks in use. G. C. Porter. map Automotive Ind 44:399-402 F 17 '21

Ecuador

New market for American trucks. C. A. Bermeo. Automotive Ind 42:29 Ja 1 '20

Mexico

New Mexican government to encourage automotive sales. H. H. Dunn. Automotive Ind 42:1203+ My 27 '20

United States

8,887,572 cars and trucks registered in the U.S. during 1920. Automotive Ind 44:61-3 Ja 13 '21; Excerpt (table). Nat Pet N 13:21+ Ja 26 '21

Factors to be studied in merchandising analysis. Automotive Ind 44:894-6 Ap 28 '21

If you are planning to sell trucks to corn belt farmers. Automotive Ind 44:130-1 Ja 20 '21

Many benefits in scientific analysis of truck markets. N. J. Ocksreider. Automotive Ind 44:963-6 My 5 '21

Motor vehicles statistics published by National automobile chamber of commerce. Good Roads n s 21:301-2 Je 8 '21

961,635 motor trucks in United States. Eng & Contr 55:199 Mr 2 '21

9,257,575 cars and trucks in mid-year registration census. Automotive Ind 45:151-4 J1 28 '21

9,245,195 motor cars and trucks registered first six months, 1921. A. P. Anderson. Pub Roads 4:13-14 S '21; Same abr. Eng & Contr 56:331-2 O 5 '21

9,231,941 motor cars and trucks registered by the states in 1920. A. P. Anderson. Pub Roads 3:21-8 Ap '21; Same abr. Eng N 86:683-5 Ap 21 '21; Same abr. Eng & Contr 55:349-50 Ap 6 '21

Revised registration figures show trend of sales. Automotive Ind 44:301-8 F 17 '21

7,904,271 motor vehicles in use in United States. map Automotive Ind 43:401-6 Ag 26 '20

Truck exports for eight years show progress; tabulation. Automotive Ind 44:350-1 F 17 '21

Truck exports for seven years show satisfactory progress; with table. Automotive Ind 42:156-7 Ja 15 '20

World census of cars, trucks and motorcycles. Automotive Ind 43:226-7 J1 29 '20

Motor truck posters. See Posters

Motor truck terminals

Highway transport clearing houses. Munic Eng 60:sup20-2 My '21; Same. Good Roads n s 21:267-9 My 18 '21; Same abr. Eng & Contr 56:4-5 J1 6 '21

Motor truck tires. See Tires, Motor truck

Motor truck trailers

Automobile trailer in business. il Metal Work 93:139-40 Ja 30 '20

Brakes on trailers desirable. Sci Am 122:194+ F 21 '20

Byron four wheel, semi and pole type trailers. il Automotive Ind 43:805 O 21 '20

Consolidation in trailer industry. H. W. Perry. Automotive Ind 45:332-3 Ag 18 '21

Cost of trailer operation and types of bodies. H. Greene. il Bldg Age 42:34-6 Mr '20

Effective use of trailers for hauling brick; with cost data. D. M. Lay. il Bldg Age 42:39, 51-2 O '20

Garbage collection by trailer and tractor. S. E. Bates. il Munic J 48:21-4 Ja 17 '20

Hose bridges carried in trailer. A. Hughes, jr. il Elec Ry J 58:241-2 Ag 13 '21

How to apply trucks and trailers under given load and road conditions. M. C. Krarup. Automotive Ind 44:654-8 Mr 24 '21

Improved auto trailer has great versatility. il diag Pop Mech 35:598-9 Ap '21

Mechanical requirements for trailer progress. M. C. Krarup. il diag Automotive Ind 44:261-7 F 10 '21

New double dump body. il Sci Am 124:314 Ap 16 '21

New four-wheel trailer. il Sci Am 125:50 J1 16 '21

Not all types of trailers are good for petroleum distribution. F. A. Bean. Nat Pet N 12:97+ N 24 '20; Discussion. V. E. Vining. 13:77 F 2 '21

Motor truck trailers—Continued

- Pulling at a third the cost of carrying; trailers double and triple the capacity of motor trucks. D. M. Lay. *il* Factory 25:1240-2 O 15 '20
- Remorques pour camions automobiles, avec direction à essieu brisé. *il* diag plan Génie Civil 76:320 Mr 27 '20
- Trailer as a reducer of haulage costs. H. Greene. *il* Bldg Age 42:36-8 Ja '20
- Trailer as a transportation problem solution. W. C. Patrick. *il* Good Roads n s 20:143-4 S 22 '20
- Trailer as applied to the building trade. *il* Bldg Age 42:34-6 D '20
- Trailer camp train for housing construction gangs. *il* Eng & Contr 54:345 O 6 '20
- Trailers facilitate building activity. D. M. Lay. *il* Bldg Age 42:28-9 S '20
- Trailers facilitate heavy haulage. D. M. Lay. *il* Iron Age 106:311-14 Ag 5 '20
- Trailers in municipal service. H. W. Perry. *il* Eng N 86:374-6 Mr 3 '21
- Trailers in refuse collection. *il* Pub Works 50:235-7 Mr 19 '21
- Trailers in Texas oil fields and Washington forests. *il* Sci Am 122:430+ Ap 17 '20
- Trailer's place in transportation merchandising. H. W. Perry. *il* Automotive Ind 45:123-5, 175-7 Jl 21-28 '21
- Use of trailer saves motive power. G. I. Stodola. *il* Brick & Clay Rec 59:35-8 Jl 12 '21
- Use of trailers in garbage and ash removal. *il* Munic Eng 59:sup10+ D '20
- Warren heavy duty truck trailers. *il* Pub Works 50:247-8 Mr 19 '21
- Why the trailer has made good. H. Greene. *il* Sci Am 122:334+ Mr 27 '20

Design

- Improved-design dump-body trailer has a drop frame. *il* Pop Mech 35:245 F '21
- Motor truck trailers. *il* diag Automotive Ind 41:913 N 6 '19
- Tracking and steering of trailers analyzed by a graphic method. M. C. Krarup. *il* diag Automotive Ind 44:955-7, 1008-11 My 5-12 '21

Specifications

- 4-wheel, reversible trailers, by capacities; tabulation. Automotive Ind 42:164 Ja 15 '20
- Motor truck transportation.** See Motor trucks and roads; Motor trucks in freight service
- Motor trucks**
- Akron one-ton speed truck. *il* diag Automotive Ind 44:13 Ja 6 '21
- Analysis of German trucks by the Motor transport corps. W. E. Noakes. Automotive Ind 42:852-3, 1250-2; 43:108-10, 206-8 Ap 8, Je 3, Jl 15, 29 '20
- Atlanta's new emergency truck. *il* Elec Ry J 58:734 O 22 '21
- Departure from motor truck conventionalities. Sci Am 125:223 S 24 '21
- E & W truck unit attaches to any car. *il* Motor Age 38:30 S 16 '20
- Engineering features of new British trucks at Olympia. M. W. Bourdon. *il* diag Automotive Ind 43:1207-12 D 16 '20
- Extra long body chief requirement of plumbing trucks. Automotive Ind 43:1059 N 25 '20
- Flexible frame truck designed for use on poor roads. *il* Automotive Ind 44:703-4 Mr 31 '21
- Front-wheel-drive truck with low clearance. *il* Sci Am 124:129 F 12 '21
- Graham truck designed for fast hauling. *il* Motor Age 37:34 Mr 25 '20
- Handy-man's motor truck. C. W. Geiger. *il* Sci Am 122:140 F 7 '20
- Industrial truck-tractor. *il* Sci Am 124:495 Je 18 '21
- Light motor truck is popular with farmers. Automotive Ind 43:178-9 Jl 22 '20
- Lorain two-ton truck has novel frame construction. *il* diag Automotive Ind 43:717 O 7 '20
- Modern motor truck; design, construction, operation, repair, commercial applications. V: W. Pagé. 962p Henley '21

- Motor lorry converted into a railway motor coach. *il* diag Engineer 131:94-5, 98 Ja 28 '21
- Motor road transport for commercial purposes; liquid fuel, steam, electricity. J: Phillimore. 212p Pitman '20
- Motor-truck life. Sci Am 123:408 O 16 '20
- Motor truck manual. 148p American automobile digest, Cincinnati '21
- Motor truck of the future. R. W. Hutchinson, jr. *il* Ind Management 62:257-61 N '21
- Motor truck questionnaire. Paper 28:12-14+ Ag 3 '21
- Moving structural steel. *il* Sci Am 124:154 F 19 '21
- New Federal is heavier and more powerful than earlier models. J. E. Schipper. *il* plan Automotive Ind 44:1194-6+ Je 9 '21
- New 3 1-2 ton Acason lists at \$4900. *il* Motor Age 37:30-1 Je 24 '20
- Northway truck announced. *il* Motor Age 37:53+ Ap 1 '20
- Packard adapts three truck models to pneumatic tires. J. E. Schipper. *il* diag plans Automotive Ind 42:596-601 Mr 4 '20
- Parker issues new truck design. *il* Motor Age 36:32 D 11 '19
- Parker truck production centered on three models. *il* Motor Age 38:30+ S 16 '20
- Pierce-Arrow develops dual valve truck. *il* Motor Age 38:30-1+ S 23 '20
- Pierce-Arrow motor trucks. P. M. Heldt. *il* diag Automotive Ind 43:510-18 S 9 '20
- Reliance truck. *il* diag Motor Age 38:30 Ag 26 '20
- Replacing horses with motors and trucks on the Boston Elevated railway. E: Dana. *il* map plans Elec Ry J 57:484-6 Mr 12 '21
- Six and eight-wheeled trucks used overseas. *il* Pop Mech 34:736-7 N '20
- Six-wheel truck with four-wheel drive. *il* diag Sci Am 124:129+ F 12 '21
- Three point chassis mounting feature of new speed truck. *il* diag Automotive Ind 44:204-6 F 3 '21
- Trends in management. Factory 25:708-9 S 1 '20
- Trucks making Chicago debut. *il* Motor Age 37:81-4+ Ja 29 '20
- What is the average life of cars and trucks? P. M. Heldt. Automotive Ind 44:589-91+ Mr 17 '21
- Wide field for motor trucks in textile industry. Automotive Ind 44:617-18 Mr 17 '21
- See also Automobiles; Electric trucks; Motor truck driving; Motor truck engines; Motor truck industry; Motor truck trailers; Refrigeration on motor trucks; Tires, Motor truck; Tractors; Traveling stores; Trucking; also Transcontinental motor convey

Axles

- Engineering study of the internal gear axle. A. C. Woodbury. *il* diag Automotive Ind 43:910-20 N 4 '20
- Helical spring suspension for motor vehicles; Baker R & L. *il* diag Automotive Ind 44:817 Ap 14 '21
- How one maker of truck axle helps maintenance. *il* Motor Age 36:32 D 18 '19
- Internal gear of Kennedy axle immersed in oil. *il* diag Automotive Ind 41:1114-15 D 4 '19
- New axle introduced: Torbensen type B. *il* diag Automotive Ind 42:313 Ja 22 '20
- New dual reduction truck axle. P. M. Heldt. *il* diag Automotive Ind 44:10-13 Ja 6 '21
- New internal gear drive axle. *il* diag Sci Am 124:414 My 21 '21
- New 1-ton bevel gear axle. *il* Automotive Ind 45:483 S 8 '21
- New truck axle has planetary final reductions. *il* diag Automotive Ind 42:1457 Je 24 '20
- One-ton bevel gear axle for commercial speed wagons. *il* diag Automotive Ind 43:161 Jl 22 '20
- Pneumatic tire truck axle. *il* diag Automotive Ind 43:521 S 9 '20

Motor trucks—Axles—Continued

- Production of heavy truck banjo-type rear axle forgings. H. Chase. *il diags Automotive Ind* 45:619-21 S 29 '21
- Rear-axle housing that is different. F. H. Colvin. *il Am Mach* 51:919-21 N 27 '19
- Steel forged back-axle for motor vehicles. *il Engineering* 110:582 O 29 '20
- Three-point suspension for truck axles. *il Pop Mech* 36:208 Ag '21
- Truck axles withstand seventy-five tons in pressure test. *il diags Automotive Ind* 42:704 Mr 18 '20
- Two new worm gear axles arranged for Hotchkiss drive. J. E. Schipper. *diags Automotive Ind* 44:492 Mr 3 '21
- Wisconsin axles standardized throughout. *il Motor Age* 38:31 S 16 '20

Bodies

- Building a truck body for every purpose. *il Automotive Ind* 41:921 N 6 '19
- Demountable bodies for motor trucks. *diags Eng N* 84:216 Ja 29 '20
- Elevating dump body. *il Automotive Ind* 44:608+ Mr 17 '21
- How special bodies cut costs. *il Factory* 24:626-7 Mr 1 '20
- Labor-saving truck bodies. *il Sci Am* 124:495+ Je 18 '21
- Metal truck bodies. *Sci Am* 124:463 Je 11 '21
- New all-steel truck body. *il Automotive Ind* 44:267 F 10 '21
- Now is the time for standardization in truck body measurements. J. E. Schipper. *diags Automotive Ind* 43:962-3 N 11 '20
- Practical benefits of truck body standardization. H. F. Blanchard. *Automotive Ind* 43:1121-4+ D 2 '20
- Saving a ton on the long-distance truck haul. *il diags Automotive Ind* 43:308-10+ Ag 12 '20
- Special truck body for plate glass transportation. *il Sci Am* 123:617+ D 18 '20
- Tank body for milk transport. *il Sci Am* 124:154 F 19 '21
- Truck bodies for New York highway construction. *il diags Concrete* 18:254 My '21

Care

- Is your motor truck ready for summer? *Munic Eng* 60:sup16+ Je '21

Chassis

- British truck chassis specifications; tabulation. M. W. Bourdon. *Automotive Ind* 44:352-3 F 17 '21
- Defects in motor vehicles and their remedy. F. Strickland. *diags Engineering* 110:33 JI 9 '20
- 4-ton Palladium chassis. *il diags Automobile Eng* 11:332-6 O '21
- Military transport chassis; the 4 ton Daimler chassis. *diags Automobile Eng* 11:315-18 S '21

Clutches

- Practice and theory in clutch design. H. Chase. *diags Soc Auto Eng J* 9:39-52 JI '21; Discussion. 9:275-8 O '21

Cost of operation

- Accurate cost records prove superiority of electric vehicles. *Elec W* 78:930 N 5 '21
- Actual cost of 1½-ton truck operation. C. Bielecky. *Eng & Contr* 55:535 Je 1 '21
- Auto truck as an investment in the plumbing and heating industry. *il Plumber* 94:512-14 N 19 '20
- Auto truck for track repairs. W. L. Whitlock. *Elec Ry J* 56:134-5 JI 17 '20; Same cond. *Eng & Contr* 54:250 S 15 '20
- Cost of hauling gravel with motor truck. G. B. Whitehead. *Eng & Contr* 53:623 Je 2 '20
- Cost of motor truck haulage in road construction. *Eng & Contr* 53:251-2 Mr 3 '20
- Cost of operating 6-ton truck in moving coal. *Eng & Contr* 55:266 Mr 16 '21
- Cost of running 2½-ton truck for one year. *Dom Eng* 93:356-7 N 20 '20
- Cutting transportation costs with motor trucks. G. H. Cryan. *Paper* 26:23-4 JI 21 '20

- Educating the truck dealer to sell transportation. N. G. Shidle. *Automotive Ind* 45:377-9 Ag 25 '21
- Efficiency of the motor truck. *il Bldg Age* 43:48-9 F '21
- Efficient handling and trucking of steel products. E. C. Phillips. *Iron Age* 107:1294-5 My 19 '21
- Government fuel yard delivers coal to 725 points, using 275,000 tons annually. G. S. Pope. *Coal Age* 18:908-10 O 28 '20
- Making the motor truck pay better. *Factory* 25:1166+ O 1 '20
- Motor transportation in rural Ontario. D. R. Cowan and F. C. Hart. *Can Eng* 39:309-10 S 2 '20
- Motor truck haulage in Chicago. *il Elec Ry J* 58:133-5 JI 23 '21
- Motor truck operation and accounting. *Munic Eng* 58:sup 18+, sup18+, sup18+, sup18+, sup18+; 59:sup18+, sup10+, sup10+, sup10+, sup10+, sup10+; 60:sup14+, sup 12+, sup10+ Ja, Mr-D '20, F, Ap, O '21
- Motor trucks in railway maintenance work. *Eng & Contr* 53:179 F 18 '20
- Operating a motor truck part time. S. Sayward. *il Textile World* 59:1701+ Mr 5 '21
- Operating cost data for industrial trucks on piers and transfers. *il Elec W* 75:328-9 F 7 '20
- Le prix de revient de l'enlèvement des ordures ménagères de Genève (Suisse), en 1920. *Génie Civil* 79:294-5 O 1 '21
- Selling trucks by solving transportation problems. N. J. Ocksreider. *Automotive Ind* 44:1164-6 Je 2 '21
- Steam power-plants as applied to vehicles for common roads. F. L. Egan. *il diags Eng Soc W Pa* 36:455-84; Discussion. 485-91 O '20
- Trailers in refuse collection. *il Pub Works* 50:235-7 Mr 19 '21
- Transportation and handling of road materials. A. M. Jackson. *il Can Eng* 40:277-9 Mr 10 '21; Excerpt. *Eng & Contr* 55:342, 348 Ap 6 '21
- Transportation of dredge material at Dayton, Nev. G. J. Young. *il Eng & Min J* 112:374-5 S 3 '21
- Trucks prove their worth on county road building. W. Tonkel. *il Munic Eng* 61:16+ S '21
- What does it cost to operate motor trucks? *Paper* 27:26 S 15 '20

See also Electric trucks—Cost of operation

Design

- Automobile frame stresses. E. Favary. *diags Soc Auto Eng J* 9:301-6 N '21
- British truck show reveals new tendencies in design. M. W. Bourdon. *il diags Automotive Ind* 43:1154-61 D 9 '20
- Cushioning in motor-truck design. C. O. Guernsey. *il diags Soc Auto Eng J* 9:143-7; Discussion. 147-50 Ag '21
- Design of motor trucks for high-speed service. C. O. Guernsey. *Soc Auto Eng J* 9:232-4; Discussion. 234-6 O '21
- Design of pneumatic-tired trucks. C. M. McCreery. *il diags Soc Auto Eng J* 6:87-98 F '20; Same abr. *Automotive Ind* 42:565-7, 612-17 F 26-Mr 4 '20; Discussion. *Soc Auto Eng J* 7:80-3 JI '20
- Equipment design for use on the pneumatic tired truck. J. E. Schipper. *Automotive Ind* 42:1152-3 My 20 '20
- Few changes probable in trucks for next few years. *il Motor Age* 37:85-6 Ja 29 '20
- Five models included in new line of G. M. C. trucks. J. E. Schipper. *il diags Automotive Ind* 44:542-6 Mr 10 '21
- 1920 trend in truck design. J. E. Schipper. *Automotive Ind* 42:135-7 Ja 15 '20
- Saving a ton on the long-distance truck haul. *il diags Automotive Ind* 43:308-10+ Ag 12 '20
- 7½-ton six-wheel commercial vehicle constructed by G. Scammell and nephew, London. *il diags Engineering* 110:518-20 O 15 '20
- Six-wheeled truck with tandem rear axle drive. E. W. Templin. *il diags Automotive Ind* 42:1363-7 Je 10 '20

Motor trucks—Design—Continued

- Tendencies in British truck design in 1921. M. W. Bourdon. *Automotive Ind* 44:354+ F 17 '21
- Tendency of truck design for 1920. *diag Sci Am* 121:636+ D 27 '19
- Trend in truck design as revealed by 1921 specifications. H. Chase. *Automotive Ind* 44:334-5+ F 17 '21
- Trend of motor truck design for 1921. V. W. Pagé. *il diags Sci Am* 124:30-1+ Ja 8 '21
- What motor trucks need to supplement pneumatic-tire equipment. E. W. Templin. *il diags Soc Auto Eng J* 7:369-74+ O '20; Abstract. *India Rubber W* 63:85-7 N '20; Discussion. *Soc Auto Eng J* 7:377-84 O '20

Engines

See Automobile engines; Motor truck engines

Equipment and supplies

- Doing away with the loafing charge; loading and unloading apparatus keeps the truck busy. V. W. Pagé. *il Sci Am* 124:24+ Ja 8 '21
- Fully equipped motor trucks. A. E. Schafer. *Munic Eng* 58:sup28-9+ Ja '20

Exhibitions

- Chicago truck show a great display of a great industry. *il Motor Age* 37:79-80 Ja 29 '20
- Commercial motor exhibition. *il diags Engineer* 130:400-2, 404, 424-6 O 22-29 '20; *Engineering* 110:535-6, 542, 546-9 O 22 '20
- Commercial motor exhibition. *il diags Engineer* 132:432-5, 452-4 O 21-28 '21; *Elec R (Lond)* 89:545-6 O 21 '21; *Engineering* 112:575 O 21 '21
- Dealers build village at state fair; 'Trucktown' established in Milwaukee by motor truck division. *il Motor Age* 38:20-1+ S 16 '20
- Observations at the New York truck show. P. M. Heldt. *il diags Automotive Ind* 44:119-23 Ja 20 '21

Gearing

- Engineering study of the internal gear axle. A. C. Woodbury. *diags Automotive Ind* 43:910-20 N 4 '20
- Front wheel drive on the Bollstrom truck. *diag Automotive Ind* 44:546 Mr 10 '21
- Gear teeth sizes from the standpoint of durability. J. Jandasek. *diags Automotive Ind* 42:1305-8, 1402-6+ Je 10-17 '20
- Gearset for pneumatic tired truck. *il diag Automotive Ind* 42:815 Ap 1 '20
- What types of drives are used in motor trucks? G. W. Grupp. *Sci Am* 122:395 Ap 10 '20

See also Motor trucks—Axles; Motor trucks—Transmission

Testing

- Tests on rear-axle worm drives for trucks. K. Heindlhofer. *il diag Mech Eng* 42:613-15 N '20

Laws and regulations

- Highway traffic etiquette. *Eng N* 85:532 S 16 '20
- How Maryland enforces its motor vehicle law; truck weights checked by scales and loadometers. *il Eng N* 86:666-8 Ap 21 '21
- Motor vehicle law enforcement; symposium. *Eng N* 86:722-3 Ap 28 '21
- New road laws enforced upon eastern states. *il Pop Mech* 36:218-19 Ag '21
- Pennsylvania highway department uses loadometers for determining weight of truck loads. *Eng & Contr* 54:114 Ag 4 '20
- Report of the departmental committee appointed by the president of the Local government board to consider the law and regulations relating to the construction and use of road locomotives and heavy motor cars in Great Britain, together with the Minutes of evidence taken before the committee. 2 vols. H. M. Stationery off., London. '18

Taking an interest in motor truck legislation. H. Meixel, jr. *Good Roads n s* 19:277-8 Je 2 '20

Transportation equality. M. L. Pulcher. *Munic Eng* 60:sup 12+ Je '21; Discussion. 61:sup 12+ O '21

Trend of motor-vehicle legislation. R. K. Tomlin, jr. *Eng N* 87:354-65 S 1 '21; Abstract. *Soc Auto Eng J* 9:243-4 O '21

Truck restrictions and reciprocity in Massachusetts. *Munic J* 48:53 Ja 31 '20

Truck weight legislation. *Sci Am* 124:54+ Ja 15 '21

Load

Evils of overloading. R. O. Patten. *Good Roads n s* 20:222 N 3 '20

Evils of truck overloading. F. C. Horner. *Good Roads n s* 20:242-3 N 17 '20

Pennsylvania highway department uses loadometers for determining weight of truck loads. *Eng & Contr* 54:114 Ag 4 '20

Regulation of overloading of motor trucks. D. C. Fenner. *Eng & Contr* 56:102 Ag 3 '21

Lubrication

Lubricating the motor truck. *diag Motor Age* 37:13 Mr 4 '20

What's good in lubrication? *Factory* 24:870+ Mr 15 '20

Management

Care and maintenance of motor trucks. N. J. Smith. *Soc Auto Eng J* 8:331-4 Ap '21; Discussion. 8:602 Je '21

Driver most important factor in life of motor truck. *Nat Pet N* 12:30+ Jl 21 '20

Efficient handling and trucking of steel products. E. C. Phillips. *Iron Age* 107:1294-5 My 19 '21

Five motor truck plans that have proved successful. *Factory* 24:279-80 F 1 '20

Four better motor truck plans. E. R. Hart. *il System* 40:162-4+ Ag '21

Getting best service from your motor truck. P. L. Sniffin. *Brick & Clay Rec* 59:352-4 S 6 '21

Getting the most out of motor trucks. *il System* 39:666-7; 40:456+, 630+ My, O-N '21

Getting the most out of your motor trucks. F. W. Fenn. *il Factory* 27:471-3 O '21

How four concerns cut their hauling costs. E. R. Hart. *il System* 40:293-4+ S '21

How to get the most out of a motor truck. V. W. Pagé. *Sci Am* 121:634+ D 27 '19

Important distribution of truck costs. P. L. Sniffin. *Brick & Clay Rec* 58:740-1 My 3 '21

Laying out and designing of garage for oil distributing plant. F. A. Bean. *Nat Pet N* 12:91+ N 17 '20

Making motor trucks work more too. V. M. Palmer. *il Factory* 26:1409-12 Je 15 '21

Making the motor truck pay better. *Factory* 24:672+, 866+, 1176+; 25:576+, 766+, 1166+, 1424+; 26:406+; 27:514+ Mr 1-Ap 15, Ag 15-S 1, O 1, N 1 '20, F 1, O '21

Making trucks earn a profit. E. J. Flanagan. *il System* 39:804-6+ Je '21

Managing motor trucks; how we get the most from our five-car fleet. *Factory* 24:1695-6 Je 1 '20

Six unusual ways to make motor trucks more useful. *il Factory* 26:735-7 Mr 15 '21

Supervision, lubrication, maintenance of motor trucks. O. W. C. Coffin. *Nat Pet N* 12:51-2 O 6 '20

Systematized control of motor trucks. G. W. Grupp. *Administration* 1:229-38 F '21

This trucking plan satisfies customers. F. T. Randall. *il System* 39:50-1 Ja '21

See also Motor trucks—Records

Manufacture

Building Quad trucks for the army. H. Satterthwaite. *il Am Mach* 52:509-13 Mr 4 '20

Control board for truck production. J. F. Danielson. *il Ind Management* 58:384-7 N '19

Fits, tolerances and heat treatments applied in production. C. T. Bates. *il Automotive Ind* 44:1314-26 Je 16 '21

Motor trucks—Manufacture—Continued

- Making dump bodies for motor trucks. il Iron Age 108:937-8 O 13 '21
 Motor-truck-assembly details. il Am Mach 53:225-6 J1 29 '20
 Progressive assembly system increases truck production; with layout. N. G. Shidle. il Automotive Ind 43:120-2 J1 15 '20

Performance

- Cheaper hauling with motor trucks. il Paper 27:12-13 O 20 '20
 E. K. Wood lumber company's monthly report, truck-operating efficiency test. il Am Lumberman 2353:78-9 Je 19 '20
 Efficiency of the motor truck. il Bldg Age 43:48-9 F '21
 How one mill cut costs with motor trucks. D. M. Le Bourdais. il Paper 26:21-3 J1 7 '20
 How to apply trucks and trailers under given load and road conditions. M. C. Krarup. Automotive Ind 44:654-8 Mr 24 '21
 Motor truck hauls 40-ton casting 21 miles. il Pop Mech 33:239 F '20
 Motor truck operation and accounting. il Munic Eng 57:sup18+; 58:sup 18+, sup 18-20+, sup 18+, sup18+, sup 18+, sup 18+; 59:sup 18+, sup 10+, sup 10+, sup 10+, sup10+; 60:sup16+, sup14+, sup16-23, sup 12+, 61:sup12+ D '19-S. N '20-Apr, J1 '21
 One night's work of a 6-ton truck owned by the Youghiogheny coal co. of Pittsburgh. D. J. Baker. Coal Age 18:1237 D 16 '20
 Truck operation. Munic Eng 59:sup 17+ D '20
 Truck replaces twenty teams. Sci Am 124:414 My 21 '21
 Truck use on the farm saves from one-half to two-thirds time. Automotive Ind 43:224 J1 29 '20

Prices

- Buyers' guide to 1920 gasoline trucks; tabulation. Motor Age 37:136-9 Ja 29 '20
 Trucks and tractors have prices, too. C. Jennings. Automotive Ind 43:701-4 O 7 '20

Records

- Keeping truck records and figuring the costs. P. L. Sniffen. il Brick & Clay Rec 58:570-3 Ap 5 '21
 Ohmer truck auditor. il Motor Age 38:30-1 S 2 '20
 6-form system for keeping track of truck work. J. Fradus. Eng & Contr 53:18-19 Ja 7 '20
 Truck cost records. Power Pl Eng 24:804-6 Ag 15 '20

Registration

- Kansas adopts weight as motor vehicle license basis. Automotive Ind 45:3 J1 7 '21

Repair

- Care and maintenance of motor trucks. N. J. Smith. Soc Auto Eng J 8:331-4 Ap '21; Discussion. 8:602 Je '21
 How to tear down for overhauling, an internal gear drive in a Republic or Patriot truck. R. E. Berg. diags Motor Age 37:42-3 Mr 25 '20

Specifications

- British truck chassis specifications; tabulation. M. W. Bourdon. Automotive Ind 44:352-3 F 17 '21
 Detailed technical specifications of gasoline motor trucks for 1920; tabulation. Automotive Ind 42:138-53 Ja 15 '20; Same. Motor Age 37:140-55 Ja 29 '20
 Motor age monthly guide to truck specifications. Motor Age 38:48-52 O 14 '20
 Specifications of gasoline trucks; tabulation. Automotive Ind 44:336-47 F 17 '21

Speed

- Chart for speed of cars and trucks for a large range of reduction ratio and wheel size when any two of the three factors engine speed, reduction ratio and car speed are known. Motor Age 37:43 Ap 22 '20

Springs

- Cushioning in motor-truck design. C. O. Guernsey. il diags Soc Auto Eng J 9:143-7; Discussion. 147-50 Ag '21
 Defects in motor vehicles and their remedy. F. Strickland. Engineering 109:782-4+ Je 11 '20
 Spring shackle action. M. C. Horine. diag Automotive Ind 44:1331-2 Je 16 '21
 Study of road impact and spring and tire deflection. A. F. Masury. Soc Auto Eng J 7:96-8 J1 '20; Same cond. Automotive Ind 42:514-16 F 19 '20; Same cond. Eng N 84:668-70 Ap 1 '20; Same cond. Am Mach 53:212-14 J1 29 '20; Discussion. Soc Auto Eng J 7:98-102 J1 '20
 Truck has three-point spring suspension. il Pop Mech 34:214-15 Ag '20
 Unusual spring features mark truck line. diags Automotive Ind 42:1014 Ap 29 '20

Standards

- Many important subjects to be considered at S. A. E. standards meeting. diags Automotive Ind 44:1046-9 My 19 '21
 Military and commercial motor transportation. B. Taylor. Soc Auto Eng J 7:316 O '20
 Now is the time for standardization in truck body measurements. J. E. Schipper. diags Automotive Ind 43:962-3 N 11 '20
 Practical benefits of truck body standardization. H. F. Blanchard. Automotive Ind 43:1121-4+ D 2 '20
 S.A.E. truck division report. diag Soc Auto Eng J 9:68-70 J1 '21
 Truck manufacturers favor hub standardization. J. E. Schipper. Automotive Ind 43:355+ Ag 19 '20
 Uniform dimensions would reduce truck building costs. J. E. Schipper. Automotive Ind 42:1323-5+ Je 10 '20

Steering gear

- Time-saving boring-mill fixtures for truck steering knuckles. il diags Am Mach 51:922-3 N 27 '19

Taxation

- Motor trucks versus railroads. E. G. Riggs. Comm & Fin Chr 113:116-18 S 10 '21
 Truck weights and road wear. Automotive Ind 43:1080-1 N 25 '20

Testing

- Most factories give trucks test before marketing. Automotive Ind 45:672-3 O 6 '21
 Pneumatic-tire and motor-truck development experiences. M. D. Scott. Soc Auto Eng J 7:375-7 O '20; Abstract. India Rubber W 63:87-8 N '20; Discussion. Soc Auto Eng J 7:377-84 O '20
 Tests of German trucks by Motor transport corps. C. R. Hays. il Automotive Ind 42:62-9+, 306-9, 354-5, 403-4, 454-7, 510-11, 560-1, 604-6 Ja 8, 22-Mr 4 '20

Tires

See Tires, Motor truck

Transmission

- Compound transmission designed for motor trucks. il Automotive Ind 42:1060 My 6 '20
 Five-speed truck transmission with single lever control. il Automotive Ind 45:708 O 13 '21
 Schacht truck has ten-speed transmission. il Motor Age 37:34 Ap 15 '20
 Ten speed transmission truck. diag Automotive Ind 42:657 Mr 11 '20

See also Motor trucks—Gearing

Transportation

- Automotive export crating reduced to blue prints. E. H. Lederer. diags plans Automotive Ind 43:626-8 S 23 '20

Wheels

- Aluminum wheels for motor trucks. il Sci Am 122:68 Ja 17 '20
 Aluminum wheels for trucks reduce unsprung weight. J. E. Schipper. il Automotive Ind 42:78-9 Ja 8 '20

Motor trucks—Wheels—Continued

- Cast steel wheels for pneumatic tired trucks. *il* Automotive Ind 43:719 O 7 '20
- Decreasing unsprung weight by the use of aluminum. A. H. Edgerton. *Soc Auto Eng J* 6:26-8 Ja '20
- Eight types of British truck wheels; illustrations. Automotive Ind 45:269 Ag 11 '21
- Machining motor truck wheels. *il* diags Mach 27:349-55 D '20
- Motor-truck hubs; standards. diags *Soc Auto Eng J* 9:68-70 Jl '21
- Multiple wheel truck and the pneumatic tire. G. Orb. *il* Sci Am 122:387 Ap 10 '20
- New disk wheel for trucks. *il* Sci Am 122:310+ Mr 20 '20
- Physical tests of motor-truck wheels. C. P. Hoffmann. *il* diags U S Bur Stand Tech Pa 150:1-61 '20
- Pneumatic tire and wheel equipment for motor trucks. J. E. Hale. diags Automotive Ind 41:918-21 N 6 '19
- Resilient wheel for the solid-tired truck. *il* Sci Am 123:599 D 11 '20
- Truck manufacturers favor hub standardization. J. E. Schipper. Automotive Ind 43:355+ Ag 19 '20
- Wood truck wheels. S. V. Lovenstein. *il* Soc Auto Eng J 7:438-40; Discussion. 442-5 N '20
- See also* Tires, Motor truck

Motor trucks, Armored

- Armored truck to foil bandit payroll gangs. *il* Sci Am 125:138 Ag 20 '21

Motor trucks, Military

- Building Quad trucks for the army. H. Satterthwaite. *il* Am Mach 52:509-13 Mr 4 '20
- First transcontinental motor convoy. E. R. Jackson. *il* map Mech Eng 42:145-50+ Mr '20
- Military transport chassis; the 4 ton Daimler chassis. diags Automobile Eng 11:315-18 S '21

Bibliography

- Automotive vehicles in the great war. C. J. West. *Soc Auto Eng J* 6:409-16 Je '20

Motor trucks, Municipal

- New York buys motor trucks by the hundred. *Pub Works* 49:240-1 S 11 '20
- Snow removal tests. *il* *Pub Works* 49:427-9 N 6 '20
- Special trucks to haul Detroit garbage. *il* *Pop Mech* 36:235 Ag '21
- Trailers in municipal service. H. W. Perry. *il* Eng N 86:374-6 Mr 3 '21
- Types of motor trucks in use by the municipalities in England. M. W. Bourdon. *il* Automotive Ind 42:1200-2 My 27 '20
- Valve closing trucks employed by Detroit water-works. *il* Eng N 87:95-6 Jl 21 '21

Motor trucks, Steam

- Application of steam power to an automotive truck. L. L. Scott. *il* plan *Soc Auto Eng J* 8:155-60+ F '21; Discussion. 8:601-2 Je '21
- Auto truck is propelled by steam. *il* *Pop Mech* 36:725 N '21
- Brotherhood 5-ton steam wagon. *diag* Mech Eng 43:743 N '21
- Clarkson steam lorry. *il* diags Engineering 112:275-8 Ag 19 '21; Engineer 132:432-3 O 21 '21
- Coke as fuel for commercial vehicles. T. Clarkson. Engineering 112:579-80 O 21 '21
- Leyland steam wagon. *il* *diag* plan Engineer 131:616-17 Je 10 '21
- Liquid-fuel-fired steam motor wagon. diags plan Engineering 109:644-5 My 14 '20
- Road transport by steam vehicles. P. W. Robson. diags Engineering 110:123-6 Jl 23 '20; Abstract, with discussion. Engineer 130:83-4 Jl 23 '20
- Steam power-plants as applied to vehicles for common roads. F. L. Egan. *il* diags Eng Soc W Pa 36:455-84; Discussion. 485-91 O '20
- Why steam trucks are popular in Great Britain. G. W. Watson and H. S. Hall. *il* Eng N 87:9-11 Jl 7 '21
- Works of Messrs. Clayton and Shuttleworth, Ltd., Lincoln: Clayton steam wagon. *il* Engineering 109:780-1, pl 46 Je 11 '20
- Works of Messrs. Robey and co., limited, at Lincoln; the steam wagon department. *il* Engineering 110:pl 9 Jl 16 '20

Specifications

- Steam trucks. Automotive Ind 44:348-9 F 17 '21

Motor trucks and roads

- Automotive obligations toward highway development. H. W. Alden. *Soc Auto Eng J* 8:161-2 F '21; Discussion. 8:426-32 My '21
- Basis of an economic theory of highway transportation. R. C. Barnett. *Good Roads n s* 18:253-4+ D 17 '19
- Capacity load and ruling grade in highway transportation. R. C. Barnett. diags Eng & Contr 52:637-8 D 3 '19
- Constructing roads for motor truck traffic. T. R. Agg. *Munic Eng* 58:112-15 Mr '20; Same. *Good Roads n s* 19:282-4 Je 2 '20
- Development of an economic theory of highway transportation. R. C. Barnett. diags Eng & Contr 54:201-5 S 1 '20
- Excess lift as a factor in highway transportation. R. C. Barnett. diags Eng & Contr 55:21-3 Ja 5 '21
- Fifty motor truck opinions about highway transportation. A. C. Lescarbours. *Sci Am* 124:26+ Ja 8 '21
- Good roads as factors in reducing transportation costs. E. A. Williams, jr. *Good Roads n s* 18:225 N 19 '19
- Government research in road construction. P. M. Heldt. *il* Automotive Ind 44:848-52, 902-6+ Ap 21-28 '21
- Heavy motor vehicles in relation to roads. W. D. Williamson. *Engineer* 128:574-5, 608-10 D 5, 19 '19; Excerpts. Eng & Contr 52:757-8 D 31 '19
- Highway session of S.A.E. C. Jennings. Automotive Ind 44:110-11 Ja 20 '21
- Highway's part in the development of efficient transportation. J. W. Brooks. *Good Roads n s* 21:102+ F 16 '21
- How and why of truck impact. E. B. Smith. *il* Eng & Contr 55:121-2 F 2 '21
- How Maryland enforces its motor vehicle law; truck weights checked by scales and loadometers. *il* Eng N 86:666-8 Ap 21 '21
- How to apply trucks and trailers under given load and road conditions. M. C. Krarup. Automotive Ind 44:654-8 Mr 24 '21
- Impact tests of auto trucks on roads. E. B. Smith and J. T. Pauls. *diag* Eng & Contr 52:390-2 O 1 '19; Same. *Good Roads n s* 18:203-4+ N 5 '19; Same. *Sci Am S* 88:386 D 27 '19; Abstract. Eng N 83:573-5 S 18 '19
- Impact tests on trucks. E. B. Smith. *Soc Auto Eng J* 8:17 Ja '21
- Is the motor truck being considered in road plans? Automotive Ind 43:80-1 Jl 8 '20
- Load limitations for primary and secondary highways. C. J. Bennett. *Good Roads n s* 20:293-4 D 22 '20; Same. *Munic Eng* 60:sup 22, 24-5 Ja '21; Same, with discussion. *Pub Roads* 3:11-15 F '21
- Mashing copper cylinders to test road impact. S. R. Winters. *il* Sci Am 122:703 Je 26 '20
- Motor operation costs as affected by highway location and grade design. W. G. Harger. Eng N 85:104-7, 171-3, 200-2; 86:201-3 Jl 15-29 '20, F 3 '21
- Motor truck and the railroad. R. W. Hutchinson, jr. *il* Ind Management 62:131-8 S '21
- Motor truck impact tests and highway materials. Automotive Ind 43:830 O 21 '20
- Motor truck impact tests of the Bureau of public roads. E. B. Smith. *il* charts diags *Pub Roads* 3:3-36 Mr '21; Excerpts. Eng N 86:553-6 Mr 31 '21; Excerpts. Eng & Contr 55:340-2 Ap 6 '21; Excerpts. Concrete 18:206 My '21
- Motor trucks and our pavements. M. L. Patzig. *Munic Eng* 58:161-3 Ap '20
- Motor trucks and road wear. *Sci Am* 124:294 Ap 9 '21
- Motor vehicles must pay their way. Elec Ry J 57:1042 Je 4 '21
- Mutual adaptation of the motor truck and the highway. A. T. Goldbeck. *Soc Auto Eng J* 9:121-2 Ag '21; Discussion. 9:281-2 O '21

Motor trucks and roads—Continued

- New highway tests being made by the Bureau of public roads. A. T. Goldbeck. *Good Roads* n s 19:97-8+ F 18 '20; Same. *Eng & Contr* 53:635-6 Je 2 '20
- Pavement foundations as a factor in economic transportation. R. C. Barnett. *diags Can Eng* 40:323-7 Mr 24 '21
- Relation between the highway and the vehicle. B. B. Bachman. *Soc Auto Eng J* 9:297-300 N '21
- Relation of highways to motor truck operating cost. A. H. Blanchard. *Can Eng* 38:311-13 Mr 18 '20; Same. *Eng & Contr* 53:238-40 Mr 3 '20; Same. *Good Roads* n s 19:147-8+ Mr 17 '20
- Relation of the highway and motor transport movement to education. C. J. Tilden. *Good Roads* n s 21:100-1+ F 16 '21; Same *abr. Eng & Contr* 55:454-6 My 4 '21
- Relation of tractors and trailer traffic to highway design. H. E. Breed. *Can Eng* 38:510 My 27 '20
- Researches leading to the adequate design of roads for heavy motor trucks. A. T. Goldbeck. *Good Roads* n s 21:24+, 37+ Ja 19-26 '21; Same, with discussion. *Pub Roads* 3:3-11 F '21
- Road specifications must be adapted to truck needs. *Automotive Ind* 42:573 F 26 '20
- Road vehicles and their relation to road surfaces. R. G. H. Clements. *Engineering* 112:129-30; Discussion. 119-20 Jl 15 '21
- Study of road impact and spring and tire deflection. A. F. Masury. *Soc Auto Eng J* 7:96-8 Jl '20; Same *cond. Automotive Ind* 42:514-16 F 19 '20; Same *cond. Eng N* 84:668-70 Ap 1 '20; Same *cond. Am Mach* 53:212-14 Jl 29 '20; Discussion. *Soc Auto Eng J* 7:98-102 Jl '20
- Transportation by motor-truck. *Min & Sci P* 122:280 F 26 '21
- Truck tires and road damage. *diags India Rubber W* 64:655-6 Je '21
- Truck-weight legislation. *il Sci Am* 124:54+ Ja 15 '21
- U.S. tests show road wear and resistance. *Munic Eng* 59:121-2 O '20
- What will road builders do for the motor truck? G. C. Diehl. *Automotive Ind* 43:321 Ag 12 '20
- Width and thickness of Illinois highway pavements. *Pub Works* 49:532 D 4 '20
- See also* Automobiles and roads; Motor trucks—Laws and regulations; Road traffic
- Motor trucks in coal delivery**
- Government fuel yard delivers coal to 725 points, using 275,000 tons annually. G. S. Pope. *Coal Age* 18:908-10 O 28 '20
- Motor truck revolutionizes coal delivery system in New York city. L. S. Weber. *il Good Roads* n s 21:7-8 Ja 5 '21
- Youghiogeny coal co. delivers 60,000 tons monthly by motor truck. D. J. Baker. *il Coal Age* 18:1234-8 D 16 '20
- Motor trucks in construction work**
- Auto-motive placing of mixed concrete. *il Concrete* 16:238-9 My '20
- Both motor trucks and industrial railway used on road job. H. E. Breed. *il Eng N* 86:289-91 F 17 '21
- Central loading plant for motor truck haulage. W. L. Fahey. *il diag Eng N* 83:965 N 27 '19
- Economy and labor saving methods necessary in highway work. H. W. Perry. *il Good Roads* n s 19:53-6 F 4 '20
- Handling of federal road-making equipment by the states after its receipt. R. J. Windrow. *Munic Eng* 58:sup22+ Mr '20; Abstract. *Munic J* 47:347-9 D 6 '19
- Hauling aggregates by motor truck on concrete road construction. *Concrete* 16:98-9 F '20
- How small builders can use motor trucks and save money. *il Bldg Age* 43:46-7 Ag '21
- Motor truck in road work. *Good Roads* n s 20:180-1 O 13 '20
- Motor truck operation and accounting. *Munic Eng* 59:sup10+ O '20
- Motor truck operation and accounting. *il Munic Eng* 60:sup16-23 Mr '21

- New method of handling concrete material on Minneapolis paving job. E. R. Dutton. *Munic Eng* 59:sup22+ S '20
- Should road contractors buy or hire motor trucks? *Munic Eng* 60:sup12+, sup10+ My-Je '21
- Special truck body for delivering of aggregate. J. N. Mackall. *il Eng & Contr* 54:109 Ag 4 '20
- Trailer as applied to the building trade. *il Bldg Age* 42:34-6 D '20
- Trailers for road hauling. *il Good Roads* n s 19:151-2 Mr 17 '21
- Transportation and handling of road materials. A. M. Jackson. *il Can Eng* 40:277-9 Mr 10 '21; Excerpt. *Eng & Contr* 55:342, 348 Ap 6 '21
- Truck saves money in road building. *il Sci Am* 123:528 N 20 '20
- Motor trucks in freight service**
- Adapting motor truck to railroad terminal expansion. B. F. Fitch. *Eng N* 85:785 O 21 '20
- Advantages of containers in freight traffic. F. W. Wenn. *Elec Ry J* 57:220 Ja 29 '21
- Belt line plan to make New York a railhead port. *Eng N* 86:184 Ja 27 '21
- Bus and the trolley. H. B. Titcomb. *Elec Ry J* 57:81-3 Ja 8 '21
- Cooperative truck line. *il Sci Am* 121:613 D 20 '19
- Co-ordinating motor trucks with railroads. S. B. Moore. *Ry Age* 70:1457-8 Je 24 '21
- Crossing the Sahara by motor lorries. E. H. Lemonon. *il map Pop Mech* 36:196-7 Ag '21
- Definite step in motor transportation educational work. *Automotive Ind* 45:78-9 Jl 14 '21
- Development of public motor transport in Germany. B. R. Dierfeld. *il Automotive Ind* 43:1251-4 D 23 '20
- Economic place of the motor truck in the nation's transportation. G. M. Graham. *Automotive Ind* 42:1122-3 My 13 '20
- Economics of motor highway transportation. R. C. Spinning. *Munic Eng* 58:sup26+ Ja '20
- Economics of truckportation. R. H. Tingley. *il India Rubber W* 63:3-6 O '20
- Education for highway transport. C. J. Tilden. *Soc Auto Eng J* 9:170-1 S '21; Discussion. 9:282-3 O '21
- Efficient distribution of short haul products. J. F. Bowman. *Munic Eng* 59:sup14+ S '20
- Engineering problems of long distance motor transport. *Automotive Ind* 42:1193-5 My 27 '20
- Expediting the movement of l.c.l. freight. *il diag Ry Age* 69:219-22 Ag 6 '20
- Fifty motor truck opinions about highway transportation. A. C. Lescarbours. *Sci Am* 124:26+ Ja 8 '21
- Freight and motor truck competition report. *Elec Ry J* 56:125-6 Jl 17 '20
- Freight movement by motor trucks; view point of carrier and public. H. E. Young. *W Soc E J* 26:204-9 My '21
- Freighting with motor trucks on Kern river project no. 3. *il Eng N* 84:868-9 Ap 29 '20
- Gas engine versus steam engine. H. A. Crafts. *Sci Am* 123:197+ Ag 28 '20
- Handling l. c. l. freight in interchange by motor trucks. *Ry Age* 69:1007 D 10 '20
- Highway transport conference at Chicago, Jan. 24-31. *Ry Age* 68:433-4 F 6 '20
- How the American railway express co. secures greater service from its motor trucks. B. K. Rhoads. *Eng & Contr* 52:340-1 S 17 '19
- Interrelationship of highway, railway and waterway transport. H. E. Riggs. *Can Eng* 38:441-2 My 6 '20
- Interrelationship of highway transport and back-to-the-farm movement. S. V. Norton. *Good Roads* n s 19:254-6+ My 19 '20
- Make the motor truck help. *il Nation's Business* 8:74+ Je '20
- Motor carriers on California highways. *Elec Ry J* 55:107 Ja 10 '20
- Motor truck and railroad freighting. W. J. L. Banham. *Good Roads* n s 19:213-14 Ap 21 '20

Motor trucks in freight service—Continued

- Motor truck and the railroad. R. W. Hutchinson, jr. *il Ind Management* 62:131-8 S '21
- Motor truck competition. W. J. Whiteside. *Elec Ry J* 54:981-2 D 20 '19
- Motor truck haulage in Chicago. *il Elec Ry J* 58:133-5 J1 23 '21
- Motor truck transport of freight by European railroads. *diags Eng N* 86:954 Je 2 '21
- Motor truck transportation. F. W. Davis. *Good Roads n s* 21:29-31, 75-6+, 84-5 Ja 19, F 2-9 '21; *Abstracts. Eng N* 85:1194-5 D 16 '20; *Ry Age* 69:1012 D 10 '20; *Mech Eng* 43:181 Mr '21
- Motor trucks aid in Chicago rail strike. *il Motor Age* 37:23 Ap 15 '20
- Motor trucks as public carriers. F. W. Fenn. *Am Ind* 21:12-13 O '20
- Motor trucks haul farm products to market. B. M. Pettit. *il Good Roads n s* 20:85-6 Ag 18 '20
- Motor truck's part in the terminal congestion problem. R. E. Fulton. *il Am Lumberman* 2355:86 J1 3 '20; *Same. Textile World* 58:1525+ S 4 '20
- Motor trucks to solve haulage problems while railroads are being reorganized. G. A. Kissel. *Good Roads n s* 19:190-1 Ap 7 '20
- Motor trucks versus railroads. E. G. Riggs. *Comm & Fin Chr* 113:116-18 S 10 '21
- Motorizing our Philippine Isles. J. A. Haeseler. *il Am Ind* 22:9-13 S '21
- Motorizing railroad freight terminals; abstracts. B. F. Fitch. *il Ry R* 66:459-63 Mr 20 '20; *Am Mach* 54:646-7 Mr 18 '20; *Eng & Contr* 53:287-8 Mr 17 '20; *Eng N* 84:508-11 Mr 11 '20; *Iron Tr R* 66:924-5 Mr 25 '20; *Ry Age* 68:681-3 Mr 5 '20; *Textile World* 57:1995+ Mr 13 '20; *Sci Am M* 1:448-50 My '20
- Moving by motor truck from Chicago to Indianapolis—a personal narrative. *Munic Eng* 60:sup14+ Je '21
- Nebraska repeals truck freight rates. *Pop Mech* 36:164 Ag '21
- New deal in transportation; relieving the railroad of the business which it is least able to handle. J. G. Vincent. *il Sci Am* 123:374+ O 9 '20
- New York-Philadelphia motor truck service. *Ry Age* 68:1421 My 14 '20
- Passengers and freight carried more cheaply by motor transport than by railway. K. Q. Volk. *il Eng N* 84:568-71 Mr 18 '20
- Plant equipment moved by truck. H. R. Simonds. *il Iron Tr R* 68:549-52 F 24 '21
- Railroad difficulties offer opportunity, not obstacle. *Automotive Ind* 42:1143-4+ My 20 '20
- Railroad officials recognize truck as transportation ally. *Automotive Ind* 43:1201-3 D 16 '20
- Rates for cross country trucking. T. Brown. *Good Roads n s* 19:307-8 Je 16 '20
- Regulation of highway motor transport. F. W. Fenn. *Eng & Contr* 53:628 Je 2 '20
- Regulation of motor truck service. J. J. Esch. *Good Roads n s* 20:8-9+ J1 7 '20
- Relation of highway transportation to increased production. G. M. Graham. *il Good Roads n s* 20:1-4+, 13-15+, 36-7 J1 7-21 '20; *Same abr. Eng & Contr* 54:106-9 Ag 4 '20
- Road transport by railways in England. *Eng N* 87:309 Ag 25 '21
- Rural motor express. R. E. Fulton. *Metal Work* 93:767-8 Je 11 '20
- Short haul problem. *il Sci Am* 124:54+ Ja 15 '21
- Solving the transport problem; a new Benn bros. journal. *Electrician* 85:573 N 12 '20
- Things we've learned about shipping by truck. *Factory* 25:1216-17 O 15 '20
- Tractor-trailer freight transfer at St Louis, Mo. *il Eng N* 86:852-3 My 19 '21
- Traffic and transportation. A. H. Blanchard. *Can Eng* 40:129-31 Ja 13 '21
- Trailer trains in San Joaquin valley. *il Good Roads n s* 21:244 My 4 '21
- Transportation builds civilization. W. Graham. *il Am Ind* 21:15-18+ Mr '21
- Transportation equality as viewed by rail and truck men. E. J. Pratt; M. L. Pulcher. *Munic Eng* 61:sup12+ O '21

- Transportation representatives discuss place of motor truck in modern transport. *Eng N* 85:1204-5 D 16 '20
- Trolley freight and motor-truck customers in Massachusetts. *il diags map plan Elec Ry J* 58:41-7 J1 9 '21
- Truckportation. *Comm & Fin Chr* 111:1412-14 O 9 '20
- Trucks win place in steel traffic as railroads fail. M. L. Feiser. *il Iron Tr R* 67:1127-9 O 21 '20
- Utility of the motor truck. S. Sayward. *il Textile World* 57:1193-4 F 7 '20
- Value of highway transport surveys. F. Van Z. Lane. *Good Roads n s* 19:59-60+ F 4 '20; *Same. Can Eng* 38:426-8 Ap 29 '20; *Excerpts. Eng & Contr* 53:130 F 4 '20; *Excerpts. Munic Eng* 58:sup24+ F '20
- War's development of motor transportation. W. T. White. *Good Roads n s* 19:291-2+ Je 9 '20
- What the Deep Vein coal co. has learned about the ship-by-truck movement. D. Baker. *il Coal Age* 18:278-81 Ag 5 '20
- Where motor trucks win a four-sided cost race. *Factory* 24:1335 My 1 '20
- See also* Motor truck terminals; Tank trucks
- Motor trucks in lumber handling**
- Field for motor trucks in the lumber industry. *Am Lumberman* 2331:74-5 Ja 17 '20
- Motor truck logging methods. F. M. Knapp. (*Eng. Exp. Sta. Ser. Bul.* 12) 49p University of Washington, Seattle '21
- Record of White trucks in the lumber industry. J. W. Spaulding. *il Am Lumberman* 2338:78-9 Mr 6 '20
- Special carrier for lumber. *il Sci Am* 121:613 D 20 '19
- Successful truck operation in the lumber industry. G. P. Hewitt. *il Am Lumberman* 2347:68 My 8 '20
- Motor trucks in postal service**
- Motor trucks and the postal service. J. I. Blakslee. *Eng N* 84:286 F 5 '20
- Motor trucks in war and army service**
- Army's highway transport problem. M. M. Patrick. *Good Roads n s* 21:198-200 Ap 6 '21
- Captured enemy mechanical transport vehicles at Aldershot. *Engineering* 110:611-15 N 5 '20; *Engineer* 130:456-60, 487 N 5-12 '20
- Motor-transport vehicles for the United States army. *Mech Eng* 42:40-1 Ja '20
- Bibliography**
- Automotive vehicles in the great war. C. J. West. *Soc Auto Eng J* 6:409-16 Je '20
- Motor trucks on the farm**
- Banker impressed by truck tour. *il Motor Age* 38:19-20 Ag 26 '20
- Experiences of eastern farmers with motor trucks. *Eng & Contr* 54:539 D 1 '20
- Facts which will aid truck sales. *Motor Age* 38:18-19 O 7 '20
- Farm market for trucks. *il Sci Am* 124:495+ Je 18 '21
- Mechanical farming and motors. L. L. Robinson. *Am Ind* 21:20-1 S '20
- Motor trucks in orchards. A. L. Dahl. *il Sci Am* 123:567+ D 4 '20
- Motorizing the farm with tractor, cultivator and truck. *il Automotive Ind* 42:765 Mr 25 '20
- Reasons why farmers should buy trucks. *Motor Age* 38:21 J1 29 '20
- Selling the farmer on the use of motor trucks. *Automotive Ind* 42:965-7 Ap 22 '20
- Motor vehicle signal manufacturers association**
- Association for purposes of constructive co-operation. *Automotive Ind* 44:920-1 Ap 28 '21
- Motor vehicles**
- Air propeller drives amphibious speedster. *il Pop Mech* 33:813-14 Je '20
- Competition from motor vehicles. C. L. Stone. *Elec Ry J* 54:979-80 D 20 '19
- Defects in motor vehicles and their remedy. F. Strickland. *Engineering* 109:782-4+; 110:33, 202-4, 271-2, 463-4, 796, 855-6 Je 11, J1 9, Ag 13-27, O 8, D 17, 31 '20

Motor vehicles—Continued

French land-and-water ship does what its name implies. *il* Pop Mech 36:181 Ag '21

Motor transport on snow. *il* diags Engineering 111:202-3, 230, 234-5 F 18-25 '21

Transportation systems. P. W. Litchfield; F. A. Seiberling. Soc Auto Eng J 6:282-6 My '20

Walking motor car travels slippery roads. *il* Pop Mech 36:249 Ag '21

See also Automobiles; Cycle cars; Electric trucks; Electric vehicles; Jitney buses; Motor boats; Motor buses; Motor caravans; Motor cars (railroad); Motor cycles; Motor ships; Motor sleds; Motor trucks; Tractors

Bibliography

Publications of the S.A.E. available for purchase. Soc Auto Eng J 7:445 N '20

Law

Digest of joint committee's uniform vehicle law. Eng N 86:112 Ja 20 '21

Fail to agree on uniform vehicle law. Eng N 86:143 Ja 20 '21

Relation of proposed uniform vehicle law to municipal traffic regulations. H. G. Shirley. Can Eng 39:614+ D 16 '20; Same. Munic Eng 59:sup14+ D '20; Same cond. Good Roads n s 20:215+ N 3 '20; Same cond. Eng & Contr 54:531-2 D 1 '20

See also Automobile laws and regulations; Motor trucks—Laws and regulations

Taxation

A.A.A. objects to further motor vehicle taxes. G: C. Diehl. Eng N 87:253 Ag 11 '21

Anomalies of motor taxation. Engineering 111:4-5 Ja 7 '21

Federal motor vehicle tax proposed in House bill. Eng N 87:209 Ag 4 '21

Heavy automotive taxes suggested by Secretary Houston. Automotive Ind 43:1181 D 9 '20

Louisiana revises motor vehicles taxes. Eng N 87:123-4 Jl 21 '21

Motor fees as a basis for highway construction bond issues. S. E. Bradt. Munic Eng 58:99-100 Mr '20; Same. Eng & Contr 53:250-1 Mr 3 '20; Same. Good Roads n s 19:126+ Mr 3 '20

Motor vehicle instead of gasoline tax probable in Great Britain. E. J. Mehren. Eng N 85:4-5 Jl 1 '20

Motor vehicle registration and license fees by states; tabulation. Automotive Ind 42:274-5 Ja 15 '20

Motor vehicle registrations, licenses and revenues in 1919. Eng & Contr 54:206-7 S 1 '20

New basis for motor vehicle fees in Minnesota. Eng N 86:964 Je 2 '21

Relation of motor-vehicle license to highway construction. S. E. Bradt. Eng N 84:73-4 Ja 8 '20; Same. Eng & Contr 53:26-7 Ja 7 '20; Same. Good Roads n s 19:9+ Ja 7 '20

Trend of motor-vehicle legislation. R. K. Tomlin, jr. Eng N 87:354-65 S 1 '21

See also Automobiles—Taxation; Motor trucks—Taxation

Motors. *See* Airplane engines; Automobile engines; Diesel engines; Electric motors; Gas and oil engines; Hydraulic motors; Motor truck engines; Turbines; Wave motors; Wind motors

Motors, Electric. *See* Electric motors

Motorships. *See* Motor ships

Moulding machines. *See* Molding machines

Mound builders

Remains of the Mound builders in the Scioto valley. R. W. French. *il* Sci Am M 1:493-5 Je '20

Mount Everest. *See* Everest, Mount

Mount Rainier national park

Power generation in Mt. Rainier national park. C. P. Gordon. *il* plan J Elec 46:436-7 My 1 '21

Mount Vernon, Virginia

Mount Vernon, Va., the home and burial place of George Washington; detail of entrance and colonnade connecting kitchen. *il* Am Arch 118:736-a D 8 '20

Mount Wilson observatory

Mount Wilson observatory. Engineering 110:237-8 Ag 20 '20

Mountain meal. *See* Diatomaceous earth

Mountain pride of Jamaica. *See* Maiden plum tree

Mountain railroads

Electrical operation of mountain railways in Switzerland; abstract. Gioelet. Elec R 79:203-4 Ag 6 '21

Municipally-operated mountain railroad. A. J. Cleary. Ry Age 70:454 F 25 '21

New railroad across the Andes is made up of grades and curves. *il* Pop Mech 34:562-3 O '20

See also Denver and Salt Lake railroad

Mountain roads

New mountain road now open to traffic; the Ridge route over the La Liebre mountain range. J: E. Hogg. *il* map Pop Mech 33:193-4 F '20

Plan auto road on railroad snowsheds. *il* diag Pop Mech 34:805 D '20

Shelburne mountain road. Pub Works 51:168-70 Ag 27 '21

See also Roads—Nevada

Mountaineering

Among the mountains of western Canada. L. Jeffers. *il* Sci Am 122:424+ Ap 17 '20

Mountain craft; personal regimen, walking manners and equipment for the climb (review). A. A. Hopkins. *il* diags Sci Am M 3:551-5 Je '21

Thrilling elevator ride to Alpine summit. *il* Pop Mech 36:335 S '21

World's greatest adventure; the ascent of Mt Everest as a test for human endurance. H. S. Sinclair. *il* map Sci Am M 4:19-22 Jl '21

Mountains

Episodes in Rocky mountain orogeny. C. L. Dake. Am J Sci 5th ser 1:245-54 Mr '21

Vulcanism and mountain-making; abstract. R. T. Chamberlin. Sci Am M 3:558-9 Je '21

White mountain physiography. A. C. Lane. Am J Sci 5th ser 1:349-54 Ap '21

See also Mountaineering; Volcanoes

Mouth organs

Tools for manufacturing a musical instrument. C. R. Baggett. diags Am Mach 55:373-5 S 8 '21

Moving

Why we didn't have a mix-up when we moved. L. I. Thomas. *il* plan System 40:285-6+ S '21

Moving of bridges. *See* Bridge moving

Moving of machine shops. *See* Machine shops—Moving

Moving of structures

Apartment building split, whirled, and re-located. *il* Pop Mech 33:588 Ap '20

Big moving job. *il* Sci Am 124:411 My 21 '21

Business as usual while moving. *il* Sci Am 125A:27 N '21

Conserving labor and material; illustrated in moving a reinforced concrete building. *il* diag Am Arch 116:731-4 D 10 '19

Eight-story steel-frame building moved on rollers. E. Dauenhauer. *il* Eng N 86:904 My 26 '21

Marble band stand moved on its foundation. *il* Concrete 16:240 My '20

Marble band stand successfully moved. G: J. Trinkaus. *il* diag Eng N 84:1125 Je 3 '20

Mill raised without stopping production. *il* Textile World 56:2767 N 1 '19

Moving a baseball park two hundred feet in Los Angeles. *il* Pop Mech 35:839 Je '21

Moving a greenhouse a delicate undertaking. *il* Pop Mech 34:656-7 N '20

Moving eight-story building with tenants at work. *il* Pop Mech 36:12 Jl '21

Moving of structures—Continued

Moving houses to clear the mines. *il Sci Am* 125:95 Ag 6 '21

Novel feat accomplished in moving a Chicago building. *il diag Am Arch* 117:662-6 My 26 '20

Track built under water tank to move it. *il Pop Mech* 36:481-2 O '21

Whole town hauled to new site by tractors. P. H. Woodruff. *Pop Mech* 33:189 F '20

Wireless tower 200 ft. high moved. A. T. Colwell. *Eng N* 87:420 S 8 '21

See also Bridge moving

Moving picture drawings

Putting motion into mechanical drawings; how motion picture films of hidden mechanisms are made for industrial and educational purposes. H. Greene. *il Sci Am* 124:464+ Je 11 '21

Moving picture films

Fireproof film file for projection room. *il Pop Mech* 34:724 N '20

Recovery of constituents of old motion picture films. M. Deschiens. *Chem Age* 29:193-4 My '21

Moving picture industry

Movie records of machinery. L. S. Metcalfe. *Am Mach* 54:319-20 F 24 '21

Robert Brunton who saw the chance of applying quantity production methods to an unmethodical industry. D. D. Dunlea. *System* 39:47-8+ Ja '21

Winning foreign film markets. O. R. Geyer. *Sci Am* 125:132+ Ag 20 '21

Accounting

Cost accounting for the motion-picture industry. W. S. Holman. *J Account* 30:420-32 D '20

Some accounting problems of the motion-picture industry. M. E. Prager. *Administration* 2:70-3 Jl '21

Advertising

Advertising of movies is finding itself. R. L. Burdick. *Ptr Ink M* 2:44+ D '20

Obstacles that must be overcome in movie play advertising. S. C. Lambert. *Ptr Ink* 110:25-8 Mr 11 '20

Will the movies grasp their opportunity to clean house advertisingly? C. B. Larabee. *Ptr Ink* 117:33-4+ O 20 '21

Finance

Pre-eminence in motion picture field depends on the banks. J. E. Barber. *Annalist* 17:518 My 9 '21

Moving picture machines

Daylight bioscope performances. *Sci Am M* 3:87 Ja '21

Doing away with rewinding in motion picture projection. *il Sci Am* 125:154 Ag 27 '21

High-intensity projection lamp for motion pictures. *il Elec R* 78:937-8 Je 11 '21

Home motion pictures in disk form. *il Sci Am* 123:407 O 16 '20

Kingsley cinematograph projector. *diags Engr* 111:208 F 18 '21

Motion pictures anywhere without operator or screen. *il Sci Am* 124:311 Ap 16 '21

Motion pictures projected without any flicker. *il Pop Mech* 36:366 S '21

Moving-picture machine using tungsten lamp. *il Pop Mech* 35:889 Je '21

Projecting motion pictures with high-intensity lamps. *il Pop Mech* 36:246-7 Ag '21

Moving picture photography

Camera takes many thousand film pictures per second. *il Pop Mech* 34:186-8 Ag '20

Cinematography at the winning-post. A. Gradenwitz. *il Sci Am* 124:327+ Ap 23 '21

Condensed course in motion picture photography. New York institute of photography, New York '20

Developing, printing and assembling of motion-picture film. L. W. Chapman. *il Chem & Met Eng* 23:97-9 Jl 21 '20

Electric-motor drive for movie camera. *il Pop Mech* 36:363 S '21

From wet plate to motion pictures; development of amateur and professional photography. *il Sci Am* 123:346+ O 2 '20

New system develops movie films in daylight. *il Pop Mech* 35:868 Je '21

Portable electrical equipment for motion picture photography. J. A. White. *il Elec J* 18:71-3 F '21

Progress in the art of taking moving pictures; cinematography in Germany. W. Thielemann. *Sci Am M* 1:521 Je '20

Searchlights and motion pictures. *il Sci Am* 122:59 Ja 17 '20

Shooting flying bullets with a camera. *il Sci Am M* 2:147-9 O '20

Some tricks of the motion picture screen in the making. *il Sci Am* 121:583; 123:305 D 13 '19, S 25 '20

Tripod-less motion picture camera for aerial work. *il Sci Am* 124:513 Je 25 '21

Twin-film camera doubles width of movie pictures. *il Pop Mech* 36:328-9 S '21

Two hundred thousand photographs per minute; eliminating the shutter and intricate intermittent movement to speed up motion pictures. C. H. Claudy. *il Sci Am* 124:288+ Ap 9 '21

Ultra-rapid cinematograph. *diag Sci Am M* 1:217 Mr '20

Moving picture screens

More about motion pictures in relief; another theory explaining the optical illusion of projection in three dimensions. J. Brizon. *diags Sci Am M* 4:43-4 Jl '21

Motion pictures shown in relief; the glypho-cinematograph for producing stereoscopic effects. J. L. Pech. *diags Sci Am M* 3:531-2 Je '21

Projection screens for cinema work. *Illum Engr* 13:194-5 Je '20

Reflection characteristics of projection screens. L. A. Jones. *Illum Eng Soc* 16:sup 93-4 no 6 '21

Moving picture studios

Fox film building. *il Arch & Bldg* 52:53-4+, pl 54-6 My '20

Studio and laboratory of the Famous Players-Lasky corporation. *Arch & Bldg* 52:74-5, pl 95-7 Ag '20

Lighting

Actinic-ray searchlights for motion pictures. *il Pop Mech* 36:200-1 Ag '21

Artificial daylight of photoplay land. *il Sci Am* 122:221 F 28 '20

Artificial illumination for cinematography. J. C. Elvy. *il Illum Engr* 14:32-43 F '21; Abstract. *Elec R (Lond)* 88:461-2 Ap 8 '21; Discussion. *Illum Engr* 14:44-54 F '21

Controlling the lights used in moving-picture studios. *il Elec R* 78:595-6 Ap 9 '21

Electricity in motion picture studios. H. F. O'Brien. *il Elec J* 17:223-6 My '20

Film lighting as a fine art. F. S. Mills. *il Sci Am* 124:148+ F 19 '21

Motion-picture industry. I. M. Day and S. C. Leibing. *il Gen Elec R* 24:566-9 Je '21

Use and abuse of light in studios for kinema film production. *Electrician* 86:136 Ja 28 '21

Moving picture theaters

Capitol theatre, Broadway and 51st street, New York. *il Am Arch* 116:628-30, pl 171-8 N 19 '19

Capitol theater, New York. E. M. Mlinar. *il plans Arch Forum* 32:21-4, pl 11-16 Ja '20

Motion picture theatre in a unique setting. Winema theatre, Scotia, Cal. A. L. Black. *il Arch Rec* 48:557-60 D '20

New motion picture theatre that seats 1500 people. *il plan Bldg Age* 43:31-2 O '21

Projection room, Newman theatre, Kansas City, Mo. *Arch & Bldg* 52:24-6, pl 19-21 F '20

Small theatre well handled; Orpheum theatre, Terre Haute, Indiana. *il plans Bldg Age* 43:36 Je '21

Electrical equipment

Electrical equipment in the Capitol theatre. New York. *il Arch & Bldg* 53:42+ My '21

Lighting

Artificial illumination of motion picture theatres. E. L. Bragdon. *il Am Arch* 118:645-7 N 17 '20

Moving picture theaters—Lighting—Continued

- Improved method for the illumination of motion picture theaters. L. A. Jones. diags plan Illum Eng Soc 15:645-73 no 9 '20; Same. Elec R 77:757-66 N 13 '20; Excerpts. Am Arch 118:678-81 N 24 '20; Discussion. Illum Eng Soc 15:673-7 no 9 '20
Lighting of interiors of cinema halls. il Illum Engr 12:290-1 O '19
Opportunities for the illuminating engineer in the motion picture industry. E. L. Bragdon. il Illum Eng Soc 15:342-6 no 5 '20

Moving pictures

- Aeroplane displaces the automobile in the motion picture. J. Lachenbruch. il Aerial Age 11:53+ Mr 22 '20
Architectural problems in motion picture production. J. H. MacFarland. il Am Arch 118:65-70 Jl 21 '20
Architecture and the motion picture. C. A. Ziegler. il Am Arch 119:543-9 My 11 '21
Architecture of motion picture settings. il Am Arch 118:1-5, 12a-h Jl 7 '20
Art and architectural artifice; illustrated by photographs of scenes in Goldwyn pictures corporation's reproduction of "Bunty pulls the strings". J. Lachenbruch. il Am Arch 118:563-8 N 3 '20
Building problems of the motion picture; principal setting in "Bunty pulls the strings." J. Lachenbruch. il map Bldg Age 42:37-9 D '20
Cabinet of Dr Galigari. B. J. Lubschez. il Am Inst Arch J 9:213-16 Je '21
Eyestrain and moving pictures. Elec R 78:745 My 7 '21
Fighting pirate movie men with mirrors. J. E. Hogg. il Pop Mech 36:161-2 Ag '21
Interim report of the joint committee appointed by the Illuminating engineering society to inquire into eyestrain in cinemas. Illum Engr 13:189-93 Je '20; Abstract. Sci Am M 3:74 Ja '21
Motion picture projection. J. R. Cameron. 2d ed. 563p The theatre supply co., 124 W. 45th st., New York '21
Motion pictures in miniature form. il Sci Am 124:514 Je 25 '21
Motion pictures shown in relief; the glyphocinematograph for producing stereoscopic effects. J. L. Pech. diags Sci Am M 3:531-2 Je '21
Noises made to order. il Sci Am 121:583 D 13 '19
Photoplay architect. J. Lachenbruch. il Am Arch 120:219-23 S 28 '21
Recent developments in types of portable cinema outfits. J. W. Barber. Illum Engr 13:179-83; Discussion. 184-8 Je '20
Reconstructing the Jutland battle for the movies. Sci Am 125:43 Jl 16 '21
Rubber creations for moving pictures. il India Rubber W 62:486-7 My '20
Siberian film factory evolved from junk. P. Norton. il Pop Mech 33:887-8 Je '20
Unusual use for moving pictures; keeping men on out-of-the-way jobs. Factory 26:1228 My 15 '21
Wind storms made to order. Sci Am 124:47 Ja 15 '21

Bibliography

- Motion picture films of educational value in the possession of associations and commercial and manufacturing companies. F. W. Reynolds. 12p (Ext. leaflet no. 2 Dec. '19) U S Bureau of education '20

Moving pictures, Colored

- Le cinématographe en couleurs naturelles par le procédé trichrome. L. Gaumont. Génie Civil 78:280-1 Mr 26 '21
Le cinématographe en couleurs naturelles par le procédé trichrome Gaumont. A. B. des Chaumes. il Génie Civil 76:245-51 Mr 6 '20
Making natural color motion picture films. W. V. D. Kelley. Illum Eng Soc 16:159-63 no 6 '21
Movies in colors of nature by triple projection. il diag Pop Mech 33:855 Je '20

Moving pictures in advertising

- Advertisers' industrial films gain wide circulation. Ptr Ink 113:140+ N 11 '20

- Advertising stories told in the movies. A. McClure. il Ptr Ink M 2:31-2+ F '21
Co-operative good-will advertising movement supplemented by motion picture film "Back of the button." G. F. Oxley. il N E L A Bul 8:513-16 S '21
Motion pictures that promote farm service sales. Elec R 79:656 O 29 '21
Movie star's personality centre of advertising campaign. H. A. Ballard. Ptr Ink 110:140+ F 19 '20
Next step in publicity work; suggestions on the proposed use of movies. Elec Ry J 56:604-6, 726, 886, 933-4, 971, 1022-3, 1155-7 S 25, O 9, 23-N 13, D 4 '20

Moving pictures in education

- Education in science by the movies. Sci Am M 2:176 O '20
Educational films distributed throughout world. Elec R 78:579 Ap 9 '21
Learning by seeing. G. H. Dacey. il Sci Am 123:107 Jl 31 '20
Silent teacher. J. Lachenbruch. il diags Sci Am 122:702+ Je 26 '20
Uncle Sam—motion picture producer. G. H. Dacy. il Sci Am 122:422+ Ap 17 '20
Visualizing the unseen; instruction in electricity. J. Lachenbruch. il Wireless Age 7:10-13 My '20

Moving pictures in industry

- Extraordinary movies show steel melted in mills. il Pop Mech 35:62 Ja '21
Factory movie house that's built in a day. A. E. Gillet. il Factory 25:364-5 Ag 1 '20
Film teaches uses and abuses of drills. F. L. Prentiss. Iron Age 105:736 Mr 11 '20
Getting acquainted abroad through films. H. Levey. Automotive Ind 41:1126-7 D 4 '19
How movies can help you train workers. A. Pittman. il Factory 25:29-32 Jl 1 '20
How moving pictures can be used to build good will. H. Levey. il Gas Age 44:512-14 D 1 '19
Increasing use of movies in industrial work. Factory 26:842 Ap 1 '21
Industrial uses of the motion picture. R. Cavanagh. Am Ind 20:28-9 My '20
More profits from noon-hour lessons; movable movies that interest and instruct. il Factory 26:1198 My 15 '21
Motion picture in industry. F. W. Collier. il Am Ind 21:26-8 F '21
Motion pictures in physical testing laboratory. H. J. French. il Chem & Met Eng 24:131 Ja 19 '21
Movies for protection of industry. E. Thomas. Textile World 57:3063 Ap 24 '20
Moving pictures as an educational factor in building good-will. L. Lee. Am Gas Eng J 113:143-4 Ag 21 '20
Moving pictures in the mining industry. Eng & Min J 110:1083-4, 1206 D 4, 29 '20
Organization motion pictures. Sci Am 125:85 Jl 30 '21
Putting motion into mechanical drawings; how motion picture films of hidden mechanisms are made for industrial and educational purposes. H. Greene. il Sci Am 124:464+ Je 11 '21
Teaching the proper use and care of the twist drill by means of motion pictures. J. V. Hunter. il Am Mach 53:11-13 Jl 1 '20
Using motion pictures to aid American business in China. J. Arnold. Am Mach 55:39-40 Jl 7 '21
Using movies in the war on waste; what was accomplished at the National register company's plant. A. Pittman. il Factory 24:961-3 Ap 1 '20
Welfare films of U.S. steel corporation shown at A.I.M.E. meeting. Eng & Min J 111:381 F 26 '21
Why not industrial motion pictures? J. A. Honegger. Am Mach 53:252 Ag 5 '20

Moving pictures in science

- Motion pictures of weather maps. Sci Am 123:403 Q 16 '20

Moving platforms

- Moving platforms for crosstown lines. L. B. Stillwell. diags plan Elec Ry J 57:124-6 Ja 15 '21; Abstract. Am Inst E E J 40:144 F '21

Moving platforms—Continued

Neglected transportation facility. *Sci Am* 124:22 Ja 8 '21

Mucic acid

Über den oxydativen abbau von schleimsäure und zuckersäure zu neuen aldehydsäuren der zuckergruppe. M. Bergmann. *Deutsche Chem Gesell Ber* 54:1362-80 Je '21; Abstract. *Chem Soc J* 120,pt 1:540-2 Ag '21

Mucilage

Cellulose mucilage. J. E. Minor. *J Ind & Eng Chem* 13:131-3 F '21

Cellulose mucilage; abstract. C. G. Schwalbe and E. Becker. *Paper* 25:23 Ja 7 '20

Mud balls

Filter underdrain, sand-bed and washwater experience; symposium on mechanical or rapid water filtration plants. *Eng N* 85:937-9; 86:234 N 11 '20, F 3 '21

Proposed cure for mud balls in filters by rearrangement of piping. H. W. Blaisdell. *diag Eng N* 86:234 F 3 '21

Muddy mountains, Nevada

Geology of the Muddy mountains, Nevada, with a section to the Grand Wash Cliffs in western Arizona. C. R. Longwell. *bibliog il diags Am J Sci* 5th ser 1:39-62 Ja '21

Mudge, Henry U., 1856-1920

Sketch. *por Ry Age* 68:419 F 6 '20

Mufflers, Airplane. See Airplane engines—Mufflers.

Mufflers, Automobile. See Automobile engines—Mufflers.

Muirhead, Alexander, 1848-1920

Sketch. *por Electrician* 85:745 D 24 '20

Mulberry flax. See Gelso-lino

Mules

Now even mules have wash houses. *il Coal Age* 18:12 Jl 1 '20

Mullet

Mullet fisheries of the Salton sea. J. E. Hogg. *il map Pop Mech* 34:175-80 Ag '20

Mullgardt, Louis Christian

Some recent California architecture; the work of Louis Christian Mullgardt, architect. *il plans Arch Forum* 33:51-4 Ag '20

Multiple-unit control. See Electric railroads—Control

Multiple-unit trains. See Electric railroads; Railroads—Electrification

Multiplication

Mechanism of numbers. H. Kelly. *J Account* 32:24-7 Jl '21

Multipliers for voltmeters. See Voltmeters

Mung bean

Some proteins from the mung bean, phaseolus aureus Roxburgh. C. O. Johns and H. C. Waterman. *J Fr Inst* 191:126-7 Ja '21

Municipal accounting

Forms for motor sweeper cost keeping. J. T. Child. *Pub Works* 48:417-19 My 15 '20

Municipal accounts—their preparation and audit. G. Rea. *J Account* 29:161-70 Mr '20

Municipal advertising

Advertising the oldest town to the tourist; Santa Fe. C. L. Pancoast. *Ptr Ink* 113:110+ D 30 '20

Campaign for better citizenship and better city government. E. A. Muschamp. *Ptr Ink* 113:134+ D 2 '20

City sold to its school children. C. B. McCuaig. *Ptr Ink* 112:81-2 S 2 '20

Exposé of sentiment. F. O. Watts. *Nation's Business* 9:61+ Ap '21

Interesting the family man in Bogalusa. *Ptr Ink* 113:145+ D 16 '20

Marketing a city's hospitality. *Ptr Ink* 112:101-2 Jl 29 '20

Paterson, N.J., advertises to diversify its industries. *Ptr Ink* 114:133-4+ Mr 17 '21

San Diego counts noses to show advertising returns. *Ptr Ink* 114:105-6 Mr 10 '21

Slogans. M. Reynolds. *Special Lib* 12:25-6 F '21

Bibliography

Community advertising campaigns in Printers' Ink. *Ptr Ink* 113:113-14 N 11 '20

Municipal air ports. See Air ports, Municipal

Municipal bonds

City of Zurich (Switzerland) bonds listed on New York stock exchange. *Comm & Fin Chr* 113:1517 O 8 '21

Engineer's part in bond election campaigns. R. E. McDonnell. *Eng & Contr* 56:396 O 26 '21

Municipal bond sales in December, 1919. *Comm & Fin Chr* 110:382-4 Ja 24 '20

Municipal bond sales in 1920. *Comm & Fin Chr* 112:3-6 sec 2 Je 25 '21

Municipal bonds in 1919. S. C. Mosser. *Comm & Fin Chr* 110:411-12 Ja 31 '20

Municipal bonds in 1920. J. Nuveen. *Comm & Fin Chr* 112:417-18 Ja 29 '21

United States and municipal bonds. Published in monthly Bank and quotation section of Commercial and financial chronicle

Municipal buildings

Alterations to the City Hall at Albany, N.Y. *il Am Arch* 117:809-15, 820a-f Je 30 '20

Brantham village hall. *il Am Arch* 117:116a-116c Ja 28 '20

City Hall, Plattsburgh, N.Y.; views and plans. *Arch Forum* 33:pl 85-8 D '20

Civic centers in New England. O. H. Howe. *il Am Arch* 117:173-6 F 11 '20

See also Community centers; Fire houses; Public buildings; Public comfort stations; Schoolhouses

Municipal centers

Civic centers in New England. O. H. Howe. *il Am Arch* 117:173-6 F 11 '20

Greek theater is part of civic center. *il Pop Mech* 33:512-13 Ap '20

Proposed Victory square and Civic center, Bloomington, Illinois. A. T. North. *il plan Am Arch* 117:400-2 Mr 31 '20

Society of beaux-arts architects. *il Am Arch* 120:196-200 S 14 '21

Municipal charters

Law of modern municipal charters and the organization of cities on commission, city manager and federal plans. W. K. Clute. 2v. F. S. Drake, Detroit '20

Municipal electric plants. See Electric plants, Municipal

Municipal electrical association

Incorporated Municipal electrical association. *Electrician* 85:30-2 Jl 2 '20

Municipal electricians, International association of. See International association of municipal electricians

Municipal employees

Albuquerque, New Mexico, covers all municipal employees with group life insurance. *Munic Eng* 58:216 My '20

Selection of city employees without civil service regulations. L. W. Clapp. *Eng & Contr* 55:442-3 My 4 '21

Salaries

Adjusting salaries of St Paul city employees to cost of living. *Monthly Labor R* 11:328-31 F '21

Municipal engineering

City, county and state affairs in Atlanta. *Eng N* 84:94-6 Ja 8 '20

City's paving problems. C. A. Mullen. *Can Eng* 38:358-60 Ap 8 '20

Legislation affecting municipal engineering. A. W. Consoer. *Munic Eng* 59:194-6 D '20

More attention to human side of municipal engineering. E. R. Conant. *Munic Eng* 57:287-8 D '19

Municipal engineering. H. P. Boulnois. 103p Pitman '21

Municipal engineering. G. S. Webster. *Am Soc C E Pro* 47:43-53 My '21

Relation of zoning to the work of the city engineer. E. S. Rankin. *Can Eng* 39:579-80 D 2 '20; Same. *Eng & Contr* 54:530 D 1 '20; Same. *Munic Eng* 60:126+ Mr '21; Excerpts. *Eng N* 85:884 N 4 '20

Municipal engineering—Continued

Value of municipal utilities to a community. J: F. Druar. *Munic Eng* 60:76-9 F '21

See also City planning; Drainage; Parks; Pavements; Public comfort stations; Public works; Refuse collection; Refuse disposal; Sanitary engineering; Sewage disposal; Sewerage; Street cleaning; Street lighting; Streets; Water purification; Water supply; Water supply engineering

Bibliography

Index of the month's periodicals; articles treating of public works and utilities which have appeared during the past month in the leading periodicals. *See* Public Works, second issue of each month

Reports

Municipal engineer's records and reports. H. F. Blomquist. *Pub Works* 48:307-9 Ap 10 '20

Some shortcomings of public improvement minutes. F. B. Tucker. *Eng N* 84:1053-4 My 27 '20

Municipal engineers

Future of the municipal engineering profession in Great Britain. B. Wyand. *Eng & Contr* 53:366-7 Mr 31 '20

Municipal engineers' salaries proposed by A. A. E. *Eng N* 84:898-9 My 6 '20; Same. *Eng & Contr* 53:499 Ap 28 '20

Municipal finance

Difficulties of municipal financing; the \$45,000,000 Hetch Hetchy water supply system. *Pub Works* 48:313-14 Ap 10 '20

Finances of cities: 1918. *Am Ind* 20:34-5 F '20

Financial statistics of cities having a population of over 30,000: 1919. 355p map U.S. Bureau of the census, Washington, D. C. '21

Grants in aid: a criticism and a proposal. S. Webb. New ed. rev. and enl. 145p Longmans '20

Graphical illustration of municipal expenditure. *Pub Works* 50:78 Ja 22 '21

How to conduct bond campaigns for municipal improvements. R. E. McDonnell. *Munic Eng* 58:36, 38+ Ja '20; Same. *Eng & Contr* 53:279-80 Mr 10 '20

Income and expenditures of cities of over 30,000 population. *Eng & Contr* 56:123 Ag 10 '21

Magnitude of the American municipal water supply business. J: M. Goodell. *Am Water Works Assn J* 7:264-73 Mr '20

State and city section of the Commercial and financial chronicle; New England, Middle and Central states. *Comm & Fin Chr* 111:(sec 2) 1-168 Jl 31 '20

State and city section of Commercial and financial chronicle; New England, middle and central states. *Comm & Fin Chr* 112:3-168 sec 2 Je 25 '21

State and city section of Commercial and financial chronicle; western, Pacific and southern states and island possessions. *Comm & Fin Chr* 111:3-192 sec 2 D 25 '20

See also Municipal accounting; Municipal bonds; Street lighting—Finance

Municipal franchises

La nouvelle convention entre la ville de Paris et la compagnie du chemin de fer métropolitain. *plan Génie Civil* 78:369-74 Ap 30 '21

See also Public utilities—Franchises; Street railroads—Franchises

Municipal garages. *See* Garages, Municipal

Municipal government

Community and government. H. W. Odum. (Univ. of N.C. ext. leaflet v. 4, no. 5) 106p The university, Chapel Hill '21

See also Municipal bonds; Municipal charters; Municipal finance; Municipal franchises; Municipal ownership; Municipal reference libraries; Police

City manager plan

City-manager plan widely endorsed. *Eng N* 85:703 O 7 '20

Engineer's responsibility for efficient government. F: P. Gruenberg. *Eng & Contr* 52:623-5 N 26 '19

Why engineers make successful city managers. C: E. Ashburner. *Eng & Contr* 56:102 Ag 3 '21

Municipal improvement

Better towns make better workmen. *Nation's Business* 8:78+ Je '20

Dominion bureau compiles municipal statistics. *Can Eng* 39:610-12 D 16 '20

See also City planning; Cleaning of cities

Municipal improvements, American society for.

See American society for municipal improvements

Municipal motor buses. *See* Motor buses, Municipal

Municipal ownership

Answering municipal ownership arguments. T. R. Frentz. *Am Gas J* 114:355-6+ Ap 23 '21

Community ice plant. *Sci Am* 124:207 Mr 12 '21

Eternal question of private versus public ownership. *J Elec* 45:253-4 S 15 '20

First hand information on public utility operation by Seattle. O. Hansen. *Eng & Contr* 53:457-9 Ap 21 '20

Inflexibility of power development of municipalities. E. O. Edgerton. *Elec W* 78:657-8 O 1 '21; Same. *J Elec* 47:261-2 O 1 '21

Municipal ownership. T. Tittoni. *N E L A Bul* 8:511-12 S '21

Municipal ownership a menace that must be overcome for the good of the gas industry. J: Walter. *Am Gas Eng J* 113:485-6 D 11 '20

100 reasons why cities changed from private to public ownership of utilities. *Eng & Contr* 53:153-5 F 11 '20

See also Asphalt plants, Municipal; Electric plants, Municipal; Motor buses, Municipal; Motor trucks, Municipal; Refuse disposal—Reduction plants, Municipal; Street railroads—Municipal ownership; Street railroads, Municipal

Municipal reference libraries

Municipal reference library of Toledo. W. F. Johnson. *Special Lib* 12:1-2 Ja '21

Municipal reports

What an annual report of a city should contain. *Eng & Contr* 54:150 Ag 11 '20

See also Municipal engineering—Reports

Municipal shower baths. *See* Shower baths, Street

Municipal tramways association

19th annual conference, Cardiff, Sept. 15-17. *Electrician* 85:374-5, 396-9 S 24-O 1 '20; *Elec Ry J* 56:1149-50 D 4 '20

Annual conference at Salford, Sept. 28-29. *Elec R (Lond)* 89:481-5, 513-16 O 7-14 '21; *Electrician* 87:486-9 O 14 '21

Munition factories

Heating and ventilating systems at the U.S. government's smokeless powder plant at Nitro, West Va. G. W. Hubbard. *il diag plan Am Soc Heat & V E* 25:333-48 '19

Das neue gusswerk der oesterreichischen waffenfabriksgesellschaft (automobilabteilung) in Steyr. C. Irresberger. *il diag Stahl & Eisen* 41:105-10 Ja 27 '21

War doesn't pay; experiences of a munitions concern. P. S. Du Pont. *il Nation's Business* 9:9-10 O '21

See also United States naval ordnance plant, South Charleston, West Virginia

Munitions**Manufacture**

Lessons learned in the manufacture of munitions and ordnance that can be applied to the peacetime pursuits of industry; abstract. F. V. Larkin. *Am Mach* 53:648-9 S 30 '20

Munn and company. *See* Scientific American (periodical)

Munroe, Charles A., 1875-

New president of American gas association. *por Am Gas Eng J* 113:433-4 N 20 '20

Mural painting and decoration

- Arthur Mathews—painter. *il Am Inst Arch J* 8:214-19 Je '20
 Mural decorations of the Cunard building. E. Winter. *il Arch Forum* 35:9-16 Jl '21
 Mural painting for minor buildings. *il Arch Forum* 34:173-4 My '21
 Nicholas K. Roerich; his art in its bearing on mural decoration in America. A. C. Bosson. *il Arch Rec* 50:82-92 Ag '21
 Pompeian wall-painting. *Am Arch* 117:583-4 My 12 '20
 Tragedy and comedy; painted by Edith Magonigle for the Playhouse, Wilmington, Del. *Am Inst Arch J* 7:530-1 D '19

Murray, W. S.

- W. S. Murray—father of the super-power plan. *por Power* 52:302 Ag 24 '20

Murray river, Australia

- Murray river improvement between Lake Victoria and Blanchetown. *il diags plan Engineer* 130:171-3, 180 Ag 20 '20; Same, without table. *Eng & Contr* 54:302-4 S 29 '20

Muscarine

- Pseudo-muscarine (synthetic muscarine). A. B. Weinhausen. *Am Chem Soc J* 42:1670-8 Ag '20

Muscle

- Muscle, its extensibility and its fatigue. N. B. Eddy and A. W. Downs. *Sci Am M* 4:272-3 S '21

Muscle Shoals nitrate plant. See Nitrate plants (federal)**Muscular power**

- Chemistry of human activity. R. Vladesco. *Sci Am M* 4:327-8 O '21
 Device for study of human body in action. *il Pop Mech* 36:540-1 O '21
 Elastic force of muscles. I. Athanasia. *il diags Sci Am M* 4:29-31 Jl '21
 Muscle as a motor. N. C. Uoogvliet. *Sci Am* 123:221 S 4 '20
 Physical work and the human machine. H. Briggs. *Eng & Ind Management* 6:323-6 S 22 '21
 Testing the human machine in the man-testing laboratory. *il Sci Am* 125:187 S 10 '21
 Tests of muscular efficiency; abstract. E. G. Martin. *Sci Am M* 4:367 O '21

Museums

- Basilica or temple. B. I. Gilman. *diags plans Arch Rec* 50:193-7 S '21
 Memorial museum, Golden Gate park, San Francisco. *Arch Forum* 33:51-2 Ag '20
 Study in museum planning. M. R. Rogers. *il plans Arch Rec* 46:518-28 D '19
See also Art galleries and museums; Natural history museums; also Field museum of natural history, Chicago; New York (city)—American museum of natural history; Southwest museum, Los Angeles

Bibliography

- Bibliography on the design of museums. C. O. Cornelius. *Arch Rec* 48:452-5 N '20

Lighting

- Basilica or temple. B. I. Gilman. *diags plans Arch Rec* 50:193-7 S '21

Mushrooms

- From brewing beer to raising mushrooms. M. A. Henry. *il Sci Am* 124:305+ Ap 16 '21

Music

- Beautiful faces translated into music. H. A. Mount. *il Pop Mech* 34:325-9 S '20
See also Factory bands; Phonograph records

Music transmission. See Wireless telephone—Music transmission**Musical instruments**

- Bass drum and viol united in new musical instrument. *il Pop Mech* 33:678 My '20
 Music from glass. J. F. Springer. *il Sci Am* 123:598+ D 11 '20
 Musical hospital; how flattened and fractured brass, wood and stringed instruments are repaired. A. A. Hopkins. *il Sci Am* 124:270+ Ap 2 '21

Universal language; ancient musical instruments and modern instruments developed by primitive peoples. H. A. Harges. *il Sci Am M* 4:39-42 Jl '21

See also Organs; Pianos; Stringed instruments

Musical sands

- Musical sands. C. Carus-Wilson. *Am J Sci* 5th ser 1:366-7 Ap '21

Mustard

- Determination of crude fiber in prepared mustard. M. C. Albrecht. *J Ind & Eng Chem* 12:1175-6 D '20
 Studies in mustard seeds and substitutes: Chinese colza. A. Viehoever, J. F. Clevenger and C. O. Ewing. *J Fr Inst* 191:543-4 Ap '21

Advertising

- How we are lifting the bars from a restricted market. F. Gulden. *Ptr Ink* 116:89-92+ S 22 '21

Mustard gas

- Decomposition of and pressure developed by mustard gas in steel shell at 60° C. W. A. Felsing. H. Odeen and C. B. Petersen. *J Ind & Eng Chem* 12:1963-5 N '20
 Density and coefficient of expansion of dichloro-ethyl sulfide. J. A. Wilkinson and C. Weinlund. *Am Chem Soc J* 42:1382-5 Jl '20
 Effects of acids and bases on the surface energy relations of β , β -dichloroethylsulfide (mustard gas.) W. D. Harkins and D. T. Ewing. *Am Chem Soc J* 41:1977-80 D '19
 Formation and properties of dithioketones ($R_2C:S:S$) and dithio-ethers ($R_2S:S$). K. G. Naik. *Chem Soc J* 119:379-85 Ap '21
 Freezing-point solubility curve for sulfur and dichloro-ethyl sulfide. J. A. Wilkinson, C. Neilson and H. M. Wylde. *Am Chem Soc J* 42:1377-82 Jl '20
 History of mustard gas. C. J. West. *Chem & Met Eng* 22:541-2 Mr 24 '20
 History of mustard gas. J. E. Zanetti. *Chem & Met Eng* 22:724 Ap 21 '20
 Intersolubility of beta-beta dichloro-ethyl sulfide and ethyl alcohol. T. G. Thompson, J. H. Black and G. T. Sohl. *Am Chem Soc J* 43:877-9 Ap '21
 Mustard gas. W. Baggaley. *Stevens Ind* 37:270-88 O '20
 Precipitation of sulfur from crude mustard gas by means of ammonia. W. A. Felsing and S. B. Arenson. *J Ind & Eng Chem* 12:1065-7 N '20
 Pressure produced by the action of sulfur monochloride upon β , β -dichloroethyl sulfide. T. G. Thompson and F. J. Kopp. *J Ind & Eng Chem* 12:1056-7 N '20
 Quantitative determination of traces of dichloro-ethylsulfide (mustard gas) in air. M. Yablick, G. St J. Perrott and N. H. Furman. *diag Am Chem Soc J* 42:266-74 F '20
 Reactions and derivatives of β , β -dichloro-ethyl sulfide. O. B. Helfrich and E. E. Reid. *Am Chem Soc J* 42:1208-32 Je '20
 Solubility of β , β -dichloroethyl sulfide in petroleum hydrocarbons and its purification by extraction with these solvents. T. G. Thompson and H. Odeen. *diags J Ind & Eng Chem* 12:1057-62 N '20

Analysis

- Method for determining the sulfur monochloride content of mustard gas- $S_2 Cl_2$ mixtures. W. A. Felsing, S. B. Arenson and F. J. Kopp. *J Ind & Eng Chem* 12:1054-6 N '20

Mutation (biology)

- Mutation and evolution; some interesting recent experiments by Van der Wolk. R. H. France. *il Sci Am M* 3:400-1 My '21

- Relation of Mendelism and the mutation theory to natural selection. L. L. Nutting. *Sci Am M* 3:369 Ap '21

Mutual inductance

- Mutual inductance of two straight cylindrical conductors which lie in parallel planes but which are not themselves parallel. A. M. Jacobs. *diags Am Inst E E J* 39:244-5 Mr '20

Mutual inductance—Continued

New formulæ for the direct numerical calculation of the coefficient of mutual induction of coaxial circles. L: V. King. Phys R 18: 139-40 Ag '21

Mutual societies benefit. See Benefit societies

Myers, David Moffat, 1879-

Captain of coal conservation. por Power '51: 549-50 Ap 6 '20

Myrabolan

Extraction of tannin from Indian myrabolans. Chem & Met Eng 22:1123-4 Je 16 '20

Mystery ships

British mystery craft launched. il Concrete 17:173 N '20

Mystery towers explained. Sci Am 124:402 My 21 '21

Strange concrete battleships built on ocean's floor. P. H. Woodruff. il Pop Mech 35:2-5 Ja '21

What are Great Britain's mystery towers? F. Rawlinson. il Sci Am 123:401 O 16 '20

Mystic stove. See Thordarson stove

N

Nail industry**Accounting**

Accounting for the nail and tack industry. G: N. Descoteaux. J Account 31:357-63 My '21

Nails

Cement coated nails. H. A. Knight. Iron Age 105:320 Ja 29 '20

Cement-coated nails and their origin. Sci Am 125:245 O 1 '21

Driving nails. R. H. Butz. Textile World 59:3827 Je 4 '21

Ryerson-Glader wire nail machine. il Mach 26:781 Ap '20; Iron Age 105:884 Mr 25 '20

Naldera (steamship)

P. and O. liner Naldera. il diags plans Marine Eng 26:195-206 Mr '21

Names

Names that live in our language. D. Waterson. Sci Am 123:249 S 11 '20

See also Trade names

Names, Geographical

Fifth report of the United States geographic board, 1890 to 1920. C: S. Sloane. 492p U.S. geographic board, Washington, D.C. '21

Vagaries of geographic names in relation to typographic style. D. C. McMurtrie. Ptg Art 37:222-4 My '21

Nantes, France**Harbor**

Improvement of the port of Nantes. Engineer 132:66 Jl 15 '21

Les installations nouvelles exécutées pendant la guerre dans le port de Nantes et la Loire maritime. A. Kauffmann. map plan Génie Civil 76:89-91 Ja 24 '20

Naphthaldehydes

Action of acetic anhydride on alpha naphthyl propiolic acid; new method for obtaining α -naphthaldehyde. B. L. West. diags Am Chem Soc J 42:1659-61 Ag '20

See also Dihydroxynaphthaldehydes

Naphthalene

Combustion of naphthalene solutions in internal combustion engines. L. S. Palmer. il Automobile Eng 11:31-4 Ja '21; Discussion. 11:77-8 F '21; Correction. 11:118 Mr '21

Determination of naphthalene in crude naphthalene and tar. J: C. Pastre. Chem & Met Eng 23:286 Ag 18 '20

Les emplois de la naphthaline et de ses hydrures. Génie Civil 78:399 My 7 '21

Freezing point curve of the system orthocresol:naphthalene. F. H. Rhodes and F. E. Hance. J Phys Chem 25:491-4 Je '21

Hydrogenating naphthalene; patent. Chem & Met Eng 23:1181 D 15 '20

L'influence de la carburation artificielle du gaz d'éclairage sur les cristallisations de naphthalène dans les canalisations. C. Abder-Halden. diag Chimie & Ind 3:19-23 Ja '20; Abstract (Influence of artificial carburation of coal gas on the crystallization of naphthalene in gas pipings). Chem & Met Eng 22:990 My 26 '20

Naphthalene solutions as motor fuel. Automotive Ind 43:1330 D 30 '20

Reaction between tungsten and naphthalene at low pressures. M. R. Andrews and S. Dushman. J Fr Inst 192:545-6 O '21

Solubility; solubility relations of naphthalene and iodine in the various solvents, including a method for evaluating solubility data. J. H. Hildebrand and C. A. Jenks. diags Am Chem Soc J 42:2180-9 N '20

Spectro-chemistry of polynuclear aromatic compounds, and constitution of naphthalene; abstract. K. von Auwers and A. Frühling. Chem Soc J 120 pt 2:230-2 Ap '21

Synthesis of anthracene from naphthalene. C. W. Colver and W. A. Noyes. Am Chem Soc J 43:898-905 Ap '21

Über die einwirkung von o-chlor-benzaldehyd auf schwach basische amine, insbesondere solche der naphthalin-reihe. F. Mayer and A. Bansa. Deutsche Chem Gesell Ber 54:16-24 Ja '21

See also Dekalin; Dihydronaphthalene

Naphthalene propiolic acid

Action of acetic anhydride on alpha naphthyl propiolic acid. B. L. West. diags Am Chem Soc J 42:1656-69 Ag '20

Naphthalene series

Über azthioniumsals der naphthalin-reihe. F. Kehrman and T. C. Christopoulos. Deutsche Chem Gesell Ber 54:649-57 Ap '21

Naphthalene sulfonic acids

Naphthalene sulfonic acids; a method for the qualitative detection of some of the naphthalene sulfonic acids. J. A. Ambler and E. T. Wherry. J Ind & Eng Chem 12:1085-7 N '20

Naphthalene sulfonic acids; an alternative method for the qualitative detection of naphthalene-2,7- and 1,6-disulfonic acids. J. A. Ambler. J Ind & Eng Chem 12:1194-5 D '20

Naphthalene sulfonic acids; some difficulty soluble salts of certain naphthalene sulfonic acids. J. A. Ambler. J Ind & Eng Chem 12:1081-5 N '20

Naphthol yellow S

Manufacture of naphthol yellow. S. R. Sansone. diag Color Tr J 7:5-7, 68-72 Jl, S '20

Naphthols

Über die umsetzung von naphtholen und naphthylaminen mit bisulfit. P. Friedländer. Deutsche Chem Gesell Ber 54:620-4 Ap '21

Naphthylamine

Azodicarbonsäure-ester als mittel zur einföhrung des hydrazin-restes in den aromatischen kern; azo-ester und β -naphthylamin. O: Diels. Deutsche Chem Gesell Ber 54:213-26 F '21

Über die umsetzung von naphtholen und naphthylaminen mit bisulfit. P. Friedländer. Deutsche Chem Gesell Ber 54:620-4 Ap '21

Narcotics

From opium to hash eesh. C. Simon. il Sci Am 125A:14-15 N '21

See also Chloral

Law

Hearing on the narcotic bill. Oil Paint & Drug Rep 99:29 sec 1 Ja 10; 29+ sec 1 Ja 17 '21

New narcotic drug regulations promulgated by state of New York. Oil Paint & Drug Rep 99:29 sec 1 Ja 3 '21

Nashville industrial corporation

Peace-time industry at Old Hickory smokeless powder plant, Jacksonville, Tenn. il diag map Chem Age 29:176-7 My '21

Natalite

Alcohol-fuel mixtures. Soc Auto Eng J 7:345 O '20

Natatoriums. See Swimming pools

Natchez and Southern railroad

Bank protection and restoration: a problem in sedimentation. W. C. Curd. *il Eng & Contr* 54:459-61 N 10 '20; Same. *Ry R* 67:923-6 D 18 '20; Same cond. *Ry Age* 69:829-31 N 12 '20

Nation planning

Nation plans. C. Kehr. *Am Inst Arch J* 8:11-15 Ja '20

See also Regional planning

National academy of sciences

See also Science service

National Acme company, Cleveland, Ohio

New plant of National Acme company. *il plans Iron Age* 104:1111-19 D 4 '19

National advertisers, Association of. *See* Association of national advertisers

National advertising. *See* Advertising, National

National advisory committee for aeronautics. *See* United States—National advisory committee for aeronautics

National agreements. *See* Railroads—Employees—National agreements

National and southern supply and dealers' associations

Combined meeting of machinery dealers and manufacturers at Atlantic City. *Am Mach* 52:1156-8 My 27 '20

National aniline & chemical company, inc.

Consolidation. *Comm & Fin Chr* 111:1379-82 O 2 '20

National association of automotive bankers

Automotive bankers form association. *Automotive Ind* 45:742 O 13 '21

National association of box manufacturers

21st annual meeting, Chicago. *Am Lumberman* 2343:50; 2344:61 Ap 10-17 '20

National association of brass manufacturers

Purposes and aims of this organization. *Metal Ind* 19:366 S '21

National association of commercial organization secretaries

Meeting, Atlantic City, April 26. *Nation's Business* 9:18 Je '21

National association of corporation schools

Important labor questions are discussed at National association of corporation schools meeting. *Iron Age* 105:1661-3 Je 10 '20

Units of service. *Am Arch* 116:587-8 N 5 '19

National association of corporation training

Establishing the science of personnel management. *Ind Management* 60:10-11 D 15 '20

9th annual convention, Niagara Falls. *Ry R* 69:122-3 Jl 23 '21

Solving the labor problem; educating and training the man to fit him to his job. C. F. Carter. *Sci Am* 124:306+ Ap 16 '21

National association of cotton manufacturers

Annual meeting, Boston, April 21-23. *Textile World* 57:2999, 3008+ Ap 24 '20

Fall meeting, Maplewood, N.H., Sept. 23-24. *Textile World* 58:2251+ O 2 '20

110th convention, Boston, April 20-22. *Textile World* 59:2837+ Ap 30 '21

President's annual address. W. F. Shove. *Textile World* 57:3034+ Ap 24 '20

National association of electrical contractors and dealers

Annual convention, Baltimore. *Elec R* 77:615-18 O 16 '20; *N E L A Bul* 7:805-6 N '20

Purposes and plans of the organization for betterment of conditions pertaining to wiring and merchandising. A. P. Denton. *Elec R* 78:339-40 F 26 '21

21st annual convention, Buffalo, July 18-23. *Elec R* 79:173-5 Jl 30 '21

21st annual convention of the National executive committee, Buffalo, July 18. D. V. Weed, jr. *Elec R* 79:131-2 Jl 23 '21

What the National association is doing for members. W. H. Morton. *Elec R* 79:309-11 Ag 27 '21

National association of employment managers. *See* Industrial relations association of America

National association of hosiery and underwear manufacturers

Addresses at Philadelphia convention. *Textile World* 57:3251-2 My 1 '20

Annual meeting, Philadelphia. *Textile World* 59:3047+ My 7 '21

16th annual convention. *Textile World* 57:3232+ My 1 '20

National association of manufacturers

25th annual meeting, New York city, May 17-19. *Am Mach* 52:1159-60 My 27 '20; *Am Ind* 20:7-20 Je '20

26th annual convention, New York, May 16-18. *Am Mach* 54:928d-e My 26 '21; *Iron Tr R* 68:1460 My 26 '21; *Am Ind* 21:7-12 Je '21

National association of master plumbers

Our national association; promoting the cause of advanced sanitation and correct business principles—its policy, past and present. *Plumber* 95:136+ Mr 11 '21

Policy—past and present. D. F. Durkin, jr. *Dom Eng* 94:544-5 Mr 12 '21

Program for annual convention. *Dom Eng* 91:331 My 22 '20

Survey of the National association of master plumbers of the United States. G. F. Uber. *Dom Eng* 93:569 D 18 '20

38th annual convention, Pittsburgh, June 15-17. *Dom Eng* 91:584-607 Je 26 '20; *Metal Work* 93:843-50 Je 25 '20

39th annual convention, New Orleans, June 7-9. *Plumber* 95:377-84 Je 17 '21; *Dom Eng* 95:554-69 Je 18 '21

National association of owners of railroad securities

Security association urges necessity for regulation of earnings. *Ry Age* 68:299-300 Ja 23 '20

Security holders appoint board of engineers for studies in railway economies. *Comm & Fin Chr* 112:2602-3 Je 18 '21; *Excerpt. Ry Age* 70:1364-5 Je 10 '21; *Excerpt. Ry R* 68:902 Je 11 '21

Security owners' position defended. H. Fiske. *Ry Age* 70:928 Ap 15 '21; Same. *Comm & Fin Chr* 112:1582-3 Ap 16 '21

National association of practical refrigerating engineers

10th annual convention, Kansas City, Mo., Dec. 4-6. *Power* 50:731-2 N 11 '19

11th annual convention, Chicago, Dec. 13-16. *Power* 52:1035-6 D 28 '20; *Power Pl Eng* 25:183-4 F 1 '21

National association of purchasing agents

6th annual convention, Indianapolis, Oct. 10-13. *Iron Tr R* 69:1030 O 20 '21

National association of railroad tie producers

1st annual convention, Chicago, April 22-23. *Am Lumberman* 2345:56; 2346:67-8 Ap 24-My 1 '20; *Ry R* 66:723-5 My 1 '20

Tie producers' convention discusses specifications. *Ry Age* 70:475-6 F 25 '21; Same. *Eng & Contr* 55:255-6 Mr 16 '21

National association of railway and utilities commissioners

Annual meeting, Atlanta, Ga., Oct. 10-14. *Ry Age* 71:723-7, 777-9 O 15-22 '21; *Elec Ry J* 58:708, 787-91 O 15, 29 '21; *Elec W* 78:789-90 O 15 '21; *N E L A Bul* 8:638-9 N '21

32d annual convention, Washington, Nov. 9-12. *Ry Age* 69:833-6, 880-2 N 12-19 '20; *Elec Ry J* 56:1013-17 N 13 '20

National association of sheet metal contractors

Annual meeting, Peoria, June 8-11. *Metal Work* 93:811-19 Je 18 '20

Report of trade development committee. *Metal Work* 93:835-6 Je 25 '20

17th annual convention, Pittsburgh, June 14-17. *Sheet Metal Worker* 12:372-80 Je 24 '21

National association of stationary engineers

Annual convention and mechanical exhibit of the New England states association of N.A.S.E., Providence, R.I., July 13-15. *Power* 54:157 Jl 26 '21

N.A.S.E. holds three state conventions. *Power* 53:1032-3 Je 21 '21

- National association of stationary engineers**
—Continued
38th annual convention, Milwaukee, Sept. 13-17. Power 52:518-19 S 28 '20; Power Pl Eng 24:962-6 O 1 '20
39th annual convention, Evansville, Ind., Sept. 12-17. Power 54:501-3 S 27 '21; Power Pl Eng 25:976-8 O 1 '21
- National association of the sweater and knitted textile industry.** See National knitted outerwear association
- National association of wool manufacturers**
Annual meeting and dinner, Boston, Feb. 11. Textile World 57:1382-3+ F 14 '20
- National association of woolen and worsted overseers**
38th semi-annual convention, Rocky Point, R.I., May 21. Textile World 59:3529 My 28 '21
- National association of worsted and woolen spinners**
3d annual meeting, Philadelphia, May 12. Textile World 57:3637+ My 15 '20
- National automobile chamber of commerce**
Factory service managers second post-war convention, Indianapolis, May 24-25. Automotive Ind 42:1273+ Je 3 '20; Motor Age 37:14-15 Je 3 '20
- National automobile dealers' association**
Annual meeting, Chicago, Jan. 26. Motor Age 37:20-1 F 5 '20
- National biscuit company**
How the National biscuit company holds its market. C. B. Larrabee. il Ptr Ink M 3: 17-18+ S '21
- National board of boiler and pressure vessel inspectors**
Organization, Detroit, Feb. 2-4. Power 53:282-5 F 15 '21; Mech Eng 43:213 Mr '21; Elec Ry J 57:688 Ap 9 '21
- National board of fire underwriters**
Fuel-oil storage rules. Power 50:680-1 O 28 '19
Method of grading cities on fire service employed by National board of fire underwriters. C. Goldsmith. Munic Eng 59:178+ N '20; Same abr. Eng & Contr 54:47-50 Jl 14 '20
- National board of jurisdictional awards**
Jurisdictional disputes in the building industry. S. W. Jones and L. E. Kern. Am Inst Arch J 8:169-70 Ap '20
National board for jurisdictional awards makes additional decisions. Am Arch 117: 748-9 Je 9 '20
National board of jurisdictional awards. E. J. Russell. Am Arch 117:429-30 Ap 7 '20
Plan for settlement of jurisdictional claims in the building industry. Monthly Labor R 11: 248-50 Ag '20
- National boards of adjustment.** See Railroads—Employees—National agreements
- National building and construction congress**
Building congress organizes N.Y. branch. Eng N 86:239 F 3 '21
- National bureau of standardization of plumbing materials**
Committees appointed. Metal Work 93:365-7 Mr 19 '20; Same. Dom Eng 90:543-5 Mr 13 '20
Recommendations of committees presented and discussed. Dom Eng 91:332-3+ My 22 '20
- National cash register company, Dayton, Ohio**
Programs of apprenticeship and special training in representative corporations. J. V. L. Morris. il Am Mach 55:545-8 O 6 '21
Putting across a campaign for greater production. il Factory 24:1133-7 Ap 15 '20
7,000 brain workers out of 7,000 employees. C. W. Hamilton. il Factory 24:265-7 F 1 '20
- National coal association**
3d annual meeting, Atlantic City, May 25-27. Coal Age 17:1161-4 Je 3 '20
4th annual convention, New York, May 19-20. Coal Age 19:964-6 My 26 '21
Calder committee raid fails to yield evidence of wrongdoing by National coal association. Coal Age 18:1339-43 D 30 '20
- Daugherty enjoined in conspiracy case; National coal association denies collusion in priority orders. P. Wooton. Coal Age 19: 637-8 Ap 7 '21
- National coal association in 1919.** J. D. A. Morrow. Coal Age 17:82-3 Ja 15 '20
- Officers.** Coal Age 20:145 Jl 28 '21
- Urges coal operators to meet problems through organization.** H. N. Taylor. Coal Age 17:1147-9 Je 3 '20
- National conference of state manufacturers' associations**
Conference, Chicago, Jan. 12. Am Mach 54: 160f-g Ja 27 '21; Iron Tr R 68:209-11 Ja 20 '21
Meeting, Chicago, Sept. 29-30. Ry Age 71: 675-9 O 8 '21
- National conference on city planning**
12th meeting, Cincinnati, April 19-22. Eng N 84:904 My 6 '20
Zoning dominates topics discussed at 13th National conference, May 9-11, Pittsburgh. Eng N 86:872 My 19 '21
- National conference on concrete house construction**
Conference suggests remedies for house shortage. Concrete 16:130-1 Mr '20
Notes on the concrete housing conference, Chicago. il plans Arch Forum 32:123-6 Mr '20
- National conference on highway traffic regulation**
Conference on traffic regulation, Washington, Jan. 1921. Soc Auto Eng J 8:305 Ap '21
- National construction conference.** See National federation of construction industries
- National cooperative convention, 2d**
2d convention, Cincinnati, Nov. 11-14, 1920. Monthly Labor R 12:127-32 Ja '21
- National council of lighting fixture manufacturers**
Convention, Buffalo. Elec R 78:349-56 F 26 '21
Ideals and objects embodied in a code. Elec R 78:424 Mr 12 '21
Lighting industry in further progressive action; meeting of executive council. Elec R 78:662-3 Ap 23 '21
Standardization and co-operation in the fixture trade. V. D. Green. Elec R 77:915-16 D 11 '20
- National debts.** See Debts, Public
- National district heating association**
11th annual convention, Chicago, May 25-27. Heat & Ven 17:41-6 Jl '20
12th annual convention, Cedar Point, O. June 22-24. Heat & Ven 18:48-52 Jl '21; Power 54:37-8 Jl 5 '21
- National editorial association**
35th annual convention, Boston, May 31-June 5. G. L. Caswell. Inland Ptr 65:499-501 Jl '20
36th annual convention. Inland Ptr 67:82 Ap '21
- National electric light association**
Activities of the N. E. L. A. outlined for 1921. Elec R 78:149-50 Ja 22 '21
Broadening work of the association. R. H. Ballard. map Elec R 76:10-12 Ja 3 '20
Committees of the N. E. L. A. and their chairmen. Elec R 76:13-14 Ja 3 '20
Convention report of executive manager. M. H. Aylesworth. N E L A Bul 8:345-8 Je '21; Excerpts. Elec R 78:893-4 Je 4 '21
Developments in N.E.L.A. Great Lakes division. Elec R 79:497-9 O 1 '21
43d annual convention, Pasadena, Cal., May 18-22. Elec W 75:1179-88, 1235-64 My 22-29 '20; Elec Ry J 55:1038-42 My 22 '20; Power 51:936-9 Je 8 '20; J Elec 44:545-50 Je 1 '20; Elec R 76:849-50 My 22 '20
44th convention, Chicago, May 31-June 3. N E L A Bul 8:379-81 Jl '21; Elec J 18: 157-61 My '21; Elec R 78:891-914 Je 4 '21; Elec Ry J 57:1085-6 Je 11 '21; Power 53: 985-8 Je 14 '21; Elec W 77:1285-1310 Je 4 '21
History, officers, etc. Elec R 78:291-6 F 19 '21

National electric light association—Continued

- Progressive history of the National electric light association. Elec R 78:846-7 My 28 '21
- Proposed re-organization. M. H. Aylesworth. map Elec J 17:227-9 My '20; Same. Elec R 76:727-30 My 1 '20; Same. N E L A Bul 7:265-8 My '20; Same, with chart. Elec W 75:1089-92 My 8 '20; Abstract. Power 51:742 My 4 '20
- Recalling a momentous convention and its results. C: W. Price. Elec R 78:287-9 F 19 '21
- Reports and discussions at the Pasadena meeting. Elec Ry J 55:1157-9 Je 5 '20
- Reports to be made by commercial section at Pasadena, Cal., in May. Elec R 76:355-7 F 28 '20
- Responsibility upon the N.E.L.A. R. H. Ballard. Elec W 75:124-5 Ja 17 '20
- 7th annual convention of the Michigan section, Ottawa Beach, Aug. 24-26. N E L A Bul 7:708-12 O '20
- Technical work of the National electric light association. I. E. Moulthrop. Elec J 18:161 My '21

New England geographic division

- 12th convention, New England geographic division, Kineo, Maine, Sept. 13-16. N E L A Bul 7:713-17 O '20

Pacific coast division

- 5th annual convention, Del Monte, Cal., June 8-10. N E L A Bul 8:423-5 Jl '21; J Elec 47:19-29, 31-2 Jl 1 '21
- Pacific coast section convention, Pasadena, May 17. J Elec 44:553-9, 583-4 Je 1 '20

Southeastern geographic division

- Miami convention of the Southeastern geographic division, Miami, Fla., Nov. 16. C. A. Collier. N E L A Bul 7:886-9 D '20

National electrical code

- Combine of electrical fire and safety codes; American engineering standards committee to cross-index two codes. Elec R 77:844-6 N 27 '20
- Electrical committee meets for revision of code. Elec R 76:533-4 Mr 27 '20
- Electrical committee takes action on code changes. Elec R 76:584-5 Ap 3 '20
- Insulating joints not required by 1920 code. Elec R 77:331 Ag 28 '20
- Proposed changes in the National electrical code. Elec R 76:331-3; 372-5, 415-18 F 21-Mr 6 '20
- Protection of power-station equipment; National electrical code as applied to power-station equipment. E. P. Slack. diags Power 53:920-3 Je 7 '21
- Revision of National electrical code. Power 51:649 Ap 20 '20
- Who's who in framing national electrical rules. G: B. Muldaur. Elec R 78:341-4 F 26 '21
- Wiring for light and power. T. Croft. 3d ed., with 1921 supplement [42p]. 507p McGraw-Hill '21

National electrical safety code

- Changes proposed for the third edition. Power 50:674-5 O 28 '19
- Combine of electrical fire and safety codes; American engineering standards committee to cross-index two codes. Elec R 77:844-6 N 27 '20
- Discussion of the National electrical safety code. U S Bur Stand Handbook Ser 4: 1-330 '21
- National electrical safety code. 3d ed. U S Bur Stand handbook ser 3:1-366 '21
- Present status of work on National electrical safety code. N E L A Bul 7:508-10 Ag '20; Same abr. Elec W 76:446-7 Ag 28 '20
- Proposed code changes on signal lines, pole strength and joint poles. Elec W 75:1280 My 29 '20
- Safety rules committee reports on status of National electrical safety code. T: Sproule. N E L A Bul 8:405-9 Jl '21
- National exposition of the chemical industries. See Chemical industries—Exhibitions

National federation of construction industries

- Construction conference urges price deflation. Eng N 86:447 Mr 10 '21
- Growth of the Federation of construction industries in the United States. Can Eng 38: 228-30 F 19 '20

National fertilizer association

- 28th annual convention, White Sulphur Springs, W. Va., June 20-23. Oil Paint & Drug Rep 99:23+ sec 1 Je 27 '21

National fire protective association

- 25th annual conference, San Francisco, June 14-16. Safety Eng 41:264-6+; 42:2-9 Je-Jl '21

National foreign trade council

- Extracts from National foreign trade convention addresses. Am Mach 52:1258-61 Je 10 '20
- National foreign trade council. Marine Eng 26:123 F '21
- 7th convention, San Francisco, May 12-15. Iron Tr R 66:1463-4 My 20 '20; Ry Age 68: 1447-51 My 21 '20; Am Mach 52:1210-11 Je 3 '20
- 7th convention, San Francisco, May 12-15. A. I. Findley. Iron Age 105:1441-3 My 20 '20
- 8th annual convention, Cleveland, May 4-7. Am Mach 54:847, 875-7 My 12-19 '21; Iron Age 107:1245-8 My 12 '21; Iron Tr R 68:1306-7 My 12 '21; Nation's Business 9:72+ Je '21

National founders association

- 23d annual convention, New York, Nov. 19-20. Iron Age 104:1070-3 N 27 '19
- 24th annual convention, New York city, Nov. 17-18. Am Mach 53:1019-20 N 25 '20; Iron Age 106:1389-91 N 25 '20; Iron Tr R 67:1464-5 N 25 '20

National foundry company, Erie, Pennsylvania

- Making government castings at Erie. P. Dwyer. il Foundry 47:895-901 D 15 '19
- National good roads show
- 11th show, Louisville, Ky., Feb. 9-13. il Good Roads n s 19:91-4+ F 18 '20
- 12th show, Chicago, Feb. 9-12. il Good Roads n s 21:123-6+ Mr 2 '21

National guard

- National guard aero squadrons. Aviation 11: 51 Jl 11 '21
- See also Recruiting and enlistment

National hardware association

- Fall meeting of metal branch, Atlantic City, Oct. 18. Sheet Metal Worker 12:681-2 O 28 '21
- 9th annual convention of the metal branch, Cleveland, Ohio, May 21-22. Metal Work 93:687-9 My 28 '20; Iron Tr R 66:1556-7 My 27 '20
- 10th annual meeting of the metal branch, Cleveland, June 3-4. Iron Age 107:1545-6 Je 9 '21; Iron Tr R 68:1601 Je 9 '21; Sheet Metal Worker 12:335-6 Je 10 '21

National hardwood lumber association

- 23d annual convention, Chicago. Am Lumberman 2353:68-71 Je 19 '20

National implement and vehicle association

- N.I.V.A. discusses difficulties of farm implement industry at convention in Chicago. D: Beecroft. Automotive Ind 45:751-4+ O 20 '21

- 27th annual convention, Atlantic City. C. Jennings. Automotive Ind 43:851-4 O 28 '20

National industrial conference. See Industrial conference, Washington, 1919**National industrial cost conference. See Industrial cost association****National industrial council**

- 4th semi-annual joint conference of the Advisory committee and the Executive committee, New York city, Oct. 20-22. Am Ind 20:31-2 D '19

- Weaving industrial organizations. E. Constantine. il Am Ind 21:19-21 D '20

National industrial safety code

- Structural service department; national industrial safety codes. Am Inst Arch J 8:47-8 Ja '20

National industrial traffic league

Annual meeting, New York city, Nov. 18-19.
Ry Age 69:939-40 N 26 '20
National industrial traffic league on railroad
legislation. Ry Age 68:379-80 Ja 30 '20
Special meeting, Louisville, Ky., Sept. 30-Oct.
1. Ry Age 69:650 O 15 '20

National industrial tribunal. See Industrial conference, Washington, 1919 (2d)**National knitted underwear association** (formerly National association of the sweater and knitted textile industry)

3d semi-annual convention, Philadelphia,
March 24-25. Textile World 59:2347+ Ap 2
'21
4th semi-annual meeting, New York, Sept.
16-17. Textile World 60:1781 S 24 '21

National lime association

3d annual convention, New York, June 15-
17. Chem & Met Eng 24:1141-2 Je 29 '21;
Am Arch 120:20-4 Jl 6 '21; Concrete 19:
sup9 Jl '21

National lumber manufacturers' association

Activities. W. Compton. Am Lumberman
2345:70-1 Ap 24 '20
Selected questions and answers on the forest
industries questionnaire. E. T. Allen. Am
Lumberman 2326:59-61 D 13 '19

National machine tool builders' association

Annual convention, Atlantic City. Am Mach
52:1158-9 My 27 '20; Mach 26:922-3 Je '20
19th annual fall convention, New York, Nov.
11-12. Am Mach 53:967-9 N 18 '20; Iron
Age 106:1321-4, 1369-71 N 18 '20; Iron Tr R
67:1398-9 N 18 '20; Mach 27:327 D '20
20th annual convention, New York, Oct. 18-
20. Am Mach 55:699-700, 720-36 O 27-N 3
'21; Iron Age 108:1026-8 O 20 '21; Mach
28:193-4 N '21
Semiannual meeting, Cleveland, Feb. 24-26.
Iron Tr R 68:642-3 Mr 3 '21; Iron Age 107:
563-5 Mr 3 '21

National marine engineers' beneficial association

Text of Shipping board wage agreement with
marine engineers. Comm & Fin Chr 112:2710
Je 25 '21

National marine exposition

Marine exposition is success. Marine R 50:
255-6 My '20
Power and electrical features at Marine ex-
position. il Elec R 77:649-50 O 23 '20

National marine league of the United States of America

Activities of the National marine league of
the U.S.A. F. Riesenbergl. Gen Elec R 21:
99-101 F '21

National merchant marine association

Annual convention, Washington, D.C., Jan.
20-21. Marine Eng 26:158-60+ F '21

National metal trades association

National metal trades association and indus-
trial education. H. C. Smith. Mech Eng
43:521-2+ Ag '21
22d annual convention, New York, April 21-
22. Iron Age 105:1229-34 Ap 29 '20; Iron Tr
R 66:1255-6 Ap 29 '20
23d annual convention, New York, April
20-21. Iron Age 107:1106-13 Ap 28 '21; Iron
Tr R 68:1190-2 Ap 28 '21; Mech Eng 43:425
Je '21

National municipal league

Special session of the annual meeting,
Indianapolis, Nov. 17-19, to discuss Service
at cost for street railways. Elec Ry J 56:
1141-4 D 4 '20

National nonpartisan league

Drive against "big biz." J. E. Boyle. il Na-
tion's Business 8:24-6 Ap '20
Non-partisan league. A. A. Bruce. 234p Mac-
millan '21

National oil company

10th annual report for the fiscal year ending
December 31, 1919. Comm & Fin Chr 110:
2202-3 My 22 '20

National paper trade association

Annual meeting, New York, April 13. Paper
26:284-90 Ap 21 '20
Meeting, New York. Paper 28:49-58 Ap 20
'21

National parks and reserves

Beauty of use; water-power resources es-
sential to Pacific states limited by pro-
posed enlargement of national parks. maps
Elec W 76:1201-3 D 18 '20

Controversy over use of water of national parks. Eng N 86:777-8 My 5 '21

National park amendments to water-power
bill introduced in Congress. Elec W 76:
1181 D 11 '20

See also Glacier national park; Mesa
Verde national park; Yellowstone national
park; Yosemite national park

National petroleum association

19th annual convention, Atlantic City, Sept.
21-23. V. B. Guthrie. Nat Pet N 13:19-20+
S 28 '21

Semi-annual meeting, Pittsburgh, April 21-
22. Nat Pet N 12:41-3 Ap 28 '20

National petroleum congress

New era of co-operation; annual meeting,
Kansas City, March 22-24. Oil Paint & Drug
Rep 99:9+ sec 2 Ap 4 '21

Official program, Congress hotel, Chicago,
March 9-12, 1920. Nat Pet N 12:51-3 Mr 3
'20

National petroleum marketers association

Two jobbers' associations reach agreement to
merge forces. Nat Pet N 13:25 Je 24 '21

National physical laboratory (Great Britain)

Annual report for 1920. Elec R (Lond) 89:66-7,
80-2 Jl 8-15 '21

Annual report for 1920. Engineering 112:
10-12, 98-9, 158-9, 192-4, 211-13 Jl 1, 15-Ag
5 '21

National physical laboratory. diagrs Engineer-
ing 109:866-8; 110:19-20, 56-8 Je 25-Jl 9 '20
Report for the year 1919. Illum Engr 13:212
Jl '20

Summary of the work done during 1920.
Engineer 132:7-8 Jl 1 '21

Work of the National physical laboratory.
Electrician 87:17-18 Jl 1 '21

National pipe and supplies association

12th annual convention, Cleveland, May 10-11.
Iron Age 107:1301-2 My 19 '21

National public works department association

1st convention, Washington, Jan. 13-14. Eng
N 84:169-70 Ja 22 '20; Am Arch 117:94 Ja
21 '20; Mech Eng 42:136-7 F '20

Observations on the work of the National
public works department association. M. O.
Leighton. Mech Eng 42:537-8 S '20

National railway appliances association

Construction and maintenance appliances on
exhibition. Ry R 68:455-6 Mr 19 '21

National railway service (Warfield plan). See Railroads and state—United States**National railway service corporation**

Organization. Ry Age 69:241-2 Ag 6 '20;
Same. Ry R 67:212-14 Ag 7 '20
\$60,000,000 issue announced by Ry. service
corp'n for equipment. Ry R 67:628 O 23 '20

National refining company

Men of its own making new heads of National
refining company, Nat Pet N 12:35-6 O 20 '20

National research council

Division of engineering organized on a peace-
time basis. Min & Met 168:24 D '20

Engineering division report. Mech Eng 42:650
N '20

Financial support of the Council; correc-
tion. Special Lib 12:108-9 My '21

Highway investigation body formed. Eng N
85:1010+ N 18 '20

National information service for science and
technology. R. Cobb. Sci Am M 4:78-9 Jl
'21

National research council. V. Kellogg. Inter-
national Conciliation 154:423-30 S '20 Ameri-
can association for International Concilia-
tion

National research council—its scope and plans.
H. E. Howe. Textile World 57:952+ F 7 '20

Organization of research in a democracy. R.
A. Millikan. W Soc E J 26:305-14 S '21

Organized research into highway transporta-
tion problems. C. Jennings. Automotive Ind
43:1077 N 25 '20

National research council—Continued

Report of the chairman at the annual meeting of the Division of chemistry and chemical technology. W. D. Bancroft. J Ind & Eng Chem 12:911-18 S '20

Science and national progress. V. Kellogg, R. M. Yerkes and H. E. Howe. Sci Am M 1:73-7 Ja '20

Science coming into its own; the National research council and other research organizations. C: F. Carter. Sci Am 125:24 Jl 9 '21

See also Science service; *also* Alloys research association

The National research council has a research information service which is a clearing house for information about the mathematical, physiological and biological sciences and their applications in industry, commerce and education. No charge is made for replies to inquiries which do not necessitate a special search.

National retail coal merchants' association

3d annual convention, Detroit, June 10-12. Coal Age 17:1243-4 Je 17 '20

4th annual convention, Richmond, Va., May 12-13. Coal Age 19:921-2 My 19 '21

National safety council

Meetings of the Textile section. Textile World 60:1928 O 1 '21

Mine safety experts discuss at Milwaukee accidents, health and welfare. R. D. Hall. Coal Age 18:763-7, 801-6, 845-50, 899 O 7-28 '20

9th annual safety congress, Milwaukee, Sept. 27-Oct. 1. Eng & Min J 110:730-2 O 9 '20; Am Gas Eng J 113:334-6 O 23 '20; Elec Ry J 56:922 O 30 '20; Eng N 85:721 O 7 '20; Iron Age 106:907-10 O 7 '20; Monthly Labor R 11:1051-4 N '20; Ry Age 69:617-19 O 8 '20

10th annual safety congress, Boston, Sept. 26-30. Eng & Min J 112:581-3 O 8 '21; Iron Age 108:871-3 O 6 '21; Ry Age 71:630, 680 O 1-8 '21; Coal Age 20:640-3 O 20 '21; Elec Ry J 58:785-6 O 29 '21; Elec W 78:788 O 15 '21

Safety requires clear brain. Iron Tr R 67:982-4 O 7 '20

Summer meeting, Chicago, June 24. Am Mach 53:136-7 Jl 15 '20

Committee on aeronautics

National safety council outlines aeronautic program. Aerial Age 12:224 N 1 '20

National screw thread commission

Comments on the report of the National screw thread commission. E. C. Peck. Am Mach 54:701-2 Ap 21 '21

Report. Mech Eng 42:337-45 Je '20; Am Mach 53:507-12, 543-6 S 9-16 '20; Soc Auto Eng J 7:317-20 O '20; J Fr Inst 191:529-30 Ap '21

National sheet metal products association

Work of the association with constitution and by-laws. Sheet Metal Worker 12:69-71 Mr 4 '21

National supply and machinery dealer's association

Annual meeting, Atlantic City, May 16-18. Iron Age 107:1382-3, 1429-32 My 26 '21; Iron Tr R 68:1466-7 My 26 '21

National trade extension bureau

National campaign of knowledge. Plumber 94:442-3 O 8 '20

National trade marks. See Trade marks, National**National transportation conference**

Transportation conference plan. Ry Age 68:378-9 Ja 30 '20

National warm-air heating and ventilating association

Annual meeting, Cleveland, Ohio, April 21. Metal Work 93:557-61 Ap 30 '20

Annual meeting, Cleveland, Ohio, May 24. Sheet Metal Worker 12:301-2 My 27 '21

National wholesale druggists association

47th annual convention, Atlantic City, Sept. 26-29. Oil Paint & Drug Rep 100:3+ O 4 '21

National wholesale dry goods association

16th annual convention, New York. Textile World 57:368-9 Ja 17 '20

17th annual convention, New York. Textile World 59:453+ Ja 22 '21

National wholesale lumber dealers' association

28th annual meeting. Am Lumberman 2341:63-8+ Mr 27 '20

Nationalization of industry. See Government ownership**Natural gas. See Gas, Natural****Natural gas association of America**

Meeting, Buffalo, N.Y. Gas Age 45:437-41 My 25 '20

16th annual meeting, Cincinnati, May 16-19. Gas Age 47:437-8 My 25 '21

Natural gas burners. See Gas burners**Natural gasoline manufacturers, Association of.**

See Association of natural gasoline manufacturers

Natural history museums

Behind the exhibits. A. A. Hopkins. il Sci Am 125:254-5 O 8 '21

Natural resources

Publicity for the natural resource industries highly desirable. C: S. Keith. Paper 28:12+ My 18 '21

See also Coal; Forests and forestry; Gas, Natural; Mines and mineral resources; Petroleum; Reclamation of land; Water power; Water supply

Natural selection

Relation of Mendelism and the mutation theory to natural selection. L. L. Nutting. Sci Am M 3:369 Ap '21

Natural steam. See Steam, Natural**Nature**

Sounds of meteorological origin. W. J. Humphreys. Sci Am M 4:75-6 Jl '21

Naumannite

Occurrence of naumannite in Idaho. E. V. Shannon. Am J Sci 50:390-1 N '20

Nauru

Important British fertilizer supplies from Nauru and Ocean island. Chem & Met Eng 24:769 My 4 '21

Nautical training schools. See Training ships**Naval architects**

Designers and operators of our ships. J: Flodin. Int Marine Eng 25:7-10 Ja '20

Naval architects, Institution of. See Institution of naval architects**Naval architects and marine engineers, Society of. See Society of naval architects and marine engineers****Naval architecture**

Applied naval architecture. W. J. Lovett. 654p Longmans '20

Architectural interiors of the United States shipping board S. S. Hawkeye State. F. B. Ellis. il Am Arch 119:446-51 Ap 13 '21

Buoyancy and stability of troop transports. W: Hovgaard. diag Int Marine Eng 25:60-4, 132-7 Ja-F '20

Deflections of bulkheads and of ships. A. M. Robb. diags Engineering 111:407-10 Ap 1 '21; Excerpts. Engineer 131:344 Ap 1 '21; Discussion. Engineering 111:385 Ap 1 '21; Engineer 131:344 Ap 1 '21

Increased activity in vessel design and brokerage; Cox & Stevens, naval architects and engineers, New York. il Int Marine Eng 25:142-3 F '20

Naval architecture in aeronautics. J. C. Hunsaker. diags Engineering 109:857-60 Je 25 '20; Same. Aviation 9:10-14 Ag 1 '20

Naval architecture in aeronautics. J. C. Hunsaker. diags Soc Auto Eng J 7:504-20 D '20

Non-rolling passenger liners. E: A. Sperry. il diags Sci Am M 1:232-7 Mr '20; Same cond. Int Marine Eng 25:43-7 Ja '20

P. and O. liner Naldera. il diag Engineering 110:278-9, 282, 453 pl 26, 58 Ag 27, O 1 '20

Problem of the hull and its screw propeller. C. W. Dyson. Marine Eng 26:315-20, 398-405, 453-7, 553-6, 617-20 Ap-Ag '21

Random notes by an old seaman. R. E. Barry. diags Marine Eng 26:688-90 S '21

Naval architecture—*Continued*

- Relation of beam to height of metacenter. F. M. Hiatt. diags Int Marine Eng 25:569-72 J1 '20
- Ship and harbour design and equipment as affecting the rapid loading and discharging of cargo vessels. A. R. T. Woods. Engineering 112:31; Discussion. 21-3, 38-40 J1 1-8 '21
- Status of ship data. C. H. Peabody. Marine Eng 25:797-9 O '20
- Strength of submarine vessels. W. R. G. Whiting. diags Engineering 111:662-4 My 27 '21
- War experience with merchant ships. J. J. Welch. il Engineering 110:37-41 J1 9 '20; Excerpts. Engineer 130:34 J1 9 '20; Excerpts. Marine Eng 25:813-15 O '20
- See also* Barges; Boats, Concrete; Bulkheads (naval architecture); Colliers; Electric welding barge; Fire boats; Fishing boats; Freight ships; House boats; Ice breaking vessels; Load line; Marine engineering; Masts and rigging; Motor ships; Patrol boats; Propellers; Salvage ships; Ship propulsion; Ship resistance; Shipbuilding; Ships; Ships, Concrete; Ships, Iron and steel; Steamboats; Submarine boats; Tank ships; Torpedo boat destroyers; Torpedo boats; Towboats; Warships; Yachts
- Designs and plans**
- American liners for North Atlantic to have third class accommodations. plans Marine R 51:298-9 J1 '21
- American passenger liner George Washington. G. C. Cook. il diags plans Marine Eng 26:505-10+ J1 '21
- British frozen meat cargo steamer Tairoa. diags plans Marine Eng 26:583-7 Ag '21
- British standard ship of 3,150 tons d.w. F. C. Coleman. il diags plans Int Marine Eng 25:275-6 Ap '20
- Cable steamer All American. plans Marine Eng 26:207-8 Mr '21
- Converting the Ferris-type wooden hulls into Diesel-electric driven motorships. R. Z. Dickie. diags plans Int Marine Eng 25:166-9 Mr '20
- Craft for canal and river service in the United States. diags plans Engineer 129:593-6 Je 11 '20
- Development of the motor lifeboat. il diags Engineer 129:294-6, 298 Mr 19 '20
- Diesel motor yacht for Vincent Astor. diags plans Marine Eng 25:965-9 D '20
- Downey shipbuilding corporation delivers ship for private account. V. G. Iden. il diags plans Marine R 50:140-3 Mr '20
- Electrically propelled passenger ship Cuba. J. A. Kelley. il diags plans Marine Eng 25:949-61 D '20
- England's latest type of ocean liner, the Scythia. il diags plans Marine Eng 26:819-24 N '21
- Ex-German battleship Baden. S. V. Goodall. diags plan Engineering 111:337-41, pl 13-15 Mr 18 '21
- 502-foot passenger and cargo vessels. il diags plans Int Marine Eng 25:265-9 Ap '20
- French transatlantic liner Paris. il plans Engineering 112:181-2, pl 8 J1 29 '21
- Fruit steamers Hibueras and Nicarao. C. Feldman. il diags plans Marine Eng 25:799-803+ O '20
- Geared turbine passenger steamer Antwerp. F. C. Coleman. il plan Int Marine Eng 25:625-30 Ag '20
- General arrangement plans of motorship for the Swedish East Asiatic company. Marine Eng 26:154 F '21
- German submarines. A. W. Johns. diags Engineering 109:428-32 Mr 26 '20
- High-speed craft during the war. W. W. Marriner. diags Engineering 109:578-9, pl 32 Ap 30 '20
- H. M. S. Hood. E. d'Eyncourt. diags Engineering 109:423-6 Mr 26 '20; Same. Engineer 129:314-16 Mr 26 '20; Same. Int Marine Eng 25:492-5 Je '20
- How new U.S. liners are fitted. plans Marine R 50:446-7 Ag '20
- Huge ore and oil carrier Marore and Steelore. diags Marine R 51:160-2 Ap '21; Same. Iron Tr R 68:972-3 Ap 7 '21
- Icebreakers for Archangel. il diags Engineer 128:632, 633, 636 D 26 '19
- Influence of the marine draftsman on a vessel's earning power. H. H. Thayer, jr. Sibley J 34:18-21+ F '20
- Italian flotilla leaders. il diags plan Engineer 130:267-9, 278 S 17 '20
- Lake bulk freighter Horace S. Wilkinson. il diags plans Marine Eng 25:804-9 O '20
- London and North-Western railway company's Irish channel steamer Curraghmore; view and plans. Engineer 129:supp F '20 '20
- Merchant shipbuilding corporation designs ships for Shawmut line. diags plans Marine R 50:197-200 Ap '20
- Method for determining diameter of booms. C. A. Vincent. diags Int Marine Eng 25:180-1 Mr '20
- Mississippi-Warrior river towboats. il diags plan Marine Eng 26:434-7 Je '21
- Motor ship Asia for the East Asiatic company. il diags plans Engineering 109:12-14, pl 1 Ja 2 '20
- Motorship building in Europe. il diag plans Int Marine Eng 25:664-6 Ag '20
- Motor ship Narragansett. il diags (supp) Engineering 109:716-19, 722 My 28 '20
- Motorship Narragansett. il diags plans Marine Eng 26:16-20 Ja '21
- Motorship Tosca. il diags plans Marine Eng 26:280-3 Ap '21
- Navires à "pousseurs," système Constan. F. Pavy. diags (supp) Génie Civil 76:152-4 F 7 '20
- New American passenger steamers. il diags plans Int Marine Eng 25:260-4 Ap '20
- New design of 10,000-ton tanker. diags plans Marine Eng 26:12-15 Ja '21
- New ferryboats for Boston harbor. il diags plans Marine Eng 26:826-30 N '21
- New 20,000-ton tankers. H. F. Norton. diags plans (supp) Marine Eng 25:970-4 D '20
- 9,420-ton tankers San Lamberto and San Leon. diags plans Marine Eng 26:513-19 J1 '21
- Oil-carrying steamer San Felix for the Eagle oil transport line. il Engineering 112:441-2, 444, pl 25 S 23 '21
- Oil tank steamer San Fernando. il diags pl 4 (supp) Engineering 109:76-8 Ja 16 '20
- Oil tank steamer San Fernando; largest of the new fleet of 18,000-ton steamers building for the Eagle oil transport company, limited. F. C. Coleman. il diags plans Int Marine Eng 25:484-8 Je '20
- Ore and coal carriers Chilore and Lebores. diags Marine Eng 26:364-7+ My '21
- Ore and oil steamers Marore and Steelore. diags plans Marine Eng 26:283-9 Ap '21
- P. and O. liner Naldera. il diags plans Marine Eng 26:195-206 Mr '21
- Le paquebot Paris de la compagnie générale transatlantique. C. Dantin. il plans Génie Civil 79:73-80, pl 1 J1 23 '21
- Passenger and cargo steamer Oropesa. il diags plans Marine Eng 26:351-7 My '21
- Passenger and cargo steamship Hawkeye State. il diags plans Marine Eng 26:185-94+ Mr '21
- Passenger liner Giulio Cesare. il diags plans Marine Eng 26:425-30 Je '21
- Passenger steamship Mount Clay. J. A. Kelley. il diags plans Marine Eng 26:22-3, 82 Ja '21
- Random notes by an old seaman. R. E. Barry. diags Marine Eng 26:137-8 F '21
- Rebuilt Harriman liner De Kalb. J. A. Kelley. diag plans Marine R 51:181-3 Ap '21
- Refrigerator and cargo steamer City of Pekin. diags plans Marine Eng 26:657-61 S '21
- 6,300-ton deadweight freighter. diags plans Marine Eng 25:885-90 N '20
- Tank steamer of 12,620 tons deadweight. diags plans Int Marine Eng 25:476-8 Je '20
- T.S.S. Lawrence for the Royal Indian marine. il diags (supp) Engineering 109:115-16, 118 Ja 23 '20
- 10,000-ton oil tank steamship for Union oil company of California. il diags plans Int Marine Eng 25:272-4 Ap '20

Naval architecture—Designs and plans—*Cont.*
 10,500-ton deadweight cargo carrier. diags plans Int Marine Eng 25:714-16 S '20
 Third-class carrier Vedic. il diags plans Marine Eng 26:290-4 Ap '21
 Twin screw cargo ship Eastern Merchant. C. Ano. il diags plans Int Marine Eng 25:547-50 Jl '20
 Twin-screw coastwise passenger steamer. diags plans Int Marine Eng 25:396-8 My '20
 Twin screw motorship Formosa. il diags plans Marine Eng 26:739-43 O '21
 Twin-screw turbine S. S. Mendoza for the Société générale de transports maritimes à vapeur; diagrams. Engineering 111:pl 6 F 4 '21
 Wine steamers Nelly Lasry and Sidney Lasry. il diags plans Marine Eng 26:360-3 My '21
 Wooden tug for service in tropics. diags Marine Eng 26:278-9 Ap '21
See also Towboats

Subdivision

Subdivision of passenger vessels. G: Webster. Engineering 110:94-8 Jl 16 '20; Same. Int Marine Eng 25:726-34 S '20; Abstract. Engineer 130:54-5 Jl 16 '20; Discussion. Engineering 110:85-7 Jl 16 '20

Tables, calculations, etc.

Approximate stability formulae. H. Schultz. diags Marine Eng 26:481-3+ Je '21
 General formulae for the vertical position of the center of buoyancy. L. Pistner. diags Marine Eng 25:908-9 N '20
 Method of estimating steel hull weights. G. F. S. Mann. Int Marine Eng 25:651-2 Ag '20

Naval art and science

Les enseignements de la guerre maritime et particulièrement de la bataille du Jutland (31 mai 1916). A. Poidlouë. Génie Civil 78:415-17 My 14 '21
 How a sham battle is fought today. il Sci Am 125:259 O 8 '21
 Mechanical warfare on land and sea. Engineering 111:31-2 Ja 14 '21
 Technical results of the battle of Jutland. S. Orlando. Engineering 111:56-7; Discussion. 40-1 Ja 14 '21
 Two revolutions in naval warfare. Engineering 110:871-3 D 31 '20

See also Gunnery; Marine engineering; Navies; Navigation; Navy yards and naval stations; Sea power; Seamen; Shipbuilding; Signals and signaling

Exhibitions

Marine room of the Peabody museum of Salem. J: Robinson. 188p Peabody museum, Salem '21

Terminology

Naval dictionary; Italian-English and English-Italian. W. T. Davis. 356p Pitman '21

Naval battles

See also Jutland, Battle of

Naval gunnery. *See* Gunnery

Naval guns

Armor-plate and gun-forging plant of U.S. navy, South Charleston, W. Va. R. M. Freeman. il diags plans Mech Eng 42:657-68+ D '20; Same abr. Iron Age 106:1458-62, 1600-4 D 2, 16 '20; Same cond. Iron Tr R 67:1669-74+ D 16 '20
 Era of the eighteen-inch gun. Sci Am 123:32 Jl 10 '20
 Ex-German battleship Baden and the cruiser Nurnberg. il (supp) diags plan Engineer 130:319-22 O 1 '20
 Milling machines designed to fulfill unusual requirements in quantity production. il diags Mach 26:856-62 My '20
 Naval gunnery and construction. il Engineer 131:421-2, 434 Ap 22 '21
 New point of view of a ship's battery. il Sci Am 122:91 Ja 24 '20
 Romance of invention; inventor of fighting machines and his work in adding to the efficiency of navies. C. H. Claudy. il Sci Am 124:46+ Ja 15 '21

Naval laboratories, Bellevue

Naval experimental laboratory. Sci Am 123:492 N 13 '20

Naval observatory. *See* United States naval observatory

Naval ordnance plant, South Charleston, West Virginia. *See* United States naval ordnance plant, South Charleston

Naval stations. *See* Navy yards and naval stations

Naval stores

Naval stores; history, production, distribution and consumption. T: Gamble, comp. 286p Review publishing & printing co., Savannah, Ga. '21

Rosin. Paper 28:13+ Jl 20 '21

Wasteful methods of the naval-stores industry. V. R. Crosswell. Chem & Met Eng 25:440 Ag 31 '21

See also Tar; Turpentine

Prices

Naval stores markets. *See* weekly numbers of Oil paint and drug reporter

Navies

Jane's fighting ships. Sci Am 122:640 Je 12 '20

Leading navies compared. il Sci Am 124:130-1+ F 12 '21

Naval armaments and the Washington conference. Engineer 132:443-5, 570-1 O 28, N 25 '21

Naval strength of the powers. Engineering 112:194-5 Jl 29 '21

See also Coaling stations; Disarmament; Naval art and science; Navy yards and naval stations; Sea power; Submarine boats; Warships; *also* subdivision Navy under names of countries, e.g. Great Britain—Navy, United States—Navy

Navigation

Application of radio to navigation problems. W. H. G. Bullard. il maps J Fr Inst 191:725-66 Je '21

Avant-bec mobile pour diminuer la résistance des péniches à la traction. diag plan Génie Civil 77:446 N 27 '20

Causes and paths of cyclones. diag maps Marine R 51:305-11 Jl '21

Depth bombs as guides for navigation in fogs. J. C. McLennan. Sci Am M 1:140-1 F '20

Electrical signaling method for guiding ships. R. H. Marriott. il J Elec 44:113-15 F 1 '20

Guiding ships by electric cables. M. Tevis. Sci Am 123:123+ Ag 7 '20

How wireless is applied in solution of navigational problems. diag Marine R 51:243-4 My '21

Improved towing spar which can be used as a navigational instrument. S. F. Heim. diag Sci Am M 1:551 Je '20

Modern marine problems in war and peace. C. V. Drysdale. diags Inst E E J 58:572-97 Jl '20; Same, without appendices. Engineering 110:484-6, 521-3, 552-4 O 8-22 '20; Abstract. Electrician 85:391-3 O 1 '20

Navigation and business. E. F. DuBrul. Am Mach 55:627-8 O 20 '21

Practical navigation guide. V. G. Iden. diag Marine R 50:265-7, 339-43, 390-1, 467-9, 508-9, 549-50, 649-51 My-O, D '20

Safeguards navigation by sound. H. C. Hayes. Marine R 51:404-5, 466-8+, 493-5 S-N '21

See also Azimuth; Buoys; Direction finding apparatus; Fog signals; Harbors; Hydrographic surveying; Latitude; Lighthouses; Load line; Maritime law; Masts and rigging; Motor boats; Pilots and pilotage; Rivers; Safety at sea; Sextant; Shipbuilding; Shipping; Signals and signaling; Steamboats; Stowage; Submarine boats; Tides; Towing; Waterways; Yachts

Accidents

Report of the Great Lakes protective association. Marine R 51:140-2 Mr '21

Navigation—*Continued*

Tables

- Star identification tables. 364p U.S. Hydrographic office, Washington, D.C. '20
- Navigation, Aerial. See Aeronautics; Aviation
- Navigation, Inland. See Waterways
- Navigation laws. See Maritime law
- Navy beans. See Beans
- Navy yards and naval stations
- Caring for tools at Puget Sound navy yard. *il Am Mach* 55:94-6 J1 21 '21
- Facilities at the Puget Sound navy yard. F. H. Colvin. *il Am Mach* 55:188-9 Ag 4 '21
- Large machine work at the Puget Sound navy yard. F. H. Colvin. *il Am Mach* 54:801-3 My 12 '21
- Naval air station at Pensacola. F. H. Colvin. *il Am Mach* 53:197-9 J1 29 '20
- Navy yard at New Orleans. F. H. Colvin. *il diag Am Mach* 52:1073-5 My 20 '20
- Revival of our oldest navy yard. *il Sci Am* 122:39+ Ja 10 '20
- San Francisco bay site chosen for western naval base. *J Elec* 46:178 F 15 '21
- Special work and tools at the Puget Sound navy yard. F. H. Colvin. *il diags Am Mach* 54:1126-30 Je 30 '21
- Three sites considered for San Francisco naval base. *map Eng N* 85:1290-1 D 30 '20
- Uncle Sam's greatest navy yard at Philadelphia. R. D. Gatewood. *il Am Mach* 52:539-42 Mr 11 '20
- Use of acetylene in U.S. navy yards during the war. H. G. Knox. *il Engineer* 129:164-6 F 13 '20; Excerpts. *Int Marine Eng* 24:720-7 N '19; Excerpts. *Am Mach* 51:661-4 O 2 '19

Employees

- New wage schedule for navy-yard employees. *Monthly Labor R* 11:733-6 O '20
- Naylor, Charles William, 1858-Sketch. *por Power* 52:396-7 S 7 '20

Near East

Commerce

- Trading with the Near East; present conditions and future prospects. 19p *il n.d.* Guaranty trust co., 140 Broadway, N.Y.

Industries and resources

- See also Mines and mineral resources—Near East

Nebraska

- See also Roads—Nebraska

Capitol

- Nebraska capitol competition. *il plans Am Inst Arch J* 8:299-306 Ag '20

Nebraska, University

- Mechanical age for the farm; what Nebraska, through its state university, is doing to bring it about. R. P. Crawford. *il Sci Am* 123:426+ O 23 '20

College of agriculture

- Agricultural machinery laboratory. *Automotive Ind* 43:30 J1 1 '20

Nebulae

- External galaxies. H. Shapley. *il Sci Am M* 1:392-5 My '20
- What are the nebulae? R. Sullivan. *Sci Am M* 2:299-300 D '20

Nebulizer. See Fog, Artificial

Needles, Sewing machine. See Sewing machine needles

Negative appeal. See Advertisements—Negative appeal

Negatron

- Negatron: a new negative resistance device for use in wireless telegraphy. J. Scott-Taggart. *il diags Engineering* 112:584-5 O 21 '21; Abstracts. *Elec R (Lond)* 89:449 S 30 '21; *Electrician* 87:386 S 23 '21

Negligence

- Liability of merchant when customer is injured on premises. E. J. Buckley. *Metal Work* 93:57+ Ja 9 '20

- Negligence in handling of acids—care required to prevent injuries to others. W. Gustin. *Chem & Met Eng* 24:129-30 Ja 19 '21

See also Accident law; Carriers; Damages; Employers' liability; Occupations, Dangerous; Personal injuries

Negotiable instruments

- Law of negotiable instruments. A. W. Bays. 2d ed. 253p Callaghan & co., Chicago '21

See also Acceptances; Bonds; Checks; Express service—Money orders; Promissory notes

Negroes

- Ignorance and the eleven million; one-seventh of our laborers are negroes. L. H. Hammond. *il Nation's Business* 8:38+ D '20

- Negro, the crucial problem. *Comm & Fin Chr* 112:98-100 Ja 8 '21

- New light on an old problem—assisting the negro. *Comm & Fin Chr* 112:2131-2 My 21 '21

- Peculiarities in the skin of negroes. *Sci Am M* 4:125 Ag '21

- Urges equal political and economic advantages for negro. W. G. Harding. *Comm & Fin Chr* 113:1837-9 sec 1 O 29 '21

Employment

- Colored women as industrial workers in Philadelphia. 47p Consumers' league of eastern Pennsylvania, Philadelphia '20

- Colored women in industry in Philadelphia. *Monthly Labor R* 12:1046-8 My '21

- Negro at work during the world war and during reconstruction. G. E. Haynes. 144p U S Dept. of labor, Division of negro economics, Washington, D. C. '21

- Negro labor during and after the war. *Monthly Labor R* 12:853-8 Ap '21

- Negro labor in the stove industry. *Monthly Labor R* 11:587-8 S '20

Nelson, British Columbia

Rapid transit

- Selling rides in a city of 6,000; interesting experiment in selling twenty-five tickets for \$1 at Nelson. *il Elec Ry J* 57:895-6 My 14 '21

Neoarsphenamine. See Neosalvarsan

Neon

- Critical electron velocities for the production of luminosity in atmospheric neon. F. Horton and A. C. Davies. *diag Philos Mag* 6th ser 41:921-40 Je '21

- Neon filled tubes for ignition circuit tests. *il Automotive Ind* 45:506 S 29 '21

See also Argon

Neon lamps. See Electric lamps, Neon

Neosalvarsan

- Examination of neoarsphenamine. A. D. Macallum. *Am Chem Soc J* 43:643-5 Mr '21

Nephelometer

- Determination of chlorine with the nephelometer. A. B. Lamb, P. W. Carleton and W. B. Meldrum. *Am Chem Soc J* 42:251-9 F '20

- Quantitative determination of traces of dichloro-ethylsulfide (mustard gas) in air. M. Yablick, G. St J. Perrott and N. H. Furman. *diag Am Chem Soc J* 42:266-74 F '20

Nephoscope

- Nephoscope and aviation. *il Aviation* 10:111 Ja 24 '21

- Weather bureau nephoscope. *il Aerial Age* 12:487-9 Ja 17 '21

Nernst effect

- Hall effect and the Nernst effect in magnetic alloys. A. W. Smith. *Phys R* 17:23-37 Ja '21

Nervous system

- Thinking without a brain. *Sci Am M* 4:298-9 O '21

Netherlands

- See also Engineering—Netherlands; Zuider Zee

Netherlands—Continued

Commerce

- Economic aspects of the commerce and industry of the Netherlands, 1912-1918. B. F. Moore. U S Bur For & Dom Com misc ser 91:1-109 '19
- Floating fair from the Netherlands. Sci Am 123:454 O 30 '20
- Trade with Holland and its colonies—opportunities offered by the Utrecht fair. il Americas 7:4-11 My '21
- Yankees winning trade of Holland. G. J. M. Simons. il Am Ind 21:37-9 Ja '21

Economic conditions

- Changes in cost of living in Netherlands. Monthly Labor R 12:777-8 Ap '21
- Industrial conditions in Holland. Mach 27:1021 Jl '21

Industries and resources

- Activities of Dutch industries. Am Ind 21:39 O '20
- Economic aspects of the commerce and industry of the Netherlands, 1912-1918. B. F. Moore. U S Bur For & Dom Com misc ser 91:1-109 '19
- See also* Automobile industry and trade—Netherlands; Chemical industries—Netherlands; Electricity supply—Netherlands; Machine tool industry—Netherlands; Petroleum—Netherlands; Petroleum industry and trade—Netherlands; Zuider Zee

Nettles

- Ramies and textile nettles as paper fibre. Paper 26:15-16, 30 Jl 7 '20

Neutrons

- Attempts to detect the presence of neutrons in a discharge tube. J. L. Glasson. diags Philos Mag 6th ser 42:596-600 O '21

Nevada

- See also* Geology—Nevada; Gold mines and mining—Nevada; Mines and mineral resources—Nevada; Roads—Nevada; Silver mines and mining—Nevada

Nevada consolidated copper company

- Nevada consolidated copper company. A. B. Parsons. il map Min & Sci P 122:325-34, 525-34, 709-16; 123:319-31, 393-402 Mr 5, Ap 16, My 21, S 3, 17 '21

New Britain, Connecticut

Water supply

- Additional water supply for New Britain. Pub Works 48:511-14 Je 12 '20
- New Britain, Connecticut, state normal school Program of competition for a new group of buildings. Am Arch 119:59-61, pl 70a-g Ja 19 '21

New Brunswick

- See also* Petroleum—New Brunswick

New England

- See also* Electric plants (central stations)—New England; Electricity supply—New England; Railroads—New England; Water power—New England

New England association of gas engineers

- 49th annual meeting; with address of President Albert M. Barnes. Am Gas Eng J 112:153-4+, 155-6+ F 21 '20

New England electrical league

- New England electrical league well launched. Elec W 77:332 F 5 '21
- New England electrical men organize co-operative league at Boston meeting. N E L A Bul 8:145-6 Mr '21

New England power company

- New England power company. E. A. Dillard and H. R. Wilson. chart diags map Gen Elec R 22:974-9 N '19
- Report for 1920. Comm & Fin Chr 112:2098 My 14 '21

New England street railway club

- Meeting, Boston, Dec. 2. Elec Ry J 56:1193-5 D 11 '20
- Meeting at Boston, Feb. 3. Elec Ry J 57:374 F 19 '21

- Meeting, Boston, Oct. 13. Elec Ry J 58:784 O 29 '21
- 21st annual meeting, Boston, March 22. Elec Ry J 57:604 Mr 26 '21

New England water works association

- Annual meeting; with reports. N E Water Works Assn J 35:77-87 Mr '21
- Constitution and list of members, June, 1921. N E Water Works Assn 74p '21
- 39th annual convention, Holyoke, Mass., Sept. 7-10. Eng N 85:540-3, 573-4 S 16 '20; Power 52:480-1 S 21 '20
- 40th annual convention, Bridgeport, Conn., Sept. 13-16. Eng N 87:504 S 22 '21; Pub Works 51:240-3 S 24 '21

New Jersey

- See also* Agriculture—New Jersey; Iron mines and mining—New Jersey; New York-New Jersey port and harbor development commission; Roads—New Jersey; Street railroads—New Jersey

New Jersey, Public service corporation of. *See* Public service corporation of New Jersey

New Jersey chemical society

- Annual meeting, Newark, April 12. Chem & Met Eng 22:756 Ap 21 '20

New Mexico

- See also* Coal mines and mining—New Mexico; Geology—New Mexico; Mines and mineral resources—New Mexico; Tin mines and mining—New Mexico

New Mexico (United States battleship)

- Painting of the battleship New Mexico presented to the U.S. navy department by the General electric company. Gen Elec R 24:387-9 Ap '21; Same abr. Elec R 78:702 Ap 30 '21

New Orleans, Louisiana

- Analysis of New Orleans' rainfall statistics for twenty-five years. Eng N 84:963 My 13 '20
- New Orleans fleets cover world. Marine R 51:107 F '21
- What you will find in New Orleans. il Dom Eng 95:304-6 My 14 '21

Architecture

- Old shop in New Orleans. N. C. Curtis. il Am Inst Arch J 9:302-3 S '21

Harbor

- Enormous lock links lake and river at New Orleans. R. Morgan. il map Pop Mech 36:170-4 Ag '21
- Mississippi's mouth; what New Orleans is doing to insure its permanent navigability. J. F. Springer. il Sci Am 124:84+ Ja 29 '21
- New Orleans' industrial canal. T. E. Dabney. il diags Sci Am 122:304+ Mr 20 '20
- Progress on New Orleans inner harbor—Navigation canal. M. G. Findley. il map Eng N 84:808-10 Ap 22 '20
- Rearrange port of New Orleans. H. H. Dunn. il plan Marine R 51:250-3 Je '21
- Unwatering the lock site of New Orleans harbor canal. G. R. Goethals. diag plan Eng N 84:940-3 My 13 '20

Public works

- New Orleans—where engineers have labored and built well. Eng N 87:437-8 S 15 '21

Streets

- Making new granite pavement from old blocks for New Orleans car tracks at saving of 50 percent. J. C. Bartley. il Munic Eng 59:197-8 D '20

Water supply

- New Orleans experience with compound meters. G. G. Earl. Am Water Works Assn J 7:862-4 N '20
- New Orleans waterworks notes. Pub Works 49:556-8 D 11 '20

New York (city)

- Cave dwellers of New York. J. W. Evans. il Nation's Business 8:42+ Ag '20
- Housing problem in greater New York. Am Inst Arch J 8:37 Ja '20
- How the railroads keep New York supplied with food. Ry R 67:770-1 N 20 '20

New York (city) —Continued

Is New York really a difficult market? W. L. Larned. *Ptr Ink* 112:137-8+ *Jl* 8 '20
 Labor turnover in New York city. *Am Mach* 53:933-5 *N* 18 '20

New York strengthening position as world money centre. *Annalist* 17:569 *My* 23 '21

See also Harlem river; Housing problem—New York (city); New York (county)—Court house; *also* Garment center realty company, inc.

American museum of natural history

Behind the exhibits. A. A. Hopkins. *il Sci Am* 125:254-5 *O* 8 '21

Aquarium

Recruits for the world's biggest fish show. J. Anderson. *il Sci Am* 124:345+ *Ap* 30 '21

Architecture

British architects and American architecture. *Am Inst Arch J* 8:413-16 *D* '20

Builders' arcades. *il Am Arch* 118:695-7 *D* 1 '20

City house development of greater New York. *il plans Arch Forum* 34:103-4, pl 44 *Mr* '21

Creating a new investment center in New York, with special reference to the building of S. W. Straus & company. *il plans Am Arch* 119:637-43, pl 650a-h, 663 *Je* 22 '21

Detail of house on Washington Square North, New York. *il Am Arch* 118:380-380a *S* 22 '20

Early home of Colonel Van Vredenburg, no. 7 State street, New York. *Am Arch* 118:284-284a *S* 1 '20

English impressions of New York architecture. E. V. Lucas. *Am Arch* 118:765-6 *D* 8 '20

Garden apartments in cities. J. T. Boyd, jr. *il diags plans Arch Rec* 48:53-74, 121-35 *Jl*-*Ag* '20

High buildings on narrow streets. H. W. Corbett. *il diags Am Arch* 119:603-8+ *Je* 8 '21

House at Spuyten Duyvil. *il plans Am Arch* 117:667-73 *Je* 2 '20

Making the New York zoning ordinance better. H. S. Swan. *diags maps Arch Forum* 35:125-30 *O* '21

Metropolitan annex. *il diags plans Am Arch* 118:827-36 *D* 22 '20

Modification of zoning ordinance in the case of the Plaza hotel. *il plan Am Arch* 118:713-14 *D* 1 '20

New York zoning resolution and its influence upon design. J. T. Boyd, jr. *il plans Arch Rec* 48:192-217 *S* '20

New York's new architecture. A. Embury, 2d. *il diags Arch Forum* 35:119-24, pl 47-53 *O* '21

New York's new concrete skyscraper; Hide and leather realty building. C. W. Van Dyke. *il Concrete* 18:256-9 *Je* '21

Newer Fifth avenue retail shop fronts. J. T. Boyd, jr. *il Arch Rec* 49:458-87 *Je* '21

Patchin Place, Tenth street, New York city. *il Am Arch* 118:250-250a *Ag* 25 '20

Some drawings of older New York. J. Di Mariano. *Arch Rec* 48:159-65 *Ag* '20

Towers of Babel. *Am Arch* 117:521-2 *Ap* 28 '20

Turtle Bay gardens, New York city. A. W. Colton. *il plan Arch Rec* 48:467-93 *D* '20

Waste spaces in New York; reformation of New York's waterfront. T. Hastings. *Am Arch* 118:771-3 *D* 15 '20

See also High buildings; Housing problem—New York; New York (city)—Banks; New York (city)—Churches; New York (city)—Hotels; New York (city)—Town Hall; New York (county)—Court house; *also* names of buildings, e.g. Bush terminal sales building, New York; Cunard building, New York; Pictorial Review building

Art

Notable decorative sculptures of New York buildings. F. O. Payne. *il Arch Rec* 47:98-117 *F* '20

Art commission

Art commission of the city of New York. H: R. Marshall. *Am Arch* 116:782-3 *D* 24 '19

Banks

Fifth avenue guaranty building. J. T. Boyd, jr. *il plans Arch Rec* 49:378-91 *My* '21

Gotham national bank building. *il diags plans Am Arch* 119:350-7 *Mr* 23 '21

New Guaranty trust building. *Arch & Bldg* 52:57-8, pl 60-4 *Je* '20

Bridges

Fate of High bridge. *il Am Arch* 119:45-9 *Ja* 12 '21

Hudson river bridge as a war memorial. *Sci Am* 123:148 *Ag* 14 '20

Monumental bridge to be preserved. *Sci Am* 124:102 *F* 5 '21

Plan for destroying High bridge opposed. *Eng N* 85:1157 *D* 9 '20

Revising High Bridge; five alternative plans. W. B. West. *il Sci Am* 123:448 *O* 30 '20

Suggested plan for reconstructing aqueduct High Bridge. *il diags Eng N* 85:229-30 *Jl* 29 '20

To preserve a beautiful and historic work. *Sci Am* 123:196 *Ag* 28 '20

See also Hudson river bridge

Churches

Portico of St John's Chapel, Varick street, New York. *il Am Arch* 118:176-176a *Ag* 11 '20

St Mark's in the Bouwerie. *il Am Arch* 118:472-a *O* 13 '20

St Paul's chapel. *il Am Arch* 118:144-144a *Ag* 4 '20

St Thomas' church. *Arch & Bldg* 52:front, 44, pl 40-1 *Ap* '20

Two recent New York churches; church of St Bartholomew and St Vincent Ferrer. *Arch Forum* 32:107-10, pl 33-42 *Mr* '20

See also St John the Divine, Cathedral of

Commerce

Manhattan—experimental territory for foreign trade. L. Lodian. *il Ptr Ink M* 2:18+ *My* '21

Grand Central terminal

See New York (city)—Railroads

Harbor

Analysis of New York's port problem. B. F. Cresson, jr. *Eng N* 85:1241-2; Discussion. 1242-3 *D* 23 '20

Archaic plans for New York city piers. *Sci Am* 122:296 *Mr* 20 '20

Belt line plan recommended for port of New York. *map Eng N* 86:271-2 *F* 10 '21

Belt line plan to make New York a railhead port. *il map Eng N* 86:182-5 *Ja* 27 '21

Development of the port of New York. *Comm & Fin Chr* 112:201-2 *Ja* 15 '21

Handling freight at New York. *Eng N* 86:195 *F* 3 '21

Important New York improvements. W: R. Andrews. *il map Pop Mech* 35:831-3 *Je* '21

Modernizing the North river waterfront. *Sci Am* 123:172 *Ag* 21 '20

New piers at Staten Island. F. T. Smith. *diags map Marine Eng* 26:246-50 *Mr* '21

New steamship piers on Staten Island are too narrow; consensus of engineering opinion. *Eng N* 85:160-5 *Jl* 22 '20

New York harbor dry dock corporation's plant. *diag plan Pub Works* 50:141-3, 163-5 *F* 12-19 '21

New York legislature passes port treaty bill. *Eng N* 86:570 *Mr* 31 '21

New York loses Passaic Valley sewer suit. *Pub Works* 50:430-1 *My* 21 '21

New York-New Jersey port development placed under new authority. *Ry R* 68:743 *My* 14 '21

New York to build steamship piers on Staten Island. *diags map plans Eng N* 84:1047-51 *My* 27 '20

New Yorkers continue to fight Passaic Valley sewerage. *Eng N* 86:1050 *Je* 16 '21

New York's greatest handicap. *Sci Am* 122:480 *My* 1 '20

New York (city)—Harbor—*Continued*

- Operations of sea-going hopper dredges in New York harbor. E: Burr. Eng & Contr 55:69-70 Ja 19 '21
- Passaic Valley sewage decision against New York. Eng N 86:849-51 My 19 '21
- Plan for New York harbor. Marine R 51:199 Ap '21
- Plan piers of record length for terminal at New York. plans Eng N 84:970-3 My 13 '20
- Plans for organizing the port of New York. map Mech Eng 43:211+ Mr '21
- Port and harbor improvement project. Comm & Fin Chr 112:1208-10 Mr 26 '21
- Port and manufacturing center combined. Sci Am 122:668 Je 19 '20
- Port of New York—a national problem. Ry Age 70:266-7 Ja 28 '21
- Port of New York district. Pub Works 51:173 Ag 27 '21
- Port problems in New York. J: A. Benschel. Am Soc C E Pro 47:356-8 O '21
- Proposed reorganization of the port of New York. maps plan Ry Age 70:269-74 Ja 28 '21
- Secretary of war denies further extension of New York piers. Eng N 86:250-1 F 10 '21
- Steamship pier problem; considerations which governed the design of the twelve new Staten Island piers. il diags plan Sci Am 122:492-3+ My 1 '20
- Terminal wastefulness at New York. W: J. Wilgus. il diag Sci Am M 2:61-5 Jl '20
- Terms of port compact between New York and New Jersey. Eng N 86:649 Ap 14 '21

Historic houses

- Dyckman house, New York. il Am Arch 118:534-a O 27 '20

Hospitals

- Losing \$90,000,000 a year in illness; business men in the Wall street district form Downtown hospital association. W. H. Childs. Am Ind 22:33-4 Ag '21

Hotels

- Ambassador hotel. il plans Am Arch 119:644-7, pl 650i-p Je 22 '21
- Ambassador hotel and the architectural engineer. diag Am Arch 119:659-60 Je 22 '21
- Hotel Ambassador. Arch & Bldg 53:45-6, pl 76-81 Je '21

Metropolitan museum of art

- An engineer in the Metropolitan museum of New York. P. B. McDonald. Eng & Contr 54:591-2 D 15 '20
- Louis XV paneled room; gift of J. P. Morgan to the Metropolitan museum of art, New York. il Am Arch 119:586+ My 25 '21
- Outdoor exhibit at the Metropolitan museum of art. E: H. Putnam. il Arch Forum 34:121-2 Ap '21
- Summer exhibition of American metal-work and fixed decorations at the Metropolitan museum of art. il Am Arch 120:73-5 Ag 3 '21

Public buildings

- Discontinuance of sub-treasury at New York. Comm & Fin Chr 111:2287 D 11 '20

Railroads

- Automatic terminal railway for New York. plan Eng & Contr 55:491-5 My 18 '21
- Belt line plan recommended for port of New York. map Eng N 86:271-2 F 10 '21
- Electric trains to cut terminal costs. map Elec Ry J 57:228 Ja 29 '21
- Favor Narrows tunnel and New York belt railway. Eng N 87:704 O 27 '21
- Freight distribution at New York. Eng N 85:822-3 O 28 '20
- Grand Central busiest New York station. Ry Age 71:63 Jl 9 '21
- Grand Central development seen as great civic center. il diags (supp) Eng N 85:496-504 S 9 '20; Ry R 68:197-204 F 5 '21
- Handling suburban traffic at congested centers. C. F. Harding. il map plan Elec Ry J 56:662-74 O 2 '20
- Operation of the New York terminal district. J. J. Mantell. Ry Age 67:1109-12 D 5 '19

- Port and harbor improvement project. Comm & Fin Chr 112:1208-10 Mr 26 '21
- Railroad problem in relation to the Metropolitan district. W: J. Wilgus. Eng N 84:1020-1 My 20 '20
- Railway terminal problems of greater New York. J. J. Mantell. Ry Age 70:473-4 F 25 '21; Excerpt. Eng N 86:370 Mr 3 '21
- Reorganizing the port of New York. il map Sci Am 124:221, 224+ Mr 19 '21
- Senator Johnson in New York fight. Elec Ry J 57:417 F 26 '21
- Serious traffic situation at New York. Sci Am 122:564 My 22 '20
- Transportation conditions. A. H. Smith. il Ry R 66:676-9 Ap 24 '20; Abstract. Ry Age 68:1236 Ap 23 '20

Rapid transit

- Chamber of commerce of the state of New York approves Governor Miller's rapid transit plans. Comm & Fin Chr 112:711-12 F 19 '21
- Electrification of Staten Island lines proposed. R. H. Nexsen. Elec Ry J 57:222-3 Ja 29 '21
- Emergency commission bill signed. Elec Ry J 57:652 Ap 2 '21
- End of surface cars in New York predicted. J: H. Delaney. Elec Ry J 57:236 Ja 29 '21
- Engineers discuss transit development. plan Am Arch 118:800-1 D 15 '20
- Fare increases in New York. H. C. Clark. Elec Ry J 55:32-5 Ja 3 '20
- Governor Miller's recommendations respecting traction problems; text and comments. Comm & Fin Chr 112:432-5 Ja 29 '21; Excerpts. Elec Ry J 57:234, 279-80 Ja 29-F 5 '21
- Handling Coney Island's crowds. il map plans Elec Ry J 55:186-90 Ja 24 '20
- Merger plan for greater N.Y. transit lines. Comm & Fin Chr 113:1541 O 8 '21
- More municipal buses in New York. il Elec Ry J 58:114 Jl 16 '21
- Motor-bus transportation in New York. G: A. Green. Soc Auto Eng J 7:67-74 Jl '20; Same cond. Elec Ry J 56:175-8 Jl 24 '20; Discussion. Soc Auto Eng J 7:461-2 N '20
- New York city transit. Pub Works 50:279-80 Ap 2 '21
- New York engineers discuss rapid transit. Eng N 85:1059-60 N 25 '20
- New York transit bill introduced. Elec Ry J 57:376 F 19 '21
- New York transit reviewed. H. A. Metz. Elec Ry J 57:811-12 Ap 30 '21
- New York utility legislation completed. Elec Ry J 57:786 Ap 23 '21
- Place of the bus. W. Jackson. il maps Elec Ry J 55:1088-93 My 29 '20
- Plan for readjustment and merger of street railways and rapid transit lines of greater New York with eventual city ownership. Comm & Fin Chr 113:1431-4 O 1 '21; Excerpt. Elec W 78:743 O 8 '21
- Radical readjustment proposed in New York city. Elec Ry J 58:557-60 O 1 '21
- Rapid transit plan for New York proposes 830 miles of new track. map Eng N 85:754-7 O 14 '20
- Subways for city transportation; relative advantages of subways and elevated railways. R. Ridgway. Elec Ry J 58:833-4 N 5 '21
- Trackless trolleys for New York. Elec Ry J 57:1002-3 My 28 '21
- Traffic analysis of New York surface lines. Elec Ry J 58:824 N 5 '21
- Traffic problem in New York city. Sci Am 123:500 N 13 '20
- Transit plan for greater New York—criticisms and suggestions. S: Untermeyer. Comm & Fin Chr 113:1646-7 O 15 '21
- Transit tendencies in New York city. L. T. Harkness. Elec Ry J 58:403-8 S 10 '21
- Transportation for greater New York. H: M. Brinckerhoff. maps Elec Ry J 56:1095-9 N 27 '20; Same. Eng N 85:1050-2 N 25 '20; Abstract. Génie Civil 78:231-4 Mr 12 '21; Discussion. Elec Ry J 56:1099-1106, 1202-3 N 27, D 11 '20
- See also Hudson river tunnels; New York (city)—Subways

New York (city)—Continued

Sanitary affairs

- Committee reports on N.Y. waste disposal. Eng N 86:1135-6 Je 30 '21
 Fly and mosquito elimination work in New York city. J. M. Lonergan. Eng & Contr 54:241-4 S 8 '20
 New York section of A.S.M.E. discusses water supply and sanitation in the Metropolitan district of New York and New Jersey. Eng N 86:104-7 Ja 20 '21
 New York's anti-litter bureau summarizes year's record. Am Arch 117:822 Je 30 '20
 Sanitary code of the Board of health of the Department of health of the city of New York. 234p Press of C. S. Nathan, New York '20

Sewerage

- How sewers are designed in New York city. S. D. Bleich. diags Munic Eng 60:92-7 Mr '21
 Report on Richmond borough sewage tests, New York city. Eng N 85:1130-1 D 9 '20

Streets

- Cleaning New York streets. Pub Works 48:395-6 My 8 '20
 Congestion defended by landscape architect. Am Arch 119:454+ Ap 13 '21
 Expressways proposed to relieve N. Y. traffic congestion. C. W. Leavitt and A. Schaeffer. Eng N 86:547 Mr 31 '21
 Fifth avenue sold to the public anew. Ptr Ink 111:20 Ap 15 '20
 Fifth avenue's traffic tower. il Sci Am 124:45+ Ja 15 '21
 Guessing at the traffic problem. Eng N 86:577, 780 Ap 7, My 5 '21
 New Fifth avenue shop fronts. il Am Arch 120:105-7 Ag 17 '21
 One-way traffic on 5th Ave. to be controlled by signal towers. il Eng N 84:434-5 F 26 '20
 Overhead and underground streets for New York. Am Arch 119:463 Ap 13 '21
 Police traffic regulations of New York city. J. O'Brian. Elec Ry J 58:603-4 O 8 '21
 Problem of automotive traffic in the cities. E. P. Goodrich. il Automotive Ind 43:724-7+ O 7 '20
 Resurfacing asphalt pavements in New York. Pub Works 48:170-2 Mr 6 '20
 Snow removal tests. il Pub Works 49:427-9 N 6 '20
 Some shortcomings of public improvement minutes. F. B. Tucker. Eng N 84:1053-4 My 27 '20
 Traffic regulations make Broadway a one-way street. map Eng N 86:256 F 10 '21
 When the chain store gets on the avenue. E. T. Tandy. il Ptr Ink M 2:27-8+ F '21

Subways

- Deep-level rapid transit. Sci Am 125:142 Ag 27 '21
 Fourteenth street tunnel, New York. il diags Pub Works 48:74-7 F 7 '20
 Pneumatic caisson tunnel shafts. il Pub Works 48:539-42 Je 19 '20
 Rapid transit plan for New York proposes 830 miles of new track. map Eng N 85:754-7 O 14 '20
 Study of rapid transit station design. O. A. Nilsson. diags plans Eng N 85:824-9, 894-9 O 28-N 4 '20; Excerpts. Elec Ry J 56:966-8 N 6 '20; Discussion. Eng N 85:1152 D 9 '20

Theaters

- Capitol theater, New York, N.Y. E. M. Mlinar. il plans Arch Forum 32:21-4, pl 11-16 Ja '20

Town Hall

- New York city's new Town Hall. Comm & Fin Chr 112:300-1 Ja 22 '21
 Town Hall, New York city. il Arch & Bldg 53:13-14, pl 18-20 F '21
 Town Hall, New York city; views and plans. Am Arch 119:137+, 150a-e F 9 '21

Tunnels

See Hudson river tunnels

Views

- Photographs by B. J. Lubschez. Am Inst Arch J 8:422-6 D '20

Water supply

- Building the Gilboa dam. il map Pub Works 51:1-6 Jl 2 '21
 Future water-supply needs of the metropolitan district; symposium. Eng N 86:179-81 Ja 27 '21
 Gilboa dam. J. F. Springer. il Sci Am 121:608-9+ D 20 '19
 Gilboa dam and the Shandaken tunnel for New York water supply. diags maps Engineer 130:627-30 D 24 '20
 Pumping Croton water by hydraulic power: water supply of New York. W. D. Hubbard. diag Am Water Works Assn J 7:461-70 Jl '20
 Safeguarding the city's water supply. il Sci Am M 4:149-54 Ag '21
 World's longest tunnel for New York's water supply. il diags maps Pub Works 50:465-71, 496-8 Je 4-11 '21

New York (county)

Court house

- Concrete job mechanical; building the substructure for the New York county court house. il plan Pub Works 49:587-90; 50:5-8, 26-9 D 25 '20-Ja 8 '21; Same. Eng & Contr 55:52-3, 75-8 Ja 19-26 '21
 Foundation of multiple concrete ring girders for New York court house. C. S. Proctor. il diags plan Eng N 86:494-7 Mr 24 '21

New York (state)

See also Aerial routes—New York (state); Electric plants (central stations)—New York (state); Hydroelectric plants—New York; Iron mines and mining—New York; Roads—New York; Water power—New York

Architecture, Department of

- Department of architecture and the state architect of the state of New York. A. L. Brockway. Am Arch 117:35-7 Ja 14 '20
 State departments of architecture. Am Arch 117:42-6 Ja 14 '20
 Uniform business organization of public architectural departments. chart map plan Am Arch 117:38-41 Ja 14 '20

Constitution

- Treatment of state constitutions—with special reference to New York. Comm & Fin Chr 113:1512-14, 1629-30 O 8-15 '21

Description and travel

- Fascination of waterfalls and gorges; study of pothole grinding and sluice cutting in the Finger Lakes region of New York. O. D. von Engeln. il Sci Am M 2:302-8 D '20

Health, Department of

- New division of sanitation, New York state department of health. Eng N 87:313 Ag 25 '21

Politics and government

- Problems of New York state government. H. M. Sage. Comm & Fin Chr 110:1712-13 Ap 24 '20

Public service commission

- New York public service commission law. Ry Age 70:928 Ap 15 '21

Roads

See Roads—New York

New York botanical garden

- Botanical gardens of New York. H. A. Gleason. il Sci Am M 3:24-6 Ja '21

New York Call

- District court of appeals upholds exclusion of radical papers from the mails—N.Y. Call and Milwaukee Leader regain second-class privileges. Comm & Fin Chr 112:2497-8 Je 11 '21

New York Central railroad

Annual report for the year ended December 31, 1919. map Ry Age 69:382-5, 420-2 S 3 '20; Same cond. Comm & Fin Chr 111:501-3 J1 31 '20

Annual report, 1920. map Ry Age 71:100-2, 141-3 J1 16 '21; Comm & Fin Chr 113:302-4 J1 16 '21

Concrete conduit for track wires: New York Central railroad. B. A. Lundy. diags Eng N 83:1055 D 25 '19

Consolidation of Chicago Junction railway with the New York Central R. R. map Ry R 68:43-4 Ja 8 '21

Electrical hazards and safeguards on the New York Central. H. S. Balliet. Ry R 69:109-11 J1 23 '21; Excerpts. Safety Eng 41:272-4 Je '21

Examiner's report on the purchase of Chicago terminal railways by the New York Central railroad. R. W. Clarke. Ry R 69:366-71 S 17 '21

How the New York Central inspects perishables. F. S. Welsh. Ry Age 71:117-18 J1 16 '21

Line improvement of the New York Central at Tonawanda, N.Y. B. S. Voorhees. il plans Ry R 66:455-9 Mr 20 '20

New York Central railroad accommodates itself to construction of barge canal. B. S. Voorhees. il diags map Eng N 84:500-6 Mr 11 '20

New York Central relocates line in Tonawanda, N.Y. il diag map Ry Age 68:347-50 Ja 30 '20

New York Central stock distribution of 1868 and the railway wage controversy. Comm & Fin Chr 112:2046-7 My 14 '21

New York, Chicago and St Louis railroad

34th annual report for the year ended December 31, 1920. Comm & Fin Chr 112:2099-2100 My 14 '21; Same abr. Ry Age 70:1423 Je 17 '21

New York community trust

New York community trust. Comm & Fin Chr 110:937 Mr 6 '20

New York curb market

Operations in new building begun. Comm & Fin Chr 113:26-7 J1 2 '21

New York Edison savings and loan association

New York Edison savings and loan association now a million dollar banking organization. N E L A Bul 8:171-3 Mr '21

New York electric railway association

Fall meeting, New York, Dec. 10. Elec Ry J 54:976-87 D 20 '19

38th annual convention, Bluff Point, N.Y. Elec Ry J 56:7-9 J1 3 '20

39th annual meeting, Lake George, June 11. Elec Ry J 57:1125-31 Je 18 '21

24th quarterly meeting, New York city, March 18. Elec Ry J 57:601-3 Mr 26 '21

New York electrical show

14th annual New York electrical show, Sept. 28-Oct. 8. Elec R 79:558-9 O 8 '21

New York, New Haven & Hartford railroad

A. c.-d.c. multiple-unit maintenance on the New Haven. il diags map plan Elec Ry J 55:1147-55 Je 5 '20

New York, New Haven & Hartford. Ry Age 69:134 J1 23 '20

New York-New Jersey port and harbor development commission

Automatic terminal railway for New York. plan Eng & Contr 55:491-5 My 18 '21

Belt line plan recommended for port of New York. map Eng N 86:271-2 F 10 '21

Handling freight at New York. Eng N 86:195 F 3 '21

Plans for organizing the port of New York. map Mech Eng 43:211+ Mr '21

Reorganizing the port of New York. il map Sci Am 124:221, 224+ Mr 19 '21

New York, Ontario & Western railroad

Annual report for 1920. Ry Age 70:1054 Ap 29 '21

New York paint, oil and varnish club

Annual meeting. Oil Paint & Drug Rep 99:26+ sec 1 My 16 '21

New York radio central station

Last word in wireless—the New York radio central station. il Sci Am 123:79+ J1 24 '20

New York railroad club

Annual electrical night, New York, Nov. 21. Elec Ry J 54:918-19 N 15 '19

New York railways

New York railways valuation reported. map Elec Ry J 55:901-2 My 1 '20

One-man cars proposed for New York city. Elec Ry J 55:870-1 Ap 24 '20

New York state association of architects

1st annual meeting, Rochester, N.Y., Feb. 14. Am Inst Arch J 8:133-4 Mr '20

4th annual meeting, New York, Nov. 12. Am Arch 118:659-65 N 24 '20

New York state barge canal

Barge canal closes best season. E. A. Plumb. Marine R 51:34-5 Ja '21

Canalizing the commercial mind. J: W. Harrington. Annalist 18:201 Ag 29 '21

First consideration for the New York state barge canal. A. McDougall. Sci Am 123:85 J1 24 '20

Ford to operate own barges on New York state canal. Eng N 87:254 Ag 11 '21

Freight should seek the barge canal. Sci Am 122:106 Ja 31 '20

Largest barge canal terminal opened in New York city. F. M. Williams. il diags plan Eng N 83:1047-51 D 25 '19

Making the barge canal pay. F. M. Williams. il Sci Am 123:542+ N 27 '20

Need for barge canal grain elevators and terminals. Sci Am 122:240 Mr 6 '20

New York barge canal. C: W. Baker. il Eng N 84:140-4 Ja 15 '20

New York Central railroad accomodates itself to construction of barge canal. B. S. Voorhees. il diags map Eng N 84:500-6 Mr 11 '20

New York state barge canal. il map Sci Am 122:14-15, 40-1+, 90-1+, 112-13+ Ja 3-10, 24-31 '20

New York state's barge canal. W. H. Main. Soc Auto Eng J 7:410 N '20

St Lawrence project condemned—action on water power questions called for. F. M. Williams. Comm & Fin Chr 112:332-3 Ja 22 '21

Syndicate buys New York barge canal equipment. Eng N 86:1095 Je 23 '21

Traffic and prospects of the New York barge canal. Eng N 84:512 Mr 11 '20

Unique reservoir dams on New York barge canal. F. M. Williams. Munic Eng 58:130-2 Mr '20

New York state college of forestry, Syracuse

First annual forestry week. Am Lumberman 2344:67-8a Ap 17 '20

New York state museum

Sterlingbush calcite cave; difficult problems solved in reconstructing the cave in the New York state museum. N. T. Clarke. il Sci Am M 3:393-4 My '21

New York stock exchange

Listings on the New York stock exchange for the year 1920. Comm & Fin Chr 112:1918-22 My 7 '21

Monthly and yearly record. Published in monthly Bank and quotation section of Commercial and financial chronicle

New commission rates of the New York stock exchange. Comm & Fin Chr 111:745-6 Ag 21 '20

N.Y. stock exchange foundations. il diags plan Pub Works 51:83-7 J1 30 '21

New York stock exchange transactions. See weekly numbers of the Annalist

Nine-year profile of average prices on the New York stock exchange. Annalist 17:40-1 Ja 3 '21

Paris Bourse and French finance, with reference to organized speculation in New York. W: Parker. 116p Columbia University, New York '20

Prices in 1919 at the New York stock exchange. Comm & Fin Chr 110:224-37 Ja 17 sec 1 '20

Stock clearing corporation of N.Y. stock exchange to function at end of month. Comm & Fin Chr 110:1587-8 Ap 17 '20

New York stock exchange—Continued

Stock record, daily, weekly and yearly. Published in weekly numbers of Commercial and financial chronicle

Advertising rules

Stock exchange has extraordinary rules upon advertising. B. C. Forbes. *Ptr Ink* 116:53-4+ Ag 11 '21

New York telephone company

Automotive service methods and equipment. H. Campbell. *il diags Am Mach* 55:710-13 N 3 '21

New York, Westchester & Boston railway

Maintenance of single-phase a.c. multiple-unit equipment on the Westchester. *il diag map plan Elec Ry J* 55:1193-9 Je 12 '20

New York zoological park

Wild animal models at the zoo. W. T. Hornaday. *il Sci Am* 122:134 F 7 '20

New Zealand

See also Automobile industry and trade—New Zealand; Gold mines and mining—New Zealand; Hydroelectric plants—New Zealand; Labor and laboring classes—New Zealand; Oil industries—New Zealand; Railroads—New Zealand; Wages—New Zealand

Commerce

Imports of New Zealand. *Elec R (Lond)* 89:549 O 21 '21

Newark, New Jersey**Rapid transit**

Commission studies Newark traffic. *diags Elec Ry J* 57:394-6 F 26 '21

Sewerage

Passing of an ancient evil. *Metal Work* 93:583+ My 7 '20

Water supply

Method of metering the water supplied to the five distribution systems of the city of Newark. G. Sanzenbacher. *il charts map plan Am Water Works Assn J* 7:163-70 Mr '20

Newark, New York**Water supply**

Making use of unusual geological formation permits carrying out Newark, N.Y., water supply plan. J. P. Wells. *il map Munic Eng* 59:173-5 N '20

Newberry library, Chicago

John M. Wing foundation of the Newberry library. E. E. Sheldon. *Inland Ptr* 65:199-200 My '20

Newcastle, New South Wales**Harbor**

Port improvements at Newcastle. P. Allan. *Engineering* 111:227 F 25 '21; Same. *Engineer* 131:270 Mr 11 '21; Same. *Eng & Ind Management* 5:273 Mr 3 '21

Newcomen, Thomas, 1663-1729

Newcomen memorial at Dartmouth. *il Engineer* 132:127 Jl 29 '21

Newcomen society

1st meeting, London, Nov. 5. *Engineer* 130:483-5 N 12 '20

1st summer meeting, Birmingham, June 16-17. *Engineer* 131:636-8, 672-3 Je 17-24 '21

Historical society for engineering and technology. *Engineer* 129:600; 130:348 Je 11, O 8 '20

Newfoundland

See also Geology—Newfoundland; Paper industry and trade—Newfoundland

Newmarket manufacturing company

Newmarket mfg. co. housing development. S. B. Parker. *il plans Textile World* 57:1231+ F 7 '20

Newport rolling mill company, Newport, Kentucky

Burning pulverized coal in a sheet mill. *il diags Iron Age* 104:1167-72 D 11 '19

News-print. *See* Paper making

News stands

News stands and architecture. W. R. B. Willcox. *Am Inst Arch J* 8:416-18 D '20

Newspaper libraries

Library of the Detroit News. G. B. Catlin. *Special Lib* 11:161-3 S '20

Newspaper offices

Engineering details of newspaper publishing building; new Springfield Republican plant. C. F. Dingman. *il plans Eng N* 85:1092-4 D 2 '20

Hartford Times building. *il diags plan Arch Forum* 32:141-4 Ap '20; Same. *Am Arch* 118:140-1, 143, pl 148a-f Ag 4 '20

Some recent work in Hartford, Conn. D. Barber. *il Arch Forum* 34:114-19, pl 49-51 Ap '21

Special structural design for newspaper building. *diag Eng N* 87:412 S 8 '21

Newspaper publishers association, American.

See American newspaper publishers association

Newspapers

Aerial delivery of newspapers successful. *il Aerial Age* 12:105 O 4 '20

Benefit of the paper shortage. O. B. Copper. *Inland Ptr* 65:463-4 Jl '20

Can newspaper conditions be bettered? G. L. Caswell. *Inland Ptr* 66:797-8 Mr '21

Circulation: its stimulation and simulation. *Ptr Ink* 110:3-4+ F 26 '20

Daily journalism and a people's progress. *Comm & Fin Chr* 110:2234-5 My 29 '20

Home town paper. R. T. Porte. *Inland Ptr* 68:92 O '21

Job printing plants and newspapers. G. L. Caswell. *Inland Ptr* 66:220 N '20

Making a small town business pay. W. H. Mayes. *Inland Ptr* 66:759-60 Mr '21

Newspaper ideals. E. White. *Inland Ptr* 65:335-6 Je '20

Newspaper work. G. L. Caswell. *See* monthly numbers of *Inland printer*

Origin of newspapers. W. R. Reinicke. *Paper* 28:16-17+ My 4 '21

Should local papers have editorial pages? G. L. Caswell. *Inland Ptr* 66:219 N '20

Simple and effective system for handling newspaper subscriptions. W. Engard. *Inland Ptr* 67:778 S '21

Value of newspaper publicity. B. J. Mullaney. *Gas Age* 45:306-7 Ap 10 '20

Word "movie" of the country print-shop. W. P. Kirkwood. *Inland Ptr* 64:427-9, 555-7 Ja-F '20

See also Advertising mediums—Newspapers; Foreign language press; House organs; Journalism; Newspaper libraries; Newspaper offices; Periodicals; Press agents; Printing, Practical; Reporting; Trade journals; *also* Audit bureau of circulations

Accounting

John Smith's bookkeeping. R. T. Porte. *plan Inland Ptr* 64:439-40, 571-3, 718-20; 65:59-61, 227-9, 350-2, 479-80, 613-14, 738-9; 66:57-8, 195-6 Ja-N '20

My little black book. J. Rogers. *Administration* 1:210-18 F '21

Why a weekly newspaper needs a cost system as much as a job office does. J. C. Keys. *Inland Ptr* 67:204-5 My '21

Bibliography

Tercentenary handlist of English & Welsh newspapers, magazines & reviews. 324p *The Times*, London '20

Costs

Agate line costs money in Oklahoma, too. T. F. McPherson. *Ptr Ink* 113:109-10+ N 18 '20

Newspapers' cost of the agate line. R. Dickinson. *Ptr Ink* 113:33-6 N 11 '20

Study of costs on small newspapers. G. L. Caswell. *Inland Ptr* 64:723-5 Mr '20

Newspapers, Shop. *See* Employees' magazines

Newsprint, Recovery of. *See* Waste paper

Newton, Kansas

Sanitary affairs

Sewage treatment plant at Newton. I. S. Siegrist. il plan Eng N 86:249-50 F 10 '21

Niagara Falls

Clearing house for five stations; Echota substation of Niagara Falls power company. J. A. Johnson. il diags plan Elec W 76:961-5 N 13 '20

Construction progress on Canadian Niagara power project. il diags plan Eng N 83:1010-12 D 11 '19

Developing an additional 100,000 horsepower at Niagara; symposium. il diags map plan Eng N 85:582-8, 646-53, 694-701 S 23-O 7 '20

Developing Niagara Falls without marring its beauty. J. G. Warren. il Elec W 76:329-31 Ag 14 '20

Flood lighting Niagara Falls. il J Elec 44:69-70 Ja 15 '20

Hydroelectric development at Niagara Falls. J: L. Harper and J. A. Johnson. il diags maps plans Am Inst E E J 40:561-76 J1 '21; Excerpt. Eng N 86:1120 Je 30 '21; Excerpts. Power 54:26-8 J1 5 '21

Hydro-electric developments at Niagara. diags maps Engineer 130:608-10 D 17 '20

Making the most of Niagara. R. G. Skerrett. Sci Am 124:266+ Ap 2 '21

More power from Niagara. il Pop Mech 35:841-2 Je '21

New method of water measurement in efficiency tests of 37,500-hp. turbines. N. R. Gibson. il diags Power 53:452-8 Mr 22 '21; Same cond. Elec W 77:591-3 Mr 12 '21

Niagara development breaks efficiency records; symposium. il Can Eng 39:337-46 S 16 '20

Niagara Falls 100,000-hp. development; symposium. il diags map Elec W 76:561-8 S 18 '20

Niagara Falls plant discussed by Pittsburgh section, A.I.E.E. il Elec R 78:550-1 Ap 2 '21

Niagara Falls power development. J: L. Harper. Power 53:197 F 1 '21

La nouvelle usine hydro-électrique de la Niagara Falls power co. (Niagara, É.-U.). il diags map plans Génie Civil 77:527-30 D 25 '20

Power commission refuses consideration to prospective use of Niagara water. Elec W 77:275-6 Ja 29 '21

Power development at Niagara Falls. M. Cohn, jr., and J: L. Harper. il Elec W 75:660-1 Mr 20 '20

Les récents développements de l'utilisation des chutes du Niagara. il diags maps Génie Civil 76:565-70 Je 26 '20

600,000-hp. line delivers Niagara power. J. A. Johnson. il diag map Elec W 76:875-7 O 30 '20

Switch and control equipment at Niagara Falls. S. Q. Hayes. il Elec R 78:47-53, 203-7 Ja 8, F 5 '21

Turbines for Niagara's high-head plant. il diag Iron Age 106:1453-7 D 2 '20; Same abr. Can Eng 40:185-6a F 3 '21; Abstract. Génie Civil 78:216-17 Mr 5 '21

World's largest hydro-electric units. F. A. Annett. il diags map Power 52:412-22 S 14 '20

See also Queenston-Chippawa canal

Niagara Falls, New York

Niagara Falls zoning ordinance. Eng N 84:527 Mr 11 '20

Railroads

Railway reorganization and gorge terminal at Niagara Falls, N.Y. il Can Eng 40:379 Ap 14 '21

Niagara river

Diversion of water from the Great Lakes and Niagara river. 415p U.S. Engineer dept., Washington '21

Pollution of Niagara river by wash water from filtration plant enjoined. Am Water Works Assn J 7:52-9 Ja '20

Recommendations for Niagara treaty revision. J. G. Warren. Elec W 77:90 Ja 8 '21

Nicaragua

Tunnel building in Nicaraguan jungles. H. L. Thackwell. il diag map Eng N 86:821-3 My 12 '21

See also Gold mines and mining—Nicaragua

Nicaraguan canal (proposed)

Problem of a canal at Nicaragua. Sci Am 124:422 My 28 '21

Nicholls, Frederic, 1856-

Sketch. por Elec W 77:920 Ap 23 '21

Nichols, Ernest Fox, 1869-

New president, Massachusetts institute of technology. por Chem Age 29:123-4 Ap '21; Chem & Met Eng 24:682 Ap 20 '21; Eng N 86:739 Ap 28 '21; Mech Eng 43:491 J1 '21

Nichols, John, 1745-1826

Printer we are proud of. H: L: Bullen. por Inland Ptr 65:469-70 J1 '20

Nicholson, Samuel D.

Government officials prominent in mining. P. Wooton. por Eng & Min J 111:627 Ap 9 '21

Nichrome

Cast nichrome carbonizing containers. Automotive Ind 44:275 F 10 '21

Nichrome: a heat-resisting alloy. il Am Mach 52:1347-8 Je 24 '20

Nickel

Chemical properties and metallography of nickel. P. D. Merica. il Chem & Met Eng 24:197-200 F 2 '21

Comparison of the atomic weights of terrestrial and meteoric nickel; the reduction of nickelous oxide. G. P. Baxter and L. W. Parsons. Am Chem Soc J 43:507-18 Mr '21

Deterioration of nickel resistors. F. A. J. FitzGerald and G. C. Moyer. Am Electrochem Soc Trans v 38 (preprint 4):31-4 O '20

Electro-analytical separation of nickel (cobalt) from arsenic. N. H. Furman. Am Chem Soc J 42:1789-93 S '20

Latent heats of fusion of nickel and monel metal. W. P. White. il diag Chem & Met Eng 25:17-21 J1 6 '21

New type of catalyzer for hydrogenation. W. D. Richardson. Chem & Met Eng 22:793-6 Ap 28 '20

Nickel. il U S Bur Stand Circ 100:1-94; Bibliography. 94-106 '21

Nickel and cobalt in iron. O. Bauer and E. Piwowarsky. Iron Age 108:513 S 1 '21

Nickel brasses. il Chem & Met Eng 24:261-5 F 9 '21

Nickel deposits in the lower Copper River valley. R. M. Overbeck. map U S Geol S Bul 712:91-8 '20

Nickel in 1917. F. L. Hess. U S Geol S Min Res of U S 1917,pt 1:917-23; Bibliography. 924-7 '20

Nickel in 1918. F. L. Hess. U S Geol S Min Res of U S 1918,pt 1:783-90 '20

Nickel in 1920. T: W. Gibson. Eng & Min J 111:147 Ja 22 '21

Nickel industry of Canada. Engineer 132:188 Ag 19 '21

Nickel production now on pre-war basis. E: H. Robie. Eng & Min J 109:124-5 Ja 17 '20

Notes on nickel. P. D. Merica. Chem & Met Eng 24:17-21 Ja 5 '21

Physical properties of nickel. P. D. Merica. Chem & Met Eng 24:73-6 Ja 12 '21

Regarding magmatic nickel deposits. Econ Geol 15:535-8 'S '20

Rolled products of 99 per cent nickel. E. F. Cone. il Iron Age 105:1713-16 Je 17 '20

See also Nickel steel

Analysis

Determination of cobalt and nickel in cobalt steels. G. E. F. Lundell and J. I. Hoffman. J Ind & Eng Chem 13:540-3 Je '21

Method of determining nickel in silverhorn ores. E. C. D. Marriage. Eng & Min J 112:174 J1 30 '21

Nickel alloys

Constitution of the nickel-iron alloys. D. Hanson and H. E. Hanson. il Engineering 110:620-3, 655-7 N 5-12 '20

Nickel alloys—Continued

Miscellaneous alloys of nickel. P. D. Merica. Chem & Met Eng 24:649-53 Ap 13 '21

See also Iron-nickel alloys; Monel metal; Nichrome; Nickel-chromium alloys; Nickel silver; Nickel steel

Nickel chloride

Magnetic susceptibility of nickel and cobalt chloride solutions. L. Brant. diag Phys R 17:678-99 Je '21

Nickel-chromium alloys

Nickel-chromium alloys. W. A. Gatward. Eng Soc W Pa 35:449-58 D '19; Same. Blast F & Steel Pl 8:249-51+ Ap '20; Discussion. Eng Soc W Pa 35:459-65 D '19

Nickel-chromium alloys. L. O. Hart. Min & Met 168:39 D '20

See also Nichrome

Nickel chromium steel. *See* Nickel steel

Nickel metallurgy

Ductile electrolytic nickel. C. P. Madsen. Am Electrochem Soc Trans v 39 (preprint 23): 269-76 Ap '21; Same. Chem & Met Eng 24: 922-4 My 25 '21; Same. Brass W 17:166-70 Je '21

Operations of British America nickel smelter and refinery. il Can Chem & Met 5:229-30 Ag '21

Rolling pure nickel; a recent metallurgical development that puts this metal on a new basis. A. P. Surface. Sci Am 125A:34 N '21

Nickel oxide

Glaze study involving some interesting colors produced by nickel oxide. J. D. Whitmer. Am Cer Soc J 3:pt 1,662-70 Ag '20

Nickel oxide in glazes. J. D. Whitmer. Am Cer Soc J 4:357-65 My '21

Nickel plating

Alkalinity or acidity of a nickel solution. J. C. Kretchmer. Metal Ind 18:309 Jl '20

Black nickel solutions. J. Haas, jr. Metal Ind 19:23-5, 73-4 Ja-F '21

Electrodeposition of nickel; patent. Chem & Met Eng 24:752 Ap 27 '21

Ergo—Q. E. D. E. G. Lovering. Brass W 17:98 Ap '21

Nickel on babbitt. Metal Ind 18:510 N '20

Nickel plating aluminum. Automotive Ind 44: 496 Mr 3 '21

Nickel plating aluminum. J. W. Hanlon. Metal Ind 18:226 My '20

Nickel plating on die-castings. F. J. Hanlon. Metal Ind 18:229 My '20

Nickel plating rolled zinc. Metal Ind 18:308 Jl '20; Same. Metal Work 94:179+ Ag 6 '20

Le nickelage de l'aluminium. Génie Civil 77: 219-20 S 11 '20

Le nickelage de l'aluminium et de ses alliages. L. Guillet and M. Gasnier. il Génie Civil 76:437-8 My 8 '20; Same abr (Nickel-plating aluminum and alloys). Sci Am M 2:267 N '20; Abstract. Chem & Met Eng 23:119-20 Jl 21 '20

Peeling of nickel deposits. E. A. Vuilleumier. il Metal Ind 19:419 O '21

Principles underlying the acidity of nickel plating solutions. W. Blum and M. R. Thompson. Brass W 17:250-1 S '21

Recent work on nickel plating. W. E. Hughes. Electrician 86:583-4 My 13 '21

Survey of nickel solutions. J. Haas, jr. Metal Ind 19:364-6 S '21

Ueber vernicklung und verkobaltung. M. Schlötter. Stahl & Eisen 41:293-7 Mr 3 '21

Universal nickel solution. E. S. Thompson. Brass W 17:266 S '21

Use of fluorides in solutions for nickel deposition. W. Blum. il Am Electrochem Soc Trans v 39 (preprint 21):227-47 Ap '21; Same. Brass W 17:121-7 My '21; Same. Chem & Met Eng 24:1109-15 Je 22 '21

Nickel silver

Casting nickel silver. Foundry 48:654 Ag 15 '20

Casting of nickel brass. W. J. Reardon. diag Metal Ind 18:161 Ap '20

Copper:nickel alloys. P. D. Merica. il diag Chem & Met Eng 24:558-60 Mr 30 '21

Electric furnace melting of nickel silver. F. C. Thompson. Am Electrochem Soc Trans v 40 (preprint 18):259-62 S '21; Same. Brass W 17:287-8 O '21

Physical tests on sheet nickel silver. W. B. Price and P. Davidson. il Chem & Met Eng 25:141-7 Jl 27 '21; Abstract. Min & Met 165:20 S '20

Spoon and fork blanks; defects in manufacture and their causes in English practice. J. A. Morton. il Metal Ind 18:272-3, 316-17 Je-Jl '20

Nickel steel

Action des additions métallurgiques sur l'anomalie de dilatabilité des aciers au nickel. C. Guillaume. Génie Civil 77:16 Jl 3 '20

La cause de l'instabilité des aciers au nickel et son élimination. C. E. Guillaume. Génie Civil 77:512-13 D 18 '20

Critical ranges of some commercial nickel steels. H. Scott. diags U S Bur Stand Sci Pa 376:1-214 '20; Same. Min & Met 158: (sec 16) 1-17 F '20; Abstract. Chem & Met Eng 22:394 Mr 3 '20

Effect of molybdenum in chrome and nickel steels. il Ry Age 68:955-7 Mr 19 '20; Same. Ry Mech Eng 94:205-7 Ap '20

Iron: nickel alloys. P. D. Merica. Chem & Met Eng 24:375-8 Mr 2 '21

La résistance électrique des aciers au nickel. A. Portevin. Génie Civil 78:220 Mr 5 '21

Solid chrome nickel steel special trackwork. il diags Elec Ry J 55:799-801 Ap 17 '20; Abstract. Eng & Contr 53:580 My 19 '20

Some applications of alloy steels in the automotive industry. H. J. French. il Mech Eng 42:501-5+ S '20

Static and dynamic tension tests on nickel steel; abstracts. J. J. Thomas and J. H. Nead. Min & Met 170:34 F '21; Sci Am M 3:285 Mr '21; Mech Eng 43:262-3 Ap '21

Ueber die vergütung von nickel-und chrom-nickelstahl. K. Dornhecker. diag Stahl & Eisen 41:481-2 Ap 7 '21

See also Chromium nickel steel

Night labor

See also Hours of labor

Night schools. *See* Evening and continuation schools

Nigrosines

Manufacture of nigrosine. L. O. Koons. Color Tr J 7:57-8 Ag '20

Nile river

Allocation of Nile waters between Egypt and the Sudan; report gives principles of water and cost division. H. T. Cory. Eng N 86:679-81 Ap 21 '21

Harnessing the Nile. T. B. Preston. maps Ind Management 61:203-7 Mr 1 '21

Measurement of the discharge of the Nile through the sluices of the Assuan dam. M. MacDonald and H. E. Hurst. Engineering 111:499-500 Ap 22 '21; Same. Eng & Contr 55:646-7 Je 29 '21; Same. Engineer 131:542 My 20 '21

Nile projects. Engineering 111:19-20 Ja 7 '21

Taming the river Nile; construction of dams and a 225-mile canal to double the irrigated area in Egypt. H. C. Hardy. il Sci Am 123:524+ N 20 '20

Nipa palm

Sugar and alcohol from the nipa palm. Sci Am M 1:310 Ap '20

Nips company, inc.

Newcomer revises sales units of established manufacturers. E. T. Tandy. Ptr Ink 115: 53-4+ Ap 21 '21

Niter. *See* Saltpeter

Niter cake

Niter cakes as a mosquito larvicide. Eng & Contr 53:654 Je 9 '20; Correction. 54:29 Jl 14 '20

Nitrate of potash. *See* Saltpeter

Nitrate of soda. *See* Saltpeter, Chile

Nitrate plants

Nitrate industry in Chile. A. Bertrand. il diags Chem & Met Eng 23:339-43 Ag 25 '20

Nitrate plants (federal)

- America's greatest dam; the Muscle Shoals project on which congressional economy is about to force a halt. W. B. West. *il Sci Am* 124:364-5 My 7 '21
- Analysis of Henry Ford's Muscle Shoals offer. *Elec W* 78:385-6 Ag 20 '21
- Another offer made for Muscle Shoals by C. E. James of Chattanooga. *Elec W* 78:634 S 24 '21
- Completion of Muscle Shoals plant urged. *il diags Elec W* 77:587-90 Mr 12 '21
- Constructive suggestions regarding Muscle Shoals. F. W. Washburn. *Chem Age* 29:51-2 F '21
- Cyanamide process plant at Muscle Shoals; condensed sketch of U.S. nitrate plant no. 2. C. H. Jones. flow sheets *il plan Chem & Met Eng* 23:182-7 Ag 4 '20
- Domestic and foreign supply of nitrate. *Min & Sci P* 122:249-50, 452 F 19, Ap 2 '21
- Electrical distribution at nitrate plant no. 1. C. D. Gray and E. Hagenlocher. *il diags plan Elec W* 76:113-15 Jl 17 '20
- Electrical energy supply for nitrate plant. C. D. Gray and E. Hagenlocher. *il diag plan Elec W* 74:1052-5 D 13 '19
- Ford and others interested in buying Muscle Shoals plant. *Elec W* 78:187 Jl 23 '21
- Ford and the Muscle Shoals power. *Eng N* 87:305 Ag 25 '21
- Government engineers recommended interconnection of Muscle Shoals. *Elec W* 78:535-6 S 10 '21
- Government moving slowly on Muscle Shoals offers. *Elec W* 78:337 Ag 13 '21
- Henry Ford's offer to buy government nitrate plant at Muscle Shoals. *Comm & Fin Chr* 113:485-7 Jl '30 '21
- Mr Ford and his Muscle Shoals proposition. G. Pinchot. *Power* 54:426 S 13 '21; Discussion. H. W. Buck. *Elec W* 78:621 S 24 '21
- Muscle Shoals hydro-electric development. C. H. Jones. *il map Chem & Met Eng* 22:417-19 Mr 3 '20
- Nitrate plant construction both scored and praised. *Eng N* 84:1120 Je 3 '20
- Nitrogen catechism; an economic survey of the nitrogen fertilizer situation. *Chem Age* 29:57-9 F '21
- Opposed to acceptance of Ford's Muscle Shoals offer. G. Pinchot. *Elec W* 78:481-2 S 3 '21
- Pre-war legislation affecting nitrate plants. C. H. Jones. *Chem & Met Eng* 22:885-8 My 12 '20
- Republican vs. Democrat on the nitrate program. *Chem & Met Eng* 22:993-7 My 26 '20
- Senate hearings on U.S. fixed nitrogen corporation bill. *Chem & Met Eng* 22:582-4 Mr 31 '20
- United States government air nitrate plant no. 2 Muscle Shoals, Ala. G. B. Cramp. *Blast F & Steel Pl* 9:525-8 S '21
- Views on Henry Ford's offer to buy Muscle Shoals plant. *Comm & Fin Chr* 113:114-15 S 10 '21
- War department defends government operation of nitrate plants. *Chem & Met Eng* 22:814 Ap 28 '20

Nitrates

- Data from Washburn's testimony. *Chem & Met Eng* 22:862 My 5 '20
- Determination of nitrates in soil. A. L. Whiting, T. E. Richmond and W. R. Schoonover. *J Ind & Eng Chem* 12:982-4 O '20
- Domestic and foreign supply of nitrate. *Min & Sci P* 122:249-50, 452 F 19, Ap 2 '21
- Effect of chlorides on the nitrometer determination of nitrates. M. T. Sanders. *J Ind & Eng Chem* 12:160-70 F '20
- Estimation of nitrates and nitrites in battery acid. L. B. Sefton. *U S Bur Stand Tech Pa* 149:1-10 '20
- Nitrate content of certain waters considered bacteriologically safe. M. S. Nichols. *J Ind & Eng Chem* 12:987-9 O '20
- Our mineral supplies; nitrates. H. S. Gale. *U S Geol S Bul* 666:163-6 '19
- Relative availability of nitrate nitrogen and commercial organic nitrogen; field and cylinder experiments. A. W. Blair. *J Ind & Eng Chem* 12:262-4 Mr '20

Removal of nitrates by means of alcohol. R. Schneidewind. *Chem & Met Eng* 24:22 Ja 5 '21

Zur kenntnis der besonderen chemischen und physikalischen eigenschaften des ferrohydrat-peroxydes; reduktion von alkalinitrat. O. Baudisch. *Deutsche Chem Gesell Ber* 54:406-13 Mr '21

See also Ammonium nitrates; Saltpeter; Saltpeter, Chile

Nitration

- Influence of substituents on reactions: nitration of substituted acetanilides; abstract. H. Franzen and E. Engel. *Chem Soc J* 120 pt 1:713 O '21
- Nitration of hydrocarbons. A. Hough, W. Savage and D. J. Van Marle. *chart diags plans Chem & Met Eng* 23:666-70 O 6 '20
- Replacement of sulfonic groups by nitro groups by means of nitrous gases. R. L. Datta and P. S. Varma. *Am Chem Soc J* 41:2039-48 D '19
- Rôle of mercuric nitrate in the catalyzed nitration of aromatic substances. T. L. Davis and others. *diag Am Chem Soc J* 43:594-607 Mr '21

Nitric acid

- Absorption of oxides of nitrogen by nitric acid. E. K. Rideal. *diags J Ind & Eng Chem* 12:531-8 Je '20
- Decomposition of nitric acid in organic nitrations. F. O. Rice. *Am Chem Soc J* 42:2665-70 D '20
- Definition of limits for impurities in chemicals—sulfate in nitric acid. W. D. Collins. *J Ind & Eng Chem* 13:948-9 O '21
- Elements of the superconcentration of nitric acid. E. Galle. *diags Chem & Met Eng* 25:741-6 O 19 '21
- Equilibrium between nitric oxide, nitrogen peroxide and aqueous solution of nitric acid. C. L. Burdick and E. S. Freed. *diags Am Chem Soc J* 43:518-30 Mr '21
- La fabrication d'acide nitrique concentré à partir des gaz nitreux; abstract. F. Foerster, T. Burchardt and E. Fricke. *Chimie & Ind* 5:53-4 Ja '21
- La fabrication de l'acide nitrique concentré en partant des vapeurs nitreuses. M. Kaltenbach. *il diags Chimie & Ind* 3:576-90 My '20
- Freezing points of mixtures of sulfuric and nitric acids. W. C. Holmes. *J Ind & Eng Chem* 12:781-3 Ag '20
- Manufacture of nitric acid. F. C. Zeisberg. *Chem & Met Eng* 24:443-5 Mr 9 '21
- Nitric acid; patent. *Chem & Met Eng* 24:938 My 25 '21
- Reaction between nitric acid and copper. L. S. Bagster. *diag Chem Soc J* 119:82-7 Ja '21
- Reagent chemicals; proposed specification for sulfuric, nitric, and hydrochloric acids, and for ammonium hydroxide. W. D. Collins. *J Ind & Eng Chem* 13:735-7 Ag '21
- Recovery of sulphuric and nitric acids from acids used in the manufacture of explosives: denitration and absorption. 56p Great Britain Department of scientific and industrial research, London '20
- Recovery of waste nitrating acids. C. Marx. *diags Chem Age* 29:251-5 Jl '21
- States of iron in nitric acid. J. G. Brown. *diags J Phys Chem* 25:429-54 Je '21
- Über die einwirkung der salpetersäure auf phenole und phenol-äther. K. H. Meyer and W. E. Elbers. *Deutsche Chem Gesell Ber* 54:337-46 F '21
- Über die reduktionsstufen von arylderivaten der salpetersäure. K. H. Meyer and W. Reppe. *Deutsche Chem Gesell Ber* 54:327-37 F '21
- Use of nitroglycerin spent acid as charging acid for nitric acid stills. S. G. Norton. *J Ind & Eng Chem* 13:677-8 Ag '21
- Nitric oxide. See Nitrogen dioxide
- Nitrides**
- Ammonia and the nitrides, with special reference to their synthesis. E. B. Maxted. 120p J. & A. Churchill, London '21

Nitrites

Estimation of nitrates and nitrites in battery acid. L. B. Sefton. U S Bur Stand Tech Pa 149:1-10 '20

Über die beeinflussung von sogenannten austausch- oder verdrängungsreaktionen durch lichtenergie: reduktion von alkalinitrit. O. Baudisch. Deutsche Chem Gesell Ber 54: 413-17 Mr '21

Zur kenntnis der besonderen chemischen und physikalischen eigenschaften des ferrohydrat-peroxydes: reduktion von alkalinitrat. O. Baudisch. Deutsche Chem Gesell Ber 54: 406-13 Mr '21

Nitro, West Virginia

Even a city can be marketed by advertising. H. A. Ballard. Ptr Ink 110:149-50+ F 26 '20

Nitro compounds

Analysis of aromatic compounds by means of titanous chloride. F. L. English. J Ind & Eng Chem 12:994-7 O '20

Derivate einiger *o*-nitro-ketone. S. Gabriel and W. Gerhard. Deutsche Chem Gesell Ber 54:1067-78, 1613-18 My, Jl '21

Heats of combustion and formation of nitro-compounds; benzene, toluene, phenol and methylaniline series. W. E. Garner and C. L. Abernethy. Chem Soc J 120 pt 2:435-6 Jl '21

Influence of nitro-groups on the reactivity of substituents in the benzene nucleus; the condensation of ethyl 3- and 5-nitro-2-chlorobenzoates with hydrazines. J. Kenner and E. Witham. Chem Soc J 119:1053-8 Jl '21

Influence of nitro-groups on the reactivity of substituents in the benzene nucleus; the partial reduction of the dinitrotoluenes by stannous chloride and hydrochloric acid. H. Burton and J. Kenner. Chem Soc J 119: 1047-53 Jl '21

Labile nature of the halogen atoms in substituted nitromethanes. A. K. Macbeth and D. D. Pratt. Chem Soc J 119:1356-61 S '21

Nitro- and amino-derivatives of *m*-hydroxybenzoic acid. V. Froelicher and J. B. Cohen. Chem Soc J 119:1425-32 S '21

Reduction of certain aromatic nitro-compounds by ammonium sulphide. A. Koryczyński and S. Piasecki. Chem Soc J 120 pt 1:517-18 Jl '21

Reduction of emulsified nitro-compounds. A. Lapworth, L. K. Pearson and R. D. Haworth. Chem Soc J 119:765-77 Je '21; Abstract. Chem & Met Eng 25:338 Ag 24 '21

Nitroacetanilides

Solubility and volatility of the chloro- and nitro-anilines and their acetyl derivatives. N. V. Sidgwick and H. E. Rubie. Chem Soc J 119:1013-24 Jl '21

Nitroamines

Certain nitroamines of the anthraquinone series. E. Terres. Chem Soc J 120 pt 1:676-7 S '21

Nitroanilines

Ethers derived from the addition products of the nitro-anilines and chloral. A. S. Wheeler and S. C. Smith. il Am Chem Soc J 43:941-5 Ap '21

Solubility and volatility of the chloro- and nitro-anilines and of their acetyl derivatives. N. V. Sidgwick and H. E. Rubie. Chem Soc J 119:1013-24 Jl '21

Nitrobenzaldehyde

Derivatives of para-nitro-benzaldehyde. A. Lowy and C. G. King. Am Chem Soc J 43:625-7 Mr '21

Nitrobenzene

Effect of finely divided material on the freezing points of water, benzene and nitrobenzene. F. W. Parker. Am Chem Soc J 43:1011-18 My '21

Reduction of emulsified nitro-compounds; β -phenylhydroxylamine from nitrobenzene. A. Lapworth and L. K. Pearson. Chem Soc J 119:765-8 Je '21

Nitrobenzene mercury compounds

Mercuri-organic derivatives: nitrobenzene mercury compounds; an indirect method of

mercurizing organic compounds. M. S. Kharasch and L. Chalkley, jr. Am Chem Soc J 43:607-12 Mr '21

Nitrobenzoic acid

Preparation of *o*-nitrobenzoic acid. M. Reimer and E. S. Gatewood. Am Chem Soc J 42: 1475-8 Jl '20

Nitrobenzoylacetophenone

Derivate einiger *o*-nitro-ketone. S. Gabriel and W. Gerhard. Deutsche Chem Gesell Ber 54:1613-18 Jl '21; Abstract. Chem Soc J 120 pt 1:687-8 S '21

Nitrobenzyl chloride

Condensation of *p*-nitrobenzyl chloride with nitroso-compounds; a new mode of formation of *N*-oximino-ethers. F. Barrow and E. D. Griffiths. Chem Soc J 119:212-16 F '21

Nitrocellulose

Chemistry, manufacture and uses of nitrocellulose. H. Schlatter. il Chem & Met Eng 25:281-6 Ag 17 '21

Nitrocellulose. R. Robertson. Engineering 110:572-4 O 29 '20

Nitrocellulose and its solutions as applied to the manufacture of artificial leather. W. K. Tucker. J Ind & Eng Chem 13: 623-4 Jl '21

Nitrocellulose from wood pulp. R. G. Woodbridge, jr. J Ind & Eng Chem 12:380-4 Ap '20; Same abr. Paper 26:136+ Ap 21 '20

Photo-elasticity for engineers; the stress-strain properties of nitro-cellulose and the law of its optical behavior. E. G. Coker. Gen Elec R 24:455-66 My '21

Removal of free acid from nitrocellulose with special reference to the use of saline leaches. S. E. Sheppard. il J Ind & Eng Chem 13:1017-24 N '21

Nitrochloroform. See Chloropicrin**Nitroform**

Colorations produced by substituted nitro-forms. H. Graham and A. K. Macbeth. Chem Soc J 119:1362-8 S '21

Halogen derivatives of nitroform. A. K. Macbeth and D. D. Pratt. Chem Soc J 119:354-8 Mr '21

Nitrogen

Allotropic nitrogen. H. Leffmann. Chem & Met Eng 21:693 N 26 '19

Birkeland-Eyde arc process of nitrogen fixation. H. Bjerke; W. S. Landis. Chem & Met Eng 24:724 Ap 27 '21

Breaking up of nitrogen. E. Regner. Sci Am M 2:138-41 O '20

British nitrogen production plans. F. E. Hamer. Chem & Met Eng 23:22 Jl 7 '20

British nitrogen products committee report. J Ind & Eng Chem 12:391-3 Ap '20

Commercial oxidation of ammonia. G. A. Perley. il J Ind & Eng Chem 12:5-16, 119-29 Ja '20

Conservation of nitrogen with special reference to activated sludge. G. J. Fowler. Eng & Contr 55:301-2 Mr 30 '21

Constitution of the organic nitrogen basis of Californian petroleum. C. F. Mabery and L. G. Wesson. Am Chem Soc J 42:1014-30 My '20

Consumption of inorganic nitrogen in the United States. D. P. Gaillard. chart Chem & Met Eng 22:783-6 Ap 28 '20

Convenient apparatus for the preparation of small quantities of pure nitrogen or carbon monoxide. H. P. Waran. diag Philos Mag 6th ser 42:246-9 Ag '21

Demand and supply of fixed inorganic nitrogen in the United States. A. H. White. Chem & Met Eng 22:369-71 F 25 '20

Determination of nitrogen oxides in processes for nitrogen fixation. G. B. Taylor. Chem & Met Eng 23:1112 D 8 '20

Determination of the rate of solution of atmospheric nitrogen and oxygen by water. W. E. Adeney and H. G. Becker. Philos Mag 6th ser 42:87-96 Jl '21

Dissociation of hydrogen and nitrogen by electron impacts. A. L. Hughes. diag Philos Mag 6th ser 41:778-98 My '21

Nitrogen —Continued

- Dosage de l'azote ammoniacal dans les engrais complexes à base de cyanamide calcaïque et de sels ammoniacaux. J. Froidevaux and H. Vandenberghe. *diag Chimie & Ind* 4:612-16 N '20
- Effect of nitrogen on steel; a résumé of the important literature. G. F. Comstock and W. E. Ruder. *il Chem & Met Eng* 22:399-405 Mr 3 '20
- Electrical energy in fixation of nitrogen. E. A. Lof. *il Elec W* 75:148-9 Ja 17 '20
- Fixation of atmospheric nitrogen by the silent electric discharge process. C. F. Harding and K. B. McEachron. *il diags Am Inst E E J* 39:405-15 Ap '20
- Fixed nitrogen research laboratory. A. B. Lamb. *il Chem & Met Eng* 22:977-9 My 26 '20
- German nitrogen syndicate. N. Caro. *Chem & Met Eng* 22:686-8 Ap 14 '20
- Government fixed nitrogen research. R. C. Tolman. *il Chem & Met Eng* 24:595-9 Ap 6 '21; Discussion. 24:768-9 My 4 '21
- Influence of slag and nitrogen on the corrosion of iron. L. T. Richardson. *il Chem & Met Eng* 22:845-6 My 5 '20
- Is nitrogen an element? *Sci Am* 121:569+ D 6 '19
- Nitric acid by gas explosions. *Engineering* 112:230 Ag 5 '21
- Nitrogen and case-hardening. H. Fay. *Chem & Met Eng* 24:289-90 F 16 '21
- Nitrogen fixation and the German disaster at Oppau. T. W. Sill. *diag plan Chem Age* 29:418-20 O '21
- Nitrogen fixation by the Haber method. C. H. Jones. *il Chem & Met Eng* 22:1071-5 Je 9 '20
- Nitrogen-fixation in Europe during the war. J. W. Joyes. *Chem & Met Eng* 21:612-13 N 12 '19
- Nitrogen fixation in Great Britain. *Chem Age* 29:349 S '21
- Nitrogen in carburized steels. W. E. Ruder and G. R. Brophy. *il Chem & Met Eng* 25:867-71 N 9 '21
- Nitrogen in sewage. G. M'Gowan. *Eng & Contr* 53:736-8 Je 30 '20
- Nitrogen in steel, and the erosion of guns. H. E. Wheeler. *Min & Met* 160:32 Ap '20
- Nitrogen in the arts and industries. G. W. Phillips and J. N. Taylor. *Sci Am M* 4:256-60 S '21
- Nitrogen industry. H. E. Fischer. *bibliog J Fr Inst* 190:187-209 Ag '20
- Nitrogen products. *Engineering* 109:119-20 Ja 23 '20
- Nitrogen products; abstract. *Chem & Met Eng* 25:568 S 21 '21
- Nitrogen products statistics. J. A. Harker. *Engineering* 112:345-6 S 2 '21
- Nitrogen—with special reference to activated sludge. G. J. Fowler. *Eng N* 87:311 Ag 25 '21
- Notes on the effect of nitrogen on steel. O. A. Knight and H. B. Northrup. *il Chem & Met Eng* 23:1107-11 D 8 '20
- Occurrence of nitrogen in steel. A. A. Blue. *il diags Iron Age* 108:1-5 J1 7 '21
- Oppau plant. *Sci Am M* 4:227 S '21
- Perfectionnements à la production industrielle des oxydes d'azote dans les fours à arc. F. Gros. *Génie Civil* 76:317-18 Mr 27 '20
- Point discharge in nitrogen; abstract. M. Pirani. *Chem Soc J* 120 pt 2:197-8 Mr '21
- Political and commercial control of the nitrogen resources of the world. C. G. Gilbert. *Chem & Met Eng* 22:443-8, 501-4, 557-8 Mr 10-24 '20
- Preparation of nitrogen and hydrogen mixture by decomposition of ammonia. R. O. E. Davis and L. B. Olmstead. *diag J Ind & Eng Chem* 12:316-17 Ap '20
- La production industrielle de l'acide nitrique par oxydation de l'ammoniaque. C. L. Parsons. *il diags Chimie & Ind* 4:575-92 N '20
- Recovery of the nitrogen contained in oil shales. L. Simpson. *Chem & Met Eng* 22:20-2 Ja 7 '20
- Relative availability of nitrate nitrogen and commercial organic nitrogen; field and cylinder experiments. A. W. Blair. *J Ind & Eng Chem* 12:262-4 Mr '20
- Report of the Nitrogen products committee. *Electrician* 84:82-3, 113-15 Ja 23-30 '20
- Separation of atmospheric nitrogen; patent. *diag Chem & Met Eng* 24:852 My 11 '21
- Significant combination. *J Ind & Eng Chem* 12:107-8 F '20
- Supply of inorganic nitrogen in the United States. D. P. Gaillard. *Chem & Met Eng* 22:841-5 My 5 '20
- Die technische darstellung der luftsalpetersäure mittels gas-explosionen. F. Häusser. *il diags Stahl & Eisen* 41:956-62, 999-1003 J1 14-21 '21
- Theoretical study of nitrogen fixation by the electric arc. C. P. Steinmetz. *Chem & Met Eng* 22:299-304, 353-7, 411-16, 455-62 F 18-Mr 10 '20
- Washburn's testimony on government nitrogen. *Chem & Met Eng* 22:712, 757 Ap 14-21 '20
- See also Nitrates; Nitric acid; Nitrous acid

Analysis

- Boric acid modification of the Kjeldahl method for crop and soil analysis. F. M. Scales and A. P. Harrison. *J Ind & Eng Chem* 12:350-2 Ap '20
- Influence of potassium permanganate on Kjeldahl nitrogen determinations. D. C. Cochrane. *J Ind & Eng Chem* 12:1195-6 D '20
- Iodometric determination of amino nitrogen in organic substances. H. H. Willard and W. E. Cake. *Am Chem Soc J* 42:2646-50 D '20
- Modification of the Dumas method, and the application of the Kjeldahl method to the determination of nitrogen in nitronaphthalenes. P. H. M.-P. Brinton and others. *diag J Ind & Eng Chem* 13:636-9 J1 '21
- Rapid and accurate method for determining nitrogen in nitrate of soda by the modified Devarda method and the use of the Davison scrubber bulb. C. A. Butt. *J Ind & Eng Chem* 12:352-4 Ap '20
- Use of perchloric acid as an aid to digestion in the Kjeldahl nitrogen determination. B. Mears and R. E. Hussey. *J Ind & Eng Chem* 13:1054-6 N '21
- Use of potassium permanganate in the determination of nitrogen by the Kjeldahl method. D. C. Cochrane. *J Ind & Eng Chem* 13:358 Ap '21

Bibliography

- Political and commercial control of the nitrogen resources of the world. C. G. Gilbert. *Chem & Met Eng* 22:558-9 Mr 24 '20

Cost

- Cost of fixed nitrogen in Norway. T. C. Hagemann. *Chem & Met Eng* 24:531 Mr 23 '21

Nitrogen compounds

- Fluidities and volumes of some nitrogenous organic compounds. E. C. Bingham, H. S. Van Klooster and W. G. Kleinspehn. *diag J Phys Chem* 24:1-20 Ja '20
- Octet theory of valence and its applications with special reference to organic nitrogen compounds. I. Langmuir. *Am Chem Soc J* 42:274-92 F '20
- Siliciumwasserstoffe; stickstoffhaltige Verbindungen. A. Stock and K. Somieski. *Deutsche Chem Gesell Ber* 54:740-58 Ap '21
- Studies of the availability of organic nitrogenous compounds. C. S. Robinson, O. B. Winter and E. J. Miller. *J Ind & Eng Chem* 13:933-6 O '21

Nitrogen dioxide

- Absorption of oxides of nitrogen by nitric acid. E. K. Rideal. *diags J Ind & Eng Chem* 12:531-8 Je '20
- Equilibrium between nitric oxide, nitrogen peroxide and aqueous solution of nitric acid. C. L. Burdick and E. S. Freed. *diags Am Chem Soc J* 43:518-30 Mr '21

Nitrogen pentoxide

- Photochemical decomposition of nitrogen pentoxide. F. Daniels and E. H. Johnston. *Am Chem Soc J* 43:72-81 Ja '21

Nitrogen pentoxide—Continued

Pressure measurements of corrosive gases, the vapor pressure of nitrogen pentoxide. F. Daniels and A. C. Bright. diags Am Chem Soc J 42:1131-41 Je '20

Thermal decomposition of gaseous nitrogen pentoxide; a monomolecular reaction. F. Daniels and E. H. Johnston. diag Am Chem Soc J 43:53-71 Ja '21

Nitrogen peroxide

Equilibrium between nitric oxide, nitrogen peroxide and aqueous solution of nitric acid. C. L. Burdick and E. S. Freed. diags Am Chem Soc J 43:518-30 Mr '21

Reaction between copper and nitrogen peroxide. H. V. Tartar and W. L. Semon. diag Am Chem Soc J 43:494-500 Mr '21

Nitrogen trichloride

Reaction between chlorine and ammonia. W. A. Noyes and A. B. Haw. diags Am Chem Soc J 42:2167-79 N '20

Nitroglycerin

Manufacture of nitroglycerine. E. M. Symmes. il Chem & Met Eng 25:831-4 N 2 '21

Nitroglycerin once gave excitement; not limited by hazards in handling. H. Botsford. Nat Pet N 12:101+ N 24 '20

Use of nitroglycerin spent acid as charging acid for nitric acid stills. S. G. Norton. J Ind & Eng Chem 13:677-8 Ag '21

Nitro-hydroxy-toluic acid

5-nitro-4-hydroxy-3-methyl-benzoic acid. K. Pfister. Am Chem Soc J 43:375-6 F '21

Nitrometer

Effect of chlorides on the nitrometer determination of nitrates. M. T. Sanders. J Ind & Eng Chem 12:169-70 F '20

Nitronaphthalenes

Additive compounds of arylamines with nitro-derivatives of naphthalene. J. J. Sudborough, N. Picton and D. D. Karvé. Chem Soc J 120 pt 1:557-8 Ag '21

Modification of the Dumas method, and the application of the Kjeldahl method to the determination of nitrogen in nitronaphthalenes. P. H. M.-P. Brinton and others. diag J Ind & Eng Chem 13:636-9 Jl '21

Nitrophenols

Condensation of formaldehyde with ortho-nitrophenol. J. B. Fishman. Am Chem Soc J 42:2288-97 N '20

Influence of position on the solubility and volatility of the mono- and di-nitrophenols. N. V. Sidgwick and W. M. Aldous. Chem Soc J 119:1001-12 Jl '21

Metallic derivatives of nitrophenolic compounds; interaction of barium, strontium, and calcium hydroxides with the mononitrophenols. A. E. Goddard. Chem Soc J 119:1161-5 Jl '21

Nitro-phthalic anhydrides

Friedel and Crafts' reaction—nitro-phthalic anhydrides and acetyl-amino-phthalic anhydrides with benzene and aluminum chloride. W. A. Lawrance. Am Chem Soc J 42:1871-9 S '20

Nitroprussides

Constitution of the nitroprussides; the alkylation of nitroprussic acid. G. J. Burrows and E. E. Turner. Chem Soc J 119:1450-2 S '21

Nitroso compounds

Condensation of *p*-nitrobenzyl chloride with nitroso-compounds; a new mode of formation of *N*-oximino-ethers. F. Barrow and E. D. Griffiths. Chem Soc J 119:212-16 F '21

Decomposition of nitroso compounds. W. A. Noyes and J. A. Coss. Am Chem Soc J 42:1280-6 Je '20

Nitroso R-salt, a new reagent for the detection of cobalt. H. S. van Kooster. Am Chem Soc J 43:746-9 Ap '21

Nitrosopinene

Constitution of nitrosopinene and its transformation products; abstract. L. Ruzicka and H. Trebler. Chem Soc J 120 pt 1:573-4 Ag '21

Nitrostarch

Nitrostarch explosives; patent. Chem & Met Eng 25:846 N 2 '21

Nitrotartaric acid

Nitrotartaric acid. A. Lachman. Am Chem Soc J 43:577-81 Mr '21

Nitrotoluene

Studies on the nitrotoluenes; binary systems of *o*-nitrotoluene and another nitrotoluene. J. M. Bell and others. J Ind & Eng Chem 13:59-61 Ja '21

Studies on the nitrotoluenes; the three-component system: *o*-nitrotoluene, *p*-nitrotoluene, 1,2,4-dinitrotoluene. J. M. Bell and E. B. Cordon. J Ind & Eng Chem 13:307-8 Ap '21

See also Chlorodinitrotoluenes; Dinitrotoluene; Trinitrotoluene

Nitrotoluene-sulfonnitramide

Benzene sulfonnitramide, toluene-4-sulfonnitramide, 2-nitrotoluene-4-sulfonnitramide, and some of their salts. B. R. Mathews. J Phys Chem 24:108-19 F '20

Nitrotrichloromethane. See Chloropicrin**Nitrous acid**

Über den verlauf der reaktion zwischen malonitril und salpetriger säure. O. Diels and E. Borgwardt. Deutsche Chem Gesell Ber 54:1334-43 Je '21

Nodulizing

Improvements in nodulizing at Chrome, N.J. C. L. Colbert. il diags Eng & Min J 112:255-7 Ag 13 '21

Noise

Engineer and noise. Engineering 109:797 Je 11 '20

Examination of noise in mechanisms. il diags Automobile Eng 11:148-9 Ap '21

Noise and vibration from electrical apparatus. K. Rankin. diags Power Pl Eng 25:581-2 Je 1 '21

Noises made to order. il Sci Am 121:583 D 13 '19

Reducing noise in factories. Sci Am 125:96 Ag 6 '21

Nomography

Construction and use of nomograms. Eng & Contr 55:639-41 Je 29 '21

Entropy of steam; nomogram. M. J. Eichhorn. Power 53:966-7 Je 14 '21

First course in nomography. S. Brodetsky. 135p G. Bell & sons, ltd., London '20

Induction motor nomogram; a moveable diagram for reading all performance characteristics of any three-phase induction motor. R. G. Warner. diags Am Inst E E J 40:808-14 O '21

Nomograms for calculating flow in Venturi tubes. J. W. Ledoux. Eng & Contr 56:138-9 Ag 10 '21

Nomographic chart for gases. T. B. Morley. Engineering 112:302-4 Ag 26 '21

Specific heat of superheated steam; nomogram. M. J. Eichhorn. Power 53:892 My 31 '21

Specific volume of dry steam; nomogram. M. J. Eichhorn. Power 53:1006-7 Je 21 '21

Total heat of steam; nomogram. M. J. Eichhorn. Power 53:936-7 Je 7 '21

See also Charts, Calculating; Graphic methods

Non-conductors. See Dielectrics; Insulation (electric)**Non-ferrous alloys.** See Alloys; Aluminum alloys; Brass; Bronze; Copper alloys**Non-partisan league, National.** See National non-partisan league**Norfolk, Virginia****Bridges**

Bridge to connect Norfolk and Portsmouth. il Pop Mech 36:536-7 O '21

Rapid transit

Norfolk debates franchise. Elec Ry J 58:215 Ag 6 '21

Norfolk's traction situation. A. M. Taylor and C. B. Cooke, jr. Elec Ry J 56:1145-7, 1186-8, 1289-91 D 4-11, 25 '20

Water supply

Fighting water shortage in Norfolk. Pub Works 48:97-8 F 14 '20

Norfolk, Virginia—Water supply—*Continued*
Norfolk emergency water connection. A. Le-
wald. diags Pub Works 49:407-9 O 30 '20
Water supply shortage at Norfolk, Va. R. C.
Dennett. Munic Eng 58:90+ F '20

Norfolk & Western railway
Electrification of steam railroads. il diag map
Ry Age 70:101-6 Ja 7 '21
Railway operation. map Ry Age 68:1230-1 Ap
23 '20
24th annual report, 1919. Comm & Fin Chr
110:1422-6 Ap 3 '20
25th annual report for the year ending Decem-
ber 31, 1920. Comm & Fin Chr 112:1413-16
Ap 2 '21; Ry Age 70:874-6 Ap 8 '21

Norharman
Harmine and harmaline; the synthesis of
norharman. W: O. Kermack, W: H:
Perkin, jr. and R. Robinson. Chem Soc J
119:1602-42 O '21

Normal schools
Program of competition for a new group of
buildings for the New Britain, Connecticut,
state normal school. Am Arch 119:59-61. pl
70a-g Ja 19 '21

Norris, Robert Van Arsdale, 1864-
Portrait. Coal Age 18:326 Ag 12 '20

North America

Economic conditions

Source book for the economic geography of
North America. C: C. Colby, comp. 418p
Univ. of Chicago press, Chicago '21

North American company

Thirty-first annual report—for the fiscal year
ended December 31 1920. Comm & Fin Chr
112:942-3 Mr 5 '21

North Carolina

Business man's America: North Carolina.
A. W. Douglas. Nation's Business 8:26, 28+
Jl '20

See also Roads—North Carolina

**North Carolina cotton manufacturers' associa-
tion.** *See* Cotton manufacturers' association
of North Carolina

North Dakota

See also Banks and banking—North Da-
kota

Economic conditions

What North Dakota discovered. J. E. Boyle.
il Nation's Business 9:12-14 Ap '21

Water supply

Features of new water works at Minot, North
Dakota. F: Bass and E. J. Thomas. il
diags Munic Eng 59:142-4 O '20

North Platte project. *See* Irrigation—Wyoming

Northern lights. *See* Auroras

Northern Pacific railway

Great Northern-Northern Pacific bonds ap-
proved by I. C. C. Ry Age 70:1031-3 Ap
29 '21

Jay Cooke and the Northern Pacific. H.
Elliott. Comm & Fin Chr 113:1728-9 O 22
'21

24th annual report for 1920. Comm & Fin
Chr 112:2758-62 Je 25 '21; Same. Ry Age
71:138-40 Jl 16 '21

24th annual report, 1920; editorial. map Ry
Age 71:99-100 Jl 16 '21

Northern states power company

Annual report for the year ended December
31, 1919. Comm & Fin Chr 110:1984-6 My
8 '20

Northwest

Bunker Hill enterprise. T. A. Rickard. il
maps Min & Sci P 120:5-13 Ja 3 '20

See also Electric plants (central stations)
—Northwestern states

Northwest, Canadian

Early explorations and surveys in the Cana-
dian Northwest. R. F. Clarke. Can Eng 38:
327-9, 340-3 Mr 25-Ap 1 '20

Northwest electric light and power association

13th annual convention, Spokane, Sept. 8-11.
J Elec 45:211, 285-7 S 1-15 '20; N E L A
Bul 7:705-7 O '20

14th annual convention, Portland, Ore., June
15-17. Elec R 78:1023-5 Je 25 '21; J Elec
47:58-9 Jl 15 '21

Reports. J Elec 45:314-20 O 1 '20

Northwest electrical service league

Progress. J Elec 45:474 N 15 '20

Proposed policy of Northwest electrical ser-
vice league. Elec W 76:1223 D 18 '20

Northwest mining association

Convention, Spokane, Feb. 16-20. Eng & Min J
109:564-6 F 28 '20

Mining men of Pacific Northwest meet in
convention at Spokane. H. W. Power. Eng
& Min J 111:478-9 Mr 12 '21

Northwest wheat growers, associated

Northwest in the national cooperative move-
ment. B. Lampson. il J Elec 46:382-3 Ap
15 '21

Northwestern hardwood lumbermen's associa- tion

31st annual convention, Minneapolis, Dec. 2,
Am Lumberman 2325:61 D 6 '19

Norway

Electrical future of Norway. Elec R (Lond)
88:323 Mr 11 '21

Economic conditions

Banking conditions and export trade of Nor-
way. A. Kildal. Annalist 17:471 Ap 25 '21

Economic situation of Norway. Engineering
111:362 Mr 25 '21

Industries and resources

Norway; a commercial and industrial hand-
book. N. A. Bengtson. il U S Bur For &
Dom Com 196:1-58 '20

See also Automobile industry and trade—
Norway; Chemical industries—Norway;
Electric industries—Norway; Electricity
supply—Norway; Hydroelectric plants—
Norway; Mines and mineral resources—
Norway; Paper industry and trade—Norway

Notched bar impact test. *See* Metals—Testing

Notion departments

How advertising won for notions a seat above
the salt. E: T. Tandy. Ptr Ink 116:102+ S
29 '21

Nova Scotia

See also Clay industries—Nova Scotia;
Geology—Nova Scotia

Industries and resources

Resources of Nova Scotia, 1920. 71p bibliog il
map '20 Canada Dept. of the interior, Ot-
tawa

Noyes, William Albert

American chemical society's president for
1920. J. Stieglitz. por J Ind & Eng Chem
12:106 F '20

Noyes-Buick building, Boston

Noyes-Buick building. il Am Arch 119:195-7+,
pl 206b-e F 23 '21

Noyes-Buick building. H: F. Bryant. il diags
map plans Am Arch 119:207-11+ F 23 '21

Noyon cathedral

Noyon. J.-P. Alaux. il diag Am Inst Arch
J 8:111-12 Mr '20

Nozzles

Automatic variable exhaust nozzle. C. Rob-
erts. diags Ry Mech Eng 95:494 Ag '21

Calibration of nozzles for measurement of air
flowing into a vacuum. W: L. De Baufre.
il diags Mech Eng 42:607-9+ N '20

Coefficients of discharge of sewage sprinkler
nozzles. il Eng & Contr 53:437 Ap 14 '20

Employment of nozzles instead of cylinders
or wheels in turbines; abstract. R. Mollier.
Mech Eng 42:123 F '20

Exhaust nozzle areas. S. C. Frank. diag Ry
Mech Eng 94:125-6 Mr '20

German tests on steam nozzles and diffusors;
abstract. F: Muller. Mech Eng 42:697-8
D '20

Nozzle design for Diesel engines—influence
of air pressure and engine speed. J. A.
Wallard. diags Power 53:469-71 Mr 22 '21

Nozzle efficiencies. Engineering 111:48 Ja 14
'21

Nozzle efficiencies. A. L. Mellanby and W.
Kerr. Engineering 111:396-7 Ap 1 '21

Nozzles —Continued

- Pressure-flow experiments on steam nozzles. A. L. Mellanby and W. Kerr. diags Engineering 111:269-74 Mr 4 '21; Abstract. Mech Eng 43:327-30 My '21
- Sewage sprinkler nozzles. diags Pub Works 48:380-2 My 1 '20
- Steam action in simple nozzle forms. A. L. Mellanby. diags Engineering 110:310-14 S 3 '20
- Unconventional forms of exhaust nozzles. diags Ry R 67:584-5 O 16 '20
- Use of nozzles for measuring flow. W. Trinks. diags Power Pl Eng 25:1044-5 N 1 '21

Nozzles, Air speed. See Air speed nozzles

Nucleic acids

- Nucleic acids, their chemical properties and physiological conduct. W. Jones. 2d ed. 150p Longmans '20

Nuisances

- Liability of municipality for nuisance in garbage disposal. J. Simpson. Pub Works 50:354-6 Ap 23 '21
- Plant must be operated not to interfere with health of neighboring residents. Chem & Met Eng 23:1031 N 24 '20

See also Public health; Sanitation; Smoke prevention; Trade waste

Nujol

- How nujol was advertised into success. M. Hussobee. Ptr Ink 116:101-4+ Jl 14 '21

Numbers, Theory of

- Some famous problems of the theory of numbers and in particular Waring's problem. G. H. Hardy. 34p Oxford '20

Numerals

See also Decimal system

Nurseries (horticultural)

- Crop factory; can gardening be made a standardized industry, independent of the elements? A. Livvetaal. il Sci Am 122:563+ My 22 '20

Nurses and nursing, Public health**Bibliography**

- Nurse in industry. H. Bailey. International Journal of Public Health p. 212-16 Mr '21

Nutrition

- Chemical factors in nutrition. L. B. Mendel. J Fr Inst 192:1-10 Jl '21
- Do calories measure the value of food? H. D. Chapin. Sci Am M 1:195-6 Mr '20
- Nutrition and physical efficiency. E. V. McCollum. J Fr Inst 189:421-40 Ap '20

See also Chlorophyll; Digestion; Metabolism; Milk; Proteins; Soy beans; Vitamins

Nuts

- More combination fruits and nuts. il Sci Am 125:119 Ag 13 '21
- Searching the world for new food plants; a 9,000-mile trip through Africa in quest of new fruits, nut plants and forage crops. il Sci Am M 3:516-18 Je '21

See also Pecan; Pinyon; Walnuts

Nuts (machinery). See Bolts and nuts**Nuts, Salted****Advertising**

- Business built on letters from satisfied customers. M. Hussobee. Ptr Ink M 2:73-4 D '20

Nystagmus, Miners'. See Miners' nystagmus

O**Oak**

- Identification of oak woods. Sci Am 124:307 Ap 16 '21
- Proximate analysis of hardwoods: studies of quercus agrifolia. W. H. Dore. J Ind & Eng Chem 12:984-7 O '20

Oakland, California

- From boneyard to shipyard. H. A. Crafts. il Sci Am 122:366+ Ap 3 '20

Obelisks

- Engineers of ancient Egypt; mechanical devices used in constructing pyramids and erecting obelisks. G. A. McWilliams. il diags Sci Am 124:132+ F 12 '21

Observatories. See United States naval observatory

Observatories, Astronomical. See Astronomical observatories

Occlusion

- On the relation between the occlusive power of palladium for hydrogen and its activity for catalytic hydrogenation. E. B. Maxted. Chem Soc J 119:1280-4 Ag '21

Occupational diseases. See Diseases, Industrial

Occupational hygiene. See Hygiene, Industrial

Occupations

- Alphabetical index to occupations. 473p '20 U.S. Bureau of the census, Washington, D.C.
- Descriptions of occupations. Pub. by United States Bureau of labor statistics, Washington, D.C.
- Opportunity monographs. Pub. by Federal board for vocational education, Washington, D.C.
- Outposts of industry. M. H. Wharton. il Nation's Business 8:47-8 Ag '20
- Survey of junior commercial occupations. 77p U S Federal board for vocational education '20

Bibliography

- Day's work; what to do and how to do it. 26p '19 Public Lib., Somerville, Mass.
- Guide to the study of occupations. F. J. Allen. 183p Harvard university press, Cambridge '21

Occupations, Choice of

- How to choose and get a better job. E. J. Kilduff. 216p Harper '21
- Your job; how to choose a job, how to get a job, how to grow in a job. H. Whitehead. 171p Biddle business pub., inc., New York '20

Occupations, Dangerous

- Compendium of industrial hazards. Monthly Labor R 12:643-51 Mr '21
- La loi de 1917 sur les établissements dangereux insalubres ou incommodes. C. Lormand. Chimie & Ind 3:106-26 Ja '20
- Wet grinding a dangerous occupation. Am Mach 54:825 My 12 '21; Discussion. A. A. Wood. 54:1040 Je 16 '21
- What are the dangerous jobs? J. A. Tobey. Safety Eng 42:102-5 S '21

See also Accidents, Industrial; Arsenic poisoning; Cement workers; Coal miners; Diseases, Industrial; Employers' liability; Lead poisoning; Lumbering; Mine accidents; Mine inspection; Negligence; Railroads—Accidents; Warehousing; Workmen's compensation

Occupations for the disabled. See Blind; Disabled—Rehabilitation

Ocean

- La circulation océanographique et la densité des eaux. J. Thoulet. Génie Civil 78:341 Ap 16 '21; Same. Sci Am M 4:18 Jl '21
- Data of geochemistry. F. W. Clarke. U S Geol S Bul 695:118-51 '20
- Forming of ocean currents shown by model. il Pop Mech 35:422 Mr '21
- General sinking of sea-level in recent time. R. A. Daly. Sci Am M 2:270-1 N '20
- Internal movements in the sea. H. Pettersson. Engineering 112:499-500 O 7 '21
- Modern marine problems in war and peace. C. V. Drysdale. diags Inst E E J 58:572-97 Jl '20; Same, without appendices. Engineering 110:484-6, 521-3, 552-4 O 8-22 '20
- Origin of oceans and the architecture of the earth. M. Belot. Sci Am M 1:268-9 Mr '20
- Peculiar visual phenomena revealed by airmen; bottom of ocean visible from airships and balloons. F. Linke. Aerial Age 12:441, 445 Ja 3 '21
- Physical oceanography. A. L. Thuras. Sci Am M 3:465 My '21

Ocean —Continued

Scientific survey of the Pacific formulated by the first Pan-Pacific scientific congress, Honolulu, Aug. 2-20, 1920. C. Wissler. Sci Am M 2:268-70 N '20

Seeing submerged objects. Sci Am M 3:258-9 Mr '21

Textbook of oceanography. J. T. Jenkins. 206p Constable & co., London '21

See also Hydrographic surveying; Icebergs; Marine flora; Navigation; Sea walls; Sea water; Sounding; Tide power; Tides; Waves

Ocean island

Important British fertilizer supplies from Nauru and Ocean island. Chem & Met Eng 24:769 My 4 '21

Ocean terminals. See Terminals**Ocher**

Mining of paint. M. Haney. il Eng & Min J 110:859-60 O 30 '20

Ocher, umber and sienna. H. E. Tufft. U S Bur Mines Reports of investigations 6p '20 (Typew)

Recommended specification for ocher, dry and paste. U S Bur Stand Circ 91:1-8 '20

Ocotillo

Ocotillo again to the front. il India Rubber W 63:9-10 O '20

Octaval notation. See Mathematical notation**Octopus**

Truth about the devil-fish. W: Crowder. il Sci Am 125A:53-4 N '21

Using devil fish for grappling irons. C. Ishikawa. il Sci Am M 3:22-3 Ja '21

Oddie, Tasker Lowndes, 1870-

Government officials prominent in mining. por Eng & Min J 111:709 Ap 23 '21

Odling, William, 1829-1921

Sketch. J. E. Marsh. por Chem Soc J 119:553-64 My '21

Odometer

Lukens odometer. H: R. Towne and C. Sellers, jr. il J Fr Inst 192:239-44 Ag '21

Odontometer

Odontometer for testing gear teeth. E. Buckingham. il diags Mach 27:1029-31 Jl '21

Odors

Carrying power of odors. Pub Works 51:334-5 O 29 '21

Odorous constituents of peaches. F: B. Power and V: K. Chesnut. Am Chem Soc J 43:1725-39 Jl '21

Odors and their travel habits. L: L. Tribus. Am Soc C E Pro 47:125-36 Ag '21

Stenches for detecting leakage of blue water gas and natural gas. S. H. Katz and V. C. Allison. U S Bur Mines Tech Pa 267:1-22 '20

Unique method of elimination of odors from industrial wastes. H. H. Edwards. il diag Munic Eng 60:221-2 Je '21

Use of stenches as a warning in mines. S. H. Katz, V. C. Allison and W. L. Egy. il diags plan U S Bur Mines Tech Pa 244:1-27 '20; Same cond. Sci Am M 2:241-3 N '20

See also Olfactometer; Perfumery

Oersted, Hans Christian, 1777-1851

Centennial of the discoveries of Oersted, Arago, and Ampère. C. E. Magnusson. Am Inst E E J 39:1031-3 D '20

Epoch-making discoveries of the years 1819 and 1820. E. Thomson. Am Inst E E J 39:1021-7 D '20; Same. Gen Elec R 23:975-83 D '20

Oersted's and Ampère's discoveries. M. I. Pupin. Am Inst E E J 39:1028-31 D '20

One hundred years ago today; anniversary of discovery of fundamental electromagnetic laws by Ampère and Oersted. por Elec W 76:570-3, 736 S 18, O 9 '20

Office appliances

Cost accounting by machinery; the Hollerith system. E. W. Workman. il Eng & Ind Management 6:314-18 S 22 '21

Engineer's tool list for a new plant. J: A. Stevens. Power 50:704-5 N 11 '19

How a railway simplified its disbursements accounting. C. O. Price. Ry R 68:134-40 Ja 22 '21

How railway statistics are compiled; modern office appliances. Ry R 68:277-83 F 19 '21

Labor-saving office devices in a railway mechanical department. D. M. Sellards. il diag Ry R 66:946-51 Je 5 '20

Machine inserts two inclosures for envelopes. il Pop Mech 36:430 S '21

Mechanical devices in accounting department of San Antonio & Aransas Pass railway. F. Eiserloh. Ry R 68:44-8, 80-5 Ja 8-15 '21

Mechanical devices in railroad freight offices. C. G. Johnson. Ry R 68:855-7; 69:9-13 Je 4, Jl 2 '21

Mechanical devices speed up the work in division offices. C. O. Price. Ry R 68:693-6 My 7 '21

Office appliances abroad. Am Ind 22:40 S '21

Office records, their filing and indexing. I. Warren. il J Elec 44:76-7, 127-8, 168-9, 218-20, 563-4 Ja 15-Mr 1, Je 1 '20

Reducing the clerical expense in railway accounting. C. O. Price. Ry R 68:239-41 F 12 '21

Report of committee on office labor saving devices. J: L. Conover. Am Gas Assn Accounting sec v 1:15-34; Discussion. 35-42 '19

Sorting and tabulating machines in disbursement work. Ry R 67:51-2 Jl 10 '20

See also Addressing machines; Bookkeeping machines; Calculating machines; Cash registers; Check-writing machines; Office supplies; Stamping machines; Tabulating machines; Typewriters

Office boys

Bonus for office boys improves service. J: P. McOwen. Ind Management 62:231-2 O '21

Office boy problem. M. R. Machol. Ind Management 60:142-4 Ag '20

Supervision of the office boy in industry. F. A. Scofield. Ind Management 62:56-8 Jl '21

Office buildings

Architect's offices solving high cost of office rent. C. A. Ziegler. plans Am Arch 120:8-9+, pl 15a-d Jl 6 '21

Architecture and illumination; notable example in the Wrigley building, Chicago. il plan Arch Forum 35:135, pl 54-5 O '21

Columbia trust building, New York. Arch & Bldg 53:55, pl 104-6 Jl '21

Conserving labor and material; illustrated in moving a reinforced concrete building. il diag Am Arch 116:731-4 D 10 '19

Construction details of General motors office building. J. Matte, jr. il diags plans Eng N 86:624-30 Ap 14 '21

Cooperative offices for architects, in Minneapolis, Minn. E. H. Hewitt. il plans Am Inst Arch J 9:41-7 F '21; Same. Heat & Ven 18:27-30 Ap '21

Cunard building a great achievement. R. Cortissoz. il plans Arch Forum 35:1-8, pls 1-15 Jl '21

Cunard building, New York. il Arch & Bldg 52:88-9, pl 113-15; 53:61-4, pl 110-24 O '20, Ag '21

Cunard building, New York. B. W. Morris. il plans Arch Forum 33:1-6 Jl '20

Durant building. Arch & Bldg 52:43-4, pl 37-9 Ap '20

Engineer and the electrical development building. J Elec 44:314 Ap 1 '20

Fisk building, New York city; views and plans. Am Arch 118:463, 474a-c O 13 '20

Foundations of the Hotel Pontchartrain, Detroit; study of the utilization of old foundations for new buildings. il Am Arch 120:127-31 Ag 17 '21

Godfrey building, Seventh avenue and 49th street, New York; views. Am Arch 116:pl 142-5 O 22 '19

Kimball Hall building, Chicago, Ill.; views and plans. Am Arch 118:286a-e S 1 '20

Liggett building, New York city. il plans Arch & Bldg 53:8-9, pl 14-16 Ja '21

Liggett-Winchester-Ley corporation building, New York city; views and plans. Am Arch 118:474d-g O 13 '20

Office buildings—Continued

- McCormick building, Chicago, Illinois. il diag plan Am Arch 118:234-6, 240 Ag 25 '20
- Metropolitan annex, New York city. il diags plans Am Arch 118:827-36 D 22 '20
- Munson building, New York. il Arch & Bldg 53:53-4, pl 97-9 J1 '21
- National association building, 25 W. 43rd street, New York. Arch & Bldg 52:68, pl 76-8 J1 '20
- New addition to the W. R. Grace building, New York city. Arch & Bldg 51:79, pl 151-3 D '19
- New office building thoroly uptodate. il Am Lumberman 2338:63 Mr 6 '20
- New York offices of the International mercantile marine company. il plan Am Arch 120:279-82, 287-93 O 12 '21
- New York zoning resolution and its influence upon design. J: T. Boyd, jr. il plans Arch Rec 48:192-217 S '20
- New York's new architecture. A. Embury, 2d. il diags Arch Forum 35:119-24, pl 47-53 O '21
- Office building for Simmons manufacturing company, Kenosha, Wis.; plans and views. Am Arch 119:122d-f F 2 '21
- Office building of Chase companies, inc., Waterbury, Conn. Arch Forum 32:111, pl 45-8 Mr '20
- Profitable life of fire proof office building. Eng & Contr 55:625 Je 22 '21
- Reinforced concrete office buildings. Arch & Bldg 52:104, pl 141-2 D '20
- Robertson-Cole co.'s office building, New York. Arch & Bldg 53:22, pl 34-5 Mr '21
- Seventh avenue building, New York. Arch & Bldg 53:14 pl 21-3 F '21
- Textile building, New York. Arch & Bldg 52:89, pl 116-17 O '20
- Two-story store and office building at Englewood, New Jersey. il diags plans Bldg Age 42:22-4 Ja '20

See also Architects' offices; Mercantile buildings; Newspaper offices; Printing. offices

Heating and ventilation

- Air supply for 4,000 office workers. Heat & Ven 17:41 N '20
- Electrical heating and ventilating equipment of the Cunard building. H: C. Meyer. Arch Forum 35:22-3 J1 '21
- Multiple occupancy heating. H. E. Branch. il Gas Age 45:145-8 F 10 '20
- Savings effected in heating a Cleveland office building; operation of the Guardian building during the winters of 1919-1920 and 1920-1921. L. J. Pauley. Heat & Ven 18:29-32 S '21
- Ventilation of the home office building of the Travelers insurance company, Hartford, Conn. il Am Arch 119:459-62 Ap 13 '21

Lighting

- High-intensity illumination of office buildings. I. M. Kirlin. il diags Elec R 79:235-8 Ag 13 '21

Office employees. *See* Office workers

Office furniture

- Getting the office work done. W. Clark. il plan Ind Management 60:189-94 S '20

See also Desks; Files and filing (documents)

Office lighting

- Lighting of office buildings and drafting rooms. A. L. Powell. il Sibley J 34:81-5+ Je '20

Bibliography

- Lighting of office buildings and drafting rooms. A. L. Powell. Sibley J 34:sup8+ Je '20

Office management

- Analysis of office organisation. Eng & Ind Management 5:190 F 10 '21
- Cutting costs in the factory office. Factory 24:1408+; 25:566+, 820+, 1244+, 1612+; 26:272+, 484+, 1140+; 27:365+ My 1, Ag 15-S 1, O 15, N 15 '20, Ja 15, F 15, My 1, S '21
- Designing forms for office control. W. Clark. Administration 1:483-90 Ap '21

- 5 people do the work of 11. J. W. Rowland. System 39:379-81 Mr '21
- Getting the office work done. W. Clark. il Ind Management 60:13-16, 116-21, 189-94, 267-70 J1-O '20
- How we cut costs and speed up work. W. Sailer. il System 40:272-4 S '21
- How we halved our clerical costs. il Factory 26:1193-4 My 15 '21
- Job analysis successfully applied to office force. N. G. Shidle. chart Automotive Ind 43:671-3 S 30 '20
- Keeping the office straightened up. il Factory 24:282-3 F 1 '20
- Office manuals. Automotive Ind 44:183 Ja 27 '21
- Office records—their filing and indexing. J. Warren. il J Elec 44:22-3, 278-9, 315-16, 427-8, 517-18, 563-4, 617-18; 45:33-5 Ja 1, Mr 15-Apr 1, My 1-J1 1 '20
- Office staff: a method of recording employees' efficiency. Eng & Ind Management 5:62-3 Ja 13 '21
- Private office best for creative work. Ptr Ink 110:84+ F 26 '20
- Short cuts that pay. il System 39:662-3+ My '21
- Standard performance of office forces. M. W. Osgood. Eng & Contr 53:76-7 Ja 21 '20
- Standardization of stenographic work. R. B. Newton. Administration 1:725-35 Je '21
- Striking the wage balance between brain and brawn. L. H. Butler. Ptr Ink 110:1-4+ Ja 8 '20
- Wrong methods made right. System 40:296+ S '21

See also Accounting; Advertising departments; Architects' offices—Management; Billing; Business management; Commercial correspondence; Executives; Files and filing (documents); Printing offices—Management; Punched card system; Railroads—Office management

Office supplies

- Saving office supplies. il Factory 25:140+ J1 1 '20

See also Office appliances

Office workers

- Attitude of industry toward its executive staff. C. C. Hermann. Ind Management 60:152-3 Ag '20
- Deflation of salary costs during depressions. J. P. Goodwin. Administration 2:319-20 S '21
- Descriptions of occupations; office employees. 20p '18 U.S. Bureau of labor statistics, Washington, D.C.
- Office staff turns to selling, to maintain sales volume. W: B. Munroe. Ptr Ink 117:25-7+ O 20 '21
- Restoring the office personnel of a public utility company. P. W. Herring. Am Gas Assn Accounting sec v 2:12-22; Discussion. 22-33 '20
- Simple tests for selecting office workers. E. J. Bengé. Ind Management 61:91-3 F 1 '21; Same. Paper 28:13-14+ Ap 6 '21

See also Office boys; Stenographers

Offices

- We couldn't get office space. F. V. Prugger. il System 39:48-9+ Ja '21
- See also* Architects' offices; Office buildings

Layout

- Why we didn't have a mix-up when we moved. L. I. Thomas. il plan System 40:285-6+ S '21

Offset lithography. *See* Lithography**Ohio**

- State department reorganized. Eng N 86:776 My 5 '21
- See also* Coal mines and mining—Ohio; Coal trade—Ohio

Antiquities

- Remains of the Mound builders in the Scioto valley. R. W. French. il Sci Am M 1:493-5 Je '20

Ohio cities gas company

6th annual report for the year ended March 31, 1920. *Comm & Fin Chr* 110:2302 My 29 '20

Ohio mechanics institute

Teaching of lithography at the Ohio mechanics institute. *J: T. Faig. il Ptg Art* 37: 35-9 Mr '21

Ohio river

Ohio river; charts, drawings, and description of features affecting navigation. *R. R. Jones. 314p U.S. Engineer dept., Washington, D.C.* '20

Traffic on the Ohio river. *C: W. Baker. il Eng N* 84:137-40 Ja 15 '20

Ohio state foundrymen's association

1st general meeting, Dayton, Ohio, May 3. *Iron Age* 107:1252 My 12 '21

Ohio. State university

Ohio stadium at Ohio state university. *H. D. Smith. il diags plans Arch Rec* 48:384-406 N '20

Ohmmeter

Resistance metrohm. *il diags Electrician* 87: 460-1 O 7 '21

Oil. See Oils and fats; Petroleum**Oil analysis**

Constant-temperature still head for light-oil fractionation. *F: M. Washburn. diag U S Bur Stand Tech Pa* 140:1-12 '19; Same. *J Ind & Eng Chem* 12:73-7 Ja '20

Detection and estimation of coal-tar oils in turpentine. *V. E. Grotlich and W. C. Smith. J Ind & Eng Chem* 13:791-3 S '21

Detection of oils other than linseed in paints by means of the hexabromide number of the fatty acids. *H. Bailey and W. D. Baldsiefen. J Ind & Eng Chem* 12:1189-94 D '20

Determination of sulfate in sulfonated oils. *E. J. Kern. J Ind & Eng Chem* 12:785 Ag '20

Estimation of sulphur by the lamp method. *F. Esling. il Inst Pet Tech J* 7:83-94; Discussion. 94-6 Ap '21

Lamp method for estimating sulphur in benzene. *J. S. Jackson and A. W. Richardson. diags Inst Pet Tech J* 7:26-7; Discussion. 27-34 Ja '21

Microanalytical methods in oil analysis. *A. H. Gill and H. S. Simms. diags J Ind & Eng Chem* 13:547-52 Je '21; Abstract. *Sci Am M* 4:275 S '21

New method for the determination of sulfur in oils. *C. E. Waters. J Ind & Eng Chem* 12:482-5 My '20

Studies in Colorado shale oils. *A. J. Franks. Chem & Met Eng* 25:49-53 Jl 13 '21

Unsaponifiable matters. *diag J Ind & Eng Chem* 12:713-16 Jl '20

See also Gasoline—Analysis; Petroleum—Analysis

Oil as fuel

Advantages of burning fuel oil for heating purposes. *R. E. Hyatt. il diags Sanitary & Heat Eng* 96:73-4+ Jl 29 '21

Air draft required for fuel oil. *R. Sibley and C. H. Delany. J Elec* 45:378-9 O 15 '20

Anneals malleable with oil fuel. *W: F. Hoernke. il Foundry* 49:323-5 Ap 15 '21; Same. *Iron Tr R* 68:1728-30 Je 23 '21

Aquitania as an oil burner. *il Sci Am* 123: 151+ Ag 14 '20

Aquitania now an oil burner. *Power* 52:275-6 Ag 17 '20; Same cond. *Engineer* 129:620-1 Je 18 '20

Automatic oil-burning plant in California sugar refinery. *C. C. Brown. il Power* 52: 528-33 O 5 '20

Burning fuel oil. *Brass W* 17:249 S '21

Burning of fuel oil. *H. J. VanderEb. Locomotive* 33:6-14 Ja '20

Changing from coal to oil. *R. Sibley and C: H. Delany. il diag J Elec* 44:175-7 F 15 '20

Chauffage à l'huile lourde des fours métallurgiques. *A. Gouvy. diags Chimie & Ind* 3:143-56 F '20

Le chauffage aux huiles lourdes appliqué aux locomotives. *L. Pierre-Guédon. diags plans Génie Civil* 76:329-33 Ap 3 '20

Chemistry of fuels used in steel plants. *Blast F & Steel Pl* 8:452-3+ Ag '20

Chimney cleanout door for draft regulation.

C. C. Brown. diag Power Pl Eng 24:878 S 15 '20

Coal as a future source of oil fuel supply. *A. Duckham. Inst Pet Tech J* 7:3-12; Discussion. 13-26 Ja '21

Coal or oil fuel for refrigerating plants? *J. E. Porter. Power* 51:889-90 Je 1 '20

Coal strike is driving British industry to burning oil. *Nat Pet N* 13:39 My 25 '21

Coal vs. oil performance chart. *L. C. Lichty. charts Power Pl Eng* 24:651-2 Jl 1 '20;

Same. *Ind Management* 60:351-2 N '20;

Same. *Heat & Ven* 17:47-8 S '20; Same.

Power 52:402-3 S 7 '20

Combustion of oil fuel. *P. J. Woolf. Engineering* 112:536-7 O 14 '21

Comparative evaporative values of coal and oil. *C. F. Wieland. Power* 51:198 F 3 '20

Comparison of coal and oil fuel costs per B.H.P. *H. E. Collins. Sibley J* 34:174-5 D '20

Conditions du chauffage industriel à l'huile lourde. *E. Chabanier. diags Chimie & Ind* 3:566-75 My '20

Considerations in the burning of fuel oil. *il diags Elec W* 76:326-8 Ag 14 '20

Contract form to protect consumer of fuel oil, to increase use. *J. B. Gambrell, jr. chart Nat Pet N* 13:43+ Je 10 '21

Design and operation of locomotive fuel oil stations. *il diags plans Eng N* 87:183-7 Ag 4 '21

Determining average fuel cost in combination coal and oil. *Elec W* 76:640 S 25 '20

Developments in the use of fuel oil. *J. J. Tyrrell. il Textile World* 60:73+ Jl 2 '21

Difficulties of securing fuel oil. *Textile World* 58:877+ Ag 7 '20

Economical combustion of fuel oil. *C. H. Leicester. charts Power* 51:780-1 My 11 '20

Economies obtained in burning oil. *R. Sibley and C. H. Delany. Elec W* 75:1483-4 Je 26 '20

Efficiency of use of oil as fuel. *W. N. Best. Min & Met* 163:35 Jl '20; Same. *Sci Am M* 2:95-6 Jl '20

Efficient burning of fuel oil. *C. W. Peters. Power* 53:598 Ap 12 '21

Efficient burning of oil fuel. *A. F. Brewer. Ind Management* 60:17-22 Jl '20

Efficient handling of fuel oil. *A. F. Brewer. diags Power* 53:69-70, 105-6, 146-7, 178-80, 223-5, 262-4, 303-5, 349-50, 384-5 Ja 11-Mr 8 '21

Elements of combustion of fuel oil. *Power* 51:333-5 Mr 2 '20; Same. *Sci Am M* 1:319-20 Ap '20

Elements of fuel oil and steam engineering. *R. Sibley and C. H. Delany. 2d ed., rev. and enl. 466p McGraw-Hill* '21

Employment of oil as fuel for central stations. *H: Thomas and E. H. Peabody. Elec W* 75:83 Ja 10 '20

English railways experiment with fuel oil; Scarab fuel oil burning apparatus tested. *il diags Ry Mech Eng* 94:692-4 N '20

Estimating relative values of coal, oil and gas as fuels. *L. C. Lichty. charts Power Pl Eng* 24:1026-30 N 1 '20

Factors in burning oil; characteristics of fuel and advice on installation of system. *A. Walton. il Textile World* 57:4689+ Je 26 '20

Flue-gas temperature and CO₂ as a guide to furnace operation; with special reference to oil burning. *C: C. Phelps. Power* 51: 725-7 My 4 '20

Fuel for Diesel engines. *C. H. Peabody. Marine Eng* 25:915-17 N '20

Fuel oil. *diags Power Pl Eng* 25:51-5 Ja 1 '21

Fuel oil as a means to increased capacity in boiler plant. *C. C. Lance. diags Ry Mech Eng* 94:723-4 N '20

Fuel oil burning apparatus on the A. T. & S. F. Ry. *W. Bohnstengel. diags Ry R* 66:1009-11 Je 12 '20; Same cond. *Ry Age* 68:1510-11 My 28 '20; Same. *Ry Mech Eng* 94:449-50 Jl '20

Fuel oil burning appliances. *R. Sibley and C. H. Delany. il diags J Elec* 44:621-5 Je 15 '20

Oil as fuel—Continued

- Fuel oil consumed by public utility power plants in New England and the South, March-July, 1921. *Coal Age* 20:544 O 6 '21
- Fuel oil equipment. J: O. Leask. *Am Soc Heat & V E J* 26:85-91 Ja '20; Same (with cond. table). *Stevens Ind* 37:126-34 Ap '20; Discussion. *Am Soc Heat & V E J* 26:289-303 Mr '20
- Fuel oil for homes offers possibilities for jobbing companies. *Nat Pet N* 13:39+ Ja 26 '21
- Fuel oil for office buildings and power plants generally. *diags plan Heat & Ven* 17:29-32 Je '20
- Fuel oil for steamers. C. H. Peabody. *Marine Eng* 25:997-8 D '20
- Fuel oil heaters and other accessories. R. Sibley and C. H. Delany. *il diags J Elec* 45:17-19 Jl 1 '20
- Fuel oil in Chile. *Nat Pet N* 13:83 O 5 '21
- Fuel oil in industry. S. O. Andros. 274p Shaw pub. co., Chicago '20
- Fuel oil in steam plants. E: H. Colegrove. *Power* 52:194-5 Ag 3 '20
- Fuel oil in textile mills. J. J. Tyrrell. *il Textile World* 57:1203+ F 7 '20
- Fuel-oil installation. H. A. Wilcox. *il diags plans Power Pl Eng* 24:501-6, 527-31 My 15 '20
- Fuel-oil papers at Philadelphia engineers' club. *Power* 50:844-6 D 16 '19
- Fuel-oil storage rules, National board fire underwriters. *Power* 50:680-1 O 28 '19
- Fuel oil versus coal on French railways. *il Sci Am* 123:427 O 23 '20
- Fuel oil versus mechanical stokers. F. H. Daniels. *chart Power* 51:684-6 Ap 27 '20; Same cond. *Iron Age* 105:203-4 Ja 15 '20; Discussion. H. A. Fox. *Power* 51:932 Je 8 '20
- Fuel problem for steamships. L. B. Chapman. *Marine Eng* 26:465-7 Je '21
- Future of oil as fuel in Great Britain. *Dom Eng* 96:114 Jl 16 '21
- German furnaces fired with tar-oil. O. Kuenschner. *diags Foundry* 49:770-1 O 1 '21
- Great liners now use oil fuel. *il Marine R* 50:488-93 S '20
- Greater efficiency of oil is basis of saving in homes. *Nat Pet N* 13:65+ Ja 5 '21
- Heating buildings by fuel oil. *Am Arch* 116:648-50 N 19 '19
- Heating by fuel oil for manufacturing processes. C. C. Hermann. *Ind Management* 61:199-202 Mr 1 '21
- Heating furnaces and annealing furnaces; fuel oil. W. Trinks. *diags Blast F & Steel Pl* 8:234-8 Ap '20
- Installation of oil as fuel. A. F. Brewer. *diag Power* 54:361-4 S 6 '21
- Life of American merchant marine depends on oil supply. W. S. Benson. *Nat Pet N* 12:57-8 N 24 '20
- Liner Olympic makes first Atlantic trip as fuel oil burner. *il Nat Pet N* 12:29 Jl 14 '20
- Liquid fuel burning installation. K. McFarlin. *il diag Ind Management* 59:136-7 F '20
- Management of the power plant. R. June. *Textile World* 58:109+, 883+ Jl 3, Ag 7 '20
- Melting brass with fuel oil. S. D. Rickard. *diags plan Metal Ind* 18:460-3, 507-10 O-N '20; Discussion. 18:563-4 D '20
- Method of operating oil-fired brass furnaces. *Foundry* 49:22 Ja 1 '21
- Methods for more efficiently utilizing our fuel resources; petroleum. C. G. Gilbert and J. E. Pogue. *il charts Gen Elec R* 23:198-207 Mr '20
- Neuere versuche mit oelzusatzfeuerung für kuppelofenbetrieb. K. K. Berthold. *diags Stahl & Eisen* 41:393-9 Mr 24 '21; Abstract. *Foundry* 49:530-1 Jl 1 '21
- New market coming in use of fuel oil for domestic heating. *Nat Pet N* 12:43+ D 22 '20
- New York chapter of the American society of heating and ventilating engineers discusses oil as a substitute fuel. *Heat & Ven* 16:39-41 D '19
- Oil and powdered fuel for central stations. C. H. Delaney. *il Elec W* 75:128-9 Ja 17 '20
- Oil as a fuel for boilers and furnaces. H. H. Fleming. *il Power* 51:550-1 Ap 6 '20
- Oil as a locomotive fuel. C: N. Winter. *Sci Am* 123:203 Ag 28 '20
- Oil, being already in short supply, cannot displace coal. J. H. Dodge. *Coal Age* 17:724 Ap 8 '20
- Oil burning. F. G. Hummel. *Power Pl Eng* 24:900-3 S 15 '20
- Oil burning boiler plant of Lynn, Mass., pumping station. R. J. Newsom. *Eng & Contr* 54:380 O 13 '20
- Oil burning installation of the Aquitania. *il Marine Eng* 25:817-21 O '20
- Oil firing for kitchen ranges and steam boilers. E: C. Bowden-Smith. 102p Constable & co., London '20
- Oil firing in the Atlantic service. *Sci Am* 123:100 Jl 31 '20
- Oil firing of kilns. F. A. Whitaker. *Am Cer Soc J* 3:842-3; Discussion. 844-6 O '20
- Oil for greenhouse fuel. *Sci Am* 125:163 S 3 '21
- Oil for power purposes. *Engineering* 112:417-18 S 16 '21
- Oil fuel. F. W. Staley. *Am Soc Heat & V E J* 26:73-83 Ja '20; Discussion. 26:289-303 Mr '20
- Oil fuel burning in marine practice. J. W. M. Sothern. 186p James Munro & co., ltd., Glasgow; Van Nostrand, New York '20
- Oil fuel experiments on the London & North Western Ry. *diags Ry R* 67:580-2 O 16 '20
- Oil fuel for generation of steam power. E. H. Peabody. *Blast F & Steel Pl* 8:348-50 Je '20
- Oil fuel installation on the Aquitania. *Engineering* 109:832-3 Je 18 '20
- Oil fuel: its development and uses for industrial purposes. *Eng & Ind Management* 6:53-4+ Jl 14 '21
- Oil fuel on the Paris, Lyons and Mediterranean railway. *diags Engineer* 129:494-6 My 14 '20
- Oil-fuel session of Am Soc Heat & V E. *Heat & Ven* 17:43-4 Mr '20
- Oil fuel versus coal. D: M. Myers. *Am Soc Heat & V E J* 26:93-6 Ja '20; Excerpts. *Power* 51:352 Mr 2 '20; Discussion. *Am Soc Heat & V E J* 26:289-303 Mr '20
- Oil replacing coal. *Engineer* 131:512 My 13 '21
- Oil versus coal as fuel for central stations. C. H. Delaney. *Elec W* 74:928-30 N 15 '19
- Perspective of the fuel-oil situation. C: H. Bromley. *Power* 50:824-6 D 16 '19
- Le pétrole, son utilisation comme combustible. A. L. J. Masméjean. 221p Dunod, Paris '20
- Records of flue gas analyses with fuel oil. L. J. Goodrich. *Power Pl Eng* 25:366-7 Ap 1 '21
- Relative value of coal and oil fuel. G: A. Evans. *chart Power* 51:637-8 Ap 20 '20
- Rules governing storage and use of fuel oils and construction and installation of oil burning equipment effective in New York city, Dec. 1, 1919. *Am Arch* 116:707-8 D 3 '19; Same. *Metal Work* 92:639-42 N 28 '19; Abstract. *Heat & Ven* 16:37-8 D '19
- Sales managers formulate campaign to popularize oil heating. J. B. Gambrell, jr. *Nat Pet N* 13:27-8 S 28 '21
- Sawmill refuse, powdered coal, and oil fuels. D. Corbet. *diag Am Inst E E J* 39:729-32 Ag '20
- Scarab system of oil fuel burning on locomotives. *diags Engineering* 110:324 S 3 '20; Abstract (Locomotive anglaise chauffée au pétrole par le système Scarab). *Génie Civil* 78:90 Ja 22 '21
- Screw stock heat treated with oil; application of the Mircs system to ferrous and non-ferrous material by the Bridgeport screw co. *il Iron Age* 108:660-1 S 15 '21
- Self-contained pressure-jet oil fuel plant. *il Engineering* 110:180 Ag 6 '20
- Some considerations of oil fuel for boilers. *Power* 50:740-1 N 25 '19
- Some phases of the fuel problem. G: A. Orrok. *Sci Am M* 1:426-8 My '20
- Steam-electric generation in Far West. W. F. Durand and C. H. Delany. *il map Elec W* 75:1123-7 My 15 '20
- Steam power plant tests. H. L. Doolittle. *J Elec* 45:81-3, 130-2, 182-3 Jl 15-Ag 15 '20

Oil as fuel—Continued

- Substitution of fuel oil for coal. F. G. Tryon. Ind Management 61:13 Ja 1 '21
- Substitution of oil for coal as fuel. F. M. Ashley. Textile World 57:3069+ Ap 24 '20
- Tentative regulations for the storage and use of fuel oil. Chem & Met Eng 21:781-5 D 24 '19
- Translating oil into steam must cease. E. McAuliffe. Power 52:32 Jl 6 '20; Excerpts (Economics of the fuel oil situation). Ry Mech Eng 94:453 Jl '20
- Unusual efficiencies with oil fuel. J. Pope and F. G. Philo. il diag Elec W 76:730-2 O 9 '20
- Unusual efficiency in oil-fired boiler. Power 52:787 N 16 '20
- Use of fuel oil in heating plants. C: L. Hubbard. il diags Dom Eng 93:348-50, 401-3 N 20-27 '20
- Value of specifications in purchasing fuel oils. G. S. Holmquist and A. F. Brewer. Ind Management 59:114-16 F '20
- Venezuela's mountain-climbing oil-burning locomotives. H. C. Plummer. il Sci Am 123:597+ D 11 '20
- What it will cost to heat with oil. il Sanitary & Heat Eng 96:129-31 Ag 26 '21
- White oil-fuel system. il Engineering 110:23-4, pl 3 Jl 2 '20
- Why use fuel oil in power plants? il diags Elec Ry J 56:369-70 Ag 21 '20
- Will oil fill your fuel needs? diags Factory 25:46-7 Jl 1 '20
- See also* Acetylene; Boilers—Oil firing; Boilers, Marine—Oil firing; Gas and oil engines—Fuel; Gasoline; Kerosene; Locomotives—Fuel; Naphthalene; Oil bunkering; Oil burners

Bibliography

- Bibliography of petroleum and allied substances, 1917. E. H. Burroughs. U S Bur Mines Bul 180:118-35 '20
- Bibliography of petroleum and allied substances in 1918. E. H. Burroughs. U S Bur Mines Bul 189:122-41 '21
- Fuel-oil bibliography. Power 51:482-4 Mr 23 '20
- Fuel oil for raising steam. Mech Eng 43:136 F '21

Oil bunkering

- Bunkers four ships at sea simultaneously. diag il Pop Mech 36:516-17 O '21
- Oil burning installation of the Aquitania. il Marine Eng 25:817-21 O '20

Oil bunkering stations

- Design and operation of locomotive fuel oil stations. il diags plans Eng N 87:183-7 Ag 4 '21
- Oil bunkering stations of the world, including both large and small centers of supply; map. Marine R 50:398a Jl '20
- Taking on oil a mile at sea; how vessels receive fuel at Mexican gulf ports without approaching the docks. J. Anderson. il Sci Am 123:380+ O 9 '20
- World's principal oil and coal bunkering stations; map. Marine R 51:310a Jl '21
- Worldwide British oil bunkering stations to be established. Coal Age 17:1048 My 20 '20

Oil burners

- Advantages of mechanically atomizing fuel oil burner. J: R. Battle. il diag Nat Pet N 12:49-50+ Ja 14 '20
- Anderson-Garner-Shaner oil burning apparatus. diag Blast F & Steel Pl 9:569 S '21
- Boiler furnaces for gas, oil and pulverized coal; plant of Morris & co., Oklahoma City. il diags Power Pl Eng 24:1109-12 D 1 '20
- Burning of fuel oil. H. J. VanderEb. Locomotive 33:6-14 Ja '20
- Burning oil with mechanical atomizers. R. Sibley and C. H. Delany. il diags Elec W 75:727-8 Mr 27 '20
- Developments in power station design. il diags Engineer 132:214-16, 234-6, 258-60 Ag 26-S 9 '21
- Efficient handling of fuel oil. A. F. Brewer. diags Power 53:178-80 F 1 '21

- Fisher oil fuel burner. diags Engineering 111:225 F 25 '21
- Fuel oil. diags Power Pl Eng 25:51-5 Ja 1 '21
- Fuel oil burner. il Textile World 57:1851 Mr 6 '20
- Fuel oil for homes offers possibilities for jobbing companies. Nat Pet N 13:39+ Ja 26 '21
- Function of oil burners in the operation of furnaces. Blast F & Steel Pl 8:173-4 F '20
- Guardian self-regulating water-oil burner. il Heat & Ven 18:57-8 S '21
- Hardinge oil burner for industrial plants. il Mach 28:145 O '21
- Mechanical oil atomizer efficient at 320 per cent boiler rating. D. Corbet. Elec W 76:786 O 16 '20
- New development in oil burners. diags Chem & Met Eng 25:336-7 Ag 24 '21
- New market coming in use of fuel oil for domestic heating. Nat Pet N 12:43+ D 22 '20
- Oil burner uses preheated air. diag Iron Age 108:474 Ag 25 '21
- Oil fuel. F. W. Staley. Am Soc Heat & V E J 26:73-83 Ja '20
- Oil fuel atomizers. Marine Eng 26:258 Mr '21
- Regulation of fuel oil burner. C: W. Geiger. il diags Power Pl Eng 25:410-11 Ap 15 '21
- Rotary oil burner with revolving grate. il Plumber 95:152-3 Mr 11 '21
- Unusual efficiencies with oil fuel. J. Pope and F. G. Philo. il diag Elec W 76:730-2 O 9 '20
- Use of fuel oil in heating plants. C: L. Hubbard. il diags Dom Eng 93:348-50, 401-3 N 20-27 '20

Oil burning equipment**Laws and regulations**

- Kansas City oil and burner men unite against unfair legislation. J. B. Gambrell, jr. Nat Pet N 13:37-8 O 12 '21
- Oil plants of the future are dependent on fire rules of today. W. C. Platt. Nat Pet N 13:33-6 N 2 '21
- Regulations covering home consumption of oil for heating. Nat Pet N 13:75+ O 5 '21
- Tentative regulations for the storage and use of fuel oil. Chem & Met Eng 21:781-5 D 24 '19

Oil camps

- Modern oil camp on Laramie plains at 7200-foot elevation. il Nat Pet N 12:43 D 8 '20
- Sinclair companies win in promoting spirit of organization. P. Wagner. il Nat Pet N 13:37+ Ja 19 '21

Oil cans

- Analysis of construction costs and methods; convenient and efficient location of oiler. H. A. Call. il Plumber 96:14-15 Jl 1 '21
- Machines invented to open and bale oilcans. il Pop Mech 34:668 N '20
- Oil containers; manufacture of millions of oil barrels and cans. R. G. Skerrett. il Sci Am M 2:337-40 D '20

Oil chemists' society, American. See American oil chemists' society**Oil circuit breakers. See Electric circuit breakers****Oil cleaning**

- Experimental centrifugal oil cleaner attached to Liberty engine. il diag Automotive Ind 43:610-11 S 23 '20
- See also* Oil filters; Oil strainers; Oil reclamation; Oil washers

Oil companies

- Court finding indecisive in Chicago marketing tangle woven by Henry B. Sewell. P. Truesdell. Nat Pet N 13:21-3 Mr 30 '21
- See also* Gasoline service stations; Pure oil company

Finance

- Comparative figures on financial ranking of big oil companies. Nat Pet N 12:47+ O 13 '20
- How much cash some of leading oil companies carry on hand. Nat Pet N 12:39 N 17 '20

Oil companies—Finance—Continued

How will oil industry raise the funds to operate on scale demanded? H: L. Doherty. Nat Pet N 12:59-60 N 24 '20

Magnitude of oil industry as indicated by grouping of assets. Nat Pet N 12:29 N 3 '20
New listings and incorporations in 1920 and maturities in 1921. Nat Pet N 13:109 Ja 19 '21

Oil profits in recent years in California: a study by the Federal trade commission. Nat Pet N 13:85 Je 17 '21

\$750,000 in liabilities over assets, receiver shows for Warren oil. Nat Pet N 13:27-9 Ap 13 '21

Three-quarters of a billion dollars added to oil assets in 1920. W. M. Day. Nat Pet N 13:41 My 18 '21

Two Standard companies launch new policy by issuing \$55,000,000 in bonds. Nat Pet N 12:29 D 22 '20

Vast and growing army of investors absorbing new oil issues. W. M. Day. Nat Pet N 13:48+ Mr 16 '21

Oil coolers

New oil cooler; Heenan system. il Automobile Eng 11:141 Ap '21

Recooling the lubricating oil from turbine bearings and reduction gears. S. E. Derby. diags Power 54:179-81 Ag 2 '21

Oil dehydration. See Dehydration**Oil engines. See Gas and oil engines****Oil engines, Marine. See Gas and oil engines, Marine****Oil filters**

Alundum filtering element is used in new extractor. il Pop Mech 35:222 F '21

Easily made oil filter. W. A. Darter. diag Power Pl Eng 24:1045 N 1 '20

Filtering by means of spun glass. Sci Am 123:593 D 11 '20

New Wayne gravity oil filter. il Power 51:970 Je 15 '20

Novel oil filter. A. L. Collins. il Power 54:425 S 13 '21

Removal of paraffin wax from petroleum. il diags plan Engineer 129:121-2 Ja 30 '20

Simple oil filter for reclaiming lubricating oil. E. Grossenbacher. diag Power 51:391-3 Mr 9 '20

Type A power-plant oil filter. diags Power 52:340-1 Ag 31 '20

See also Oil strainers

Testing

Value of oil filters tested. Paper 26:23-4 S 1 '20

Oil fires

Diesel pipe-line station fire. il Power 52:433-4 S 14 '20

Smothering fire with bubbles of gas; how carbon dioxide protects the oil tank against its greatest hazard. J. F. Springer. il Sci Am 123:228+ S 4 '20

Oil flow

Flow of fuel oil in pipe lines. W. H. Thies. Eng & Min J 109:1274 Je 5 '20

Flow of oil in pipes. A. C. Preston. Chem & Met Eng 23:607-13, 685-9 S 29-O 6 '20

Hydraulics of oil-pipe lines. W. F. Durand. chart J Elec 44:434-9 My 1 '20

Oil folliculitis. See Folliculitis**Oil fuel. See Oil as fuel****Oil gas. See Gas, Oil****Oil gear system**

Hydraulic press with oilgear control. il Am Mach 55:395 S 8 '21

Oil pressure transmission for control of speeds and feeds. il Iron Age 108:741-2 S 22 '21; Ry Mech Eng 95:659-60 O '21

Oilgear—a variable speed and feed control system. il diags Am Mach 55:271-4 Ag 18 '21; Abstract. Mech Eng 43:682-3 O '21

Oil-grooving machines

Fischer oil-grooving machine no. 2. il Am Mach 54:925 My 26 '21

Hanson-Whitney oil-grooving attachment. il diags Mach 27:181-2 O '20

Lathe attachment for cutting oil-grooves. P. Rouquet. diags Mach 27:785-6 Ap '21

Sacrey oil-grooving machine. il diag Mach 27:494-5 Ja '21; Am Mach 54:530-1 Mr 24 '21

Oil handling

Bulk storage stations, their construction, location and operation. F. A. Bean. Nat Pet N 13:41+ N 2 '21

Dangers of the oil room. S. D. Rickard. Int Marine Eng 25:15-16 Ja '20; Excerpts. Coal Age 17:271 F 5 '20; Excerpts. Textile World 56:2737+ N 1 '19

Efficiency in the oil room. C. H. Davies. il Power Pl Eng 24:182-3 F 1 '20

Fuel-oil unloading apparatus. diags plan Power 52:890 D 7 '20

Handling and storage of crude oil and evaporation losses. J. H. Wiggins. Nat Pet N 12:43-4+ O 27 '20

Handling heavy oils at locomotive fuel stations. J. L. Starkie. diags plan Ry Age 68:1147-8 Ap 9 '20

Handling vegetable oils on the Pacific coast. C. W. Geiger. il Ry R 66:244-5 F 14 '20

How coconut oil is handled on the Pacific coast. G. W. Geiger. il plan Heat & Ven 18:28-31 Ag '21

Hydraulic system for stowing and handling fuel oil on board ships or in yards or docks. diag Marine Eng 26:304-5 Ap '21

Improved grease gun pumps direct from barrel. il Pop Mech 35:885 Je '21

Installing facilities for handling locomotive fuel oil. R. M. Stubbs. il diags plan Ry Age 69:346-8 Ag 27 '20

Methods of handling and storing fuel oil and gasoline. C. L. Hubbard. il diags Ind Management 59:20-3 Ja '20

Oil companies to correct hazardous storage installations; with rules for unloading oil tank cars. B. W. Dunn. Nat Pet N 12:129+ S 22 '20

Safeguarding pump installations in oil burning storage systems. J. R. Battle. Nat Pet N 12:91+ N 3 '20

San Francisco as a fuel oil port. C. W. Geiger. il Sci Am 122:183+ F 21 '20

See also Gasoline handling; Gasoline service stations; Oil bunkering stations; Oil cans; Oil pipe lines; Oil storage; Tank cars; Tank ships

Oil heaters

Efficient handling of fuel oil. A. F. Brewer. diags Power 53:223-5 F 8 '21

Fuel oil heaters and other accessories. R. Sibley and C. H. Delany. il diags J Elec 45:17-19 Jl 1 '20

Preheating fuel oil for boiler furnaces. il Power Pl Eng 25:100 Ja 1 '21

Oil heating

RanD system for bunker oil. Marine Eng 26:314 Ap '21

Oil houses

Well-designed oil houses. Elec Ry J 56:279 Ag 7 '20

See also Oil storage

Oil industries

Advantage of marketing products under the jobbers own brands. W. T. Crotzer. Nat Pet N 13:38 Mr 30 '21

Basic technical information needed by the edible oil industry. J. C. Ingram. Chem & Met Eng 25:438-9 Ag 31 '21

Imports and exports of vegetable oils and vegetable oil material in Belgium, Argentina, Canada, Cuba, Brazil, Jamaica, Siam. Oil Paint & Drug Rep 99:35 sec 1 Je 6 '21

Jobber offered big opportunity building market for oil specialties. J. R. Battle. Nat Pet N 12:49+ D 29 '20; 13:75+ Ja 26 '21

Oil trade blue book; directory and dictionary of the mineral oil industry. F. E. Murray & co., Chicago

Psychology necessary in selling high priced oils and greases. J. Nourse. Nat Pet N 13:43-4 Mr 30 '21

Refined oils 1919 status summarized. Soc Auto Eng J 6:188 Mr '20

Refiners reach decision to refuse to sell price-cutting jobbers. V. B. Guthrie. Nat Pet N 13:27-8 Ap 6 '21

Oil industries —Continued

Significance of vegetable oils in the economic development of the tropics. V. C. Finch. *Chem Age* 29:125-7 Ap '21

Trade rules governing relations between refiners and jobbers. *Nat Pet N* 13:35-6 My 25 '21

Vegetable, animal and fish oils. See weekly numbers of Oil paint and drug reporter

See also Core oils; Cottonseed oil; Gasoline industry; Kerosene industry; Linseed oil; Oil companies; Olive oil; Petroleum industry and trade; Tariff—United States—Oils and fats; *also* Pure oil company; White oil corporation

Bibliography

Recent articles on petroleum and allied substances. E. H. Burroughs, comp. 26 mim. p. U S Bur Mines Reports of Investigations, serial no. 2168

Fire regulations

Oil plants of the future are dependent on fire rules of today. W. C. Platt. *Nat Pet N* 13:33-6 N 2 '21

France

Consul General Gaulin reports on French vegetable oil industry. *Oil Paint & Drug Rep* 99:49+ sec 1 Ja 3 '21

Great Britain

Vegetable-oil industry of Hull. *Chem & Met Eng* 22:1034 Je 2 '20

New Zealand

New Zealand oils; statistics of imports and exports during the years 1917, 1918 and 1919. *Oil Paint & Drug Rep* 99:48 sec 1 F 21 '21

Pennsylvania

Pennsylvania coals and shales greatly vary in their content of oil. G. H. Ashley and C. R. Fettke. *Coal Age* 19:401-3 Mr 3 '21

United States

Fats and oils factory production for 3 months ending December 31. *Oil Paint & Drug Rep* 99:47 sec 1 F 14 '21

Mineral oil as a factor in United States trade. *Chem & Met Eng* 22:504 Mr 17 '20

Oil refinery production in 1920. F. H. Mason. *Gas Age* 47:321-2 Ap 25 '21

Reactions of a tariff on oriental oils. J. Aspegren. *Chem Age* 29:110 Mr '21

Tariff commission reports on peanut and cottonseed oil, etc. *Oil Paint & Drug Rep* 99:28 sec 1 Ja 3 '21

See also Petroleum industry—United States; Tariff—United States—Oils and fats

Oil inspection

Inspection of petroleum products; digest of statutes in the several states and Canada. J. L. Nesbitt and L. Broido. 115p The Evening post job print. off., New York '20

Manual for inspectors of petroleum. C. J. Tagliabue. 64p 16th ed. C. J. Tagliabue mfg. co., Brooklyn, N.Y. '20

Ohio oil inspection department ready to spring into activity. *Nat Pet N* 13:77+ O 19 '21

Root out oil inspection or work for sane laws? C. D. Chamberlin; J. S. Longshore. *Nat Pet N* 12:41+ D 1 '20

See also Inflammable liquids

Oil lands

Burkburnett—an example of how not to exploit an oil field. R. E. Collom. *il Nat Pet N* 13:61-2 F 9 '21

Disputed area in Red river bed section less than 500 acres proven. P. Wagner. *Nat Pet N* 12:71-2b My 26 '20

Draw up regulations to govern development under leasing law. *Nat Pet N* 12:105+ Ap 14 '20

Encourages aliens in oil operations. J. W. Thompson. *Nat Pet N* 12:52+ Je 9 '20

Extent of oil rights. O. F. Schuette. *Gas Age* 45:363 Ap 26 '20

Far North oil will be profitable only by large production. L. E. Smith. *il Nat Pet N* 13:38-40 Ap 27 '21

Leasing public oil and gas lands. O. F. Schuette. *Gas Age* 45:272-5 Mr 25 '20

Legal status of oil-shale deposits on the public domain. J. R. Jones. *Eng & Min J* 111:68-9 Ja 8 '21; Discussion. L. A. Palmer. 111:255-6 F 5 '21

Mid-continent operators not surprised at Secretary Payne's decision. J. B. Gambrell, jr. *Nat Pet N* 12:86-7+ N 24 '20

Modification of acreage limit planned to hike Osage prices. J. B. Gambrell, jr. *Nat Pet N* 12:73 S 15 '20

Montana adopts new lease requirements. *Nat Pet N* 13:61 O 26 '21

Oil land development and valuation. R. P. McLaughlin. 200p McGraw-Hill '21

Oil land leases and lawsuits. G. A. Laird. *Eng & Min J* 109:810-11 Ap 3 '20

Oil-land leasing bill. *Eng & Min J* 109:568-9 F 28 '20

Operators contend 4,800 acre limitation in Osage should be abrogated. J. B. Gambrell, jr. *Nat Pet N* 12:61-4 J1 7 '20

Osage operators ask royalty revision to match increased costs. J. B. Gambrell, jr. *Nat Pet N* 13:29-30 S 21 '21

Overdrilling of oil fields. *Eng & Min J* 110:1000 N 20 '20

Passage of the Howard-Owen bill extending the Osage trust period. *Nat Pet N* 13:27-8 Mr 9 '21

Pawhuska, Okla., America's Monte Carlo. H. L. Wood. *il Nat Pet N* 12:36+ O 20 '20

Petroleum in Persia and the Near East. E. M. Spieker. *Eng & Min J* 110:319-23 Ag 14 '20

Placer oil claims. *Eng & Min J* 109:976 Ap 24 '20

Principal fight over Red river oil acreage yet to come. *Nat Pet N* 13:25+ Ap 20 '21

Riverbed operators make objection to terms of return on patented land. *Nat Pet N* 12:41+ Je 30 '20

To safeguard public in shale exploitation. *Nat Pet N* 12:54+ My 5 '20

Working of oil shales encouraged by new leasing law. J. R. Jones. *Am Gas Eng J* 112:304+ Ap 17 '20

See also Gas, Natural; Petroleum; Petroleum—Laws and regulations

Valuation

Appraisal of oil properties. E. Oliver. *Min & Met* 158:(sec 3) 1-8 F '20; Excerpts. *Eng & Min J* 109:158-20 F 21 '20

Barrel costs vs. well-day costs. R. H. Johnson and A. W. Foster. *Eng & Min J* 109:1273-4 Je 5 '20

Classification of undeveloped oil land for purposes of valuation. C. H. Beal. map *Econ Geol* 15:315-27 Je '20

Unjust taxation of California oil properties. C. H. Beal and R. B. Moran. *Eng & Min J* 112:342-3 Ag 27 '21

Valuation of California oil properties for federal taxation. *Min & Met* 158:(sec 1) 14-17 F; 159:(sec 1) 37-9 Mr '20; Same. *Min & Sci P* 120:307-14 F 28 '20

Valuation of speculative, deferred and wasting assets. C. H. Beal. *Eng & Contr* 53:77-80 Ja 21 '20

Oil measurement

Measurement of fuel oil: tables. J. D. Gilman. *Marine Eng* 26:234-7 Mr '21

Methods of correcting oil volumes for temperature. *Nat Pet N* 12:97 S 15 '20

Oil men's association. Independent. See Independent oil men's association

Oil pipe lines

American pipe lines for pumping oil. C. P. Bowie. *il Engineer* 132:285-6, 352-3, 392-3, 456, 460-1 S 16, 30, O 14, 28 '21; Abstracts. *Min & Sci P* 121:706 N 13 '20; *Eng N* 85:1127-8 D 9 '20; *Soc Auto Eng J* 8:27 Ja '21

Flow of fuel oil in pipe lines. W. H. Thies. *Eng & Min J* 109:1274 Je 5 '20

Flow of oil in pipes. A. C. Preston. *Chem & Met Eng* 23:607-13, 685-9 S 29-O 6 '20

Oil pipe lines—Continued

- Fuel-oil installation. H. A. Wilcox. il diags plans Power Pl Eng 24:501-6, 527-31 My 15 '20
- Havre-Paris oil pipe line. Engineer 130:142 Ag 6 '20
- Hydraulics of oil pipe lines. W. F. Durand. chart J Elec 44:434-9 My 1 '20
- If oil transport systems were merged into one big company. W. M. Day. Nat Pet N 12:45-6 D 8 '20
- Launching a 10-inch undersea pipe line for oil. H. Leonard. il Eng N 84:658-9 Ap 1 '20
- Mata Redonda sea-loading station seventh of kind in Mexico. il Nat Pet N 12:89-90 Ag 4 '20
- Le mazout et le pétrole lampant; leur importation en France, et la conduite projetée du Havre à Paris. A. Pawlowski. il plan Génie Civil 76:365-70 Ap 17 '20
- Methods of repairing oil pipe lines by oxy-acetylene process. diag Eng & Contr 54:246 S 8 '20
- Ocean pipe line loads ships far from shore. il Pop Mech 34:880-1 D '20
- Oil pipe line transmission. H. W. Crozier. il J Elec 44:24-7, 106-8 Ja 1, F 1 '20
- Oil pipe lines. S. A. Sulentic. Chem & Met Eng 22:327-8 F 18 '20; Same. Power Pl Eng 24:242-3 F 15 '20; Same. Eng & Contr 53:264-5 Mr 10 '20
- Pipe-line transportation of hot oil. L. L. Barrett. Chem & Met Eng 24:1148-52 Je 29 '21; Abstract. Sci Am M 4:281 S '21
- Pipelines handling all oil at Homer; field making 70,000 barrels. P. Wagner. Nat Pet N 12:62-3 Mr 31 '20
- Piping oil from Havre to Paris. Eng N 85:555 S 16 '20
- Second line to El Dorado completed; storage building is reported. Nat Pet N 13:47-8 Jl 29 '21
- Steam-heated fuel-oil pipe line in underground conduit. il Power 52:580 O 12 '20
- Welded pipe lines. il Textile World 58:1541+S 4 '20
- Yarhola pipe line. Pub Works 51:218-20 S 17 '21

See also Oil fires

Oil pools. *See* Petroleum

Oil properties. *See* Oil lands

Oil pumps. *See* Pumps

Oil reclamation

- Automobile crankcase oil is salvaged by cleaning. Pop Mech 35:354 Mr '21
- Bowser oil reclaiming outfit. il Am Mach 55:488 S 22 '21
- Centrifugal extracts oil from lathe turnings. il Pop Mech 35:372 Mr '21
- Centrifugal machines recover and purify oil. il Automotive Ind 41:972-3 N 13 '19
- Centrifugal oil cleaner developed at McCook field, Dayton, Ohio; abstract. Mech Eng 43:338 My '21
- Centrifugal purification of oil. il Elec R (Lond) 89:388-9 S 16 '21
- Centrifugal separation method for reclaiming used lubricants. J. R. Battle. il Nat Pet N 12:41+ F 11 '20
- Extracting oil by electrolytic action. R. G. Skerrett. il Sci Am 123:428+ O 23 '20
- Grease recovery. Sci Am M 1:468-9 My '20
- Heat and soda ash method of reclaiming crank case oil. J. R. Battle. il Nat Pet N 12:77-8 Mr 3 '20
- Miller reclaiming device recovers 95 per cent of used oil. diag Nat Pet N 13:96-7 Mr 16 '21
- Reclaiming oil from cleaning solutions. C. E. Hendricks. diag Mach 27:477 Ja '21
- Reclaiming used of crank case oil may become important in industry. Nat Pet N 13:35 O 5 '21
- Recovery of lubricating oil. A. J. Wilson. Power 53:603 Ap 12 '21
- Regeneration of used lubricating oil. M. Rialaud. Sci Am M 1:196 Mr '20
- Saved: 12 barrels of oil a day. il Factory 27:319-20 S '21
- Separation of fixed oils form soap-water emulsions. E. E. Ayres, jr. il Chem & Met Eng 22:1057-62 Je 9 '20

Le traitement des huiles de graissage sur le réseau du chemin de fer d'Orléans. diag Génie Civil 77:160 Ag 21 '20

See also Dehydration; Oil filters; Oil separators; Oil strainers

Oil refineries. *See* Petroleum refineries

Oil refining

- Application of super-centrifugal force to the recovery of oil from soap stock. E. E. Ayres, jr. Chem & Met Eng 23:1025-6 N 24 '20
- Improved centrifugal separation of oil from soap stock. A. Delafontaine. diag Chem Age 29:64 F '21
- Process and equipment for refining benzene hydrocarbons. A. Thau. diags Chem & Met Eng 23:1065-71 D 1 '20
- Use of filter-cel for industrial filtration processes; coconut- and vegetable-oil refining. G. M. Hickey. flow sheet J Ind & Eng Chem 13:991-2 N '21

See also Oil reclamation; Petroleum refining

Oil separators

- Eliminating cylinder oil from exhaust steam. W. H. Wakeman. diags Power Pl Eng 25:749-52 Ag 1 '21
- New Babcock and Wilcox oil separator. diags Marine Eng 26:156-7 F '21

See also Exhaust heads; Oil filters; Oil reclamation; Oil strainers

Oil shales

- Alignment chart for determining oil yields in assaying oil shale. Eng & Min J 112:621 O 15 '21
- Chemical engineering and economics in shale oil recovery. A. J. Franks. Chem Age 29:67-9 F '21
- Commercial retorting of oil shales. L: Simpson. Chem & Met Eng 23:789-91 O 20 '20
- Distillation of oil-shale. D: E. Day. diags Min & Sci P 123:257-62 Ag 20 '21
- Distillation of shale-oil. J. A. Bishop. Min & Sci P 120:371-5 Mr 13 '20
- Eventual retort plant for the distillation of oil shales. L: Simpson. Chem & Met Eng 22:71-2 Ja 14 '20
- Experimental shale oil-retorting plant. flow sheet il diag Chem & Met Eng 24:312-13 F 16 '21
- Incomplete retorting of oil shales suggested. G. R. De Beque. Eng & Min J 109:523 F 21 '20
- Legal status of oil-shale deposits on the public domain. J. R. Jones. Eng & Min J 111:68-9 Ja 8 '21; Discussion. L. A. Palmer. 111:255-6 F 5 '21
- Long waits, slow profits for shale oil industry. Nat Pet N 13:26 Jl 29 '21
- Manufactured gas process of extracting oil from shale results in maximum yield of oil and the by-product, sulphate of ammonia. E. G. Church. il Am Gas Eng J 112:117-19 F 14 '20
- Manufactured gas to supply the heat for the extraction of oil from shale. H. J. Gifford. Am Gas Eng J 112:7-8, 11-12 Ja 3 '20
- Necessity for research in the oil-shale industry. M. J. Gavin. flow sheet il plan Chem & Met Eng 23:489-95 S 8 '20
- Oil shale activities. L. Bothwell. il Am Gas J 114:336-7+ Ap 16 '21
- Oil-shale and shale-oil. H. McRae. Min & Sci P 121:616-17 O 30 '20
- Oil shale and the engineer. D: E. Day. Eng & Min J 110:1182-3 D 18 '20
- Oil shale industry. Sci Am M 3:266 Mr '21
- Oil shale industry. V: C. Alderson. 175p Stokes '20; Review. Min & Sci P 121:441-2 S 25 '20
- Oil-shale industry and the necessity for common sense. L: Simpson. Chem & Met Eng 23:813-16 O 27 '20
- Oil-shale investigations. Eng & Min J 111:914-15 My 28 '21
- Oil shales and their economic importance. M. J. Gavin. Am Gas Eng J 113:114-15 Ag 7 '20; Same. Chem & Met Eng 23:289-90 Ag 18 '20; Same. Min & Sci P 121:193-4 Ag 7 '20; Same abr. Eng & Min J 110:220 Jl 31 '20

Oil shales—Continued

Origin and composition of certain oil shales. R. Thiessen. *Econ Geol* 16:289-300, pl 9-10 Je '21

Petroleum from shale. A. Selwyn-Brown. *Soc Auto Eng J* 8:63-4 Ja '21

Plant design for hot-gas pyrolytic distillation of shale. L. Simpson. *diag plans Chem & Met Eng* 24:341-5 F 23 '21

Possible uses for the spent shale from oil shale operations. K. Thomas. *Chem & Met Eng* 24:389-90 Mr 2 '21

Precious metals in oil-shale. W. E. Burlingame. *Min & Sci P* 120:668 My 8 '20

Present availability of oil shale. F. P. Webb. *Am Gas J* 115:271-2+ S 24 '21

Recovery of the nitrogen contained in oil shales. L. Simpson. *Chem & Met Eng* 22:20-2 Ja 7 '20

Refining of oil-shale. A. L. Pearse. *Min & Sci P* 122:151 Ja 29 '21

Review of the progress of the oil shale industry in 1920. V. C. Alderson. *Am Gas Eng J* 114:69-71+ Ja 22 '21

Shale oil. *Sci Am* 122:66 Ja 17 '20

Shale oil; its commercial possibilities. J. H. Ginet. *Am Gas J* 115:69-71+ Jl 23 '21

Shale plant begins 30-day continuous run. H. L. Wood. *Nat Pet N* 12:30+ S 22 '20

Shales will supply oil when wells go dry. W. F. Wilcox. *il Pop Mech* 33:561-3 Ap '20

Some items of investment, expense and profit in commercial shale-oil production. L. H. Sharp and A. T. Strunk. *Chem Age* 29:69-70 F '21; Same cond. *Eng & Min J* 111:595 Ap 2 '21

Study of the saturated and unsaturated oils from shale. C. W. Botkin. *Chem & Met Eng* 24:876-80 My 18 '21

Summary of the commercial development of chemical engineering in shale oil recovery. *Chem Age* 29:30-1 Ja '21

Thermal decomposition of shales. R. H. McKee and E. E. Lyder. *bibliog diag J Ind & Eng Chem* 13:613-18, 678-84 Jl-Ag '21

Utilization of oil-shale. R. D. George. *Min & Met* 164:15 Ag '20

See also Petroleum

Bibliography

Recent shale-oil literature. *Min & Met* 165:31-2 S '20

Selected bibliography on oil shale. E. H. Burroughs and M. J. Gavin. *U S Bur Mines Serial no 2277:1-66 S '21 (Typew)*

Testing

Laboratory testing of oil shale for oil and ammonia yield. E. L. Lomax and F. G. P. Remfry. *diag Inst Pet Tech J* 7:34-45 Ja '21; Abstract. *Min & Met* 172:45 Ap '21; Discussion. *Inst Pet Tech J* 7:45-7 Ja '21

Report on test of New Brunswick oil shales in the Wallace retort. *diag Chem & Met Eng* 22:809-10 Ap 28 '20

Retort for assaying oil shales for oil yield; abstracts. L. C. Karrick. *diag Min & Met* 173:46-7 My '21; *Eng & Min J* 111:753 Ap 30 '21; *Sci Am M* 3:569-70 Je '21

Testing oil-shale. *Min & Sci P* 121:681-2 N 6 '20

Brazil

Oil shales and petroleum prospects in Brazil. H. E. Williams. *Eng & Min J* 110:630-1 S 25 '20

Bulgaria

Deposits of oil shale in Bulgaria. *Eng & Min J* 109:1274 Je 5 '20

Colorado

Colorado oil shale progress. *Oil Paint & Drug Rep* 99:23 sec 2 Je 6 '21

Millions of barrels of crude petroleum in Colorado shales. W. E. Riggs. *il Motor Age* 38:7-9 Ag 19 '20

Oil shales of De Beque. Col. G. R. De Beque. *il Eng & Min J* 109:348-53 Ja 31 '20

Physical and chemical data on Colorado oil shale. M. J. Gavin and L. H. Sharp. *Eng & Min J* 110:579-80 S 18 '20; Same. *Gas Age* 46:219-20 S 25 '20

Representatives of the Independent oil men's convention visit the De Beque shale fields. L. Bothwell. *il Am Gas Eng J* 113:410-14 N 13 '20

Studies in Colorado shale oils. A. J. Franks. *Chem & Met Eng* 24:561-4; 25:49-53, 731-5, 778-82 Mr 30, Jl 13, O 19-26 '21; Discussion. 25:452-3 S 7 '21

Western oil shale co. *Min & Sci P* 120:349-50 Mr 6 '20

Esthonia

Esthonian oil-shale industry to receive state aid. *Eng & Min J* 112:544 O 1 '21

Germany

Oil-shale deposits in Germany. *Eng & Min J* 111:713-14 Ap 23 '21

Great Britain

Oil shale industry in Scotland and England. V. C. Alderson. *Am Gas Eng J* 113:255-60+ O 2 '20

Production of oil from English shales. R. P. Skinner. *Chem & Met Eng* 23:1207 D 22 '20

Sulphur in English shale oil limits its use. *Pop Mech* 35:374-5 Mr '21

Indiana

Oil shales of Indiana. J. R. Reeves. *Eng & Min J* 110:954-5 N 13 '20

Kentucky

Oil shales of Estill county, Ky. C. S. Crouse. *Eng & Min J* 110:24-7 Jl 3 '20

Pennsylvania

Pennsylvania coals and shales greatly vary in their content of oil. G. H. Ashley and C. R. Fettke. *Coal Age* 19:401-3 Mr 3 '21

Scotland

American oil bearing shale inferior to that found in Scotland. M. J. Gavin. *Nat Pet N* 12:53 O 6 '20

Financial record of Scotch oil-shale companies. *Eng & Min J* 110:626-7 S 25 '20

Irish and Scottish oil shale. *Eng & Min J* 108:872-3 D 6 '19

Scottish oil-shale possibilities. *Chem & Met Eng* 22:277-8 F 11 '20

United States

Oil shale in western Montana, southeastern Idaho, and adjacent parts of Wyoming and Utah. D. D. Condit. *diag map U S Geol S Bul* 711:15-40 '20

Oil shale industry—its present and future possibilities. H. L. Wood. *Nat Pet N* 12:29-30 S 22 '20; Abstract. *Soc Auto Eng J* 8:70 Ja '21

Present status of American oil shale development. M. J. Gavin, H. H. Hill and W. E. Perdew. *il Chem Age* 29:305-10 Ag '21

Record of oil shale development in the United States. H. L. Wood. *Nat Pet N* 12:33+ S 29 '20

Relation of the Bureau of mines to the oil shale industry. J. O. Lewis. *Eng & Min J* 110:628-9 S 25 '20

Oil ships. *See Tank ships*

Oil standards

Suggest motor fuel standard suitable for state regulations. *Nat Pet N* 12:33+ O 27 '20

Oil storage

Above ground concrete tanks survive Gulf Coast hurricane. *il Nat Pet N* 12:74 F 4 '20

Arched roof construction is successful in Atlanta warehouse. *il Nat Pet N* 13:43+ O 5 '21

Arrangement for the safe storage of gasoline. *il diag Ry Age* 70:1000 Ap 22 '21

Asphalt production, refining and storing. H. Spencer. *il diags Pub Works* 49:570-2, 591-2 D 18-25 '20; Same. *Can Eng* 40:343-7 Mr 31 '21; Same cond. *Good Roads n s* 20:192+ O 20 '20

Bulk storage stations, their construction, location and operation. F. A. Bean. *Nat Pet N* 13:41+ N 2 '21

Oil storage—Continued

- Concrete fuel oil reservoirs. H. B. Andrews. diags plans Sci Am M 1:60-1 Ja '20
- Concrete fuel oil storage tanks. J. E. Freeman. il Power Pl Eng 24:881-3 S 15 '20
- Concrete oil reservoir with flat-slab roof and floor at Three Rivers, Que. E. E. Halmos. il diags plans Eng N 86:260-3 F 10 '21
- Concrete oil storage tanks for industrial plants. J. E. Freeman. il Ind Management 59:133-6 F '20
- Concrete oil tanks. J. H. Hession. diags Arch Forum 31:215-16; 32:37-8 D '19-Ja '20
- Concrete storage tanks are adaptable to any petroleum product. H. C. Boyden. Nat Pet N 12:89+ O 13 '20
- Concrete storage tanks for fuel oil—square and circular. R. E. Parker. diags plans Concrete 16:213-17 My '20
- Concrete tanks for gasoline. diags plans Concrete 17:101-2 S '20
- Concrete tanks hold light flash oil. il Concrete 17:171 N '20
- Construction, location and equipment of country tank stations. R. E. Scott. Nat Pet N 13:39-40 Mr 30 '21
- Dangers of the oil room. S. D. Rickard. Int Marine Eng 25:15-16 Ja '20; Excerpts. Coal Age 17:271 F 5 '20
- Effect of oil on untreated concrete storage tanks. Eng & Contr 53:213 F 25 '20
- Efficient handling of fuel oil. A. F. Brewer. diags Power 53:303-5, 349-50, 384-5 F 22-Mr 8 '21
- Eliminating gas in fuel oil tanks. C. W. Geiger. diags Power Pl Eng 25:688 J1 1 '21
- Embankment and concrete work for large oil reservoirs. il diag Eng N 84:905-7 My 6 '20
- Engineers say fire demonstrates danger of wooden roofs on tanks. Nat Pet N 13:59 Ag 24 '21
- Essential features in the design of reinforced concrete tanks for the storage of fuel oil. il diags plans Am Arch 118:753-7 D 8 '20
- Fifteen thousand-gallon concrete fuel-oil tank. diags plans Power 51:619 Ap 20 '20
- Fire hazards great in some oil storage plants in Baltimore. H. E. Newell. Nat Pet N 13:43+ Je 24 '21
- Fuel and by-product handling risks. C. E. Paige. Gas Age 48:485-7 O 22 '21; Same. Am Gas J 115:315-16+ O 8 '21
- Fuel oil burning appliances. R. Sibley and C. H. Delany. il diags J Elec 44:621-5 Je 15 '20
- Fuel-oil installation. H. A. Wilcox. il diags plans Power Pl Eng 24:501-6, 527-31 My 15 '20
- Fuel oil storage and sand drying plant. il Ry R 65:836 D 6 '19
- Fuel-oil storage rules, National board fire underwriters. Power 50:680-1 O 28 '19
- Fuel-oil tanks, Tamarack mills; plans. Power 51:799 My 18 '20
- Grain warehouse plan adapted to oil in west Tulsa terminal. il Nat Pet N 13:31+ O 12 '21
- Handling and storage of crude oil and evaporation losses. J. H. Wiggins. Nat Pet N 12:43-4+ O 27 '20
- Handling of cocoanut oil. C. W. Geiger. il diag plan Power Pl Eng 24:121-6 Ja 15 '20
- How fuel oil should be stored to reduce hazard of fire loss. J. R. Battle. Nat Pet N 12:101+ O 13 '20
- Installing facilities for handling locomotive fuel oil. R. M. Stubbs. il diags plan Ry Age 69:346-8 Ag 27 '20
- Insulated storage tanks used to carry casing head over dull market. il Nat Pet N 13:37+ Ap 20 '21
- Insurance commissioner drafts model ordinance governing the storage and handling of oil products, gasoline particularly. Nat Pet N 12:50+ Ag 18 '20
- Large concrete oil tank built for Panama canal. R. C. Hardman. diags plans Eng N 84:380-1 F 19 '20

- Methods of handling and storing fuel oil and gasoline. C. L. Hubbard. il Ind Management 59:20-3 Ja '20
- Modernized plant to handle asphaltic oils for road use. Eng N 86:514 Mr 24 '21
- New bulk station solves many problems hitherto troublesome. L. E. Smith. il Nat Pet N 12:33-4 D 8 '20
- New design for oil tankage. H. T. Carlton. diags plan Eng & Min J 109:1078-9 My 8 '20
- Oil room continues as a menace. Motor Age 37:36 Ja 22 '20
- Oil storage facilities, Stark engine terminal, P. R. R. lines West. il diags plans Ry R 66:86-9 Ja 17 '20
- Proper storage for industrial users is protection to the oil company. Nat Pet N 12:41+ S 1 '20
- Proper tank construction would save much in insurance premiums. S. H. Brooks. il diags Nat Pet N 13:27+ Ag 10 '21
- Rules governing storage and use of fuel oils and construction and installation of oil burning equipment effective in New York city, Dec. 1, 1919. Am Arch 116:707-8 D 3 '19; Same. Metal Work 92:639-42 N 28 '19; Abstract. Heat & Ven 16:37-8 D '19; Excerpt. Eng & Contr 52:625 N 26 '19
- Safe storage of oil fuel. A. F. Brewer. Ind Management 59:293-4 Ap '20
- Safeguarding pump installations in oil burning storage systems. J. R. Battle. Nat Pet N 12:91+ N 3 '20
- Standardized steel buildings compose Syracuse jobbing plant. il Nat Pet N 13:65-6 S 7 '21
- Steel roofs required in oil tanks in Mexico. Sheet Metal Worker 12:596 S 30 '21
- Steel versus concrete oil storage tanks. W. E. Goldsworthy. Metal Work 93:241+ F 20 '20
- Storage of locomotive fuel oil. A. M. Schoen. Ry R 66:93-4 Ja 17 '20
- Storage plant for road oils and bitumens maintained by street department, Worcester, Mass. J. C. Blake. il Munic Eng 59:2-4 J1 '20
- Storage tanks for road oil cut out demurrage. C. E. Murphy. il Eng & Contr 52:528 N 5 '19
- Suggestions for handling storage for oils at industrial plants. J. R. Battle. Nat Pet N 12:57+ S 22 '20
- Use of fuel oil in heating plants. C. L. Hubbard. il diags Dom Eng 93:402-3 N 27 '20
- Vault tank storage is highly hazardous. C. C. Ramsdell. Nat Pet N 13:42+ Ap 27 '21
- Wooden roofed tanks helped fire to spread. H. E. Newell. Nat Pet N 13:44 S 14 '21
- See also Oil houses*

Oil stoves

- Oil-fired cooking ranges for naval purposes. il Engineering 109:422-3 Mr 26 '20

Oil strainers

- G-R strainer for lubricating and fuel oil lines. il Int Marine Eng 25:744 S '20
- Home-made oil strainer. L. A. Gray. il Power 54:389-90 S 6 '21
- Strainers to remove solid foreign matter. diags Coal Age 18:1228 D 16 '20
- Twin strainer and water separator for gasoline-engine fuel line. H. H. Parker. diag Power 52:708 N 2 '20

Oil switches. See Electric switches**Oil tankers. See Tank ships****Oil tanks. See Oil storage****Oil testing**

- Better cylinder-oil testing methods. C. W. Peters. diag Power 51:389 Mr 9 '20
- Catalytic oxidation of petroleum oils. C. E. Waters. J Ind & Eng Chem 13:901-3 O '21
- Characteristics of steam-distilled petroleum residuals. B. A. Anderton. Can Eng 39:411-14 O 7 '20
- Cold test apparatus for oils. G. H. P. Lichthardt. il J Ind & Eng Chem 13:145-6 F '21
- Deleterious effect of fibres on the electric insulating power of oils. T. A. McLaughlin. Electrician 86:325-7 Mr 18 '21

Oil testing—Continued

- Eastern refiners' committee reports on testing methods. *Nat Pet N* 12:65-6+ O 6 '20
- Fuels, burners and quenching mediums for heat-treatment. S. P. Rockwell. *il diags Mach* 26:837-40 My '20
- General testing methods and tables for mineral oils. W. A. C. Schlueter. 99p Western lithograph & office supply co., Wichita, Kan. '20
- How to make moisture tests and evaporation tests on oil. C. D. Basler. *Elec W* 76:288-9 Ag 7 '20
- Portable insulating-oil testing set. *il Power* 51:849 My 25 '20
- Practical lubrication—oils and their physical characteristics. W. F. Osborne. *diags Power* 51:66-9 Ja 13 '20
- Progress toward reaching standardization of oil products. *Nat Pet N* 12:46 N 24 '20
- So-called asphalt content of road oils. B. A. Anderton and D. G. Taylor. *Am Soc T M Pro v* 20 pt 2:314-19 '20; Same. *Eng & Contr* 54:124-5 Ag 4 '20; Discussion. *Am Soc T M Pro v* 20 pt 2:320-3 '20; Discussion. F. P. Smith. *Eng & Contr* 54:337-8 O 6 '20
- Suggest motor fuel standard suitable for state regulations. *Nat Pet N* 12:33+ O 27 '20
- Testing materials society broadens work in oil products. *Nat Pet N* 12:53-4 N 3 '20
- Uniform methods for 12 tests in commercial practice. *Nat Pet N* 12:45-6 Ap 28 '20
- See also Lubrication and lubricants—Testing; Petroleum—Testing; Road oils—Testing
- Oil transmission system.** See Oil gear system
- Oil transportation.** See Oil pipe lines; Petroleum—Transportation; Tank cars; Tank ships; Tank trucks
- Oil vapor conserver**
Gypsy effects big saving by use of oil vapor conserver. J. B. Gambrell, jr. *il plan Nat Pet N* 12:43-4 O 13 '20
- Oil washers**
Process and equipment for refining benzene hydrocarbons. A. Thau. *diags Chem & Met Eng* 23:1065-71 D 1 '20
- Oil wells.** See Petroleum—Well boring
- Oil workers**
California strike is grave menace to whole industry. A. R. Hinton. *Nat Pet N* 13:29+ O 5 '21
- Strikers in San Joaquin valley attempting nationalization. D. S. Ewing. *Eng & Min J* 112:701 O 29 '21
- Strikers seek to force U.S. intervention in California oil fields. *Nat Pet N* 13:17+ S 21 '21
- Oiled roads.** See Roads, Oiled
- Oilproofing**
Concrete oil tanks; means of oilproofing. J. H. Hession. *Arch Forum* 32:37-8 Ja '20
- Oils, Essential.** See Essential oils
- Oils and fats**
American oil chemists' society 12th annual meeting, Chicago. *Chem & Met Eng* 24:957-9 Je 1 '21
- Animal and vegetable oils, fats, & waxes, their manufacture, refining, and analysis, including the manufacture of candles, margarine, and butter. G. Martin. 218p C. Lockwood and son, London '20
- Catalytic saponification of oils and fats. Cheh-Yao Chang [Thesis]. 58p Ohio state university, Columbus '21
- La chimie du savonnier et du commerce de corps gras. R. Ehram. 378p Dunod, Paris '21
- Determination of refractive indices of oils. H. S. Simms. *diags J Ind & Eng Chem* 13:546-7 Je '21
- Determination of the specific heat of heavy mineral oils. H. S. Bailey and C. B. Edwards. *J Ind & Eng Chem* 12:891-4 S '20
- Fat associated with starch. T. C. Taylor and J. M. Nelson. *Am Chem Soc J* 42:1726-38 Ag '20
- Handbook of industrial oil engineering. J. R. Battle. 1131p Lippincott '20

- Les huiles industrielles et leurs dérivés. J. Fritsch. 357p A. Legrand, Paris '20
- L'hydrogénation des huiles. M. Fréjacque. *diags Chimie & Ind* 4:443-56 O '20
- Liquid sulphur dioxide in oil extraction. R. H. McKee. *Chem Age* 29:425-6 O '21
- Making of edible fats from paraffine. *Sci Am M* 4:360 O '21
- New oil plant from the Congo. J. Pieraerts. *Sci Am M* 3:418 My '21
- Oils, fats and waxes in Latin America. O. Wilson. *il Chem & Met Eng* 24:1101-8 Je 22 '21
- Oils, fats, waxes, and resins used in the rubber industry. F. Dannerth. *India Rubber W* 64:563-6 My '21
- Oxidizing oils; patent. *Chem & Met Eng* 23:1182 D 15 '20
- Practical lubrication—oils and their physical characteristics. W. F. Osborne. *diags Power* 51:66-9 Ja 13 '20
- Production and conservation of fats and oils in the United States. H. S. Bailey and B. E. Reuter. *U S Agric Bul* 769:1-45; suppl-7 '19
- Proso millet investigations—analysis of the oil—a characteristic alcohol. B. A. Dunbar and E. R. Binnewies. *Am Chem Soc J* 42:658-66 Mr '20
- Putting the vegetable oil industry on a scientific basis. H. S. Bailey. *il Chem & Met Eng* 23:441-6 S 8 '20
- Rate of evaporation of ethyl chloride from oils. C. Baskerville and M. Hirsh. *J Ind & Eng Chem* 13:322-3 Ap '21
- Saybolt viscosity of blends. W. H. Herschel. *U S Bur Stand Tech Pa* 164:1-21 '20; Same cond. *Chem & Met Eng* 22:1109-12 Je 16 '20
- Soluble oils and their production. R. Sansone. *Sci Am M* 4:377-8 O '21
- Solvent extraction of edible fats and oils. H. Austin. *il Oil Paint & Drug Rep* 100:ix+ S 20 '21
- Technical application of hydrogen in hydrogenation or hardening of oils. H. L. Barnitz. *il diags plan Chem & Met Eng* 22:745-8 Ap 21 '20
- Die umesterung und ihre beziehung zur konstitution der fette. A. Grün. *Deutsche Chem Gesell Ber* 54:290-9 F '21
- Use of hydrogenated oils in the manufacture of tin plate. W. D. Collins and W. F. Clarke. *J Ind & Eng Chem* 12:149-52 F '20
- Use of oils in fulling. A. S. Mann. *Textile World* 59:2435+ Ap 9 '21
- Utilization of the common milkweed; possibilities of the oil as a paint oil. A. C. Neish and J. W. Burns. *Can Chem & Met* 5:316-19 N '21
- Vegetable oils, with special regard to the manufacture of food products. H. Tefft. *Can Chem & Met* 5:102-4 Ap '21
- Viscosity-temperature curves of fractions of typical American crude oils. E. W. Dean and F. W. Lane. *bibliog diag J Ind & Eng Chem* 13:779-86 S '21
- See also Acids, Fatty; Cantaloup seed oil; Castor oil; Chaulmugra oil; China wood oil; Core oils; Cottonseed oil; Creosote; Dehydration; Emulsification; Emulsions; Essential oils; Flotation oils; Fusel oil; Gas and oil engines—Fuel; Gas oil; Grape seed oil; Hubbard squash seed oil; Hydrogenation; Lard, Substitutes for; Linseed oil; Lubrication and lubricants; Oil analysis; Oil filters; Oil industries; Okra seed oil; Oleomargarine; Olive oil; Otoba butter; Palm oil; Peanut oil; Petroleum; Saponification; Shark liver oil; Soy bean oil; Tallow; Turkey red oil; Wormwood oil

Color

- Methods of color determination on products of petroleum. C. K. Francis. *diags Nat Pet N* 13:34-5 Je 10 '21

Tables, calculations, etc.

- Tycos gravity and temperature tables for mineral oils from determinations of the Bureau of standards and other tables for general testing and refinery practice. comp. and ed. by E. N. Hurlburt. 2d ed. 215p Taylor instrument companies, Rochester, N.Y. 21

Oklahoma

See also Finance—Oklahoma; Geology—Oklahoma; Mines and mineral resources—Oklahoma; Petroleum industry and trade—Oklahoma-Kansas district

Oklahoma City, Oklahoma**Sewage**

Oklahoma City sewage-works problem and report. Eng N 87:198-9 Ag 4 '21

Water supply

Impounding reservoir for water supply of Oklahoma City. diags plan Eng N 84:478-9 Mr 4 '20

Oklahoma producing & refining corporation of America

Official statement to the New York stock exchange in connection with the listing of its common stock. Comm & Fin Chr 110:667-9 F 14 '20

Okmulgee, Oklahoma**Sewerage**

New sewage treatment plant of Okmulgee, Okla. A. H. Kindrick. il Pub Works 49:473-5 N 20 '20; Same. Eng & Contr 54:559-60 D 8 '20

Okra

Exploiting okra as pulp material. Paper 29: 16 S 14 '21

Okra seed oil

Okra seed oil. G: S. Jamieson and W. F. Baughman. Am Chem Soc J 42:166-70 Ja '20

Old age

Concerning age. Sci Am S 88:291 N 15 '19
See also Age; Pensions, Industrial

Old age homes. See Homes (institutions)**Old age pensions**

Compulsory old-age insurance in Spain. Monthly Labor R 12:1246-7 Je '21
Old age pensions. 2v Gt. Brit. Treasury. Old age pensions committee, London '19
Old age pensions legislation in France. Int Labour R 2:67-88 Ap '21
Swedish act on pensions insurance and its application. Int Labour R 2:234-46 My '21

See also Age; Civil service pensions; Pensions, Industrial

Old Lyme, Connecticut

Art gallery of Old Lyme, Conn. il diag plans Am Arch 120:184-7 S 14 '21

Olean, New York

Housing project at Olean, N.Y. J: Nolen. plan Eng N 86:80 Ja 13 '21

Oleomargarine

Food value of margarin. J. S. Abbott. Chem Age 29:93-4 Mr '21
Margarine. W: Clayton. 187p [bibliog p 144-79] Longmans '20; Review. Engineering 110:842-3 D 24 '20
Margarine industry of Hull, England. Chem & Met Eng 24:250 F 9 '21
Work of the chemist in margarin manufacture. H. P. Trevithick. Chem Age 29:361-3 S '21

Olfactometer

Flavors, odors and infra-red rays; measuring degrees of taste and smell with the olfactometer and the saporimeter. G. Hamelin. il Sci Am M 3:519-22 Je '21

Oligobunis darbyi

Two new fossil carnivora; oligobunis darbyi. M. R. Thorpe. bibliog il Am J Sci 5th ser 1: 480-3 Je '21

Olive oil

Lipolytic enzymes in olive oil. T: M. Rector. J Ind & Eng Chem 12:156-8 F '20
Olive oil output. Oil Paint & Drug Rep 99: 36 sec 1 Je 6 '21

Advertising

Importer gains sales by educational campaign. Ptr Ink 112:41-2+ Ag 5 '20

Olive poisoning

Jar rings and poisoned olives. India Rubber W 62:499, 639 My, Jl '20

Oliver typewriter company

Salesmen and advertising work best as a team. Ptr Ink 115:77-8 My 12 '21

Olives

Chemical study of the ripening and pickling of California olives. R. W. Hiltz and R. S. Hollingshead. il U S Agric Bul 803:1-24 '20

The olive. Sci Am M 3:26-7 Ja '21
Ripe olives. Sci Am 125:28 Jl 9 '21

Advertising

Advertising one of the oldest known foods. H. E. Agnew. Ptr Ink 113:125-6+ N 11 '20

Olympic (ship)

White star liner Olympic. Engineering 109: 865-6 Je 25 '20

Omaha, Nebraska**Water supply**

Results of completely metering Omaha water supply. F. P. Larmon. Eng N 84:1186-7 Je 17 '20

L'Ombrellino. See Pian de'Giullari, Italy**On-costs. See Overhead expense****One-cent sales**

What results the one-cent sale plan brought. Ptr Ink 112:41-2+ Jl 29 '20

One man cars. See Street cars—Safety cars**Onions**

Planting onion sets by machine. Sci Am 125: 225 S 24 '21

Ontario

Town planning possibilities in Ontario under present legislation. T. D. LeMay. Can Eng 40:274 Mr 3 '21

See also Electric railroads—Ontario; Geology—Ontario; Gold mines and mining—Ontario; Hydroelectric plants—Ontario; Mines and mineral resources—Ontario; Mining industry and finance—Ontario; Paper industry and trade—Ontario; Roads—Ontario

Agriculture, Department of

Ontario advertises to make department of agriculture benefit farmers. J: T. Bartlett. Ptr Ink 110:116+ Mr 11 '20

Hydro-electric power commission

Laboratories of the Hydro-electric power commission of Ontario. Can Eng 39:276+ Ag 26 '20

Municipal co-operation in hydro-electric power. Pub Works 48:100 F 14 '20

Mines, Bureau of

New mining control in Ontario. J. B. Tyrrell. Eng & Min J 109:436-8 F 14 '20

Ontario good roads association

19th annual convention, Toronto. Can Eng 40: 289-90 Mr 10 '21

Opals

Monster among gems. il Sci Am 122:43 Ja 10 '20

Open-air theaters. See Theaters, Open-air**Open and closed shop**

Business policies. I. T. Bush. System 39:656+ My '21

Closed or open shop policy for construction labor? C: F. Dingman. Eng & Contr 54:618-19 D 22 '20

Closed versus open shop discussion at Industrial relations assn. of America. Iron Age 105:1532-3 My 27 '20

Constructive possibilities of the open shop movement. H. Tipper. Automotive Ind 44: 822-3 Ap 14 '21

Definition of open shop necessary for present discussion. H. Tipper. Automotive Ind 43:1032-3 N 18 '20

Detroit vindicates open shop. A. J. Hain. Iron Tr R 67:571-4+ Ag 26 '20

Employes uphold the open shop; Cincinnati labor situation. A. J. Hain. il Iron Tr R 67:1071-6 O 14 '20

Federal council of churches and the open shop conspiracy. H: H. Lewis. Comm & Fin Chr 112:334-5 Ja 22 '21

Open and closed shop—Continued

- Importance of open shop development. W: H. Barr. Comm & Fin Chr 111:2004 sec 1 N 20 '20
- Loyalty to open shops is tested; issue involved in Cleveland patternmakers strike. Iron Tr R 67:436-40 Ag 12 '20
- Menace of the closed shop. E. H. Gary. Am Ind 20:31-2 Ja '20
- Nation swinging to open shop. A. J. Hain. Iron Tr R 67:846-52 S 23 '20
- New open shop movement in Cleveland. Iron Age 106:1201 N 4 '20
- Non-union agreement signers protected. Metal Work 94:151-2+ J1 30 '20
- Open shop; a debate. A. Furuseth and W. G. Merritt. 47p H. W. Wilson co. '21
- Open shop—a memorandum. W: L. Stoddard. Ind Management 61:407-8 Je '21
- Open shop a national demand. M. J. Hickey. Am Ind 21:26-8 O '20
- Open shop and the motives back of it. R. E. Fox. Ind Management 61:37-9 Ja 1 '21
- Open shop drive: who is behind it and where is it going? S. Zimand. 61p Bureau of industrial research, New York '21
- Open shop encyclopedia for debaters. 247p National association of manufacturers, New York '21
- Open shop gaining in South. H. F. Podhaski. Iron Tr R 67:787-9+ S 16 '20
- Open shop in industry. W. G. Merritt. Textile World 59:3061+ My 7 '21
- Open shop needed for industrial welfare. G. W. Dyer. Am Ind 20:31-2 Je '20
- Open shop vs. closed shop, issued by the University interscholastic league. 60p The University, Austin, Tex. '20
- Open shop wins at Golden Gate. D. Partridge. il Iron Tr R 68:418-22 F 10 '21
- Railroads—open or closed shop? J: L. Lovett. Ry R 68:825 My 28 '21
- Recent decisions relating to the closed shop. Monthly Labor R 12:194-7 Ja '21
- Relation of union schedules to building operations. W: J. Barney. Eng N 86:886-7 My 26 '21
- Samuel Gompers affects to believe open shop campaign a failure. Comm & Fin Chr 112:2264 My 28 '21
- San Francisco turns open shop. W: C. Wren. Am Ind 22:27-8 O '21
- Seattle declares the open shop. F. R. Singleton. Bldg Age 41:398-9 D '19; Same. Dom Eng 89:515+ D 6 '19; Same. Munic Eng 57:282, 284-5 D '19
- Seattle's plan to give employees such fair treatment that the union is unnecessary to them has made community a strikeless city. F. R. Singleton. Am Gas Eng J 113:63-4 J1 24 '20; Same. Eng & Contr 54:142 Ag 11 '20
- Selected articles on the closed shop. L. T. Beman. 197p H. W. Wilson co. '21
- Shall we employ union labor? C: F. Dingman. Concrete 17:181-2 D '20
- Trends in management; open shop or closed—which? W: L. Stoddard. Factory 26:1190-3 My 15 '21
- Twin Cities team for open shop. A. J. Hain. il Iron Tr R 68:762-8 Mr 17 '21
- Why William M. Anderson is opposed to profit-sharing. B. Lebhar. Dom Eng 93:298-9+ N 13 '20
- Will the Labor board enforce the closed shop? Ry Age 71:97-8 J1 16 '21
- See also Labor contracts

Bibliography

- Closed shop. L. T. Beman. p. xxv-xxvii H. W. Wilson co. '21
- List of references on the open shop. 17 mim. p Ag 31 '20 U.S. Library of Congress
- Open competition. See Price fixing
- Open hearth process
- Acid open-hearth process for the manufacture of highgrade steel. B. E. L. deMaré. diags Chem & Met Eng 22:1063-8 Je 9 '20; Same. Blast F & Steel Pl 8:318-24+ Je '20; Same. Iron Age 105:1589-93 Je 3 '20; Same cond. Iron Tr R 66:1607-10 Je 3 '20; Discussion. Iron Age 105:1672-3 Je 10 '20; Iron Tr R 66:1690-1, 1761 Je 10-17 '20

- Air-cooled slag pockets for open-hearth furnaces. il diags plan Iron Age 107:901 Ap 7 '21
- American malleable cast iron; cupola and open-hearth melting. H. A. Schwartz. il Iron Tr R 69:98-101 J1 14 '21
- Application of waste heat boilers to open hearth furnaces. T: R. Tate. Blast F & Steel Pl 9:173-4 F '21; Same. Power Pl Eng 25:160-1 F 1 '21; Same. Iron Tr R 68:351-2 F 3 '21; Excerpt. Min & Met 169:35 Ja '21; Same abr., with discussion. Iron Age 107:194-5 Ja 20 '21
- Basic open hearth melting shop equipment and practice in England. G: A. V. Russell. il diags Blast F & Steel Pl 9:31, 38-45, 213-17+ Ja, Mr '21
- Basic open hearth process. F. L. Toy. diags Blast F & Steel Pl 9:30, 45-50, 157-61 Ja-F '21; Same cond. Iron Age 106:1116-18, 1193-5 O 28-N 4 '20; Same cond. Iron Tr R 67:1199-1201, 1275-7 O 28-N 4 '20
- Die beheizung von Martinöfen mit einem gemisch von braunkohlenbrikett- und hoch-ofengas. F. Boettcher. Stahl & Eisen 41:1027-30 J1 28 '21
- Betriebserfahrungen mit dem Maerzofen. H. Czirn-Terpitz. Stahl & Eisen 41:444-6 Mr 31 '21
- British view of American steel making. R. P. Smith. Iron Age 108:589-91 S 8 '21
- Creusot and its associated works. il diags plans Engineer 130:sup1-16 S 17 '20
- Design of furnaces and ovens is factor in cutting costs in new open-hearth plant. il diags Iron Tr R 66:915-20 Mr 25 '20
- Design of open hearth furnaces. A. D. Williams. diags Iron Age 105:35-7, 119-20, 317-20, 475-7, 805-6, 1225-6, 1510-11; 106:319-21 Ja 1-8, 29, F 12, Mr 18, Ap 29, My 27, Ag 5 '20
- Design of ports for open hearth furnaces. H. F. Miller, jr. diags Blast F & Steel Pl 8:612-14 N '20
- Development of the steel industry during the war in Germany. H. Hermanns. diags plan Blast F & Steel Pl 9:144-50 F '21
- Discussion on open hearth practice. H: W: Seldon. Blast F & Steel Pl 9:422-3, 469-70 J1-Ag '21
- Gases obtained in molten steel. H: D. Hibbard. Blast F & Steel Pl 9:51-3, 139-40 Ja-F '21
- Have we too many rolling mills? open hearths completed during 1920; tabulation. Iron Tr R 68:68 Ja 6 '21
- Heat transfer in open hearth furnaces. H: W: Seldon. Blast F & Steel Pl 9:299-304 My '21
- Improvement in open-hearth details. A. G. Schumann and A. F. Schumann. il diags plan Iron Age 108:269-72 Ag 4 '21
- Increased efficiency in the open hearth. P. C. Gunion. il Blast F & Steel Pl 8:624-5+ N '20
- Industry prepares to save fuel. E. L. Shaner. diags Iron Tr R 68:20-2 Ja 6 '21
- McKune system for open hearth. P. S. Young. diags Blast F & Steel Pl 9:371-4 Je '21
- Making basic open-hearth steel. C. W. Veach. Iron Tr R 67:178-9 J1 15 '20
- Making manganese steel by the open-hearth process. E. L. Shaner. il Iron Tr R 65:1701-5 D 25 '19; Same. Foundry 48:63-6 Ja 15 '20
- Manganese iron as desulphurizer; abstracts. E. A. Wheaton. Iron Tr R 67:1196-8 O 28 '20; Chem & Met Eng 23:823-4 O 27 '20; Iron Age 106:1112-14 O 28 '20; Blast F & Steel Pl 8:596-8 N '20
- Melting changes bring lower costs. il Foundry 48:253-8 Ap 1 '20
- New controlling valve for open hearths. W. H. Wharton. diag Blast F & Steel Pl 9:253+ Ap '21
- New furnace port for open hearth furnaces. diags Iron Age 106:465-6 Ag 19 '20; Iron Tr R 67:455 Ag 12 '20
- New steel plant of the Weirton steel co. C. H. Hunt. il diags plan Iron Age 107:619-27, 693-702 Mr 10-17 '21; Same cond. Blast F & Steel Pl 9:[232 ff] Mr '21; Same cond. Iron Tr R 68:685-91 Mr 10 '21

Open hearth process—Continued

- 1919 open hearth technical developments. F. Crabtree. Blast F & Steel Pl 8:47 Ja '20
- Open-hearth furnace and processes. H: M. Howe. Iron Age 105:545-6 F 19 '20
- Open-hearth furnace design. A. D. Williams. il Iron Age 108:719-22 S 22 '21
- Open-hearth furnace valve of the three-way regulating and proportional discharge type. diags Iron Tr R 68:1460 My 26 '21
- Open hearth; its relation to the steel industry, its design and operation. V: Windett. 378p U. P. C. book co. '20
- Open hearth practice cause and effect. N. E. Mac Callum. Blast F & Steel Pl 9:36-8 Ja '21
- Open hearth practise with large units. N. E. MacCallum. il Blast F & Steel Pl 8:52-5 Ja '20
- Power drives for rolling mills. W. O. Rogers. il diags Power 51:95-8 Ja 20 '20
- Process and apparatus for increasing production in steel manufacture. A. A. Rackoff. diags plan Blast F & Steel Pl 8:645-51 D '20; Excerpts. Iron Tr R 67:1601-2 D 9 '20
- Producer coal affects steel quality. S. J. Cort. Iron Tr R 67:1277-8 N 4 '20
- Protecting open-hearth gas ports. il Iron Tr R 67:720-1+ S 9 '20
- Pulverized coal in open-hearth practice. W. H. Fitch. Iron Age 104:1323-8 D 25 '19
- Radical change in open-hearth practice. G: L. Prentiss. diags Iron Age 107:1479-81 Je 2 '21; Same. Blast F & Steel Pl 9:368-70 Je '21; Same abr. Iron Tr R 68:1586-7 Je 9 '21; Same. Foundry 49:639-40 Ag 15 '21
- Reactions in the basic open hearth. C. W. Veach. diag Foundry 49:380-2 My 15 '21
- Reactions of the open hearth boil. H: D. Hibbard. Blast F & Steel Pl 8:441-2 Ag '20
- Reduction of silicon from the slag in the acid open-hearth process. B. Yaneske and G. A. Wood. Engineering 109:666-8; Discussion. 644 My 14 '20; Abstract. Engineer 129:522-3 My 21 '20; Abstract. Chem & Met Eng 23:76-7 Jl 14 '20
- Slag conditions in open-hearth basic steel-making practice. J: F. Wilson. diags Engineering 109:661-3; Discussion. 644 My 14 '20; Abstract. Engineer 129:522 My 21 '20
- Steelmakers experiment with fuels. Iron Tr R 68:14-16 Ja 6 '21
- Tilting open hearth's future in France. P. Jolly. diags Iron Age 105:1499-1500 My 27 '20
- Ueber die verwendung von flusspat im Martinofen. S. Schleicher. Stahl & Eisen 41: 357-64 Mr 17 '21
- United States naval ordnance plant. W: J. Priestley. il Blast F & Steel Pl 9:254-9 Ap '21
- Use of cupolas in open-hearth practice. V. W. Aubel. Iron Age 108:403-5 Ag 18 '21
- Use of manganese alloys in open-hearth steel practice. S: L. Hoyt. U S Bur Mines Bul 173:187-99 '20
- War plant of Erie forge & steel co. S. G. Koon. il Iron Age 107:1595-1603 Je 16 '21

Furnace charging

- Fatigue and efficiency in an iron and steel works. H. M. Vernon. il Eng & Ind Management 5:226-9, 287-90 F 24, Mr 10 '21
- Open pit mining. See Mining engineering—Stripping method
- Open-price bureau. See Price fixing
- Open shop associations
Public sponsors open shop associations. Iron Tr R 67:1339-45, 1348-50 N 11 '20
- Opium
Juice of the poppy; the cultivation, manufacture and taxation of opium in India. T. Gibb. il Sci Am 125:238-9+ O 1 '21
- Optical flat
Making an optical flat. R. W. Porter. il diags Am Mach 55:329-31 S 1 '21
- Optical flat—a practical measuring tool. H. L. Van Keuren. il diags Am Mach 53:107-12 Jl 15 '20
- Optical glass. See Glass, Optical

Optical illusions

- Visual illusions in the arts; tricks of lighting, color and form for painters, sculptors and architects. M. Luckiesh. il diags Sci Am M 3:497-501 Je '21

Optical instruments

- Geometrical investigation of the formation of images in optical instruments. Ed. by L: O: M. von Rohr. 612p [Bibliography; p. 577-612] Great Britain. Dept. of scientific and industrial research, H. M. Stationery off., London '20
- Transmission of waves through a symmetric optical instrument. I. Roman. Phys R 18: 126-7 Ag '21
- See also Glass, Optical; Interferometer; Lenses; Microscope and microscopy; Periscope; Polariscope; Reflection (optics); Spectrograph; Spectroheliograph; Spectrophotometer; Spectroradiometer; Stereoscope; Telescope; also L'institut d'optique, Paris

Manufacture

- Chemistry and craft in scientific instrument manufacture. Chem Age 29:188-9 My '21
- Mechanism for graduating dials of optical instruments. J. V. Hunter. il Am Mach 53: 1139-40 D 16 '20
- Small machines for building optical instruments. J. V. Hunter. il Am Mach 53:1045-7 D 2 '20

Testing

- Interferometer for testing optical systems. il diags Engineering 110:857-9 D 31 '20

Optical measurements. See Measuring instruments**Optical rotation**

- Die anomale rotationsdispersion. H. Grossmann and M. Wreschner. F. Enke, Stuttgart '21
- C₄-saccharinic acids—the resolution of *dl*-2,3-dioxybutyric acid into the optically-active components; the derivatives of these acids. J. W. E. Glattfeld and G: E. Miller. Am Chem Soc J 42:2314-21 N '20
- Experiments on the production of compounds containing arsenic as a centre of optical activity. G: J. Burrows and E. E. Turner. Chem Soc J 119:426-37 Ap '21
- Notes on double polarization methods for the determination of sucrose and a suggested new method. G: W. Rolfe and L. F. Hoyt. J Ind & Eng Chem 12:250-3 Mr '20
- Optical rotation of mixtures of sucrose, glucose and fructose. W. C. Vosburgh. Am Chem Soc J 43:219-32 F '21
- Optical rotatory dispersion. T. M. Lowry. Engineering 112:33 Jl 8 '21
- Preparation of optically active hydrazines; the preparation of *dl*-*p*-trimethylethylphenylhydrazine—the isolation of pure *d*-*p*-trimethylethyl-aniline. J. W. E. Glattfeld and C. H. Milligan. Am Chem Soc J 42: 2322-8 N '20
- Revision of the optical method for analyzing mixtures of sucrose and raffinose. C. A. Browne and C. A. Gamble. J Ind & Eng Chem 13:793-7 S '21
- Specific rotation of fructose. W. C. Vosburgh. Am Chem Soc J 42:1696-1704 Ag '20
- Über den asymmetrischen aufbau der cellulose und über die beeinflussung der rotation von kohlehydraten durch kupferhydroxyd-ammoniak (Schweizers reagens). K. Hess and E. Messmer. Deutsche Chem Gesell Ber 54:834-41 Ap '21

See also Polarization (light)

Optical trade

- See also Insurance, Eyeglass; Optical instruments

Advertising

- Boston optical interests conduct co-operative campaign. Ptr Ink 111:148+ Ap 1 '20
- When there is nothing to say about the product—dig. Ptr Ink 110:33-4 Ja 1 '20

Optics

- Defects in symmetric optical systems. I. Roman. Phys R 18:126 Ag '21

Optics —Continued

- On the colours of mixed plates. C. V. Raman and B. Banerji. diags Philos Mag 6th ser 41:338-47, 860-71, pl 4-5 Mr, Je '21
- Peculiar visual phenomena revealed by air-men; bottom of ocean visible from airships and balloons. F. Linke. Aerial Age 12:441, 445 Ja 3 '21
- Visibility of aeroplanes and the appearance of objects viewed from above; abstract. M. Luckiesh. Illum Engr 13:14-16 Ja '20
- See also* Aberration; Absorption of light; Color; Diffraction; Fluorescence; Interference (light); Light; Perspective; Phosphorescence; Photochemistry; Photometry; Polarization (light); Radiation; Reflection (optics); Refractive index; Sight; Spectrum; Visibility

Optics, Meteorological. *See* Meteorological optics

Optophone

- Dumb may speak to the blind. Wireless Age 8:12 S '21
- Optophone. il diag Electrician 85:183-4 Ag 13 '20
- Optophone; an instrument to enable the blind to read. il diags Elec R (Lond) 88:166-8 F 11 '21
- Physical and optical societies annual exhibition; the optophone. diags Electrician 86:79-80 Ja 14 '21
- Type-reading optophone; an instrument which enables the blind to read ordinary print. E. E. F. d'Albe. il diag Sci Am M 2:109-10 O '20; Same. Sci Am 123:463 N 6 '20

Orange vinegar. *See* Vinegar

Oranges

- Coloring oranges with a gas engine. S. R. Winters. Sci Am 125:245 O 1 '21
- Perfume of the orange. il Sci Am M 4:250-1 S '21
- See also* Citrus fruit

Diseases and pests

- Circumventing orange thrips by cleaning orchard. Sci Am 124:407 My 21 '21

Orbits

- Alternative to Einstein; how Dr Poor would save Newton's law and the classical time and space concepts. Sci Am 124:468+ Je 11 '21
- Determinate orbital stability: its mechanism and some of its functions in celestial mechanics. F. B. Taylor. Am J Sci 5th ser 1: 295-314 Ap '21
- Forms of planetary orbits on the theory of relativity. W. B. Morton. diags Philos Mag 6th ser 42:511-22 O '21
- Newton-Einstein planetary orbit. G. Greenhill. Philos Mag 6th ser 41:143-8 Ja '21
- Planetary motions and the Einstein theories; a possible alternative to the relativity doctrines that would save the Newtonian law. C. L. Poor. Sci. Am M 3:484-6 Je '21

Orchards. *See* Fruit culture

Ordnance

- American ordnance production in Great War. Engineer 132:196-7, 232-3, 268-9 Ag 19, S 2-9 '21
- Meeting of the American society for steel treating; heat-treatment of ordnance. Chem & Met Eng 25:644-5 O 5 '21
- Munitions manufacture in the Philadelphia ordnance district. W. B. Williams. 674p A. Pomerantz & co., Philadelphia '21
- New types and methods in war machinery. il Pop Mech 35:546-9 Ap '21
- Pioneer ordnance machine shop. H. D. Parker. diags plan Am Mach 51:1003-8 D 11 '19
- Remarkable new types of motorized ordnance. P. H. Woodruff. il Pop Mech 34:527-8 O '20
- Some applications of physics to ordnance problems. G. F. Hull. il diags J Fr Inst 192: 327-47 S '21
- See also* Artillery; Ballistics; Guns (ordnance); Naval guns; Projectiles

Ordnance plant, South Charleston, West Virginia. *See* United States naval ordnance plant, South Charleston

Ore bins

- Louvred bin. diag Min & Sci P 122:323, 593 Mr 5, Ap 30 '21
- Mechanical ore-bin gate. il Iron Age 107:1296 My 19 '21
- Planking ore-bins. D. Lay. diags plans Eng & Min J 109:1406 Je 26 '20
- Storage-bin with louvred hoppers. N. L. Hall. diags Min & Sci P 122:88 Ja 15 '21

Ore cars. *See* Mine cars

Ore deposits

- Broad lode hypothesis. Min & Sci P 122: 37-8, 79-80 Ja 8-15 '21
- Bunker Hill enterprise; the geology and mineralogy of the lode. T. A. Rickard. il diag map plan Min & Sci P 120:261-8 F 21 '20
- Canadian mining institute 22d annual meeting, Toronto. Eng & Min J 109:654-8 Mr 13 '20
- Carnotite mining in southwestern Colorado. B. Burwell. il diag Eng & Min J 110:755-8 O 16 '20
- Cobalt in Jackson county, Ore. A. E. Kellogg. Eng & Min J 112:650 O 22 '21
- Contact-metamorphic tungsten deposits of the United States. F. L. Hess and E. S. Larsen. il diags maps plans U S Geol S Bul 725-D:245-309 '21
- Cooke City and the New World mining district. L. H. Brooks, jr. map Min & Sci P 122: 682-4 My 14 '21
- Diffusion in vein-genesis at Cobalt. A. R. Whitman. Econ Geol 15:136-49 Mr '20
- Dominant features controlling ore deposits of Washington. E. N. Patty. il Eng & Min J 110:467-70 S 4 '20
- Effect of erosion on mineralized areas in northern Sonora. G. J. Mitchell. il Eng & Min J 110:1081-2 D 4 '20
- Engels copper mine and mill, California. G. J. Young. flow sheets il diag plan Eng & Min J 111:904-8 My 28 '21
- Fairhaven silver-lead district. L. A. Levensaler. il Min & Sci P 122:195-6 F 5 '21
- Geology and ore deposits of Jerome district. L. E. Reber, jr. Min & Met 161:25-7 My '20
- Geology of Pachuca and El Oro, Mexico. H. V. Winchell. Min & Met 174:34-5 Je '21
- Geology of the El Tigre district, Mexico. R. T. Mishler. il diags map plan Min & Sci P 121:583-91 O 23 '20
- Geology of the gold occurrences of Victoria, Australia. N. R. Junner. il diags Econ Geol 16:79-123 Mr '21
- Geology of the ore deposits of Kennecott, Alaska. A. M. Bateman and D. H. McLaughlin. il diags maps plans Econ Geol 15:1-80 Ja '20; Discussion. 16:333-4 Je '21
- Geology of the Portland Canal district. V. H. Wilhelm. map Min & Sci P 122:95-6 Ja 15 '21
- Iron in Peru. J. J. Bravo. il Eng & Min J 111:263-6 F 5 '21
- Las Chispas mine, in Sonora, Mexico. F. Montijo, jr. diags Min & Sci P 121:58-60 Jl 10 '20
- Limestone ores of Manhattan, Nevada. H. G. Ferguson. diags maps Econ Geol 16:1-36 Ja '21
- Mackenzie River basin. P. Thompson. map Eng & Min J 108:866-8 D 6 '19
- Mine and mill of the Belmont Shawmut mining company—the mine. A. B. Parsons. il diags map Min & Sci P 121:619-24 O 30 '20
- Mogollon district, New Mexico. H. G. Ferguson. diags maps U S Geol S Bul 715—L: 171-204 '21
- Ophir mining district, Utah. F. M. Wichman. il map Eng & Min J 110:560-3 S 18 '20
- Ore deposition in the Bolivian tin-silver deposits. W. M. Davy. il diags map Econ Geol 15:463-96 S '20; Discussion. J. T. Singewald, jr. 16:60-9 Ja '21
- Ore deposits of Arctic Canada. E. S. Moore. il map Eng & Min J 110:396-400 Ag 28 '20

Ore deposits—Continued

- Ore deposits of Cave Creek district, in Arizona. A. S. Lewis. il map Eng & Min J 110:713-16 O 9 '20; Discussion. R. T. Sill. 110:895 N 6 '20
- Ore deposits of Mexico. S. J. Lewis. maps Min & Sci P 120:412-20, 443-50, 933-9; 121:16-20, 375-83, 521-8 Mr 20-27, Je 26-Jl 3, S 11, O 9 '20
- Ore deposits of the Mogollon district. D. B. Scott. il diags map Min & Met 158:(sec 33) 1-22 F '20
- Ore deposits of Utah. B. S. Butler and others. il diags maps U S Geol S Prof Pa 111:1-672 '20
- Ore of the Almadén mine. F. L. Ransome. Econ Geol 16:313-21 Je '21
- Primary (hypogene) sulphate minerals in ore deposits. B. S. Butler. diag Econ Geol 14:581-609 D '19
- Recent work on Archæan sulphide ores in Fenno-Scandia. P. Geijer. Econ Geol 16:279-88 Je '21
- Revival of the Colquechaca silver-tin district, in Bolivia. J. T. Singewald, jr. il map Eng & Min J 110:763-7 O 16 '20
- Salmon river mining district. C. E. Prior. il Min & Sci P 121:518-20 O 9 '20
- Some Canadian occurrences of pyritic deposits in metamorphic rocks. G. Hanson. il map plan Econ Geol 15:574-609 N '20
- Some unique Bolivian tungsten deposits. F. L. Hess. il Eng & Min J 112:492-9 S 24 '21
- Spassky and Atbasar copper mines in Siberia. J. M. Bell. il maps Min & Sci P 120:765-9, 825-9 My 22, Je 5 '20
- Tin mines of the Quimsa Cruz range in Bolivia. J. T. Singewald, jr. il maps Eng & Min J 110:986-90 N 20 '20
- Tungsten deposits of Burma and their origin. J. M. Campbell. Econ Geol 15:511-34 S '20
- Unusual copper-lead deposit. W. L. Uglow. il diags map Min & Sci P 123:197-9 Ag 6 '21
- Vein filling at Bendigo, Victoria. W. Lindgren. il Econ Geol 15:312-14 Je '20; Discussion. F. L. Stillwell. 16:153-9 Mr '21
- Veins of Cobalt, Ontario. W. L. Whitehead. il diags map Econ Geol 15:103-35 Mr '20
- See also* Geology; Mines and mineral resources; Ores; also special ores, e.g. Copper Ores, Gold ores, Iron ores, Lead ores
- Ore docks**
- Enlarged fleet of ore boats plying Hudson; all-water route for iron ore from Port Henry to New York harbor. il diags Iron Age 105:4-6 Ja 1 '20
- Ore loading docks on the Great Lakes; table. Ry Age 104:1211 D 19 '19
- Relative economy of wood, steel and concrete for ore docks. Eng N 85:922 N 11 '20
- See also* Ore handling
- Ore dressing.** *See* Ore treatment
- Ore handling**
- Bulk-cargo handling on the Atlantic coast. H. N. Turnbull. il Coal Age 18:394-6 Ag 19 '20; Same. Iron Age 106:385-7 Ag 12 '20; Same. Blast F & Steel Pl 8:521-2 S '20; Same. Marine R 50:525-7 S '20; Same. Int Marine Eng 25:740-3 S '20; Same cond. Iron Tr R 67:522-3 Ag 19 '20
- Car-loading grating. W. S. Evans. diags plan Min & Sci P 120:534-5 Ap 10 '20
- Handling ore on the docks. Sci Am 122:104 Ja 24 '20
- Improvements in transportation and handling of iron ore. J. G. Butler, jr. Ry R 66:780-1 My 8 '20
- Mechanical ore handling plant at the Gartscherrie ironworks, Coatbridge. G. F. Zimmer. il diags plans Eng & Ind Management 5:53-9 Ja 13 '21
- Stocking ore to fit an emergency. il Iron Tr R 67:659-60 S 2 '20
- See also* Chutes; Ore docks
- Ore sampling**
- Calculation of ore tonnage and grade from drill-hole samples. J. E. Harding. Min & Met 168:39 D '20
- Combination method of mine sampling. S. F. Shaw. Min & Sci P 120:629-30 My 1 '20

- Combination method of mine-sampling. M. Webber. Min & Sci P 120:303-6 F 28 '20
- Cornwall automatic sampler. F. W. Foote. diag plan Eng & Min J 109:1308 Je 12 '20
- Examination of mill returns. D. Lay. Eng & Min J 109:847-8 Ap 10 '20
- Factors to be considered in interpretation of prospect-drilling results. H. C. George. diags Min & Met 170:15-16 F '21
- Methods of ore-sampling in Montana. H. B. Pulsifer. il diags Min & Sci P 121:866-70, 907-12 D 18-25 '20
- Mine-sampling. W. H. Wagner. il map Min & Sci P 120:451-3 Mr 27 '20
- Mine sampling methods at Tyrone, N.M. B. G. Anderson. Eng & Min J 112:531-5 O 1 '21
- New mechanical sample mixer. diags Eng & Min J 109:882 Ap 10 '20
- Sampling and estimation of quicksilver ore. C. N. Schuette. diags Min & Sci P 122:293-5 F 26 '21
- Sampling churn drill holes. W. F. Boericke. chart Eng & Min J 109:66 Ja 10 '20
- Sampling of mines. H. R. Sleeman. Min & Sci P 121:405-7 S 18 '20
- Sundry details of sampling at the Garfield smelter. A. B. Parsons. il diags Min & Sci P 122:17-22 Ja 1 '21
- Systematizing large mine examinations. M. Webber. Min & Sci P 121:233-7 Ag 14 '20
- Ore sorting.** *See* Ore treatment
- Ore testing**
- Ore-testing at Golden, Colorado; three arrangements under which its metallurgical testing plant may be used by the public. Min & Sci P 122:194 F 5 '21
- Testing ores for flotation. J. M. Hyde. il diags Min & Sci P 121:481-6 O 2 '20
- Two-minute qualitative test for lead. E. C. D. Marriage. Eng & Min J 111:1031 Je 18 '21
- See also* Assaying; Metallurgical analysis; Ore sampling
- Ore transportation**
- Design of ore fleet for upper Mississippi. W. S. Mitchell. diags plans Mech Eng 42:379-82 Jl '20
- Disagree on ore shipping pool. Iron Tr R 66:1525 My 27 '20
- Enlarged fleet of ore boats plying Hudson; all-water route for iron ore from Port Henry to New York harbor. il diags Iron Age 105:4-6 Ja 1 '20
- Huge ore and oil carrier, Marore and Steelore. diags Marine R 51:160-2 Ap '21; Same. Iron Tr R 68:972-3 Ap 7 '21
- Jones & Laughlin propose prorating proposed rail advance between Northern and Southern lines to maintain competitive balance between lake and interior furnaces. Iron Tr R 66:1741-2 Je 17 '20
- Law makes rate cut difficult. Iron Tr R 68:1184 Ap 28 '21
- Methods in the Northwest that impressed the coal men of the A.I.M.E. R. D. Hall. il Coal Age 18:575-81 S 16 '20
- Ore and coal carriers Chilore and Lebores. diags Marine Eng 26:364-7+ My '21
- Ore and oil steamers Marore and Steelore. diags plans Marine Eng 26:283-9 Ap '21
- Ore car capacity increased 50 per cent. il Iron Tr R 68:290-1 Ja 27 '21
- Ore movement makes good showing. Iron Age 107:48-50 Ja 6 '21
- Roads win huge rate increase. Iron Tr R 67:364-6 Ag 5 '20
- See also* Mine haulage; Ore handling
- Ore treatment**
- Application of the Bradford solution process to mixed sulphide concentrates. W. D. Green and W. Fagergren. Min & Sci P 121:455-8 S 25 '20
- Approximate quantitative microscopy of pulverized ores, including the use of the camera lucida. W. H. Coghill and J. P. Bonardi. bibliog il U S Bur Mines Tech Pa 211:1-17 '19
- Arizona silver mines mill. F. Borzynski. flow sheet diag Min & Sci P 122:717-18 My 21 '21

Ore treatment—Continued

- Bunker Hill enterprise. T. A. Rickard. flow sheets il diags Min & Sci P 120:485-93, 525-30 Ap 3-10 '20
- Bunker Hill smelter. T. A. Rickard. il diags plan Min & Sci P 122:42-60 Ja 8 '21
- Comments on cyanidation and on progress in gold (and silver) ore treatment, 1920. A. James. Eng & Min J 111:102-4, 199-201 Ja 15-22 '21
- Concentration of magnetite ore. Min & Sci P 121:122 JI 24 '20
- Crushed ore feeder which is economical of head room. H. A. Linke. diags Eng & Min J 111:63 Ja 8 '21
- Crushing, grinding, and agitation of Tonopah ores. H. A. Burk. Min & Met 172:22-4 Ap '21
- Developing a mill flow sheet at Morenci, Ariz. A. Crowfoot and E. Wittenau. flow sheets Eng & Min J 109:1349-54 Je 19 '20
- Development of a vibrating screen. B. A. Mitchell and G. B. Rosenblatt. il diag Min & Sci P 122:419-22 Mr 26 '21
- Dewatering coarse concentrates. Eng & Min J 110:404 Ag 28 '20
- Economics of ore concentration. R. T. Hancock. Eng & Min J 109:841-4 Ap 10 '20
- Electrical equipment of the mill. B. B. Beckett. Eng & Min J 109:849-52 Ap 10 '20
- Feed and product size diagram. G. J. Young. Eng & Min J 110:119 JI 17 '20
- Fresnillo mine and mill, Zacatecas, Mexico. W. J. Cox. Min & Sci P 121:764 N 27 '20
- Future of the Lake Superior district as an iron ore producer. E. W. Davis. Iron Tr R 67:301-4 JI 29 '20
- Improved methods of ore dressing graphite ores. C. Spearman. Chem & Met Eng 22:521 Mr 17 '20
- Magnetic separation of bismuth, tin, and tungsten concentrates in Tasmania. W. E. Hitchcock and J. R. Pound. Min & Sci P 120:379-82 Mr 13 '20
- Milling plant of the Alaska-Gastineau mining co. E. V. Daveler. flow sheets Min & Met 157:(sec 11) 1-18 Ja '20; Same abr. Chem & Met Eng 22:361-5 F 25 '20
- Milling practice at the Benguet Consolidated mine. C. M. Eye and M. F. Dodd. flow sheet il Min & Sci P 121:805-10, 841-6 D 4-11 '20
- Milling talc. Min & Sci P 121:738 N 20 '20
- Mine and flotation-plant of the American graphite company, near Ticonderoga, New York. C. E. Chaffin. flow sheet il Min & Sci P 120:567-9 Ap 17 '20
- Miner's dump-heap goes to work. M. A. Henry. il Sci Am 125A:55-6 N '21
- Mining and milling of fluorspar. J. M. Blayney, jr. il Eng & Min J 111:222-5 Ja 29 '21
- Mining and milling tin-tungsten ore in Tasmania. W. E. Hitchcock and J. R. Pound. Min & Sci P 120:229-31 F 14 '20
- Modification of Horwood's process for the treatment of copper-zinc ores. H. L. Hazen. Min & Sci P 120:455-6 Mr 27 '20
- Nevada consolidated copper co.; concentration of the ore. A. B. Parsons. flow sheets il diag plan Min & Sci P 123:319-31 S 3 '21
- New Copper Queen concentrator, at Bisbee. J. B. Trimble, jr. flow sheet il Eng & Min J 111:1079-81 Je 25 '21
- New machine for concentrating Minnesota wash ores. E. W. Davis. il diags Minn U Sch Mines Bul 6:1-32 '19
- New Modderfontein mill. Min & Sci P 120:789-90 My 29 '20
- Preliminary roughing concentration by sorting, jigging, and tabling. E. S. Wiard. Eng & Min J 112:326-30, 369-73, 411-17 Ag 27-S 10 '21
- Les principes de la préparation mécanique des minerais. plan Génie Civil 79:106-8 JI 30 '21
- Recent metallurgy at Trail, British Columbia. F. H. Mason. flow sheet il Min & Sci P 120:863-8 Je 12 '20
- Recent progress in ore dressing. E. H. Robie. Eng & Min J 109:200-2 Ja 17 '20
- Refining and precipitation in the Tonopah district of Nevada. F. C. Ninnis and W. W. Anderson. Min & Met 172:25-6 Ap '21

Repogle iron mine near Wharton, N. J. A. H. Hubbell. flow sheets il Eng & Min J 110:658-64 O 2 '20

Rifle system for tabling complex ore. diag Eng & Min J 111:788 My 7 '21

Sunnyside mining and milling co. il Eng & Min J 109:838-9 Ap 10 '20

Swansea mill, Arizona. F. Le R. Thurmond. Min & Sci P 120:606 Ap 24 '20

Treatment given the gold-silver ore of the Juniper mine, at Hayden Hill, California. G. W. Gilman. Min & Sci P 123:565 O 22 '21

See also Chloridizing processes; Classifiers; Copper metallurgy; Crushing; Crushing machinery; Cyanide process; Dewatering machine; Electrometallurgy; Filters and filtration (metallurgy); Flotation process; Gold metallurgy; Gold milling; Hydrometallurgy; Iron metallurgy; Lead metallurgy; Magnetic separation of ores; Metallurgical plants; Metallurgy; Screening; Silver metallurgy; Sintering; Smelting; Tailings; Tube mills; Zinc metallurgy

Ore valuation

Curves for ore-valuation. K. K. Hood. Min & Sci P 121:270-2 Ag 21 '20

Valuation of ores and iron-making material. C. H. Ridsdale. Engineering 109:607-9 My 7 '20

See also Mine valuation

Ore washing

Les principes de la préparation mécanique des minerais. plan Génie Civil 79:106-8 JI 30 '21

Oregon

See also Copper mines and mining—Oregon; Gold mines and mining—Oregon; Iron industry and trade—Oregon; Mines and mineral resources—Oregon

Ores

Data of geochemistry. F. W. Clarke. U S Geol S Bul 695:629-720 '20

Ore contracts. C. A. Grabill. Eng & Min J 108:806-13, 859-65 N 22-D 6 '19

Uncommon ores and metals. H. C. Meyer. Eng & Min J 109:233-4 Ja 17 '20

Uncommon ores and metals in 1920. H. C. Meyer. Eng & Min J 111:150-1 Ja 22 '21

See also Carnotite; Copper ores; Geology; Iron ores; Lead ores; Metallurgy; Metals; Mineralogy; Mines and mineral resources; Ore deposits; Ore sampling; Ore treatment

Organic acids. *See* Acids, Organic

Organization in industry

Arranging functions to fix responsibility. A. Whitehead. Engineering 110:172-4, 204-6, 236-7 Ag 6-20 '20

Charting the organization. G. G. Munn. chart Administration 1:293-8 Mr '21

Control of function in industry. Eng & Ind Management 5:597-9 My 26 '21

Elements of successful organization. B. A. Franklin. Ind Management 61:240-5 Ap 1 '21

Functions of organized committees. T. Williams. charts Administration 2:295-304 S '21

Gas engine builders hear plea for organization. Automotive Ind 43:580-1 S 16 '20

Getting executive leadership. W. R. Basset. Am Mach 54:492-6 Mr 24 '21

How one big advertiser handles its branch organization; the Glidden plan. O. A. Hasse. Ptr Ink 115:3-4+ Ap 28 '21

How to develop executive ability. J. H. Van Deventer. plan Ind Management 60:260-4 O '20

How to lay out an employment department building. R. Waldo. chart plans Ind Management 61:215-17 Mr 1 '21

Industrial organization applied to shipyard management. N. Howard. il plan Ind Management 59:492-5 Je '20

Job for every man; how the Locomobile company of America in Philadelphia has organized its business. charts Motor Age 37:16-17 F 19 '20

Organization in industry—Continued

- Laws of industrial organization. C. E. Knoeppel. *Ind Management* 58:265-8, 381-3, 494-8; 59:43-7, 145-8, 184-91 O-D '19, Ja-Mr '20
- Laying the cards on the table. F. H. Colvin. *Am Mach* 53:531-3 S 16 '20
- Long march of industrial relations; three employees to be elected to the directorship of Proctor & Gamble. *Automotive Ind* 43:732-3 O 7 '20
- Maintenance-department methods—organization and scope. H. E. Collins. *Power* 53:464-8 Mr 22 '21
- Man building versus man destroying organization. G. S. Small. *Ind Management* 61:299-302 Ap 1 '21
- More about organization. J. B. M. Clark, jr. *Ind Management* 62:229-31 O '21
- Most effective type of industrial organization. C. E. Knoeppel. *Ind Management* 60:61-5 Jl '20
- Natural organization. G. A. Galliver. *Paper* 27:11-14+ Ja 26 '21
- Organization. W. A. Darter. *Power Pl Eng* 25:572-3 Je 1 '21
- Organization as applied to industrial problems. H. T. Wright. 268p C. Griffin & co., Ltd., London '20
- Organization chart for combination electric and gas company. *chart Elec W* 77:496 F 26 '21
- Organisation des entreprises. J. Carlioz. *diags Chimie & Ind* 3:244-52 F '20
- L'organisation du travail. C. De Fréminville. *Chimie & Ind* 4:680-5 N '20
- Organization for construction work. R. U. Fitting. *charts Administration* 2:161-6 Ag '21
- Organization is death; an argument against specialization. J. B. M. Clark, jr. *Ind Management* 61:141-3 F 1 '21
- Organization of large contract plants. G. H. Shepard. *diags Mach* 27:1100-3 Ag '21
- Organization of the inspection department. G. S. Radford. *Ind Management* 61:356-60 My 1 '21
- Organization plan that typifies modern management. S. H. Bullard. *Ind Management* 60:441-4 D 1 '20
- Practical organization of industry. C. E. Woods. *charts Administration* 1:593-608, 739-58 My-Je '21
- Practical organization principles. G. S. Small. *Ind Management* 61:183-6 Mr 1 '21
- Practical scientific organisation. C. M. Bigelow. *Eng & Ind Management* 5:262-3 Mr 3 '21
- Principles of practical organization. W. C. Jacobs. *charts Administration* 2:493-9 O '21
- Suggested organization and functional chart for an industrial relations or personnel department. L. S. Bitner. *Ind Management* 58:503 D '19; Same. *Min & Met* 162:27 Je '20
- Trend toward decentralization in organization. H. Tipper. *Automotive Ind* 44:670-1 Mr 24 '21
- Uses and abuses of organization and associations. H. Tipper. *Automotive Ind* 44:972-3 My 5 '21
- White motor company labor policy worth serious analysis. N. G. Shidle. *chart Automotive Ind* 43:820-4 O 21 '20
- Why we broke the rules of good organization. S. B. Bechtel. *il Factory* 27:171-4 Ag '21
- See also* Efficiency, Industrial; Employment management; Factory management; Industrial councils; Industrial management; *also* Doherty organization

Organs

- Organ pipe as a coupled system. A. T. Jones. *Phys R* 18:118-20 Ag '21
- Organ put up for concerts, then taken down. *il Pop Mech* 36:354-5 S '21
- Two great organs. J. F. Springer. *il Sci Am* 122:428+ Ap 17 '20

Advertising

- To sell the customer you can't get to. R. Cole. *il Ptr Ink M* 2:35-6+ F '21

Orientation

- Instinct of orientation in ants. R. Brun. *diags Sci Am M* 1:51-7 Ja '20

Orientation (architecture)

- Sunlight engineering; its relation to housing and town planning. H. L. Seymour. *Sci Am M* 2:106-8 O '20

Orientite

- Orientite, a new hydrous silicate of manganese and calcium from Cuba. D. F. Hewett and E. V. Shannon. *il diags Am J Sci 5th ser* 1:491-506 Je '21

Orifice meters. See Flow meters**Orifices**

- Calibration of circular orifices under high heads. F. W. Greve. *Eng N* 86:24-5 Ja 6 '21
- Functions of the orifice in steam and water heating. S. H. Woodbridge. *charts diags plan Heat & Ven* 17:29-32 D '20; 18:30-3 Ja; 34-7, 49 Mr '21
- Solution of orifice problems by logarithmic equations. F. W. Greve. *Eng & Contr* 56:28 Jl 13 '21

Originality

- Can originality be taught? H. P. Gillette. *Eng & Contr* 53:5-6 Ja 7 '20

Orinoka mills. See Drapery—Advertising**Ornithopter**

- Application of theory to ornithopters; the action of the flapping wing. H. Chatley. *Aeronautical J* 25:497-502 S '21
- Ornithopter being tried. *Aerial Age* 12:533 Ja 31 '21
- Problem of flapping flight. H. Chatley. *diags Aeronautical J* 25:492-7 S '21
- See also* Helicopter

Ornstein process. See Water purification—Patents**Orogeny. See** Mountains**Orphanages**

- Carson college for orphan girls at Flourtown near Philadelphia. A. W. Colton. *il plans Arch Rec* 50:2-25 Jl '21
- Modernly planned orphanage. H. C. Whitehouse. *il diags plans Arch Forum* 33:205-10 D '20
- Work of Holabird & Roche, architects. *il plans Am Arch* 118:165-72, pl 182a-c Ag 11 '20

Orpheum circuit, inc.

- Official statement to the New York stock exchange in connection with the listing of its preferred stock and common stock. *Comm & Fin Chr* 111:1092-5 S 11 '20

Orrok, George A., 1867-

- Expert in the design of large power stations. *por Power* 52:223-4 Ag 10 '20

Orthochromatic photography. See Photography. Orthochromatic**Orthoform-new**

- Some derivatives of 3-nitro-4-hydroxy-benzyl alcohol. J. B. Fishman. *Am Chem Soc J* 42:2298 N '20

Orthopedic apparatus

- Improvised orthopedic exercising apparatus. R. S. Reich. *il Sci Am M* 1:4-5 Ja '20
- Motor driven gymnastic apparatus brings limberness to stiff joints. *il Pop Mech* 36:26 Jl '21

See also Artificial limbs

Osborne, Loyall Allen, 1870-

- Portrait. *Elec W* 78:402 Ag 27 '21

Oscillations

- Damped electric oscillations. R. B. Abbott. *diags Phys R* 17:482-92 Ap '21
- Electric oscillations in straight wires and solenoids; abstracts. J. S. Townsend and J. H. Morrell. *diags Inst E E J* 59:771-5 Jl '21; *Philos Mag* 6th ser 42:265-78 Ag '21; Discussion. *Inst E E J* 59:775-9 Jl '21
- Form of free triode vibrations. E. V. Appleton and B. van der Pol. *diags Philos Mag* 6th ser 42:201-20 Ag '21
- Production of continuous oscillations in circuits which contain capacities of high value. J. Scott-Taggart. *diags Elec R (Lond)* 88:7-8 Ja 7 '21

Oscillations—Continued

Self-oscillations and critical frequency in single-layer coils; abstract. Elec W 76:1081 N 27 '20

Theory of linear-sinoidal oscillations. H: G. Cordes. diags Wash U Eng Exp Sta Bul 11:179-201 O '20

Theory of the oscillations in three coupled electric circuits. L. C. Jackson. Philos Mag 6th ser 42:35-46 J1 '21

Oscillators

Audion oscillator. R. A. Heising. diags Am Inst E E J 39:365-76, 471-84 Ap-May '20

High voltage research equipment; oscillator. H. J. Ryan. J Elec 45:560-1 D 15 '20

Improved oscillator. diags Wireless Age 7: 26 S '20

Oscillographs

New portable oscillograph as applied to commercial work. J. W. Legg. il Elec J 17:563-7 D '20; Abstract. Sci Am M 3:279 Mr '21

Oscillograms and their tests. A. E. Kennelly, R. N. Hunter and A. A. Prior. il diags Am Inst E E J 39:143-5 F '20

Portable oscillograph. J. W. Legg. il Am Inst E E J 39:674-9 J1 '20

Oscillophore

Blood vibrations determine parentage; the oscillophore. A. Abrams. diag Pop Mech 36:9-10 J1 '21

Osiers. See Willow, Basket

Osmiridium

Osmiridium production in Tasmania. Eng & Min J 110:216 J1 31 '20; Same. Min & Sci P 121:240 Ag 14 '20

Osmium

See also Platinum group

Osmosis

Anomalous osmose of some solutions of electrolytes with gold-beaters skin membranes. F. E. Bartell and O. E. Madison. bibliog diags J Phys Chem 24:444-65 Je '20

Anomalous osmosis with gold beaters skin membranes, chloride solutions in the presence of acids and bases. F. E. Bartell and O. E. Madison. diags J Phys Chem 24:593-607 N '20

Commercial application of electrical osmosis. J. S. Highfield, W. R. Ormandy and D. Northall-Laurie. Engineer 129:549 My 28 '20

Commercial applications of electrical osmosis. Eng & Ind Management 6:212-14 Ag 25 '21

Industrial electrosmosis. F. Rowlinson. Sci Am M 4:60 J1 '21

Osmosis and swelling of gelatin. C. R. Smith. Am Chem Soc J 43:1350-66 Je '21

Osmotic concentration and electrical conductivity of the tissue fluids of ligneous and herbaceous plants. J. A. Harris, R. A. Gortner and J. V. Lawrence. J Phys Chem 25:122-46 F '21

See also Solution (chemistry)

Ostia, Italy

New port for Rome; ancient harbors of Ostia and Porto on the Tiber. A. A. Hopkins. il map plan Sci Am M 3:442-5 My '21

Ostrich feathers

Evolution of ostrich plumes. Sci Am S 88:305 N 22 '19

Oswego, New York**Water supply**

Improvement of Oswego's water supply. Pub Works 49:234 S 11 '20

Otis elevator company

Abstract of statement to New York stock exchange in connection with the listing of its six per cent non-cumulative preferred stock and common stock. Comm & Fin Chr 110:1759-61 Ap 24 '20

Otoba butter

Analysis of otoba butter. W. F. Baughman, G. S. Jamieson and D. H. Brauns. Am Chem Soc J 43:199-204 Ja '21

Ottawa**Parliament buildings**

Canada's new Parliament buildings. J. H. Armstrong. il Sci Am 124:228+ Mr 19 '21

Construction of Parliament buildings, Ottawa. F. D. Withrow. il diag Can Eng 39:253-5 Ag 19 '20

Ottawa river

Upper Ottawa river storage; its value and possibilities. A. Langlois. Can Eng 39: 460-1 O 21 '20

Otters. See Paravanes

Ottumwa, Iowa

Rapid transit

Ottumwa case unusual. Elec Ry J 57:1185 Je 25 '21

Our country first conference

Special conference, Chicago, Sept. 8-9. Metal Work 92:406-8 O 3 '19

Outdoor advertising association

Reconstruction of methods advocated at outdoor convention. Ptr Ink 112:50+ S 30 '20

Outdoor generating station. See Hydroelectric plants

Outdoor life

Appalachian trail; a project in regional planning. B. Mackaye. map Am Inst Arch J 9: 325-30 O '21

Out-of-door education for the chemist. H. W. Jordan. J Ind & Eng Chem 13:731-2 Ag '21

Ovens

See Coke ovens; Electric ovens; Gas ovens; Kilns

Overall clubs. See Clothing—Cost

Overalls**Advertising**

This firm's advertising capitalizes its unusual salesman. C. M. Harrison. Ptr Ink 113: 73-4+ N 4 '20

Overcoats

Overcoating fabric of merit. Textile World 59:25+ Ja 1 '21

Plaid black woolen overcoating. Textile World 59:1739+ Mr 5 '21

Overhead expense

Burden absorption for administrative control. A. L. Hamburger. Administration 2:325-9 S '21

Conditions National trade extension bureau found in one of the large cities. Heat & Ven 17:45-6 O '20

Correct allocation of on-costs. H. Varley. Eng & Ind Management 6:241-2 S 1 '21

Cost systems stabilize overhead. E. W. McCullough. Iron Tr R 68:1043-5 Ap 14 '21

Departmentalizing the overhead expense. W. R. Basset. Am Mach 54:99-103 Ja 20 '21

Distributing overhead expense by the machine hour rate method. C. Haigh. Automotive Ind 44:172-5 Ja 27 '21

Distribution of overhead expense. Am Mach 54:561 Mr 31 '21

Factory costs and overhead. F. E. Seeley. diag Am Gas Assn Manufacturers' sec v 1: 95-105; Discussion. 105-16 '19

Handling overhead—a plan that avoids red tape. S. P. Keator. Factory 24:1343-6 My 1 '20

Handling overhead by underhand methods. G. W. Greenwood. Brick & Clay Rec 59: 33-4 J1 12 '21

How to distribute overhead expenses. Plumber 95:310-12 My 20 '21

How to find costs by proper distribution of overhead expense. F. H. Elwell. Paper 26: 13-15+ My 26 '20

Include overhead expense in wage charge. Metal Work 94:214 Ag 13 '20

Modern production methods; getting the overhead into the finished product. W. R. Bassett. Am Mach 54:858-63 My 19 '21

One way to account for non-productive labor. il Factory 24:66-7 Ja '20

Overhead and cost systems of Illinois shops. G. Harms. Sheet Metal Worker 12:220+ Ap 29 '21

Overhead expense demonstration. E. L. Seabrook. Dom Eng 94:23 Ja 1 '21

Overhead expenses. E. W. McCullough. Chem Age 29:115-17 Mr '21

Overhead expense—Continued

Problem of overhead in the repair shop. L. W. Alwyn-Schmidt. *Mach* 26:1161-2 Ag '20

Treatment of overhead when production is below normal. C. B. Williams. *J Account* 31:336-42 My '21

When machines are idle; a dozen answers to the question, "Who pays overhead in dull periods?" *Factory* 26:947-52 Ap 15 '21

See also Cost accounting

Overpotential. *See* Overvoltage

Overshoes

Making arctics by machinery. *il India Rubber W* 61:205-6 Ja '20

Save shoes by wearing rubbers, says advertiser. *il Ptr Ink* 110:44+ Ja 29 '20

Overtime

La formule rationnelle du salaire des heures supplémentaires. *Génie Civil* 77:259-60 S 25 '20

Labor board settles overtime controversy. *Ry Mech Eng* 95:559-61 S '21; *Same abr. Ry Age* 71:419-21 Ag 27 '21

Overtime in the engineering trades. *Engineer* 130:352 O 8 '20

Practice regarding the payment of punitive overtime rates. L. Magnusson. *Monthly Labor R* 10:703-11 Mr '20

Overvoltage

Chlorine overvoltages. E. Newbery. *Chem Soc J* 119:477-86 Ap '21

Effect of an alternating current on hydrogen overvoltage. H. M. Goodwin and M. Knobel. *diags Am Electrochem Soc Trans v* 37 (preprint 36):553-75 Ap '20

Effect of pressure on overvoltage. H. M. Goodwin and L. A. Wilson. *diags Am Electrochem Soc Trans v* 40 (preprint 28):365-76 S '21

Hydrogen overvoltage. D. A. MacInnes. *diag Am Chem Soc J* 42:2233-8 N '20

Hydrogen overvoltage. E. Newbery. *Am Chem Soc J* 42:2007-11 O '20

Overpotential and catalytic activity. E. K. Rideal. *Am Chem Soc J* 42:94-105 Ja '20

Overvoltage; a comparison of the methods of determination, especially as applied to the mercury cathode. S. Dunnill. *Chem Soc J* 119:1081-8 Jl '21

Owens lake

Salts-refining plants at Owens and Searles lakes. L. W. Chapman. *il map Chem & Met Eng* 24:683-8 Ap 20 '21

Oxalic acid

Aqueous pressure of some hydrated crystals; oxalic acid, strontium chloride and sodium sulfate. G. P. Baxter and J. E. Lansing. *Am Chem Soc J* 42:419-26 Mr '20

Color test for oxalic acid. L. H. Chernoff. *Am Chem Soc J* 42:1784-5 S '20

Oxalyl bromide

Use of oxalyl chloride and bromide for producing acid chlorides, acid bromides or acid anhydrides. R. Adams and L. H. Ulich. *Am Chem Soc J* 42:599-611 Mr '20

Oxalyl chloride

Oxalyl chloride; Friedel and Crafts' reaction with oxalyl chloride. H. Staudinger, E. Schlenker and H. Goldstein. *Chem Soc J* 120 pt 1:432-5 Je '21

Use of oxalyl chloride and bromide for producing acid chlorides, acid bromides or acid anhydrides. R. Adams and L. H. Ulich. *Am Chem Soc J* 42:599-611 Mr '20

Oxidation

Catalyst for the oxidation of ammonia. G. A. Perley. *Chem & Met Eng* 22:125-9 Ja 21 '20

Catalytic action of copper salts on the oxidation of ferrous compounds; abstract. L. Maquenne and E. Demoussy. *Chem & Met Eng* 23:538 S 15 '20

Catalytic oxidation; benzene. J. M. Weiss and C. R. Downs. *J Ind & Eng Chem* 12:228-32 Mr '20

Catalytic oxidation of ferrous salts in acid solutions. R. Thomas and E. T. Williams. *Chem Soc J* 119:749-58 My '21

Commercial oxidation of ammonia. G. A. Perley. *il J Ind & Eng Chem* 12:5-16, 119-29 Ja-F '20

Mechanism of the oxydation of drying oils as elucidated by a study of the true oxygen absorption. S. Coffey. *Chem Soc J* 119:1152-61, 1409-15 Jl, S '21

Oxidation and reduction of hydroquinone and quinone from the standpoint of electromotive-force measurements. F. S. Granger and J. M. Nelson. *Am Chem Soc J* 43: 1401-15 Jl '21

Oxidizing copper fronts of shops. *Metal Work* 92:574-5 N 14 '19

Oxidizing oils; patent. *Chem & Met Eng* 23: 1182 D 15 '20

Oxydative katalytische dehydrierung von alcoholen. F. Zetzsche. *Deutsche Chem Gesell Ber* 54:1092-8 My '21

Über die oxydation *meta*-substituierter *o*-amino-phenole. K. v. Auwers, E. Borsche and R. Weller. *Deutsche Chem Gesell Ber* 54:1291-1316 Je '21; *Abstract. Chem Soc J* 120 pt 1:571-3 Ag '21

See also Peroxides

Oxides

Allotropic varieties of oxides. *Chem & Met Eng* 25:120 Jl 20 '21

Hydrous oxides. H. B. Weiser. *J Phys Chem* 24:277-328, 505-38 Ap, O '20

Luminescence of certain oxides sublimed in the electric arc. E. L. Nichols and D. T. Wilber. *diags Phys R* 17:707-17 Je '21

See also Peroxides

Oximes

Structural isomerism of the oximes; a fourth benzildioxime. F. W. Atack and L. Whin-yates. *Chem Soc J* 119:1184-8 Jl '21

Structural isomerism of the oximes; criticism of the Hantzsch-Werner hypothesis and a new theory of the constitution of isomeric oximes. F. W. Atack. *Chem Soc J* 119:1175-84 Jl '21

Oxyacetylene flame

Acetylene torch under water saves ship. *il Pop Mech* 35:686 My '21

Autogenous welding: what it is and how it is applied; study of torch flame. *il Motor Age* 38:34 Ag 26 '20

Cut-weld type-J oxy-acetylene torch. *il Am Mach* 55:489 S 22 '21

Cutting cast iron by oxyacetylene torch. *il Iron Age* 108:951 O 13 '21

Cutting cast iron with the oxygen blowpipe. *il Power Pl Eng* 25:331-2 Mr 15 '21

Cutting off bolts and rivets. *Ry R* 68:792-3 My 21 '21

Davis-Bournonville oxy-acetylene cutting machines. *il diag Engineering* 112:274-5, 307-11, 356-7, pl 14 Ag 19-S 2 '21

Machine for operating cutting torch. *il Iron Age* 106:1666 D 23 '20; *Mach* 27:500 Ja '21; *Gas Age* 47:9-10 Ja 10 '21

Oxyacetylene blowpipe lit under water. *il Pop Mech* 36:254 Ag '21

Oxy-acetylene manhole cutting machine. *il diags Engineering* 109:606 My 7 '20

Oxyacetylene outfit has gas generator. *diag Iron Tr R* 67:1351 N 11 '20

Oxyacetylene process in collieries and shops. C. C. Phelps. *il Coal Age* 16:887-90, 930-3 D 11, 25 '19

Oxyacetylene promptly clears shaft and repairs engine bed after an overwind. C. C. Phelps. *il Coal Age* 17:1131-4 Je 3 '20

Oxy-acetylene welding and cutting at Anaconda. T. W. Cunningham. *Min & Sci P* 122:425-6 Mr 26 '21

Shipbuilding gives great impetus to oxy-acetylene industry. R. Copeland. *il Int Marine Eng* 25:346-7 Ap '20

Stack within a stack is removed by gas cutting. *Pop Mech* 35:654 My '21

War production speed aided by oxy-acetylene cutting. R. R. Browning. *Am Mach* 51:983-4 D 11 '19

See also Welding, Oxyacetylene

Oxyacetylene welding. *See* Welding, Oxyacetylene

Oxycellulose

Unterscheidung von oxy- und hydro-cellulosen durch titration. K. G. Schwalbe and E. Becker. Deutsche Chem Gesell Ber 54: 545-50 Mr '21

Oxygen

Cupric etching effects produced by phosphorus and oxygen in iron. J. H. Whiteley. *il* Engineering 111:628-30 My 20 '21; Abstract. Engineer 131:537 My 20 '21; Discussion. Engineering 111:608-9 My 20 '21; Engineer 131:537 My 20 '21

Determination of oxygen by the copper-ammonia-ammonium chloride reagent. W. L. Badger. *diag* J Ind & Eng Chem 12:161-4 F '20

Determination of the rate of solution of atmospheric nitrogen and oxygen by water. W. E. Adeney and H. G. Becker. Philos Mag 6th ser 42:87-96 Jl '21

Effect of oxygen in cast iron. J. E. Hurst. Foundry 48:236 Mr 15 '20

Equilibrium conditions in the system carbon, iron oxide, and hydrogen in relation to the Ledebur method for determining oxygen in steel. J. R. Cain and L. Adler. *diag* U S Bur Stand Sci Pa 350:353-66 '19

Future of oxygen enrichment of air in metallurgical operations. F. G. Cottrell. Chem & Met Eng 23:53-6 Jl 14 '20; Same cond. Iron Age 105:1791-2 Je 24 '20; Same cond. Iron Tr R 67:312-14 Jl 29 '20; Abstract. Sci Am M 2:253 N '20; Discussion. C. A. Meissner. Iron Age 105:1792-3 Je 24 '20; Same. Iron Tr R 67:314-15 Jl 29 '20

Gas making with cheap oxygen. E. A. W. Jefferies. Am Gas Eng J 114:180-4+ F 26 '21; Same abr. Gas Age 47:145-8 F 25 '21; Discussion. F. C. Freeman. Gas Age 47:150 F 25 '21

Indicators for carbon dioxide and oxygen in air and flue gas. L. H. Milligan, D. O. Crites and W. S. Wilson. *il* diags U S Bur Mines Tech Pa 238:1-22 '20

Is oxygen necessary for animal existence? O. Krummacher. Sci Am M 3:37-8 Ja '21

Oxy-acetylene welding and cutting. L. Balliet. Min & Sci P 122:522-3 Ap 16 '21

Oxygen content by the Ledebur method of acid Bessemer steels deoxidized in various ways. J. R. Cain and E. Pettijohn. *il* *diag* U S Bur Stand Sci Pa 346:259-70 '19

Oxygen in cyanide solutions. E. M. Hamilton. Eng & Min J 110:116 Jl 17 '20

Oxygen in gas production. H. J. Hodsman and J. W. Cobb. Am Gas Eng J 113:5-8, 11-14 Jl 3 '20

Oxygen the prime factor in corrosion. W. D. Richardson. Chem & Met Eng 23:23-8 Jl 7 '20

Problems of the foundry; differing view of metallurgists regarding the effect of oxygen in gray iron. J. Shaw. Foundry 49:759-61 O 1 '21

La production électrolytique de l'hydrogène et de l'oxygène. diags Génie Civil 76:237-8 F 28 '20

Recent developments in oxygen cutting. S. Plumley and F. J. Napolitan. *il* Iron Age 105:1505-6 My 27 '20; Same. Am Mach 53: 173-5 Jl 22 '20; Same. Foundry 48:567-8 Jl 15 '20

Separation of air into oxygen and nitrogen. F. E. Norton. diags Chem & Met Eng 23: 511-18 S 15 '20

Severing metals by oxidation; problems of flame cutting. P. E. Haynes. *il* Sci Am M 3:142-5 F '21

Solid solution of oxygen in iron. J. E. Stead. *il* Iron & Steel Inst J 103:271-5 no 1 '21; Same. Engineering 111:627 My 20 '21; Same. Blast F & Steel Pl 9:359-60 Je '21; Discussion. Iron & Steel Inst J 103:290-302 no 1 '21; Engineering 111:608-9 My 20 '21

Unit oxygen-hydrogen generator. F. C. Perkins. *il* Sci Am 122:140+ F 7 '20

Univalent oxygen; preparation and oxidation of mesitol. C. W. Porter and F. H. Thurber. Am Chem Soc J 43:1194-8 My '21

See also Oxidation; Ozone

Oxygen, Liquid

Blasting with liquid oxygen. S. P. Cortland. *il* Sci Am M 3:333-6 Ap '21

Development of liquid oxygen explosives during the war. G. S. Rice. *il* diags U S Bur Mines Tech Pa 243:1-44 '20; Abstract. Eng & Contr 53:685 Je 16 '20; Abstract. Eng & Min J 110:128-9 Jl 17 '20; Excerpt. Min & Met 166:21 O '20

L'emploi de l'oxygène liquide comme explosif industriel. C. Lormand. *il* diags Chimie & Ind 6:141-8 Ag '21

Liquid oxygen as an explosive. Engineering 110:187 Ag 6 '20

Liquid oxygen as an explosive. A. G. Wolf. Eng & Min J 109:438 F 14 '20; Same. Sci Am M 1:428 My '20

Liquid oxygen explosives. Engineer 131:426-7 Ap 22 '21

Liquid oxygen explosives. Engineering 110: 840-1 D 24 '20

Liquid oxygen ousts powder in Germany. G. S. Rice. Coal Age 18:950 N 4 '20

La préparation de l'oxygène liquide et son emploi comme explosif dans les mines. diags Génie Civil 77:55-6 Jl 17 '20

Relieving the nitrate pressure; the development of liquid oxygen explosives during the war. Sci Am 122:673 Je 19 '20

Oxygen apparatus

High flying in the laboratory. S. R. Winters. *il* Sci Am 122:423 Ap 17 '20

Oxyhydrogen flame

Cutting up German guns; demolition of Kiel armament by oxy-hydrogen torch. C. A. Heise. *il* Iron Age 107:912 Ap 7 '21

Industrial applications of hydrogen; cutting by the oxy-hydrogen process. H. L. Barnitz. *il* *diag* Sci Am M 3:345-6 Ap '21

Oxynaphthoic acid

Anilides of β -oxynaphthoic acid. E. R. Brunskill. J Ind & Eng Chem 13:309 Ap '21

Dyes derived from beta-oxynaphthoic acid and from J-acid, with reference to the chemical foundation patents. A. W. Joyce. J Ind & Eng Chem 13:946-8 O '21

Oxynitrilase

Properties of oxynitrilase. V. K. Kriebel and W. A. Wieland. Am Chem Soc J 43:164-75 Ja '21

Oyster pirates

Motorboats hunt the last pirates of the new world, the oyster thieves. H. H. Dunn. *il* Pop Mech 33:659-63 My '20

Oyster shells

Oyster shell composition for paper. F. J. Baumgardner. Paper 26:14-15 Ap 14 '20

Oyster shells as road surfacing. L. G. Hall. Eng N 87:352 S 1 '21

Oysters

Centrifugal oyster; artificial propagation of oysters using a centrifugal machine. *il* Sci Am 123:523 N 20 '20

Concrete dikes used in oyster culture. C. Gaines. *il* Pop Mech 34:704-5 N '20

Oyster hatchery uses centrifugal force. *il* Pop Mech 34:826 D '20

When oysters are in season; how the raw and canned products are prepared for the markets. S. R. Winters. *il* Sci Am 124:388+ My 14 '21

Ozocerite

Mineral wax; ozocerite as a lubricant. H. Pomeranz. Sci Am M 3:150 F '21

Ozokerite. Min & Sci P 121:309 Ag 28 '20

Ozokerite. See Ozocerite**Ozone**

Advance in air conditioning in school buildings. E. S. Hallett. *diag* plan Am Soc Heat & V E J 26:1-10 Ja '20; Same cond. Heat & Ven 17:25-9 F '20; Excerpts. Sci Am M 1:382 Ap '20; Abstract. Mech Eng 42:244 Ap '20

Blue sky and the optical properties of the air. L. Rayleigh. J Fr Inst 190:755-6 N '20

Industrial applications of ozone. I. Ginsberg. *il* Sci Am M 4:357-60 O '21

On the distribution of ozone in the direct current corona. E. K. Rideal and J. Kunz. *diag* J Phys Chem 24:379-92 My '20

Ozone —Continued

- Oxidation of carbon monoxide by passage with oxygen or air through the silent discharge and over ozone decomposing catalysts. A. B. Ray and F. O. Anderegg. diags Am Chem Soc J 43:967-78 My '21
- Ozonator a substitute for ventilator. il Metal Work 92:415-16 O 3 '19
- Ozone. E. K. Rideal. 198p Van Nostrand '20
- Ozone as a disinfectant in water purification. J. W. Ellms. Am Water Works Assn J 7:60-4 Ja '20
- Ozone in the chemical industries. C. H. Jones. il chart diags Chem & Met Eng 22: 805-8 Ap 28 '20
- Present status of ozonation and ozone producing apparatus. il Heat & Ven 18:52-4 O '21
- Significance of odorless concentration of ozone in ventilation. E. S. Hallett. Am Soc Heat & V E J 26:423-5 My '20; Same. Heat & Ven 17:39-40 Je '20; Discussion. Am Soc Heat & V E J 26:555-6 Jl '20
- Some practical experiences with ozone. Heat & Ven 18:38-40 S '21

P**Pacific claim agents' association**

- Annual meeting, San Diego, Sept. 22-24. Elec Ry J 56:1197-9 D 11 '20

Pacific coast

- Power needs on the Pacific coast. F. H. Fowler. Elec W 76:873-4 O 30 '20
- Power problems of the Pacific coast. C: H. Bromley. il Power 51:701-8 My 4 '20
- West a factor in world-wide industry. E. S. Carman. J Elec 46:195 F 15 '21

See also California; Electric industries—Pacific coast

Pacific coast gas association

- 1st get-together dinner for the season of 1921. W. M. Henderson. Am Gas J 114:sup17-18 Mr 5 '21; Same. Gas Age 47:204-5 Mr 10 '21
- 27th annual convention, Portland, Ore., Sept. 21-24. Gas Age 46:303-6 O 25 '20

Pacific development corporation

- 3d annual report. Comm & Fin Chr 111: 599-600 Ag 7 '20

Pacific gas and electric company, San Francisco

- 14th annual report. Comm & Fin Chr 111:86-90 Jl 3 '20
- 15th annual report for 1920. Comm & Fin Chr 112:2767-71 Je 25 '21
- Statement for 10 months ended Oct. 31 1920. Comm & Fin Chr 111:2516-17 D 25 '20
- Western utility is the second largest in United States. J Elec 47:56 Jl 15 '21

Pacific ocean

- Scientific survey of the Pacific formulated by the first Pan-Pacific scientific congress, Honolulu, Aug. 2-20, 1920. C. Wissler. Sci Am M 2:268-70 N '20

Pacific service employees' association

- Meeting, San Francisco, Sept. 14. N E L A Bul 7:914-15 D '20

Pacific steamship company

- H. F. Alexander who learned shipping, heads a huge line. A. M. Sutton. System 39:207-9 F '21

Package goods

- Fewer sizes aid selling as well as manufacturing. D. MacLean. Ptr Ink 116:109-11 Jl 28 '21
- Getting the consumer to expand his buying units; combination packages. W. Perry. il Ptr Ink M 3:39-40+ Ag '21
- Let 'em see the goods they're going to buy! A. L. Townsend. Ptr Ink 116:105-6 S 1 '21
- Package that shows the use of the product. C. B. Larrabee. il Ptr Ink M 3:24+ N '21

Package tying machine

- Bunn package tying machine. il Textile World 57:2821 Ap 17 '20

Package wrapping machine

- Creating a market by setting people up in business. R. Cole. Ptr Ink 111:3-4+ My 13 '20

Packages

- See* Containers; Package goods; Package tying machine; Package wrapping machine

Packard motor car company, Detroit, Michigan

- Programs of apprenticeship and special training in representative corporations; Packard motor car co., Detroit. J. V. L. Morris. il Am Mach 54:778-9 My 5 '21
- Sending all our executives to school to learn team-work. F. F. Beall. Factory 24:431-6 F 15 '20

Packets. See Steamboats**Packing**

- Ammonia compressor-rod packing. W. H. Motz. diags Power 53:543-5 Ap 5 '21
- Babbitt packing for steam joints. L. E. Fetter. Pop Mech 34:448-9 S '20
- Care of metallic packings. C: C. Hall. Paper 28:17-18 Ap 13 '21
- Cost of packing friction. S. C. Horst. Power Pl Eng 24:853 S 1 '20
- Cup-leather packing for pump plungers. A. J. Dixon. diag Power 53:552 Ap 5 '21
- How efficient is your packing? W. F. Schaphorst. Power Pl Eng 24:794-5 Ag 15 '20
- Increasing the efficiency of piston rod and throttle packing. F. Roberts. diags Ry Mech Eng 95:520 Ag '21
- Journal packing reclamation. il Ry Mech Eng 95:104 F '21
- Operation and adjustment of turbine machinery. E. H. Thompson. diags Power 52:389-90, 469-70, 539-41, 616-17 S 7, 21, O 5, 19 '20
- Packing expansion joints. A. C. McHugh. Power 52:1027 D 28 '20
- Packing kinks. H. Johnson. diag Power Pl Eng 25:925-6 S 15 '21
- Periodical repacking of journal boxes. A. R. A. rule 66. Ry Mech Eng 94:284 My '20
- Preparation and application of journal box packing. N. McLeod. diags Ry Mech Eng 94:592-4 S '20
- Ring-packed stuffing box for valve stems. diags Ry R 67:482-3 S 25 '20
- Standard method of packing journal boxes. diags Ry R 66:1039-41 Je 19 '20; Same. Elec Ry J 55:1263-5 Je 19 '20; Same, with discussion. Ry Age 68:1807-9 Je 15 '20
- Standard method of packing journal boxes. H. L. Shipman. Ry Mech Eng 94:568 S '20
- Steam-engine operation and maintenance; piston-rod packing. H. Hamkens. diags Power 52:621 O 19 '20
- Steam-turbine shaft glands. J: R. Baker. diags Power 53:881-3 My 31 '21
- Tiptop plastic metallic packing. diags Power 52:864 N 30 '20
- Using metallic packing. D. L. Fagnan. Power Pl Eng 24:1144 D 1 '20

Packing, Absorption tower

- Resistance of absorption tower packing to gas flow. F. C. Zeisberg. Chem & Met Eng 21: 765-7 D 24 '19

Packing, Reaction tower

- Tower packing efficiencies. E. L. Jorgensen. diags Chem & Met Eng 24:741-2 Ap 27 '21

Packing for shipment

- Boxing heavy turret lathes. F. H. Colvin. il diag Am Mach 54:12 Ja 6 '21
- Burlap supplants boxes for shipping. Iron Tr R 66:1410 My 13 '20
- Crating automobiles for export. Sci Am M 3: 81 Ja '21
- Cutting costs in handling, packing and shipping paper. N. P. Winchell, jr. il Paper 26:18-21 My 12 '20
- Cutting the cost of bad packing. E. W. Davidson. il Nation's Business 8:25-7 D '20
- How packing affects distribution of lighting fixtures. F. B. Rae, jr. il Elec R 76:61-2 Ja 10 '20
- Insuring the safe shipment of machinery. F. H. Colvin. il diags Am Mach 53:712-18 O 14 '20
- Making it easy to pack. il Factory 24:1147 Ap 15 '20

Packing for shipment—Continued

- Making shipments pilfer-proof. *il* Factory 24: 634-5 Mr 1 '20
- Mark your package. P. A. Clarke. *il* Ind Management 59:28-30 Ja '20
- Packing for domestic and export shipping. H. N. Knowlton. *il* Am Mach 52:323-6, 829-32 F 12, Ap 15 '20
- Packing for export. C. M. Eye. *il* Min & Sci P 122:255-8 F 19 '21
- Packing for foreign shipments. P. F. O'Shea. Factory 26:1102+ My 1 '21
- Packing service records. Power Pl Eng 24: 1086 N 15 '20
- Perfect package month. Ry Age 71:716-17 O 15 '21
- Practical training course in boxing and crating. *il* Ry R 67:911-12 D 11 '20
- Preparation of goods for transportation and storage. H. N. Knowlton. Gen Elec R 24:369-70 Ap '21
- Preparing shipments for export. H. H. Miller. Iron Tr R 68:154-6 Ja 13 '21
- Shippers study better methods of boxing and crating. Ry R 67:313-14 Ag 28 '20
- See also* Baling (textiles); Boxes; Containers; Eggs—Transportation; Package tying machine; Package wrapping machine; Shipment of goods

Packing houses

- Modern packing house. new ed. rev. and enl. 472p Nickerson & Collins co., Chicago '21
- New Armour plant at Kansas City. *il* diags plan Power 52:966-9 D 21 '20
- New Armour South St Paul plant. *il* diag plans Power 51:48-54 Ja 13 '20
- Packing plant of Armour & company, South St Paul, Minn. Arch & Bldg 52:pl 25-30 Mr '20
- Refrigeration study course; cold-storage and packing-house refrigeration. H. J. Macintire. diags Power 52:855-7 N 30 '20
- See also* Smokehouses

Packing industry

- Adjustment of labor disputes in packing house industries. Monthly Labor R 11:101-5 Jl '20
- Chemist in the packing and allied industries. C. H. MacDowell. Chem Age 29:217-20 Je '21
- Descriptions of occupations: slaughtering and meat packing. 43p '18 U.S. Bureau of labor statistics. Washington, D.C.
- Meat-packing industry contributes too much to fertilizer. L. M. Tolman. Chem & Met Eng 25:437 Ag 31 '21
- Strike of packing employees averted through government mediation. Comm & Fin Chr 112:1233-5 Mr 26 '21
- Value of technical training in the reconstruction of industries. T. E. Wilson. J Ind & Eng Chem 12:941-3 O '20
- Wages and hours of labor in the slaughtering and meat-packing industry in 1921. Monthly Labor R 13:561-3 S '21
- See also* Canned foods; Smokehouses

Accounting

- Armour system of power-plant accounting. O. A. Anderson. Power 53:128-31, 170-4, 219-22 Ja 25, F 1-8 '21
- Branch accounting for packing industries. D. E. Pedigo. J Account 31:259-65 Ap '21

Advertising

- What Swift has accomplished in good-will advertising. A. D. White. Ptr Ink 116:37-8+ S 15 '21

Regulation

- Bill regulating packing industry passed by House and Senate. Comm & Fin Chr 113: 29 Jl 2 '21
- Bill regulating packing industry signed by President Harding. Comm & Fin Chr 113: 814-16 Ag 20 '21
- Fifty-four stock yards under provisions of meat packers' bill. Comm & Fin Chr 113: 1841 sec 1 O 29 '21
- Pinching the packers recoils on others. Comm & Fin Chr 113:1298-9 S 24 '21

- Purposes of bill regulating packing industry. H: C. Wallace. Comm & Fin Chr 113:1421-2 O 1 '21

Text of the meat packers bill—known as the packers and stockyards act of 1921. Comm & Fin Chr 113:1422-4 O 1 '21

Vigorous fight opened to kill coal and packers' bill. Annalist 17:232 F 14 '21

Pageant of progress. *See* Exhibitions—Lighting

Pails

- Dies for seamless water pails. J. Bingham. diags Mach 26:1118-20 Ag '20

Paint

- Artificial versus natural means of drying paint and varnish. R. E. Lippert. *il* diags Soc Auto Eng J 9:335-40; Discussion. 340-3 N '21
- Conflicting paint purposes. G. W. Thompson. Arch Forum 32:215-18 My '20
- Economy in car painting. D. O'Brien. *il* Elec Ry J 55:561-2 Mr 20 '20
- Effect of color of paint on heat absorption. R. Z. Kirkpatrick. Eng & Contr 54:293 S 22 '20
- Effect of color of walls and ceilings on resultant illumination. A. L. Powell. bibliog *il* Gen Elec R 23:209-13 Mr '20
- Expert paint mixer. A. A. Kelly. 148p McKay '20
- Flower paint of the Aztecs. W. E. Safford. *il* Sci Am S 88:350 D 13 '19
- Further development of the plastometer and its practical application to research and routine problems. H: Green. *il* diags Am Soc T M Pro v 20 pt 2:451-82; Discussion. 483-94 '20
- Giving your paint a fair show. Factory 24: 1272+ Ap 15 '20
- Importance of radium paints. L. G. Herbert. Metal Ind 19:408-9 O '21
- Instrument for measuring the hiding power of paints. R. L. Hallett. *il* Am Soc T M Pro v 20 pt 2:426-35; Discussion. 436-9 '20
- La mesure du pouvoir couvrant des peintures; le cryptomètre Pfund. diag plan Génie Civil 76:455-7 My 15 '20; Abstract. J Fr Inst 188:675-81 N '19
- Metal protective paints. H: A. Gardner. Am Electrochem Soc Trans v 39 (preprint 11): 85-7 Ap '21; Same. Chem & Met Eng 24: 931 My 25 '21; Same. Brass W 17:204 Jl '21; Same. Eng & Contr 56:95 Jl 27 '21
- Paint and illumination. Illum Engr 13:21 Ja '20
- Paint and varnish symposium. Chem & Met Eng 25:590-2 S 28 '21
- Paint and varnish: their function, selection and application. H: A. Gardner. *il* Bldg Age 42:61-5 My '20
- Paint as an accident reducer. G. Tillinghast. Safety Eng 42:59-60 Ag '21
- Paint as an engineering material. E. J. Sheppard. Arch & Bldg 53:3-5+ Ja '21
- Paint that will not reflect ultra violet rays. W. S. Andrews. Gen Elec R 24:866 O '21
- Paints and varnishes. A. S. Jennings. 108p Pitman '20
- Paints used by electric railways. N. Litchfield. Elec Ry J 56:1229-32 D 18 '20
- Papers on paint and varnish and the materials used in their manufacture. H: A. Gardner. 501p P. H. Butler, 1845 B St., N.W., Washington, D.C. '20
- Reflection factors of industrial paints and pigments. H: A. Gardner. *il* Oil Paint & Drug Rep 100:xv+ S 20 '21
- Relation of the chemical engineer to the manufacture and application of automobile finishes. C. D. Holley. *il* diag Chem & Met Eng 25:873-6 N 9 '21
- Rubber resins, paints and varnishes. R. S. Morrell and A. de Waele. 236p Baillière, Tindall & Cox, London '21
- Some paint definitions. Eng N 87:269 Ag 18 '21
- Thickness of wet paint films. A. H. Pfund. diags J Fr Inst 191:517-23 Ap '21
- What constitutes a good paint? Metal Work 93:612-13 My 14 '20
- What is paint? G. B. Hackel. Oil Paint & Drug Rep 100:xxv+ S 20 '21

Paint—Continued

White paint reduces fatigue. Textile World 60:2160-1 O 15 '21

Why of luminous paints. M. A. Henry. il Sci Am 124:265+ Ap 2 '21

See also Corrosion and anti-corrosives; Metal protection; Ocher; Paint shops; Painting, Structural; Pigments; Titanium dioxide; White lead

Analysis

Analysis of paint vehicles, japans and varnishes. C. D. Holley. 203p Wiley '20

Detection of oils other than linseed in paints by means of the hexabromide number of the fatty acids. H. Bailey and W. D. Baldsiefen. J Ind & Eng Chem 12:1189-94 D '20

Costs

Comparing paint costs. Eng N 86:42, 601 Ja 6, Ap 7 '21

Laws and regulations

Wyoming paint law is drastic. Oil Paint & Drug Rep 100:25 sec 1 Ag 29 '21

Manufacture

Descriptions of occupations; coal and water gas, paint and varnish, paper, printing trades, rubber goods. p 18-23 '19 U.S. Bureau of labor statistics, Washington, D.C.

Lead paint for wood and metal. J. S. Springer. il Gas Age 47:137-9 F 25 '21

Manufacture of lake pigments from artificial colours. F. H. Jennison. 2d rev. ed. 172p Scott, Greenwood & son, London '20

More zinc used in government paints. Metal Work 94:107 Jl 23 '20

Observations on catalyzers in paint and varnish manufacture. F. P. Ingalls. Chem & Met Eng 22:590-2 Mr 31 '20

Putting the paint and varnish industry on a scientific basis. M. Toch. Chem & Met Eng 23:469-70 S 8 '20

Talc in fire-resistant paint. R. B. Ladoo. Chem & Met Eng 23:689 O 6 '20

Use of rosin in paint and varnish. M. Toch. Chem & Met Eng 21:767-8 D 24 '19

Prices

Paints and paint materials. See weekly numbers of Oil paint and drug reporter

Specifications

Ideal paint or varnish specification. F. P. Ingalls. Chem & Met Eng 25:595-8 S 28 '21; Same. Chem Age 29:405-8 O '21; Same. Oil Paint & Drug Rep 100:xix+ S 20 '21

Recommended specification for black paint, semipaste and ready-mixed. U S Bur Stand Circ 94:1-8 '20

Recommended specification for composite thinner for thinning semipaste paints when the use of straight linseed oil is not justified. U S Bur Stand Circ 102:1-5 '20

Recommended specification for flat interior lithopone paint, white and light tints. U S Bur Stand Circ 111:1-8 '21

Recommended specification for iron-oxide and iron-hydroxide paints. U S Bur Stand Circ 93:1-8 '20

Recommended specification for liquid paint drier. U S Bur Stand Circ 105:1-4 '20

Recommended specifications for green paint—semipaste and ready mixed. U S Bur Stand Circ 97:1-10 '20

Recommended specifications for leaded zinc oxide, dry and paste. U S Bur Stand Circ 88:1-8 '20

Recommended specifications for volatile mineral spirits for thinning paints. diag U S Bur Stand Circ 98:1-6 '20

Recommended specifications for white paint and tinted paints made on a white base—semipaste and ready mixed. U S Bur Stand Circ 89:1-11 '20

Recommended specifications for zinc oxide, dry and paste. U S Bur Stand Circ 87:1-8 '20

Testing

P. & L. E. conducts an extended paint test. il plan Ry Age 70:561-2 Mr 11 '21

Protection of iron with paint against atmospheric corrosion. J. N. Friend. Iron & Steel Inst J 103:365-8 no 1 '21; Same. Eng & Ind Management 5:711-12 Je 23 '21

Putting paint to the acid test. il Sci Am 123:453 O 30 '20

Report of committee on paint tests; with discussion. Ry Mech Eng 94:647-50 O '20

Report on paint exposure tests at Atlantic City, New Jersey. H: A. Gardner. il Am Arch 118:445-9 O 6 '20

Paint brushes

Brushes and how to care for them. diags Motor Age 38:16-17+ Ag 19 '20

\$15,000,000 invested in making paint and varnish brushes. Oil Paint & Drug Rep 99:37 sec 1 F 21 '21

Paint film gage

Thickness of wet paint films. A. H. Pfund. diags J Fr Inst 191:517-23 Ap '21

Paint industry

Paint trade in good condition, is message to New York club. Oil Paint & Drug Rep 99:25-6 sec 1 Mr 14 '21

Advertising

Make 1922 the greatest year goal of paint and varnish manufacturers. M. Hastings, jr. Ptr Ink 116:44+ S 29 '21

What the steady stride policy in advertising is doing for Lowe brothers this year. R. Cole. Ptr Ink 116:105-6+ Jl 7 '21

Argentina

Argentina's paint and varnish industry shows gain for U.S. sales. P. S. Smith. Oil Paint & Drug Rep 99:38 Ap 11 '21

Latin America

Latin America paint markets. Oil Paint & Drug Rep 100:37 sec 1 S 5 '21

Paint shops

Report of committee on safety and sanitation around railway paint shops. Ry Mech Eng 94:651-2 O '20

Heating

On-the-level heating for a paint shop. W: Hutton. il diags plan Metal Work 93:710-15 Je 4 '20

Painters, Industrial

Painters advertise for public good will. R. Dickinson. Ptr Ink 111:41-4 Ap 22 '20

Union scale of wages and hours of painters. Monthly Labor R 12:554-5 Mr '21

Painting

Relation of painting to architecture. G: Bel-lows. il Am Arch 118:847-51 D 29 '20

See also Mural painting and decoration; Paint; Painting, Industrial; Painting, Structural; Paintings

Painting, Industrial

Comparative tests of applying paint by spraying machines and by hand. Eng & Contr 53:215-16 F 25 '20

How to paint turpentine tanks and cars. Chem & Met Eng 23:887 N 3 '20

Improved paint-spray guns have valuable features. il Pop Mech 35:353 Mr '21

Industrial painting. Safety Eng 41:65-6 F '21

Paint and varnish; their function, selection and application. H: A. Gardner. il Bldg Age 42:61-5 My '20

Painting old brick walls. A. A. Kelly. Bldg Age 42:33-4 S '20

Painting profits into your factory. il Factory 26:595-6 Mr 1 '21

Painting under difficulties; inside of submarine pipe painted by an air spray brush. il diags Elec Ry J 57:862 My 7 '21

Paints, repairs and thrift. C. G. Lewis. Am Lumberman 2347:59-60 My 8 '20

Pneumatic painting machine. M. Kester. diags Am Mach 53:944 N 18 '20

Railway experiences in spray painting. Eng & Contr 54:524 N 24 '20

Recent progress in metal spraying; abstract. Sci Am M 3:182 F '21

Results secured with spray painting. H. S. Bird. Ry Age 67:1107-8 D 5 '19

Painting, Industrial—Continued

Saving the surface with paint and varnish. Am Arch 118:147-8 Ag 4 '20

Spray painting. H: A. Gardner. il Sci Am M 3:235-7 Mr '21; Excerpt. Am Arch 119:157 F 9 '21

Study of the practicability of spray painting. H: A. Gardner. il Am Arch 117:801-5 Je 23 '20; Same [without tables]. Sci Am M 1:335-6 Ap '20

Vocational training. D. L. Ireton. Ry Age 67: 1108-9 D 5 '19

Vortex paint spraying machine. il Ry R 66: 580 Ap 3 '20; Eng & Contr 53:497 Ap 28 '20; Iron Age 105:1738 Je 17 '20; Ry Age 68:1688 Je 11 '20; Ry Mech Eng 94:414 Je '20

See also Automobiles—Painting; Boats—Painting; Bridge painting; Calcimining; Car painting; Gilding; House painting; Paint; Paint shops; Varnish and varnishing

Painting, Structural

Choosing paint for metal structures. H: A. Gardner. Iron Tr R 68:1250 My 5 '21

Compressed-air in chipping paint and repainting steel steamers. il Pop Mech 34: 552-3 O '20

Outdoor painting. Bldg Age 43:64 Jl '21

Preparing steel surfaces for painting. Eng N 86:1130 Je 30 '21; Same. Eng & Contr 56: 304 S 28 '21

Protecting iron and steel standpipes from corrosion. C: W. Sherman. Eng N 84:285-6 F 5 '20

See also Bridge painting; Car painting; Ships—Painting

Paintings

Device shows old paintings in original colors. il Pop Mech 36:715 N '21

X-ray tests of old paintings. M. Tevis. il Sci Am M 3:165-7 F '21; Excerpt. Sci Am 124:165 F 26 '21

Paish, Sir George

Sir George Paish and the object of his visit to the United States. Comm & Fin Chr 110:120-1 Ja 10 sec 1 '20

Palaces

See also Peretti palace, Rome

Palatka, Florida**Water supply**

Water softening in Florida. il Pub Works 48:297-8 Ap 3 '20

Paleobotany

Age of the Dakota flora. E: W. Berry. Am J Sci 4th ser 50:387-90 N '20

Catalogue of the Mesozoic and Cenozoic plants of North America. F. H. Knowlton. U S Geol S Bul 696:1-815 '19

Dicotyledonous flora in the type section of the Morrison formation. F. H. Knowlton. Am J Sci 4th ser 49:189-94 Mr '20

Fauna of the Dallas sand pits. R: S. Lull. diags Am J Sci 5th ser 2:159-76 S '21

Fossil flora from the Puente formation of the Monterey group. R. W. Chaney. Am J Sci 5th ser 3:90-2 Ag '21

Oldest plants in the world; the psilophytes. Sci Am M 4:318-20 O '21

Paleobotany and the earth's early history. A. P. Coleman. Am J Sci 5th ser 1:315-19 Ap '21

See also Palms, Fossil

Paleoclimatology

Evolution of geologic climates. C: Schuchert. Am J Sci 5th ser 1:320-4 Ap '21

Further remarks on the evolution of geologic climates. F. H. Knowlton. Am J Sci 5th ser 2:187-96 O '21

Paleobotany and the earth's early history. A. P. Coleman. Am J Sci 5th ser 1:315-19 Ap '21

Paleogeography

Paleogeography and diastrophism in the Atlantic-Arctic region during paleozoic time. O. Holtdahl. diags maps Am J Sci 49:1-25 Ja '20

Paleontology

Animal behavior as a factor in the formation of bone beds. E. M. Kindle. Sci Am M 4: 207 S '21

Figured stones of Würzburg; an account of the most remarkable hoax in the history of science and of its author, Dr Johann B. A. Beringer. L. A. Hausman. il Sci Am M 2:199-201 N '20

Oriskany sandstone faunule at Oriskany Falls, New York. H. N. Eaton. Am J Sci 5th ser 1:427-30 My '21

See also Footprints, Fossil; Paleobotany; Vertebrates, Fossil

Palestine

Old lands and new trade. C. D. Snow. Nation's Business 8:41 O '20

Palestine mandate gives Great Britain administrative power. Comm & Fin Chr 112: 1479 Ap 9 '21

See also Water power—Palestine; Water supply—Palestine

Economic conditions

Change in the changeless East. F: Simpich. il Nation's Business 9:24-5 Ag '21

Industrial development of Palestine. N. Wilbuschewitsch; tr. by E. and C. Paul. 54p Trade and industry department of the Central bureau of the Zionist organisation (London) '20

Industries and resources

Industrial development in the Holy Land. A. E. Kornfeld. Eng N 87:32-3 Jl 7 '21

Palimpsests

Ultraviolet rays disclose secrets of old parchments. Pop Mech 35:804 Je '21

Palladium

Catalysis by means of precious metals. M. Mailhe. Sci Am M 2:45-6 Jl '20

Catalytic hydrogenation with protected hydrosols. E. K. Rideal. Am Chem Soc J 42:749-56 Ap '20

Relation between the occlusive power of palladium for hydrogen and its activity for catalytic hydrogenation. E: B. Maxted. Chem Soc J 119:1280-4 Ag '21

Bibliography

Bibliography of the metals of the platinum group; platinum, palladium, iridium, rhodium, osmium, ruthenium, 1748-1917. J. L: Howe and H. C. Holtz. U S Geol S Bul 694:1-558 '19

Palladium black

Methods for the production and measurement of high vacua; absorption of hydrogen by palladium black. Gen Elec R 24:66-8 Ja '21

Sorption of hydrogen by amorphous palladium. J. B. Firth. Chem Soc J 119:1120-6 Jl '21

Palm oil

Belgian experiments on palm oil as motor fuel. Chem & Met Eng 24:400-1 Mr 2 '21

Palm oil as fuel. Sci Am 124:403 My 21 '21

Vegetable oils as fuel for internal combustion engines. R. E. Mathot and T. d'Althoff. Engineer 131:255-6 Mr 11 '21; Same abr. Sci Am 124:347 Ap 30 '21

Palmer dust sampler

Practical hygienic efficiency of the Palmer apparatus for determining dust in air. H: F. Smyth and M. Iszard. bibliog J Ind Hygiene 3:159-67 S '21

Testing

Efficiency of the Palmer apparatus for determining dust in air. S. H. Katz, E. S. Longfellow and A. C. Fieldner. il diags Am Soc Heat & V E J 26:687-700 N '20; Excerpt. Heat & Ven 18:53 Je '21

Palmolive company, Milwaukee

New lessons applied by Palmolive in 1921 advertising. G. A. Nichols. Ptr Ink 116:3-4 S 1 '21

Palms

Philippine palm products. Chem & Met Eng 24:404 Mr 2 '21

See also Nipa palm

Palms, Fossil

Two petrified palms from interior North America. N. E. Stevens. il diags Am J Sci 5th ser 1:431-43 My '21

Pamphlets

Pamphlets and clippings in a business library.
V. Fairfax. J Elec 45:330-1, 426-8, 484-5,
531-4, 584-5; 46:31-3, 78-80 O 1, N 1 '20-
Ja 15 '21

Panama

See also Mines and mineral resources—
Panama

Boundaries

Panama accedes to United States demand to
evacuate Coto territory—commission ap-
pointed to adjust boundary. Comm & Fin
Chr 113:1120-2 S 10 '21

Panama boundary dispute—White arbitral de-
cision must be accepted in Costa Rica.
Comm & Fin Chr 112:1360-2 Ap 2 '21

Water supply

Per capita water consumption in the Canal
Zone and city of Panama. R. C. Hardman.
Eng N 84:1099 Je 3 '20

United States notifies Panama to yield jur-
isdiction of territory awarded to Costa
Rica. Comm & Fin Chr 112:1938-9 My 7
'21

Panama canal

L'alimentation en eau du canal de Panama.
Génie Civil 79:274-5 S 24 '21

Canal's best year. Nation's Business 9:51
Ag '21

Commerce passing through Panama canal
during 1920. il Marine Eng 26:392-3 My '21

Commercial traffic through Panama canal
during 1920 by trade routes. Marine R 51:149
Mr '21

Concrete shipping pier at Panama has novel
design. G. W. True. il diags plan Eng N 83:
912-16 N 27 '19

Diversion of freight traffic to Panama canal.
Ry R 68:809-10 My 28 '21

Is the Panama canal too small? V. G. Iden.
Marine R 51:438-9 O '21

Panama canal a national asset. J. J. Mor-
row. il diag Am Ind 21:7-12 Je '21

Panama canal facts. il diags Sci Am 124:
70-1 Ja 22 '21

Panama canal today. J. B. Walker. il Sci
Am 122:330+ Mr 27 '20

Panama canal traffic highest in 1920. Eng
N 86:263 F 10 '21

> Panama terminals; recent pier construction
at the ends of the canal. J. F. Springer.
il Sci Am 122:130-1+ F 7 '20

Panama tolls dispute. Min & Sci P 122:380-2
Mr 19 '21

Report for the year ending June 30, 1919. En-
gineering 109:52-3 Ja 9 '20

Senate passes bill providing for free tolls
for American ships through Panama canal.
Comm & Fin Chr 113:1636 O 15 '21

Senate vote for Panama canal toll exemption.
W. L. Marvin. Marine Eng 26:800-2 N '21

Surges and currents in the Gaillard cut of
the Panama canal. Eng & Contr 53:435-6
Ap 14 '20

Through the Panama canal. S. T. Henry.
Eng N 84:726-7 Ap 8 '20

Le trafic du canal de Panama en 1920.
Génie Civil 78:315-17 Ap 9 '21

Water supply of the Panama canal. il Sci Am
125:157+ S 3 '21

Panama Canal Zone

Ancon hospital, Ancon. S. M. Hitt. il plan
Am Arch 116:687-90, pl 186-95 D 3 '19

Hydro-electric power plant of the Panama
canal. il diags Engineer 128:562-3, 566 D 5
'19

Welding and cutting plant at Balboa. R. D.
Gatewood. il Am Mach 51:1023-5 D 18 '19

See also Forests and forestry—Panama
Canal Zone; Panama canal; Roads—Pan-
ama Canal Zone

Industries and resources

See also Automobile industry and trade
—Panama Canal Zone

Pan-American aeronautic congress

Brilliant gathering marks opening of 3d Pan-
American aeronautic congress. Aerial Age
11:355-7 My 24 '20

Notable gathering attends opening of third
Pan-American aeronautic congress at
Atlantic City, May 20. il Flying 9:307-10
Je '20

Program of third Pan-American aeronautic
congress, Atlantic City, May 20-30. Flying
9:246-9 My '20

Report of the third Pan-American aeronau-
tic congress. il Flying 9:370-6 Jl '20

3d exposition, Havana, Cuba, Feb. 21-March
1, 1920. il map Flying 8:829-33 N '19

Pan-American architectural congress

Pan-American congress of architects' resolu-
tions. Am Arch 118:602-3 N 10 '20

Pan-American college of commerce

Bringing the Americas together. J. E. Le-
fevre. Am Ind 21:33-4 S '20

Pan-American federation of labor

Gompers re-elected president of Pan-Amer-
ican labor federation. Comm & Fin Chr
112:333 Ja 22 '21

Pan-American railroad (proposed)

All-rail route proposed from Canada to Far
Peru. Ry R 67:751-2 N 13 '20

Pan-American railroad. Ry Age 68:1024 Mr
26 '20

Pancreatic amylase

Further study of the process of purifying
pancreatic amylase. H. C. Sherman, I. D.
Garard and V. K. LaMer. Am Chem Soc
J 42:1900-7 S '20

Panics

Fears of a panic have no basis. R. Vance.
Sanitary & Heat Eng 96:46-7 Jl 15 '21

History of post-war crises; a resumé of
commercial, industrial and financial crises.
H. H. Manchester. Am Mach 54:977-80,
1076-7; 55:9-11 Je 9, 23, Jl 7 '21

My 64 years in business. A. B. Farquhar. il
System 39:29-32+ Ja '21

What happened when prices broke in 1884.
A. B. Farquhar. System 39:521-4+ Ap '21

See also Business depression

Pan-Pacific scientific congress

Scientific survey of the Pacific formulated by
the first Pan-Pacific scientific congress,
Honolulu, Aug. 2-20, 1920. C. Wissler. Sci
Am M 2:268-70 N '20

Pantograph

Pantograph reproduces statutes in heroic size.
il Pop Mech 35:482-3 Ap '21

Simple, accurate and easily made pantagraph.
E. A. Dixie. il diags Am Mach 53:1076-7 D
9 '20

Pantograph trolley

3000 volt current collectors for the Chicago,
Milwaukee & St Paul locomotives. W.
Schaaake. il diags plan Elec J 17:278-80 Jl
'20

Papaws

Papaya, or three melon. W: A. Murrill. il
Sci Am 124:191+ Mr 5 '21

Papayas. See Papaws**Paper**

Causes and action of dendritic growths in
paper. J. Strachan. Paper 26:28+ Je 9 '20

Changing usage in paper. Paper 28:26+ Mr 23
'21

Classification, filing and indexing system for
pulp and paper library. C. E. Curran.
Paper 28:9-11+ Jl 13 '21

Decay of paper in hot climates. Paper 25:
31 Ja 21 '20

Density table for paper stock. Paper 26:14 Jl
7 '20

Durability, preservation and deterioration
of paper. Aribert and Bouvier. Paper 27:
13-14+ S 29; 18-19 O 6; 20-1 O 13; 23-5 O
20; 31 O 27 '20

Effect of heat on paper insulation. H. W.
Fisher and R. W. Atkinson. il Am Inst
E E J 40:183-91 Mr '21; Abstract. Elec W
77:481-2 F 26 '21

First paper makers; the wasps. W: Reinicke.
Paper 28:11-13 Jl 20 '21

How Audit bureau of circulations is helping
to conserve paper. S. Clague. Ptr Ink 112:
65-6+ Jl 22 '20

Is there no romance in paper? Paper 25:20-1
F 4 '20

Paper—Continued

Measurement of translucency and opacity of paper. R. Fournier. *diag* Paper 27:32+ F 9 '21

Microbes two thousand years old; Methuselahs of the microscopic world found in papyrus of the Ptolomaic era. *Sci Am M* 2:11 J1 '20

Odd use of paper; cores for cement pilings. D. Phillips. *il* Paper 27:11 D 22 '20

Paper. *Sci Am* 122:296 Mr 20 '20

Paper and its constituents. H. A. Bromley. 232p Spon '20

Permissible operating temperatures of impregnated paper insulation in which the dielectric stress is low. D. W. Roper. *Am Inst E E J* 40:201-2 Mr '21; *Abstract. Elec W* 77:480-1 F 26 '21

Press room requirements. S. M. Williams. Paper 28:14-16 J1 20 '21

Printers' paper troubles. E. A. Dawe. Paper 26:17+ Mr 17 '20

Putting paper on a specification basis. G. H. Dacy. *il* *Sci Am* 123:375+ O 9 '20

Safety paper. H. P. Daugherty. *Inland Ptr* 65:762 S '20

Sprayed-concrete piling has paper-tube core. F. B. Howe. *il* *Pop Mech* 35:706-7 My '21

Suggested relief for paper shortage; lumber wasted in the manufacture of packing cases. Paper 25:30-1 F 11 '20

Use of paper in the machine shop; hinders slippage, protects machine tables from injury. E. A. Dixie. *il* *Am Mach* 54:849-51 My 19 '21

What is wrong with our paper supply? H. A. Mount. *il* *Sci Am* 122:674+ Je 19 '20

Yellowing of copying paper and its method of prevention. F. Formstecher. Paper 27:32 Ja 26 '21

See also Carbon paper; Cigarette paper; Filter paper; Fly paper; Glarimeter; Iodoform paper; Paper board; Photographic paper; Sulfur paper; Veneer paper; Waste paper; Watermarks; Wood pulp

Analysis

Compound microscope and its value in the mill. I. L. Gartland. Paper 27:14-17+ Mr 2 '21

Bibliography

British patent office library accessions; a select bibliography of cellulose, paper and allied subjects. M. Hubbard. Paper 25:32, 34, 36, 38, 40-1, 44, 46, 48, 50, 52 O 1 '19

L.C. card references for paper men. Paper 26:150, 152-8+ Ap 21; 11-15, 25-8 Ap 28 '20

Paper research literature; a list of the contributions by members of the Bureau of standards, Department of commerce, 1910-1920. F. A. Curtis. Paper Trade Journal 71:48+ N 4 '20

Paper research literature; a list of contributions by the staff of L'Ecole Française de Papeterie at the University of Grenoble. L. Barbillion. Paper 25:20-2 F 11 '20

Paper research literature; a list of the contributions by the staff of the Königliches Materialprüfungsamt zu Berlin-Lichterfelde West. W. Herzberg. (Tr. and augmented by C. J. West). Paper Trade Journal 71:48+ O 21; 52+ O 28 '20

Report of T.A.P.P.I. committee on bibliography. C. J. West. Paper 28:26-8 Ap 20 '21; *Excerpts. Special Lib* 12:6-7 Ja '21

Report of the committee on bibliography. H. E. Surface. Paper 26:114+ Ap 21 '20

See also Paper making—Bibliography

Cost

See Paper making—Cost

Dyeing

See Dyes and dyeing—Paper

Gloss measurement

How to measure the gloss of photographic paper. Paper 26:16-17 My 26 '20

Polarization method of measuring the gloss of paper and similar surfaces. L. R. Ingersoll. *il* *diags Illum Eng Soc* 16:152-8 no 6 '21; *Abstracts. Paper* 27:18+ F 9 '21; *J Fr Inst* 192:238 Ag '21

History

Scraps of paper history. C. A. Graeffe. Paper 27:11+ Ja 12 '21

See also Paper making—History

Moisture content

Effect of humidity on the moisture content of paper. R. Campbell. Paper Trade Journal 73:30+ J1 14 '21

See also Paper drying

Prices

Outlook of the paper market. H. H. Reynolds. *Inland Ptr* 66:343-4 D '20

Prices of raw materials used in the manufacture of all grades of paper. Paper 28:114-19 Ap 20 '21

Publishers admit responsibility for recent high newsprint prices. W. J. Pape. Paper 28:9-11+ Mr 23 '21

When will paper prices go back to normal? B. Venable. *Inland Ptr* 65:54 Ap '20

Why newsprint prices are certain to advance. W. E. Haskell. *chart* Paper 26:9-12 Ag 11 '20

Standards

Conference on paper standardization. Paper 29:9-10+ S 7 '21

Elements of paper standardization. F. A. Curtis. Paper 29:20-2 O 26 '21

Standardization of paper. W. H. Hazell. Paper 28:9-10 Je 29 '21

See also Paper sizes

Testing

Falling pendulum reveals paper's tearing strength. *il* *Pop Mech* 33:236 F '20

Improved Elmendorf paper tester, with a simple moisture content indicator. *il* Paper 28:16-17 My 11 '21; *Elec R* 79:180 J1 30 '21

Iodine solutions in paper microscopy. G. Wisbar, tr. by C. J. West. Paper Trade Journal 73:24+ Ag 4 '21

New tearing machine measures strength of paper. *il* Paper 26:11 S 1 '20

Paper testing methods. F. C. Clark. 24p Tappi pub. corporation, New York '20

Principle of the Elmendorf paper tester. A. Elmendorf. *il* *diag* Paper 28:15-17 Ag 10 '21

Pulp evaluation as affected by the fiber ratio in the test sheets. C. L. Bachelder. *il* Paper 27:14-19 N 17 '20

Putting paper on a specification basis. G. H. Dacy. *il* *Sci Am* 123:375+ O 9 '20

Qualities and tests of papers. Paper 25:28-9 F 11 '20

Some notes on paper testing. J. Strachan. Paper 27:18+ N 3 '20

Strength test for paper. A. Elmendorf. *il* *diag* Paper 26:44+ Ap 21 '20

Study of test methods for the purpose of developing standard specifications for paper bags for cement and lime. P. L. Houston. U S Bur Stand Tech Pa 187:1-19 '21

Suitability of paper and cotton bags in relation to burlap bags for sand. P. L. Houston. Paper Trade J 72:47-52+ My 19 '21

Tearing strength of paper; table. *Sci Am M* 1:365 Ap '20

T. A. P. P. I. report on paper testing. F. C. Clark. Paper 25:25-7 Ja 7 '20

Testing lime and cement bag paper. P. Houslan. *il* Paper 27:15-16 S 22 '20

Testing of paper. *il* U S Bur Stand Circ 107:1-37 '21; *Abstract. Sci Am M* 3:371-2 Ap '21

Testing paper by tearing. S. R. Winters. *il* *Sci Am* 122:359+ Ap 3 '20

Testing tearing resistance of paper. C. F. Sammet. Paper 25:17-18 F 4 '20

Paper, Photographic. *See* Photographic paper

Paper, Veneer. *See* Veneer paper

Paper and pulp association, American. *See* American paper and pulp association

Paper association of New York city

Annual meeting, New York, March 18. Paper 26:24 Mr 24 '20

Paper bags

- Bags for cement and lime made of special paper. Pop Mech 36:227 Ag '21
 Study of test methods for the purpose of developing standard specifications for paper bags for cement and lime. P. L. Houston. U S Bur Stand Tech Pa 187:1-19 '21
 Suitability of paper and cotton bags in relation to burlap bags for sand. P. L. Houston. Paper Trade J 72:47-52+ My 19 '21
 Testing lime and cement bag paper. P. Houston. il Paper 27:15-16 S 22 '20

See also Bag tying machine

Paper barrels

- Making barrels out of paper. il Sci Am 124:251+ Mr 26 '21

Paper board

- Analysis of cardboard. R. Isnard. Paper Trade Journal 73:44+ S 22; 40+ O 20 '21
 Box board costs. E. G. Clerke. Paper 27:14-15 F 23 '21
 Boxboards and the multi-cylinder mould machine. W. H. Silvester. il Paper 28:14-15 Je 1 '21
 Direction of fibers affects strength of fiber boxes. Elec Ry J 58:135 Jl 23 '21
 Dyeing of straw pulp; abstract. C. J. West. Paper 28:23-4 Je 22 '21
 Fibre container industry. J. D. Malcolmson. Paper 27:14-15+ O 27 '20
 Making hard fibre board. Paper 27:30 O 6 '20
 Manufacture of paper box board. J. S. Slater. Paper 27:11-13 D 8 '20
 Quality in paper board. H. Bert. Paper 27:13-14+ D 29 '20
 Raw materials for fibre board. G. R. Browder. Paper 26:13-14 S 1 '20
 Straw board manufacture. R. Clayton. il Paper 27:17+ O 6; 19 O 27; 19 D 22 '20
 Why? B. M. Bishop. Paper 28:24+ Je 29 '21

Paper board, Corrugated

- Improvements in corrugated cardboard. diags Paper 27:26-7 S 29 '20

Paper boxes

- Direction of fibers affects strength of fiber boxes. Elec Ry J 58:135 Jl 23 '21
 How paper boxes are made. R. F. Saladé. 230p Shears pub. co., Lafayette, Ind.

See also Paper board

Paper caps

- Blow-resisting paper caps display great strength. il Pop Mech 33:184 F '20
 How to make a square paper cap. F. H. Sweet. diags Pop Mech 33:144 Ja '20

Paper clothing. *See* Paper textiles**Paper coloring.** *See* Dyes and dyeing—Paper**Paper containers**

- Continuous process for making containers. C. R. Robinson. diags Paper Trade Journal 72:40+ Je 23 '21
 Fibre container industry. J. D. Malcolmson. Paper 27:14-15+ O 27 '20

See also Paper bags; Paper barrels; Paper boxes

Paper cutting and winding machine

- Slitting and rewinding machine. diags Paper 27:20 Mr 2 '21

Paper drying

- Air conditioning for paper mills. J. O. Ross. Paper 26:13-19 Je 16 '20
 Comparison of drying systems. A. G. Maunz. Paper 26:19 Je 30 '20
 Dryers, fans and ventilators. J. G. Ingram. il Paper 27:87-8 N 10 '20
 Drying of paper. Chem & Met Eng 24:361 F 23 '21
 Economic utilization of heat and power in paper mills. W. Adamson. Paper 27:262+ N 10; 14-15 N 24; 19-20+ D 1 '20
 Paper dryers. F. C. Farnsworth. diags Paper 26:301-2 Ap 21 '20
 Saving steam and power in the paper mill. F. C. Farnsworth. diag Paper 27:78-80 N 10 '20

Paper finishing

- Manufacture of coated paper. W. T. Schenck. Paper 28:13-14 Jl 6 '21
 Slitting and rewinding machines. E. R. Paris. il Paper 27:94-6 N 10 '20

See also Paper sizing

Paper hanging

- Expert paper hanger. 2d ed., rev., and improved. A. A. Kelly. 190p A. A. Kelly, Paoli, Pa. '21

Paper industry, Cost association of. *See* Cost association of the paper industry**Paper industry and trade**

- Conditions in paper industry as reported at the annual convention of the American paper and pulp association, New York City, April 14, 1921. (Special rep. no. 3) 28p American paper and pulp association, 18 East 41st St., N.Y. '21
 Interdependency of printers and paper merchants. T. Lang. Inland Ptr 66:492 Ja '21
 Newsprint paper. R. S. Kellogg. Paper 25:19-20 Mr 3 '20
 Varied views held by paper publishers. Paper 26:9-11+ My 12 '20
 Wage increases in paper establishments since 1914. Comm & Fin Chr 112:1823 Ap 30 '21
 Why paper is scarce and high. P. T. Dodge. Paper 26:20 Mr 17 '20
 Wood pile—the foundation of the paper industry. H. P. Baker. Paper 27:16+ Ja 19 '21

See also Paper—Prices; Paper samples; Paper textiles; *also* National paper trade association

Accounting

- Cooperation of executives and men in cost accounting. Paper 26:11-12+ My 26 '20
 Cost system of Dill & Collins company. J. B. Hipwell. Paper 27:12-13+ O 6 '20
 Production manager's need for cost accounting. L. R. Clapp and D. S. Davis. Paper 27:13-15+ O 13 '20
 Value of cost-finding in volume production. G. A. Ware. Paper 27:20-2+ O 20 '20
 What cost accounting means to production and profits. F. B. Snyder. Paper 26:20-2 Je 23 '20

See also Cost association of the paper industry

Bibliography

- Reciprocity and the tariff in the paper industry. C. J. West, comp. Paper Trade Journal 72:48+ My 5 '21

Statistics

- Coal shortage hampers industry and causes time loss. Paper 26:36+ My 26 '20
 Month's production of all grades of paper. Paper 26:29-30 Ap 28 '20
 Our foreign trade in paper. Paper 26:32+ Ap 28 '20
 Paper and pulp industry during 1919. Paper 25:30+ F 25 '20
 Statistical review of paper industry. Paper 25:44+ Ja 28 '20
 Summary of newsprint production. Paper 25:32 Ja 14 '20

Alaska

- Alaska the future source of newsprint supply. Paper 26:9-10+ Ag 4 '20
 Paper from Alaska. J. Anderson. il Sci Am 124:64+ Ja 22 '21
 Paper from American trees. W. B. Greeley. Nation's Business 9:39-40 Mr '21

Argentina

- Paper exports to Argentina. Paper 27:21-2 S 8 '20

Austria

- Paper industry of Austria. J. F. Simons. Paper 28:15+ Ag 3 '21

British Columbia

- Pulp and paper industry in British Columbia. Paper 27:18 O 27 '20

Canada

- Prosperity of the Canadian pulp and paper industry. Comm & Fin Chr 111:1414-15 O 9 '20
 Pulp and paper mills in Canada. Can Eng 39:520-2, 533-5 N 11-18 '20
 Statistics on the Canadian pulp and paper industry. Paper 28:122+ Ap 20 '21

Paper Industry and trade—Canada—Continued
 Tariff on pulp and paper in Canada. R. Black. Paper 27:44+ D 1 '20

Terms on which Canadian pulp wood rights are offered. H. M. Cochran. Paper 28:22-3+ Ap 27 '21

See also Paper industry and trade—Ontario

Chile

Possibilities of paper pulp production in Chile. Paper 26:13+ Ag 18 '20

China

Paper trade in China. J. W. Ross. Paper 28:13 Mr 23 '21

Europe

European paper manufacturers face critical problems. T. Reece. Paper 26:22-3 Ag 4 '20

European paper production cut by coal shortage. P. Bartholow. Paper 26:9-10+ J1 14 '20

Germany

Statistics of the German pulp and paper industry. Paper 28:140+ Ap 20 '21

Great Britain

Grave shortage of print paper in United Kingdom. Chem & Met Eng 23:21 J1 7 '20

Italy

Post-war influence on paper manufacture in Italy. Paper 26:21-2 Ag 4 '20

Japan

L'industrie du papier au Japon. Génie Civil 76:578-9 Je 26 '20

Japan's position in the paper industry. J. P. Suzuki. Paper 25:25 Ja 14 '20

Manufacture of paper in Japan. J. Kobayashi. il Paper 28:16-17 My 25 '21

New Brunswick

Government aid to pulp and paper industry in New Brunswick. C. McKay. Paper 27:22 O 6 '20

Newfoundland

Pulp and paper industry shows fine growth in Newfoundland—now second important industry. Paper 28:17 My 25 '21

Norway

Diminished production of Norwegian paper industry. Chem & Met Eng 24:476 Mr 16 '21
 Norway's export of pulp and paper. Paper 29:18 O 19 '21

Ontario

Ontario's pulp and paper industry. W. L. Edwards. Paper 27:20+ N 17 '20

What the pulp and paper industry means to Ontario. E. Beck. Paper 28:17-19+ My 18 '21

Poland

Paper manufacture in Poland. Paper 28:12+ My 11 '21

Urgent need for machinery and raw materials in Poland. Paper 26:18-19 Je 30 '20

Sweden

Rapid growth of newsprint and wood pulp production in Sweden. W. H. Sholes. Paper 26:16+ Je 23 '20

Swedish market for soda sulphate. Chem & Met Eng 23:802 O 20 '20

Swedish sulphite mills reduce output to meet market. Paper 26:11-12 J1 21 '20

United States

Bill signed by President Wilson to permit importation of print paper duty free. Comm & Fin Chr 110:1941-2 My 8 '20

Canada's pulp and our paper. W. E. Haskell. il Nation's Business 9:28+ F '21

Effect of the European war on the paper industry. R. B. Payne. Paper 28:208+ Ap 20 '21

Export embargo on paper. Paper 25:21-2 Ja 14 '20

Federal searchlight again focused upon the paper industry. W. Fawcett. Inland Ptr 65:341-2 Je '20

Makers will sell newsprint to small papers in combine. Paper 26:9-10+ Je 2 '20

May bar cheap pulp and paper from Germany. Paper 28:9-11 Ag 31 '21

Newsprint paper industry; hearing before a subcommittee of the Committee on manufactures, United States senate. (66th Cong., 2d Sess., S. Res. 164) 518p '20 U.S. Senate, Committee on manufactures, Washington, D.C.

Newsprint situation reviewed by committee of newspaper publishers. Paper 28:9-11+ My 4 '21

Our position in world's paper trade. Paper 25:27 Ja 14 '20

Output of newsprint paper continues to increase. Paper 26:40+ J1 28 '20

Paper industry in America. H. P. Baker. Paper 27:9-10+ D 15 '20

Pulp and paper in 1920. Chem & Met Eng 24:557 Mr 30 '21

Radical remedies offered in the newsprint report. Paper 26:9-10 Je 16 '20

Revision of the tariff on paper and printed products. W. Fawcett. Inland Ptr 66:775-6 Mr '21

Senate report denounces newsprint manufacturers. Paper 26:9-10 Je 9 '20

Statistical summary for 1920. Paper 28:100-10 Ap 20 '21

Triple convention at Chicago. Paper 27:9-13 N 17 '20

Work of the paper division of the War industries board. Paper 28:125-6 Ap 20 '21

Paper knives. See Knives, Machine

Paper laboratory. See United States—Paper laboratory

Paper lining

Life of flume prolonged by roofing paper lining. il Eng N 84:131 Ja 15 '20

Paper makers

Poetical paper makers. P. W. Kearney. Paper 28:12+ Mr 23 '21

Paper making

Abstracts of papers read at the fifth annual meeting of T.A.P.P.I. Chem & Met Eng 22:781-2 Ap 28 '20

Allen automatic control for cooking chemical pulp. C. H. Allen. diags Paper 27:21-2 S 15 '20; Same. Chem & Met Eng 23:1015-16 N 24 '20

American papermaking thru French eyes. P. Joanneau. Paper 29:23-6 O 5 '21

Application of electricity to paper mills. E. E. Fuller. diags Electrician 86:171-4, 194-5 F 4-11 '21

Automatic continuous mixing system for paper stock. E. J. Trimbey. il Paper 27:13-14 S 22 '20

Coloring of paper. O. Kress. Paper 25:17-23 Ja 7; 17-20 Ja 14; 21-3 Ja 21 '20

Control of sulphite cooking. W. E. B. Baker. Paper 26:52+ Ap 21 '20

Cooking of rags. H. Grimm. Paper Trade Journal 73:32+ O 20 '21

Cooking of sulphite pulp. B. T. Larrabee. Paper 28:19-20 Je 29 '21

Development of paper making from an engineering view point. T. D. Nuttall. Paper 27:9-10+ Mr 2 '21

Electric power in the manufacture of sulphite paper pulp. R. L. Gregory. il Elec R 76:55-9 Ja 10 '20

Explosion recovery process for black liquor. H. K. Moore. il chart diags Paper 25:19-23 F 18; 13-17 F 25; 11-16 Mr 3 '20

Fall meeting of T.A.P.P.I. at Saratoga. Chem & Met Eng 23:508-10 S 15 '20

Filtration in the art of paper-making. A. M. Crane. il diags plan Paper 27:182+ N 10 '20

Flow sheets. Paper 27:152, 156, 160, 164 N 10 '20

From paper-mill to pressroom. W. B. Wheelwright. 102p George Banta pub. co., Menasha, Wis. '20

Future of chemical and engineering research in the pulp and paper industry. J. Stevens, 3d. il Chem & Met Eng 23:451-3 S 8 '20

Handling and costing raw materials; costing and measuring pulp; with discussion. H. R. Harrigan. Paper 26:18-20, 56 Mr 31 '20

Paper making—Continued

- Handling and costing raw materials; how rags are handled; with discussion. F. C. Clark. Paper 26:11-15 Mr 31 '20
- Handling and costing raw materials; treatment of old papers; with discussion. M. M. Kiley. Paper 26:15-18 Mr 31 '20
- Improved process for the manufacture of esparto pulp. E. Arnould. Paper 26:22-3 Ag 18 '20
- Improvement in esparto cooking. Paper 29:22-4 O 26 '21
- Investigations in coating raw stock at the Bryant paper mill. E. G. Milham. Paper 26:15-16+ J1 28 '20
- Laid and wove. D. Hunter. *il* Ptg Art 38:33-40 S '21
- Manufacture of pulp and paper. J. J. Clark and T. L. Crossley. v 2 525p McGraw-Hill '21
- Manufacture of sulphite pulp in Europe. O. L. Berger. Paper 28:15-16+ J1 13 '21
- Method for differentiating and estimating unbleached sulphite and sulphate pulps in paper. R. E. Lofton and M. F. Merritt. U S Bur Stand Tech Pa 189:1-18 '21
- Modern pulp and paper making. G. S. Witham, sr. 599p Chemical catalog co., inc., Book department, New York '20
- More pulp per cord of wood—why not? J. D. Rue. Chem & Met Eng 25:447-8 Ag 31 '21
- New method of parchmentizing paper. Paper 26:15 Ap 14 '20
- New process for parchment paper and vulcanized fibre. Paper 26:17+ J1 21 '20
- New standard for mixed paper. T. Heberly. Paper 27:32 D 15 '20
- News print, the origin of paper making and the manufacturing of news print. W. E. Haskell. 71p International paper co., New York '21
- Notes on pulp and paper. Chem & Met Eng 23:1032 N 24 '20
- Ostwald's color theory in paper tinting. *diags* Paper 26:11-12 Ap 14 '20
- Paper making and its machinery. T. W. Chalmers. 178p Constable & co., ltd., London '20
- Papermaking in Finland. A. Solitander. *il* Paper 27:9-11+ O 27 '20
- Paper making in Wilmington. J. H. Plumstead. Chem & Met Eng 23:1085 D 1 '20
- Paper making ten years hence. Paper 27:9-10+ O 20 '20
- Paper making trials at the Imperial institute. C. J. West. Paper 28:28-31 My 18; 25-7+ My 25 '21
- Paper mill operations. N. R. Davis. Paper 28:12-13 J1 6 '21
- Paper technology. R. W. Sindall. 3d ed. 337p C. Griffin and co., ltd., London '20
- Production and characteristics of Mitscherlich sulphite pulp. J. E. Daley. Paper 26:17+ Ag 18 '20
- Pulping methods for bamboos and grasses. Paper 28:15-16 Ag 31 '21
- Relation of paper manufacture to other industries. J. Strachan. Paper 27:9-10+ Ja 5 '21
- Research in papermaking. J. L. MacDonald. Paper 26:25-6 My 5 '20
- Research problems of the pulp and paper industry. D. C. Everest. *il* Paper 26:11-14+ Ag 4 '20
- Shortening cooking time of sulphite pulp by preliminary impregnation. V. P. Edwards. Paper 28:80-5+ Ap 20 '21
- Soda pulp from Australian hardwoods. R. A. Fowler. Paper 29:24-5 O 26 '21
- Special advantages of paper made in Japan increase its utility. Paper 26:22+ Je 2 '20
- Specifications recommended for cooking rags. Paper 26:16+ Ag 25 '20
- Symposium on rag selection and cooking. Paper 26:232+ Ap 21 '20
- Technical discussions of paper subjects; Holyoke section of T.A.P.P.I. Paper 26:11-16 Mr 17 '20
- Technical progress in papermaking. J. J. O'Connor. Paper 26:17-18 Mr 24 '20
- Value of superheated steam in sulphite process. R. H. Wyld. Paper 26:12 My 12 '20
- Washing unbleached soda pulp. M. L. Griffin. Chem & Met Eng 21:528-9 O 22 '19

Woolen paper makers' felts and jackets. J. W. Cox, jr. *il* *diags* Textile World 58:3235+, 3889+, 59:23+, 1737+, 1849+, 2431+, 3297+ N 6, D 4 '20, Ja 1, Mr 5-12, Ap 9, My 14 '21

See also Carbon paper; Digesters; Dyes and dyeing—Paper; Felts (paper making); Fourdrinier machine wire; Jute board; Paper board; Paper drying; Paper finishing; Paper making machinery; Paper making materials; Paper mills; Paper sizes; Paper sizing; Paper textiles; Papier-mâché; Pulpstones; Sulfitic liquor; Sulfurous acid; Watermarks; Wood pulp

Beating

- Beating process. C. C. Stewart. Paper 28:14+ Je 15 '21
- Beating—today and tomorrow. W. B. Campbell. Paper 27:25-6+ F 23 '21
- Development of the new Niagara beater. W. H. Burns. *diag* Paper 27:13-14 Ja 12 '21
- Effect of beating on dyeing. J. Huebner. Paper 28:22 Ag 3 '21
- Rational theory of the beating engine. S. Smith. *il* Paper 27:26-7 Mr 9; 23-5 Mr 16 '21

Bibliography

- Bibliographie de la papeterie. C. Dumercy. Paper Trade Journal 72:56+ Mr 10; 54+ Mr 17 '21
- Bibliography of paper making for 1920. C. J. West. Paper 28:164+ Ap 20 '21
- Books for a paper-mill library. Paper 29:17-18 S 14 '21
- Clay in the paper industry. C. J. West, comp. Paper Trade Journal 72:52+ Je 2 '21
- Current paper trade literature; abstracts of articles and notes of papermaking inventions. Published in weekly numbers of Paper Trade Journal
- Paper manufacture. H. H. B. Meyer. Paper Trade Journal 72:56+ Mr 24; 50+ Mr 31; 48+ Ap 7 '21
- Paper research literature; bibliography of the workers of C. F. Cross. C. J. West. Paper Trade Journal 73:46+ J1 21 '21
- Papermaking materials. C. J. West. Paper Trade Journal 71:44+ D 16; 54+ D 23; 72:30+ D 30 '20; 46+ Ja 6; 30+ Ja 13; 34+ Ja 20:60+ Ja 27; 58+ F 3; 64+ F 10; 48+ F 17; 54+ F 24; 48+ Mr 3 '21 [Reprinted by Arthur D. Little, Inc., Cambridge, Mass., in Bibliographic ser. no. 6]
- Recent literature on soda and sulphate pulps. C. J. West. Paper Trade Journal 73:46+ O 20; 42+ O 27 '21
- Sulphate pulp and kraft paper; list of references covering the literature up to 1912. C. K. Textor. Paper Trade Journal 73:46+ J1 28; 46+ Ag 11; 54+ Ag 18 '21

See also Marbling—Bibliography

Bleaching

- Apparatus for the rapid determination of the available chlorine in bleach liquor. M. Schrero. *diag* J Ind & Eng Chem 13:559-60 Je '21; Same abr. Paper 28:13-14 J1 27 '21
- Effect of variables on bleaching efficiency. G. K. Spence. Paper 28:148+ Ap 20 '21
- Measuring pulp bleaching qualities by methyl number. A. Chambovet. Paper 27:29+ O 27 '20
- Methods of bleaching paper-making fibres. Paper 26:11-12 Ag 18 '20

Bibliography

- Bleaching of paper pulp. C. J. West. Paper Trade Journal 71:36+ D 9 '20

By-products

See also Sulfitic liquor

Chemistry

- Advantages of liquid sulphur dioxide in sulphite pulp manufacture. V. P. Edwards. flow sheet map Paper 26:92+ Ap 21 '20
- Analysis of sulphur burner gases and sulphite acid. A. Sander. Paper 27:17-18+ D 8; 21-3 D 29 '20

Paper making—Chemistry—Continued

- Black liquor recovery process. G. F. Enderlein. diags Paper 26:98+ Ap 21 '20
- Causticizing problems in sulphate mill. N. E. Brokaw. Paper 28:18-19 Je 15 '21
- Causticizing soda for sulphate pulp cooking. N. E. Brokaw. Paper 29:12-14 O 26 '21
- Chemical engineer and the news-print industry. R. W. McKenzie. Can Chem & Met 5:75-6, 105-7, 133-4, 158-60 Mr-Je '21; Same. Paper 28:15-16 Ap 27; 20-1+ My 4; 19-21 My 11; 24-5+ My 18 '21
- Chemistry of pulp and paper making. E. Sutermeister. 479p Wiley '20
- Chemistry of sulphite cooking. A. Chambovet. Paper 27:21-4 Ja 26; 19-22 F 2; 27-31 F 9; 20-3 F 16 '21
- Curtailing bleach consumption by adding sulphur to digester liquor. G. K. Spence. Paper 27:19-21 S 8 '20
- Determination of the acidity of alum solutions. I. Bellucci and F. Lucchesi. Paper 26:17 Ag 25 '20
- Determination of the degree of digestion of sulphite pulp. R. Sieber. Paper 28:17, 19-22 Ap 6 '21
- Fundamental chemistry in papermaking. J. L. A. MacDonald. Paper 29:12-17; Discussion. A. Baker. 17-18 O 19 '21
- Progress in dendro-chemistry. H. O. Chute. Paper 27:16-19+ O 13 '20
- Reclaiming of acid. O. L. Berger. Paper 27:22-3 D 22 '20
- Rinman modification of sulphate process. B. Segerfelt. Paper 28:236 Ap 20 '21
- Ultramarine blue in paper making. L. P. Schweitzer. Paper 27:12+ Mr 2 '21
- Uniform cooking acid. il Paper 27:20-1 Mr 9 '21

Cost

- Costs in the paper mill. J. A. Reilly. Paper 27:14-16+ D 8 '20
- Cutting bleach cost. L. D. Vorce. Paper 27:42+ N 10 '20
- Figuring an estimate cost. Paper 27:16-17 N 3 '20
- Papermaking costs twelve years ago. Paper 25:17 Mr 3 '20

Experiments

- How to equip and operate an experimental laboratory. O. Kress, S. D. Wells and V. P. Edwards. il diag Paper 26:11-14+ Je 2; 24-7 Je 9; 19-23 Je 16; 23-5+ Je 23 '20
- Recherches industrielles en petit laboratoire; pâtes à papier. A. Le Chatelier. il diags plan Chimie & Ind 4:529-42 O '20; Same. Paper 28:17-21 Ap 27 '21
- Turning laboratory theory into profit-making practise. F. C. Clark. il Factory 26:1171-4 My 15 '21

History

- Ancient Japanese paper making. H. S. Green. Paper 28:17 Je 1 '21
- Ancient paper making. D. Hunter. il Paper 26:18-19 Jl 21 '20
- History of asbestos paper. O. Bowles. Chem & Met Eng 22:208-9 F 4 '20
- History of paper making in northern New York. H. Palmer. il Paper 27:11-12 Ja 5; 11-13+ Ja 19; 12+ F 2; 12+ F 16; 11-12 Mr 2; 15-16 Mr 16; 28:11-13 Mr 30; 11-12 Ap 13; 13-14 Ap 27; 13+ My 11; 11-13 My 25; 12-13 Je 8; 11+ Je 29; 12+ Jl 13 '21
- Rare book on papermaking. D. Hunter. il Paper 27:16-18 S 15 '20
- Ulman Stromer—first chronicler of paper making. D. Hunter. il Paper 28:12-14 My 4 '21

Patents

- Classification of U.S. patents. Paper 27:19+ Ja 12 '21
- Cleaning and dissolving old paper stock. diags Paper 28:15 Ap 6 '21
- German patents on pulp production. C. J. West. Paper 28:23+ My 25 '21
- Recent German patents on pulp production. C. J. West. Paper 28:28+ Ap 13 '21
- United States paper making patents for 1920. C. J. West. Paper 27:19-21 Ja 19; 25-7 Ja 26 '21

See also Paper making machinery—Patents

Study and teaching

- Plans for college course in pulp and paper making. Paper 26:18 Ag 18 '20
- Pulp and paper school of the University of Maine. C. A. Brautlecht. Paper 27:21+ S 22 '20

Textbooks

- Progress of papermaking textbooks. R. S. Kellogg. Paper 25:29-30 Ja 21 '20

Paper making machinery

- A. W. P. baby papermaking machine takes a trip to Chicago. il Paper 28:12+ Jl 27 '21
- Analysis of machinery in the pulp and paper industry. Paper 27:21-3 N 10 '20
- Apparatus for making imitation hand-made paper. diags Paper 27:27+ S 15 '20
- Beating and washing engines. il diags plan Paper 27:57-60+ N 10 '20
- Beating—today and tomorrow. W. B. Campbell. Paper 27:25-6+ F 23 '21
- Belt transmission for paper machines. V. Hazard. Paper 27:30 Mr 9 '21
- Boxboards and the multi-cylinder mould machine. W. H. Silvester. il Paper 28:14-15 Je 1 '21
- Calenders and platers. J. T. Wilson. il Paper 27:91-2 N 10 '20
- Cutting grinding power costs with pulp load regulator. il Paper 26:11-12+ Je 16 '20
- Defibering and de-inking machinery. F. C. Overton. il diags Paper 27:128-31 N 10 '20
- Development of suction rolls. W. Millspaugh. Paper 28:15-17+ Je 15 '21
- Development of the new Niagara beater. W. H. Burns. diag Paper 27:13-14 Ja 12 '21
- Development of the paper machine. S. D. Lansing. il diag Paper 27:20-3 F 9 '21
- Fastest paper machine in the world at the Consolidated water power & paper company of Wisconsin Rapids, Wisconsin. il Paper 28:16-18+ Ag 3 '21; Same. Paper Trade Journal 73:30+ Jl 21 '21
- Felting of fibers on paper and cardboard machines. Paper 26:21 Ag 11 '20
- Functions of the smoothing press. Paper 26:19 My 5 '20
- Handmade paper by machine. Paper 29:15-17 S 21 '21
- How to equip and operate an experimental laboratory. O. Kress, S. D. Wells and V. P. Edwards. Paper 26:23-5+ Je 23 '20
- Importance of seasoning pulp stones. Paper 29:26 S 7 '21
- Increasing efficiency by speed control of turbine driven pulp grinders. A. F. Meyer. il charts Paper 26:11-19 My 19 '20
- Increasing grinder production. W. A. Munro. diags Paper 27:15 S 15 '20
- Jordan engine and its uses. E. Blau. il Paper 27:61-2+ N 10 '20
- Lattice belt for machine wires. diags Paper 28:29 Ap 13 '21
- Merits of wide and narrow machines. R. A. McInnis; J. Ball. Paper 26:13-17 Mr 10 '20
- More profitable to operate wide machine at slower speed. G. S. Witham, sr. Paper 27:106-7 N 10 '20
- New device for regulating the consistency of pulp stock. il diags Paper 26:19-22 Je 2 '20
- New fire-proof hood for paper machines. F. M. Williams. Paper 27:12+ S 29 '20
- New paper machines to be installed. Paper 26:14 S 1 '20
- Papermachine shutdowns: causes and effects on production. Paper 27:19-20 S 15 '20
- Practical paper pulping engine. diag Paper 27:89+ N 10 '20
- Problems encountered in the development of the Laurentide newsprint machines. G. D. Kilberry. Paper 29:15-18 S 28 '21
- Pulp and paper screens. P. Dennett. Paper 28:16-17+ Je 8 '21
- Rag room machinery. il Paper 27:32-3 N 10 '20
- Rational theory of the beating engine. S. Smith. il Paper 27:26-7 Mr 9; 23-5 Mr 16 '21
- Revolution in paper-machine drive. S. A. Staeger. Paper 26:124+ Ap 21 '20
- Save—alls. T. J. Dreyer. diag Paper 27:27 N 10 '20
- Screens and screen plates. J. T. Mellor. il diags Paper 27:52-3 N 10 '20

Paper making machinery—Continued

- Separator for paper pulp. diags Paper 26:13 Ap 14 '20
 Slitting and rewinding machines. E. R. Paris. il Paper 27:94-6 N 10 '20
 Smoothing-bar accessory for news-print rewinders or calenders. E. Marguet. diags plan Paper 27:21-2 Mr 16 '21
 Speed inter-lock as applied to the paper machine. F. G. Warburton. il diags Paper 27:14-18+ F 2 '21
 Speed mystery. N. M. Brisbois. Paper 27:104 N 10 '20
 Speed vs. width. A. J. Davies. il Paper 27:102-3 N 10 '20
 Speed vs. width—an analysis. T: J. Crotty. il Paper 27:69-73 N 10 '20
 Suction cylinder for paper machines. diags Paper 27:24 D 1 '20
 Use of ball bearings in paper machinery. il Paper 26:11-13+ Ag 25 '20
 Wet machines and thickeners. diags plan Paper 27:31 N 10 '20
 Why I prefer speed to width. B. C. Guild. il Paper 27:99 N 10 '20
 Width preferable to speed. P: Smith. Paper 27:93 N 10 '20
 Wood room. T. W. Duncan. il diags Paper 27:43-6 N 10 '20

See also Fourdrinier machine; Paper drying

Lubrication

- Lubrication of paper mill machinery. J: E. Teschner. il Paper 27:125-7 N 10 '20
 Paper mill lubrication. T. C. Porteus. Paper 28:14-15+ Je 29 '21

Patents

- Billingham waste paper recovery system. diags Paper 29:16-18 O 12 '21
 Description of the Pope patent. diags Paper 27:28-30 N 10 '20
 Strainer cylinder for wood pulp and cellulose. diag Paper 28:32 Mr 23 '21

Paper making materials

- Analysis of straw pulp. E. Heuser and T. Blasweiler. Paper 28:22+ J1 13 '21
 Bamboo for paper making. C. J. West. il Paper Trade Journal 72:115+ Ap 14 '21
 Bamboo is not regarded favorably by papermakers. Paper 29:17-18 S 21 '21
 Book paper from southern pines and gums. S. D. Wells. Paper 27:16-21 N 24 '20
 Chemical composition of the reed phragmites communis Trin; abstract. C. J. West. Paper 28:16-17 Je 1 '21
 Chemicals used in papermaking. J. N. Stephenson. Paper 26:20-1 Mr 31 '20
 Cooking cotton hull fiber for pulp. O: Kress. Paper 25:24-8 Ja 21; 21-3 Ja 28 '20
 Cotton and cane for news print. Nation's Business 8:78 O '20
 Cotton linters for paper making. H. A. Lindenberg. Paper 27:20+ Mr 16 '21
 Find a wood pulp substitute says Courtland Smith before senate committee. Ptr Ink 111:90+ My 13 '20
 Forty centuries ago—and now; why not make paper again from the papyrus? M. Tevis. Sci Am 123:397 O 16 '20
 French colonial plants suitable for papermaking; abstract. Crolard. Paper 26:26 Mr 31 '20
 Guarding against fungi in wood and wood pulp. O: Kress, C. J. Humphrey and C. A. Richards. il Paper 26:13-15 My 12; 23-5 My 19; 21-2 My 26 '20
 Groundwood and waste papers in the manufacture of paper. E. Arnold. Paper 29:14-15 O 5 '21
 Hemp wood as a papermaking material. C. J. West. Paper Trade Journal 73:46+ O 13 '21
 Lignin: its composition and probable chemical reactions. P: Klason. Paper 26:20+ Je 30 '20
 Limestone analysis. W. E. B. Baker. Paper 26:70+ Ap 21 '20
 Looking to India for pulp supply. Paper 28:10+ Ag 17 '21
 Making paper from abaca bark. Paper 26:17+ Je 30 '20
 Manufacture of paper from abaca bark. Paper 26:13-14 Ap 14 '20

- Manufacture of paper from Florida sawgrass. Paper 27:20 S 15 '20
 New American clay for loading paper. Sci Am 124:271 Ap 2 '21
 New papermaking materials. Paper 29:22 S 21 '21
 New sources of pulp and paper. T: J. Keenan. Sci Am 124:469+ Je 11 '21
 Oyster shell composition for paper. F. J. Baumgardner. Paper 26:14-15 Ap 14 '20
 Paper company of Dallas to make paper from cotton linters. Chem & Met Eng 23:1090 D 1 '20
 Paper fibres in relation to mineral loaders. J. Scott. il Paper 28:14-15 Je 8; 12-13 Je 15 '21
 Paper from bagasse. Sci Am M 1:283 Mr '20
 Paper from bagasse. C. J. West. Paper 26:26+ Mr 17 '20
 Paper from cottonseed waste. S. R. Winters. il Sci Am 122:299 Mr 20 '20
 Paper making qualities of Hawaiian bagasse. Hawaii Exp Sta Rep Bul 46:1-51 '19
 Paper pulp from peat. Paper 27:10 S 29 '20
 Paper pulp from saw grass. H. A. Mount. il Pop Mech 34:554-5 O '20
 Possibilities of African grasses in paper manufacture. C. J. West. Paper 26:10, 28 Je 23 '20
 Possibilities of new fibres for pulp and paper making. M. Barbillion. Paper 26:11-12+ J1 28 '20
 Practical study of corn cob utilization. F: B. La Forge. Paper 27:15-18+ D 22 '20
 Pulp from cotton linters. O: Kress and S. D. Wells. Paper 26:62+ Ap 21 '20
 Ramies and textile nettles as paper fibre. Paper 26:15-16, 30 J1 7 '20
 Recommended specifications for quicklime and hydrated lime for use in the cooking of rags for the manufacture of paper. U S Bur Stand Circ 96:1-5 '20
 Reducing raw peat to pulp for paper making. T: Reece. Paper 26:12 S 1 '20
 Reed as paper making material. A. Klein. il Paper Trade Journal 73:38+ S 22 '21
 Starch and starch-sizing in papermaking. J: Traquair. diags Paper 26:11-14 Mr 24 '20
 Suitability of bagasse as a source of paper. F. Heim, J. Maheu and L. Matrod. il Paper 27:11-14+ S 15 '20
 Sulphite cellulose. A. Klein. Paper 27:20+ D 22; 20+ D 29 '20
 Tropical fibres for paper manufacture. A. C. Heiny. il Paper 28:24-5+ Ap 27 '21
 Use of southern woods for pulp and paper manufacture. Paper 27:23 S 8 '20
 Utilization for paper pulp of phragmites communis Trin. C. J. West. il Paper 27:22-5+ Mr 9; 26-9 Mr 16; 28:23-6 Mr 23 '21
 Utilization of reed in paper manufacture. E. Heuser. Paper 27:23+ N 3 '20
 Wilkinite, a new loading material. S. D. Wells. Paper 27:19-21+ D 8 '20

See also Paper sizing

Paper mills

- Colloids in paper mill waste waters. W. S. Coulter. Paper 26:22 Ap 28 '20
 Developing and organizing a modern pulp products mill; Eddy mills at Hull, Canada. il Paper 26:17-19+ Je 23 '20
 Economic utilization of heat and power in paper mills. W. Adamson. Paper 27:262+ N 10; 14-15 N 24; 19-20+ D 1 '20
 Hygienic measures in the mill to promote welfare of employees. Paper 28:14-16 Mr 30 '21
 Pacific coast pulp and paper mill has ideal location. V. D. Simons. il Paper 28:9-11+ Ag 3 '21
 Paper mill engineering. W: F. Thiele. Paper 29:14-16 S 7 '21
 Philadelphia newspapers to operate paper mill. Paper 29:30 S 28 '21
 Pulp and paper mills in Canada. Can Eng 39:520-2, 533-5 N 11-18 '20
 Removal of offensive gases in the sulphate pulp mill. C. G. Schwalbe. Paper 28:13-15 Ag 17 '21
 Warkaus mills of Finland. S. Setala. il Paper 28:11-14 Ag 10 '21

See also Paper making

Paper mills—Continued

Accounting

- Distributing power costs in a pulp mill using 1,500 hp. H. E. Stafford. Elec W 77:1000-1 Ap 30 '21
- Idle time as a manufacturing loss. H. A. Wingate. Paper 29:11-12 O 12 '21
- Need of standardization in paper mill cost systems. T. J. Burke. Paper 28:9-10 Ap 13 '21
- Uniform mill cost systems. C. O. Wellington. Paper 29:13-15 O 12 '21

Electric equipment

- Advances in the electrical manufacture of paper. il J Elec 46:128-9 F 1 '21
- Application of electricity to paper mills. E. E. Fuller. diags Electrician 86:171-4, 194-5 F 4-11 '21
- Automatic speed control for sectional paper machine drive. S. A. Staeger. il plan Elec J 18:78-82 Mr '21; Excerpts. Elec W 77:603-4 Mr 12 '21
- Care and upkeep of electrical equipment for the paper mill. W. W. Cronkhite. il Paper 27:132-4+ N 10 '20
- Electric drive and paper making. Electrician 86:192-3 F 11 '21
- Electric drive in a paper mill. il Paper 26:15 Ag 25 '20
- Electric drive in paper mills. E. Tanner and C. F. Papworth. il diag Electrician 84:344-8 Mr 26 '20
- Electric motors for pulp and paper machinery drives. W. H. Easton. il Power 51:584-8 Ap 13 '20
- Electric power in the manufacture of sulphite paper pulp. R. L. Gregory. il Elec R 76:55-9 Ja 10 '20
- Electrical equipment in paper-manufacturing plant. W. A. Scott. il Elec R 79:189-91 Ag 6 '21
- New form of sectional drive for paper machines. W. W. Cronkhite, W. L. Merrill and H. W. Rogers. il diags Gen Elec R 24:68-72 Ja '21
- Paper industry. H. W. Rogers and E. E. Warner. flow chart Gen Elec R 24:559-62 Je '21
- Paper machine drives. W. W. Cronkhite. Paper 28:21-2 Je 29 '21
- Recent developments in the field of paper machine drives. H. W. Rogers. il Paper 28:22-6 My 11 '21
- Sectional and individual motor drive. S. A. Staeger. diags Paper 27:74-7+ N 10 '20
- Sectionalized driving equipment for paper mills. il Elec R 77:1022-3 D 25 '20; Same. Paper 27:24-5 D 22 '20
- Speed control of motor drives by frequency generators. W. H. Artz. il Elec R 79:505-8 O 1 '21

Employees

- Descriptions of occupations; coal and water, gas, paint and varnish, paper, printing trades, rubber goods. p 24-30 '19 U.S. Bureau of labor statistics, Washington, D.C.
- Duties of the machine tender demand special qualifications. Paper 26:19 Je 9 '20
- Interesting the employee in his work; plan by which employees become stockholders. F. H. MacPherson. Paper 26:24-8 Ap 14; 22 Ap 28 '20
- Survey of wages and labor in the paper industry. Paper 26:9-10+ Jl 7 '20
- Three-shift day in the paper and pulp industry. Monthly Labor R 11:335-9 F '21

Equipment

- Cheaper hauling with motor trucks. il Paper 27:12-13 O 20 '20
- Control equipment for sulphite mills. E. R. Barker. Paper 26:104+ Ap 21 '20
- Cutting costs in handling, packing and shipping paper. N. P. Winchell, jr. il Paper 26:15-19 My 5; 18-21 My 12; 20-3+ My 19 '20
- Equipment for practical paper making. J. J. Sullivan. Paper 27:11-12+ D 15 '20

- Forced steam circulation and closed loop boiler feeding system for paper mills. diags Dom Eng 89:637-8 D 27 '19; Same. Heat & Ven 17:59-61 F '20; Same. Paper 26:24-5 Mr 17 '20; Abstract. Power 51:266 F 17 '20
- Material handling machinery. W. Schack. il Paper 27:190+ N 10 '20
- Mechanical handling in paper mills. N. P. Winchell. il Eng & Ind Management 5:248-51 F 24 '21
- Mechanical standards for paper mills. J. Stadler. Paper 25:19-20 F 4 '20
- Modern testing apparatus for pulp and paper mills. F. M. Williams. il Paper 26:25+ Jl 21 '20
- Motor truck questionnaire. Paper 28:12-14+ Ag 3 '21
- New Hammermill plant employs superheated steam for prime mover operation and manufacturing processes. il diags plans Power Pl Eng 25:201-4 F 15 '21
- Pulp testing apparatus. F. M. Williams. il Paper 27:86 N 10 '20
- Stuff chests and tanks. L. L. Travers. il diag Paper 27:55 N 10 '20
- Superheated steam in the pulp and paper mill. R. H. Wyld. il paper 27:123-4+ N 10 '20
- Tachometers in the paper mill. T. R. Gresham. Paper 27:54 N 10 '20

See also Paper making machinery

Heating and ventilation

- Air conditioning for paper mills. J. O. Ross. il diag Paper 26:13-19 Je 16 '20
- Heating and ventilation of paper machine rooms. E. A. Ryan. diags plan Paper 27:16-20+ Ja 26 '21; Excerpts. Heat & Ven 18:31-3 Ap; 31-3 My '21; Discussion. E. A. Briner. 18:33-6 My '21
- New heating system for paper mills. diags Power Pl Eng 24:200-1 F 1 '20
- Practise of ventilation of paper machine rooms. E. A. Briner. il Paper 27:23-5+ F 2 '21
- Ventilation of machine rooms in the paper mill. H. S. Taylor. il Paper 27:11-16 Mr 9 '21; Excerpts. Eng & Ind Management 5:351-3 Mr 24 '21; Discussion. Paper 29:26 S 28 '21
- Ventilation of the machine room with the Briner economizer. W. H. Howell, jr. Paper 28:32-3 My 18 '21; Excerpts. Power 53:720 My 3 '21

Layout

- General plan of the Kreole mills of the Southern paper co., Moss Point, Mass. Paper 27:56 N 10 '20

Management

- How we applied simplification. G. A. Galliver. il System 40:265-8+ S '21
- Modern purchasing methods for pulp and paper mills. N. P. Winchell, jr. Paper 26:23-5 Je 30; 14-15 Jl 14; 19-21+ Jl 28 '20
- Scientific control in the paper mill. E. G. Milham. Paper 27:26+ D 1 '20
- Simplification in industry. G. A. Galliver. il Factory 27:463-6 O '21

Power

- Central-station power for making tissue paper. Elec R 75:1027 D 20 '19
- Cheaper power available in paper mills. J. F. Ferguson. Paper 25:30-1 Ja 21 '20
- Economic utilization of heat and power in the paper mill. W. Adamson. Paper 27:262+ N 10; 14-15 N 24; 19-20+ D 1 '20
- Electric driving in the paper mill on heat-economy lines. A. B. Mallinson. Inst E E J 59:538-53 My '21; Abstract. Electrician 86:746-9 Je 17 '21; Abstract. Sci Am M 4:283 S '21; Discussion. Inst E E J 59:553-63 My '21; Electrician 86:749-50 Je 17 '21
- Electric, steam and water-power drive in a paper mill. il Elec R 76:345-7 F 28 '20
- Fifty-ton sulphite paper mill requires 1,500 hp. in motors. H. E. Stafford. Elec W 77:265-8 Ja 29 '21
- Power plant. il diags Paper 27:108-13 N 10 '20
- Selecting power plant machinery for paper mills. W. F. Schaphorst. Paper Trade Journal 73:46+ Jl 14; 48+ O 27 '21

Paper mills—Power—Continued

Steam economy in drying on, and driving of paper machines. R. W. Leeper. Paper 28: 9-11+ My 11 '21

Value of central station service in the paper industry. J. W. Wattles. N E L A Bul 8:294-6 My '21

See also Paper mills—Electric equipment

Safety devices and measures

Beater room hazards. C: Walker. Paper 29: 9-10 O 12 '21

Foreman's part in safety-first work. H: W. Bonges. il Paper 27:14-15 O 6 '20

Man on the job. M. Corcoran. Paper 27:22-3 O 13 '20

Safety director's part at the Kimberly-Clark company. il Paper 27:15-17+ O 20 '20

Paper money

Paper money and Europe's trade. C. C. Latour. Annalist 17:663+ Je 20 '21

Paper money, International

Argument for an international paper currency. F. Todd. Annalist 17:87-8 Ja 10 '21

Paper samples

Standard paper sample books mean economy and profit. Paper 26:10+ Jl 28 '20

Standardizing paper sample books. Inland Ptr 65:475 Jl '20

Paper sizes

One economy feature of the standardized universal paper sizes. N. J. Werner. diags Inland Ptr 66:467-9 Ja '21

Standardization of sizes in the manufacture of paper. W. R. Colton. Paper 27:9-10+ Mr 9 '21; Discussion. N. J. Werner. 27:9-10+ Mr 16 '21

Paper sizing

Colloidal rosin in beater sizing. J: Traquair. Paper 26:11-12 Ap 7 '20

New method of sizing. S. Ferenczi. Paper 27:13 Ja 5 '21

New process of sizing paper. Paper 26:16 Mr 17 '20

New sizing process. Paper 27:30 O 6 '20

Paper sizing; new method for determining the size-fastness of paper. F. Stöckigt. diag Paper 26:11-12 Mr 10 '20

Rosin and rosin sizing. E. Sutermeister. Paper 27:22-3 D 1 '20

Rosin or engine sizing. C. C. Schneider. Paper 28:22-3 My 18 '21

Silicate of soda in papermaking. J. G. Vail. Paper 29:9-11 O 26 '21; Same. Paper Trade Journal 73:32+ O 27 '21; Same. Chem & Met Eng 25:823-4 N 2 '21

Sizing paper with bakelite. C. J. West. Paper Trade Journal 73:52 O 13 '21

Sizing paper with montan wax. Paper 28: 24+ Ap 13 '21

Starch and starch-sizing in papermaking. J: Traquair. diags Paper 26:11-14 Mr 24 '20

Substitutes for alum in paper sizing. W. E. B. Baker. Paper 27:16+ S 29 '20

Use of water glass in sizing of paper. T. Blasweiler. Paper 28:20-2 Ag 3; 20-2 Ag 17 '21

Waterglass in the sizing of paper. Paper 29: 19-20 O 12 '21

See also Casein

Bibliography

Sizing of paper: a reading list. C. J. West. Paper Trade Journal 71:20+ N 11; 110+ N 18 '20

Paper textiles

From wood to cloth. S: J. Record. il Sci Am 123:591+ D 11 '20

Interest in paper clothing. Textile World 58:2337+ O 2 '20

Paper belting made in Germany. il Power 51:223 F 10 '20

Paper suit. il Sci Am 125:170 S 3 '21

Paper textiles. W. F. Schaphorst. Paper 27: 18+ D 1 '20

Paper; the textile of the future. F: A. Talbot. Paper Trade Journal 72:32+ Ap 28 '21

See also Paper thread; Paper yarn

Bibliography

Reading list on paper yarns and textiles. C. J. West. Paper Trade Journal 72:42+ My 26 '21

Paper thread

Manufacture of paper threads. J. G. Varlot. diags Paper 26:15-18+ S 1 '20

Paper towels

Burglar-proofing a market after you have won it. Ptr Ink 110:81-2+ F 5 '20

Paper trade association, Canadian. See Canadian paper trade association

Paper trade association, National. See National paper trade association

Paper waste. See Waste paper

Paper winders

Improvement on paper winders. diags Paper 27:24 F 23 '21

Paper yarn

Paper yarns in Germany during the war. Color Tr J 6:42 F '20

Bibliography

Reading list on paper yarns and textiles. C. J. West. Paper Trade Journal 72:42+ My 26 '21

Papier-mâché

Papier-mâché utilized in multitude of ways. il Pop Mech 35:243-4 F '21

Papyrus

Forty centuries ago—and now; why not make paper again from the papyrus? M. Tevis. Sci Am 123:397 O 16 '20

Uses of papyrus. Paper 28:16+ Ap 13 '21

Para red. See Paranitraniline red

Pará rubber trees

Pará rubber in Mexico—some reminiscences. J. L. Hermessen. il India Rubber W 61: 249-50 Ja '20

Parabiosis

Artificial Siamese twins. M. Heyde. Sci Am M 2:19-21 Jl '20

Parachutes

Airplane parachute that is safe. il Sci Am 124:487 Je 18 '21

Draft from air propeller tests parachutes. il Pop Mech 36:719 N '21

Floyd Smith aerial life pack. F. Smith. il Aviation 8:67-70 F 15 '20

Irvin air chute. il Flying 9:323 Je '20

More about parachutes. Aerial Age 13:326 Je 13 '21

New types of parachutes. A. Gradenwitz. il Aviation 11:22 Jl 4 '21

Parachute lifts passenger cabin from disabled plane. il Pop Mech 36:738 N '21

Parachute saves life of mail pilot. C. C. Eversole. Aviation 10:408 Mr 28 '21

Les parachutes d'aviation et d'aérostation. diag Génie Civil 76:398-9 Ap 24 '20

Parachute's worst enemy. E. R. Calthrop. Sci Am M 1:288 Mr '20

Recent data on parachutes. F. Smith. Aviation 8:369-70 Je 1 '20

Saving life in air wrecks. T. O. Lees. Aeronautical J 25:317-28 Jl '21; Same. Aviation 11:451-3, 485-8 O 17-24 '21; Discussion. Aeronautical J 25:328-32 Jl '21

Stability of the parachute and helicopter. H. Bateman. diags U S Nat Advisory Com for Aeronautics 1919:783-9 '20

Thrilling runaway-parachute accident. Pop Mech 36:1-2 Jl '21

24,000 foot parachute drop. Aerial Age 13:76 Ap 4 '21

Van Meter parachute release. il Aviation 9: 344-5 N 29 '20

Watkins Foulnot parachute. W: F. Watkins. diags Aviation 7:430-1 D 15 '19

Paracoumarone

Use of paracoumarone resin in varnishes. W. W. King, F. W. Bayard and F. H. Rhodes. J Ind & Eng Chem 12:549-52 Je '20; Abstract. Sci Am M 2:240 N '20

Paraffin

Paraffin percentages in road-building materials. il Sci Am 124:253 Mr 26 '21

Paraffin—Continued

Removal of paraffin wax from petroleum. il diags plan Engineer 129:121-2 Ja 30 '20

Paraguay

Paraguay. W. L. Schurz. il map U S Bur For & Dom Com 199:1-195 '20

Commerce

Textile markets at Argentina, Uruguay, and Paraguay. L. S. Garry. il U S Bur For & Dom Com 194:1-151 '20

Economic conditions

Cost of living of school-teachers and telegraph operators in Paraguay. Monthly Labor R 12:768-71 Ap '21

Parallel operation. See Electric generators, Alternating current—Parallel operation; Electric generators, Direct-current—Parallel operation; Electric transformers—Parallel operation; Frequency changers—Parallel operation

Parallelogram of velocity mechanics. See Machinery, Kinematics of

Paramagnetism

Application of quantum theory to paramagnetism. E. P. Adams. (National Research Council Bul. v 1, no. 5) p 347-52 O '20 National research council, 1701 Massachusetts av, Washington, D.C.

Paraminophenol

Electrolytic manufacture of paraminophenol. A. S. McDaniel, L. Schneider and A. Ballard. diags Am Electrochem Soc Trans v 39 (preprint 27):319-27 Ap '21

Paramorphine. See Thebaine

Paranitraniline

Treatment with diazotized paranitraniline. Textile World 58:1315 Ag 28 '20

Use of paranitraniline to standardize solutions of sodium nitrite. W. H. Bell. Chem & Met Eng 22:1173 Je 23 '20

Paranitraniline red

Dyeing of para red; abstract. M. P. Montavon. Color Tr J 7:158 N '20

Para red dyeing. A. J. Hall. Color Tr J 6:177-9 Je '20

Parasites

Parasitism and symbiosis in relation to evolution. M. Caullery. il diags Sci Am M 1:399-403 My '20

Some vegetable parasites. C. G. Nicholson. il Sci Am 122:87+ Ja 24 '20

U.S. collection of animal parasites. S. R. Winters. Sci Am 125:271 O 15 '21

See also Sclerotinia cinerea

Paravanes

Experiments on the oscillation of otters. R. F. McKay. diags Engineer 132:3-4 Jl 1 '21

Parcel post

Australia postal rules. Oil Paint & Drug Rep 100:52 sec 1 Ag 22 '21

Costliness of the parcels post to the government. Comm & Fin Chr 113:124 Jl 9 '21

Inquiry into parcel, postal and other branches of post office department. Comm & Fin Chr 113:494 Jl 30 '21

International parcel post is greatly extended. Pop Mech 33:359 Mr '20

Parcel post rates

West's parcel-post and express comparative rate guide. T. E. West. 139p West's rate service, Los Angeles '21

Parchment

Parchment paper. Paper 27:17+ S 29 '20

True parchment paper. Paper 26:32 Je 2 '20

See also Palimpsests

Parchmentized paper. See Paper making

Paris, France

Extension of Paris. Am Arch 119:64-5 Ja 19 '21

Greater Paris competition. N. Hammarstrand. il Am Inst Arch J 8:331-5, 339-40, 365-70 S-O '20

Housing and planning problems of greater Paris. N. Hammarstrand. Am Inst Arch J 8:296-8 Ag '20

New plans for Paris. J. Gréber. il plans Arch Rec 49:71-8 Ja '21

Plan of Paris. N. Hammarstrand. il Am Inst Arch J 8:67-86 F '20

Programme for the greater Paris competition. N. Hammarstrand. il Am Inst Arch J 8:27-36 Ja '20

Bridges

Old masonry arch bridges of Paris. C. L. Rimmele. Eng & Contr 55:624-5 Je 22 '21

Description and travel

Notes from foreign fields. E. J. Mehren. il diags Eng N 85:469-72 S 2 '20

Police

Scientific methods of the Paris police. J. Boyer. il Sci Am M 4:169-74 Ag '21

Rapid transit

Le chemin de fer métropolitain de Paris; ligne de la Porte de Saint-Cloud au Trocadéro et prolongement de cette ligne jusqu'à l'Opéra. L. Biette. il diags plan Génie Civil 78:245-51, 267-71, pl 2 Mr 19-26 '21

Features of the new Paris franchise. Elec Ry J 57:847-9 My 7 '21

Le métropolitain de Paris; prolongement de la ligne n° 7, du Palais-Royal à l'hôtel de Ville, par les quais. L. Biette. diags plans Génie Civil 78:3-10 Ja 1 '21

La nouvelle convention entre la ville de Paris et la compagnie du chemin de fer métropolitain. plan Génie Civil 78:369-74 Ap 30 '21

Paris underground railways. Elec R (Lond) 89:18 Jl 1 '21

L'unification, le rachat et l'affermage des tramways et omnibus de la région parisienne. P. Razous. Génie Civil 77:196-8, 211-14 S 4-11 '20

Streets

Paris to try Yankee traffic methods. Motor Age 37:49 Ap 1 '20

Paris, Texas**Water supply**

Studies of flood discharge of Pine Creek. J. B. Hawley. Pub Works 49:455-7 N 13 '20

Paris (steamboat)

French transatlantic liner Paris. il Engineering 112:96-7, 106, 181-2, 246-8, 250, 254, pl 6, 8, 10 Jl 15, 29, Ag 12 '21

Park roads. See Driveways

Park Royal engineering works, ltd.

Wide range of electrical manufacture. il Electrician 86:489-91 Ap 22 '21

Parking regulations. See Automobile laws and regulations; Traffic regulations

Parks

Beautiful forested area to be dedicated to lumberman's memory. il Am Lumberman 2325:41 D 6 '19

Drainage of Exhibition park, Toronto. R. B. Evans. il plan Can Eng 38:401 Ap 22 '20

Engineering features of State park at Grand Haven, Michigan. W. M. Conley. Munic Eng 61:99-100 S '21

Park engineering. R. B. Evans. il Can Eng 38:337 Ap 1 '20

See also Amusement parks; Bronx parkway; also subdivision Parks under names of cities, e.g. Minneapolis—Parks

Bibliography

Publications of interest to the park superintendent. L. P. Jensen. Parks and Recreation, East St Louis, Ill. p 165-7 Ap '21

Lighting

Cost problems in the lighting of public parks. C. H. Shepherd. il diag Elec R 77:389-94 S 11 '20

Maintenance of electric lighting equipment on the Lincoln Park system. C. H. Shepherd. Illum Eng Soc 15:314-20 no 5 '20

Ornamental lighting for Cleveland parks. C. G. Beckwith. il diags Elec W 78:157-9 Jl 23 '21; Same. Elec R 79:540-2 O 8 '21

Parliament buildings. See Ottawa—Parliament buildings

Parliamentary practice

Parliamentary practice. H: M. Robert. 203p
Century co. '21

Parrot fish

Fish that chew their cud. F. Reuter. Sci
Am M 3:306 Ap '21

Parsons, Charles Algernon, 1854-

Life and work of the man responsible for the
successful development of the steam tur-
bine. E. C. Smith. por Power 54:517-20 O 4
'21

Perfector of the reaction steam turbine.
receives the Franklin medal. por Power
51:1021 Je 22 '20

Presentation of the Franklin medal. por J
Fr Inst 190:91-121 Jl '20

Parsons, Charles Lathrop, 1867-

Dr R. B. Moore appointed chief chemist of
the Bureau of mines to succeed C: L. Par-
sons. por Chem & Met Eng 21:548-9 O 29 '19

Parsons, Floyd W.

New editorial director of Gas age-record.
M. C. Robbins. por Gas Age 48:445-6 O 15
'21

Parthenogenesis

Artificial parthenogenesis and cell stimu-
lants. M. Popoff. il Sci Am M 1:312-16 Ap
'20

Partitions

Architectural acoustics; sound-proofing effi-
ciency of thin metal lath and plaster parti-
tions. diags Arch Forum 32:249-52 Je '20;
Abstract. Eng & Contr 54:525-6 N 24 '20

Standardized partitions for the quick shifting
of departments. P. F. O'Shea. il Am Mach
51:1103-4 D 25 '19

Subdividing large rooms for small meetings.
E. J. G. Phillips. diags Bldg Age 43:52-4
Ag '21

Tests show thin solid partition best sound
insulator. F. R. Watson. Eng N 86:591 Ap
7 '21

Partnership

Division of profit on sale of partnership good-
will. H. A. Finney. J Account 30:381-5 N
'20

Lawyer vs. accountant in partnership li-
quidation. J Account 29:386-99 My '20

Partnership vs. corporation in federal taxa-
tion. C. T. Chenery. Annalist 17:373-4 Mr
28 '21

See also Corporation law

Passaic Valley sewer

New York loses Passaic Valley sewer suit.
Pub Works 50:430-1 My 21 '21

New Yorkers continue to fight Passaic Val-
ley sewerage. Eng N 86:1050 Je 16 '21

Passaic Valley sewage decision against New
York. Eng N 86:849-51 My 19 '21

Passenger cars. See Cars**Paste**

Consistency of starch and dextrin pastes. W.
H. Herschel and C. Bergquist. diags J Ind
& Eng Chem 13:703-6 Ag '21

Patchin Place. See New York city—Architecture**Patent laws and legislation**

Annotated rules of practice in the United
States patent office. E. J. Stoddard. 872p
F. S. Drake. Detroit '20

Appeals court sustains decision against
Luten patents. Eng N 84:417-18 F 26 '20

Bill authorizes commission to administer
patents. Iron Tr R 66:1071-2 Ap 8 '20

Bill places premium on theft of ideas by gov-
ernment employees. Nat Pet N 12:33-4 D 15
'20

Le brevet international. Chimie & Ind 5:
476-83 Ap '21

Creating an asset; law authorizing Federal
trade commission to accept and administer
assignment of patents. A. Stewart. Sci Am
122:394 Ap 10 '20

Exclusive license of a patented chemical
process not a sale of business in a foreign
country. W. Gustin. Chem & Met Eng 22:
35-6 Ja 7 '20

Futility of compulsory operation of patents.
E. J. Prindle. Chem Age 29:249-50 Jl '21

Important patent legislation. Sci Am 125:
18 Jl 9 '21

Industry resents the competition of its help;
patents by government employees. I. B.
Smith. Chem Age 29:435 F '21

Judge Manton on claims of the Brinkman
patent contending cooling systems for
radiators. W. Gustin. Motor Age 37:70+ Ap
1 '20

La loi du 8 Octobre 1919 sur la prolonga-
tion des brevets d'invention et le paiement
des annuités. A. Taillefer. Chimie & Ind
3:100-5 Ja '20

Modifications récentes apportées à la législa-
tion sur la propriété industrielle. L. Paillard.
Chimie & Ind 4:818-24 D '20

Needed improvements in our patent office and
system. G. B. Harris. Am Mach 52:798-803
Ap 8 '20

New Dutch patent law. Engineer 132:117 Jl
29 '21

La nouvelle législation fiscale sur les brevets
d'invention et les marques de fabrique. P.
Razous. Génie Civil 77:375-7 N 6 '20

Patent bill no. 11,984. Am Mach 52:638-9 Mr
18 '20

Patent law. J: B. Waite. 316p Princeton
university press '20

Patent laws and their administration. C. A.
P. Turner. Concrete 18:152-4 Mr '21

Patent litigation in 1919. Engineering 109:
546-7 Ap 23 '20

Patent office bill. D: T. Day. Min & Met 170:
40-1 F '21

Patent office relief seems near. Iron Tr R
68:1741 Je 23 '21

Patent situation. E. J. Prindle. Chem & Met
Eng 25:417-19 Ag 31 '21

Patents and war loss in Great Britain. J.
H. Evans-Jackson. Engineering 111:765-7
Je 24 '21

Patents secured by officers of the government.
Sci Am 124:322 Ap 23 '21

Pointers to inventors and users of secret
processes. W. Gustin. Chem & Met Eng 22:
646 Ap 7 '20

Print and label law. Sci Am 124:514+ Je 25
'21

Proposed new departures in government
chemical work. J Ind & Eng Chem 12:
1126-7 N '20

Proposed patent legislation. Mach 26:888-9 My
'20

Le régime international d'après-guerre en
matière de brevets d'invention. Génie Civil
79:213-14 S 3 '21

Report of the Patent committee of the Na-
tional research council. L. H. Baekeland.
(Reprint & Circ. ser. 1) 24p n.d. 30c Na-
tional research council, 1701 Massachu-
setts av, Washington, D.C. [Published
(without proposed bills) in Chemical &
Metallurgical Engineering, F '19]

Restriction of trade in patent agreements.
E. H. Michaelis. Am Mach 52:53 Ja 1 '20

Secret processes and letters patent—nature
of the rights therein distinguished. W. Gus-
tin. Chem & Met Eng 24:130 Ja 19 '21

Shall the government patent and develop the
inventions of its employees? Chem & Met
Eng 23:809-10 O 27 '20

United States patent interferences. Engineer
129:289 Mr 19 '20

United States patent practice. Engineer 130:
134 Ag 6 '20

What shall the government do with its em-
ployees' inventions? C. L. Alsberg; F: G.
Cottrell. Chem & Met Eng 23:817-21 O 27
'20

Who is entitled to inventions? C. C. Sher-
lock. Chem & Met Eng 24:438 Mr 9 '21

See also Plumbing—Patents

Patent lawyers

Exploiting the inventor. C. H. Claudy. Sci
Am 122:360+ Ap 3 '20

Patent medicine

Cleaning up the patent-medicine and other
evils. E: W. Bok. Ptr Ink 113:129-30+ O
7 '20

Patent medicines threatened in England. T:
Russell. Ptr Ink 112:93-4 S 16 '20

Patent medicine—Continued

Registration of patent medicines demanded by Board of health. Oil Paint & Drug Rep 99:63 sec 1 Ja 17 '21

Patent office (United States). See United States—Patent office

Patents

Derniers délais accordés pour la régularisation des droits de propriété industrielle. L. Pail-lard. Chimie & Ind 5:355-8 Mr '21

Effect of peace on patents and trademarks. Sci Am 122:647 Je 12 '20

Executive's responsibility in patent matters. R. P. Clarkson. Ind Management 61:303-5 Ap 1 '21

How to keep invention records; together with an explanation of the nature of industrial property. H. A. Toulmin, jr. 85p Appleton '20

International agreement as to war-time patents. Engineering 110:579 O 29 '20

Inventors' troubles and how to prevent them. E. H. Michaelis. Am Mach 52:141-2, 180-1, 248 Ja 15-29 '20

Legal and official chemistry. F: Dannerth. Chem & Met Eng 24:397-9 Mr 2 '21

Our defenseless patents. A. H. Ulm. Na-tion's Business 8:50+ My '20

Patent rights and remedies. C. C. Sherlock. Chem & Met Eng 21:786 D 24 '19

Patentable manner of manufacture. Engineer 130:75-6 Jl 23 '20

Patents and progress. R. B. Brinsmade. Min & Sci P 120:335-6 Mr 6 '20

Patents regarded as a form of business in-surance. R. P. Clarkson. Ind Management 62:262-4 N '21

Post-bellum Britain and the inventor. G: C. Marks. Sci Am 121:578+ D 13 '19

Prolongation of patents. Engineer 132:114 Jl 29 '21

Role of the patent system in the United States. Sci Am 124:20 Ja 1 '21

Seventy-five years of American patent ad-ministration. W: I. Wyman. il Sci Am 123: 340-1+ O 2 '20

U.S. Supreme court holds Burchenal patent void for anticipation by the Normann pro-cess. W. Gustin. Chem & Met Eng 24:789-90 My 4 '21

Value of patents. C. C. Sherlock. Chem & Met Eng 23:584 S 22 '20

What's so and what isn't about patents and inventions. E. Scheyer. Am Mach 54:321-3 F 24 '21

Who invented it first?; some of the knotty points that come before the examiners in interference. J: Boyle, jr. Sci Am 123:124+ Ag 7 '20

Whole U.S. patent system in danger. Chem & Met Eng 21:755-6 D 24 '19

Why is a patent? Sci Am 123:588 D 11 '20

See also Chemical patents; Competition, Unfair; Dye patents; Inventions; Metallur-gical patents; Minerals Separation, ltd.; Patent laws and legislation; Patent law-yers; Trade marks; Trade secrets; United States—Patent office; also subdivision Patents under names of articles and pro-cesses patented, e.g. Alloys—Patents, Flota-tion process—Patents, Paper making—Patents, Petroleum refining—Patents

Statistics

Patents issued by various countries up to the end of 1915; tabulation. Mach 27:139 O '20

Patents, Chemical. See Chemical patents

Paterson, New Jersey

Architecture

Some houses of Paterson, N.J.; views and plans. Am Arch 118:578a-h N 3 '20

Rapid transit

Mr Beeler studies traffic in Paterson. Elec Ry J 57:454-5 Mr 5 '21

Patina

Patina—natural and artificial. C. P. Karr. il Sci Am M 3:229-31 Mr '21; Excerpts. Brass W 17:225-6 Ag '21

Patrick, Mason Mathews, 1863-

General Patrick appointed Chief of Air Ser-vice. por Aviation 11:395 O 3 '21

Patriotism

Patriotism: its dangers and duties. M. D. Shutter. Am Ind 20:19-21 Mr '20

Patrol boats

Motorboats hunt the last pirates of the new world, the oyster thieves. H. H. Dunn. il Pop Mech 33:659-63 My '20

Pattern cutting. See Design—Pattern cutting

Pattern making

Accuracy insured on wooden matchplate. A. Landerer. diags Foundry 49:259 Ap 1 '21

Between blue print and production; grand master, master, plaster, metal plate, split and gated patterns. W: H. Parry. Metal Ind 19:5-7 Ja '21

Bill makes some man-hole rigging. P. Dwyer. diags Foundry 48:608-10 Ag 1 '20

Bill makes some sheave wheel rigging. P. Dwyer. diag Foundry 48:564-6 Jl 15 '20

Car wheel patterns must be rugged. A. Landerer. diags Foundry 48:961-2 D 1 '20

Castings engineer. W: H. Parry. Metal Ind 19:320 Ag '21

Chucking and reverse chucking in pattern-making. M. E. Duggan. diags Mach 26: 862 My '20

Chucking head patterns. M. E. Duggan. diags Foundry 48:965 D 1 '20

Coatings for metal patterns. W: H. Parry. Metal Ind 18:162 Ap '20

Dimensions on drawings should be plain. M. E. Duggan. diags Foundry 48:1006-7 D 15 '20

Efficient pattern making. E. A. Dixie. il diag Am Mach 53:516-17 S 9 '20

Elevated, midway, and subway gating. W: H. Parry. diags plans Am Mach 55:209-10 Ag 11 '21

Emergency pattern for a pulley. M. E. Dug-gan. diag plan Foundry 49:118-19 F 1 '21

Finishing pattern work. J. A. Shelly. il diags Mach 26:411-14 Ja '20

Heating pattern plates. J: M. Strait. il Iron Age 105:274 Ja 22 '20; Same. Mach 26:520 F '20

How pattern shop practice affects core-room and foundry methods. J. Nall. diags Mach 26:551-3 F '20

How spur gear patterns are made. J. Hor-ner. diags plan Foundry 48:645-8, 687-91 Ag 15-S 1 '20; Same (Zahnrädermodelle). Stahl & Eisen 41:579-83, 724-6 Ap 28, My 26 '21

How to make bevel gear patterns. J. Horner. diags Foundry 49:34-5+ Ja 1 '21

How to register patterns on matchplate. P. H. Root. Foundry 49:344 My 1 '21

Iron foundry assists pattern shop. H. E. Dil-ler. il Foundry 47:887-91 D 15 '19

Make pattern shop power tools convenient. M. E. Duggan. Foundry 49:744-5 S 15 '21

Make patterns to suit the foundry. M. E. Duggan. Foundry 48:874-5 N 1 '20

Making a crosshead pattern in a hurry. M. E. Duggan. diags Foundry 48:328-9 Ap 15 '20

Making a pair of composition mounts. il Foundry 49:115-16 F 1 '21

Making a pattern for an oil drip pan. M. E. Duggan. diags Foundry 48:78-9 Ja 15 '20

Making castings used in ship construction. B. Shaw and J. Edgar. diags plans Foundry 47: 251-5+, 336-9, 417-20, 597-600, 647-50, 705-8, 785-8, 832-5, 870-3; 48:71-4, 88-91, 140-5 My 1, Je 1, Jl 1, S 1-O 1, N 1-D 1 '19, Ja 15-F 15 '20

Manufacture of a brass faucet or compres-sion Bibb cock. P: W. Blair. il Metal Ind 18:159-60 Ap '20

Match plate for small pulleys. E. W. Leach. diags Am Mach 52:406 F 19 '20

Methods of constructing strong arm joints. A. Landerer. diags Foundry 48:473 Je 15 '20

Model pattern shop and storage building; Whiting corporation, Harvey, Ill. G. L. Lacher. il plans Iron Age 107:1165-8 My 5 '21

Molder is the best pattern judge. M. E. Dug-gan. diags Foundry 49:700-1 S 1 '21

Pattern making—Continued

- New England pattern shop is unique; Bethlehem shipbuilding corp., Fore River plant, Quincy, Mass. H. R. Simonds. *il Foundry* 49:127-32 F 15 '21
- Out of date patternmaking. W: H. Parry. *Metal Ind* 19:288 JI '21
- Pattern draft is an over worked term. M. E. Duggan. *diag Foundry* 49:9-10 Ja 1 '21
- Pattern for molding sheaves. M. E. Duggan. *diags Mach* 27:173-4 O '20
- Pattern lumber. J. A. Shelly. *il diags Mach* 26:539-40 F '20
- Patternmaker needs foundry practice. M. E. Duggan. *diags Foundry* 49:576 JI 15 '21
- Pattern-making. E: M. McCracken and C: H. Sampson. 111p Van Nostrand '21
- Patternmaking. J. A. Shelly. 341p Industrial press, New York '20
- Patternmaking a practical treatise. B. Shaw and J. Edgar. 108p Pitman '21
- Pattern-making plant notable for its size. J. E. McDonald. *il Iron Age* 106:834-6 S 30 '20
- Pattern shop at Balboa; shop layout. R. D. Gatewood. *il plan Am Mach* 52:723-5 Ap 1 '20
- Pattern shop casualties; suggestions for their prevention. W: H. Parry. *Metal Ind* 18:511-13 N '20
- Patterns altered to facilitate molding. M. E. Duggan. *diags Foundry* 49:534-5 JI 1 '21
- Patterns as foundry tools. J. Nall. *il diags Mach* 26:625-6 Mr '20
- Patterns for jobbing pipe work. J. Horner. *diags Foundry* 48:242-5, 266-71 Mr 15-Apr 1 '20
- Patterns which reduce foundry expense. M. E. Duggan. *diags Foundry* 49:283 Ap 1 '21
- Plaster casting for the machine shop or factory. H. S. Trecartin. *diags Am Mach* 55:237-8 Ag 11 '21
- Pointers for pattern shop apprentices. M. E. Duggan. *diags Foundry* 48:791 O 1 '20
- Premium system in the pattern shop. J: H. Klee. *Foundry* 48:92 F 1 '20
- Rehabilitate shop in record time; Bryan pattern & machine co. *il Foundry* 48:897-901 N 15 '20
- Routing systems in the pattern shop. B. R. Hall. *Foundry* 49:740-2 S 15 '21
- Saving pattern work by using stock cores. M. E. Duggan. *diags Am Mach* 52:355-6 F 12 '20
- Screw propeller patternmaking. W: H. Parry. *il Metal Ind* 19:353-6 S '21
- Special pattern work. J. A. Shelly. *diags Mach* 26:318-24 D '19
- Speed is essential in repair jobs. M. E. Duggan. *diags Foundry* 48:962-3 D 1 '20
- Three pattern making kinks. *diags Am Mach* 54:1054-5 Je 16 '21
- Transferring a reduced sketch to a board. M. E. Duggan. *diags plan Foundry* 49:75 Ja 15 '21
- Woes of a pattern checker. W: H. Parry. *Metal Ind* 18:552 D '20
- See also Foundry practice; Mechanical drawing; Sheet metal work—Pattern making*

Pattern marking

- Marking patterns to prevent improper coring. M. E. Duggan. *diags Mach* 26:1160 Ag '20

Pattern numbering

- Pattern number system. *Foundry* 49:663 Ag 15 '21

Pattern storage

- Efficiency in operation and safety in storage secured in new building. G: H. Manlove. *il Foundry* 49:402-3+ My 15 '21
- Efficient pattern storage. E. A. Dixie. *il Am Mach* 52:136-7 Ja 15 '20
- Fireproof pattern storage building of the Whiting corporation, Harvey, Ill. *Iron Tr R* 68:1250-1 My 5 '21
- How we house and control 300,000 patterns. H. M. Latham. *il Factory* 24:1161-4 Ap '15 '20
- Method of storing patterns. H. Bentley. *diag Eng & Ind Management* 6:342+ S 29 '21

Model pattern shop and storage building; Whiting corporation, Harvey, Ill. G. L. Lacher. *il plans Iron Age* 107:1165-8 My 5 '21

Organisation of a pattern stores. H. Varley. *Eng & Ind Management* 6:374-6 O 6 '21

Pattern record system prevents mistakes. M. E. Duggan. *Foundry* 49:244-5 Mr 15 '21

Safe storage of patterns. J. V. Hunter. *il Am Mach* 52:901-2 Ap 22 '20

Patterson, Charles E., 1866-

Elected vice-president of the General electric company. *por Gen Elec R* 23:792-3 O '20

Pavements

- Central loading plant facilitates street paving work. *Eng & Contr* 52:527 N 5 '19
- City's paving problems. C: A. Mullen. *Can Eng* 38:358-60 Ap 8 '20
- Designing street pavements for small Minnesota cities. G: M. Shepard and L: P. Wolff. *Munic Eng* 58:167-70 Ap '20; Same. *Eng & Contr* 53:520-2 My 5 '20
- Experiments in street paving with rubber. *Eng & Contr* 55:641 Je 29 '21
- High cost of poor city pavements. C. D. Pollock. *Pub Works* 51:105-6 Ag 6 '21
- Measure of a model paving problem for typical city of 20,000. M. B. Greenough. *Eng & Contr* 54:545-6 D 1 '20; Same. *Good Roads n s* 20:271-2+ D 8 '20
- Motor trucks and our pavements. M. L. Patzig. *Munic Eng* 58:161-3 Ap '20
- Novel type of paving successful in Toledo; alternate rows of brick and wood blocks. A. Swartz. *Elec Ry J* 56:602 S 25 '20
- Pavement design at street crossings. H. J. Fixmer. *Eng & Contr* 53:240 Mr 3 '20
- Pavements for industrial housing developments. M. Knowles and J: M. Rice. *Eng & Contr* 54:217-18 S 1 '20
- Paving on Chicago streets. H. J. Fixmer. *il Good Roads n s* 21:51-3+ F 2 '21
- Paving problem in Japan. T. Takakuwa. *Pub Works* 48:273-4 Ap 3 '20
- Paving problems difficult this year. *Can Eng* 39:514 N 11 '20
- Protecting pavements on car track streets. H. A. Nunlist. *il Munic Eng* 61:100-2 S '21
- Relative service value of pavement types. A. R. Hirst. *Eng N* 85:1187-90 D 16 '20
- Street paving in Philadelphia. *il Pub Works* 49:208-10 S 4 '20
- Street paving in towns and villages. E. A. James. *il Can Eng* 38:277-8 Mr 11 '20
- Street railway paving primarily a tax. W. Jackson. *Eng N* 85:956 N 11 '20
- Types of pavements. J. H. Macdonald. *Good Roads n s* 21:157-8 Mr 16 '21
- Willite paving in an arid, rockless district. F. Reed. *il Eng & Contr* 53:131 F 4 '20; Same. *Pub Works* 48:79-81 F 7 '20

See also Bridges—Floors; Curbs; Gutters; Roads; Sidewalks; Street openings; Streets; also City paving conference

Contracts

- Payment for preparing the subgrade; how Rochester, N.Y., solved the problem. J. O. Preston. *diags Munic Eng* 58:26-9 Ja '20

See also Pavements—Guarantees

Cost

- Average costs of 1 mile of 16-ft. pavement of six different types in New York state, as of January 1, 1920. *Good Roads n s* 19:247 My 12 '20
- Bituminous macadam vs. concrete pavements. F. P. Smith. *Munic J* 47:325-6 N 29 '19
- Costs of English pavements per traffic unit. J: A. Brodie. *Eng & Contr* 56:218 Ag 31 '21
- Costs on four types of pavement in Philadelphia test road. *Eng N* 85:607-8 S 23 '20
- Force account paving in St Paul. *Pub Works* 49:546-7 D 11 '20
- How Lake Forest, Ill., maintained waterbound macadam pavements, and put them in perfect condition at low cost. N. N. Campbell. *il Munic Eng* 60:49-52 F '21
- Pavement foundations as a factor in economic transportation. R. C. Barnett. *diags Eng & Contr* 54:441-5 N 3 '20

Pavements—Cost—Continued

Paving cost comparisons. Eng N 85:76 J1 8 '20

See also Pavements—Maintenance and repair; Pavements, Asphalt—Cost; Pavements, Bituminous—Cost; Pavements, Bituminous concrete—Cost; Pavements, Concrete—Cost

Cutting

Concrete breaker in Cleveland. il Elec Ry J 58:327 Ag 27 '21

Cutting device for asphalt pavement. il diag Elec Ry J 58:291 Ag 20 '21; Same. Eng & Contr 56:285 S 21 '21

Ingersoll-Rand pneumatic paving breaker. il Am Mach 54:798-9 My 5 '21

Pavement breaker for starting water-works trenches. il Eng N 86:937 Je 2 '21

Pavement breaker for street trenching. il Pub Works 51:235 S 24 '21

Pavement breaker improvised from a steam shovel. il Eng N 87:163 J1 28 '21

Pavement cutting by pneumatic machinery. L. H. Geyer. il Eng & Contr 55:117 F 2 '21

Pneumatic tools on pavement repairs. il Eng & Contr 56:21 J1 6 '21

Portable diamond drill cuts 4½-in. cores from concrete pavement. il Eng N 87:198 Ag 4 '21

Removing pavement by compressed air operated machines. il Eng & Contr 55:545-6 Je 1 '21; Gas Age 48:85-6 J1 25 '21; Elec Ry J 57:960 My 21 '21; Concrete 18:298 Je '21

Estimates

Items a paving contractor has to cover in his bid. M. G. Hall. Eng & Contr 53:15 Ja 7 '20

Method of estimating labor hour requirements on paving work. D. B. Davis. diag Eng & Contr 53:508-9 My 5 '20

Failures

Base and sub-base failures; tabulation. Pub Works 50:307-8 Ap 9 '21

Cloudburst in Toledo floats pavement away. il Eng N 85:467-8 S 2 '20

Failures of pavement bases; with tables. il Pub Works 50:130-4+ F 5 '21

See also Pavements, Asphalt—Failures; Pavements, Brick—Failures; Pavements, Wood—Failures

Fillers

Cleveland reverts to asphalt filler for brick pavements. F: R. Williams. Eng N 87:653 O 20 '21

Special pitch filler for wood block pavements. Eng & Contr 54:445-6 N 3 '20

Finance

Why street railways should bear share of pavement cost. Eng N 85:795-6 O 21 '20

Foundations

Bituminous foundations for pavements. H. W. Skidmore. il Munic Eng 60:55-60 F '21;

Excerpt. Good Roads n s 21:161-2 Mr 16 '21; Excerpt. Pub Works 50:279 Ap 2 '21

Chicago to try asphaltic cushion for street pavements. J: B. Hittell. Eng N 85:265 Ag 5 '20

Design and construction of different types of pavements; bituminous macadam. J. E. Pennybacker. Good Roads n s 19:137-8 Mr 10 '20

Existing macadam base for bituminous pavements. G: C. Warren. il Munic Eng 59:166-8 N '20; Same cond. Pub Works 49:453-4 N 13 '20; Excerpt. Eng & Contr 54:452 N 3 '20

Failures of pavement bases; with tables. il Pub Works 50:130-4+ F 5 '21

Foundations for asphaltic pavements. J: C. Wilson. Munic Eng 59:85-6 S '20

Foundations for pavements. Munic J 47:294-6 N 15 '19

Foundations for Warrenite-bitulithic pavements and roads. G: C. Warren. il Munic Eng 57:255-8 D '19; Same. Good Roads n s 18:261-2+ D 24 '19

Non-rigid bases for pavements. P. Hubbard. il Pub Works 50:111-14 F 5 '21

Pavement bases. Pub Works 50:136-7 F 5 '21

Pavement foundations as a factor in economic transportation. R. C. Barnett. diag Eng & Contr 54:441-5 N 3 '20

Present status of macadam base for bituminous pavements. J. Adler. il Munic Eng 59:155-9 N '20; Same. Good Roads n s 20:225-8+ N 10 '20; Same cond. Pub Works 49:449-51 N 13 '20; Same cond. Eng & Contr 55:11-12 Ja 5 '21

Sheet asphalt—ideas on suitability of varying bases—costs. F. S. Besson. Eng N 84:96-7 Ja 8 '20; Discussion. 84:538-9 Mr 11 '20

Specifications for broken stone foundations. L. White. Pub Works 49:452-3 N 13 '20; Same. Eng & Contr 54:539-40 D 1 '20

See also Roads—Foundations

Guarantees

Economic status of guarantees for pavements on roads and streets; report. Good Roads n s 18:248 D 10 '19; Same. Munic Eng 57:268-9 D '19

Guarantees for pavements. E. A. Kingsley. Good Roads n s 19:57-8+ F 4 '20

Maintenance and repair

Cost of pavement maintenance and resurfacing in Chicago. Elec Ry J 57:440 Mr 5 '21

How the oldest town in the United States repairs its pavements. E. Master. il Eng & Contr 56:324-5 O 5 '21

How to maintain streets in the average city. H. H. Edwards. Munic Eng 60:110-14 Mr '21; Same abr. Eng & Contr 55:443-4 My 4 '21

Jackscrews tighten wood block pavement in place. W. W. Horner. il Eng N 85:686-9 O 7 '20

Repair of street openings. W. R. Rosengarten. il Good Roads n s 19:35-7, 44-5 Ja 28 '20

Repaving—a vital problem for municipalities. W. A. Bassett. Eng N 85:534-6 S 16 '20

Resurfacing old pavements. il Pub Works 48:55-9 F 7 '20

See also Pavements—Surface treatment; Pavements, Asphalt—Maintenance and repair; Pavements, Bituminous—Maintenance and repair; Pavements, Concrete—Maintenance and repair; Pavements, Wood—Maintenance and repair

Records

Baltimore's paving recorded by map and file system. R. K. Compton. Eng N 83:865-6 N 13 '19

How Baltimore keeps records of its pavements. Eng & Contr 56:232 S 7 '21

Specifications

Pavement specifications of the A.S.M.I. Pub Works 50:95-7 Ja 29 '21

Paving specifications. Pub Works 49:387, 484-5 O 23, N 20 '20

Specifications for broken stone foundations. L. White. Pub Works 49:452-3 N 13 '20; Same. Eng & Contr 54:539-40 D 1 '20

Suggested composite standard specifications for exterior wood block paving. S. M. Feinberg. il Munic Eng 60:236-44+ Je '21

See also Pavements, Asphalt—Specifications; Pavements, Brick—Specifications; Pavements, Concrete—Specifications; Pavements, Granite—Specifications

Statistics

Annual paving statistics. Pub Works 48:59-68, 104-6, 118-19, 195-6 F 7-21. Mr 13 '20

City pavements to be laid in 1921. Pub Works 50:283-6 Ap 2 '21

Pavements laid during 1920; tabulation. Pub Works 50:155, 176-7, 195-6, 209-10, 225-6, 266-8, 308-9 F 12-Mr 12, 26, Ap 9 '21; Correction. 50:280 Ap 2 '21

Subgrades

See also Roads—Subgrades

Surface treatment

Design construction of different types of pavement. P. P. Sharples. Good Roads n s 19:100+ F 18 '20

Pavements—Surface treatment—Continued

- How Lake Forest, Ill., maintained water-bound macadam pavements, and put them in perfect condition at low cost. N. N. Campbell. *il Munic Eng* 60:49-52 F '21
- Improving gravel streets in Grand Rapids, Michigan. *Munic Eng* 61:15-17 JI '21
- Method of resurfacing worn brick pavements in Topeka with asphaltic concrete. W. E. Baldry. *Eng & Contr* 54:353-4 O 6 '20
- Old brick pavement resurfaced with asphaltic concrete. R. M. Green and J. L. Hershey. *diag Eng N* 85:900 N 4 '20
- Practical limitations in surface treatment of old brick or rock pavements. W. L. Hempelmann. *Munic Eng* 60:181-2 My '21; Same. *Good Roads n s* 21:285-6 Je 1 '21
- Resurfacing flexible pavement. H. T. Macfarland. *Eng N* 85:899 N 4 '20
- Resurfacing of brick and cobble city pavements. W. H. Eagle. *il diags Eng N* 86:798-9 My 12 '21
- Resurfacing old brick pavement with Topeka mixture. W. E. Weller. *Eng & Contr* 56:247 S 7 '21
- Resurfacing old pavements. *il Pub Works* 48:55-9 F 7 '20
- Resurfacing worn out macadam pavement at Dubuque, Iowa, using bituminous concrete binder. H. W. Skidmore. *il Munic Eng* 59:190-2 D '20
- Surfacing old asphalt block pavement with sheet asphalt. F. H. Gilpin. *il Eng & Contr* 54:532-3 D 1 '20
- Surfacing old cobble pavements. *Pub Works* 49:384-5 O 23 '20
- Use of asphaltic concrete for resurfacing worn pavements. P. S. Brockway. *il Good Roads n s* 21:1-2 Ja 5 '21
- Using asphaltic concrete for resurfacing worn out pavements. W. E. Baldry. *il Munic Eng* 60:66-70 F '21

Surfaces

- Design of pavement surfaces for modern traffic. H. J. Fixmer. *Munic Eng* 58:67-9 F '20

Terminology

See also Asphalt—Terminology

Testing

- Considerations in design of heavy-traffic pavements. P. Hubbard. *Eng N* 85:1264-6 D 30 '20; Same. *Can Eng* 40:113-15 Ja 6 '21; Same. *Good Roads n s* 21:11-14 Ja 12 '21; Same. *Eng & Contr* 55:106-8 F 2 '21; Excerpt. *Pub Works* 50:93-5 Ja 29 '21; Excerpts. *Soc Auto Eng J* 8:480 My '21; Discussion. *Eng N* 86:532 F 24 '21
- Highway researches and their results. A. T. Goldbeck. *diags Good Roads* 60:333-7+; 61:19-21+ Je 29, JI 13 '21
- Road experiments of the Bureau of public roads. *Pub Works* 49:363-4 O 16 '20
- Sampling highway pavements. F. A. McLean. *il Good Roads n s* 20:53-4+ Ag 4 '20; Same. *Can Eng* 39:275-6 Ag 26 '20
- Testing road surfaces by wearing them out. S. R. Winters. *il Sci Am* 122:547 My 15 '20
- Wear tests show service qualities of paving materials. *il Eng N* 86:1121 Je 30 '21

See also Pavements, Concrete—Testing

Widening

- Pavement on curves widened by ring method. E. H. Stelle. *charts diag Eng N* 86:72-3 Ja 13 '21

Pavements, Asphalt

- Asphalt block pavements. P. S. Thompson. *Good Roads n s* 20:270-1 D 8 '20
- Asphalt paving in a small city. W. A. Hardenbergh. *il Munic J* 47:339-40 D 6 '19
- Asphalt paving in Tarboro. W. A. Hardenbergh. *il Pub Works* 49:69-71 JI 24 '20
- Asphalt paving in the District of Columbia. F. S. Besson. *plans Munic Eng* 61:51-4 Ag '21
- Asphalt paving laid without granite blocks alongside rails. C. A. Elliott. *il diags Elec Ry J* 55:158-9 Ja 17 '20
- Characteristics of Kentucky rock asphalt pavements. R. Wiley. *il Munic Eng* 57:266-8 D '19

- Considerations in design of heavy-traffic pavements. P. Hubbard. *Eng N* 85:1264-6 D 30 '20; Same. *Can Eng* 40:113-15 Ja 6 '21; Same. *Good Roads n s* 21:11-14 Ja 12 '21; Same. *Eng & Contr* 55:106-8 F 2 '21; Excerpt. *Pub Works* 50:93-5 Ja 29 '21; Excerpts. *Soc Auto Eng J* 8:480 My '21

- Contractor's organization and planning for asphalt paving jobs. H. B. Drowne. *Eng & Contr* 55:453-4 My 4 '21; Excerpt. *Eng N* 87:13 JI 7 '21

- Contractors' plants for asphalt paving jobs. H. B. Drowne. *il Good Roads* 61:55-6+, 71-3+ Ag 3-10 '21

- Development of asphalt blocks and methods of laying. P. S. Thompson. *Eng & Contr* 54:441 N 3 '20

- Foundations for asphaltic pavements. J. C. Wilson. *Munic Eng* 59:85-6 S '20

- Hartford, New Jersey, sheet asphalt mixing plant. *il Pub Works* 49:146-8 Ag 14 '20

- How colloidal chemistry aids the paving industry. D. T. Pierce. *il Sci Am* 122:337+ Mr 27 '20

- Lack of cement results in new pavement base for city of Providence. *Eng N* 85:877 N 4 '20

- Methods and cost of municipal asphalt plant operations at Chatham, Ont. C. H. R. Fuller. *Eng & Contr* 56:234 S 7 '21

- Non-rigid bases for pavements. P. Hubbard. *il Pub Works* 50:111-14 F 5 '21

- Pave 70-ft. boulevard with sheet asphalt in Brooklyn. *il Eng N* 87:408-9 S 8 '21

- Paving North Broad street, Philadelphia. *il Pub Works* 49:357-8 O 16 '20

- Preparation and use of sheet asphalt surfacing. P. Hubbard. *Can Eng* 40:423-5, 441-3 Ap 28-My 5 '21

- Street paving in Goldsboro. W. A. Hardenbergh. *Pub Works* 50:118-19 F 5 '21

- Terms used in connection with asphalt for highway work. *Can Eng* 38:181-2 Ja 29 '20; Same. *Munic Eng* 58:19-21 Ja '20

- Thin binder course a menace to asphalt pavement. R. M. Green. *il Eng N* 87:649 O 20 '21

- Two Illinois asphaltic pavements; abstracts. J. B. Hittell. *Pub Works* 49:433 N 6 '20; *Good Roads n s* 20:247-8+ N 24 '20

- Use of asphalt macadam pavements in real estate developments. *il diags Munic Eng* 60:232-4 Je '21

- What is an asphalt road? some facts regarding the use of this material for city and rural pavements. *Sci Am* 123:151+ Ag 14 '20

See also Pavements, Bituminous; Pavements, Bituminous concrete

Cost

- Items a paving contractor has to cover in his bid. M. G. Hall. *Eng & Contr* 53:15 Ja 7 '20

- Sheet asphalt maintenance costs in District of Columbia. F. S. Besson. *Eng N* 85:705-7 O 7 '20

Failures

- Boils in asphaltic pavement caused by metals in fill beneath. *Eng N* 84:426 F 26 '20; Same. *Sci Am* 122:573 My 22 '20

- Causes of corrugations or waves in asphalt macadam. *Eng & Contr* 54:327 S 29 '20

Maintenance and repair

- Asphalt maintenance costs in Columbus. *Eng N* 85:423 Ag 26 '20

- Cost of repairing asphalt pavement of Los Angeles. J. A. Griffin. *Eng & Contr* 55:5 Ja 5 '21

- Resurfacing asphalt pavements in New York. *Pub Works* 48:170-2 Mr 6 '20

- Salvaging old asphaltic surface material taken from street pavements. C. J. Van Etta. *il Munic Eng* 60:3-4 Ja '21

- Sheet asphalt—ideas on suitability of varying bases—costs. F. S. Besson. *Eng N* 84:96-7 Ja 8 '20; Discussion. 84:538-9 Mr 11 '20

- Sheet asphalt maintenance costs in District of Columbia. F. S. Besson. *Eng N* 85:705-7 O 7 '20

Pavements, Asphalt—Continued**Specifications**

- Asphalt cement qualities and tests needed in specifications for sheet asphalt and asphaltic concrete pavements. J. W. Howard. *Munic Eng* 58:236-7 Je '20
- Elimination of unnecessary tests from asphalt cement specifications. R. R. Barrett. *Good Roads n s* 20:229-30+ N 10 '20
- Specifications for asphalt pavements. *Good Roads n s* 20:186-7 O 13 '20
- Specifications for asphalt paving. *Munic Eng* 59:196-7 D '20; Same. *Can Eng* 40:168-9 Ja 27 '21

Pavements, Asphaltic concrete. See Pavements, Bituminous concrete

Pavements, Bitulithic

- History of Warrenite—bitulithic roads and pavements and some new discoveries in pavement construction. G. C. Warren. *Munic Eng* 58:242-4 Je '20
- Study of bitulithic in seven Texas cities. *Munic J* 47:323-5 N 29 '19

Pavements, Bituminous

- Bituminous macadam and bituminous concrete roads. E. J. Wulff. *Pub Roads* 4:22-8+ Je '21; Same. *Good Roads* 61:29-31+, 43-4+, 57-8+ J1 20-Ag 3 '21
- Bituminous macadam pavements in Mineral Wells, Texas. W. W. McClendon. *il Pub Works* 49:272-4 S 25 '20
- Bituminous pavement design—aggregate survey. F. S. Besson. *il Munic Eng* 61:123-33 O '21
- Bituminous pavements laid on old macadam streets in Denver. J. W. Johnson. *il Pub Roads* 4:9-11 My '21; Same. *Eng & Contr* 55:551-2 Je 1 '21
- Design and construction of different types of pavements; bituminous macadam. J. E. Pennybacker. *Good Roads n s* 19:137-8 Mr 10 '20; Excerpts. *Eng & Contr* 53:247 Mr 3 '20
- Design of bituminous pavements of fine aggregate. R. K. Compton. *il Munic Eng* 58:234-6 Je '20
- Existing macadam base for bituminous pavements. G. C. Warren. *il Munic Eng* 59:166-8 N '20; Same cond. *Pub Works* 49:453-4 N 13 '20; Excerpt. *Eng & Contr* 54:452 N 3 '20
- Mineral aggregates for bituminous pavements. W. L. Caldwell. *Munic Eng* 57:246-50 D '19; Same. *Can Eng* 38:111-12+, 124-5 Ja 1-8 '20; Same cond. *Eng & Contr* 53:126-8 F 4 '20
- Present status of macadam base for bituminous pavements. J. Adler. *il Munic Eng* 59:155-9 N '20; Same. *Good Roads n s* 20:225-8+ N 10 '20; Same cond. *Pub Works* 49:449-51 N 13 '20; Same cond. *Eng & Contr* 55:11-12 Ja 5 '21
- Les qualités du bitume et de l'asphalte employés pour le revêtement des chaussées. *Génie Civil* 76:128-30 Ja 31 '20

See also Pavements, Asphalt; Pavements, Bitulithic; Roads, Bituminous

Cost

- Bituminous pavements laid on old macadam streets in Denver. J. W. Johnson. *il Pub Roads* 4:9-11 My '21; Same. *Eng & Contr* 55:551-2 Je 1 '21
- Data on six 1920 highway contract lettings in New York. *Munic Eng* 59:sup21-2 O '20
- Street repairing in Waltham, Mass. *Pub Works* 49:72-3 J1 24 '20

Maintenance and repair

- Good and bad practice in making bituminous patches. J. S. Crandell. *il Eng N* 85:1168-70 D 16 '20; Discussion. H. S. Perry. 86:234 F 3 '21

Pavements, Bituminous concrete

- Asphaltic concrete laid on gravel base. E. F. Petersen. *il Eng N* 84:277-80 F 5 '20
- Asphaltic concrete roads as built in California. C. S. Pope. *Eng N* 84:1095-6 Je 3 '20
- Asphaltic concrete wearing surface on gravel base. L. W. Mashburn. *il Eng & Contr* 55:15-16 Ja 5 '21

- Asphaltic pavement construction at Fort Smith, Ark. *il Eng & Contr* 56:17 J1 6 '21
- Bituminous macadam and bituminous concrete roads. E. J. Wulff. *Pub Roads* 4:22-8+ Je '21; Same. *Good Roads* 61:29-31+, 43-4+, 57-8+ J1 20-Ag 3 '21

- Design and construction of different types of pavement; bituminous concrete. T. S. Oxholm. *Good Roads n s* 19:171+ Mr 31 '20; Same. *Munic Eng* 58:150-1 Ap '20; Same abr. *Eng & Contr* 53:244 Mr 3 '20; Same cond. *Pub Works* 48:425-6 My 15 '20

- Determining bitumen content in bituminous concrete. R. M. Green. *Eng N* 84:871-2 Ap 29 '20

- Resurfacing worn out macadam pavement at Dubuque, Iowa, using bituminous concrete binder. H. W. Skidmore. *il Munic Eng* 59:190-2 D '20

- Two Illinois asphaltic pavements; abstracts. J. B. Hittell. *Pub Works* 49:432-4 N 6 '20; *Good Roads n s* 20:247-8+ N 24 '20

- Use of clinker asphalt in England lowers paving costs. *Eng N* 85:655 S 30 '20

- Using asphaltic concrete for resurfacing worn out pavements. W. E. Baldry. *il Munic Eng* 60:66-70 F '21

Cost

- Cost data compiled in laying 112,900 sq. yd. of bituminous concrete with day labor in Denver. *Good Roads n s* 21:302+ Je 8 '21

Specifications

- Study of Topeka mixed bituminous pavement specifications. R. M. Green. *Eng N* 87:728-30 N 3 '21

Pavements, Brick

- Brick pavement design; abstracts. J. C. Travilla. *Good Roads* 61:3+ J1 6 '21; *Munic Eng* 61:10-12 J1 '21; *Eng & Contr* 56:238 S 7 '21
- Cleveland reverts to asphalt filler for brick pavements. F. R. Williams. *Eng N* 87:653 O 20 '21

- Comment on the trend in brick pavement construction. T. R. Agg. *Munic Eng* 59:11-12 J1 '20

- Construction of brick pavements in and near Danville, Illinois. H. H. Edwards. *il Munic Eng* 58:3-8 Ja '20

- Paving brick and brick pavements; abstracts. J. C. Travilla. *Good Roads n s* 20:201-2+ O 27 '20; *Pub Works* 49:485-7 N 20 '20

- Recent experience in the development of brick pavement construction in the city of Chicago. H. J. Fixmer. *il Munic Eng* 58:147-9 Ap '20

- Reveals high per cent. of brick-paved streets; investigation of National paving brick manufacturers' association, conducted in 22 cities of 20,000. *Brick & Clay Rec* 58:40-1 Ja 11 '21

- Significance of local conditions in design of brick pavements. M. B. Greenough. *Eng & Contr* 55:117-19 F 2 '21; Same, with *il Munic Eng* 60:104-8 Mr '21

- Track construction from the paving maintenance standpoint. *il diags Elec Ry J* 55:569-71 Mr 20 '20

- Wilkinsburg, Pa., modernizes 29-year-old brick pavement. C. F. Sperling. *Munic Eng* 61:136-7 O '21

See also Roads, Brick

Failures

- Cracks in new brick pavement. C. C. Wiley. *il Eng N* 85:256 Ag 5 '20

- Monolithic brick pavement fails from expansion. M. W. Watson. *il diag Eng N* 85:595-6 S 23 '20

Specifications

- Lug or lugless brick?; symposium. *Eng N* 84:618-20 Mr 25 '20

- Paving brick manufacturers seek specification changes. *Eng N* 83:854 N 13 '19

- Paving specifications by pavement associations. *Pub Works* 49:485 N 20 '20

Pavements, Brick—Specifications—Continued

Standard specifications for brick pavements. M. B. Greenough. *Munic Eng* 58:57-61 F '20; Same cond. *Eng & Contr* 53:242-3 Mr 3 '20; Same cond. *Good Roads n s* 19:251-4 My 19 '20

Testing

Accelerated wear tests by the Bureau of public roads. F. H. Jackson and C. A. Hogentogler. *il Pub Roads* 4:3-21 Je '21; Same cond. *Eng & Contr* 56:9-13 Jl 6 '21

Pavements, Concrete

Averages and maximum runs in concrete paving. *il plan Eng N* 86:222-3 F 3 '21
Concrete for pavements. A. C. Arend. *Eng & Contr* 54:2-3 Jl 7 '20

Concrete pavements in New Zealand. W. E. Bush. *Eng & Contr* 52:767-8 D 31 '19

Concrete paving in the District of Columbia. F. S. Besson. *Concrete* 19:23-5 Jl '21

Design of rigid pavements. C. Older. *il diags Concrete* 18:81-3 F '21

Designing street pavements for small Minnesota cities. G. M. Shepard and L. P. Wolff. *Munic Eng* 58:168-70 Ap '20; Same. *Eng & Contr* 53:520-2 My 5 '20

Details of concrete pavement construction in Lakewood, Ohio. E. A. Fisher. *diag Munic Eng* 58:107 Mr '20

Does it pay to determine void percentages in coarse aggregate for concrete pavement? W. C. Crandall. *diags Munic Eng* 57:264-6 D '19

Fundamental considerations affecting concrete pavement design. *Munic Eng* 58:154-6 Ap '20

Fundamental considerations affecting concrete pavement design. S. T. Morse. *Munic Eng* 58:62-6 F '20; Same. *Eng & Contr* 53:245-7 Mr 3 '20

Machinery in alley paving. *il Pub Works* 49:103-4 Jl 31 '20

Mesh reinforcement in California concrete pavements. *Eng N* 85:739 O 14 '20

Method for simplifying concrete alley paving. *diag Eng & Contr* 52:533 N 5 '19

New type of mixing plant used on 11-mile concrete paving job in Oregon. R. F. Hoffmark. *il plan Eng & Contr* 53:116-18 F 4 '20

Novelties in concrete paving. *Munic J* 47:349-50 D 6 '19

Piece work system of paving for odd jobs on concrete paving work. R. F. Hoffmark. *Eng & Contr* 53:233-4 Mr 3 '20

Protecting concrete pavements during setting. *il Munic J* 47:293-4 N 15 '19

Resurfacing concrete pavement with thin reinforced concrete slab. *Eng & Contr* 55:434 My 4 '21

Street car tracks paved with grouted concrete. *il diags Eng N* 87:532-4 S 29 '21

Street paving in Martinsville. *il Pub Works* 51:249-51 O 1 '21

Subgrade support in pavement design. C. Older. *il diag Eng N* 86:210-12 F 3 '21; Discussion. 86:693-4 Ap 21 '21

Systematized concrete paving job. *plan Pub Works* 48:123 F 21 '20

Track construction from the paving maintenance standpoint. *il diags Elec Ry J* 55:569-71 Mr 20 '20

Use of steel reinforcement for concrete pavements. H. E. Breed. *Eng N* 85:1231-4 D 23 '20; Abstract. *Pub Works* 50:119-20 F 5 '21

See also Pavements, Bituminous concrete; Roads, Concrete

Cost

Charts tell cost of concrete paving. F. J. Herlihy. *Eng N* 84:261-4 F 5 '20

Data on six 1920 highway contract lettings in New York. *Munic Eng* 59:sup21-2 O '20

Labor cost of paving alleys with concrete. *Eng & Contr* 52:638 D 3 '19

Salvaging a concrete pavement. F. W. Ullius, jr. *Good Roads* 61:142 S 14 '21

Expansion joints

Concealed joints in road slab limit surface cracks. S. H. Lea. *diag Eng N* 85:305 Ag 12 '20

Providing for expansion in concrete roads. *Concrete* 19:129 O '21

Study of temperature stresses in rigid pavement slabs. C. H. Scholer. *il diag Eng N* 85:943-4 N 11 '20

Failures

Preventing cracks in concrete pavements near culverts. *diags Pub Works* 50:326-7 Ap 16 '21

Forms

Development of steel forms as used in road construction. W. J. Savage. *il Munic Eng* 59:sup26+ D '20

New Lakewood-Hotchkiss road form. *il Munic Eng* 60:sup30+ Mr '21; *Eng & Contr* 55:357-8 Ap 6 '21

Maintenance and repair

Concrete base repaired with precast slabs. C. B. Dugan. *il Eng N* 85:20-1 Jl 1 '20

Concrete paving repair by novel method. R. C. Mills. *il Elec Ry J* 57:545-6 Mr 19 '21

Maintenance methods for concrete pavements. *il diags Eng & Contr* 54:211-13 S 1 '20

Method of patching concrete pavement. *Eng & Contr* 53:625 Je 2 '20

Patching concrete pavements in Macon, Ga. W. L. Ashmore. *Pub Works* 50:379 Ap 30 '21

Preventing cracks in concrete pavements near culverts. *diags Pub Works* 50:326-7 Ap 16 '21

Repair of concrete pavement with gunite unsuccessful. *Eng N* 87:682 O 27 '21

Replacing concrete slabs at joints. *diags Eng N* 86:263 F 10 '21

See also Roads, Concrete—Maintenance and repair

Specifications

Suggested composite specifications for concrete roadway construction. S. M. Feinberg. *Munic Eng* 59:52-5 Ag '20

Testing

Accelerated wear tests by the Bureau of public roads. F. H. Jackson and C. A. Hogentogler. *il Pub Roads* 4:3-21 Je '21; Same cond. *Eng & Contr* 56:9-13 Jl 6 '21

Build concrete pavement for test to destruction. *Eng N* 87:276-7 Ag 18 '21

Compression tests of field samples of concrete pavement. *Eng & Contr* 54:449 N 3 '20

Pavements, Granite

Granite block on old concrete base, Park Avenue, New York. *il Pub Works* 48:441-2 My 22 '20

Making new granite pavement from old blocks for New Orleans car tracks at saving of 50 per cent. J. C. Bartley. *il Munic Eng* 59:197-8 D '20

Method of constructing Durax pavement. W. C. Mallonee. *il Eng & Contr* 54:351-2 O 6 '20

Modern granite block, asphalt-filled, pavement construction in Cincinnati. *il Munic Eng* 60:23-4+ Ja '21

Recut granite block paving in Philadelphia. *il Pub Works* 49:269-71 S 25 '20

Relaying granite block pavement on asphalt macadam base at Providence, R.I. *Munic Eng* 60:sup32-3 My '21

Repaving granite block streets in New York. *il Pub Works* 48:231-3 Mr 27 '20

Specifications

Improved heavy traffic pavements in Jersey City. C. D. Pollock. *il Pub Works* 50:423-5 My 21 '21

Tentative specifications for block for granite pavements. *Am Soc T M Pro v* 20 pt 1:690-1 '20

Testing

Accelerated wear tests by the Bureau of public roads. F. H. Jackson and C. A. Hogentogler. *il Pub Roads* 4:3-21 Je '21; Same cond. *Eng & Contr* 56:9-13 Jl 6 '21

Laboratory tests of granite paving block and suggested specification. F. H. Jackson. *il Eng & Contr* 53:234-7 Mr 3 '20

Pavements, Macadamized. *See Roads, Macadamized*

Pavements, Mosaic

Decorative function of the stone pavement.
H. D. Eberlein. *il Arch Forum* 33:195-200
D '20

Pavements, Rubber

Rubber paving in London. *Eng N* 86:1120 Je
30 '21

Pavements, Stone

Stone block paving in Glasgow. *il Eng N* 85:
322-3 Ag 12 '20

See also Pavements, Granite

Pavements, Wood

New joint spacer for wood block pavements.
J: S. Crandell. *il Good Roads n s* 18:227 N
26 '19

Proper grade of creosote oil for wood paving
blocks. K. M. Waddell. *il Munic Eng* 57:
269-70+ D '19

Recent experiences with wood block pave-
ments. H. von Schrenk. *Munic Eng* 59:159-
61 N '20; Same. *Eng & Contr* 54:535-6 D
1 '20; Same cond. *Eng N* 85:976-7 N 18
'20; Same cond. *Good Roads n s* 20:260,
262-3 D 1 '20

Special pitch filler for wood block pavements.
Eng & Contr 54:445-6 N 3 '20

Status of creosoted block industry. *Can Eng*
38:482 My 20 '20

Suggested composite standard specifications
for exterior wood block paving. S. M.
Feinberg. *il Munic Eng* 60:236-44+ Je '21

Syracuse uses tar-sand cushion in wood-
block paving. J: S. Crandell. *Eng N* 85:414
Ag 26 '20

Utility of hardwoods for paving shown in
comparative tests. E. E. Butterfield. *Eng*
N 85:656-8 S 30 '20

Wood block paving. W. Buehler. *il W Soc E J*
25:73-84 F 5 '20; Abstract. *Pub Works* 48:
359-61 Ap 24 '20; Discussion. *W Soc E J*
25:84-92 F 5 '20

Wood-block paving in St Louis. J: S. Cran-
dell. *Eng N* 86:376-8 Mr 3 '21

Failures

Wood block pavement fails through contrac-
tion and flotation. W. W. Horner. *il Eng N*
84:814-17 Ap 22 '20

Maintenance and repair

Jackscrews tighten wood block pavement in
place. W. W. Horner. *il Eng N* 85:686-9
O 7 '20

Repairs to wood block pavement in Newark.
W: A. Howell. *il Pub Works* 50:515-18 Je
18 '21

Timely treatment for saving wood block
pavements. J: S. Crandell. *il Eng N* 84:
968-9 My 13 '20

Pavilions

Hurry heating of hot water for sports pavil-
ion. J: Y. Dunlop. *il diags Sanitary &*
Heat Eng 96:99-100 Ag 12 '21

Pay envelopes

One way to create good will. A. Abbott. *Ptg*
Art 36:311-12 D '20

Payment

Protecting rights of creditors. C. C. Sher-
lock. *Iron Tr R* 66:1478-9 My 20 '20

Payne, John Barton, 1855-

Director general of railroads. *por Ry R* 66:856
My 22 '20

Government officials who influence mining.
P. Wooton. *por Eng & Min J* 109:974 Ap 24
'20

Payroll machines

Putting the payroll on an automatic basis.
C: A. Goddard. *il Sci Am* 123:275+ S 18
'20

Payrolls

Graphic planning of payroll procedure. W. C.
Bober. *Ind Management* 60:336-7 N '20

Helping employees figure their pay. *Factory*
25:1896-7 D 15 '20

How four companies simplify their payroll
work. *Factory* 26:851-2 Ap 1 '21

Mechanical aids in preparing the railroad
payroll. *Ry R* 66:423-4 Mr 13 '20

Payment of wages by divisional paymasters.
T. W. Mathews. *Ry Age* 69:1061-4 D 17 '20

Payroll audit—the duties of the auditor. G.
Whiting. *J Account* 29:260-5 Ap '20

Payroll control. T: J. Walsh. *Am Mach* 52:
273-4 F 5 '20

Payroll plan the men like. *Factory* 25:1598+
N 15 '20

Philadelphia electric company payroll system
for cost work on departmental man-hour
rate basis in operation June 1, 1919. G.
P. Landwehr. *N E L A Bul* 7:47-51 Ja '20

Pivotal points in paying employees. O. D.
Foster. *Administration* 1:609-15 My '21;
Excerpts. *Factory* 26:1450 Je 15 '21

Simplifying payroll records. *Factory* 25:1614+
N 15 '20

Some knacks of paying off. S. R. Gordon and
J. Heywood. *Factory* 24:1138-41 Ap 15 '20

Peace

Peace through the power of public opinion.
Comm & Fin Chr 112:2681-2 Je 25 '21

See also Disarmament

Peace Portal (Pacific highway)

Pacific highway Peace Portal dedicated. *Good*
Roads 61:159-60 S 28 '21

Peace treaty (European war)

German peace treaty comes into effect—Baron
Von Lersner expresses hope that America
will ratify soon. *Comm & Fin Chr* 110:327-30
Ja 24 '20

Wirtschaftliche folgen des friedensvertrages.
M. Hahn. *Stahl & Eisen* 41:99-101 Ja 20
'21

Peace treaty with Germany, 1921

Text of treaty with Germany. *Comm & Fin*
Chr 113:918-19 Ag 27 '21

Peaches

Odorous constituents of peaches. F: B. Power
and V: K. Chesnut. *Am Chem Soc J* 43:
1725-39 Jl '21

Peachey process. *See Vulcanization*

Peanut industry**Accounting**

Accounting in the peanut industry. W. S.
Taylor. *J Account* 29:113-17 F '20

Peanut oil

Chemical composition of peanut oil. G. S.
Jamieson, W. F. Baughman and D. H.
Brauns. *Am Chem Soc J* 43:1372-81 Je '21;
Abstract. *J Fr Inst* 192:547-8 O '21

Peanuts, Salted

Brine bath under pressure salts peanuts in
shell. *il Pop Mech* 33:10 Ja '20

Pearl barley. *See Barley*

Pearl buttons. *See Buttons*

Pearls

Artificially induced pearls; a new method of
producing pearls developed in Japan. H. L.
Jameson. *il diag Sci Am M* 4:134-7 Ag '21

Pearls, Artificial

Artificial pearls from herring and shad. *Sci*
Am 124:213 Mr 12 '21

Artificial pearls; orient essence of American
manufacture. T. A. Marchmay. *il Sci Am*
M 3:533-6 Je '21

Pearls of luster and beauty now made from
the scales of the common herring. *il Pop*
Mech 36:64-5 Jl '21

See also Mother-of-pearl, Artificial

Pearls, Vegetable

Pearls in plants. *Sci Am* 125:227 S 24 '21

Peary, Robert Edwin, 1856-1920

World's tribute to Peary. H: Woodhouse. *por*
Flying 9:172-9 Ap '20

Peat

Die beheizung von Martinöfen mit einem
gemisch von braunkohlenbrikett- und hoch-
ofengas. F. Boettcher. *Stahl & Eisen* 41:
1027-30 Jl 28 '21

Canadian mine experts discuss problem of
industrial independence. R. D. Hall. *Coal*
Age 17:546-8 Mr 18 '20

Fuel or fertilizer? America's little-known
peat bogs and the uses to which they are
being put. H. A. Mount. *il Sci Am* 123:498+
N 13 '20

Peat—Continued

- Ireland's peat supply will serve all her needs for two hundred and fifty years. *Coal Age* 19:953 My 26 '21
- New process of drying turf for fuel in Finland. L. A. Davis. *Chem & Met Eng* 24:215 F 2 '21
- Our coal in the making: America's peat bogs and their utilization for fuel. H. A. Mount. *il Sci Am* 123:522+ N 20 '20
- Peat as a possible source of industrial power. H. Philipp. *Chem & Met Eng* 22:693-6 Ap 14 '20; Same. *Sci Am M* 1:527-30 Je '20
- Peat as locomotive fuel. *Sci Am* 123:493 N 13 '20
- Peat carbonisation in vertical gas retorts. *Engineering* 112:545 O 14 '21
- Peat exhibit, with the uses of peat and its many products. W. L. Fisher. The Philadelphia museums, Philadelphia '20
- Peat in 1919. K. W. Cottrell. *U S Geol S Min Res of U S* 1919, pt 2:41-6 '20
- Peat in 1920. K. W. Cottrell. *U S Geol S Min Res of U S* 1920, pt 2:41-3 '21
- Peat in the Dismal Swamp, Virginia and North Carolina. C. C. Osbon. *il map U S Geol S Bul* 711:41-59 '20
- Peat power plants in Germany. map *Engineer* 131:422-3 Ap 22 '21
- Peat, widely used as fuel in Europe, is much used as fertilizer in U.S. *Coal Age* 17:1096 My 27 '20
- Power from peat—an interesting Irish experiment in fuels. A. R. Surface. *Sci Am* 122:395 Ap 10 '20
- Powerful peat excavator digs 700 tons per day. *il Pop Mech* 34:812-13 D '20
- Progress in the use of peat. K. Rankin. *Power* 54:418 S 13 '21
- Recent developments in the microscopic study of coal. R. Thiessen. *il Coal Age* 18:1223-8 D 16 '20
- Reducing raw peat to pulp for paper making. T. Reece. *Paper* 26:12 S 1 '20
- Les succédanés du charbon: bois, tourbe, lignite. E. Damour. *diag Chimie & Ind* 5:11-17 Ja '21
- Use of peat for power in Germany. *Power* 54:343-4 Ag 30 '21

See also Coal, Pulverized

Peat, Pulverized

- Pulverized peat fuel. C. L. Bohannon. *Am Soc Heat & V E J* 27:64-7 Ja '21
- Utilization of pulverized peat. C. F. Herington. *il Power Pl Eng* 25:60-2 Ja 1 '21

Peat fiber

- Peat fiber and the textile industry. *Chem & Met Eng* 22:1112 Je 16 '20

Pecan

- Carbohydrates of the pecan. W. G. Friedemann. *Am Chem Soc J* 42:2286-8 N '20

Pectins

- Estimation of pectin bodies. F. Ehrlich. *Paper* 28:26-7+ Mr 30 '21

Peddlers and peddling

- Unappreciated tin-peddler—his services to early manufacturers. M. Keir. *Ptr Ink* 114:142+ Ja 6 '21

Peele, Robert

- Sketch. *por Eng & Min J* 111:108 Ja 15 '21

Peet, William Creighton, 1871-

- Sketch. *por Elec W* 78:452 S 3 '21

Pellagra

- Letters of President Harding and representative Byrnes regarding reports of threatened epidemic of pellagra. *Comm & Fin Chr* 113:594-5 Ag 6 '21
- Reports of threatened epidemic of pellagra in cotton belt. *Comm & Fin Chr* 113:481-2 Jl 30 '21
- Starving in the midst of plenty; present knowledge regarding the cause and cure of pellagra. R. G. Skerrett. *Sci Am* 125:116 Ag 13 '21

Pelton, Lester A.

- Sketch. *por J Elec* 46:149 F 1 '21

Pelton wheels. See Turbines**Pen drawing**

- Techniques of advertising illustration. W. L. Larned. *il Ptg Art* 36:473-82 F '21

Pencil sharpeners

- Rotary pencil sharpener uses safety-razor blades. *il Pop Mech* 33:155 Ja '20

Pencils

- Electric oven reduces cost of baking pencil leads. G. Weaver. *Elec W* 78:514 S 10 '21
- Lead pencil manufacture. *Sci Am S* 88:303 N 22 '19
- Pencil graphite. C. H. Mitchell. *Engineer* 128:612 D 19 '19

See also Eversharp pencils

Advertising

- Pal pencil gets national distribution in sixty days. R. Cole. *Ptr Ink* 115:17-20 Je 2 '21

Pendulum

- Motion of a simple pendulum after the string has become slack. A. T. Jones. *diags Philos Mag* 6th ser 41:809-13 My '21
- Triple pendulums with mutual interaction and the analogous electrical circuits. E. H. Barton and H. M. Browning. *diags Philos Mag* 6th ser 42:17-34, pl 1 Jl '21

Penitentiaries. See Prisons**Penn-American employees' association**

- Refinery employes take initiative in welfare plan. *il Nat Pet N* 12:42+ Mr 3 '20

Penn Yan (New York), Soldiers' and sailors' memorial hospital

- Soldiers and sailors memorial hospital. *il plans Arch Rec* 47:265-7 Mr '20

Penney stores

- Penney store stock plan for managers. *Ptr Ink* 115:165+ My 19 '21

Pennsylvania

See also Coal mines and mining—Pennsylvania; Electric plants (central stations)—Pennsylvania; Mines and mineral resources—Pennsylvania; Oil industries—Pennsylvania; Roads—Pennsylvania

Architecture

- Early architecture of Pennsylvania. A. L. Kocher. *il diags Arch Rec* 48:512-30; 49:30-47, 134-55, 232-48, 310-30, 408-22, 518-35; 50:26-43, 146-57, 214-26 D '20-S '21

Health, Department of

- General policies of engineering division of Pennsylvania department of health. C. A. Emerson, jr. *Eng & Contr* 55:127 F 9 '21

Public utilities commission

- Commission popular in Keystone state. *il Elec Ry J* 58:163-6 Jl 30 '21

Pennsylvania electric association

- 14th annual convention, Bedford Springs, Pa., Sept. 8-9. *Elec W* 78:585-6 S 17 '21

Pennsylvania railroad

- Hearing on Pennsylvania locomotive repairs. *Ry Age* 70:1461-2 Je 24 '21
- Labor board acts in Pennsylvania case. *Ry R* 69:412-17 S 24 '21
- Labor case of the Pennsylvania railroad. *Ry R* 69:69-80 Jl 16 '21; *Ry Age* 71:115-17 Jl 16 '21
- New labor policy outlined. E. Lee. *Ry Age* 71:493-4 S 10 '21; Same *abr. Comm & Fin Chr* 113:1008 S 3 '21
- New Pennsylvania regional organization. *Ry Age* 68:965-8 Mr 19 '20
- Old New Jersey railroad loses its name and identity. *Ry R* 66:1072 Je 19 '20
- Pennsylvania and its employees. *Ry Age* 71:14 Jl 2 '21
- Pennsylvania challenges authority of Labor board. *Ry Age* 71:399-400 Ag 27 '21
- Pennsylvania declines to appear before Labor board. *Ry Age* 71:619-20 O 1 '21
- Pennsylvania plan. *Ind Management* 61:147-9 F 1 '21
- Pennsylvania railroad. map *Ry Age* 70:539-42 Mr 11 '21
- Pennsylvania R. R. and the port of Philadelphia. S. Rea. *Ry R* 66:436-7 Mr 13 '20
- Pennsylvania railroad appeals from Labor board regarding national agreements. *Comm & Fin Chr* 113:893-5 Ag 27 '21

Pennsylvania railroad—Continued

- Pennsylvania Rr. applies to U. S. Labor board to set aside shop crafts decision. *Comm & Fin Chr* 113:916-17 Ag 27 '21
- Pennsylvania railroad awards war medals. *il Ry R* 67:86-8 JI 17 '20; *Excerpt. Ry Age* 69:99-100 JI 16 '20
- Pennsylvania railroad changes. *Ry Age* 68:597-600 F 20 '20
- Pennsylvania railroad denies it has defied Labor board and states its position in shopmen's case. *Comm & Fin Chr* 113:1731 O 22 '21
- Pennsylvania R. R. system reorganized into four regions. *Ry R* 66:303-4 F 21 '20
- Pennsylvania railroad's dispute with Shop crafts union. *Comm & Fin Chr* 113:693-5 Ag 13 '21
- Pennsylvania system. map *Ry Age* 68:668-9 Mr 5 '20
- Pennsylvania system organized into four regions. map *Ry Age* 68:547-8 F 20 '20
- Railroad labor board and the Pennsylvania railroad. *Comm & Fin Chr* 113:1399-1401 O 1 '21
- Reply of the Pennsylvania railroad to Labor board. *Ry R* 69:315-16, 449-51, 574-5 S 3, O 1, 29 '21

Pennsylvania street railway association

- Annual meeting, Harrisburg, June 16-17. *Elec Ry J* 58:17-18 JI 2 '21
- Final report of Pennsylvania association meeting. *Elec Ry J* 55:1255-7 Je 19 '20

Pennsylvania university**School of fine arts**

- New school of fine arts at the University of Pennsylvania. *Am Inst Arch J* 8:275-6 JI '20

Pennsylvania water and power company

- 11th annual report, 1920. C: E. F. Clarke. *Comm & Fin Chr* 112:570-1 F 5 '21

Pensions

- See also* Civil service pensions; Mothers' pensions; Old age pensions

Pensions, Industrial

- Baltimore company modifies plan for retiring employees. *R: N. Bowerman. Elec W* 75:852 Ap 10 '20
- Difficulties of operating industrial pension plans. *Automotive Ind* 42:868 Ap 8 '20
- Duquesne co. adopts employees retirement plan. *Elec R* 77:65 JI 10 '20
- Pension retirement promised. *Elec Ry J* 56:876 O 23 '20
- Pensions for employees of Ontario hydro-electric commission. *Elec W* 75:1433 Je 19 '20
- Retirement law for railroad employees in Argentina. *Monthly Labor R* 10:1036-9 Ap '20
- See also* Insurance, Industrial

Bibliography

- Industrial pensions: a selected bibliography. F: W. Jenkins. Russell Sage Foundation *Lib Bul* 4p D '19

Penstocks

- Penstock bursts in high-head plant. *Power* 54:616 O 18 '21; Same. *Eng N* 87:640-1 O 20 '21
- Tunneling and lining the penstocks for the extension to the Niagara Falls power company's station No. 3. G. W. Hewitt. *il Eng N* 85:698-701 O 7 '20; Same. *Can Eng* 39:343-5 S 16 '20

Penton, John A.

- British associations honor publisher. *Foundry* 49:474 Je 15 '21

Pentosans

- Determination of pentosans in plant materials. E. Heuser. *Paper* 28:22-5+ Mr 30; 28-32 Ap 27; 26-7 My 4 '21

Peonol

- Einige derivat des pāonols. A. Sonn. *Deutsche Chem Gesell Ber* 54:358-60 F '21

Peoples gas light and coke company, Chicago

- Report of the Pres. of the Peoples gas light & coke co. S: Insull. *Gas Age* 47:154-5 F 25 '21

People's league of America

- Is the middle class union economically unsound? C. M. Wright. *Ptr Ink* 111:116-17+ Je 24 '20

League of consumers would be out of place.

G: H. Corey. *Ptr Ink* 112:73-4+ JI 29 '20

Some union of consumers necessary. H. G. McKerrow. *Ptr Ink* 112:65-6+ JI 29 '20

What if there should be a brotherhood of consumers? E. St E. Lewis. *Ptr Ink* 111:8+ Je 3 '20

People's legislative service

- New representative of the public. *Ry Age* 70:1002-3 Ap 22 '21

Peppermint

- New fields of phytochemical research opened up by the cultivation of medicinal plants on an economic scale. E: Kremers. *J Ind & Eng Chem* 12:1019-20 O '20

Percentage

- Some difficulties in percentages. L. L. Perrine. *J Account* 30:43-8 JI '20

Utility of percentages. S. Walton and H. A. Finney. *J Account* 29:463-70 Je '20

Perchloric acid

- Electrolytic oxidation of hydrochloric acid to perchloric acid. H. M. Goodwin and E. C. Walker, 3rd. diag *Am Electrochem Soc Trans v* 40 (preprint 30):377-86 S '21

Perchloric acid as a dehydrating agent in the determination of silica. H. H. Willard and W. E. Cake. *Am Chem Soc J* 42:2208-12 N '20

Use of perchloric acid as an aid to digestion in the Kjeldahl nitrogen determination. B. Mears and R. E. Hussey. *J Ind & Eng Chem* 13:1054-6 N '21

Perchloro-methyl-mercaptan

- Perchloro-methyl-mercaptan. O. B. Helfrich and E. E. Reid. *Am Chem Soc J* 43:591-4 Mr '21

Pere Marquette railroad

- Annual report for 1920; editorial. map *Ry Age* 70:1307-8 Je 10 '21
- Pere Marquette. map *Ry Age* 68:1919-20 Je 18 '20

Peretti palace, Rome

- Cortile of the Palazzo Peretti in Rome. H. D. Eberlein. *il diag plan Arch Rec* 48:107-20 Ag '20

Perfumery

- Attar of roses; French and Bulgarian methods of producing the essential oil of rose petals. M. Tevis. *il Sci Am M* 3:409-13 My '21

Care and aging of perfumes. L. J. Zollinger. *Sci Am M* 3:413 My '21

Newcomer revises sales units of established manufacturers. E: T. Tandy. *Ptr Ink* 115:53-4+ Ap 21 '21

Perfume industry of France. B. T. Bush. *Chem & Met Eng* 23:991 N 17 '20

Perfume of the orange. *il Sci Am M* 4:250-1 S '21

Raw materials of perfumery. E. J. Parry. 112p Pitman

Pergolas

- Building a pergola. R. Brown. *il diags Pop Mech* 36:463-4 S '21

Periodic law

- Periodic table; a modification more in accord with atomic structure. I. D. Margary. *Philos Mag* 6th ser 42:287-8 Ag '21

Present theories of atomic structure. S. Dushman. *diags Am Inst E E J* 39:119-31 F '20

Periodical publishers association

- Reorganization. *Ptr Ink* 116:88 Ag 4 '21

Periodicals

- Are there too many publications anyhow? C. Tomlinson. *Ptr Ink* 111:25-7+ My 20 '20

Audit bureau of circulations' latest decisions. *Ptr Ink* 110:33-6 Mr 25 '20

Circulating magazines—discussion. C. J. West. *Ind Management* 59:371 My '20

Distributing periodicals; printed lists of publications and pertinent articles circulated in factory. *Iron Age* 105:202 Ja 15 '20

First magazine, and its originator. H: L. Bullen. *Inland Ptr* 66:341 D '20

Periodicals—Continued

Next to advertising matter; a view into the future, when values are reversed. *Ptr Ink* 112:41-4 J1 15 '20

Systematize your business reading. R. Cole. *Ptr Ink M* 2:34+ Ap '21

See also Business periodicals; Employees' magazines; Engineering periodicals; Farm papers; House organs; Newspapers; Technical periodicals; Trade journals; *also* Audit bureau of circulations

Bibliography

Guide to the current periodicals and serials of the United States and Canada. H: O. Severance. 4th ed. 564p G. Wahr, Ann Arbor, Mich. '20

List of publications wanted by the library and of duplicates available for exchange or sale. *Mo U Sch Mines & Met Bul* 10:1-28 O '18

Periodical bibliographies and abstracts for the scientific and technological journals of the world. R. Cobb, comp. (National Research Council Bul. v 1, no. 3) p 131-54 Je '20 National research council, 1701 Massachusetts av, Washington, D.C.

Periodical union lists. *Special Lib* 12:10 Ja '21

Serials of an international character; tentative list prepared in the Columbia university law library. (Bul. no. 3, 2d ser.) 60p Institute of international education, 419 W. 117th st., New York '21

Technical and scientific serials in the libraries of Providence, 1920. F. K. W. Drury. 63p Providence Public Library, Providence, R.I. '21 60c

Union list of periodicals and annuals taken by eleven special libraries in Boston, March, 1921. 16p Special libraries assn. of Boston, Mass. '21

Indexing

Indexing current technical literature. *Min & Sci P* 123:180-2, 283, 531 Ag 6, 27, O 15 '21

Law

A. B. C. to seek abolition of government statement of circulation. *Ptr Ink* 114:33-6 F 17 '21

Periodicals, Japanese. *See* Japanese periodicals

Periodicals, Philippine. *See* Philippine periodicals

Periodides

Periodides of carbonyl compounds. A. M. Clover. *Am Chem Soc J* 42:1248-60 Je '20

Periscope

Angle-measuring periscope directs artillery fire. *il Pop Mech* 33:183 F '20

Les périscopes des sous-marins allemands. *Techel. diags Génie Civil* 77:491 D 11 '20

Perishable freight. *See* Freight, Perishable

Perkin medal

Perkin medal awarded to Dr Charles Frederick Chandler. *J Ind & Eng Chem* 12:183-95 F '20; Same. *Chem & Met Eng* 22:150-61 Ja 28 '20

Presentation of Perkin medal to Willis R. Whitney. *Chem & Met Eng* 24:99-107 Ja 19 '21

Perkins, George W.

Business organizer extraordinary. *Ptr Ink* 111:19-20 Je 24 '20

Permanent international association of road congresses

4th International road congress. A. H. Blanchard. *Pub Works* 49:362-3 O 16 '20

Permutit

Preparation of ammonia-free water. G. C. Baker. *diag J Ind & Eng Chem* 12:798-9 Ag '20

Permutit company

Selling soft water grows into a big industry. M. Hussobee. *Ptr Ink* 114:133-4+ F 24 '21

Permutit system. *See* Water softening

Peroxidases

Peroxydases; abstract. R: Willstätter. *Chem Soc J* 120 pt 1:138-40 F '21

Significance of the peroxidase reaction with reference to the viability of seeds. J. S. McHargue. *Am Chem Soc J* 42:612-15 Mr '20

Peroxides

Über neue stickstoffhaltige peroxydverbindungen des formaldehyds. C. von Girsewald and H. Siegens. *Deutsche Chem Gesell Ber* 54:492-8 Mr '21

Perpetual motion

Engineering fallacies. H: Morton. *Stevens Ind* 38:99-151 Ap '21

Perrin, Jean

Light and chemical energy; Perrin's brilliant new theory with regard to effect of wave length upon reactions. P. Weiss. *Sci Am M* 3:523-5 Je '21

Persia

See also Petroleum—Persia

Personal injuries

Notice of time of injury from defect in street. J: Simpson. *Pub Works* 48:468-70 My 29 '20

See also Back strain

Personality

How to develop executive ability through personality. G. S. Small. *Ind Management* 61:115-18 F 1 '21

Personality in business. H. K. Porter. *Ind Management* 62:119-20 Ag '21

Personality in industry. W. J. Matherly. *Ind Management* 62:54 J1 '21

Personnel management. *See* Employment management

Personnel research federation

Organization. *Am Soc C E Pro* 47 [Soc. aff.]: 396-9 Ap '21; Excerpt. *Am Mach* 54:800g My 5 '21

Perspective

Perspective delineation. B. A. Gill. 48p Architectural book pub. co., New York '21

Who discovered the rules of perspective? B. J. Lubschez. *Am Inst Arch J* 9:246-7 J1 '21

Peru

See also Automobile industry and trade—Peru; Banks and banking—Peru; Copper mines and mining—Peru; Geology—Peru; Iron ores—Peru; Mines and mineral resources—Peru; Railroads—Peru

Commerce

Jewelry and silverware in Chile, Bolivia, and Peru. S. W. Rosenthal. *il U S Bur For & Dom Com* 187:1-115 '19

Trails of Peru have been converted into highways. A. Sinsheimer. *Automotive Ind* 42:570-2 F 26 '20

Peruvian copper and smelting company

Development work. *Min & Sci P* 120:709 My 15 '20

Petrification

Two petrified palms from interior North America. N. E. Stevens. *il diags Am J Sci* 5th ser 1:431-43 My '21

Petroglyphs

Prehistoric astronomy; interpretation of some remarkable rock carvings in Scandinavia. M. Schoemfeld. *il Sci Am M* 3:301-3 Ap '21

Petroleum

Air plus oil equals more oil; compressed air takes the place of natural gas in stimulating the flow of old wells. R. G. Skerrett. *il Sci Am* 124:190+ Mr 5 '21

Carbon ratios in carboniferous coals of Oklahoma, and their relation to petroleum. M. L. Fuller. *map Econ Geol* 15:225-35 Ap '20

Cementation in sandstone. R. H. Johnson. *Eng & Min J* 110:125-6 J1 17 '20

Colloid chemistry of petroleum. F. W. Padgett. *Chem & Met Eng* 25:189-92 Ag 3 '21

Composition of petroleum and its relation to industrial use. C: F. Mabery. *Min & Met* 158:(sec 34) 1-14 F '20

Crude petroleum and lubricating oils. J. D. Roberts. *Power* 51:842-4 My 25 '20

Data of geochemistry. F. W. Clarke. *U S Geol S Bul* 695:721-45 '20

Petroleum—Continued

- Elementary facts about oil. P. B. McDonald. Min & Sci P 122:286 F 26 '21
- Experimental studies of subsurface relationships in oil and gas fields. R. V. Mills. il Econ Geol 15:398-421 J1 '20; Discussion. 15: 680-2; 16:52-60 D '20-Ja '21
- Facts regarding petroleum. A. D. Little. diags map Gas Age 46:418-23 N 25 '20
- Field methods in petroleum geology. G. H. Cox, C. L. Dake and G. A. Muilenburg. 305p McGraw-Hill '21
- Form value of energy in relation to its production, transportation, and application. C. G. Gilbert and J. E. Pogue. Mech Eng 43:26-8 Ja '21; Abstract. Automotive Ind 44: 17 Ja 6 '21
- Formation of petroleum from fish oils: origin of Japanese petroleum; abstract. K. Kobayashi. Chem Soc J 120 pt 1:297-8 My '21
- Gas an important factor in oil accumulation. G. A. Thiel. diags Eng & Min J 109:888-9 Ap 10 '20
- Genetic problems affecting search for new oil regions. D: White. Min & Met 158:(sec 21) 1-20 F '20; Excerpts. Eng & Min J 109: 512-14 F 21 '20
- Geologic and economic features of oil structures. V: Ziegler. Econ Geol 15:247-58 Ap '20
- Geologic distillation of petroleum. B. Willis. Min & Met 157:(sec 10) 1-7 Ja '20
- Geology of petroleum. W: H. Emmons. 610p McGraw-Hill '21
- Getting the rest of the oil; laboratory tests that reveal the underground secrets of the petroleum field. R. G. Skerrett. il Sci Am 125:114+ Ag 13 '21
- Graphic presentation of underground conditions. A. W. Ambrose. diags Nat Pet N 12: 59-60+ Ap 21 '20
- Graphic representation of oil-well decline. S. S. Langley. Eng & Min J 110:269-71 Ag 7 '20
- How many wells drilled produce oil? Eng & Min J 109:457 F 14 '20
- In presence of oxygen and sulphur, peaty oils harden to bright coal substance. J. E. Hackford. Coal Age 18:582-4 S 16 '20
- Industrial demand for oil and the available supply. G: O. Smith. Automotive Ind 42: 1419-21 Je 17 '20
- Inorganic origin of petroleum. H. W. Hixon. Eng & Min J 112:622-3 O 15 '21
- Interesting relations between vegetation and mineral deposits. R. M. Harper. map Eng & Min J 112:693-4 O 29 '21
- Is synthetic petroleum possible? E: G. Acheson. Chem & Met Eng 23:268 Ag 18 '20
- Kohle und erdöl. E. Donath and A. Lissner. 144p F. Enke, Stuttgart '20
- Milk and petroleum. E: G. Acheson. Sci Am M 1:324-5 Ap '20
- Mining oil-bearing sands. A. H. Fay. Eng & Min J 109:1419 Je 26 '20
- Numerical expression for production-decline curves of oil wells. J. O. Lewis and W. W. Cutler, jr. Eng & Min J 110:479-80 S 4 '20
- Oil entente; petroleum problem discussed by Mining and metallurgical society of America. Min & Met 168:26 D '20
- Oil finding. E. H. Cunningham-Craig. 2d ed 324p E. Arnold, London; Longmans, New York '20
- Oil land development and valuation. R. P. McLaughlin. 200p McGraw-Hill '21
- Oil recovery from saturated sands. Am Gas Eng J 112:323 Ap 24 '20
- Oil situation of to-day. W. C. Teagle. Comm & Fin Chr 111:2107-8 sec 1 N 27 '20
- Origin of natural oil. W: Clarkson. Engineer 131:511 My 13 '21
- Origin of petroleum. Power 51:290 F 24 '20
- Origine et modes de gisement des pétroles. L. Gentil. Chimie & Ind 4:711-19 D '20; Abstract. Génie Civil 78:138 F 5 '21; Same (Whence comes petroleum?). Sci Am M 3: 336 Ap '21; Discussion. Chimie & Ind 4: 719-21 D '20
- Our future oil supply. D. White. Eng & Min J 111:951-5 Je 4 '21
- Petroleum as a source of soap. Sci Am M 3: 459-60 My '21
- Petroleum during the war. Engineering 109: 351-2 Mr 12 '20
- Petroleum from shale. A. Selwyn-Brown. Soc Auto Eng J 8:63-4 Ja '21
- Petroleum in 1918. E. R. Lloyd. U S Geol S Min Res of U S 1918,pt 2:969-1169 '20
- Petroleum production methods. J: R. Suman. 558p Gulf pub. co., Houston, Tex. '21
- Petroleum products for road construction. il Sci Am 124:311 Ap 16 '21
- Petroleum resources of the world. J: D. Northrop. Eng & Min J 108:953-5; 109:34-8 D 27 '19-Ja 3 '20
- Petroleum resources of the world. D: White. Sibley J 34:156-68+ N '20; Excerpt. Nat Net N 12:94-5+ Je 9 '20
- Petroleum section of A.I.M.E. meets in St Louis, Sept. 21-22. Eng & Min J 110:685-6 O 2 '20
- Popular oil geology. V: Ziegler. 171p 2d ed Wiley '20
- Le problème du pétrole considéré aux points de vue politique et législatif. R. Gérin. Génie Civil 78:133-6 F 5 '21
- Problems of the petroleum industry. W: A. Hamor. il Chem & Met Eng 23:425-34 S 8 '20; Same cond. Nat Pet N 12:73+ O 20 '20
- Producing soap from petroleum. K. Loeffl. Sci Am M 4:142 Ag '21
- Proper methods for studying underground conditions. A. W. Ambrose. map Nat Pet N 12:65+ Mr 3 '20
- Public service opportunity and the oil geologist. G: O. Smith. Eng & Min J 109:759 Mr 27 '20
- Relation of oil pools to ancient shore lines. W: F. Jones. diags Econ Geol 15:81-7 Ja '20; Conclusions. Eng & Min J 109:1032-3 My 1 '20
- Relation of oil pools to ancient shore lines. F: H. Lahee. Econ Geol 15:350-4 Je '20
- Relation of oil to carbon ratios of Pennsylvanian coals in North Texas. M. L. Fuller. map Econ Geol 14:536-42 N '19; Discussion. S. J. Lloyd. 15:94-6 Ja '20
- Relations of texture and bedding to the movements of oil and water through sand. R. Van A. Mills. il Econ Geol 16:124-41 Mr '21
- Role of bed-rock in the distribution of the hydrocarbons. M. M. Monte-Flores. diags Min & Met 157:(sec 6) 1-3 Ja '20
- Section of petroleum chemistry. Chem & Met Eng 25:552 S 21 '21
- Sessions on oil and gas, New York, Feb. 16. Eng & Min J 109:521-3 F 21 '20
- Some principles governing the production of oil wells. C. H. Beal and J. O. Lewis. il map U S Bur Mines Bul 194:1-53 '21
- Specific heat of petroleum at different temperatures. F. W. Bushong and L. L. Knight. J Ind & Eng Chem 12:1197-1200 D '20
- Sulphur in petroleum oils. C. E. Waters. U S Bur Stand Tech Pa 177:1-26 '20
- Surface marks of oil deposits. P: H: Pearson. P. H. Pearson, Washington, D.C. '20
- Synthetic petrol: new German process. Aerial Age 13:173 My 2 '21
- Synthetic production of petroleum. E: G. Acheson. Sci Am M 3:348 Ap '21
- Trinidad as a field for the study of the origin of petroleum. P. Carmody. Engineering 111:591 My 13 '21
- Uncommon use of oil. S. Born. Nat Pet N 13:78 Je 10 '21
- Viscosity-temperature curves of fractions of typical American crude oils. E. W. Dean and F. W. Lane. bibliog diag J Ind & Eng Chem 13:779-86 S '21
- Where oil occurs; a brief description of the rocks and sands in which petroleum is found. C. H. Messerly. Sci Am 125:96 Ag 6 '21
- Why drill in granite for oil. H. L. Wood. Nat Pet N 12:89 F 18 '20
- See also Bituminous materials; Coal-tar products; Fuel, Colloidal; Gas oil; Gasoline; Inflammable liquids; Kerosene; Liquid fuel; Oil lands; Oil shales; Oil storage

Petroleum—Continued

Analysis

- Constitution of the organic nitrogen bases of Californian petroleum. C. F. Mabery and L. G. Wesson. *Am Chem Soc J* 42:1014-30 My '20
- Convenient method for the determination of water in petroleum and other organic emulsions. E. W. Dean and D. D. Stark. *il diags J Ind & Eng Chem* 12:486-90 My '20
- Determination of chlorides in petroleum. R. R. Matthews. *J Ind & Eng Chem* 13:325-6 Ap '21
- Dosage des carbures aromatiques dans les essences de pétrole. A. Kling and A. Lasseur. *Chimie & Ind* 4:331-2 S '20
- Rapid method for the determination of sulfur in petroleum oils. A. W. Christie and C. S. Bisson. *J Ind & Eng Chem* 12:171-2 F '20
- Sulphur in petroleum oils. C. E. Waters. *U S Bur Stand Tech Pa* 177:1-26 '20

Bibliography

- Bibliography of petroleum and allied substances, 1917. E. H. Burroughs. *U S Bur Mines Bul* 180:1-170 '20
- Bibliography of petroleum and allied substances in 1918. E. H. Burroughs. *U S Bur Mines Bul* 189:1-149 '21
- Current bibliography. *Inst Pet Tech J* 7:48-56, 162-76 Ja, Ap '21
- Recent articles on petroleum and allied substances. E. H. Burroughs, comp. (Reports of investigations) *U.S. Bur Mines (Typew)* Published monthly

Conservation

- Cooperation is key to conservation of oil resources. M. L. Requa. *Nat Pet N* 12:63-4 N 24 '20
- Losses at oil wells; use of traps. *Engineering* 109:220-1 F 13 '20
- Results achieved by cooperation in Wyoming oil fields. F. B. Tough. *diags Nat Pet N* 12:81-2+ Je 30 '20

Dehydration

See Petroleum—Water problem

Emulsions

See Petroleum—Water problem

Evaporation losses

- Evaporation losses of crude oil in mid-continent. J. H. Wiggins. *Oil Paint & Drug Rep* 99:11 sec 2 Ja 24; 12 sec 2 F 21; 24 sec 2 Mr 14; 8 sec 2 Mr 28 '21; *Abstract. Power* 53:565 Ap 5 '21
- Evaporation losses of crude on leases in mid-continent. J. H. Wiggins. *plan Nat Pet N* 13:75-6+ Mr 2; 77-8+ Ap 20 '21
- Evaporation of crude oil. *Soc Auto Eng J* 8:416 My '21
- Evaporation of gasoline from crude petroleum. *il Sci Am M* 2:211 N '20
- Handling and storage of crude oil and evaporation losses. J. H. Wiggins. *Nat Pet N* 12:43-4+ O 27 '20
- Results of experiment to determine losses in dehydration of oil. J. H. Wiggins. *diag Nat Pet N* 13:59+ Jl 1; 33-4+ Jl 22 '21

Laws and regulations

- American petroleum institute publishes list of bills affecting industry. *Oil Paint & Drug Rep* 99:10 sec 2 Ja 31 '21
- Bills passed, killed or deferred by various state legislatures. *Oil Paint & Drug Rep* 99:11 sec 2 Ap 4 '21
- Bills relating to petroleum. *Oil Paint & Drug Rep* 99:10 sec 2 Mr 7; 10 sec 2 Mr 21; 10 sec 2 Mr 28; 8 sec 2 Ap 11 '21
- Britain forces Dutch to ban Americans from Sumatra fields. A. E. Heiss. *Nat Pet N* 13:92 My 4 '21
- British oil men profit at American's expense by Mexican trick. A. E. Heiss. *Nat Pet N* 12:27 D 15 '20
- California oil-well records. S. S. Langley. *Eng & Min J* 108:955 D 27 '19
- Canada issues new oil rules. *Oil Paint & Drug Rep* 99:10 sec 2 F 21 '21

Colombian oil possibilities; companies operating there. *Nat Pet N* 12:65-6 O 20; 79+ O 27 '20

- Colombian petroleum law. J. W. Thompson. *Eng & Min J* 109:1170-2 My 22 '20
- Colombian petroleum law of December 29, 1919. *Eng & Min J* 110:124-5 Jl 17 '20
- Export decree changed by Mexican government. *Nat Pet N* 13:66+ Jl 1 '21
- France's new oil law just promulgated. *Nat Pet N* 13:61 Mr 9 '21
- Hughes reports to Senate on world's petroleum situation. *Oil Paint & Drug Rep* 99:9 sec 2 My 23 '21
- Mexican oil industry is expanding in spite of legislation. *Nat Pet N* 12:107+ S 22 '20
- Mexican petroleum industry. L. P. Castro. *Eng & Min J* 109:1029-30 My 1 '20
- Mining rights in Australia. *Oil Paint & Drug Rep* 99:25 sec 2 Je 6 '21
- New state bills relating to oil. *Oil Paint & Drug Rep* 99:10 sec 2 My 23 '21
- Peru's petroleum law protested. V. H. Solaini. *Eng & Min J* 111:673-4 Ap 16 '21
- Petroleum laws of all America. J. W. Thompson. *U S Bur Mines Bul* 206:1-645 '21
- Principles governing Mexican taxation of petroleum. V. R. Garfias. *Min & Met* 170:37-8 F '21
- Protest against new Mexican tax on oil. *Nat Pet N* 12:82+ My 19 '20
- Restrictions on American operators in foreign oil lands. *Nat Pet N* 12:99-100+ Je 2 '20
- Root out oil inspection or work for sane laws? C. D. Chamberlin; J. S. Longshore. *Nat Pet N* 12:41+ D 1 '20
- Shall American rights be disregarded? that is Mexican question. F. R. Kellogg. *Nat Pet N* 12:41+ Jl 21 '20
- Translation of New Mexican oil law. *Nat Pet N* 12:52+ Mr 24 '20

See also Petroleum—Taxation

Maps

- Barometric method of geologic surveying for petroleum mapping. F. H. Lahee. *diags Econ Geol* 15:150-69 Mr '20
- Field mapping for the oil geologist. C. A. Warner. 145p Wiley '21
- Mapping of oil wells. S. S. Langley. *diags Eng & Min J* 108:908-11 D 13 '19
- Plotting underground structure as guide to oil field operators. A. W. Ambrose. *map Nat Pet N* 12:81-2+ Je 2 '20
- Standard conventions for oil maps. A. G. Wolf. *Eng & Min J* 109:938 Ap 17 '20

Measurement

- Importance of gaging oil wells to discover water conditions. A. W. Ambrose. *Nat Pet N* 12:39-41 F 18; 49-50+ F 25 '20

See also Oil measurement

Overdrilling

See Oil lands

Patents

- Bibliography of petroleum and allied substances, 1917. E. H. Burroughs. *U S Bur Mines Bul* 180:1-170 '20
- Bibliography of petroleum and allied substances in 1918. E. H. Burroughs. *U S Bur Mines Bul* 189:1-180 '21

Prices

- Advance in price of petroleum products. (66th Cong. 2d sess.) 57p '20 *U S Fed Tr Comm.*, Washington, D.C.
- Commission paves way for rate raise on refined oils from Louisiana. *Nat Pet N* 13:85 F 16 '21
- Comparison of petroleum prices with those of other staples. H. L. Wood. *Nat Pet N* 12:41 Ja 7 '20
- Crude and refined petroleum prices. See weekly numbers of *Oil paint and drug reporter*
- Crude oil prices turn upward—statistical position. *Comm & Fin Chr* 113:1534, 1640-1 O 8-15 '21
- Crude oil quotations from all fields, 1920, 1919, 1918. *Nat Pet N* 12:104 F 4 '20

Petroleum—Prices—Continued

- Fuel prices and railroad operation. J. E. Woodbridge. J Elec 44:384-6 Ap 15 '20
- Jobbing trade is divided as to effect of market adjustments. Nat Pet N 12:33-4 S 8 '20
- London board of trade wants League of nations to cut price of gasoline in England. Nat Pet N 12:79+ Mr 17 '20
- Oil prices nearer pre-war level than average run of commodity prices. J. E. Pogue. Nat Pet N 13:27-8+ Ag 3 '21
- Outstanding features of oil industry during 1920. J. E. Pogue. Nat Pet N 13:24a+ Ja 19 '21
- Present depression parallels Cushing days, in course so far. J. E. Pogue. Nat Pet N 13:23-4+ Jl 1 '21
- Price readjustment in oil industry not to be long sustained. J. E. Pogue. Nat Pet N 13:19-21 F 2 '21
- Price readjustments, their meaning regarding both crude and refined oil. P. Wagner. Nat Pet N 12:36 My 19 '20
- Process of broad economic adjustment keeps oil industry upset. J. E. Pogue. diags Nat Pet N 13:43+ My 4 '21
- Refined products up, or crude down to readjust market? P. Truesdell. Nat Pet N 12:25-6 O 27; 25-6 N 3; 29-30 N 10 '20
- Slowing down of price recessions in March market. J. E. Pogue. Nat Pet N 13:17-20 Ap 6 '21
- Statistical desk sheet for 1920 of the oil industry of the United States. Nat Pet N 13:supp Ja 19 '21
- Valuation of California oil properties for federal taxation. Min & Met 158:(sec 1) 14-17 F; 159:(sec 1) 37-9 Mr '20; Same. Min & Sci P 120:307-14 F 28 '20

Prospecting

- Diamond drill as an aid to oil prospecting. A. H. Fay. Eng & Min J 110:1133-4 D 11 '20
- Electrical equipment devised to locate oil sands. W. F. Kerr. Elec R 78:145-6 Ja 22 '21; Excerpt. Sci Am M 3:376-7 Ap '21
- Oil-field geologist; how science has made gambling on petroleum prospects a thing of the past. O. R. Geyer. Sci Am 123:300 S 25 '20
- Oil finding, by E. H. C. Craig. Review. Engineering 110:874-5 D 31 '20
- Subsurface correlations in oil prospecting. S. S. Langley. diags Eng & Min J 109:615-19 Mr 6 '20
- Two ways to test oil. Sci Am 124:331 Ap 23 '21

Pumping

- Air-lift system of raising oil. R. Stirling. Engineering 109:725-6 My 28 '20
- Applying motors to oil-well pumping. W. G. Taylor. il Elec W 75:17-18 Ja 3 '20
- Burkburnett operator employs novel collective pumping plan. il Nat Pet N 12:93 Je 2 '20
- Electric power in the oil fields. W. G. Lane. il J Elec 46:14-17 Ja 1 '21; Excerpt. Elec W 77:323-4 F 5 '21
- Electric power in the oil fields as a central station load. W. G. Taylor. il Gen Elec R 23:619-25 Jl '20
- Electric power successfully used in Ranger field pumping stations. il Nat Pet N 13:45 S 28 '21
- Oil well pumping methods and equipment. S. S. Langley. diags plans Eng & Min J 109:748-54 Mr 27 '20

Cost

- Oil well pumping methods and equipment. S. S. Langley. diags plans Eng & Min J 109:750-4 Mr 27 '20

Specifications

- Adoption likely of ASTM suggested changes in government specifications. Nat Pet N 13:21-2 Jl 22 '21
- Development of oil specifications. W. F. Parish. Power 52:841-2 N 23 '20

- Report of committee on standardization of petroleum specifications. Am Mach 54:314-15 F 24 '21; Soc Auto Eng J 8:219-21 Mr '21
- Revision of standard petroleum specifications. Power 52:800 N 16 '20

Taxation

- Application of taxation regulations to oil and gas properties. T. Cox. Min & Met 165:22 S '20
- Export decree changed by Mexican government. Nat Pet N 13:66+ Jl 1 '21
- Is the taxation on Mexican oil real cause of stopping exports? L. Vasquez. Nat Pet N 13:67+ Ag 17 '21
- Latest Mexican tax brings levy on gasoline over 3 cents gallon. V. R. Garfias. Nat Pet N 13:60+ S 7 '21
- Mexican oil industry is expanding in spite of legislation. Nat Pet N 12:107+ S 22 '20
- Mexico imposes still another tax as American oil men reach capital. Nat Pet N 13:28+ Ag 31 '21
- Oil producers to unite to fight for fair taxation urged. H. H. Smith. Nat Pet N 12:99+ S 1 '20
- Principles governing Mexican taxation of petroleum. V. R. Garfias. Min & Met 170:37-8 F '21
- Protest against new Mexican tax on oil. Nat Pet N 12:54+ Mr 17 '20
- Tax on sales as relief measure. J. J. Shea. Nat Pet N 12:54+ Mr 17 '20

Terminology

- Terms used in the oil fields. Eng & Min J 109:811 Ap 3 '20

Testing

- A.S.T.M. tentatively accepts methods for oil testing of Committee D 2. Nat Pet N 13:26 Jl 1 '21
- Correlating efforts to standardize tests. Nat Pet N 13:45+ Ap 27 '21
- Detecting small quantities of petroleum. E. T. Erickson. il Eng & Min J 112:59-62 Jl 9 '21
- Importance of accuracy in laboratory equipment and methods. Nat Pet N 13:45 Je 17 '21
- Oil men, not consumers, to formulate tests for petroleum products. P. Truesdell. Nat Pet N 12:29+ D 15 '20
- Properties of typical crude oils from Rocky Mountain fields. E. W. Dean, M. B. Cooke and A. D. Bauer. Nat Pet N 13:49-50+ Ag 17; 48-9 Ag 24 '21
- Shipping board discards gravity; substitutes viscosity in fuel testing. Nat Pet N 13:64+ F 23 '21
- Technical examination of crude petroleum, petroleum products and natural gas. W. A. Hamor and F. W. Padgett. 591p McGraw-Hill '20
- Twelve new standard testing methods submitted by Committee D-2. Nat Pet N 13:31-2+ Je 17 '21
- Work on standardizing testing methods revived in report. Nat Pet N 13:49+ Je 10 '21
- See also Baumé scale

Transportation

- Analyzing railroad congestion in Texas oil fields. H. L. Wood. Nat Pet N 12:102+ F 18 '20
- Campaign to protect western refiners from unfair rates. C. Thorne. Nat Pet N 12:56-7 N 3 '20
- Error in combination rate rule forms basis for reparation claims. Nat Pet N 12:35 N 10 '20
- If oil transport systems were merged into one big company. W. M. Day. Nat Pet N 12:45-6 D 8 '20
- Industry must unite in demanding fall of railroad rates. C. Thorne. Nat Pet N 13:37+ Ap 6 '21
- Industry still split on rate increase after conference. Nat Pet N 12:27-8 O 13 '20
- Mid-continent long haul business cut eleven per cent. F. W. Lehmann. Nat Pet N 12:43+ D 15 '20

Petroleum—Transportation—Continued

- Mid-continent refiners show injustice in new rate schedule. J. B. Gambrell, jr. Nat Pet N 12:29-30 Ag 11 '20
- Not all types of trailers are good for petroleum distribution. F. A. Bean. Nat Pet N 12:97+ N 24 '20; Discussion. V. E. Vining. 13:77 F 2 '21
- Oil rail rates are excessive. Gas Age 48:227 Ag 27 '21
- One system of delivering light oils equalizes price to customers. Nat Pet N 12:29 N 17 '20
- Open top car order hinders production and movement of oil. Nat Pet N 12:28 JI 14 '20
- Proportion of oil traffic moved by rail growing less. Nat Pet N 13:25-7 Ag 17 '21
- Rate adjustment hearing shows sentiment for percentage changes. A. E. Heiss. Nat Pet N 13:32 JI 8 '21
- Roads denied general advance on petroleum products in Kansas. Nat Pet N 12:30 N 3 '20
- Tank car committee holds meeting; discusses transportation plans. Oil Paint & Drug Rep 99:10 sec 2 Ap 11 '21
- Tank steamers vital link in meeting world's demand for oil. W. H. Reed. Nat Pet N 12:97+ D 1 '20
- Tidewater refiner in strong plea for percentage increase in rates. Nat Pet N 12:27 JI 14 '20
- Transportation in the oil fields. E. Conaway. il Sci Am 123:395 O 16 '20
- Trucks are cutting rail rates over the south and southwest. Nat Pet N 13:26 O 19 '21
- Western roads must cut rates soon to hold oil traffic. Nat Pet N 13:23+ O 5 '21
- Work out comprehensive readjustment plan for oil freight rates. Nat Pet N 13:29+ JI 1 '21

See also Oil pipe lines; Tank cars; Tank ships; Tank trucks

Tunnel drainage

- Draining oil reservoirs. S. S. Langley. diag Eng & Min J 110:1094-5 D 4 '20
- Draining oil reservoirs by shafts and tunnels. P. de Chambrier. Eng & Min J 112:103 JI 16 '21
- Exploitation du pétrole par puits et galeries. P. de Chambrier. 106p Dunod, Paris '21
- Exploitation of petroleum by means of pits and galleries. Courau. Eng & Min J 111:514 Mr 19 '21
- Petroleum mining by shafts and galleries. Engineering 111:202 F 18 '21
- Shaft sinking for oil in Alsace. Eng & Min J 109:1320 Je 12 '20

Water problem

- Amatlan salt water invasion in relation to future production of Mexico. P. Wagner. il Nat Pet 13:29+ S 7 '21
- Analysis of oil-field water problems. A. W. Ambrose. diag Min & Met 165:23-4 S '20; Same. Sci Am M 1:480 My '20
- Anticipated salt water shows up near heart of lower Amatlan. P. Wagner. Nat Pet N 13:23 Ag 31 '21
- Coming of brine in oil wells. E. Welleck. Soc Auto Eng J 7:325 O '20
- Common characteristics of crude petroleum emulsions. E. E. Ayres, jr. J Ind & Eng Chem 13:1011-13 N '21
- Discussion on electrical dehydration of crude oil. W. G. Eddy and H. C. Eddy. J Ind & Eng Chem 13:1016-17 N '21
- Draining oil reservoirs. S. S. Langley. diag Eng & Min J 110:1094-5 D 4 '20
- Eldorado operators study field methods to offset emulsion. il Nat Pet N 13:24-6 Mr 2 '21
- Emulsifying agents in oil-field emulsions. J. L. Sherrick. J Ind & Eng Chem 13:1010-11 N '21
- Evaporation losses from the dehydration of crude oils. J. H. Wiggins. Nat Pet N 13:59+ JI 1 '21; Same cond. Oil Paint & Drug Rep 99:12 sec 2 Ja 10 '21
- How salt water inroads cut down light oil future of Mexico. P. Wagner. il Nat Pet N 13:32-4+ Mr 9 '21

- How wildcatting of the past in Mexico affects future tests. P. Wagner. il map Nat Pet N 13:58-60+ Ap 20 '21
- Menace to crude supply increased by water in Mexican wells. P. Wagner. Nat Pet N 12:35-6 F 18 '20
- Oil-field brines. C. W. Washburne. Min & Met 164:27 Ag '20
- Oil-field emulsions. J. L. Sherrick. diag J Ind & Eng Chem 12:133-9 F '20
- Oil field practice in handling crude oil emulsion. S. Born. J Ind & Eng Chem 13:1013-14 N '21
- Radial fault explains salt water show in three wells at Homer. P. Wagner. Nat Pet N 12:30-1 F 4 '20
- Recementing thru tubing under pressure to shut off water. C. C. Thoms. Nat Pet N 12:81+ O 20 '20
- Recovering petroleum from emulsions by chemical treatment. R. R. Matthews and P. A. Crosby. J Ind & Eng Chem 13:1015-16 N '21
- Sealing of water horizons in oil wells by means of cementing process. A. A. Downs. diags Engineering 110:596-8 N 5 '20; Abstract. Min & Met 169:35-6 Ja '21; Same. Sci Am M 3:93 Ja '21
- Sunset-midway oil field, California; geochemical relations of the oil, gas, and water. G. S. Rogers. diags maps U S Geol S Prof Pa 117:1-103 '19
- Underground conditions in oil fields. A. W. Ambrose. il diags map U S Bur Mines Bul 195:68-159 '21; Excerpts. Nat Pet N 12:74-5+ JI 14; 82-4+ JI 28; 73+ Ag 11; 89+ S 1; 81+ S 8; 115+ S 22; 107+ O 6 '20; Excerpt. Eng & Min J 109:934-6, 977-81 Ap 17-24 '20
- Water displacement in oil and gas sands. R. H. Johnson. Min & Met 157:(sec 7) 1-4 Ja '20; Same. Eng & Min J 109:516-17 F 21 '20; Same. Nat Pet N 12:101+ Ap 21 '20
- Water encroaching on deep pay in Homer, La., field. Nat Pet N 12:59-60 Ja 14 '20

Well boring

- Assembling of data and compilation of proper well records. A. W. Ambrose. Nat Pet N 12:73-6 Mr 17 '20
- Best methods for casing wells. Oil Paint & Drug Rep 99:12 sec 2 F 14 '21
- Capping an oil gusher in minutes to save thousands of gallons of oil. il Sci Am 125:27 JI 9 '21
- Casing leaks in oil wells. R. E. Collom. diags Eng & Min J 108:911 D 13 '19
- Casing troubles and fishing methods in oil wells. T. Curtin. il diags U S Bur Mines Bul 182:1-46 '20
- Casing wells in the Salt Creek field. Eng & Min J 111:395 F 26 '21
- Circulating mud-laden fluid with cable tool drilling. M. Van Couvering. diag plans Eng & Min J 111:19 Ja 1 '21
- Company evolves new method of pulling casing, rods and tubing. il Nat Pet N 12:73+ Je 16 '20
- Controlling a gas well at Alkali Butte, Wyo. F. B. Tough. Eng & Min J 111:673 Ap 16 '21
- Core drills in the petroleum industry. H. T. Abrams. il Eng & Min J 111:631-2 Ap 9 '21
- Counterweight on dead line. diag Eng & Min J 109:1032 My 1 '20
- Drilling an oil well in Pennsylvania. H. T. Wade. il Sci Am M 1:524-7 Je '20
- Drilling and production technique in the Baku oil fields. A. Knapp. il diag Min & Met 157:(sec 14) 1-8 Ja '20; Abstract. Eng & Min J 109:517-18 F 21 '20
- Easily made oil-field appliances. A. G. Wolf. diags Eng & Min J 109:1079-80 My 8 '20
- Electric power in the oil fields. W. G. Lane. il J Elec 46:10-14 Ja 1 '21; Excerpt. Elec W 77:155-6 Ja 15 '21
- Electric power in the oil fields as a central station load. W. G. Taylor. il Gen Elec R 23:625-7 JI '20
- Electrified oil well proves to be economical. Elec W 75:217 Ja 24 '20
- Extension of electric power service into the oil fields. W. G. Taylor. il Gen Elec R 24:535-8 Je '21

Petroleum—Well boring—Continued

- How to work out historical graphic well records. A. W. Ambrose. diags Nat Pet N 12:77-8+ My 5 '20
- Importance of formation samples from drilling wells. A. W. Ambrose. Nat Pet N 12:41+ Mr 31 '20
- Importance of markers to trace oil sand trend. A. W. Ambrose. Nat Pet N 12:75-6 My 19 '20
- Insulation of field boilers would cut drilling costs. A. W. Ambrose. Nat Pet N 12:49+ D 1 '20
- Introducing mud-laden fluid under high pressures into porous formations. H. J. Steiny. diag Eng & Min J 112:182 J1 30 '21
- Nitroglycerin once gave excitement; not limited by hazards in handling. H. Botsford. Nat Pet N 12:101+ N 24 '20
- Our deepest wells. R. G. Skerrett. il Sci Am 122:214+ F 28 '20
- Perforated casing and screen pipe in oil wells. E. W. Waggy. il diags U S Bur Mines Tech Pa 247:1-43 '20
- Petroleum engineering work in Wyoming. Eng & Min J 109:663-4 Mr 13 '20
- Plotting underground structure as guide to oil field operators. A. W. Ambrose. map Nat Pet N 12:81-2+ Je 2 '20
- Practical methods of testing for water in producing and drilling wells. A. W. Ambrose. Nat Pet N 12:89+ S 1 '20
- Producing in Baku demands methods foreign to American. A. Wroblewski. Nat Pet N 13:59+ Ag 17 '21
- Purchasing agents start move for standardization of rig irons. Nat Pet N 13:33+ S 14 '21
- Relation of a drilling campaign to income from oil properties. W. W. Cutter and W. S. Clute. Nat Pet N 13:51-2 S 28 '21
- Restrict drilling of edge wells to remedy crude overproduction. W. F. Suender. Nat Pet N 13:59 S 7 '21
- Rotary rock bits. A. G. Wolf. il diag Eng & Min J 109:404-7 F 7 '20
- Secretary Fall suspends requirements for drilling on leased lands. Nat Pet N 13:27 Je 17 '21
- Underground conditions shown by peg models. A. W. Ambrose. il chart Nat Pet N 12:81-2+ Je 23 '20
- Urgency for deeper drilling on the Gulf coast. A. F. Lucas. Min & Met 164:26-7 Ag '20
- Use of low pressure gas in drilling effects big saving. J. B. Gambrell, jr. diags Nat Pet N 12:63-4 D 8 '20
- Well-boring in Palestine. Engineering 110:814 D 17 '20
- Wildcat drilling in Warren county, Ky. G: A. Laird. Eng & Min J 109:1031 My 1 '20
- World's most inaccessible oil well at Point Firmin, Calif. il Pop Mech 36:377 S '21

Cost

- Drilling and rig-building data. S. S. Langley. il diags plan Eng & Min J 109:454-7 F 14 '20
- Necessity for wildcat operations in Mexico brings up study of costs. Nat Pet N 13:61 O 12 '21
- Statistical review of mid-continent field, from 1912 to 1920 inclusive. M. Bates and B. H. Lasky. Nat Pet N 13:73-4 Mr 30 '21

Abyssinia

- Ancient Abyssinia soon to be invaded by Standard oil scouts. map Nat Pet N 12:55 D 22 '20

Alabama

- Oil possibilities in northern Alabama. D. R. Semmes. map Min & Met 159:(sec 5) 1-10 Mr '20; Same abr. Nat Pet N 12:89+ S 8 '20; Excerpts. Sci Am M 1:282-3 Mr '20
- Petroleum possibilities of Alabama. Pt. 1, Northern Alabama, by D. R. Semmes; Pt. 2, Southern Alabama, by J. E. Brantly. 230p (Alabama. Geol. S. Bul. no. 22) University, Ala. '20

Alaska

- Five districts of Alaska favorable for oil exploration. G. C. Martin. map Nat Pet N 13:59-60+ F 23 '21

- Preliminary report on petroleum in Alaska. G: C. Martin. bibliog il diags maps U S Geol S Bul 719:1-83 '21

Alberta

- Sheep river gas and oil field, Alberta. S. E. Slipper. (Memoir 122) 46p il diags maps Canada Dept. of mines, Ottawa '21

Alsace

- Alsatian petroleum industry. Chem & Met Eng 22:1124 Je 16 '20
- Découverte d'une nouvelle couche de sables pétrolifères à Pechelbronn (Alsace). Génie Civil 78:114 Ja 29 '21
- France rehabilitates Alsatian fields seeking new oil supplies. A. E. Hickel. diags map Nat Pet N 13:59+ Ap 13 '21
- Petroleum industry in Alsace. A. Surny-De Bonnier. diag Eng & Min J 110:912 N 6 '20
- Shaft sinking for oil in Alsace. Eng & Min J 109:1320 Je 12 '20

Argentina

- Comodoro Rivadavia petroleum fields. Eng & Min J 112:262-3 Ag 13 '21
- Development continues in Argentine fields. Nat Pet N 12:92+ J1 7 '20
- Petroleum in the Argentine Republic. S. C. Herold. Min & Met 158:(sec 12) 1-5 F '20
- Petroleum in the Mendoza-Neuquén district. A. H. Redfield. Eng & Min J 112:23 J1 2 '21
- Petroleum in the Salta-Jujuy district. A. H. Redfield. Eng & Min J 111:1034 Je 18 '21

Arkansas

- Status of wildcat tests in Arkansas shown by state survey. Nat Pet N 13:53-4 Ag 3 '21
- Survey issues report on Arkansas showings. Nat Pet N 12:84+ Ag 25 '20
- See also Petroleum industry and trade—Arkansas

Australia

- Prospecting for oil in Australia. Eng & Min J 112:624 O 15 '21

Barbados

- Barbados an oil field. C. T. Mason. Sci Am 122:663 Je 12 '20

Bolivia

- Bolivia; a commercial and industrial handbook. W. L. Schurz. U S Bur For & Dom Com 208:138-43 '21
- Petroleum in Bolivia. A. H. Redfield. Eng & Min J 111:955 Je 4 '21
- Prospects for petroleum production in Peru and Bolivia. C: S. Haley. Eng & Min J 110:772-4 O 16 '20

Borneo

- Crude oil of Borneo. J. Kewley. Engineering 111:332 Mr 18 '21

Brazil

- Oil shales and petroleum prospects in Brazil. H. E. Williams. Eng & Min J 110:630-1 S 25 '20
- Petroliferous rocks in the Serra da Baliza. E. P. de Oliveira. Min & Met 172:37 Ap '21

British Columbia

- Oil development in British Columbia. R. Dunn. Eng & Min J 111:315 F 12 '21

California

- Fuel oil and electrification in California. J. E. Woodbridge. Elec Ry J 55:1065 My 22 '20
- Geology and petroleum resources of northwestern Kern county. W. A. English. chart maps U S Geol S Bul 721:1-48 '21
- Oil supply not nearing exhaustion. S. T. Carr. J Elec 47:139 Ag 15 '21
- Summary of operations, California oil fields. 205p California State mining bureau, San Francisco '20
- Sunset-midway oil field, California; geochemical relations of the oil, gas, and water. G. S. Rogers. diags maps U S Geol S Prof Pa 117:1-103 '19

Petroleum—California—Continued

Sunset-midway oil field, California; geology and oil resources. R. W. Pack. il diags maps U S Geol S Prof Pa 116:pt 1, 1-179 '20
Whittier-Fullerton field and its relation to general oil situation in California. W. F. Staunton. Min & Met 163:23-4 Jl '20

See also Petroleum industry—California

Canada

Canada's big oil strike. T: M. Fraser. il Sci Am 124:385+ My 14 '21
Canada's production of crude oil as early as ours. H. L. Wood. Nat Pet N 13:59+ Ja 12 '21

Far North oil will be profitable only by large production. L. E. Smith. il Nat Pet N 13:38-40 Ap 27 '21

First heat of race for Arctic oil is run. Nat Pet N 13:37+ O 26 '21

Immense new oil field discovered in subarctic region of Canada. F. Dickie. il map Pop Mech 36:49-52 Jl '21

Investigations in the gas and oil fields of Alberta, Saskatchewan, and Manitoba. D. B. Dowling, S. E. Slipper and F. H. McLearn. (Geol. S. Memoir 116) 84p diag maps '19
Canada. Dept. of mines, Ottawa

Mackenzie oil field. T. O. Bosworth. Sci Am M 4:265-6 S '21; Same. Min & Met 178:47-8 O '21

Mackenzie river basin. F. H. Mason. Min & Sci P 122:778 Je 4 '21

Natural and regulatory barriers impede way to Mackenzie. L. E. Smith. il Nat Pet N 13:35-8+ Ap 13 '21

Oil and gas in western Canada. 27p Department of the Interior, Canada '20

Oil-bearing rocks of lower Mackenzie river valley. Eng & Min J 112:302 Ag 20 '21

Oil possibilities of the Mackenzie—a warning. F: G. Clapp. Eng & Min J 111:553-4 Mr 26 '21

Petroleum in the Canadian Northwest. A. H. Redfield. bibliog map Eng & Min J 111:871-5 My 21 '21

See also Petroleum industry and trade—Canada

Colombia

Colombia; a commercial and industrial handbook. P. L. Bell. U S Bur For & Dom Com 206:120-37 '21

Honda test is nearing horizon where paying production is expected. il Nat Pet N 13:21+ Ag 10 '21

Magdalena river new industrial avenue for oil development. W. K. Halbert. map Nat Pet N 13:35+ F 2 '21

Petroleum in Colombia. A. H. Redfield. Eng & Min J 110:529-31 S 11 '20

See also Petroleum industry—Colombia

Colorado

Boulder, Col., oil field. Eng & Min J 110:74 Jl 10 '20

Millions of barrels of crude petroleum in Colorado shales. W. E. Riggs. il Motor Age 38:7-9 Ag 19 '20

Oil shales of De Beque, Col. G. R. De Beque. il Eng & Min J 109:348-53 Ja 31 '20

Cuba

Oil possibilities in Cuba. E. R. Suarez Murias. Eng & Min J 110:631 S 25 '20

Czechoslovakia

Oil possibilities in Czechoslovakia. Nat Pet N 12:64+ Mr 17 '20

Petroleum in Czechoslovakia. Min & Sci P 120:942 Je 26 '20

Dutch East Indies

Mineral resources of the Dutch East Indies. map Eng & Min J 110:1087-8 D 4 '20

Sanga Sanga oil field of Borneo. W. H. Emmons and J. W. Gruner. diags Eng & Min J 111:431-2 Mr 5 '21

France

Probabilités géologiques de découverte du pétrole en France. G.-F. Dollfus. Génie Civil 77:361 O 30 '20

See also Petroleum—Alsace; Petroleum industry and trade—France

Galicia

Galician oil fields offer opportunity to American oil men. Nat Pet N 12:81-2+ Mr 10 '20

Germany

Germany's new Meckelfeld oil fields. il Nat Pet N 13:41 Ja 12 '21

Great Britain

British petroleum policy. Eng & Min J 108:736-7 N 1 '19

Petroleum resources of Great Britain. A. C. Veatch. Min & Met 157:(sec 3) 1-4 Ja '20; Same. Nat Pet N 12:34-5 Ja 14 '20; Abstract. Sci Am M 1:87 Ja '20

See also Petroleum industry—Great Britain

Guatemala

Petroleum possibilities of Guatemala. A. H. Redfield. bibliog map Eng & Min J 112:540-4 O 1 '21

Illinois

Influence of faulting in the Illinois oil fields. H. A. Wheeler. Eng & Min J 111:22-4 Ja 1 '21

Interesting developments in Illinois fields confined to old pools. H. L. Wood. Nat Pet N 13:55+ Ja 5 '21

Possibilities for extending oil production north in Illinois. map Nat Pet N 12:95+ Ap 21 '20

Indiana

Petroleum and natural gas in Indiana. W: N. Logan. 297p Fort Wayne print. co., Fort Wayne '20

Rise and decline in production of petroleum in Ohio and Indiana. J. A. Bownocker. map Min & Met 158:(sec 22) 1-12 F '20

Italy

Petroleum found in Italy. Annalist 17:84 Ja 10 '21

Kansas

Oil and gas resources of Kansas. R. C. Moore. 2 v il diags maps Kansas Geol S Bul 6 '20

Petroleum resources of Kansas. R. C. Moore. map Min & Met 158:(sec 29) 1-11 F '20

See also Petroleum industry—Kansas

Kentucky

Oil fields of Kentucky and Tennessee. L. C. Glenn. Min & Met 157:(sec 5) 1-12 Ja '20; Same. Nat Pet N 12:81+ Ja 21; 73+ Ja 28 '20; Discussion. Min & Met 159:(sec 2) 18-19 Mr '20

Production of eastern Kentucky crude oils. W. R. Jillson. 99p Cumberland pipe line co., Winchester, Ky. '21

Two good wells in Kentucky fields. Nat Pet N 12:79+ Ja 7 '20

Wildcat drilling in Warren county. G: A. Laird. Eng & Min J 109:1031 My 1 '20

See also Petroleum industry—Kentucky

Louisiana

See also Petroleum industry and trade—Louisiana

Lower California

Baja California and oil possibilities. V: H. Wilhelm. map Min & Sci P 123:125-7 Jl 23 '21

Mesopotamia

Anglo-Persian oil official misstates Mesopotamian question. W. M. Day. map Nat Pet N 13:81-2 Ja 19 '21

Britain adheres to its contention regarding Mesopotamia oil field; Lord Curzon's reply to Secretary Colby. Oil Paint & Drug Rep 99:9 sec 2 Ap 11 '21

Petroleum—Mesopotamia—Continued

British hint door to Mesopotamian oil will remain closed. A. E. Heiss. Nat Pet N 12:29-30 D 29 '20

Calls on England to explain nature of mandate in Mesopotamia. B. Colby. Nat Pet N 12:31-2 D 1 '20

Mesopotamian oil controversy. H: C. Morris. Eng & Min J 111:1032-4 Je 18 '21

Oil exploitation in Mesopotamia—U.S. note to Great Britain on league mandate. Comm & Fin Chr 111:2106-7 sec 1 N 27 '20

Mexico

How wildcatting of the past in Mexico affects future tests. P. Wagner. il map Nat Pet N 13:58-60+ Ap 20 '21

Isthmian oil fields of Mexico. A. H. Redfield. bibliog map Eng & Min J 111:510-14 Mr 19 '21

Mexican crudes; their characteristics and refining possibilities. G. A. Burrell. Nat Pet N 12:81+ F 4 '20

Mexican oil fields. L. G. Huntley and S. Huntley. maps Min & Met 177:27-32 S '21

Mexico, a petroleum storehouse. Power 51:78-9 Ja 13 '20

Our future oil supply. A. H. Blackiston. il Sci Am 123:102+ Jl 31 '20

Panuco and Topila heavy oil fields of Mexico good for 566,395 bbls. Nat Pet N 12:73-5 Jl 21 '20

Petroleum laws of all America. J. W. Thompson. U S Bur Mines Bul 206:438-90 '21

Salt water takes most Los Naranjos wells north of Tanchiquin. P. Wagner. Nat Pet N 13:53-4 Mr 30 '21

Thirty wildcat tests in Mexico seek to offset waning production. Nat Pet N 13:61+ N 2 '21

Three distinct oil fields in Mexico. Eng & Min J 109:275 Ja 24 '20

See also Petroleum industry and trade—Mexico

Mississippi

Mississippi lime break equivalent of Wilcox sand to South. L. H. White. diag Nat Pet N 13:68-9 Ja 19 '21

Search for oil in Mississippi. Oil Paint & Drug Rep 100:9 sec 2 Ag 22 '21

Montana

Central Montana has oil signs. Oil Paint & Drug Rep 99:20 sec 2 My 16 '21

Geology and oil and gas prospects of the Huntley field. E. T. Hancock. il diags map U S Geol S Bul 711:105-48 '20

Geology of central Montana fields with future possibilities. map Nat Pet N 13:67-8+ Ap 6 '21

Montana gets on oil map with two wells of high gravity oil. H. L. Wood. Nat Pet N 12:63+ S 8 '20

Montana oil scarce. Oil Paint & Drug Rep 99:23 sec 2 Ap 25 '21

Oil and gas in Montana. J. P. Rowe. map Eng & Min J 110:412-17 Ag 28 '20

Oil fields in central Montana. O. W. Freeman. il map Eng & Min J 109:936-8 Ap 17 '20

Oil possibilities in Montana. L. S. Ropes. Eng & Min J 111:754-5 Ap 30 '21

Survey prepares geological data on new Montana oil fields. Nat Pet N 13:40 Je 24 '21

Morocco

Le pétrole au Maroc; l'origine et la conservation des gîtes pétrolifères du Nord marocain. E. Legé. diags map Génie Civil 78:331-5 Ap 16 '21

Near East

Petroleum in Persia and the Near East. E. M. Spieker. map Eng & Min J 110:316-19 Ag 14 '20

Nebraska

Report on the agate anticline, located in Sioux county. il Nat Pet N 13:56+ Ag 31 '21

Nevada

Oil wildcatting in Nevada. Eng & Min J 109:665 Mr 13 '20

Prospecting for oil at Fallon, Nev. il Eng & Min J 110:169-72 Jl 24 '20

New Brunswick

Report on test of New Brunswick oil shales in the Wallace retort. diag Chem & Met Eng 22:809-10 Ap 28 '20

New Guinea

Petroleum in the Pacific. Eng & Min J 108:906-7 D 13 '19

New Mexico

Oil situation in New Mexico. R. W. Ellis. 48p State university of New Mexico, Albuquerque, N.M. '20

Probable oil resources of New Mexico. J: K. Knox. Eng & Min J 110:69-74 Jl 10 '20

Ohio

Rise and decline in production of petroleum in Ohio and Indiana. J. A. Bownocker. map Min & Met 158:(sec 22) 1-12 F '20

See also Petroleum industry—Ohio

Oklahoma

Geology of cement oil field. F: G. Clapp. Min & Met 158:(sec 27) 1-9 F '20

Geology of the cement oil field, Caddo county. F. Reeves. diag map U S Geol S Bul 726—B:41-85, pl 6-12 '21

Lasting quality of shallow sands in Osage shown by figures of O. P. & R. R. S. McBeth. il Nat Pet N 13:37+ Jl 1 '21

Maramec pool considered proven; Comanche wildcat producer. Nat Pet N 12:61-2 Ag 25 '20

Relation of geological strata in Oklahoma-Henryetta district. W. W. Henry. diags Nat Pet N 13:69+ My 25 '21

Structure and oil and gas resources of T. 20n., R. 10e., Osage county. M. I. Goldman. diag maps Nat Pet N 12:77+ N 10 '20

Structure and oil and gas resources of the Osage reservation T. 29 N. RS. 11 & 12e. M. I. Goldman. maps U S Geol S Bul 686—W:329-52 '20

Two tests in southwestern Oklahoma showing for producers. Nat Pet N 12:61-2 O 20 '20

Wells in south pool, Duncan district, show salt water; four stop flowing. Nat Pet N 13:66 Mr 16 '21

See also Petroleum—Red River district; Petroleum industry and trade—Oklahoma

Oregon

Geologists fail to find indications of oil in western Oregon. Nat Pet N 12:90+ Ag 18 '20

Oil developments in Rogue river valley. A. E. Kellogg. il Eng & Min J 111:913-14 My 28 '21

Oil prospects in the Rogue river valley, Oregon. A. E. Kellogg. il Eng & Min J 109:710 Mr 20 '20

Pacific states

Fuel oil situation on the Pacific coast. D. M. Folsom. J Elec 45:523-4 D 1 '20

Panama

Petroleum in Panama. Eng & Min J 111:1075 Je 25 '21

Papua

Petroleum in the Pacific. Eng & Min J 108:906-7 D 13 '19

Patagonia

Patagonian oil well gushes 1,300 barrels per hour. il Pop Mech 36:373 S '21

Pennsylvania

Deep-seated oil and gas horizons in the Appalachians. G: H. Ashley. Nat Pet N 13:60 N 2 '21

Résumé of the Pennsylvania-New York oil field. R. H. Johnson and S. Huntley. Min & Met 158:(sec 23) 1-4 F '20

Persia

Oil fields of Persia. C. M. Hunter. map Min & Met 158:(sec 11) 1-8 F '20; Same. Nat Pet N 12:55+ F 18 '20

Petroleum—Persia—Continued

Petroleum in Persia and the Near East. E. M. Spieker. map Eng & Min J 110:316-19 Ag 14 '20

Peru

Peruvian oil fields. V. F. Marsters. map Eng & Min J 111:1073-5 Je 25 '21
Prospects for petroleum production in Peru and Bolivia. C. S. Haley. Eng & Min J 110:772-4 O 16 '20

Philippine Islands

Petroleum in the Philippines. W. D. Smith. Min & Met 158:(sec 6) 1-8 F '20

Poland

Poland in advance of central Europe as potential oil producer. C. A. Randau. il map Nat Pet N 13:35-6 F 16 '21

Queensland

Prospecting for petroleum in Queensland. Eng & Min J 110:912-13, 1002 N 6, 20 '20

Red River district

Principal fight over Red River oil acreage yet to come. Nat Pet N 13:25+ Ap 20 '21

Russia

Civil disturbances occasion neglect of world's richest oil fields. A. B. Thompson. Nat Pet N 12:73+ S 1 '20; Abstracts. Min & Met 161:27-9 My '20; Sci Am M 1:478 My '20

Petroleum industry of Russia. E. M. Kayden. Eng & Min J 109:1365-70 Je 19 '20

Producing in Baku demands methods foreign to American. A. Wroblewski. Nat Pet N 13:59+ Ag 17 '21

See also Petroleum industry and trade—Russia

Scotland

Scottish oil prospects. Engineer 132:351 S 30 '21

Scottish oil-shale possibilities. Chem & Met Eng 22:277-8 F 11 '20

See also Petroleum industry—Scotland

South America

Prospects for oil from South America. Automotive Ind 43:776 O 14 '20

South Carolina

Little hope in South Carolina oil test. Nat Pet N 13:61+ Mr 16 '21

Tennessee

Explorations for oil in Sumner county. Eng & Min J 108:737-8 N 1 '19

Northwest Tennessee oil development antedates Pennsylvania's. H. L. Wood. Nat Pet N 12:79+ Jl 7 '20

Oil fields of Kentucky and Tennessee. L. C. Glenn. Min & Met 157:(sec 5) 1-12 Ja '20; Same. Nat Pet N 12:81+ Ja 21; 73+ Ja 28 '20

Tennessee oil and gas. S. St Clair. Gas Age 47:394-6 My 10 '21

Texas

Condition of the Spindletop oil field. F. J. S. Sur. diags Eng & Min J 111:273 F 5 '21

Contact oil from Smithwick shale gives no important phase to Ranger area. P. Wagner. Nat Pet N 12:73-4 My 12 '20

Deep oil wells in Texas. A. G. Wolf. Eng & Min J 112:141-2 Jl 23 '21

Five thousand-barrel well completed at West Columbia. Oil Paint & Drug Rep 99:16-17 sec 2 Ap 25 '21

Gulf's well in Panhandle of Texas gives wild-cat promise. Nat Pet N 13:53-4 Ap 27 '21

Lithologic subsurface correlation in the Bend series of north-central Texas. M. I. Goldman. map U S Geol S Prof Pa 129—A:1-22 '21

Marathon fold and its influence on petroleum accumulation. R. A. Liddle. Texas U Bul 1847:9-16 Ag 20 '18; Same. Nat Pet N 12:95-6+ My 19 '20

Method for projecting structure through an angular unconformity. C. S. Corbett. Econ Geol 14:610-18 D '19

Occurrence of petroleum in East Texas; showings and characteristics. E. T. Dumble. Nat Pet N 12:83+ My 12 '20

On the underground position of the Ellenburger formation in North Central Texas. E. H. Sellards. map Texas U Bul 1849:1-29 '18

Opening Spindletop with Lucas gusher. R. S. McBeth. Nat Pet N 13:51-2 S 21 '21

Ranger lime wells. H. L. Wood. Nat Pet N 12:52+ Ap 21 '20

Relation of topography to the oil fields of the Texas gulf coastal region. A. G. Wolf. Eng & Min J 111:474-5 Mr 12 '21

Scientific and economic check-up of the Fort Stockton, Texas, field. C. C. Coulter. il Nat Pet N 13:49 F 9 '21

Shooting of Ranger wells in Breckenridge lime formation advocated. H. H. Adams. Nat Pet N 12:67-8+ Mr 24 '20

See also Petroleum—Red River district; Petroleum industry and trade—Texas

United States

Country's oil supply limited. Power Pl Eng 24:1129-30 D 1 '20

Foreign oil supply for the United States. G. O. Smith. Min & Met 157:(sec 4) 1-5 Ja '20; Same. Nat Pet N 12:42+ Ja 14 '20; Same. Gas Age 45:346-8 Ap 26 '20; Excerpts. Sci Am M 1:87-8 Ja '20; Discussion. Min & Met 159:(sec 2) 19-21 Mr '20

Fuel problem from the refiner's viewpoint. R. L. Welch. Soc Auto Eng J 7:291-2; Discussion. 292-4 S '20

Liquid fuels—wanted: a national policy. R. S. McBride. Eng & Min J 110:823-5 O 23 '20

Method for more efficiently utilizing our fuel resources. C. G. Gilbert and J. E. Pogue. il charts Gen Elec R 23:198-207 Mr '20

National liquid fuel policy. R. S. McBride. Power 52:665-9 O 26 '20

Oil and gas rights on the public domain and on private lands. R. S. Morrison and E. D. De Soto. 1115p Bender-Moss co., San Francisco '20

Oil situation—the effect on the oil-engine industry. E. T. Adams. Power 52:694-5 N 2 '20

Our mineral supplies; petroleum. J. D. Northrop. U S Geol S Bul 666:183-95 '19

Petroleum resources of the world. D. White. maps Sibley J 34:156-68+ N '20

Price factor and increased water power development as sources of relief in petroleum situation. G. O. Smith. Am Gas Eng J 112:467-8+ Je 12 '20

Suggested schedule of petroleum priority. R. S. McBride. il Eng & Min J 110:869-71 O 30 '20

Variation in decline curves of various oil pools. R. H. Johnson. Min & Met 157:(sec 8) 1-5 Ja '20; Same, without tables. Eng & Min J 109:520-1 F 21 '20; Discussion. Min & Met 159:(sec 2) 21-2 Mr '20

World view of the oil supply; abstracts. G. O. Smith. Eng & Min J 110:1047-9 N 27 '20; Nat Pet N 12:45 N 24 '20; Power 52:874-5 N 30 '20; Am Gas Eng J 113:469-72+ D 4 '20

See also Petroleum industry and trade—United States

Utah

Farnham anticline, Carbon county, Utah. F. R. Clark. il maps U S Geol S Bul 711:1-13 '20

Utah and Nevada oil deposits have been solidified. H. L. Wood. Nat Pet N 12:81-2 S 22 '20

Venezuela

Petroleum and asphalt in Venezuela. A. H. Redfield. bibliog Eng & Min J 111:354-7, 393-5 F 19-26 '21

See also Petroleum industry and trade—Venezuela

Petroleum—Continued

West Virginia

Cabin Creek district field operated as self contained unit. L. E. Smith. *il Nat Pet* N 12:41+ N 3 '20

Wyoming

Anticlines near Maverick Springs, Fremont county. A. J. Collier. *il U S Geol S Bul* 711:149-66 '20

Fossil oil field. G. B. Morgan. *Eng & Min J* 112:421 S 10 '21

Lance Creek oil and gas field, Niobrara county. E. T. Hancock. *il diags map U S Geol S Bul* 716—E:91-122 '20

Mule Creek oil field, Wyoming. E. T. Hancock. *map U S Geol S Bul* 716—C:35-53 '20

Oil in the Warm Springs and Hamilton domes, near Thermopolis, Wyoming. A. J. Collier. *il diags maps U S Geol S Bul* 711:61-73 '20

Oil possibilities in and around Baxter basin, in the Rock Springs uplift, Sweet-water county, Wyoming. A. R. Schultz. *il maps (supp) U S Geol S Bul* 702:1-104 '20

Oil possibilities in the Dry Piney and Big Piney districts, Lincoln county, Wyo. G. B. Morgan. *Eng & Min J* 110:368 Ag 21 '20

Osage-Newcastle oil field of Wyoming. *Eng & Min J* 110:271 Ag 7 '20

Osage-Newcastle territory is spotted; oil sand is thin. H. L. Wood. *Nat Pet* N 12:65-6+ S 15 '20

Petroleum in Wyoming. C. H. Wegemann. *Eng & Min J* 109:1417-19 Je 26 '20

Report of the Federal trade commission on the petroleum industry of Wyoming. *U S Fed Tr Comm* 54p Ja 3 '21

Rock Creek oil field, Wyoming. G. B. Morgan. *Eng & Min J* 109:1319-20 Je 12 '20

Salt Creek furnishes half production of Wyoming. H. L. Wood. *Nat Pet* N 12:63-4+ Ag 11 '20

Survey reports on Dry Piney, Wyo., field. *Nat Pet* N 12:86+ F 4 '20

Upton-Thornton oil field. E. T. Hancock. *map U S Geol S Bul* 716—B:17-34 '20

See also Petroleum industry and trade—Wyoming

Petroleum as fuel. See Oil as fuel

Petroleum association, National. See National petroleum association

Petroleum engineering

Electricity in the development of oil lands. R. A. Balzari, O. A. Kommers and F. V. Boller. *il J Elec* 44:373-7 Ap 15 '20

Engineers turn efforts toward better oil industry methods. *Nat Pet* N 12:50+ Je 23 '20

Mechanics of the oil fields. F. H. Colvin. *il diags Am Mach* 53:653-6 O 7 '20

Petroleum engineering aspects. E. W. Wagye. *Gas Age* 46:143-5 Ag 25 '20

Petroleum production engineer. A. W. Ambrose. *Eng & Min J* 109:666 Mr 13 '20

Underground conditions in oil fields. A. W. Ambrose. *il charts diags maps U S Bur Mines Bul* 195:1-238 '21

Petroleum geologists, American association of. See American association of petroleum geologists

Petroleum industry and trade

Anglo-American chairman expresses ideas on international oil policies. *Nat Pet* N 13:58+ J1 8 '21

Applied economics and the oil trade. *Special Lib* 12:11-13 Ja '21

Be wary of believing malicious tales against competitors. H. L. Freeman. *Nat Pet* N 13:37-8 Mr 30 '21

Cheerful view of gasoline situation at petroleum institute. J. C. Dalton. *Automotive Ind* 43:1073-6 N 25 '20

Crude output can only be maintained if fair prices prevail. R. D. Benson. *Nat Pet* N 12:51-2 N 24 '20

Draw tentative code of rules to govern trading in oil industry. *Nat Pet* N 13:31-2 Je 24 '21

Evolution of the oil industry; V: Ross. 178p Doubleday '20

Extended life of wells due to rise in price of oil. W. W. Cutler, jr. *Min & Met* 165:24-5 S '20

Facts regarding petroleum. A. D. Little. *diags map Gas Age* 46:418-23 N 25 '20

Figures oil industry profits on original investment, not present value. A. E. Heiss. *Nat Pet* N 12:38+ Je 9 '20

Foreign oil fields closed to Americans. *Eng & Min J* 109:1224 My 29 '20; Correction. 110:5 J1 3 '20

Great Britain and the world's oil. F. K. Lane. *Am Ind* 21:17-19 O '20

How Great Britain and France divided Old World oil fields. *Automotive Ind* 43:776-7 O 14 '20

Important international aspects of the petroleum problem today. R. L. Welch. *Oil Paint & Drug Rep* 99:11 sec 2 F 28 '21

India rubber in the oil industry. *il India Rubber W* 63:77-9 N '20

Industry's need of oil. G: O. Smith. *Iron Age* 105:1584-6 Je 3 '20; Same. *Blast F & Steel Pl* 8:365-7 Je '20; Excerpt. *Iron Tr R* 66:1614 Je 3 '20

International oil situation as seen by government expert. J. G. Lay. *Oil Paint & Drug Rep* 99:10 sec 2 Ja 17 '21

Jobbers discuss fair trade practices. *Nat Pet* N 12:43-4 Mr 17 '20

Mr Deterding and the S. O. G: T. Bye. *Nation's Business* 8:13-14 J1 '20

National petroleum association semi-annual meeting, Chicago. May 19-20. *Nat Pet* N 13:37-8 My 25 '21

Need of extensive research in the petroleum industry. V. H. Manning. *Chem & Met Eng* 21:727-8 D 10 '19

New chance for smaller refiners when export trade opens; plant of the Carteret oil & refining company, Carteret, N.Y. P. Truesdell. *il Nat Pet* N 13:35-7 Ap 27 '21

Oil activities in many lands. See weekly numbers of National petroleum news

Oil finance. See weekly numbers of the National petroleum news

Oil industry shows up as a "game" from a stock angle. *Nat Pet* N 12:73+ Ja 14 '20

Oil prospects and oil profits. P. T. Moore. *Gas Age* 46:181-3 S 10 '20

Petroleum industry. C: E. Bowles. 189p Schooley stationery & printing co., Kansas City, Mo. '21

Petroleum production in 1920. F: G. Clapp. *Eng & Min J* 111:152-4 Ja 22 '21

Petroleum situation. *Locomotive* 33:175-9 Ap '21

Proposes jobber-refiner committee to work together. T. J. Gay. *Nat Pet* N 12:35+ O 13 '20

Relief from oil shortage. O. F. Schuette. *Gas Age* 45:422-3 My 10 '20

Rental of gasoline pumps provided for in code of trade ethics. *Nat Pet* N 12:25-6 S 8 '20

Report to senate on oil restrictions in foreign countries. *Comm & Fin Chr* 112:2269-70 My 28 '21

Royal Dutch and standard groups running neck-and-neck in oil fleets. *Nat Pet* N 13:33+ J1 29 '21

Socony information. 165p Standard oil co. of New York, New York '21

Subject of selling pumps and tanks open for another conference. *Nat Pet* N 12:37-8 Je 30 '20

Trade practice submittal to discuss fair code of jobbers' ethics. E. E. Grant. *Nat Pet* N 12:35-7 Je 9 '20

Trade rules governing relations between refiners and jobbers. *Nat Pet* N 13:35-6 My 25 '21

Trend of the oil industry during first half of 1920. J. E. Pogue. *bibliog diags Automotive Ind* 43:451-6 S 2 '20

Trends in the petroleum industry for first half of 1921. J. E. Pogue. *Automotive Ind* 45:201-6 Ag 4 '21

Uniform rules for all branches of industry needed. T. F. Kuper. *Nat Pet* N 12:41-2 O 6 '20

Wages and hours of labor in the petroleum industry. *Monthly Labor R* 12:974-6 My '21

Petroleum industry and trade—Continued

Wastes and inefficient practices in the petroleum industry. W. A. Hamor. Chem & Met Eng 25:441-2 Ag 31 '21

With respect to oil and coal supplies, who owns the earth? Nat Pet N 13:86+ F 16 '21

Would suspend drilling new wells until crude is higher. L. E. Smith. Nat Pet N 13:39-40 My 4 '21

See also Electricity in petroleum industry; Gas oil; Oil industries; Oil inspection; Petroleum—Prices; *also* American association of petroleum geologists; American petroleum institute; Independent oil men's association; Invincible oil corporation; Oklahoma producing & refining corporation of America; Standard oil company; White oil corporation

Accounting

Accounting for crude petroleum producers. G. R. Turtle. J Account 31:250-8 Ap '21

Bibliography

Recent articles on petroleum and allied substances. E. H. Burroughs. Monthly Reports of Investigations 29p (mim) Mr '20 Bureau of Mines, Washington, D.C.

Exhibitions

Exhibitors at ninth annual session National petroleum congress. Nat Pet N 13:40a-i Mr 16 '21

Regulation

Bureau of mines announces plans for its supervision of production. Nat Pet N 13:56 Mr 30 '21

Government control of oil industry would be calamity. M. L. Requa. Nat Pet N 13:25-6 My 11 '21

Petroleum legislation and international regulations. L. H. Woolsey. Min & Met 173: 6-8 My '21

See also Petroleum—Laws and regulations

Statistics

Oil exports by countries for eight years. Nat Pet N 12:106 Ag 25 '20

Refinery consumption of crude and re-run oils for 1920. Nat Pet N 13:93+ Mr 16 '21

Refinery output first six months, 1921, is ahead of 1920 figures. Nat Pet N 13:17-18 Ag 24 '21

Supply, demand and keen competition control oil prices. Nat Pet N 12:53+ Je 30 '20

World production increases twenty-four per cent. Nat Pet N 13:72 Mr 2 '21

World's production of petroleum, 1917 and 1918. Eng & Min J 109:403 F 7 '20

World's production of petroleum in 1920. Min & Met 171:27 Mr '21; Same. Eng & Min J 111:433 Mr 5 '21; Same. Soc Auto Eng J 8: 349 Ap '21

Arkansas

Arkansas lease prices higher than at Homer; buyers get close in. P. Wagner. il map Nat Pet N 13:17-20 Ja 19 '21

El Dorado operations move southward; refinery and field facilities. Nat Pet N 13:29-31+ Je 10 '21

El Dorado's potential production roundly 41,000 barrels, April 10. Nat Pet N 13:51-2 Ap 20 '21

Belgium

American oil in Belgium and Holland since the Great War. il Nat Pet N 12:57+ D 15 '20

California

California's output has rapidly increased. Oil Paint & Drug Rep 99:9 sec 2 My 2 '21

Oil operators and workmen reach an agreement in California. Eng & Min J 108:776-8 N 8 '19

Pacific coast petroleum industry; production, ownership, and profits. chart map 276p U.S. Federal trade commission, Washington, D.C. pt 1 '21

Petroleum in California. il Eng & Min J 111: 593-5 Ap 2 '21

Summary of report of the Federal trade commission on the Pacific coast petroleum industry. 19p U.S. Federal trade commission, Washington '21

Wage adjustments in California oil fields. E. P. Marsh. Monthly Labor R 11:633-47 O '20

See also Petroleum—California

Canada

Service stations and oil distribution in Dominion of Canada. H. L. Wood. il Nat Pet N 12:42-3+ D 29 '20

Transportation handicaps loom big in Far North territory. H. L. Wood. il map Nat Pet N 12:29-31 D 8 '20

See also Petroleum—Canada

Colombia

Colombian oil possibilities; companies operating there. Nat Pet N 12:65-6 O 20; 79+ O 27 '20

Colombian petroleum law. J. W. Thompson. Eng & Min J 109:1170-2 My 22 '20

Colombian petroleum law of December 29, 1919. Eng & Min J 110:124-5 Jl 17 '20

Development of Colombian oil field to be pushed by new interests. Nat Pet N 12:36+ Ja 28 '20

Czechoslovakia

Czecho-Slovaks have much oil. Oil Paint & Drug Rep 99:14 sec 2 Ap 18 '21

Dutch East Indies

Exchange of notes between U.S. and Netherlands on oil rights. Comm & Fin Chr 112: 2268-9 My 28 '21

France

Comment nous libérer du pétrole étranger? nécessité de créer en France une industrie nationale des substituts du pétrole. A. Guiselin. Génie Civil 78:359-60 Ap 23 '21

France in bad condition from standpoint of American exporter. Nat Pet N 13:39 Je 24 '21

France's new oil law just promulgated. Nat Pet N 13:61 Mr 9 '21

France's oil industry pictured in war and peace. il Nat Pet N 13:66-8 Mr 9 '21

Marked progress in the French industry. W. F. Bradley. Automotive Ind 43:331 Ag 12 '20

Le mazout et le pétrole lampant; leur importation en France, et la conduite projetée du Havre à Paris. A. Pawlowski. il plan Génie Civil 76:365-70 Ap 17 '20

Le problème du pétrole considéré aux points de vue politique et législatif. R. Gérin. Génie Civil 78:133-6 F 5 '21

See also Petroleum—France

Germany

Industry in Germany is setting rapid pace. B. G. Dawes. il Nat Pet N 13:27-8 O 12 '21

Great Britain

Britain big oil consumer and small producer, says Curzon white paper. Nat Pet N 13: 33+ Ag 3 '21

Britain does not seek oil monopoly; gives Britishers preference. R. Airey. Nat Pet N 12:43-4 N 24 '20

Britain's plan for controlling oil output exposed by Senator Fall. Oil Paint & Drug Rep 99:9 sec 2 Ap 18 '21

British ambassador denies stories of attempt to control oil industry. Nat Pet N 12:42+ Je 2 '20

British petroleum policy. Eng & Min J 108: 736-7 N 1 '19

Great Britain and the world's oil. F. K. Lane. Am Ind 21:17-19 O '20

Great Britain's grip on reserve oil supplies of the world. E. M. Edgar. Eng & Min J 109:1173 My 22 '20

Great Britain's oil policy outlined by state department—Senator Phelan urges acquisition of foreign oil lands. Comm & Fin Chr 110:2146-8 My 22 '20

Institute makes statement on British claims of dominance. Nat Pet N 12:44+ Je 16 '20

Petroleum industry and trade—Great Britain
—*Continued*

No prospect of British oil monopoly. A. Geddes. Comm & Fin Chr 110:2450-1 Je 12 '20
Oil question answered by British; league council reply on mandates. G. Da Cunha. Oil Paint & Drug Rep 99:9 sec 2 Mr 7 '21

Two senators attack British oil policy; back retaliatory bill. A. E. Heiss. Nat Pet N 13:19-20 Ja 12 '21

See also Petroleum—Great Britain; Petroleum—Mesopotamia

Japan

Increased cost of labor in Japan stimulating oil industry there. K. Ito. Nat Pet N 12:33-4+ F 25 '20

Japan's large imports of oil. Oil Paint & Drug Rep 99:10 sec 2 My 30 '21

Kansas

Big companies seeking heavy oil from Kansas fields. H. L. Wood. Nat Pet N 12:77+ Mr 24 '20

Marion and Butler counties, Kansas, average 70,000 barrels daily. J. B. Gambrell, jr. Nat Pet N 12:65-7 O 13 '20

Shallow sand fields in eastern Kansas active and attractive. H. L. Wood. Nat Pet N 12:77+ Mr 31 '20

See also Petroleum industry and trade—Oklahoma-Kansas district

Kentucky

Industry now getting down to brass tacks in Kentucky oil. H. L. Wood. Nat Pet N 12:63+ N 10 '20

Johnson county, Ky., territory is coming in for development. Nat Pet N 12:74 Ap 7 '20

Kentucky completions of average size; state now making 22,000 bbls. daily. Nat Pet N 12:69 S 1 '20

Kentucky development. H. L. Wood. Nat Pet N 12:75-6 Je 9; 60-2 Je 16; 71-3 Je 23; 71-2 Je 30; 73 Jl 7; 83-4+ Jl 14; 75-6+ Jl 28 '20

Kentucky production this year will show 690,000 barrels less than 1919. H. L. Wood. Nat Pet N 12:47-8+ N 17 '20

Kentucky winning first place in oil production east of Mississippi. H. L. Wood. Nat Pet N 12:69-70 Je 2 '20

Kentucky's 1920 production falls by 673,000 barrels to equal 1919's. Nat Pet N 13:72 F 16 '21

Western Kentucky leads during week, rain hinders operations. Nat Pet N 12:70+ My 5 '20

Work slumps in western Kentucky. Nat Pet N 13:47 Ap 13 '21

See also Petroleum—Kentucky

Latin America

List of selected titles referring to the petroleum industry in Latin America. 20p '19 (Typew) U S Bur For & Dom Com, Washington, D.C.

Louisiana

Daily average well production at Homer now is 89 barrels. Nat Pet N 13:56+ Ja 26 '21

Deeper strata at Homer being tested as present production declines. P. Wagner. Nat Pet N 12:39-40 My 12 '20

Haynesville wildcat opens new pool in Woodbine pay, near Homer. Nat Pet N 13:55+ Ap 6 '21

Homer producing 55,459 barrels daily of North Louisiana; 86,042 total. P. Wagner. Nat Pet N 12:33 O 13 '20

Pipelines handling all oil at Homer; field making 70,000 barrels. P. Wagner. Nat Pet N 12:62-3 Mr 31 '20

Producers in deep pay at Homer have proven uniformly disappointing; with record of wells. Nat Pet N 12:64a-c Je 16 '20

Production record to January 30, 1920, of wells in the Homer pool of Louisiana; tabulation. Nat Pet N 12:31-2 F 4 '20

Seventeen interests produce 90 per cent of north Louisiana crude oil. P. Wagner. Nat Pet N 12:56+ Je 30 '20

Three interests hold choice stuff in Haynesville pool. il Nat Pet N 13:19 Ap 27 '21

Mexico

Amatlan salt water invasion in relation to future production of Mexico. P. Wagner. il Nat Pet N 13:29+ S 7 '21

Bolshevism in Mexico. Eng & Min J 109:1152-3 My 22 '20

British oil men profit at Americans' expense by Mexican trick. A. E. Heiss. Nat Pet N 12:27 D 15 '20

Conditions in the Tampico oil district. Eng & Min J 112:381 S 3 '21

Confidence in Obregon as friend of U.S. is misplaced. Nat Pet N 13:21-2 Ja 12 '21

Crude storage in Mexico on decline as potential output drops. P. Wagner. Nat Pet N 13:57-8+ Mr 16 '21

Is the taxation on Mexican oil real cause of stopping exports? L. Vasquez. Nat Pet N 13:67+ Ag 17 '21

Isthmian oil fields of Mexico. A. H. Redfield. bibliog map Eng & Min J 111:510-14 Mr 19 '21

Mexican oil difficulties. Comm & Fin Chr 113:804-5 Ag 20 '21

Mexican oil fields are being rapidly depleted; report. J. A. Phelan. Oil Paint & Drug Rep 99:9+ sec 2 Je 20 '21

Mexican oil industry is expanding in spite of legislation. Nat Pet N 12:107+ S 22 '20

Mexican oil matters—Standard oil and others oppose prohibitive import tax. Comm & Fin Chr 113:1841-2 sec 1 O 29 '21

Mexican petroleum industry. L. P. Castro. Eng & Min J 109:1029-30 My 1 '20

Mexican representative challenges Kellogg; does not answer questions. Nat Pet N 12:49 N 24 '20

Mexico adopts tax on petroleum. Oil Paint & Drug Rep 99:9 sec 2 Je 13 '21

Mexico exports of oil are large. Oil Paint & Drug Rep 99:21 sec 2 Ap 25 '21

Mexico the basic factor in upturn in domestic crude prices. il Nat Pet N 13:19-20 O 12 '21

Mexico's oil rights. F. R. Kellogg. il Nation's Business 8:23-5 N '20

Mexico's potential oil production enough to supply world. Nat Pet N 12:31+ S 15 '20

New Zacamixtle well seventh high point in 40-mile line of production. P. Wagner. Nat Pet N 12:63-4 O 20; 63-4 O 27 '20

1920 oil exports from Mexico exceeded 150 million barrels. Nat Pet N 13:96 Ja 26 '21

Oil development in Mexico expanding. Comm & Fin Chr 111:1819 N 6 '20

Oil lesson from Mexico. R. Arnold. Min & Met 179:23-4 N '21

Oil men deserve U.S. protection in Mexico; intervention unnecessary. F. R. Kellogg. Nat Pet N 12:47-8 N 24 '20

Oil situation. R. Arnold. Min & Met 171:20-2 Mr '21

Oil taxation, etc.—leading Mexican companies suspend production. Comm & Fin Chr 113:146 Jl 9 '21

Panuco potential production drops as daily takings increase. map Nat Pet N 13:39-40 My 18 '21

Petroleum industry in Mexico. Eng & Min J 110:725-6 O 9 '20

Plan drastic action on Mexican question; Secretary Lane's comments. Nat Pet N 12:48+ Ja 7 '20

Production of petroleum in Mexico. Chem & Met Eng 22:932 My 19 '20

Prospective output of oil in Mexico. Eng & Min J 112:182-3 Jl 30 '21

Secretary of state Hughes advises house committee that there has been no Mexican oil investigation. Comm & Fin Chr 112:2606 Je 18 '21

Shall American rights be disregarded? that is Mexican question. F. R. Kellogg. Nat Pet N 12:41+ Jl 21 '20

Stripping what remains of Amatlan oil September Mexico statistics. P. Wagner. Nat Pet N 13:23-4 O 26 '21

Surveys and leaseings are under way in Tehuantepec area. P. Wagner. map Nat Pet N 13:46+ Je 17 '21

Petroleum industry and trade—Mexico—Cont.

Zacamixtle facilities principal new construction in Mexico. P. Wagner. *il* Nat Pet N 13:34-40 F 23 '21

Zacamixtle may represent low spot on lower country fold. map Nat Pet N 13:60-1 Je 3 '21

Zacamixtle relieves Mexican situation; congestion at Breckenridge. P. Wagner. Nat Pet N 12:27-8 O 20 '20

See also Petroleum—Mexico

Michigan

Progress to date of oil development at Deerfield, Lenawee co., Mich. H. L. Wood. Nat Pet N 12:81+ My 12 '20

Mid-continent field

Carter and Humble storing own crude to ease strain on Prairie. J. B. Gambrell, jr. Nat Pet N 13:17-18+ S 14 '21

Mid-continent operators not surprised at Secretary Payne's decision. J. B. Gambrell, jr. Nat Pet N 12:86-7+ N 24 '20

Mid-continent plants run 28,000 barrels less daily than year ago. Nat Pet N 13:21-2 JI 29 '21

Policy changes as struggle for mid-continent crude grows keener. J. B. Gambrell, jr. Nat Pet N 12:39-40 Je 16 '20

Refiners planning own retail outlets to stabilize business. J. B. Gambrell, jr. Nat Pet N 13:76 My 25 '21

Statistical review of mid-continent field, from 1912 to 1920 inclusive. M. Bates and B. H. Lasky. Nat Pet N 13:67-8+ Mr 30 '21

Montana

Figures show status of production and stocks, Wyoming-Montana. Nat Pet N 13:66+ Je 10 '21

See also Petroleum—Montana

Netherlands

American oil in Belgium and Holland since the Great War. *il* Nat Pet N 12:57+ D 15 '20

Ohio

Lodi-Chatham field leads Ohio in completions and production. H. L. Wood. Nat Pet N 12:71-2 My 12 '20

Shallow Lodi field warrants campaign to extend Berea production. L. E. Smith. Nat Pet N 12:85 D 1 '20

See also Petroleum—Ohio

Oklahoma

Curtailment policies' effect shown by comparative figures of production in Osage reservation. Nat Pet N 13:49-56 Mr 23 '21

Drilling restrictions are lifted, and the committee on conservation and conciliation is suspended by the executive committee of the Mid-continent oil & gas association. Nat Pet N 13:17-18 Ap 20 '21

Fear calamity unless drilling is halted; oppose state regulation. J. B. Gambrell, jr. Nat Pet N 13:33-4 My 18 '21

Modification of acreage limit planned to hike Osage prices. J. B. Gambrell, jr. Nat Pet N 12:73 S 15 '20

Oklahoma daily production now tops quarter million mark. Nat Pet N 12:62-3 Mr 24 '20

Oklahoma shows increase in production of 5,000 barrels. Nat Pet N 12:68+ Mr 10 '20

Oklahoma wildcats find new pools; water in Elbing field. Nat Pet N 12:64-5 Mr 31 '20

Osage leads Oklahoma field with 12,000-barrel well. Nat Pet N 12:75-6 Ja 7 '20

Osage reservation production nearly two million barrels in August. J. B. Gambrell, jr. Nat Pet N 12:33+ O 6 '20

Our government's biggest gambling center at Pawhuska. H. L. Wood. Nat Pet N 12:34+ F 11 '20

Production record of Hewitt field. J. B. Gambrell, jr. Nat Pet N 12:70 Ap 28 '20

Sidelights on Bartlesville, original oil country gateway. H. L. Wood. Nat Pet N 12:97+ Mr 3 '20

Wildcatting keeps up in Oklahoma; new pools discovered. Nat Pet N 13:53-4 My 25 '21

See also Petroleum—Oklahoma; Petroleum industry and trade—Mid-continent field

Oklahoma-Kansas district

Bad weather slows operations in fields of Oklahoma and Kansas. Nat Pet N 12:61-2 N 3 '20

Extension to Burbank area believed to pre-empt big production. Nat Pet N 13:51-2 Ja 12 '21

Kansas-Oklahoma production now close to 380,000 barrels daily. Nat Pet N 12:69-70 Je 30 '20

Mid-continent association draws rules to reduce production. W. K. Halbert. Nat Pet N 13:19-20 F 23 '21

Oklahoma-Kansas fields show fine wells. H. L. Wood. Nat Pet N 12:63-4 Ja 14; 67-8+ F 4 '20

Oklahoma new production going up; Kansas declines. Nat Pet N 12:93-4 Mr 17 '20

Production holds to previous level with few notable completions. Nat Pet N 13:45-6 Ap 13 '21

See also Petroleum industry and trade—Mid-continent field

Red River valley

Disputed area in Red river bed section less than 500 acres proven. P. Wagner. Nat Pet N 12:71-2b My 26 '20

Rumania

Industry is much hampered by difficulties in transportation and lack of electrical current necessary for operations, while refineries are blocked. Oil Paint & Drug Rep 99:22 sec 2 F 21 '21

Petroleum situation in Rumania. Eng & Min J 110:913 N 6 '20

Rumania international camping ground in world's oil hunt. E. C. Kemp. map Nat Pet N 12:47+ N 10 '20

Roumanian field to be greater factor in supplying European market. *il* Nat Pet N 12:27-9 F 4 '20

Rumanian petroleum production. Eng & Min J 112:421 S 10 '21

Russia

Bolsheviks and the oil crisis on the Caspian. map Nat Pet N 12:75+ D 29 '20

Inefficiency and ruin mark soviet rule in Russian oil fields. P. Adelbert. Nat Pet N 13:59+ Ag 10 '21

Petroleum industry of Russia. E. M. Kayden. map Eng & Min J 109:1365-70 Je 19 '20

Russian petroleum production. Eng & Min J 112:463 S 17 '21

Soviet Russia's oil industry. Oil Paint & Drug Rep 100:20 sec 2 Ag 15 '21

See also Petroleum—Russia

Scotland

Financial record of Scotch oil-shale companies. Eng & Min J 110:626-7 S 25 '20

See also Petroleum—Scotland

South America

South America's oil production. Oil Paint & Drug Rep 99:26 sec 2 My 23 '21

Sumatra

Britain forces Dutch to ban Americans from Sumatra fields. A. E. Heiss. Nat Pet N 13:92 My 4 '21

Texas

Big play beginning in Wilbarger county, Northwest Texas. H. L. Wood. Nat Pet N 12:97+ My 5 '20

Burkburnett field—a lesson to oil men. R. E. Collom. Eng & Min J 110:1221-3 D 25 '20

Chronology and psychology of north Texas oil boom. H. L. Wood. Nat Pet N 12:49+ F 18; 83+ F 25; 123+ Mr 17; 81+ Ap 7 '20

Comparative production figures of Eastland county, Texas. Nat Pet N 12:89-90+ Ja 7 '20

Decline and production of the Ranger field. E. A. Stephenson and H. R. Bennett. Eng & Min J 109:1121-9 My 15 '20

Effective operation gets 8,415 barrels per acre from Ranger lease. Nat Pet N 12:33+ Ja 21 '20

Petroleum industry and trade—Texas—Cont.

- Field tables show result of operations in four gulf coastal pools. Nat Pet N 12:61-2 N 17 '20
- Flush Breckenridge wells contrast to less profitable work. P. Wagner. Nat Pet N 12:66-8+ Ag 25 '20
- Flush production at West Columbia cut in half within two months. P. Wagner. il Nat Pet N 13:19 Ja 5 '21
- Humphrey's interests control 5,400 acres around important Mexia well. maps Nat Pet N 13:53-5 My 18 '21
- Interest centers on well in new sand in Palo Pinto county. Nat Pet N 12:69 My 5 '20
- Northern half of Stephens county most active part of Texas lime area. Nat Pet N 13:69-70 My 4 '21
- Oil industry of North Central Texas. Oil Paint & Drug Rep 99:22-4 sec 2 Mr 7 '21
- Operations of Magnolia petroleum co. in black lime area summarized. Nat Pet N 12:80-1+ Ag 25 '20
- Panuco field surveyed; how pinching in wells lessens water trouble. P. Wagner. Nat Pet N 12:48-9+ S 15 '20
- Present development in the Amarillo gas field, Texas panhandle. H. L. Wood. Nat Pet N 12:77+ Ap 28 '20
- Production in central mineral belt of Texas 112,870 barrels daily. Nat Pet N 13:46+ JI 8 '21
- Stephens county half way to Ranger peak; leads black lime area. P. Wagner. Nat Pet N 12:61-2 JI 28 '20
- Stephens county, Texas, gives up in seven months 8,434,928 barrels. P. Wagner. Nat Pet N 12:73 S 29 '20
- Wells making 3 per cent of production. Nat Pet N 12:61 Ja 14 '20
- West Columbia gusher offsetting Abrams, rivals its maximum. P. Wagner. Nat Pet N 12:61-2 JI 28 '20
- When Texas went oil mad. C. T. Crowell. Nation's Business 8:26-7 Mr '20
- Where oil is king, Ranger, Texas. il Eng & Min J 109:274-5 Ja 24 '20
- Wild boom in North Texas oil fields. H. A. Wheeler. il map Eng & Min J 109:741-7 Mr 27 '20; Discussion. 109:964-5, 1317-19 Ap 24, Je 12 '20
- Zacamixtle relieves Mexican situation; congestion at Breckenridge. P. Wagner. Nat Pet N 12:27-8 O 20 '20

See also Petroleum—Texas

Trinidad

- Petroleum industry of Trinidad. G: A. Macready. Min & Met 165:21-2 S '20

United States

- America's petroleum problem. J. O. Lewis. maps J Fr Inst 191:357-79 Mr '21
- Analysis of exports for year ending June 30; seven year comparison. Nat Pet N 12:109 Ag 4 '20
- Average daily production for week ended Oct. 23. Nat Pet N 12:67 N 3 '20
- Bureau of mines statistics on refinery production. Nat Pet N 12:45 Ja 21; 87 F 11; 34 JI 28; 30 S 1; 125 O 6; 100 N 3; 119 D 1 '20
- Commission absolves oil industry from profiteering charge. A. E. Heiss. Nat Pet N 12:35-6 Je 2 '20
- Comparative exports by countries; tabulation. Nat Pet N 12:108+ My 26 '20
- Congress is told of handicaps oil industry faces in this country. Nat Pet N 12:33-4 Ap 14 '20
- Crude figures of U.S. geological survey in the oil fields east of the Rockies for the last 13 months. Nat Pet N 12:105 F 4 '20
- Crude oil production in 1920. Soc Auto Eng J 8:409 My '21
- Crude petroleum industry in 1919. J: D. Northrop. Eng & Min J 109:129-33 Ja 17 '20
- Crude production is off 50,000 barrels daily average for July. Nat Pet N 13:21-2 Ag 31 '21
- Daily production of crude oil increased 30,000 barrels in Feb. Oil Paint & Drug Rep 99:10 sec 2 Ap 4 '21
- Deferring of dividends, cut in production, surest corrective, says Doherty. Nat Pet N 13:29 Je 24 '21
- Detailed statistics as to production controlled by S.O. co. of New Jersey. Nat Pet N 12:89-91+ Ap 21 '20
- Division, not multiplication, is Reds' theory of winning wealth. R. L. Welch. Nat Pet N 12:29-30 O 13 '20
- Economic aspects of the fuel oil situation. E. McAuliffe. Ry R 66:1004-6 Je 12 '20; Excerpts. Ry Age 68:1565-6 Je 4 '20
- First quarter of 1921 shows serious situation of oil industry. H. H. Smith. Nat Pet N 13:73 Je 10 '21
- Gulf coast crude cut not taken as sign of general reduction. P. Wagner. Nat Pet N 12:25-6 D 1 '20
- Importance of increasing production dwarfs all other problems. W. C. Teagle. Nat Pet N 12:41-2 N 24 '20
- International aspects of petroleum industry. V. Manning. Min & Met 158:(sec 24) 1-10 F '20; Excerpts. Eng & Min J 109:510-12 F 21 '20
- Kerosene only refinery product to show decline in output in 1920. Nat Pet N 13:21-2 Mr 2 '21
- March production is far below consumption. Nat Pet N 12:100+ My 12 '20
- Market for Rocky Mountain petroleum. J: D. Northrop. map Eng & Min J 109:1218-23 My 29 '20
- Menace of Mexican oil. P. Kates. Annalist 18:80 JI 25 '21
- Mineral oil statistics. Chem & Met Eng 22:504 Mr 17 '20; Same. Gas Age 45:406 My 10 '20
- Nation's future depends on securing crude from foreign sources. V. H. Manning. Nat Pet N 12:107+ Mr 17 '20
- Oil industry not adjusting its operations to general slowing down of business. J. E. Pogue. Nat Pet N 13:31+ Je 3 '21
- Oil supply sufficient if wildcatter is unrestricted. T: A. O'Donnell. Nat Pet N 12:53-4 N 24 '20
- Oil taxation, etc.—leading Mexican companies suspend production. Comm & Fin Chr 113:146 JI 9 '21
- Output of refineries by districts for January-August, 1921, as compiled by the United States Bureau of mines. Nat Pet N 13:31 O 26 '21
- Output of refineries by districts in the United States, complete for 1918, 1919, and 1920, as compiled by the United States Bureau of mines; tabulation. Nat Pet N 13:20 Mr 2 '21 [continued by monthly tabulations].
- Outstanding features of oil industry during 1920. J. E. Pogue. Nat Pet N 13:24a+ Ja 19 '21
- Pacific coast petroleum industry; production ownership, and profits. chart map 276p U.S. Federal trade commission, Washington, D.C. '21
- Petroleum, last to suffer, should be first to revive. R. L. Welch. Nat Pet N 13:27+ Mr 30 '21
- Petroleum produced in the United States in September, October, and November 1920. Eng & Min J 111:111 Ja 15 '21
- Petroleum produced in the United States in March, 1921, April, 1921, and April 1920. Eng & Min J 111:990 Je 11 '21
- Petroleum produced in the United States in May, 1921, June, 1921, and June, 1920. Eng & Min J 112:222 Ag 6 '21
- Petroleum production of U.S. in January was 38,271,000 barrels. Oil Paint & Drug Rep 99:12 sec 2 Mr 7 '21
- Petroleum refining—Census bureau's summary for the industry, 1919 and 1914. Oil Paint & Drug Rep 99:10 sec 2 Je 20 '21
- Pipe brokers are largely responsible for extortionate premiums. Nat Pet N 12:29-31 Ja 7 '20
- Production of crude petroleum in the United States in April aggregated 40,039,000 barrels. Oil Paint & Drug Rep 99:23 sec 2 My 30 '21

Petroleum industry and trade—United States —Continued

Production of petroleum by states; and condensed summary for January-April, 1921, and for May, 1918-1921. Nat Pet N 13:47+ J1 1 '21

Production of petroleum in the United States during January, 1921. Eng & Min J 111:554-5 Mr 26 '21

Provisions of the conference railroad bill. C. Thorne. Nat Pet N 12:58+ Mr 3 '20

Recent increases in the prices of petroleum and its products. 24p American Petroleum Institute, 15 W. 44th st, N.Y.

Refineries census for year 1920 made by the United States Bureau of mines. Oil Paint & Drug Rep 99:22 sec 2 Mr 14 '21

Refinery operations of western plants reduced 60 per cent; tabulation. Nat Pet N 13:19-20 F 9 '21

Relation of the Bureau of mines to the oil industry. F. G. Cottrell. Eng & Min J 110: 678-9 O 2 '20; Excerpt. Nat Pet N 12:61+ O 6 '20

Report clears Pacific coast companies. Nat Pet N 13:48 My 4 '21

Report of the Federal trade commission on oil situation. Am Gas Eng J 112:460 Je 5 '20

Report on crude oil produced in United States during year 1920. Oil Paint & Drug Rep 99:9 sec 2 F 14 '21

Situation in the petroleum industry. Elec Ry J 58:245 Ag 13 '21

Some opinions on the petroleum outlook from the American petroleum institute. Power 52:918 D 7 '20

Statistical desk sheet for 1920 of the oil industry of the United States. Nat Pet N 13:supp Ja 19 '21

Statistical history for 1919 of oil industry of United States. Nat Pet N 12:supp Ja 7 '20

Tariff on Mexican crude is favored with reservations. Nat Pet N 13:25+ Ap 27 '21

Trade leaders take optimistic stand on outlook for oil business. Nat Pet N 12:33-4 N 10 '20

Trading likely to effect oil settlement with Great Britain. A. E. Heiss. Nat Pet N 13: 37+ My 18 '21

Trend of the oil industry in 1919. J. E. Pogue. diags Automotive Ind 42:247-50 Ja 15 '20

Trend of the oil industry in 1920. J. E. Pogue. Automotive Ind 44:403-6 F 17 '21

Trends in management; the petroleum outlook. A. D. Little. Factory 25:1892-5 D 15 '20

Two factors are working for revival in oil industry during 1921. J. E. Pogue. Nat Pet N 13:17-19 Mr 2 '21

Two suggestions on a national problem. Min & Sci P 121:225-6, 373-4, 545-6 Ag 14, S 11, O 16 '20

Uncle Sam's side of the bargain. V. H. Manning. il Nation's Business 9:16-17 Je '21

United States needs definite policy relating to petroleum. V. H. Manning. Nat Pet N 12:47-8 O 6 '20

U.S. oil production for September registers decrease. Eng & Min J 110:955 N 13 '20

What is the most important problem in the petroleum industry? Eng & Min J 109:761-2 Mr 27 '20

Why our motor fuel supply must be conserved. H. Chase. Automotive Ind 45:251-4 Ag 11 '21

See also Electricity in petroleum industry; Gas oil; Petroleum—United States; *also* Cities service company; Independent oil men's association; National oil company; Oklahoma producing & refining corporation of America; Standard oil company; Tide water oil company

Venezuela

Report on petroleum industry, oil laws and taxes of Venezuela. Oil Paint & Drug Rep 99:14 sec 2 F 14 '21

Venezuela fields are occupied by a variety of interests. map Oil Paint & Drug Rep 99:24 sec 2 Mr 21 '21

Venezuela, like Roumania, a center of international rivalry. P. L. Bell. map Nat Pet N 13:59-60+ Mr 2 '21

See also Petroleum—Venezuela

West Virginia

Seventy-seven wells completed in state of West Virginia. Oil Paint & Drug Rep 99: 21-2 sec 2 Mr 7 '21

Wyoming

Commission submits Congress report covering Wyoming oil field. A. E. Heiss. Nat Pet N 13:25+ Ja 5 '21

Figures show status of production and stocks, Wyoming-Montana. Nat Pet N 13:66+ Je 10 '21

Freimont county, Wyoming, development—its romance and industry. H. L. Wood. Nat Pet N 12:63+ S 1 '20

Isolation chokes out small operators from sixth oil state. H. L. Wood. Nat Pet N 12:73+ Ag 18 '20

Monthly field report of Wyoming shows unusually large totals. Nat Pet N 12:84 Ja 7 '20

Report of the Federal trade commission on the petroleum industry of Wyoming. 54p U.S. Federal trade commission '21

Southern Wyoming field activity shows a little new oil. H. L. Wood. Nat Pet N 12:73-4+ Ag 25 '20

Wyoming operations about normal; production not increasing. H. L. Wood. Nat Pet N 12:43+ J1 28 '20

See also Petroleum—Wyoming

Petroleum institute, American. *See* American petroleum institute

Petroleum pipe lines. *See* Oil pipe lines

Petroleum refineries

Faulty engineering in oil refineries. C. O. Sandstrom. Power Pl Eng 24:250-1 F 15 '20

Kentucky refineries add filter stocks. il Nat Pet N 13:51-2+ My 4 '21

New chance for smaller refiners when export trade opens; plant of the Carteret oil & refining company, Carteret, N.Y. P. Truesdell. il Nat Pet N 13:35-7 Ap 27 '21

One man can operate it, says promoter; it's a refinery. il Nat Pet N 12:44+ F 18 '20

Portable topping plant designed for specialized usage. W. K. Halbert. il Nat Pet N 13:33+ Ap 6 '21

Provide for future as well as present in selecting refinery site. A. D. Smith. Nat Pet N 12:48+ Ag 11 '20

Refinery runs only Burton stills; makes no kerosene. il Nat Pet N 12:43+ N 17 '20

Water and rail service prime requisites in locating a refinery. A. D. Smith. diags map plan Nat Pet N 12:41+ S 8 '20

Inspection

Every refinery accident a fire hazard; preventive inspection. A. D. Smith. Nat Pet N 12:77+ O 13 '20

Petroleum refining

Action of anhydrous stannic chloride on petroleum and its distillates. G. Torossian. J Ind & Eng Chem 13:903-4 O '21

Beacon oil refinery starts operations. Am Gas Eng J 113:99 J1 31 '20

Brine corrosion of petroleum equipment. R. R. Mathews and P. A. Crosby. Chem & Met Eng 22:491-2 Mr 17 '20

Complete midget refinery operated for experimental work at Okmulgee, Okla. A. Svenson. il Nat Pet N 12:49 S 8 '20

Corrosion prevention in petroleum refining vapor systems. R. R. Mathews and P. A. Crosby. Chem & Met Eng 23:1122-3 D 8 '20

Crude petroleum and lubricating oils. J. D. Roberts. Power 51:842-4 My 25 '20

Development of new gasoline process for eastern crude. Nat Pet N 12:44 Ap 28 '20

Development of refining industry in Dominion of Canada. H. L. Wood. Nat Pet N 13:35+ Ja 5 '21

Electrical dehydration of oil. Sci Am M 3: 89 Ja '21

Elementary chemistry as it is applied in refining practice. A. D. Smith. Nat Pet N 12:32-3 J1 14 '20

Evolution of desulphurization methods used by modern refiners. A. D. Smith. Nat Pet N 12:89+ D 8 '20

Petroleum refining—Continued

- Experimental shale oil-retorting plant. flow sheet il diag Chem & Met Eng 24:312-13 F 16 '21
- External influences add complications to refinery situation. P. Wagner. Nat Pet N 12:31-2 Ag 25 '20
- Extract gasoline from still gases at mid-continent refineries. W. K. Halbert. Nat Pet N 13:31 Mr 23 '21
- L'extraction et le traitement du pétrole à Pechelbronn (Alsace). Courau. Génie Civil 78:92 Ja 22 '21
- Fuller's earth cooling device for small refineries. diags Nat Pet N 12:49+ Ap 14 '20
- Government bureau sees little hope for gas companies in oil situation even in future. N. A. C. Smith. Am Gas Eng J 112:419-20+ My 29 '20; Same. Gas Age 45:500-2 Je 10 '20
- High gasoline recovery is claimed for new cracking process. diags Nat Pet N 12:30-2 Ap 14 '20
- How to reach conclusions as to value of various crudes. A. D. Smith. Nat Pet N 12:43+ N 10 '20
- Increased refinery runs bring return of premiums at Wichita Falls. P. Wagner. Nat Pet N 13:19-20 Mr 30 '21
- Meeting future demand for petroleum is task for refiner; abstracts. H. H. Hill. Nat Pet N 12:57+ O 6 '20; Soc Auto Eng J 8:51-3 Ja '21; Gas Age 46:348-9 N 10 '20
- Motor gasoline from heavier hydrocarbons; particulars regarding its preparation by various cracking processes. F. W. Padgett. Mech Eng 42:400-2+ Jl '20; Excerpt. Soc Auto Eng J 7:432 N '20
- Navy helps finance oil company to get fuel oil. Nat Pet N 12:35-7 Je 16 '20
- Output of refineries in the United States for November-December, 1919, January, 1920, and total output for 1918, shown by districts as compiled by the United States Bureau of mines. Nat Pet N 12:43 My 5 '20
- Petroleum refining in New England. il Chem Age 29:199-200 My '21
- Plant is crowning achievement of veteran refiner's life. il Nat Pet N 12:26-7 Ja 14 '20
- Practical methods for reducing preventable losses at refineries. Nat Pet N 13:30 S 28 '21
- Preventable losses in petroleum refining. J. E. Pogue. Chem & Met Eng 25:442 Ag 31 '21
- Procedure and products of petroleum refining. C. K. Francis. il Chem Age 29:271-3 Jl '21
- La production de l'essence par la décomposition pyrogénée ou cracking des huiles lourdes de pétrole. C: Dantin. Génie Civil 78:51-5 Ja 15 '21
- Production of motor gasoline from heavy oil hydrocarbons. F. W. Padgett. Chem & Met Eng 23:521-5 S 15 '20
- Properties of typical eastern crude oils shown by distillation. E. W. Dean. Nat Pet N 13:24a-5+ F 9 '21
- Refining capacity 177,000 barrels day over crude production. Nat Pet N 12:27-9 Mr 24 '20
- Removal of the lighter hydrocarbons from petroleum by continuous distillation with especial reference to plants in California. J. M. Wadsworth. flow sheets il chart diags plans U S Bur Mines Bul 162:1-162 '19; Excerpts. Nat Pet N 12:33-4, 36+ F 4; 74+ F 18 '20
- Some chemical considerations of petroleum refining. B: T. Brooks. Chem & Met Eng 24:1022-5 Je 8 '21
- Testify refineries are operating at a loss under present conditions. J. B. Gambrell, jr. Nat Pet N 13:25-6 Je 10 '21
- Where the petroleum goes. J. M. Bird. il Sci Am 123:3+ Jl 3 '20
- See also Asphalt; Gasoline industry; Paraffin

Bibliography

- Bibliography of petroleum and allied substances, 1917. E. H. Burroughs. U S Bur Mines Bul 180:100-17 '20

- Bibliography of petroleum and allied substances in 1918. E. H. Burroughs. U S Bur Mines Bul 189:103-21 '21

By-products

- Utilization of asphaltic base acid sludge obtained in refining petroleum and shale oils. C: Baskerville. J Ind & Eng Chem 12:30-1 Ja '20
- Utilization of augmentary substances as measure of oil economy. W: A. Hamor. Nat Pet N 12:83-4+ O 27 '20

Patents

- Decision on patents of Cottrell and Speed. W. Gustin. Chem & Met Eng 23:327-8 Ag 25 '20
- Gasoline cracking processes with list of inventors, patent numbers and dates. F. W. Padgett. Chem & Met Eng 23:908-13 N 10 '20
- Granting of patent is climax to fight that began March 30, 1911. Nat Pet N 12:44+ Je 9 '20
- Patent on cracking process antedates Burton grant. diags Nat Pet N 12:49-50+ Je 2 '20

Petroleum sampling

- Importance of formation samples from drilling wells. A. W. Ambrose. Nat Pet N 12:41+ Mr 31 '20
- Properties of typical eastern crude oils shown by distillation. E. W. Dean. Nat Pet N 13:24a-5+ F 9 '21

Petrometer

- Bowden petrometer; device which registers the fuel consumption on a motor vehicle or airplane. diag Mech Eng 42:586 O '20; Same. Sci Am M 2:187-8 O '20

Pets

- Selling pets. H. Parlin. il Ptr Ink M 2:46+ F '21

Pewter

- Pewter collector. H. J. L. J. Massé. 314p Dodd. Mead & co., New York '21

Pharmacists

- Descriptions of occupations; medicinal manufacturing. 13p '18 U.S. Bureau of labor statistics, Washington, D.C.

Pharmacology

- Introduction to chemical pharmacology. H. McGuigan. 418p P. Blakiston's son & co., Philadelphia '21

Pharmacy

- Art of the apothecary; its ancient origin and modern development in France. J. Boyer. il Sci Am M 1:159-64 F '20

- Pharmaceutical emulsions. T. R. Briggs and others. J Phys Chem 24:147-60 F '20

See also Chemistry, Medical and pharmaceutical; Drugs; Extracts—Manufacture; Pharmacology

Study and teaching

- Le perfectionnement des employés de la droguerie. E. Perrot. Chimie & Ind 5:85-7 Ja '21

Phase rotation

- Testing for phase rotation in three-phase circuits. F. A. Kartak. il Elec W 77:928-9 Ap 23 '21; Discussion. H: J. Blakeslee. 78:177-8 Jl 23 '21

Phase rule

- Principles of the phase theory, heterogeneous equilibria between salts and their aqueous solutions. D. A. Clibbens. 383p Macmillan '20

- La thermodynamique et ses applications à l'industrie chimique. G. Urbain. Chimie & Ind 3:750-60; 4:31-42 Je-Jl '20

Phelps Dodge corporation

- Annual report, 1920. Comm & Fin Chr 112:1637 Ap 16 '21

Phenacyl esters

- Identification of acids; separation of acids by means of phenacyl esters. J. B. Rather and E. E. Reid. Am Chem Soc J 43:629-36 Mr '21

- Phenacylsulfide**
Stereoisomere abkömmlinge des phenacylsulfids. E. Fromm and A. Ehrhardt. Deutsche Chem Gesell Ber 54:187-93 F '21; Abstract (Stereoisomeric derivatives of phenacyl sulphide). Chem Soc J 120 pt 1:275-6 Ap '21
- Phenanthraquinone.** See Phenanthrenequinone
- Phenanthrene**
Bromine compounds of phenanthrene. H. Henstock. Chem Soc J 119:55-61 Ja '21
Preparation of 9(10)-phenanthridone from phenanthrene. L. Oyster and H. Adkins. Am Chem Soc J 43:208-10 Ja '21
- Phenanthrenequinone**
Dyes derived from phenanthraquinone. E. R. Watson and S. Dutt. Chem Soc J 119:1211-21 Ag '21
- Phenanthridone**
Preparation of 9(10)-phenanthridone from phenanthrene. L. Oyster and H. Adkins. Am Chem Soc J 43:208-10 Ja '21
- Phenheptamethylene**
Über phenheptamethylen und einige andere verbindungen der phenheptamethylen-gruppe. W. Borsche and A. Roth. Deutsche Chem Gesell Ber 54:174-7 Ja '21
- Phenol.** See Carboic acid
- Phenol silver salts**
Catalytic decomposition of certain phenol silver salts. W. H. Hunter and G. H. Woollett. Am Chem Soc J 43:131-59 Ja '21
- Phenolcitraconein**
Phenolcitraconein. Sri Krishna and F. G. Pope. Chem Soc J 119:289-91 Mr '21
- Phenolcoumarein**
Phenolcoumarein and resorcinolcoumarein. S. Krishna. Chem Soc J 119:1420-5 S '21
- Phenolphthalein**
Behavior of phenolphthalein with iodine and a method for the determination of phenolphthalein. S. Palkin. J Ind & Eng Chem 12:766-9 Ag '20
Use of aluminium chloride and ferric chloride in the preparation of phenolphthalein. C. F. Ward. Chem Soc J 119:850-2 Je '21
- Phenols**
Detection of phenols in water. R. D. Scott. J Ind & Eng Chem 13:422 My '21; Discussion. 13:848-9 S '21
Diazometric determination of phenol, and of certain of its homologs. R. M. Chapin. J Ind & Eng Chem 12:568-70 Je '20
4-methyl-benzophenone chloride and its condensation with phenol. F. C. Hahn. Am Chem Soc J 43:175-9 Ja '21
Further studies on phenolic hexamethylenetetramine compounds. M. Harvey and L. H. Baekeland. J Ind & Eng Chem 13:135-41 F '21
- Identification of phenols.** J. A. Lyman and E. E. Reid. Am Chem Soc J 42:615-19 Mr '20
- Reaction of alkali halides with mercury derivatives of phenol.** F. C. Whitmore and E. B. Middleton. Am Chem Soc J 43:619-24 Mr '21
- Über die einwirkung des salpetersäure auf phenole und phenol-äther.** K. H. Meyer and W. E. Elbers. Deutsche Chem Gesell Ber 54:337-46 F '21; Abstract (Action of nitric acid on phenols and phenol ethers). Chem Soc J 120 pt 1:240-1 Ap '21
- Über die tautomerie der phenole; bisulfit und phloroglucin.** W. Fuchs. Deutsche Chem Gesell Ber 54:245-9 F '21
- Über die tautomerie der phenole; entgegnungen.** W. Fuchs. Deutsche Chem Gesell Ber 54:249-52 F '21
- Über flechtenstoffe; ein beitrag zur bestimmung der konstitution des divarins.** A. Sonn. Deutsche Chem Gesell Ber 54:773-4 Ap '21
- Phenosafarine**
Developing without a dark-room; phenosafarine as a desensitizer of ordinary, orthochromatic and panchromatic plates. R. E. Crowther. Sci Am M 3:526-7 Je '21
- Photographic innovation; safranin process.** Sci Am 125A:15 N '21
- Phenoxarsin**
Some derivatives of phenoxarsin. W. L. Lewis, C. D. Lowry and F. H. Bergeim. Am Chem Soc J 43:891-6 Ap '21
- Phenyl acetate**
Action of sodium on phenyl acetate. W. H. Perkin, jr. Chem Soc J 119:1284-94 Ag '21
- Phenylacetic-para-arsonic acid**
Phenylacetic-para-arsonic acid. G. R. Robertson and J. Stieglitz. Am Chem Soc J 43:179-81 Ja '21
- Phenylacridine**
System, picric acid—5-phenylacridine. H. Bassett and T. A. Simmons. Chem Soc J 119:416-17 Ap '21
- Phenylalanine**
Über die kondensation von glycin-anhydrid mit aldehyden. Eine neue synthese von *d*, *l*-phenyl-alanin und *d*, *l*-tyrosin. T. Sasaki. Deutsche Chem Gesell Ber 54:163-8 Ja '21
- Phenylarsine**
Reactions of the arsines; preliminary paper—condensation of primary arsines with aldehydes. R. Adams and C. S. Palmer. Am Chem Soc J 42:2375-8 N '20
- Phenylbutyric acid**
Formation of derivatives of tetrahydronaphthalene from γ -phenyl fatty acids. G. A. R. Kon and A. Stevenson. Chem Soc J 119:87-94 Ja '21
- Phenyl carbinols**
Mercury compounds of some phenyl carbinols. M. C. Hart and A. D. Hirschfelder. Am Chem Soc J 42:2678-86 D '20
- Phenyl-chlormethyloxazolidine**
Über das 2-phenyl-5-chlormethyl-oxazolidin. M. Bergmann, F. Radt and E. Brand. Deutsche Chem Gesell Ber 54:1645-52 JI '21; Abstract. Chem Soc J 120 pt 1:688-9 S '21
- Phenylcyclopentamethylenearsin**
Zur kenntnis organischer arsenverbindungen; die einwirkung von bromcyan auf cyclopentamethylen-phenyl-arsin. W. Steinkopf and A. Wolfram. diag Deutsche Chem Gesell Ber 54:848-57 Ap '21
- Phenyl-dichlorophosphine.** See Phosphenyl chloride
- Phenylenediamine**
Manufacture of meta-phenylene-diamine. H. M. Gensel. il diag Color Tr J 8:21-2 Ja '21
Observations and investigations on the anaphylactic bronchial asthma from para-phenylenediamine dyes. C. Gerdon. J Ind Hygiene 3:sup4-6 My '21
Preparation of *p*-phenylenediamine and aniline from their corresponding chlorobenzenes. A. J. Quick. Am Chem Soc J 42:1033-42 My '20
- Phenylglyceric acid**
Mechanism of the action of fused alkalis; the action of fused potassium hydroxide on phenylglyceric acid. H. R. Le Sueur and C. C. Wood. Chem Soc J 119:1697-1700 O '21
- Phenylglycine-*o*-carboxylic acid**
Fusion of phenylglycine-*o*-carboxylic acid for the production of indigo. M. Phillips. J Ind & Eng Chem 13:759-62 S '21
- Phenylhydrazine**
Action of cyanogen haloids on phenylhydrazine; melamine derivatives. G. Pellizzari. Chem Soc J 120 pt 1:620-2 Ag '21
Menthol and phenylhydrazine derivatives of the higher fatty acids. D. H. Brauns. Am Chem Soc J 42:1478-81 JI '20
Über phenylhydrazin-derivate ungesättigter fett-aromatischer ketone und ihre umwandlungsprodukte. K. von Auwers and E. Lämmerhirt. Deutsche Chem Gesell Ber 54:1000-24 My '21; Abstract. Chem Soc J 120 pt 1:464-6 Je '21
- Phenylhydrazones**
Stability of tautomeric formaldehydephenylhydrazones. N. V. Sidgwick and E. K. Ewbank. Chem Soc J 119:486-92 Ap '21

Phenylhydroxylamine

Reduction of emulsified nitro-compounds; β -phenylhydroxylamine from nitrobenzene. A. Lapworth and L. K. Pearson. *Chem Soc J* 119:765-8 Je '21

Phenylindene

Über die isomerisierung des 1-phenylindens bei der pyrogenen destillation (ein neuer kohlenwasserstoff). F. Mayer, A. Sieglitz and W. Ludwig. *Deutsche Chem Gesell Ber* 54:1397-1402 Je '21

Phenyl-magnesium bromide

Reaction between phenyl-magnesium bromide and the esters or anhydride of phthalic acid. L. B. Howell. *Am Chem Soc J* 42:2333-7 N '20

Phenyl-naphthyl-methane-carboxylic acids

Über hydrierte phenyl-naphthyl-methan-carbonsäuren; über hydrierung aromatischer verbindungen mit hilfe von platin. R. Willstätter and E. Waldschmidt-Leitz. *Deutsche Chem Gesell Ber* 54:1420-30 Jl '21; Abstract. *Chem Soc J* 120 pt 1:667-8 S '21

Phenyloxybutyraldehyde

γ -oxy-aldehyde; über den γ -phenyl- γ -oxy- n -butyraldehyd. B. Helferich and O. Lecher. *Deutsche Chem Gesell Ber* 54:930-5 My '21

Phenylpyrazole carboxylic acid

Reactions of the formamidines; the synthesis of 5-phenyl-4-pyrazole carboxylic acid. F. B. Dains and W. S. Long. *Am Chem Soc J* 43:1200-2 My '21

Philadelphia, Pennsylvania

See also Building trades—Philadelphia; Chemical industries—Philadelphia

Bridges

Bensalem ave. bridge—an essay in ornamentation. *il diags plan Eng N* 85:559-61 S 16 '20

Bridging the Delaware at Philadelphia. *il Sci Am* 125:8-9+ Jl 2 '21

Delaware river bridge to be suspension structure. *il diag Eng N* 86:1049+ Je 16 '21

Engineering studies for Philadelphia-Camden bridge. *diags map Eng N* 86:1086-90 Je 23 '21

New Columbia bridge of the Philadelphia and Reading over Schuylkill river marks progress in transportation. H. B. Glisson. *il diags Ry Age* 70:369-72 F 11 '21

Philadelphia-Camden bridge over the Delaware. *Pub Works* 51:24 Jl 9 '21

Report to the Delaware river bridge joint commission of the states of Pennsylvania and New Jersey. 25p Press of Enterprise pub. co., Burlington, N.J. '21

Bureau of water

Organization of an emergency gang, Philadelphia Bureau of water. S. M. Van Loan. *Am Water Works Assn J* 7:76-7 Ja '20

Railroads

Electrification solves the congested traffic problem in Philadelphia. W. T. Whalen. *il Ry R* 66:85-6 Ja 17 '20

Pennsylvania R.R. and the port of Philadelphia. S. Rea. *Ry R* 66:436-7 Mr 13 '20

Rapid transit

Elevated railway vs. subway in Philadelphia. W. F. Ballinger. *Munic Eng* 59:10-11 Jl '20

Philadelphia commission reports. *Elec Ry J* 55:1160-3 Je 5 '20

Philadelphia conditions analyzed. W. S. Twining. *Elec Ry J* 54:999-1002 D 20 '19

Philadelphia director of transit reports. W. S. Twining. *Elec Ry J* 56:23-5 Jl 3 '20

Sewerage

Philadelphia's sewage disposal system. J. F. McClarren. *il diags plans Concrete* 17:109-16 O '20

Streets

Costs on four types of pavement in Philadelphia test road. *Eng N* 85:607-8 S 23 '20

Subways

Giant job of underpinning; building a subway beneath Philadelphia's city hall. W. A. McGarry. *il Sci Am* 124:124+ F 12 '21

Water supply

Alterations to Queen Lane water filters, Philadelphia. J. S. Ely. *plan Eng N* 86:942-3 Je 2 '21

Report on Philadelphia's water supply. *Pub Works* 49:361 O 16 '20

Report on water-supply needs of Philadelphia. *Eng N* 85:751-3 O 14 '20

Philadelphia and Reading railway

Annual report, 1920; editorial. *map Ry Age* 71:655-7 O 8 '21

Philadelphia company

Report to the stockholders for the year ended Dec. 31, 1919. *Comm & Fin Chr* 110:2398-401 Je 5 '20

Philadelphia electric company

Centralizing power-plant maintenance. W. C. L. Eglin and F. C. Ralston. *il Elec W* 76:609-12 S 25 '20

Delaware power station. *il diags map plan Power* 53:806-17 My 24 '21

Official statement to the Philadelphia stock exchange in connection with the listing of its capital stock and first mortgage 5 per cent and 4 per cent gold bonds. *Comm & Fin Chr* 110:1881-3 My 1 '20

Philadelphia filing association

Philadelphia filing association. H. Craft. *Special Lib* 12:200-1 S '21

Philadelphia rapid transit company

Five cents flat or failure. *Elec Ry J* 56:738 O 9 '20

Lessee and lessor at odds in Philadelphia. *Elec Ry J* 56:384 Ag 21 '20

Ten years' report. *Elec Ry J* 57:507 Mr 12 '21

Philadelphia textile school

Commencement. *Textile World* 57:3770 My 22 '20

Philadelphia textile school campaign. *il Textile World* 57:1505+ F 21 '20

Textile school to revive campaign for fund. *Textile World* 59:3532-3+ My 28 '21

Philippine Islands

Advertising methods in Japan, China, and the Philippines. J. W. Sanger. *il U S Bur For & Dom Com* 209:84-103 '21; Excerpts. *Ptr Ink* 117:133-4+ O 6 '21

Field work in the Philippines. E. F. Burchard. *il Eng & Min J* 112:334-8 Ag 27 '21

Motorizing our Philippine Isles. J. A. Haeseler. *il Am Ind* 22:9-13 S '21

See also Banks and banking—Philippine Islands; Labor and laboring classes—Philippine Islands; Mines and mineral resources—Philippine Islands; Petroleum—Philippine Islands; Roads—Philippine Islands

Commerce

Copra production and Philippine trade. *Americas* 7:20-1 F '21

Industries and resources

Philippine industrial material, products and resources available to the United States. A. J. Cox. *il Chem & Met Eng* 23:137-44 Jl 28 '20

Philippine periodicals

Philippine publications. J. W. Sanger. *U S Bur For & Dom Com* 209:106-7 '21

Phillips academy, Andover, Massachusetts

Building for the Peabody collection, Phillips academy, Andover, Mass.; views and plans. *Arch Forum* 33:pl 73-4 N '20

Phloroglucinol

Method of preparing phloroglucinol reagent for the Kreis test. H. W. Dixon. *J Ind & Eng Chem* 12:174 F '20

Über die tautomerie der phenole; bisulfit und phloroglucin. W. Fuchs. *Deutsche Chem Gesell Ber* 54:245-9 F '21

Phonetics

Experimental phonetics; modern methods of studying the production, perception and analysis of sounds. M. Tevis. *il Sci Am M* 3:527-31 Je '21

Phonodeik. See Photography of sound

Phonograph

Cheap portable phonograph for the camp. H. E. Mende. *diags Pop Mech* 34:463-4 S '20
Fifteen to one hundred phonographs records without a stop. *il Sci Am* 125:242 O 1 '21
Light-playing machine accompanies music. *il Pop Mech* 36:190 Ag '21
New phonograph repeater is very simple. *il Pop Mech* 36:746 N '21
Phonograph changes record and runs own performance. *il Pop Mech* 33:685 My '20
Phonograph fitment shows views illustrating music. *il Pop Mech* 36:82-3 J1 '21
Phonograph plays a multiple of records. *il Pop Mech* 36:258 Ag '21
Phonograph reduces labor turnover. F. H. Williams. *Ind Management* 62:60 J1 '21
Phonograph that is always at its best. R. G. Skerrett. *diag Sci Am* 124:171 F 26 '21
Phonograph that plays an hour at a time. *il Sci Am* 122:628 Je 5 '20
Reproduction of speech by galena and undamped waves. *J Fr Inst* 190:875 D '20
Solid tone-arm. *il Sci Am* 125:14 J1 2 '21
Taking care of the reproducer on the phonograph. *diag Pop Mech* 33:954-5 Je '20
Turntable makes phonograph play four records. *il Pop Mech* 36:694 N '21

See also Phonograph motors

Manufacture

Manufacturing Krasco spring motors. E. K. Hammond. *il diag plan Mach* 26:737-41, 863-8 Ap-My '20
Organization system and routine in a phonograph-motor shop. W. E. Thompson. *il chart Am Mach* 52:127-31 Ja 15 '20
Some tools used in making phonograph tone-arms. S. A. Hand. *il diags Am Mach* 54:353-6 Mr 3 '21

Phonograph motors

La commande des phonographes par un moteur électrique à disque d'induction. *Génie Civil* 79:332-3 O 15 '21
Electric phonograph motor. *il Elec R (Lond)* 88:508-9 Ap 22 '21
Electric phonograph motor that is noiseless. *il diag Pop Mech* 36:48 J1 '21
Induction disc phonograph motor. C. I. Hall. *il Gen Elec R* 24:218-21 Mr '21; *Abstract. Sci Am M* 4:282 S '21
New type of phonograph motor recently developed. *il diag Elec R* 78:521-2 Mr 26 '21
Something new in phonograph motors. *il diag Sci Am* 124:394 My 14 '21

Phonograph needles

Clay needles for the talking machine. A. P. Child. *il Sci Am* 123:275 S 18 '20
Finger-nail phonograph. *Sci Am* 123:545; 124:27 N 27 '20, Ja 8 '21
Machine repoints used phonograph needles. *il Pop Mech* 34:917 D '20
Talking-machine needle plays 10,000 records. *il Pop Mech* 34:681 N '20
Tiny grindstone for repointing steel phonograph needles. *il Sci Am* 124:135 F 12 '21
Tubular phonograph needle resembles pen point. *Pop Mech* 36:672 N '21

Phonograph records

Advertising's contribution to the world's best music; Caruso's records. *Ptr Ink* 116:17-19 Ag 11 '21
Container that brings year round merchandise into season; Valentine record gift envelope. C. B. Larrabee. *Ptr Ink M* 2:74+ F '21
Gas and its relation to record music. *Am Gas Eng J* 112:322 Ap 24 '20
How Victor educates the retailer to sell red seal records. R. Cole. *Ptr Ink* 114:3-4+ Mr 31 '21
Looking through the phonograph record; elements that produce surface noise. F. F. Lucas. *il Sci Am M* 1:518-20 Je '20; *Discussion. W: A. Beck.* 2:286 N '20

Phonolite

Use of phonolite in glass manufacture; abstract. *Am Cer Soc J* 3:930 N '20

Phonometer

Absolute measurement of sound. A. G. Webster. *il diags Engineering* 111:763-5 Je 24 '21

Phosgene

Preliminary studies for H. M. factory, Gretna, and study for an installation of phosgene manufacture. 145p Great Britain Ministry of munitions, Dept. of explosive supply, London '20
Preparation of arsenic trichloride from white arsenic and phosgene. L. H. Milligan, W. A. Baude and H. G. Boyd. *J Ind & Eng Chem* 12:221-3 Mr '20
Solvents for phosgene. C. Baskerville and P. W. Cohen. *J Ind & Eng Chem* 13:333-4 Ap '21

Phosphates

Armour fertilizer works. C. H. Jones. *il diags plans Chem & Met Eng* 24:379-84 Mr 2 '21
Briquetting mineral phosphates. W. H. Waggaman, H. W. Easterwood and T. B. Turley. *il Chem & Met Eng* 25:517-22 S 14 '21
Commercial fertilizer. T. R. Harney. *flow sheet il Sci Am M* 1:412-16 My '20
Crushing, storing and pulverizing phosphate rock. L. H. Sturtevant. *il Oil Paint & Drug Rep* 100:vii S 20 '21
Important British fertilizer supplies from Nauru and Ocean island. *Chem & Met Eng* 24:769 My 4 '21
Island of solid phosphate goes to British control. *Pop Mech* 33:179 F '20
Manufacture of high-grade superphosphate at Anaconda. *Chem & Met Eng* 22:388 Mr 3 '20
Manufacture of phosphorus products in Canada. H. S. Spence. *Can Chem & Met* 5:128-32 My '21
Our mineral supplies; phosphate rock. R. W. Stone. *U S Geol S Bul* 666:57-60 '19
Pacific Island phosphate deposits. *Eng & Min J* 109:394 F 7 '20
Phosphate and manganese production in the Society islands. *Chem & Met Eng* 23:269 Ag 18 '20
Phosphate in Canada. H. S. Spence. 156p Canada Dept. of mines, Mines Branch, Ottawa '20 [Bibliography p. 143-6]
Phosphate in the West. *Eng & Min J* 109:1296 Je 12 '20
Phosphate in Tunis. H. L. Geissel. *Eng & Min J* 111:861 My 21 '21
Phosphate mining in Florida. S. L. Lloyd. *il Eng & Min J* 112:86-90 J1 16 '21
Phosphate rock deposits in Morocco. J. C. Martin. *Chem & Met Eng* 23:606 S 29 '20
Phosphate rock in 1919. R. W. Stone. *U S Geol S Min Res of U S* 1919,pt 2:211-25 '21
Phosphate rock in 1920. R. W. Stone. *U S Geol S Min Res of U S* 1920,pt 2:27-35 '21
Phosphate rock in the United States. R. W. Stone. *Eng & Min J* 110:572 S 18 '20
Phosphate-rock industry in 1920. R. W. Stone. *Eng & Min J* 111:159 Ja 22 '21
Phosphate-rock industry in the United States in 1920. *Eng & Min J* 111:908 My 28 '21
Phosphate rock marketed in and exported from the United States, 1913-1920; tabulation. *Oil Paint & Drug Rep* 99:27 sec 1 My 9 '21
Phosphate rock near Maxville, Granite county, Montana. J. T. Pardee. *maps U S Geol S Bul* 715—J:141-5 '21
Phosphates by a new process. *il Sci Am* 124:245+ Mr 26 '21
Les phosphates du Maroc. A. Le Chatelier. *maps Chimie & Ind* 4:272-7 Ag '20
Production of sulphuric acid and acid phosphate at Trenton, Ont. *il Can Chem & Met* 5:220-3 Ag '21
Some developed mineral resources and chemical industries of the Southern states. A. M. Fairlie. *Chem & Met Eng* 22:307-10 F 18 '20
Volatilization losses of phosphorus during evaporations of phosphates with sulfuric acid or fusions with pyrosulfate. W. F. Hillebrand and G. E. F. Lundell. *Am Chem Soc J* 42:2609-15 D '20

Phosphates—Continued

- Waste in phosphate-rock production. S. L. Lloyd. Eng & Min J 111:710 Ap 23 '21; Correction. 112:84 Jl 16 '21
- Western phosphate field developing as demand for product grows. R. N. Bell. Eng & Min J 109:1135-6 My 15 '20

Phosphatides

- Quantitative estimation of phosphatides. D. H. Brauns and J. A. MacLaughlin. Am Chem Soc J 42:2238-50. N '20

Phosphenyl chloride

- Addition reactions of phosphorus halides; the 1,4-addition of phosphenyl chloride. J. B. Conant and S. M. Pollack. Am Chem Soc J 43:1665-9 Jl '21
- Addition reactions of phosphorus halides; the reaction with dibenzal-acetone and cinnamylidene-acetophenone. J. B. Conant, A. H. Bump and H. S. Holt. Am Chem Soc J 43:1677-84 Jl '21

Phosphine

- Action of hydrogen phosphide on formaldehyde. A. Hoffman. Am Chem Soc J 43:1684-8 Jl '21

Phosphor bronze. See Bronze**Phosphor copper**

- Care is necessary with phosphor bronze. Foundry 48:654-5 Ag 15 '20
- New process for making fifteen per cent phosphor-copper. P. E. Demmler. diag Metal Ind 18:314-15 Jl '20; Excerpts. Min & Met 162:32-3 Je '20; Same. Sci Am M 1:570-1 Je '20

Phosphorescence

- Cold light; luminescence, fluorescence and phosphorescence. J. J. Birch. Sci Am M 2:355-6 D '20
- Luminous living creatures. R. Dubois. il Sci Am M 1:9-12 Ja '20
- Nature of animal light; excerpts from book by E. N. Harvey. J Phys Chem 25:82-7 Ja '21
- Nature of animal luminescence. Sci Am M 2:271 N '20
- Phosphorescence; existence of solid solutions in light stones. T. A. Marchmay. Sci Am M 4:36-7 Jl '21
- Plant growths that shed light. W. A. Murrill. il Sci Am 122:427+ Ap 17 '20
- Les sulfures phosphorescents et leurs applications. A. A. Guntz. il Chimie & Ind 4:597-611 N '20
- What makes the glow-worm glow? W: Crowder. il Sci Am 125:57, 65+ Jl 23 '21
- Why of luminous paints. M. A. Henry. il Sci Am 124:265+ Ap 2 '21

See also Radioactivity

Bibliography

- Nature of animal light. E. N. Harvey. (Monographs on experimental biology) bibliog p. 162-78 Lippincott

Phosphoric acid

- Examen des méthodes de dosage de l'acide phosphorique. A. Kling and A. Lassieur. Chimie & Ind 4:158-62 Ag '20
- Investigation on pyrolytic production of phosphoric acid. W: H. Waggaman and T: B. Turley. il Chem & Met Eng 23:1057-63 D 1 '20
- Phosphoric acid and potash now produced by electricity. Sci Am 123:147 Ag 14 '20
- Phosphoric acid evaporation. H. E. LaBour. diags Chem & Met Eng 24:466-8 Mr 16 '21
- Phosphoric acid; patent. Chem & Met Eng 24:133 Ja 19 '21
- Production of phosphoric acid by smelting phosphate rock in a fuel-fed furnace. W: H. Waggaman and T: B. Turley. il diag J Ind & Eng Chem 12:646-50 Jl '20
- Use of phosphoric acid in water softening. Eng N 86:81 Ja 13 '21

Analysis

- Investigation of the U.S.P. assay for phosphoric acid and soluble phosphates. A. E. Stearn, H. V. Farr and N. P. Knowlton. J Ind & Eng Chem 13:220-5 Mr '21
- Objection to official methods for phosphoric acid determination. H. P. Nelligan. Chem & Met Eng 23:1088 D 1 '20

Phosphoroscope

- Special form of phosphoroscope. W. S. Andrews. il Gen Elec R 23:856-7 O '20

Phosphorus

- Chemical analysis of plain carbon steel. Foundry 49:642a Ag 15 '21
- Contemporary foreign opinion on sulphur and phosphorus in steels. H: S. Rawdon. Chem & Met Eng 22:609-11 Mr 31 '20; Same. Iron Tr R 66:1069-71 Ap 8 '20
- Cupric etching effects produced by phosphorus and oxygen in iron. J. H. Whiteley. il Engineering 111:628-30 My 20 '21; Abstract. Engineer 131:537 My 20 '21; Discussion. Engineering 111:608-9 My 20 '21; Engineer 131:537 My 20 '21
- Distribution of phosphorus between Ac_1 and Ac_2 . J. H. Whiteley. il Chem & Met Eng 23:986-7 N 17 '20
- Dosage du phosphore dans les produits sidérurgiques. A. Kling and A. Lassieur. Chimie & Ind 4:162-4 Ag '20
- Leaching of phosphorus from iron ore. Iron Tr R 69:625 S 8 '21
- Oxidation and luminescence of phosphorus. H. B. Weiser and A. Garrison. diags J Phys Chem 25:61-81, 349-84, 473-90 Ja, My-Je '21
- Phosphorus and sulphur in steel. Iron Age 105:397-8 F 5 '20; Abstract. Eng N 84:291 F 5 '20; Abstract. Chem & Met Eng 22:297-8 F 18 '20
- Red phosphorus as a reducing agent. L. Rosenstein. Am Chem Soc J 42:883-8 My '20
- Reversion of phosphorus to basic steel in the ladle. H: D. Hibbard. Blast F & Steel Pl 8:642-3 D '20
- Solubility; critical solution temperatures of white phosphorus with various liquids. J. H. Hildebrand and T. F. Buehrer. diag Am Chem Soc J 42:2213-18 N '20
- Untersuchungen über die Baumannsche schwefelprobe und beiträge zur kenntnis des verhaltens von phosphor im eisen. P. Oberhoffer and A. Knipping. il Stahl & Eisen 41:253-8 F 24 '21
- Vapor pressure of white phosphorus from 44° to 150°. D. MacRae and C. C. Van Voorhis. Am Chem Soc J 43:547-53 Mr '21
- Volatilization losses of phosphorus during evaporations of phosphates with sulfuric acid or fusions with pyrosulfate. W. F. Hillebrand and G. E. F. Lundell. Am Chem Soc J 42:2609-15 D '20

Bibliography

- Metallurgical theories conflict; complete bibliography shows that investigators attribute various effects to sulphur and phosphorus in steel and cast iron. Foundry 48:467-8+ Je 15 '20

Phosphorus halides

- Addition reactions of phosphorus halides; the 1,4-addition of phosphenyl chloride. J. B. Conant and S. M. Pollack. Am Chem Soc J 43:1665-9 Jl '21
- Addition reactions of phosphorus halides; the reaction with dibenzal-acetone and cinnamylidene-acetophenone. J. B. Conant, A. H. Bump and H. S. Holt. Am Chem Soc J 43:1677-84 Jl '21
- Addition reactions of the carbonyl group involving the increase of valence of a single atom. J. B. Conant. Am Chem Soc J 43:1705-14 Jl '21

Phosphorus trichloride

- Addition reactions of phosphorus halides; the mechanism of the reaction of the trichloride with benzaldehyde. J. B. Conant and A. D. Macdonald. Am Chem Soc J 42:2337-48 N '20
- Addition reactions of phosphorus halides; the reaction with dibenzal-acetone and cinnamylidene-acetophenone. J. B. Conant, A. H. Bump and H. S. Holt. Am Chem Soc J 43:1677-84 Jl '21

Photocatalysis. See Catalysis**Photochemistry**

- Photocatalysis; the synthesis of formaldehyde and carbohydrates from carbon dioxide and water. E: C: C. Baly, I. M. Heilbron and W: F. Barker. Chem Soc J 119:1025-35 Jl '21

Photochemistry—Continued

Photochemical decomposition of nitrogen pentoxide. F. Daniels and E. H. Johnston. *Am Chem Soc J* 43:72-81 Ja '21

Photochemical reaction between hydrogen and chlorine and its variation with the intensity of the light. E. C. C. Baly and W. F. Barker. *Chem Soc J* 119:653-64 My '21

Photo-chemistry. *Sci Am M* 1:467-8 My '20

Photosynthetic processes in the air, upon the land, and in the sea in relation to the origin and continuance of life on the earth. B. Moore. *il diags Chem Soc J* 119:1555-72 O '21

Science and engineering irresistible. L. H. Baekeland. *Gas Age* 48:352-3 S 24 '21

Zum mechanismus photochemischer vorgänge. A. Coehn and H. Tramm. *diag Deutsche Chem Gesell Ber* 54:1148-51 Je '21

See also Light; Photographic chemistry; phototropy; Spectrum; Ultra-violet rays

Photo-elastic method (Coker), Stress determination by means of. A. L. Kimball, jr. *il diags Gen Elec R* 24:73-81 Ja '21

Photo elasticity for engineers. E. G. Coker. *il diags Gen Elec R* 23:870-7, 966-73; 24:82-8, 222-6, 455-66 N '20-Ja, Mr, My '21

Photoelectric cells

New strontium and barium photo-electric cells. T. W. Case. *Phys R* 17:398-9 Mr '21

Photoelectric photometer. A. H. Compton. *diag Illum Eng Soc* 15:28-33 no 1 '20

Some applications of the photoelectric cell to practical photometry. W. E. Story, jr. *il diags Illum Eng Soc* 15:827-44; Discussion. 845-7 no 9 '20

Study of the photo-active electrolytic cell, platinum-rhodamine-B-platinum. C. C. Murdock. *diags Phys R* 17:626-47 My '21

Photoelectric effect

Effect of an electric current on the photo-electric effect. A. G. Shenstone. *diag Philos Mag* 6th ser 41:916-21 Je '21; Discussion. F. Horton. 42:279-80 Ag '21

Photo-electric effect in audion bulbs of the oxide-coated filament type. T. W. Case. *Am Electrochem Soc Trans* v 39 (preprint 15):141-6 Ap '21; Abstract. *Chem & Met Eng* 24:818-19 My 11 '21

Photoelectric effect of alkali vapors. J. Kunz. *Phys R* 18:130-1 Ag '21

Photoelectricity

Distinction between intrinsic and spurious contact e.m.f.'s and the question of the absorption of radiation by metals in quanta. R. A. Millikan. *diag Phys R* 18:236-44 S '21

Positive and negative photoelectrical properties of molybdenite and several other substances. W. W. Coblentz. *diags U S Bur Stand Sci Pa* 398:595-639 '20

Report on photo-electricity. A. L. Hughes. *diags Nat Research Council Bul* 2 pt 2:83-169 Ap '21

Spectral photoelectric sensitivity of silver sulphide and several other substances. W. W. Coblentz and H. Kahler. *diags U S Bur Stand Sci Pa* 344:231-49 '19

Photoengravers' association. American. *See* American photoengravers' association

Photoengraving

Engraving for college and school publications. 121p Stafford engraving co., Indianapolis '20

Le guide de l'opérateur dans la photogravure. L. Villemaire. 159p Dunod, Paris '21

Photo-engraver at work. *Sci Am* 122:493+ My 1 '20

Photo-engraving primer. S. H. Horgan. 81p American photographic publishing co., Boston, Mass. '20

Photoengraving's centenary and after. S. H. Horgan. *Inland Ptr* 67:665-6 Ag '21

Photographic chemistry

Chemical induction in photographic development; induction and the Watkins factor. S. E. Sheppard and G. Meyer. *il Am Chem Soc J* 42:689-700 Ap '20

Electrochemical aspects of photographic development. S. E. Sheppard. *Am Electrochem Soc Trans* v 39 (preprint 26):307-18 Ap '21

Les méthodes actuelles de virages en diverses couleurs des papiers photographiques aux sels d'argent. A. Seyewetz. *Chimie & Ind* 5:3-10 Ja '21; Same cond. (Toning photographic prints). *Sci Am M* 3:431-3 My '21

Production of panchromatic sensitiveness without dyes. J. G. Capstaff and E. R. Bullock. *il J Fr Inst* 190:871-4 D '20

Silver bromide grain of photographic emulsions. A. P. H. Trivelli and S. E. Sheppard. 143p Van Nostrand '21

Size frequency distribution of particles of silver halide in photographic emulsions and its relation to sensitometric characteristics. E. P. Wightman and S. E. Sheppard. *J Phys Chem* 25:181-95 Mr '21

Photographic lenses. *See* Lenses, Photographic

Photographic models. *See* Advertisements, Pictorial—Portraits

Photographic paper

Das arbeiten mit gaslicht- und bromsilber-papieren. P. Hanneke. 106p W. Knapp, Halle (Saale) '20

How to measure the gloss of photographic paper. *Paper* 26:16-17 My 26 '20

Le jaunissement du papier à reproduction et le moyen de le prévenir. F. Formstecher. *Chimie & Ind* 4:510-11 O '20

Les méthodes actuelles de virages en diverses couleurs des papiers photographiques aux sels d'argent. A. Seyewetz. *Chimie & Ind* 5:3-10 Ja '21; Same cond. (Toning photographic prints). *Sci Am M* 3:431-3 My '21

X-ray paper. A. H. J. Keane. *Sci Am* 122: 623 Je 5 '20

Photographic records

Value of photographic records to the plumbing and heating contractor. R. Falconer. *Dom Eng* 94:194-5 Ja 22 '21

Photographic surveying

Mapping with the squeeze of a bulb. *il Sci Am* 122:34+ Ja 10 '20

Stereoscopic pictures with a kodak. W. S. Hutchinson. *il Min & Met* 170:20-2 F '21

See also Surveying, Aerial

Photographs

Accessories that make the half-tone interesting. D. P. Foster. *il Ptr Ink* 111:133-4+ Ap 15 '20

Hidden beauties of the photographic illustration. W. L. Larned. *Ptr Ink* 110:57-8+ Mr 25 '20

Coloring

Air brush in photography, incorporating a progressive series of lessons. G. F. Stine. 144p Abel pub. co., Cleveland '20

Photographs, Telegraphic transmission of. *See* Phototelegraphy

Photography

From wet plate to motion pictures; development of amateur and professional photography. *il Sci Am* 123:346+ O 2 '20

Honest photographic tricks. C. H. Claudy. *Ptr Ink* 112:25-7+ Jl 22 '20

Manual of photographic technique. L. J. Hibbert. 118p Pitman '21

Photographic rendering of tone values. L. A. Jones. *diags J Fr Inst* 189:469-84 Ap '20

Photography of colored and distant objects; abstract. W. J. Pope. *Chem & Met Eng* 23:1227-8 D 22 '20

La photo-stéréo-synthèse, par le procédé Lumière. *Génie Civil* 78:304 Ap 2 '21

Pictorial composition in photography. A. Hammond. 218p American photographic publishing co., Boston '20

Polar, multi-exposure, high-speed camera. J. W. Legg. *il Elec J* 16:509-12 D '19

La représentation photographique d'un solide dans l'espace; la photostéréo-synthèse. L. Lumière. *diags Génie Civil* 77:466 D 4 '20; Translation (Taking photographs in relief). *Sci Am M* 3:259-60 Mr '21

Reversal of image in photography. A. H. Beardsley. *Sci Am* 122:133 F 7 '20

Structure of the photographic image. C. E. K. Mees. *il diags J Fr Inst* 191:631-50 My '21

Photography —Continued

Theory of tone reproduction, with a graphic method for the solution of problems. L. A. Jones. diags J Fr Inst 190:39-90 J1 '20

See also Blueprints; Cameras; Color photography; Moving picture photography; Moving pictures; Photographic chemistry; Photographic paper; Photographic surveying; Photomicrography; Photostat; Phototelegraphy; Radiography; Surveying, Aerial; Telephotography

Apparatus and supplies

John H. Bennett's inventions in halftone photography. il Inland Ptr 65:618-19 Ag '20
Machines make photo finishing automatic. il Pop Mech 33:679 My '20

New non-intermittent sensitometer. L. A. Jones. il diags J Fr Inst 189:303-29 Mr '20

See also Cameras; Photographic paper; Photostat

Developing and developers

Chemical induction in photographic development; induction and the Watkins factor. S. E. Sheppard and G. Meyer. il Am Chem Soc J 42:689-700 Ap '20

Developing without a dark-room; phenosafranine as a desensitizer of ordinary, orthochromatic and panchromatic plates. R. E. Crowther. Sci Am M 3:526-7 Je '21

Electric film developer that is very compact. il Pop Mech 35:826-7 Je '21

État actuel de nos connaissances sur les développateurs photographiques organiques. A. Seyewetz. Chimie & Ind 3:28-32 Ja '20

Intensification and reduction with pyro developers. R. B. Wilsey. J Fr Inst 189:247-8 F '20

Measurement of graininess in photographic deposits. L. A. Jones and N. Deisch. il diags J Fr Inst 190:657-83 N '20

Photographic developers. Sci Am 123:271 S 18 '20

Photographic innovation; safranin process. Sci Am 125A:15 N '21

Scientific study of the reduction of developing-out papers. L. A. Jones and C. E. Fawkes. J Fr Inst 191:503-16 Ap '21

Enlarging

Photo enlargements by expansion of negative emulsion. A. H. Beardsley. Sci Am 122:243+ Mr 6 '20

Plates

Blackening of a photographic plate as a function of intensity of light and time of exposure. P. S. Helmick. Phys R 17:135-46 F '21

Hypersensitizing commercial panchromatic plates. S: M. Burka. il diag J Fr Inst 189:25-46 Ja '20; Same. Sci Am M 1:263-8 Mr '20

Photographic researches. Sci Am M 3:260 Mr '21

Printing processes

Experiments on sulfide toning. E. R. Bullock and D. S. Mungillo. J Fr Inst 192:542-3 O '21

Scientific application

Photographic method of detecting changes in a complicated group of objects. M. H. Stillman. il diags U S Bur Stand Sci Pa 392:437-48 '20; Abstract. Eng & Contr 54:418 O 27 '20

Use of photography in hydraulic measurements in India. S. C. Majumdar. il diag Eng N 87:414-15 S 8 '21

Photography, Aerial

Aerial mapping of Mississippi swamp lands. Aerial Age 13:78 Ap 4 '21

Aerial photographic mapping developed for municipal and other engineering services. il maps Eng N 87:596-9 O 13 '21; Discussion. P. J. Barry. 87:828 N 17 '21

Aerial photography a growing industry. Aviation 9:269 N 8 '20

Aerial photography and architecture. P. P. Cret. il Am Inst Arch J 9:8-12 Ja '21

Aerial photography and its application to modern industries. F. E. Haggvist. il Aerial Age 13:391-2 J1 4 '21; Same abr. Textile World 59:1975 Mr 19 '21

Aerial photography as applied to topographical surveys. J. B. Mandeville. il Aerial Age 11:87-8 Mr 29 '20

Airplane in modern hydro-electric practice. R. C. Starr. il J Elec 45:357-9 O 15 '20

Art of camouflage. W. A. Howells. il Illum Engr 13:6-12; Discussion. 13 Ja '20

Automatic cinematograph for aerial surveying. A. Gradenwitz. il Aviation 9:24-5 Ag 1 '20

Fairchild automatic aerial film camera. H. E. Ives. il Aerial Age 10:728 Mr 1 '20

Kodaking from an aeroplane. S. W. Smith. il Aerial Age 13:589-90 Ag 29 '21

Linking the aerial view with the advertising view. R. B. Lockwood. il Ptr Ink M 2:14-15+ Ja '21

Mapping from aeroplane photographs. R. B. Unwin. il Engineering 112:557-8 O 21 '21

Mapping the Orinoco delta. Aerial Age 13:232 My 16 '21

Mounting of cameras in airplanes. R. W. Elton. Aviation 10:430 Ap 4 '21

Photographing clouds from an airplane. F. A. Carpenter. il Sci Am M 1:484-8 Je '20

Stabilized camera. W. A. Hyde. il Aviation 10:13-14 Ja 3 '21

Surveying from the air. E. L. Jones. Aviation 9:284 N 15 '20; Same. Flying 9:617-18 N '20; Same. Eng N 85:1184-6 D 16 '20

Use of aerial photographs in topographic mapping. 31p (U.S. Air service (War dept.) Air service information circ. (Aviation) vol. II, no. 184) U.S. Board of surveys and maps. Committee on photographic surveying, Washington, D.C. '21

See also Surveying, Aerial

Photography, Astronomical. *See* Astronomical photography

Photography, Color. *See* Color photography

Photography, Commercial

Cash from your camera. F. R. Fraprie. 87p American photographic publishing co., Boston '21

Color and the camera. A. Krug. il Ptr Ink M 2:30+ Ap '21

Commercial photographer. L. G. Rose. 145p F. V. Chambers, Philadelphia '20

Little actors of the advertising camera. W. L. Larned. Ptr Ink 116:57-8+ S 1 '21

Photography, Night

Photographing Yellowstone park at night. J. A. Bristol. il Pop Mech 36:560-2 O '21

Photography, Orthochromatic

Die orthochromatische photographie. A. Hübl. 150p W. Knapp, Halle (Saale) '20

Photography, Pinhole

Pin-hole photography; some new and pertinent facts about an old but misunderstood art. J. F. Springer. il Sci Am 122:574+ My 22 '20

Photography, Submarine

Exploring with a camera; searching for German traps in the Lens coal mines. il Sci Am M 2:172-3 O '20

Submarine camera. il Engineer 129:658 Je 25 '20

Photography in engineering

Camera as a field instrument. R. D. Moore. il Concrete 19:9-10 J1 '21

Engineers and the camera. J. Walker. il diag Elec R (Lond) 89:460-1 O 7 '21

Photography in industry

Seeing the invisible; the roles played by the camera in a modern plant. E. W. Davidson. il Nation's Business 8:15-16 N '20

Spreading safety ideas by photography. A. E. Frampton. Paper 29:9-12 O 5 '21

Photography of clouds

Cloud photography; construction of apparatus and methods of procedure. A. J. Weed. il diags Sci Am M 3:296-300 Ap '21

Photographing clouds from an airplane. F. A. Carpenter. il Sci Am M 1:484-8 Je '20

Photography of documents

Die palimpsestphotographie (photographie der radierten schriften) in ihren wissenschaftlichen Grundlagen und praktischen anwendungen. R. Kögel. 64p W. Knapp, Halle (Saale) '20

Photobibliographic research methods—the compilation of technical data with the aid of photography. A. Worischek. il J Ind & Eng Chem 12:679-82 J1 '20

See also Photostat

Photography of projectiles

Fifteen thousand photographs per second. F. Honoré. il Sci Am 123:83+ J1 24 '20

Shooting flying bullets with a camera. il Sci Am M 2:147-9 O '20

Photography of sound

Beautiful faces translated into music. H. A. Mount. il Pop Mech 34:325-9 S '20

Visible sound waves. W. H. Capen. Sci Am 122:245 Mr 6 '20

Where the eye supplants the ear; how sound waves are made visible and analyzed with complete precision. M. A. Henry. il Sci Am 122:456+ Ap 24 '20

Photometers

New form of illumination photometer. H. T. Harrison. diags Illum Engr 12:328 N '19

New form of portable light meter. D. Tuck. il diags Illum Eng Soc 15:539-42 no 8 '20; Same cond. Elec W 77:476 F 26 '21; Discussion. Illum Eng Soc 15:42-4 no 8 '20

Photoelectric photometer. A. H. Compton. diags Illum Eng Soc 15:28-33 no 1 '20

Universal photometer without diffusing screen. H. Buisson and C. Fabry. diags Illum Eng Soc 16:sup92-3 no 6 '21

Whitened cube as a precision integrating photometer. H. Buckley. diags Inst E E J 59:143-52 Ja '21

See also Hess-Ives tint-photometer; Microphotometer

Photometry

Commercial photometry. A. L. Powell and J. A. Summers. il diags Gen Elec R 23:936, 954-65; 24:50-6 D '20-Ja '21

Designing direct and indirect illumination; practical method of determining illumination and scheme of calculating foot-candle. M. M. Samuels and C. O. von Dannenberg. diags Elec W 76:721-4 O 9 '20

Errors from paint and window in photometric sphere. F. E. Cady. Elec W 77:368 F 12 '21

Glare measurements. W. Harrison. diags Illum Eng Soc 15:34-43; Discussion. 43-5 no 1 '20

Instantaneous photometer for testing signaling lamps. il diags plan Engineering 111: 104-5 Ja 28 '21

Lambert and photometry. A. P. Trotter. Illum Engr 12:313-15 N '19

Monograph on illumination. G. A. Hoadley. diags Illum Eng Soc 15:407-16 no 7 '20

Photometric methods and apparatus for the study of colloids. S. E. Sheppard and F. A. Elliott. il diags Am Chem Soc J 43:531-9 Mr '21

Report of the Illuminating engineering society committee on progress. Illum Eng Soc 15:471-4 no 7 '20; Excerpt. Sci Am M 2:372 D '20

Sector disks and their calibration for use in photometry. F. E. Cady. Illum Eng Soc 16:138-45; Discussion. 145-51 no 6 '21

Some applications of the photoelectric cell to practical photometry. W. E. Story, jr. il diags Illum Eng Soc 15:827-44; Discussion. 845-7 no 9 '20

Universal photometric integrator. F. A. Benford. il diags Illum Eng Soc 15:19-27 no 1 '20

Use of selenium cells in astronomy. L. J. Boss. Sci Am M 1:395 My '20

See also Color; Colorimeters and colorimetry; Light; Microphotometer; Reflectometer

Bibliography

Commercial photometry. A. L. Powell and J. A. Summers. Gen Elec R 24:57 Ja '21

Photomicrography

Microscopy of textiles. F. J. Hoxie. il Textile World 59:2567+ Ap 16 '21; Same. Mech Eng 43:592-3 S '21

Photo-micrographs in the textile industry. W. F. Edwards. il Textile World 58:3363+ N 13 '20

Photo-micrography without a microscope. G. Ardaseer. diags Sci Am M 1:229 Mr '20

Simple microphotography. F. C. Davis. il diags Pop Mech 33:783 My '20

See also Microscope and microscopy

Photoratiograph

Photo-ratiograph; new instrument for the study of vibrations. A. C. Banfield. il Sci Am M 3:44-5 Ja '21

Vibration records traced with light beams; the photo-ratiograph. W. H. Hunt. il Pop Mech 34:819-20 D '20

Photostat

Photostat as an aid to research. H. S. Leach. Sci Am 122:276+ Mr 13 '20

Photostat in reference work. C. F. McCombs. 7p Public Library, New York '20 [Reprint from N Y Pub Lib Bul, Oct. '20]

Reproduction of drawings by photostatic process. L. N. Gillis. Eng & Contr 54:513 N 24 '20

Suggestion to machine-tool builders; use of photostat of layout. T. F. Githens. plan Am Mach 53:1137-8 D 16 '20

Use of photostats in plant layouts. T. H. Westphal. plans Am Mach 52:803 Ap 8 '20

Use of the photostat. R. Fleming. Eng & Contr 56:302 S 28 '21

Photosynthesis. See Photochemistry**Phototelegraphy**

Developments in practice and art of telephotography. N. Tesla. Elec R 77:923-5 D 11 '20

Electrical transmission of photographs. M. J. Martin. 136p Pitman '21; Review. Engineering 110:843-4 D 24 '20

Picture of Olympic games sent to Paris by wire. il Pop Mech 34:825 D '20

Sending photographs over wires; details of the Belin system. A. C. Lescarbours. il Sci Am 123:474+ N 6 '20

Transmitting photographs and drawings by radio. il Sci Am 125:163+ S 3 '21

See also Telephotography

Phototropy

Phototropy; abstract. P. Gallagher. Chem Soc J 120 pt 1:715-16 O '21

Studies on phototropism in solution. B. K. Singh. Am Chem Soc J 43:333-4 F '21

Phragmites communis. See Reed**Phrenoscope**

Radioscopic examination of mind as well as body. il Pop Mech 36:165 Ag '21

Phthalates

Phthalate buffers—some incompatibilities. H. F. Zoller. Am Chem Soc J 43:914-16 Ap '21

Phthaleins

Mercury derivatives of phthaleins. E. C. White. Am Chem Soc J 42:2355-66 N '20

Phthalic acid

Reaction between phenyl-magnesium bromide and the esters or anhydride of phthalic acid. L. B. Howell. Am Chem Soc J 42:2333-7 N '20

Solubility of phthalic acid in water and sodium sulfate solutions. L. McMaster, E. Bender and E. Weil. diags Am Chem Soc J 43:1205-7 My '21

Phthalic anhydride

History of the preparation and properties of pure phthalic anhydride. C. E. Andrews. J Ind & Eng Chem 13:167-8 F '21

History of the preparation and properties of pure phthalic anhydride. H. D. Gibbs. J Ind & Eng Chem 12:1017-18 O '20

Phthalic anhydride; the vapor pressure of phthalic anhydride. K. P. Monroe. J Ind & Eng Chem 12:969-71 O '20

Preparation of phthalic anhydride: patent. A. Wohl. Chem & Met Eng 23:989 N 17 '20

Pure phthalic anhydride. J. Bebie. J Ind & Eng Chem 13:91-2 Ja '21

Phthalic anhydride—Continued

Work of the Bureau of chemistry on phthalic anhydride and furfural. *Chem & Met Eng* 23:703 O 6 '20

Bibliography

Phthalic anhydride derivatives. M. Phillips. *J Ind & Eng Chem* 13:247-9 Mr '21

Phthalimide

Vergleichende darstellung von derivaten des isatins, phthalimids, succinimids und o-hydrazino-benzoesäure-anhydrids. G. Heller and P. Jacobsohn. *Deutsche Chem Gesell Ber* 54:1107-17 My '21

Physical constants. See **Physics**—Tables, calculations, etc.

Physical disabilities. See **Military service**—Physical fitness

Physical education

Physical education from the standpoint of the industrial physician. R. W. Elliott. *J Ind Hygiene* 3:168-72 S '21

Physical examinations

Cult of the sound body; apparatus employed in modern physiological laboratories to test physical development. T. V. Davidson. *il Sci Am M* 3:33-6 Ja '21

Interchange of physical examinations in industry. H. Myers. *J Ind Hygiene* 3:135-6 Ag '21

Making examinations universal. T. F. Jennings. *Iron Tr R* 66:284-5 Ja 22 '20

Need for physical examination of employees. *Monthly Labor R* 12:161-2 Ja '21

Physical examination of industrial workers—results of an investigation by the Conference board of physicians in industry. F. L. Rector. *N E L A Bul* 8:44 Ja '21

Reclaiming the physical examination of industrial workers. C. D. Selby. *Monthly Labor R* 10:468-71 F '20

Why we have physical examinations at our plant. A. A. Bureau. *Factory* 25:1575-7 N 15 '20

See also **Medical service**, **Industrial**

Physical geography

See also **Climate**

Physical instruments

Counting electrons; Prof. Millikan's apparatus. R. Howard. *il Sci Am* 124:465+ Je 11 '21

Shimizu-Wilson cloud condensation apparatus. *il Engineering* 111:692 Je 3 '21; *Electrician* 86:720 Je 10 '21

See also **Astronomical instruments**; **Balances**; **Chemical apparatus**; **Electric apparatus and appliances**; **Electric instruments**; **Measuring instruments**; **Meteorological instruments**; **Optical instruments**; **Scientific apparatus and instruments**; **Volumetric apparatus**; also names of instruments, e.g. **Micrometers**, **Photometers**, **Thermometers and thermometry**

Exhibitions

Physical and optical societies annual exhibition. *il diag Engineering* 111:21, 35-7 Ja 7-14 '21; *Engineer* 131:34-7 Ja 14 '21; *Elec R (Lond)* 88:38-40, 71-3, 121-2 Ja 14-28 '21; *Electrician* 86:79-80, 105-7, 131-3, 198-201, 227-30 Ja 14-28, F 11-18 '21

Physical laboratories

National physical laboratory. *diags Engineering* 109:866-8; 110:19-20, 56-8 Je 25-Jl 9 '20

See also **Electric laboratories**

Physical measurements

Adjustment of parabolic and linear curves to observations taken at equal intervals of the independent variable. H. M. Roeser. *U S Bur Stand Sci Pa* 388:363-75 '20

New physics. A. C. Crehore. *J Elec* 44:27-9 Ja 1 '20

See also **Electric measurement**; **Errors**, **Theory of**; **Measuring instruments**; **Pressure gages**; **Temperature—Measurement**

Physical society of London

Discussion on colloids. *Engineering* 110:580-2, 595-6 O 29-N 5 '20

Meeting, Nov. 12. *Engineering* 110:703 N 26 '20

Physics

Essentials of physics. G. A. Hoadley. rev. ed. 544p American book co., New York, '21

Essentials of physics for college students. D. W. Hering. 2d ed., rev. and enl. 367p Van Nostrand '21

General physics and its application to industry and everyday life. E. S. Ferry. 732p Wiley '21

New physics. A. C. Crehore. *J Elec* 43:466-8, 516-18, 561-3; 44:27-9, 75, 118-19, 178, 224-6, 325-6, 388-9, 442-4, 516-17, 568-71 N 15 '19-Mr 1, Ap 1-Je 1 '20

On certain fundamental principles of scientific inquiry. D. Wrinch and H. Jeffreys. *Philos Mag* 6th ser 42:369-90 S '21

Physics for plumbing and heating contractors. T. E. Fenner. *Plumber* 95:63-4+, 132, 241-2, 338-9 F 11, Mr 11, Ap 22, Je 3 '21; (cont. in) *Sanitary & Heat Eng* 96:165-6+ S 9 '21

Physics; the elements. N. R. Campbell. 565p University press, Cambridge, England '20

Present tendencies in the theoretical physics. H. A. Bumstead. *Sibley J* 33:104-8+; 34:9-10 D '19-Ja '20

Problems of physics. O. W. Richardson. *Elec R (Lond)* 89:354-6 S 9 '21; *Abstract. Engineering* 112:431-3 S 23 '21; *Excerpt. Engineer* 132:296 S 16 '21

Selected studies in elementary physics. E. Blake. 176p Wireless press, London, New York '20

Text-book of physics. A. W. Duff, ed. 5th ed., rev. 700p P. Blakiston '21

See also **Astrophysics**; **Atmosphere**; **Atoms**; **Ballistics**; **Capillarity**; **Chemistry**, **Physical and theoretical**; **Compressibility**; **Diffusion**; **Dynamics**; **Einstein theory**; **Elasticity**; **Electricity**; **Electromagnetic theory**; **Electrons**; **Ether (of space)**; **Evaporation**; **Expansion (heat)**; **Fluids**; **Fluorescence**; **Force and energy**; **Free energy**; **Friction**; **Gases**; **Geophysics**; **Gravitation**; **Gravity**; **Heat**; **Hydraulics**; **Ionization**; **Ions**; **Latent heat**; **Light**; **Liquids**; **Magnetism**; **Mathematical physics**; **Matter**; **Mechanical movements**; **Mechanics**; **Meteorology**; **Molecules**; **Moments of inertia**; **Optics**; **Physical instruments**; **Physical measurements**; **Plasticity**; **Porosity**; **Pressure**; **Projective covariance**; **Quantum theory**; **Radiation**; **Radioactivity**; **Recoverance**; **Reflection (optics)**; **Refractive index**; **Relativity (physics)**; **Sound**; **Steam**; **Strains and stresses**; **Temperature**; **Thermodynamics**; **Thermometers and thermometry**; **Vibration**; **Viscosity**; **Weights and measures**

Laboratory manuals

Laboratory projects in physics. F. F. Good. 267p Macmillan '20

Tables, calculations, etc.

Use and value of physical and chemical constants. H. K. Moore. *Sci Am M* 2:78-80 Jl '20

Terminology

Compilation of named effects and laws. L. C. Krueger and H. R. Hosmer. *Gen Elec R* 24:258-78 Mr '21

Definitions of physical terms. *U S Bur Stand Circ* 100:85-9 '21; Same. *Chem & Met Eng* 25:70-2 Jl 13 '21

Physics, Mathematical. See **Mathematical physics**

Physiognomy

Character analysis by the observational method as used in the selection of employees. M. A. Lee. *il Sibley J* 35:22-8 F '21

Physiological apparatus

Device for study of human body in action. *il Pop Mech* 36:540-1 O '21

Testing the human machine in the man-testing laboratory. *Sci Am* 125:187 S 10 '21

Physiological chemistry

Chemistry of human activity. R. Vladesco. Sci Am M 4:327-8 O '21

Chemistry of the brain. C. J. West. Chem & Met Eng 23:145-7 Jl 28 '20; Same. Sci Am M 2:311-13 D '20

Nature of protoplasmic and nervous transmission. R. S. Lillie. J Phys Chem 24:165-91 Mr '20

Physiological chemistry. A. P. Mathews. 3d ed. 1154p W. Wood and co., New York '20

Practical physiological chemistry. P. B. Hawk. 7th ed. rev. 675p Blakiston '21

See also Biological chemistry; Carbohydrates; Cells; Chemistry, Medical and pharmaceutical; Chemistry, Organic; Diastase; Digestion; Embalming; Enzymes; Osmosis; Poisons; Proteins; Putrefaction

Physiological psychology. See Psychology, Physiological

Physiology

See also Electrophysiology

Physostigmine

New degradation product of physostigmine. E. Stedman. Chem Soc J 119:891-4 Je '21

Phytase

Activity of phytase as determined by the specific conductivity of phytin-phytase solutions. F. A. Collatz and C. H. Bailey. J Ind & Eng Chem 13:317-18 Ap '21

Pian de'Giullari, Italy

L'Ombrellino, at Pian de'Giullari near Florence, Italy. H. D. Eberlein. il plan Arch Rec 48:441-51 N '20

Villa Galileo (Il Giojello), at Pian de'Giullari, near Florence, Italy. H. D. Eberlein. il plan Arch Rec 48:3-13 Jl '20

Villa Pazzi (La Vacchia), Pian de'Giullari, near Florence, Italy. H. D. Eberlein. il plan Arch Rec 48:495-511 D '20

Piano plates

Piano plate foundry is distinctive. il Foundry 48:421-5 Je 1 '20

Pianos

Four-handed twin-grand last word in pianos. il Pop Mech 35:826 Je '21

Piazzas. See Porches**Pickering sprays.** See Spraying materials**Picketing**

Picketing motion-picture theater enjoined. Monthly Labor R 11:1069-70 N '20

Pickling (metals)

Continuous pickling of strip brass. W. Doster. il Metal Ind 19:129-31 Mr '21

Effect of pickling on alloy steels. H. L. Hess. il Iron Age 105:593-4 F 26 '20

Embrittling effects of cleaning and pickling upon carbon steels. S. C. Langdon and M. A. Grossman. diag Am Electrochem Soc Trans v 37 (preprint 20):305-38 Ap '20

Indicators used for determining free acid in pickling solutions. C. L. Boyle. Metal Ind 18:78 F '20

Pickling machine operated by air. Sci Am 122:95 Ja 24 '20

Preparing sheets for enameling. R. R. Danielson. Iron Tr R 66:1399-1401 My 13 '20

Strip pickling machine; new continuous process applied to brass and including cleaning and drying. diag Iron Age 107:1304 My 19 '21

Picnometer

Picnometer for the determination of density of molasses. W. B. Newkirk. diag U S Bur Stand Tech Pa 161:1-7 '20

Picric acid

Contribution a l'etude de la fabrication de l'acide picrique. M. Marquayrol and P. Lorient. il Chimie & Ind 4:19-30 Jl '20

Picric acid as a blasting agent. C. E. Munroe and S. P. Howell. il Sci Am M 4:70-4 Jl '21

Picric acid in industrial surgery. A. G. Bolduc. bibliog J Ind Hygiene 3:202-3 N '21

System, picric acid—5-phenylacridine. H. Bassett and T. A. Simmons. Chem Soc J 119:416-17 Ap '21

Über ammoniakate von salzen der pikrinsäure und der p-dichlor-benzol-sulfonsäure. F. Ephraim. Deutsche Chem Gesell Ber 54:402-6 Mr '21

Pictorial Review building, New York city

Pictorial Review building, 39th street and 7th avenue. Arch & Bldg 52:68, pl 72-4 Jl '20

Picture frames and framing

On framing pictures. Am Arch 117:492 Ap 21 '20

Picture telegraphy. See Phototelegraphy**Pictures**

Colored cloth used to make pictures. il Pop Mech 34:37 Jl '20

See also Advertisements, Pictorial; Drawings; Engravings; Etchings; Paintings; Photographs

Piece work

Automatic machine operators. Eng & Ind Management 5:194-5 F 17 '21

Benefits of piece work. G. F. Swetnam. Ind Management 62:291 N '21

Contract wage system for mines. A. K. Knickerbocker. Min & Met 158:(sec 32) 1-8 F '20; Same. Min & Sci P 120:497-500 Ap 3 '20; Excerpt. Eng & Contr 53:299-300 Mr 17 '20; Discussion. Min & Met 159:(sec 2)15-16 Mr '20

Day-work versus piece-work. W. D. Forbes. Am Mach 52:612 Mr 18 '20

Defense of the piece rate method of wage payment. L. Blog. Ind Management 58:325-7 O '19; Excerpts. Eng & Contr 53:443-4 Ap 14 '20

Engineering wages reductions in relation to piecework. Eng & Ind Management 6:178-9 Ag 18 '21

Foreman's thoughts of piece-rate cutting. N. G. Shidle. Automotive Ind 44:1169 Je 2 '21

Foundry of the Homer furnace co. reduces unit cost of manufacture. G. L. Lacher. il Iron Age 105:191-3 Ja 15 '20; Same. Metal Work 93:109-11 Ja 23 '20

Helping employees figure their pay. Factory 25:1896-7 D 15 '20

Increasing production by a rational piece-work system. J. C. Spence. Mach 27:519-20 F '21

Increasing production by raising plant efficiency. J. E. Schipper. Automotive Ind 43:26-7 Jl 1 '20

Paying the men who deliver the goods. H. A. Dudgeon. il Factory 25:535-6 Ag 15 '20

Piecework and production. H. Varley. Eng & Ind Management 6:291-2 S 15 '21

Piece-work, bonus systems and higher efficiency. C. C. Cook. Ry Age 70:1263-4 Je 3 '21

Piece work dispute again before Labor board. Ry Age 71:297-8 Ag 13 '21

Piece work system of paying for odd jobs on concrete paving work. R. F. Hoffmark. Eng & Contr 53:233-4 Mr 3 '20

Piece work system of payment for meter readers. J. A. A. Beaudin. Munic. Eng 58:40+ Ja '20; Same. Eng & Contr 53:159-60 F 11 '20

Piece workers. Ry R 68:183-4 Ja 29 '21

Premium and piece-work systems. I. O. Perci-field. Mach 27:949 Je '21

Production methods in shipbuilding; Halsey premium system and 100 per cent. W. B. Ferguson. Ind Management 60:409-12 D 1 '20

Providing incentive by time-rate payment on the railroads; comparison with piece work system. G. W. Armstrong. Ry Age 70:1157-9 My 20 '21

Railroads complete testimony on piece work. Ry Age 71:351-4 Ag 20 '21

Results of the abolition of piece work pay. Ry Age 70:297-9 Ja 28 '21; Ry R 68:205-7 F 5 '21

Return to piecework rates in Germany. Monthly Labor R 10:720-3 Mr '20

Setting piece rates for best results. P. J. Pybus. Factory 25:1740-1 D 1 '20

Wage incentive plans in ship building. S. G. Rockwell. Ind Management 59:295-300 Ap '20

Piece work—Continued

When piece-work isn't practical. Factory 26: 613 Mr 1 '21

Which wage-payment plan in my shop? Factory 25:1563-6 N 15 '20

See also Bonus system; Wages

Piercing machines. *See* Rolling mills

Piers

Archaic plans for New York city piers. Sci Am 122:296 Mr 20 '20

Beams vs. trusses for pier shed. L. C. Jordan; G. W. True. diags plan Eng N 85: 375-6 Ag 19 '20

Combination quay and pier built in restricted space at Castle Point, Hoboken, N.J. il diags plan Eng N 86:1704-6 Je 23 '21

Ease of operation governs design of new Seattle pier. G. F. Nicholson. il diags plan Eng N 84:1101-3 Je 3 '20

Heavy timber framing used for Seattle transit pier shed. il diags Eng N 86:509-10 Mr 24 '21

New piers at Staten Island. F. T. Smith. diags map Marine Eng 26:246-50 Mr '21

New steamship piers on Staten Island are too narrow; consensus of engineering opinion. Eng N 85:160-5 Jl 22 '20

New York harbor dry dock corporation's plant. diag plan Pub Works 50:141-3, 163-5 F 12-19 '21

New York municipal piers. Pub Works 49: 250-1 S 18 '20

New York to build steamship piers on Staten Island. diags maps plans Eng N 84:1047-51 My 27 '20

Obsolete at the very outset. Sci Am 122:32 Ja 10 '20

Panama terminals; recent pier construction at the ends of the canal. J. F. Springer. il Sci Am 122:130-1+ F 7 '20

Pier design for ocean and lake terminals. H. M. Harding. il diags Int Marine Eng 25: 523-8 Je '20

Pier designs as developed from quay designs. H. McL. Harding. Am Soc C E Pro 47:368-71 O '21

Pier 18, Jersey City. il Pub Works 48:252-4 Mr 27 '20

Plan piers of record length for terminal at New York. plans Eng N 84:970-3 My 13 '20

Port terminal pier design at Portland, Ore. G. B. Hegardt. plan Eng N 85:796-7 O 21 '20

Precast concrete roof trusses in Panama pier shed. G. W. True. il diags plans Eng N 84:1232-8 Je 24 '20

Quays vs. piers for ports. plans Eng N 85: 665-6 S 30 '20

Seattle's record pier. R. Howard. Sci Am 123:563 D 4 '20

Shipping facilities of the port of Astoria. R. R. Bartlett. il diags map Int Marine Eng 25:104-9 F '20

Small river terminal for widely varying water stages. H. Abbott. diag plan Eng N 83: 999 D 11 '19

Steamship pier problem; considerations which governed the design of the twelve new Staten Island piers. il diags plan Sci Am 122:492-3+ My 1 '20

Unusual pier-construction work. il Pop Mech 36:427 S '21

What should be the dimensions of a shipping pier. H. M. Harding. Eng N 85:1119-20 D 9 '20

See also Coal piers; Freight handling; Wharves

Lighting

Daylight illumination in the shops. il Int Marine Eng 25:122, 125-6 F '20

Lighting of piers and docks. H. E. Mahan. il diags Gen Elec R 24:381-6 Ap '21

Piers, Bridge. *See* Bridges—Foundations and piers

Piers, Concrete

Concrete shipping pier at Panama has novel design. G. W. True. il diags plan Eng N 83:912-16 N 27 '19

Effect of sea water on concrete structures. C. E. W. Dodwell. il Can Eng 39:279-80 Ag 26 '20; Same. Eng & Contr 54:281-2 S 22 '20

Ocean pier to be scrapped because of concrete disintegration. il diags Eng N 84:621-3 Mr 25 '20

Precast concrete pieces make up cylinder piers for wharf. diags map Eng N 85:360-1 Ag 19 '20

Santa Monica pier failure due to permeable concrete. Eng & Contr 53:110-11 Ja 28 '20

Timber fender for concrete pier made removable. diags Eng N 85:324 Ag 12 '20

Piers (foundations)

Concrete piers hooped in upper part. Eng N 85:693 O 7 '20

See also Bridges—Foundations and piers

Piez, Charles

Sketch. L. Anson. por System 39:374-6 Mr '21

Piezoelectricity

Piezo-electric and allied phenomena in Rochelle salt. J. Valasek. diags Phys R 17:475-81 Ap '21

Piezoelectric method of measuring explosion pressures. D. A. Keys. diags Philos Mag 6th ser 42:473-88, pl 16 O '21

Quantitative investigation of piezo emfs. diags Elec W 75:1358 Je 12 '20

Testing explosives force with the piezometer; pressure-electricity produced in crystals by the explosive gases of guns and motors. Sci Am M 3:337-8 Ap '21

Pig iron

Applying sales engineering to pig iron. Y. A. Dyer. Iron Tr R 67:28 Jl 1 '20

Buying iron for foundry use. F. Collins. Iron Tr R 68:283-5 Ja 27 '21; Same. Foundry 49: 64-5+ Ja 15 '21

Charts showing monthly structural awards, production of pig iron, unfilled tonnage United States steel corporation, and shipments of Lake Superior iron ore. Iron Tr R 66:56a Ja 1 '20

Charts showing monthly structural awards, production of pig iron, unfilled tonnage United States steel corp. and shipments of Lake Superior iron ore. Iron Tr R 68:56a Ja 6 '21

Converting steel back into iron. il Sci Am 123:475 N 6 '20

Country's pig iron making capacity. W. W. Macon. Iron Age 107:560-2 Mr 3 '21

Foundry pig iron in Birmingham district. Y. A. Dyer. il Iron Age 107:907-9 Ap 7 '21

Gross ton conversion tables. Foundry 48:360a My 1 '20

Growth in per capita production of pig iron. W. S. Pilling. chart Iron Age 107:1103 Ap 28 '21

Iron making is historically low. Iron Tr R 68: 959-61 Ap 7 '21

Large gain in pig iron. Iron Age 106:660-1 S 9 '20

Manufacturing pig iron from pyrites cinders in electric furnaces; abstracts. M. Guédras. Chem & Met Eng 23:795-6 O 20 '20; Stahl & Eisen 41:233-4 F 17 '21; Iron Age 107:1238 My 12 '21

1920 census of manufactures with reference to the pig iron industry. Iron Tr R 69:35 Jl 7 '21

1920 pig iron production shows gain. Iron Tr R 68:823 Mr 24 '21

Pig iron demand of extremes. chart Iron Tr R 68:79-81 Ja 6 '21

Pig iron, finished material and scrap, Chicago, 1902-1919; tabulation. Iron Age 105:47 Ja 1 '20

Pig iron from scrap steel. Iron Age 105:479 F 12 '20

Pig iron in metric tons in France in 1920. map Iron Tr R 68:1452 My 26 '21

Pig iron market breaks bounds. chart Iron Tr R 66:97-9 Ja 1 '20

Pig iron output first half of 1921. Iron Tr R 69:502 Ag 25 '21

Pig iron output hits 1908 level. Iron Tr R 68:1227 My 5 '21

Pig iron production falls off in 1919. Iron Tr R 66:1010 Ap 1 '20

Pig iron production in the U.S. in first half of 1921. Comm & Fin Chr 113:1210-11 S 17 '21

Pittsburgh iron trade the year after the war. R. A. Walker. Iron Age 105:44-6 Ja 1 '20

Pig iron—Continued

- Pneumatic pig-iron breaker displaces many men. *il Pop Mech* 35:733 My '21
- Production of pig iron in the United States in 1919. *Blast F & Steel Pl* 8:308 My '20
- Production of pig iron in the United States in 1920; tabulation. *Iron Age* 107:812 Mr 24 '21
- Revised pig iron contract form. *Iron Age* 108:1140 N 3 '21
- Standard specifications for foundry pig iron; English and French. *U S Bur For & Dom Com Industrial Standards* 155:1-10 '21
- Standardized form of pig iron contract presented at the annual meeting of the National association of purchasing agents. *Iron Age* 108:1029 O 20 '21
- Synthetic cast iron. C: A. Keller. *il Iron Age* 105:337-8 Ja 29 '20
- Synthetic foundry pig irons in Germany. *Iron Age* 108:1137-8 N 3 '21
- Synthetische herstellung von giessereiroh-eisen und dessen eigenschaften. J. Bronn. *il Stahl & Eisen* 41:881-8 Je 30 '21
- Trend of pig iron production; table. *Iron Tr R* 69:296 Ag 4 '21
- United States pig iron production in the first half of 1920. *Iron Age* 106:535 Ag 26 '20; Same. *Iron Tr R* 67:579 Ag 26 '20
- United States pig iron production in the first half of 1921. *Iron Age* 108:439 Ag 18 '21
- Very low iron output. *Iron Age* 107:930-1 Ap 7 '21

See also Cast iron; Iron; Iron founding; Kish

Prices

- Eastern iron costs greatly increased. E. C. Kreutzberg. *Iron Tr R* 68:277 Ja 27 '21
- Fluctuations of prices of iron ore and pig iron, 1889-1921. A. J. Hain. *Iron Tr R* 68:1713-14 Je 23 '21
- L. S. charcoal pig-iron prices for 28 years. 1893-1920. *Iron Age* 107:60-1 Ja 6 '21
- Transportation rules iron costs. C. J. Stark. *Iron Tr R* 68:275-7 Ja 27 '21; Same. *Foundry* 49:133-4+ F 15 '21

Pigments

- Classification of pigments. G. C. McEwen. *Can Chem & Met* 5:108-10 Ap '21
- Colors and pigments in rubber compounds. C. Stitt. *India Rubber W* 62:425-6 Ap '20
- Diffusing power of pigments. W. K. Lewis and F. P. Baker. *J Ind & Eng Chem* 12:890-1 S '20; Abstract. *Sci Am M* 2:369 D '20
- Manufacture of earth colours. J. Bersch. 206p Scott, Greenwood & son, London '21
- La mesure du pouvoir couvrant des peintures; le cryptomètre Pfund. *diag plan Génie Civil* 76:455-7 My 15 '20; Abstract. *J Fr Inst* 188:675-81 N '19
- Pigments an aid to durability. F. G. Breyer. *Oil Paint & Drug Rep* 99:26 sec 1 Mr 14 '21
- Vast stores of mineral paint pigments in Salton sea. J: E. Hogg. *il Pop Mech* 34:399-401 S '20

See also Antimony sulfide; Coloring matter; Dyes and dyeing; Lithopone; Paint; Red lead; Satin white; Titanium dioxide

Pigmies. See Dwarfs**Pigott, R. J. S., 1886-**

- Power-plant economist. *por Power* 51:775-6 My 11 '20

Pike's Peak

- Pike's Peak and Cripple Creek. *Min & Sci P* 121:149-50 Jl 31 '20

Pile drivers

- Large reinforced concrete pile driver. *il Engineer* 129:599, 602 Je 11 '20; Same. *Eng & Contr* 54:312 S 29 '20
- Piledriver has double set of leads. M. G. Findley. *il diags plan Eng N* 84:881-2 Ap 29 '20
- Pivot piledriver has special features. B. E. Torpen. *diags Eng N* 87:377 S 1 '21
- Thirty-degree pile driver. *il Sci Am* 124:505 Je 25 '21

Pile pulling

- A-frame with 15-part line used for pulling steel sheet piles. *il Eng N* 84:56 Ja 1 '20

Piles and pile driving

- Cutting piles under water. A. Langlois. *il Can Eng* 39:430 O 14 '20
- Dragline drives fifty-four piles in one shift of 10 hours. C. H. Eiffert. *il Eng N* 87:120-1 Jl 21 '21
- Dragline excavator also drives piles in reclamation work. A. W. Walker. *il Eng N* 86:354 F 24 '21
- Driving concrete piles through hard soil. *Engineer* 130:174 Ag 20 '20
- Driving long battered piles. *il Pub Works* 49:342-3 O 9 '20
- Driving piles through the ice. H. M. Harding. *il Eng N* 84:882 Ap 29 '20
- Drop hammer works under water on bridge foundation piles. *il Eng N* 84:393 F 19 '20
- Foundation pile spacing for eccentric loads. J. W. Pearl. *diags Eng & Contr* 53:91 Ja 28 '20
- How to drive wooden piles. *il Pub Works* 51:15-16, 32-4, 52-4 Jl 2-16 '21
- Improved method of driving a precast pile. *il Am Arch* 118:295-7 S 1 '20
- Long life for creosoted piles in railroad trestle. *il Ry Age* 68:247-9 Ja 16 '20
- Methods of providing mechanical protection for piles. *Eng & Contr* 55:389-90 Ap 20 '21; Abstract. *Eng N* 86:471-2 Mr 17 '21
- New method of concreting wooden piles. H: W. Schlueter. *diags Concrete* 18:149 Mr '21
- New method of driving piles. *il Pub Works* 49:136-8 Ag 7 '20
- Overdriven piles form coal-like substance in gravel bank. B. H. Piepmeier. *il Eng N* 85:910 N 4 '20
- Physical properties of clay in relation to pile driving; abstract. H: R. Lordly. *Eng & Contr* 55:332 Mr 30 '21
- Physical properties of clay in relation to pile driving; abstracts. A. S. E. Ackermann. *Eng & Contr* 55:331-2 Mr 30 '21; *Engineer* 131:551 My 20 '21
- Pier 18, Jersey City. *il Pub Works* 48:252-4 Mr 27 '20
- Pile driving results with steam and drop hammers compared. *il Eng N* 85:1027-8 N 25 '20
- Pile driving with leads suspended from boom of dragline excavator. *il Eng & Contr* 56:287 S 21 '21
- Pile load based on penetration in redriving. J. F. Mullen. *Eng N* 86:344 F 24 '21
- Pile-load distributions under a lock. M. G. Findley. *diag Eng N* 84:392 F 19 '20
- Piles driven through wharf roof 90-ft. from fender. *il diag Eng N* 87:25 Jl 7 '21
- Resistance of soft clay to penetration by pyramids and piles. A. S. E. Ackermann. *Eng N* 83:946 N 27 '19
- Short service of untreated piles at San Francisco. *Eng N* 84:1253 Je 24 '20
- Skin friction and beaming of piles. *Pub Works* 48:173-4 Mr 6 '20
- Supporting reactions in pile foundations and batters for railway trestle bents. B. Wilson. *Eng & Contr* 54:196 Ag 25 '20
- Teredos destroy piles in waters not previously infested. *il map Eng N* 84:1000-2 My 20 '20
- Test on giant concrete pile. *il Concrete* 17:21-2 Jl '20
- Timber piling in waters infested by marine borers. *Engineer* 132:57-8 Jl 15 '21
- Tool equipment for pile driver outfits; report of a committee of American railway bridge and building association. *Ry R* 69:526-30 O 22 '21
- Universal knuckle allows piledriving with leads in any position. M. L. Vail. *il Eng N* 87:251 Ag 11 '21
- Use of inertia gauges in pile driving. E. Latham. *diag Engineering* 112:131-2; Discussion. 123 Jl 15 '21
- What will long piles carry? C. Wernecke. *diags Eng N* 84:590-1 Mr 18 '20
- Wood and concrete piling—an informal discussion. C: R. Gow and others. *Boston Soc C E J* 7:273-99 D '20; Excerpt (Gow). *Eng & Contr* 55:62-3 Ja 19 '21
- Wood borer takes the count; protecting piling by cement gun. *il Sci Am* 124:111 F 5 '21

Piles and pile driving—Continued

Wood piles coated with concrete applied by cement-gun. *il* Eng N 84:225-6 Ja 29 '20

See also Breakwaters; Cofferdams; Concrete piling; Foundations; Piers; Pile drivers; Pile pulling; Sheet piling; Wharves

Piling machines. *See* Bale tiering machine

Pillars. *See* Columns

Pilots and pilotage

La direction des navires, à l'entrée et à la sortie des ports, au moyen de courants alternatifs et d'un câble-guide immergé. *Génie Civil* 77:339 O 23 '20

Direction-finding wireless. J. J. Bennett. *il* diags *Engineering* 112:333-5 S 2 '21

Electrical aids to navigation. W. A. Loth. *Sci Am M* 3:377 Ap '21

Harbor piloting and ship location by radio methods. Eng N 85:714 O 7 '20

Leader cable at Portsmouth. J. J. Bennett. *il* diags *Engineering* 111:187-90 F 18 '21;

Same cond. *Génie Civil* 78:454-8 My 28 '21

Leader cables in navigation. J. J. Bennett. *il* diags *Electrician* 87:202-4 Ag 12 '21

New York's radio pilot cable. G. Gaulois. *il* diags *Sci Am* 123:195+ Ag 28 '20

Piloting the ship with the ears. G. Gaulois. *il* *Sci Am* 123:423 O 23 '20

Piloting vessels by electrically energised cables. A. Crossley. diags *Engineer* 131:567-8 My 27 '21

Practical results in piloting ships by electrified channel cables. A. Crossley. Eng N 86:590-1 Ap 7 '21

Radio compass and automatic pilot developed for naval flying boats. J. B. Kean. *il* diag *Pop Mech* 34:485-7 O '20

Submerged induction cable steers ships to harbor. diag *Pop Mech* 33:515 Ap '20

Systems of direction finding by wireless. J. J. Bennett. diags *Electrician* 87:134-6 Jl 29 '21

Pinabietic acid

Pinabietic acid, a definite resin acid; constitution of pinabietic acid. A. L. Virtanen. *Chem Soc J* 120 pt 1:669-72 S '21

Pine

Average weights of long leaf southern pine lumber. Eng & Contr 54:189 Ag 25 '20

Book paper from Southern woods; using pines and other conifers to furnish a perpetual supply of pulp. S. D. Wells. *il* *Sci Am M* 3:439-41 My '21

Crushing strength of southern pine at angles to grain. Q. C. Ayres. Eng N 85:653-4 S 30 '20

Experiment on the mechanical properties of Scots pine. A. R. Horne. *il* *Engineering* 112:387-9 S 9 '21; Discussion. 112:405 S 16 '21

Inclined-bearing tests on Douglas fir and white pine. T. R. Simpson. diags Eng N 85:654-5 S 30 '20; Discussion. Q. C. Ayres. 85:958 N 11 '20

Rapid decay in sap pine-ties. C. O. Deabler. Eng & Contr 53:464 Ap 21 '20

Tests of old creosoted pine dock stringers. M. O. Fuller. Eng N 86:928 Je 2 '21

Utilization of pine waste. J. H. Wallace. *Chem Age* 29:374-5 S '21

Visual method of distinguishing longleaf from shortleaf and loblolly pine. Eng & Contr 55:621 Je 22 '21

Pine barkbeetles

Pine-bark beetle pest destroyed by electricity. *Pop Mech* 36:63 Jl '21

Pineapple plants

Decorticating machine for pineapple plant fibre. *il* *Textile World* 58:3375 N 13 '20; *Pop Mech* 36:210 Ag '21

Pineapples**Advertising**

Widened market for the pineapple sought by advertising. *Ptr Ink* 116:10+ Jl 28 '21

Pinene

Contributions to the chemistry of the terpenes: the action of hypochlorous acid on pinene. G. G. Henderson and J. K. Marsh. *Chem Soc J* 119:1492-1500 O '21

Partial synthesis of pinene from a pinene derivative; abstract. L. Ruzicka and H. Treb-ler. *Chem Soc J* 120 pt 1:36-7 Ja '21

Pinhole photography. *See* Photography, Pin-hole

Pinions. *See* Gearing

Pins**Manufacture**

Use of gas in the manufacture of pins. G. C. Shadwell. *Am Gas Eng J* 112:487-8 Je 19 '20

Pinyon

California's piñon-nut industry. *il* *Sci Am* 125:7+ Jl 2 '21

Pipe. *See* Pipes

Pipe bending

Angle and pipe bending machines. *il* *Iron Age* 106:134 Jl 15 '20

Construction and manipulation of a rack for bending large pipe. A. D. Adair. diags *Metal Work* 93:303-4 Mr 5 '20

How to bend iron pipe without buckling it. diags *Dom Eng* 94:243-4 Ja 29 '21

Leonard pipe-bending machine. *il* *Mach* 27:986-7 Je '21; *Am Mach* 54:1101 Je 23 '21

Pipe bending hints. W. F. Schaphorst. *Metal Ind* 18:517 N '20; Same. *Heat & Ven* 18:43 Ja '21; Same. *Am Gas Eng J* 114:118 F 5 '21

Pipe bending machines. R. P. Deane. diags *Mach* 26:448-50 Ja '20

Wallace angle and pipe bending machines. *il* *Iron Age* 107:1396 My 26 '21

Wallace no. 5-B pipe-bending machine. *il* *Am Mach* 55:569-70 O 6 '21; Eng & Contr 56:320 S 28 '21

Wallace pipe bending machine. *il* *Ry Mech Eng* 94:555 Ag '20

Pipe bends

Design of pipe bends for expansion in pipe lines. J. G. Stewart. chart diags *Power* 53:742-3 My 10 '21; Abstract. *Mech Eng* 43:741-2 N '21

Pipe bushings

Making pipe bushings from standard pipe. W. F. Schaphorst. *Metal Ind* 42:502 N '20; Same. *Heat & Ven* 17:43 D '20; Same. *Power Pl Eng* 25:220 F 15 '21

Pipe coverings

Catechism on heat saving. A. Bolam. *il* *Power Pl Eng* 24:740-3 Ag 1 '20

Dissipation of heat by various surfaces. T. S. Taylor. diags *Mech Eng* 42:230-2+ Ap '20; Same. *Am Soc Heat & V E J* 26:445-53 My '20; Abstract. *Power* 51:985-6 Je 15 '20; Discussion. *Am Soc Heat & V E J* 26:549-54 Jl '20

Emissivity of heat from various surfaces. V. S. Day. diags *Am Soc Heat & V E J* 26:supl-XIX S '20; Same. *Ill U Eng Exp Sta Bul* 117:1-31 '20

Facts on warm air furnace efficiency. A. C. Willard. *Sheet Metal Worker* 11:245-6+ O 1 '20

Figures to help you sell air cell covering. *Sheet Metal Worker* 11:372-3 N 26 '20

High cost of sagging insulation. S. R. Hall. *il* diag *Power Pl Eng* 25:897 S 15 '21

Insulating the suction pipe of the ammonia compressor. M. A. Kolb. diags *Power* 53:787-8 My 17 '21

Insulating value of various coverings for hot air pipes as determined by tests at the University of Illinois. *il* diags *Am Arch* 118:648-52 N 17 '20

Insulation in heating work. C. L. Hubbard. *il* *Dom Eng* 93:5-7+, 59-61 O 2-9 '20

New treatment of hot water heating. E. E. Parker. *Plumber* 94:487+ N 5 '20

Pipe covering. charts *Heat & Ven* 18:64-5 Ja; 66-9 F '21

Protective covering for steel pipe. L. M. Klauber. *il* plan *Gas Age* 48:478-84, 514-16 O 22-29 '21

Re-using magnesia pipe covering. A. W. Kramer. *Power Pl Eng* 24:808 Ag 15 '20

Some notes on pipe covering. C. L. Riecke. diags *Power Pl Eng* 24:983-4 O 15 '20

Theory of heat losses from pipes buried in the ground. J. R. Allen. *il* diags *Am Soc Heat & V E J* 26:455-69, 588-96 My, S '20; Discussion. 26:569-74 Jl '20

See also Steam pipe coverings

Pipe coverings—Continued

Cost

Protective covering for steel pipe. L. M. Klauber. Gas Age 48:514-16 O 29 '21

Pipe cutters

Analysis of construction costs and methods. H. A. Call. diags Sanitary & Heat Eng 96:75-6 J1 29 '21; Correction. 96:110 Ag 12 '21

Pipe cutting machines

Pertinent facts on power pipe machines. il Plumber 94:482+ N 5 '20

Pipe elbows

Casting large pipe fittings. J. J. Zimmerman. il diags Blast F & Steel Pl 9:417-20 J1 '21

Complex elbow patterns made simple. plans Sheet Metal Worker 12:35-6 F 18 '21

Constructing a sheet metal elbow. F. Webster. diags Power Pl Eng 25:898-900 S 15 '21

Efficiency and beauty of the curved line; construction of a warm-air furnace elbow. diags Sheet Metal Worker 12:668+ O 28 '21

Four-piece transitional elbow pattern. diags Sheet Metal Worker 12:221-2 Ap 29 '21

Instructive directions on elbow making. diags Metal Work 94:204-5 Ag 13 '20

Large elbow made in dry sand mold. J. J. Zimmerman. il diags Foundry 49:607-10 Ag 1 '21

Layout of a curved rectangular twisted compound elbow. diags plans Metal Work 93:671-2, 719-20 My 28-Je 4 '20

Modern machinery for elbow making. L. Broemel. diags Sheet Metal Worker 12:4-6+ F 4 '21

Novel method of sweeping an elbow core. M. E. Duggan. diags Foundry 49:74 Ja 15 '21

Octagonal compound tapering elbow pattern. diags Sheet Metal Worker 11:391-3 D 10 '20

Short method for solution of elbow problems. diags Sheet Metal Worker 11:370 N 26 '20

Pipe fitting

Pipe fitting notes. H. A. Jahnke. diags Power Pl Eng 24:523-4 My 15 '20

Pipe fitting troubles. diags Power Pl Eng 25:630 Je 15 '21

Pipe work that pays. G. H. Radebaugh. il Brick & Clay Rec 53:480-4 Mr 22 '21

See also Gas fitting; Hot water heating; Pipe hangers; Pipe joints; Plumbing; Steam pipes

Pipe fittings

Effect of fittings on flow of fluids through pipe lines. D. E. Foster. Mech Eng 42:616-18 N '20; Same. Power Pl Eng 24:1115-18 D 1 '20; Same cond. Eng & Contr 54:564-5 D 8 '20; Same cond. Power 52:1032-3 D 28 '20; Excerpt. Chem & Met Eng 23:1172 D 15 '20

Purchasing pipe and fittings. A. G. Drury. Metal Work 93:839-40 Je 25 '20

Report of special committee on standards for flanged fittings and flanges. diags Am Soc Heat & V E J 26:378-80 Ap '20

Specifications for cast-iron soil pipe and fittings. Foundry 48:740a S 15 '20

Standard weight cast-iron screwed fittings. diags Heat & Ven 17:63-5 N; 60-3 D '20

See also Furnaces, Warm air—Pipes and fittings; Pipe flanges; Pipe joints

Manufacture

Continuous foundry for pipe fittings. H: M. Lane. il Iron Age 108:519-24 S 1 '21

Operating a pipe fittings foundry. il Foundry 49:725-31 S 15 '21

Pipe flanges

Standards

Flanges for cast-iron pipe. A. R. Baylis. Mech Eng 42:106-7 F '20

Report of special committee on standards for flanged fittings and flanges. diags Am Soc Heat & V E J 26:378-80 Ap '20

Pipe hangers

Method of pipe suspension. R. P. Immel. diags Eng & Min J 111:671 Ap 16 '21

Standard pipe-hanger data. il Power 51:507 Mr 30 '20

Cost

Accurate plumbing and heating estimates—how made. H. A. Call. Sanitary & Heat Eng 96:225-6 O 7 '21

Pipe industry and trade

Cast iron pipe; census bureau's summary concerning the industry. Sanitary & Heat Eng 96:107 Ag 12 '21; Same. Gas Age 48:172 Ag 20 '21; Same cond. Iron Age 108:258 Ag 4 '21

National pipe and supplies association, 12th annual convention, Cleveland. Iron Age 107:1301-2 My 19 '21

Tulsa purchasing agents association finds means to fight pipe profiteers. Nat Pet N 12:30+ Ap 7 '20

See also Pipes—Prices

Advertising

Iron pipe makers in long distance advertising effort. Ptr Ink 116:33-4 S 22 '21

Pipe joints

Cast iron pipe made with electric furnace. diags Am Gas Eng J 112:sup20 Je 12 '20

Cement and lead-wool pipe joints. H: Fink. diags Gas Age 47:506-7 Je 25 '21

Cement joint controversy. Gas Age 45:177-8 F 25 '20

Cement joints are tight, cheap, and easily constructed. diag Concrete 15:242-3 D '19

Cement joints for cast iron water pipe. G: W. Pracy. Am Water Works Assn J 7:436-9 J1 '20; Same. Can Eng 39:295-6 S 2 '20; Same. Eng & Contr 54:245-6 S 8 '20; Discussion. F. M. Randlett. Am Water Works Assn J 7:951-2 N '20

Electric cast iron pipe and prepared, or factory-made, lead joints. H. Y. Carson. il diags Am Water Works Assn J 7:477-87 J1 '20; Excerpt. Eng & Contr 54:380 O 13 '20

Expansion joints on steam heating piping. diags plans Dom Eng 91:186-8 My 1 '20

Experiences with pipe jointing compounds; abstracts. F. O. Stevens. Eng & Contr 54:39-41 J1 14 '20; Pub Works 49:76-8 J1 24 '20

Factory made lead joints for cast iron pipe. diags Eng & Contr 54:634 D 29 '20

Flexible joints and methods of laying subaqueous water mains. il diags Eng & Contr 53:649-51 Je 9 '20

How to unjoint and handle three miles of lead joint, small size cast iron pipe? Pub Works 50:197-8 F 26 '21

Narrows siphon from Brooklyn to Staten Island. J: P. Hogan. il diags Am Water Works Assn J 7:394-400 My '20

New idea in cast iron pipe joints. diags Pub Works 49:283 S 25 '20

New type of Griscom-Russell low pressure expansion joint. il Elec R 79:366-7 S 3 '21

Oxyacetylene gas welding. A. S. Kinsey. il diags Gas Age 45:331-5 Ap 26 '20

Oxyacetylene torch for pipe welding and cutting. il Pub Works 50:549-50 Je 25 '21

Packing expansion joints. A. C. McHugh. Power 52:1027 D 28 '20

Prepared joint 2 in. cast iron pipe. il diag Munic Eng 61:112+ S '21

Report of cast iron pipe joints committee. Am Gas Assn Technical sec v 1:242-54 '19

Screwed pipe joints. H: Ritter. diags Mech Eng 42:125 F '20

Strength of welded pipe joints. il Power Pl Eng 24:1105 N 15 '20

Substitutes for lead in joints. T: Healy. Am Water Works Assn J 7:234-6 Mr '20

Thermit welded pipe joints. R. L. Browne. il diags A S R E J 7:452-7; Discussion. 457-9 My '21

Tools for locomotive steam pipe joints. F. A. Stanley. il diags plans Am Mach 54:218-20 F 10 '21

Welded joints for steel pipe of Butte water supply line. il Eng & Contr 55:30 Ja 12 '21

See also Pipe flanges

Pipe joints—Continued

Cost

Cement joints economical in cast iron gas pipes. W. M. Henderson. Pub Works 48:214 Mr 20 '20; Same. Eng & Contr 53:433-4 Ap 14 '20

Cost of making pipe joints with Portland cement. E. E. Wall. Eng & Contr 54:47 Jl 14 '20

Pipe laying

Bayonne water pipe crossing under the Hackensack river. F. H. Sherrerd. il diag Am Water Works Assn J 7:401-5 My '20; Same cond. Eng & Contr 53:146 F 11 '20

Flexible joints and methods of laying subaqueous water mains. il diags Eng & Contr 53:649-51 Je 9 '20

How can submerged water pipes be installed? Pub Works 50:65-7 Ja 15 '21

How to move pipe mains in service. Pub Works 50:555-6 Je 25 '21

Installing pipes through railroad embankments. Pub Works 49:352-3 O 9 '20

Jacking conduits prevents mutilation of pavement. il Pop Mech 33:51 Ja '20

Laying a pipe line in frozen ground. W: W. Elmer. il Eng & Min J 108:823-4 N 22 '19; Same cond. Eng N 84:151 Ja 15 '20

Laying and repairing a 12-inch subaqueous main to North Brother Island, New York. P. Quilty. il diags Am Water Works Assn J 7:388-93 My '20

Laying and repairing six-inch submarine pipe. J. W. Graham. Pub Works 51:66-8 Jl 23 '21

Laying flanged pipe on a steep hillside. D. Lay. il Eng & Min J 110:110 Jl 17 '20

Laying pipe in deep water. diags Plumber 95:329-30 Je 3 '21

Laying submerged gas main. D. L. Hill. diag Gas Age 46:213-15 S 25 '20; Same. Can Eng 39:657-8+ D 30 '20; Same abr. Am Gas Eng J 113:220+ S 18 '20

Mechanical equipment of Baltimore water department. V. B. Siems. il Pub Works 51:39-42, 73-7 Jl 16-23 '21; Same, without tables. Munic Eng 60:sup19-20+ Je '21

Methods of preparing and handling wood pipe river crossing. L: D. Kelsey. il Eng & Contr 55:574 Je 8 '21

Norfolk emergency water connection. A. Lewald. diags Pub Works 49:407-9 O 30 '20

Service strength of sewer pipes. diags Pub Works 50:146-8 F 12 '21; Same. Can Eng 40:461-2 My 12 '21

Steel pipe floated to place, sunk and bolted under water, to form outfall. il diag Eng N 84:124 Ja 15 '20

12-inch submarine gas main. W: F. Miller. il plan Gas Age 47:239-42 Mr 25 '21; Same. Am Gas J 114:324-6 Ap 9 '21

Use of concrete pipe in irrigation. F. W. Stanley. Eng & Contr 56:141 Ag 10 '21

Yarhola pipe line. Pub Works 51:218-20 S 17 '21

See also Pipe lines

Cost

Mechanical equipment of Baltimore water department. V. B. Siems. Pub Works 51:73-7 Jl 23 '21; Same, without tables. Munic Eng 60:sup22+ Je '21

Pipe pusher cuts cost of under-pavement cable conduits. C. A. Frankinhoff. Eng N 84:489 Mr 4 '20

Estimates

Man-hours and material cost data for cast-iron pipe laid. L. G. Hall. Eng N 87:413 S 8 '21

Pipe lines

Adjustable pipe supports of concrete and steel. il Pop Mech 33:670 My '20

Design of pipe bends for expansion in pipe lines. J. G. Stewart. chart diags Power 53:742-3 My 10 '21; Abstract. Mech Eng 43:741-2 N '21

Effect of fittings on flow of fluids through pipe lines. D. E. Foster. Mech Eng 42:616-18 N '20; Same. Power Pl Eng 24:1115-18 D 1 '20; Same cond. Eng & Contr 54:564-5 D 8 '20; Same cond. Power 52:1032-3 D 28 '20

Factors in design of sluices and pipe lines for hydraulics. F. A. Goodale. Eng & Contr 52:590-1 N 19 '19

How to move pipe mains in service. Pub Works 50:555-6 Je 25 '21

Pipe-line transportation for anthracite and bituminous coal. G: A. Orrok and W. S. Morrison. Power 54:699-700 N 1 '21

Pipe line velocities necessary to transport gravel. P. J. McAuliffe. il Eng N 85:988-90 N 18 '20

Piping coal from mines to New York city. W: R. Andrews. il Pop Mech 35:326-8 Mr '21

Reinforced concrete pipe and trestle. il Pub Works 51:108 Ag 6 '21

Repairing a wood-stave pipe-line. G. A. Joslin. il Min & Sci P 123:163-4 Jl 30 '21

Safeguarding pipe lines against collapse. J: S. Carpenter. Power 51:594-5 Ap 13 '20

Stewart brothers (Ottawa, Ill.) pipe locator and depth indicator. il Gas Age 47:125 F 10 '21

Stresses in horizontal pipes on rigid saddles. T. B. Parker. Eng N 87:306-9 Ag 25 '21

Tanks and pipe lines as causes of accidents. H. A. Hoffman. Chem & Met Eng 23:1023-5 N 24 '20

Transportation of coal in pipes. R. P. Bolton. Power 53:261 F 15 '21; Same. Eng & Ind Management 5:586-7 My 19 '21; Same. Sanitary & Heat Eng 96:254+ O 21 '21

Various methods of supporting and protecting pipes. diags Heat & Ven 17:41-2 D '20

See also Aqueducts; Electrolytic corrosion; Gas distribution; Gas pipes; Oil pipe lines; Pipe laying; Piping (power plants); Steam pipes; Water hammer; Water pipes; Water supply engineering

Pipe threading

Care of pipe-threading tools. C. H. Ball. il Plumber 94:597 D 31 '20

Cost

Accurate plumbing and heating estimates—how made. H. A. Call. Sanitary & Heat Eng 96:287-9 N 4 '21

Pipe threading machines

Analysis of construction costs and methods. H. A. Call. Sanitary & Heat Eng 96:260-1 O 21 '21

Duplex improved pipe machine. il Plumber 95:157 Mr 11 '21

Pertinent facts on power pipe machines. il Plumber 94:482+ N 5 '20

Power pipe machines make your dollar bigger. Plumber 95:167 Mr 25 '21

Pipe threads

American standard taper pipe threads; S.A.E. Standards report. diag Soc Auto Eng J 8:179-81 F '21

British standard pipe thread gages. C: Henrichs. diag Mach 27:942 Je '21

Standard pipe threads. E. Buckingham. Mach 27:877 My '21

Piperidine

Action of alkyl nitrates on piperidine. D: T. Gibson and A. K. Macbeth. Chem Soc J 119:438-42 Ap '21

Organic derivatives of silicon; piperidine as an analytical reagent. F: S. Kipping and J. E. Sands. Chem Soc J 119:848-50 Je '21

Piperidine piperidyl-dithiocarbamate

Influence of certain organic accelerators on vulcanization of rubber. G: S. Whitby and O. J. Walker. J Ind & Eng Chem 13:816-19 S '21

Piperitone

Essential oil from andropogon iwarancusa, Jones, and the constitution of piperitone. J: L. Simonsen. Chem Soc J 119:1644-54 O '21

Piperitone; the occurrence, isolation, and characterisation of piperitone. J: Read and H: G. Smith. diags Chem Soc J 119:779-89 Je '21

Pipes

Collapsing strength of iron pipes and tubes. U. F. Schaphorst. chart Power Pl Eng 25:431 Ap 15 '21

Comparison of wood stave, iron and concrete pipe. Eng N 85:309 Ag 12 '20

Pipes—Continued

- Electric cast iron pipe and prepared, or factory-made, lead joints. H. Y. Carson. il diags Am Water Works Assn J 7:477-87 J1 '20; Discussion. W. L. Benham. 7:769 S '20
- English ideas in drain piping. J: Y. Dunlop. il diags Metal Work 94:231-3 Ag 20 '20
- Loss of head in pipes. W. F. Schaphorst. Sanitary & Heat Eng 96:110 Ag 12 '21
- Power piping. J. R. Tanner and G: J. Stuart. Eng Soc W Pa 35:311-32; Discussion. 333-47 O '19
- Purchasing pipe and fittings. A. G. Drury. Metal Work 93:839-40 Je 25 '20
- Strength of pipes as columns. J: S. Watts. Am Mach 55:341 S 1 '21
- What is wrought pipe? Power 52:948 D 14 '20
- Wrought-iron and steel pipe. Mach 27:953 Je '21

See also Air pipes; Gas pipes; Heating pipes; Pipe elbows; Pipe fitting; Pipe fittings; Pipe joints; Pipe laying; Pipe lines; Piping (power plants); Plumbing; Sewer pipes; Ships—Piping; Steam pipes; Stove pipes; Tubes; Water pipes

Corrosion

See Corrosion and anti-corrosives

Manufacture

- Cast iron pipe made by the de Lavaud process. P: Gillespie. il Can Eng 40:454-5 My 12 '21
- Cast iron pipe made with electric furnace. diags Am Gas Eng J 112:sup20 Je 12 '20
- Cast-iron pipe, the method of manufacture and its inspection. W: R. Conard. il diags N E Water Works Assn J 35:205-20; Discussion. 220-7 S '21
- Centrifugal casting; various methods of forming pipes and tubes by centrifugal deposition. Sci Am M 4:164-5 Ag '21
- Centrifugally cast iron pipe. A. F. Macallum. Can Eng 39:488 N 4 '20; Same. Iron Age 106:1470 D 2 '20; Same. Plumber 94:577 D 17 '20; Same. Pub Works 50:75 Ja 22 '21; Same cond. Eng & Contr 54:562 D 8 '20
- Early history of the gas industry; developments in manufacture of wrought-iron pipe for gas. R. B. Verdery. Am Gas J 114:514-15 Je 11 '21; Same. Gas Age 48:180-1 Ag 20 '21
- Electric cast iron pipe. Iron Age 106:1542 D 9 '20
- Fitting up for making soil-pipe castings. Foundry 48:924-5 N 15 '20
- Manufacture of wrought iron pipe. N. Bowland. il diags Mach 26:844-9 My '20
- Manufacture of wrought pipe for high pressures. il diags Mach 27:755-6 Ap '21; Same cond. Sci Am M 3:473-4 My '21
- Manufacturing steel and iron tubes. H. C. Ebright. il Blast F & Steel Pl 8:609-12 N '20
- Patterns for jobbing pipe work. J. Horner. diags Foundry 48:242-5, 266-71 Mr 15-Apr 1 '20
- Payment of bonus to pipe press crews. W. F. Godejohn. charts Brick & Clay Rec 58:1076-9 Je 28 '21
- Pipe casting at Pont-a-Mousson. G: C. Whipple. diags Am Water Works Assn J 8:161-4 Mr '21
- Recent developments in the manufacture of cast-iron pipe; abstract. Eng N 85:644 S 30 '20
- Recent improvements in the manufacture of welded pipe. F. N. Speller. Blast F & Steel Pl 9:580-2 O '21
- Scale-free pipe—what it is—how it is made. il Plumber 94:595-6 D 31 '20

See also Pipe threads

Prices

- Cast iron pipe declines then advances. Iron Tr R 66:102 Ja 1 '20
- Cast-iron pipe industry, 1920. Iron Age 107:58-60 Ja 6 '21
- Cast-iron pipe prices—1900-1919. Iron Age 105:55 Ja 1 '20
- Cast iron pipe prices—1903-1919. Eng & Contr 53:55 Ja 14 '20
- Cast pipe demand low; prices hold. Iron Tr R 68:86 Ja 6 '21

- Oil boom is big stimulus to mill pipe. Iron Tr R 66:105-6 Ja 1 '20
- Standard price list of steel and wrought iron and cast iron pipe. Eng & Contr 56:347-8 O 12 '21

Repair

- Unusual case of thermit pipe welding. E: A. Miller. il Power 53:351-2 Mr 1 '21

Specifications

- Preliminary report on the proposed uniform plumbing code for Massachusetts. Dom Eng 92:125-6+, 231-2+ J1 17, 31 '20
- Specifications for cast-iron soil pipe and fittings. diags Foundry 48:678a, 740a S 1-15 '20
- Standard specifications for welded wrought-iron pipe; English and French. U S Bur For & Dom Com Industrial Standards 132:1-14 '21

See also Pipes, Steel—Specifications

Terminology

- Abolish wrought pipe term in steel. Iron Tr R 67:1491 N 25 '20; Same. Iron Age 106:1406 N 25 '20; Same. Plumber 94:532 D 3 '20

Testing

- Tests of rotary drill pipes. A. H. Stang. il Iron Age 108:804 S 29 '21
- See also* Pipes, Concrete—Testing

Unjointing

See Pipe joints

Pipes, Concrete

- Cement lined service pipe at Lynn, Mass. R. J. Newsom. Eng & Contr 56:356 O 12 '21
- Concrete is good material for piping. Sibley J 35:13+ Ja '21
- Concrete pipe in alkali soils. Pub Works 51:292-4 O 15 '21
- Concrete pressure pipe for water supply. C. Meriwether. diag Concrete 16:156-7 Mr '20
- Construction features of the water works of the greater Winnipeg water district. W. G. Chase. Am Water Works Assn J 7:947-9 N '20; Same. Pub Works 49:171-2 Ag 21 '20
- Cumberland's concrete water supply main. il diags Pub Works 49:47-50 J1 17 '20
- Flow of water in concrete pipe. F: C. Scobey. il diags U S Agric Bul 852:1-100 '20; Excerpts. Can Eng 40:101-5, 124-6 Ja 6-13 '21; Eng & Contr 55:44 Ja 12 '21
- Hume centrifugal pipe in South Africa. il diags plan Concrete 19:119-20 S '21
- New concrete conduit for Denver water supply; old wood stave line replaced by concrete pipes. il diags plans Eng N 85:551-3 S 16 '20
- New type of concrete pressure pipe. diag Eng & Contr 56:48 J1 13 '21
- Pipes for pressure conduits. F: W: MacAulay. Engineering 112:168-9; Discussion. 145-6 J1 22 '21; Abstract. Engineer 132:87 J1 22 '21
- Plain and reinforced concrete pipe. H. P. Heywood. diag Can Eng 38:409-10+ Ap 22 '20; Abstract. Eng & Contr 53:554 My 12 '20
- Plain concrete pipe in modern sewerage systems. M. W. Loving, W. T. Knowlton, and A. D. Ludlow. diag plan Concrete 18:284-5 Je '21
- Reinforced concrete pipe for Geelong, Australia sewer system. E. G. Stone. il Eng & Contr 55:332-3 Mr 30 '21
- Reinforced pipe for highway culverts. A. J. R. Curtis. diags Concrete 17:29-30 J1 '20
- Some conclusions on concrete pipe for irrigation use. Eng & Contr 56:143-4 Ag 10 '21

Cost

- Cost of manufacturing concrete pipe. Eng & Contr 53:34 Ja 14 '20

Manufacture

- Casting and steaming reinforced pipe. il diag Pub Works 49:358-60 O 16 '20

Pipes, Concrete—Manufacture —Continued

- How materials and products are handled in Los Angeles pipe plant. E. F. Bent. *il plan Concrete* 18:67-9 F '21
- Hume centrifugally made concrete pipe. *Mech Eng* 43:474-5 JI '21
- Manufacture of concrete pipes by the Hume centrifugal process. W. Wolstenholme. *diags plan Eng & Contr* 54:332-3 S 29 '20
- Reinforced-concrete pipe made by the centrifugal process. E. M. Weston. *Eng N* 83:707-8 O 9 '19; *Same. Sci Am M* 1:166 F '20
- Where and how Shearman concrete pipe are made. *il diag Concrete* 19:60-2 Ag '21

Testing

- Device for testing sections of concrete pipe. *il Eng N* 86:887 My 26 '21
- Getting a line on concrete pipe. S. R. Winters. *il Sci Am* 123:449+ O 30 '20
- Test concrete pressure pipe with encased steel diaphragm. *il Eng N* 86:645-6 Ap 14 '21; *Concrete* 18:242-4 My '21

Pipes, Fiber

- Fiber pipe does not corrode in acid water and is unaffected by electrolysis. *Coal Age* 20:600 O 13 '21

Pipes, Lead

- Extrusion of lead pipe. E. Sheldon. *il diags Am Mach* 51:909-13; 52:59-62 N 27 '19, Ja 8 '20

Pipes, Steel

- Centrifugal casting of steel tubing. *diags Iron Age* 107:1300 My 19 '21
- Diagram for computing thickness of plate for steel pipe. W. T. Batcheller. *diag Power* 51:656-7 Ap 27 '20
- Flow of water through galvanized spiral riveted steel pipe. F. W. Greve. *diags Eng N* 87:159-60 JI 28 '21
- Making pipe by hammer forging. *il diags Iron Tr R* 69:1148-51 N 3 '21; *Eng & Contr* 56:445 N 9 '21; *Iron Age* 108:1130-1 N 3 '21
- Spellerized steel piping; what it is. *il Power* 53:513 Mr 29 '21
- Welded steel specials as a substitute for castings. *il diags Engineering* 109:730 My 28 '20

Specifications

- Proposed revised specifications for welded and seamless steel pipe. *Blast F & Steel Pl* 9:498-500 Ag '21
- Standard specifications for welded steel pipe; English and French. *U S Bur For & Dom Com Industrial Standards* 124:1-14 '21
- Tentative specifications for welded steel pipe. *Am Soc T M Pro v* 20 pt 1:487-92 '20

Pipes, Vitrified

- Breaker-chute linings that last. D. C. Ashmead. *il diags Coal Age* 17:754-5 Ap 15 '20

Pipes, Wood

- Cast-iron and wood-stave pipe economically compared. J. W. Ledoux. *Eng N* 85:932 N 11 '20
- E.P. & S.W. rebuilds 141-mile wood stave pipe line. J. L. Campbell. *il map Ry Age* 71:245-6 Ag 6 '21
- Leakage from machine banded wood pipe. J. L. Campbell. *Eng N* 86:124 Ja 20 '21
- Old wood stave pipe successfully rewound on the job. M. R. Kirkpatrick. *il Eng N* 85:252-3 Ag 5 '20
- Repairing a wood-stave pipe-line. G. A. Joslin. *il Min & Sci P* 123:163-4 JI 30 '21
- Repairing wood water conduit at Norfolk, Virginia. J. W. Ledoux. *diags Eng N* 87:396-9 S 8 '21
- Water pipes of wood. J. F. Springer. *il Sci Am* 123:250+ S 11 '20
- Wood pipe in the chemical industry. *il Chem & Met Eng* 24:32 Ja 5 '21
- Wood pipe lines in New England hydroelectric development. *il Elec R* 79:265-8 Ag 20 '21
- Wood stave pipe stands blast and fire. *Eng N* 87:399 S 8 '21
- Piping (power plants)**
- Color scheme for pipe lines. *Power Pl Eng* 25:487 My 1 '21
- Color schemes for plant piping. H. L. Wilkinson. *Power* 51:610 Ap 13 '20

- Design and construction of power-plant piping. J. D. Morgan. *Power* 51:384-5, 797-9 Mr 9, My 18 '20
- Economies obtainable by reducing resistances in steam piping. O. Denecke. *diags Mech Eng* 43:735-8 N '21
- Faulty pipe layouts. H. A. Jahnke. *diags Power Pl Eng* 25:763-5 Ag 1 '21
- High pressure steam in small power plants. C. L. Hubbard. *diags Sanitary & Heat Eng* 96:251-3+ O 21 '21
- Piping equipment for individual power plants. E. J. Lomasney. *Dom Eng* 91:535-6; 93:155-7, 205-7+ Je 19, O 23-30 '20
- Power piping. J. R. Tanner and G. J. Stuart. *Eng Soc W Pa* 35:311-32 O '19; *Excerpt. Mech Eng* 42:63-4 Ja '20; *Discussion. Eng Soc W Pa* 35:333-47 O '19
- Some faulty pipe work. H. A. Jahnke. *diags Power Pl Eng* 25:478-9 My 1 '21
- Standard methods of identification of fluids conveyed by pipes in power houses and industrial plants. *Mech Eng* 43:498-9 JI '21
- Transmission wastes. *diags Power Pl Eng* 25:85-93 Ja 1 '21

Bypasses

- Bypasses in power and heating plants. C. L. Hubbard. *diags Power Pl Eng* 25:258-61 Mr 1 '21

Piping (refrigerating plants)

- Direct expansion piping in egg rooms. N. J. Waite. *A S R E J* 7:41-2 JI '20; *Discussion. 7:42-7; 8:19-22 JI '20, JI '21*
- Piping required for cold storage rooms. W. A. Darter. *Power Pl Eng* 24:862 S 1 '20
- Refrigeration study course; ammonia and ammonia piping. H. J. Macintire. *diags Power* 52:19-20 JI 6 '20
- Refrigeration study course—ammonia pipe calculations. H. J. Macintire. *diag Power* 52:702-4 N 2 '20
- Refrigeration study course; ammonia piping calculations. H. J. Macintire. *Power* 52:299-301 Ag 24 '20

Piranesi, Giovanni Battista, 1720-1778

- Piranesi—style maker; and some suggestions as to how a good book may be better used. R. F. Bach. *il Arch Forum* 33:61-8 Ag '20

Pirsson, Louis Valentine, 1860-1919

- Sketch. W. Cross. *por Am J Sci* 50:172-87 S '20

Pisé

- Housing problem and earth masonry. T. C. Young. *Am Arch* 117:467-8 Ap 14 '20
- Side trip in building; use of rammed earth as masonry. T. C. Young. *il diags plan Am Arch* 119:85-8 Ja 26 '21; *Same cond. Eng N* 86:267-8 F 10 '21; *Discussion. 86:652 Ap 14 '21*

Pistols

- Pocket machine gun. E. C. Crossman. *il diag Sci Am* 123:405+ O 16 '20
- Submachine gun. A. B. Richeson. *il Pop Mech* 34:641-2 N '20
- Submachine guns; abstract. A. B. Richeson. *diag Mech Eng* 43:405 Je '21

Piston pins

- Making piston-pins. C. H. Dengler. *diags Mach* 27:892 My '21
- Making the Essex piston pin. F. H. Colvin. *il Am Mach* 53:317-20 Ag 12 '20

Piston rings

- British adopt centrifugal casting. G. Williams. *il diags Foundry* 48:213-18 Mr 15 '20
- Casting and machining oil-engine pistons, piston rings and cylinders. S. Rosswell. *diags Am Mach* 54:137-40 Ja 27 '21
- Device for handling piston rings in the side grinding operation. A. Ferber. *il Am Mach* 53:1006 N 25 '20
- Experimental separation of engine losses develops interesting results. J. E. Schipper. *il diag Automotive Ind* 42:1338-41 Je 10 '20
- Gang cutters for piston rings. *diags Ry Mech Eng* 94:33 Ja '20
- Holding piston rings for sizing them. S. Reid. *diags Am Mach* 52:53 Ja 1 '20
- Important factors in piston-ring design. H. H. Platt. *diags Soc Auto Eng J* 9:195-7; *Discussion. 197-9 S '21*

Piston rings—Continued

- Making piston-rings. E. Sheldon. il diag Am Mach 52:1279-83 Je 17 '20
 Metropolitan section discusses piston rings. Automotive Ind 42:1401 Je 17 '20
 New type of piston ring. il Automotive Ind 44:19 Ja 6 '21
 Piston and piston ring castings. H. E. Diller. Foundry 48:310 Ap 15 '20
 Piston and rings for heavy oil engines. W. D. Forbes. Marine Eng 25:1002-3+ D '20
 Piston ring sizes of cars from 1916 to 1920. Motor Age 37:45 Je 3; 51 Je 10; 47 Je 17 '20
 Piston ring work in a railroad shop. F. A. Stanley. il diags Am Mach 53:426-7 Ag 26 '20
 Piston-rings. L. G. Nilson. diags Soc Auto Eng J 7:525-31; Discussion. 531-6 D '20
 Piston rings cast centrifugally. H. E. Diller. il Foundry 48:127-32 F 15 '20
 Production and salvage of locomotive piston rings. J. V. Hunter. il Am Mach 53:1213-14 D 30 '20
 Proper metal for piston ring pots. A. Harley. Foundry 48:435 Je 1 '20
 When to install new piston rings. Motor Age 38:12 O 21 '20

Advertising

- Finding enough ideas to go around. W. L. Larned. Ptr Ink 113:73-4+ O 14 '20
 Market that hadn't run away; how the American hammered piston ring company met the recent slump. R. W. Johnson. Ptr Ink 115:53-4+ Ap 14 '21

Piston-rod packing. See Packing

Pistons

- Aluminum alloy pistons. E. V. Pannell. diags Metal Ind 19:15-17 Ja '21
 Aluminum piston. Motor Age 38:12 O 21 '20
 Aluminum piston design. E. G. Gunn. diags Automotive Ind 42:362-4 Ja 29 '20; Discussion. Soc Auto Eng J 6:309-11 My '20
 Aluminum pistons. F. Jardine and F. Jehle. diags Soc Auto Eng J 8:397-403 My '21; Same. Aerial Age 13:228-9, 250-3 My 16-23 '21
 Automobile engine pistons as a stock proposition. E. Sheldon. il Am Mach 53:437-41 S 2 '20
 Barthel cross-head piston. diags Automotive Ind 44:1113 My 26 '21
 Boring and facing pistons in a lathe. il diags Mach 26:525-6 F '20
 Building motors on the Pacific coast; making aluminum alloy pistons. F. H. Colvin. il Am Mach 54:46-7 Ja 13 '21
 Cast-iron and aluminum pistons; the Studebaker and Oakland. F. H. Colvin. il diags Am Mach 53:416-21 Ag 26 '20
 Casting and machining oil-engine pistons, piston rings and cylinders. S. Rosswell. diags Am Mach 54:137-40 Ja 27 '21
 Developments in piston design. il Soc Auto Eng J 9:199 S '21
 Fixture for line-reaming wrist-pin holes in pistons. W. Owen. diags Mach 27:1137 Ag '21
 Foote-Burt piston-turning machines. J. V. Hunter. il Am Mach 53:124-5 Jl 15 '20
 Gas-engine piston without rings. S. H. Bunnell. il diags Iron Age 108:81-2 Jl 14 '21
 Improved method of machining pistons lowers costs. il diags Automotive Ind 42:709-11 Mr 18 '20
 Inspecting pistons and connecting rods. F. H. Colvin. il Am Mach 54:407-10 Mr 10 '21
 Interesting piston operations. F. C. Hudson. il Am Mach 52:679-80 Mr 25 '20
 Irons for Diesel engine castings. F. J. Cook. il diags Foundry 48:635-7 Ag 15 '20
 Kant-shore aluminum alloy piston has novel expansion feature. il Motor Age 37:37 Ap 29 '20
 Machines automatiques Thomas Ryder pour l'usinage des pistons et des segments de pistons. il diags Génie Civil 78:57 Ja 15 '21
 Machining aluminum pistons. P. T. Lennon. diags Am Mach 52:1175-6 Je 3 '20
 Machining automobile engine pistons. R. E. Flanders. il diags Mach 26:710-13 Ap '20
 Machining Hudson super-six pistons. il Mach 28:225-7 N '21
 Machining motor pistons. C. H. Dengler. diags Mach 27:878-9 My '21
 Machining motor pistons. A. A. Dowd. diag Mach 27:1151 Ag '21
 Making 21,000 pistons a day. F. H. Colvin. il diags Am Mach 52:819-28 Ap 15 '20
 Manufacturing automobile pistons in a jobbing shop. R. Mawson. il Am Mach 55:493-6 S 29 '21
 Manufacturing methods for an aluminum-iron piston. il Automotive Ind 41:1271-3 D 25 '19
 Methods of making the Winton, Franklin, White, Packard pistons. F. H. Colvin. il diags Am Mach 52:927-34 Ap 29 '20
 New alloy of magnesium. E. J. Jenkins. il Iron Age 106:193-4 Jl 22 '20
 New light piston alloy; Dow metal. Automotive Ind 42:967 Ap 22 '20
 New magnesium alloy for motor pistons. G. Gaulois. il Sci Am 123:519+ N 20 '20; Same cond. Mach 27:652 Mr '21
 New metallic alloy is lighter than aluminum. il Pop Mech 36:675 N '21
 New type aluminum piston in Cole. il Motor Age 38:13+ Ag 26 '20
 Novel piston; design aiming at minimum ring friction and even pressure. il diags Automobile Eng 11:212-13 Je '21
 Piston and piston ring castings. H. E. Diller. Foundry 48:310 Ap 15 '20
 Piston and rings for heavy oil engines. W. D. Forbes. Marine Eng 25:1002-3+ D '20
 Piston clearance for iron and aluminum pistons. Motor Age 37:19+ Ap 15 '20
 Piston clearances for internal combustion engines. C. Strom. Am Mach 53:615 S 30 '20
 Piston displacement, velocity and acceleration for reciprocating engines. J. L. Bogert. diags Marine Eng 25:983-9 D '20
 Piston work in motor repairing. diags Am Mach 55:473-4 S 22 '21
 Pistons for the Fordson tractor. F. H. Colvin. il diags Am Mach 52:675-9 Mr 25 '20
 Pistons without piston rings. S. H. Bunnell. il diag Power Pl Eng 25:804-5 Ag 15 '21
 Precision machine work in the production of aluminum pistons. J. E. Schipper. il Automotive Ind 45:722-5 O 13 '21
 Problems and possibilities of the aluminum piston. W. Rosenhain. Automotive Ind 44:1264-6+ Je 16 '21; Discussion. 45:229 Ag 4 '21
 Production of automotive parts in the small town. J. E. Schipper. il Automotive Ind 42:865-8 Ap 8 '20
 Ringless pistons for automobile engines. il Mach 27:1168 Ag '21
 Status of aluminum in the automobile engine. J. E. Schipper. il diags Automotive Ind 43:468-70 S 2 '20
 Steam-engine pistons and packing rings. R. A. Cultra. diags Power 54:451-2 S 20 '21
 Waddell aluminum piston. diags Automotive Ind 45:170 Jl 28 '21
 Water-passage corrosion in gas-engine piston rods. W. P. Flint. il diag Power 53:710 My 3 '21
 See also Piston rings
- Pit River project**
 Construction under way on extensive Pit River power project. J Elec 45:296 S 15 '20
 Half million horsepower from Pit river; abstracts. A. H. Markwart. il maps plan Elec W 77:581-4 Mr 12 '21; J Elec 46:281-4 Mr 15 '21
 Progress on Pit river project in California. plan Eng N 87:604-6 O 13 '21
- Pit silos.** See Silos, Pit
- Pitch**
 Pitch hydrocarbons used in the rubber industry. F. Dannerth. India Rubber W 64:821-4 Ag '21
 Recovery of nitre and pitch from smoke candles. E. R. Thomas. Sci Am M 1:131 F '20
- Specifications**
 Tentative specifications for coal-tar pitch for use in damp-proofing and waterproofing. Am Soc T M Pro v 20 pt 1:721-4 '20

Pitch as fuel

Burning pitch under boilers. diag Power Pl
Eng 25:62 Ja 1 '21

Pitch lake, Trinidad

Mining for city streets; Pitch-lake, Trini-
dad, the world's greatest natural source
of asphalt. F. D. Hopley. Nation's
Business 8:69+ O '20

Pitcher plants

Absorption of nutrients and allied phenomena
in the pitchers of the sarraceniaceæ. J. S.
Hepburn and others. bibliog il J Fr Inst
189:147-84 F '20

Pithead frames. See Headframes**Pitkin, William, Jr.**

Landscape architecture in the Middle West;
some recent work of William Pitkin, jr.
P. L. Small. il Arch Rec 47:215-31 Mr '20

Pitometer

Effect of pitometer survey and meterage on
water waste at Waltham, Mass. H. F. Beal.
Eng & Contr 54:552 D 8 '20

Excluding air from pitometer piping. F. W.
Medough. diag Eng N 86:605 Ap 7 '21

Results of pitometer survey of the Evansville,
Ind., water system. C. Streithof. Munic
Eng 58:186, 188-9 Ap '20; Abstract. Eng
N 85:253 Ag 5 '20

Test of large water meters in place with a
pitometer. F. D. Danielson. diag Eng N
86:64 Ja 13 '21

Pitot-static tubes

Comparison of United States and British
standard pitot-static tubes. A. F. Zahm
and R. H. Smith. il diags U S Nat Ad-
visory Com for Aeronautics 1919:793-6 '20

Pitot tube

Application du tube de Pitot à la détermi-
nation de la vitesse de navires et à l'en-
registrement des espaces parcourus. Y. De-
lage. diag Génie Civil 77:359-60 O 30 '20

Measurement of ventilating air. W. S.
Weeks. il diags Min & Sci P 120:896-901 Je
19 '20

Measuring flow of fluids. J. M. Spitzglass.
diags Power 51:503-7 Mr 30 '20

New application of Pitot tube in testing
pumps. A. L. Collins. diag Power 54:563 O
11 '21; Same. Eng N 87:616-17 O 13 '21

Pitot tube designed for use in high pres-
sure pipe lines. H. Homberger. diags Power
53:494-7 Mr 29 '21

Report of committee on standardization of
the use of the Pitot tube. Am Soc Heat & V
E J 26:381 Ap '20

Some applications of the Pitot tube in water-
works. W. M. Crowe. 31p il charts diags
plans n.d. Simplex valve & meter co., 5722
Race st., Philadelphia, Pa. (reprint)

Tube de Pitot intégrateur pour la mesure
de la vitesse moyenne des courants
variables. diag Génie Civil 76:186-7 F 14
'20

Pittman act. See Silver—Pittman act**Pittsburgh, Pennsylvania**

Bigelow Boulevard slide at Pittsburgh. M.
R. Scharff. il map Eng N 85:1076-80 D 2
'20

Property owners try to control a city mine
fire by strip pit and clay bank. D. J.
Baker. il map Coal Age 17:1043-5 My 20 '20

Regional planning in the Pittsburgh district.
M. Knowles and M. R. Scharff. il chart
maps Eng Soc W Pa 36:683-726; Discus-
sion. 727-33 Ja '21

Bridges

Allegheny River bridge reconstructed at
new grade. il diags plans Eng N 86:284-7
F 17 '21

Heavy spans to be rolled and jacked in diffi-
cult bridge reconstruction. diags Eng N
85:904-7 N 4 '20

Public Works

Public works in Pittsburgh. Pub Works 51:
309-11 O 22 '21

Rapid transit

Danger of disintegration removed. Elec Ry J
55:217-18 Ja 24 '20

Streets

What automobile traffic means to Pittsburgh.
C. K. McGunnegle and M. T. Montgomery.
Elec Ry J 58:21 Jl 2 '21

Pittsburgh and Lake Erie railroad

Report for fiscal year ending Dec. 31 1920.
Comm & Fin Chr 113:1569-70 O 8 '21

Pittsburgh university. Mellon institute

Industrial research at the Mellon institute. W.
Savage. il Chem & Met Eng 22:249-55 F 11
'20

Placer mining. See Hydraulic mining**Plagiarism**

Professional plagiarism. P. B. McDonald.
Eng N 84:477 Mr 4 '20

Plague

Bubonic plague. Sci Am M 3:76 Ja '21

Building out the bubonic plague; how the
twentieth century controls by waging war
on rats. H. G. Adams. il diag Sci Am 123:
466+ N 6 '20

Engineering problems in bubonic plague
control. E. B. Besselièvre. il Eng N 86:
113-14 Ja 20 '21

Rat extermination and proofing with relation
to the prevention of plague. L. L. Wil-
liams. Boston Soc C E J 8:53-63; Discus-
sion. 63-7 F '21

Plane tables

Plane tables and field sheets. H. St J. L.
Winterbotham. diag Eng & Contr 52:754-5
D 31 '19

Planetesimal hypothesis

Planetesimal hypothesis in relation to the
earth; abstract. R. A. Daly. Sci Am M 2:
83-4 Jl '20

Planets

See also Orbits

Planing

Accurate squaring device for the planing ma-
chine. E. A. Dixie. il Am Mach 52:946 Ap
29 '20

Chart for computing planing time. J. B.
Conway. Am Mach 53:351-2 Ag 19 '20

Planing a large gear with a small planer.
G. G. Lennig. il diags Am Mach 53:371 Ag
19 '20

Planing slide gibs for wood molding ma-
chines. il Mach 28:15 S '21

Planing wood lagging to a radius for a pul-
ley repair. A. W. Dilts. diags Am Mach
52:580 Mr 11 '20

Producing shaping. il Mach 28:89-93 O '21

Production planing in machine tool plants.
E. K. Hammond. il diags Mach 27:409-18,
552-9, 659-64, 732-7, 833-7, 966-71 Ja-Je '21

Planing machines

Alternating current and the planer. T. Berna.
il Am Mach 53:728-9 O 14 '20

Ancient planer. H. Fox. il Am Mach 53:512
S 9 '20

Armstrong shipyard; plate-edge planing
machine. diags Engineering 109:569 Ap 30
'20

Betts 12-ft. movable-side-rail planer. il Am
Mach 55:74-5 Jl 14 '21

Cincinnati planer provided with latest im-
provements. il Ry Mech Eng 94:239 Ap '20

Coulter open-side crank planer. il Am Mach
54:430 Mr 10 '21

Coulter openside crank planer with 24-in.
stroke. il Ry Mech Eng 94:491-2 Jl '20

Features of Cincinnati planers. il Mach 27:
92-3 S '20

Gleason 37-in. two-tool bevel-gear planer. il
Am Mach 54:1123-5 Je 30 '21

Gorton toolroom planer. J. V. Hunter. il Am
Mach 54:257-9 F 17 '21

Hiloplane electrically controlled planer. il
Am Mach 52:640-1 Mr 18 '20; Ry Mech Eng
94:407-8 Je '20

Large electrically-driven planing machine
made by Noble and Lund, ltd. il Engineer
130:619 D 17 '20

Liberty open side planer for railway shop
use. il Ry Mech Eng 94:304-5 My '20

Making a 52-in. planer from a 36-in. ma-
chine. D. A. Hampson. il Am Mach 53:907-8
N 11 '20

Planing machines—Continued

- Motor drive applied to crank planer. il Ry Mech Eng 95:392-3 Je '21
- Planing machines and slotters displayed at machine tool and engineering exhibition. il Engineering 110:333-4 S 10 '20
- Powell Hy-speed-cut planing machines. E. L. Dunn. il diags Am Mach 53:117-20 Jl 15 '20
- Pratt & Whitney toolroom planer. il diags Am Mach 54:441-3 Mr 17 '21; Iron Age 107:769 Mr 24 '21
- Precision type of planer tool-setting gage. G. Youngquist. diags Mach 26:1121-3 Ag '20
- Les raboteuses à grande puissance et à plusieurs vitesses du système Ryerson-Conradson. diag Génie Civil 77:38-9 Jl 10 '20
- Raboteuses à montant unique, système Hesenmüller. diags Génie Civil 79:112-13 Jl 30 '21
- Results obtained with crank-driven planers. E. K. Hammond. il Mach 27:1052-6 Jl '21
- Rugged construction marks new Whitcomb-Blaisdell planer. il Ry Mech Eng 95:388-9 Je '21
- Ryerson-Conradson multi-speed planers. il Am Mach 52:1214-15 Je 3 '20; Iron Tr R 66:1624 Je 3 '20; Mach 26:981-2 Je '20; Ry Mech Eng 94:400-1 Je '20; Iron Age 105:1722 Je 17 '20
- Sellers 16-ft. planer. il diag Am Mach 53:973-6 N 25 '20

Gearing

- Designing planer driving gears. W. C. Stewart. il diags Mach 26:1031-5 Jl '20
- Newton-Derby mechanical reversing drive for planing machines. il diags Engineer 132:124-5 Jl 29 '21

Manufacture

- Molding a large planer machine bed. J. McMahon. diag Foundry 49:94+ F 1 '21

Planing mills**Layout**

- Modern milling-in transit planing mill. R. C. Leibe. plan Am Lumberman 2343:75 Ap 10 '20

Plankton

- Phytoplankton of the inland lakes of Wisconsin: pt. 1. G. M. Smith. 243p (Wisconsin. Geological and natural history survey. Bul. no. 57. Scientific ser. no. 12) Pub. by the State, Madison, Wis. '20

Planning

- Central control system in the Franklin plant. F. D. Jones. il Mach 27:745-9 Ap '21
- Determining policies of planning production—which counts most? W. R. Basset. Factory 26:732-4 Mr 15 '21
- Elastic planning system. E. A. Pells. Eng & Ind Management 5:102-4 Ja 27 '21
- Engineering system aids production. M. H. Potter. Iron Tr R 68:553-4 F 24 '21
- Foreman and his job. F. H. Colvin. Am Mach 54:459-61 Mr 17 '21
- Getting ready to manufacture for lower prices; how two manufacturers have changed quantity of production to economy of production. W. R. Basset. Factory 25:1211-15 O 15 '20
- Handling purchases at least cost. E. D. Liphardt. Factory 26:453-4 F 15 '21
- How we budget our production before we get the orders. A. Macauley. il System 40:46-8+ Jl '21
- How we plan four months ahead. J. W. Scoville. Factory 27:44-5 Jl '21
- How we plan our production. O. D. Kinsey. Factory 25:1588-92 N 15 '20
- Management problems of the small factory; planning systems. E. Cordeal. Ind Management 61:370-3 My 1 '21
- Modern production methods. W. R. Basset. Am Mach 52:761-4; 53:215-19, 619-25 Ap 8, Jl 29, S 30 '20
- New department in Timken-Detroit axle co.'s Detroit plant; factory planning engineer. D. F. Kennedy. Iron Age 106:1177-9 N 4 '20
- Output planning. A. R. Stelling. il Electrician 84:487-91 Ap 30 '20
- Planning and controlling production in a French shop. E. Jullien. il Am Mach 54:889-93 My 26 '21

- Planning applied to administration. chart Eng & Ind Management 6:174-7 Ag 18 '21
- Planing as a function of management. A. R. Stelling. Eng & Ind Management 5:297-8 Mr 10 '21
- Planning department systems; how to visualize methods by mapping the routine. J. H. Van Deventer. charts diags map Ind Management 60:373-6 N '20
- Plotting needs—a plan that eliminates balances. H. C. Comey. Factory 26:53-7 Ja 1 '21
- Possibilities of planning. E. A. Pells. Eng & Ind Management 5:69 Ja 20 '21
- Production engineering. J. S. Watts. Mach 27:64-5 S '20; Same abr. Soc Auto Eng J 9:75-6 Jl '21
- Production methods of Rolls-Royce plant, Springfield, Mass. il Iron Age 107:555-9 Mr 3 '21
- Production planning and tracing system at Moreland motor truck plant. il Iron Age 106:183-5 Jl 22 '20
- Production planning that minimizes costs. E. R. Miner. il Factory 24:277-8 F 1 '20
- Progress or planning? Eng & Ind Management 5:403-4 Ap 7 '21
- Re-organisation of assembly shops. R. Stelling and W. R. Hall. il diag Eng & Ind Management 5:544-7 My 12 '21
- Routing systems in the pattern shop. B. R. Hall. Foundry 49:740-2 S 15 '21
- Speeding shop orders by accurate tool records. H. P. Johnson. il Factory 25:1224-6 O 15 '20
- System for production control; methods employed in the plant of the American multigraph co. il Mach 27:647-50 Mr '21
- Trends in management; where is the present production planning movement leading? W. E. Basset. Factory 25:1064-5 O 1 '20
- Why we have time for planning. E. Bernays. System 39:518-20+ Ap '21

See also Factory management; Progress records

Planning boards. See Control boards

Planography. See Zincography

Plant cells and tissues

- Plant pigments and camouflage. L. S. Palmer. Sci Am 124:509 Je 25 '21
- Refraction of light in plant tissues. B. H. Brown. Sci Am M 2:365 D '20

Plant fluids. See Sap

Plant introduction

- Plant immigrants to the United States. S. R. Winters. il Sci Am M 4:335-8 O '21
- Teaching plants table manners; government searching little explored countries for useful plants that produce food and clothing for us. A. H. Ulm. Nation's Business 8:30+ S '20

Plant papers. See Employees' magazines; House organs

Plant quarantine. See Quarantine, Agricultural

Plant safety. See Safety devices and measures

Plantin, Christopher, 1514-1589

- Artist collaborators of Christopher Plantin. Ptg Art 37:342-4 Je '21
- Biography of Christopher Plantin. H. L. Bullen. il Inland Ptr 66:53-4 O '20

Plants

- Art of prolonging the life of plants. Sci Am M 3:117 F '21
- Presence of copper in food plants. Sci Am M 2:204 N '20
- Teaching plants table manners; government searching little explored countries for useful plants that produce food and clothing for us. A. H. Ulm. Nation's Business 8:30+ S '20
- See also Alpine plants; Botany; Buds; House plants; Plant cells and tissues; Rubber plants; Seeds; Weeds; also names of plants, e.g. Puncture plants
- Consult the Agricultural Index for additional material

Deformities

See Fungi

Plants—Continued

Diseases and pests

Giving plants medicine. S. L. Bastin. Sci Am M 3:62 Ja '21

See also Fungi

Nutrition

Absorption of nutrients and allied phenomena in the pitchers of the sarraceniaceæ. J. S. Hepburn and others. bibliog il J Fr Inst 189:147-84 F '20

Carbonic acid gas to fertilize the air. A. Gradenwitz. il Sci Am 123:549+ N 27 '20

How young plants defend themselves against starvation. H. Coupin. Sci Am M 3:408 My '21

Optimum nutrient solutions for plants; abstract. D. R. Hoagland. Sci Am M 3:177 F '21

Respiration

Dynamics of plant respiration. C. Acqua. Sci Am M 3:28-30 Ja '21

Gaseous exchanges between plant roots and the air. Sci Am M 3:217 Mr '21

How age affects the respiration of leaf cells. M. Bézagu. Sci Am M 1:310 Ap '20

Reproduction

Vegetative and reproductive functions and metabolism. E. J. Kraus. Sci Am M 3:522 Je '21

Translocation

Upward translocation of foods in woody plants. O. F. Curtis. Sci Am M 3:310 Ap '21

Transpiration

Absorption-transpiration ratio in plants; abstract. E. S. Johnston. Sci Am M 3:177 F '21

Excretion in plants; flowers, leaves, fruit and bark regarded as excretory organs. P. C. Van der Wolk. Sci Am M 3:417-18 My '21

How much water for the crops? development of an automatic transpiration balance by government scientists. G. H. Dacy. il Sci Am 125:224 S 24 '21

Plants, Effect of boron on

Desert vegetation and boron. K. F. Kellerman. Sci Am M 3:77-8 Ja '21

Plants, Effect of chemicals on

Vegetative and reproductive functions and metabolism. E. J. Kraus. Sci Am M 3:522 Je '21

Plants, Effect of light on

Effect of colored light upon plant growth. H. A. Gardner. il Sci Am M 2:313 D '20

Effect of light exposure on plant growth. W. W. Garner and H. A. Allard. Sci Am M 3:78 Ja '21

Effects of light on plants. F. Schanz. Sci Am M 1:12-16 Ja '20

Plant movement and radiant energy. Sci Am 123:631 D 25 '20

Putting plants on daylight rations. il Sci Am 122:624+ Je 5 '20

Report of the Illuminating engineering society committee on progress. Illum Eng Soc 15:488-91 no 7 '20

Plants, Effect of temperature on

Does cold kill plants? S. L. Bastin. Sci Am 123:427 O 23 '20

How spring flowers can bloom unharmed in spite of frosts. T. B. Franklin. Sci Am M 2:27 Jl '20

Plants, Effect of wireless stimulation on

Response of plants to wireless stimulation. J. C. Bose. diags Sci Am M 1:119-20 F '20

Plants, Insectivorous. See Insectivorous plants

Plants, Medicinal. See Botany, Medical

Plants, Protection of

Organization of Institute for plant protection. H. H. Whetzel. Sci Am M 2:174-5 O '20

Plants, Sex in

Influence of environment on sexual expression in hemp; abstract. J. H. Schaffner. Sci Am M 4:82 Jl '21

Plants, Size of

Significance of size; how magnitude conditions the functioning of living organisms. O. Hartmann. Sci Am M 4:212-14 S '21

Plaster and plastering

Colored wall plaster. W. E. Emley and C. F. Faxon. il U S Bur Stand Tech Pa 181:1-8 '20

Correct application of metal lath to avoid plaster cracks. il Am Arch 119:246-50 Mr 2 '21

Effect of salt air on plaster. Am Inst Arch J 9:312 S '21

Measurement of plasticity of mortars and plasters. W. E. Emley. il diags U S Bur Stand Tech Pa 169:1-27 '20; Abstract. Am Inst Arch J 9:27-9 Ja '21

Normal consistency of sanded gypsum plaster. W. E. Emley and C. F. Faxon. Am Cer Soc J 4:152-7 F '21

Plastic gypsum plaster. W. E. Emley. Chem & Met Eng 24:740-1 Ap 27 '21; Same. Eng N 86:1023-4 Je 16 '21; Same. Eng & Contr 55:620-1 Je 22 '21

Popping (unsoundness) of lime plaster. W. E. Emley and C. H. Bacon. Am Cer Soc J 3:877-84 N '20

Preventing cracks in plaster walls. il Am Arch 119:186 F 16 '21

Setting of plaster; abstract. C. H. Desch. Am Cer Soc J 3:173 F '20

See also Calcimining; Cement; Concrete; Graffito decoration; Mortar; Stucco

Specifications

Specifications for the color of gypsum plasters. W. E. Emley and C. G. Faxon. Chem & Met Eng 24:1054-5 Je 15 '21

Tentative specifications for gypsum plasters. Am Soc T M Pro v 20 pt 1:616-19 '20

Terminology

Tentative definitions of terms relating to the gypsum industry. Am Soc T M Pro v 20 pt 1:654-7, 674-7 '20

Plaster board

New plaster board machine. diags Paper 27:26-8 O 27 '20

Utzman patents for gypsum plaster board held valid. W. Gustin. Chem & Met Eng 25:512 S 14 '21

Plaster of Paris

Permanent molds; methods of making plaster molds for finished castings to eliminate machining operations. E. D. Gleason. Metal Ind 19:391-3 O '21

See also Gypsum

Plastering trade

Plastering trade. Monthly Labor R 12:108 Ja '21

Plasters, Rubber

Manufacture of rubber plasters. il diags India Rubber W 63:80-2 N '20

Plasticity

Consistency of starch and dextrin pastes. W. H. Herschel and C. Bergquist. diags J Ind & Eng Chem 13:703-6 Ag '21

Measurement of plasticity of mortars and plasters. W. E. Emley. il diags U S Bur Stand Tech Pa 169:1-27 '20; Abstract. Am Inst Arch J 9:27-9 Ja '21

See also Plastometer

Plastometer

Further development of the plastometer and its practical application to research and routine problems. H. Green. il diags Am Soc T M Pro v 20 pt 2:451-82; Discussion. 483-94 '20

Plate glass

Does plate-glass fade? Sci Am 121:99 Jl 26 '19; Same. Am Arch 116:580 N 5 '19

How plate glass is made. R. Howard. il Sci Am 123:14+ Jl 3 '20

Machine-made window glass. R. G. Skerrett. il Sci Am 124:370+ My 7 '21

Refractometer for polished plate glass. K. A. Rice. il Sci Am M 1:23 Ja '20

Plate glass—Continued

- Sheet and plate glass manufacture. E. H. Bostock. *Am Cer Soc J* 3:35-9 Ja '20
 Special truck body for plate glass transportation. *il Sci Am* 123:617+ D 18 '20

Plate mills. See Rolling mills

Plate printing

- Electrolytic reproduction of engraved printing plates. W: Blum and T: F. Slattery. *Chem & Met Eng* 25:320-1 Ag 24 '21

See also Duraplates

Plate-stretching machine

- Hydraulic plate-stretching machine. *il Engineering* 111:390 Ap 1 '21

Plates, Iron and steel

- Bearing-plate formulas disagree. R. W. Bowman. *Eng N* 85:1105 D 2 '20
 Effects of holes, cracks and other discontinuities in ships' plating. E. G. Coker and A. L. Kimball. *diags Marine Eng* 25:910-14 N '20; Same. *Engineering* 109:840-2 Je 18 '20
 Plate tonnage steadily falls. *Iron Tr R* 68:90-1 Ja 6 '21
 Plates are slowest to respond. *Iron Tr R* 66:111-12 Ja 1 '20
 Steel and iron for shipbuilding purposes. H. H. Thayer. *Marine Eng* 26:370-5 My '21
 Stresses in flat plates. *diag Can Eng* 40:433-4 My 5 '21
 Stresses in ships plating due to fluid pressure. B. C. Laws. *diags Engineering* 112:368-9 S 9 '21; Same. *Eng & Ind Management* 6:350-4 S 29 '21; Excerpt. *Engineer* 132:287 S 16 '21; Discussion. *Engineering* 112:405-6, 410, 486, 540 S 16, 30, O 14 '21
 Tentative specifications for steel plates for forge welding. *diag Am Soc T M Pro v* 20 pt 1:512-17 '20
 Testing of welds in steel plates. S. W. Miller. *il Ry Mech Eng* 94:792-4 D '20
 Two dimensional stresses in rectangular plates. C. E. Inglis. *Engineering* 112:523-4 O 7 '21

See also Boiler plates

Platforms, Moving. See Moving platforms

Platforms, Political

- Farmer labor party created at Chicago—platform and presidential nominee. *Comm & Fin Chr* 111:356-7 Jl 24 '20
 Platform adopted at Democratic national convention. *Comm & Fin Chr* 111:149-52 Jl 10 '20
 Warren G. Harding, Republican candidate for presidency—Calvin Coolidge for vice-president. *Comm & Fin Chr* 110:2538-40 Je 19 '20

Platforms, Street railroad. See Street railroads—Platforms

Plating

- Analysis of plating solutions. J. Haas, jr. *Metal Ind* 18:412-14, 464-6 S-O '20
 Chemical, commercial and common names of chemicals used in dipping, plating and coloring of metals. C: H. Proctor. *Metal Ind* 19:280-2 Jl '21
 Few more facts from the plater; work and working conditions in the plating shop. H. Lowndes. *Metal Ind* 19:239 Je '21
 Overcoming plating troubles. H. C. Bernard. *Metal Ind* 18:225-6 My '20
 Platers' wrinkles. C: H. Proctor. *Metal Ind* 19:156-8, 199-204 Ap-My '21
 Plating and polishing trades. F. T. Taylor. *Metal Ind* 19:28-9 Ja '21
 Plating of sheet zinc. C: H. Proctor. *Metal Ind* 18:495-7 N '20
 Plating white metal. C: H. Proctor. *Metal Ind* 18:414 S '20
 Practical plating and finishing operations. *Metal Ind* 19:323 Ag '21
 Some plating and chemical problems. C: H. Proctor. *Metal Ind* 18:166-8 Ap '20

See also Bronze plating; Bronzing; Copper plating; Electroplating; Galvanizing; Gilding; Gold plating; Lead plating; Metal coating; Metal coloring; Nickel plating; Silver plating; Tinning

Platinum

- Action of ultra-violet light on colloidal platinum. E. B. Spear and others. *Am Chem Soc J* 43:1385-91 Jl '21
 Assay of platinum. C. W. Davis. *Min & Sci P* 120:823-4 Je 5 '20
 Black-sand deposits of the Island of Chiloe. F. Mella. *il map Eng & Min J* 111:497-501 Mr 19 '21
 Catalysis by means of precious metals. M. Mailhe. *Sci Am M* 2:45-6 Jl '20
 Catalyst for the oxidation of ammonia. G. A. Perley. *Chem & Met Eng* 22:125-9 Ja 21 '20
 Catalytic hydrogenation with protected hydro-sols. E. K. Rideal. *Am Chem Soc J* 42:749-56 Ap '20
 Detection and estimation of platinum in ores. C. W. Davis. *U S Bur Mines Tech Pa* 270:1-23; Bibliography. 23-5 '21
 Effect of surface oxidation on some metallic catalysts. F. F. Rupert. *Am Chem Soc J* 42:402-11 Mr '20
 How to test for platinum in ores. *Eng & Min J* 112:259 Ag 13 '21
 Influence of mercury, sulphur, arsenic and zinc on the catalytic activity of platinum. E: B. Maxted. *Chem Soc J* 119:225-33 Mr '21
 Our mineral supplies; platinum. J. M. Hill. *U S Geol S Bul* 666:35-8 '19
 Physical properties of thin metallic films; some factors affecting the resistance of spluttered platinum films. L: R. Koller. *Phys R* 18:221-35 S '21
 Platinum. *Min & Sci P* 121:561-3 O 16 '20
 Platinum. S. Skowronski. *Min & Sci P* 121:840 D 11 '20
 Platinum; a survey of its uses, occurrence, distribution, production and control. *Chem Age* 29:154-6 Ap '21
 Platinum and allied metals in 1919. J. M. Hill. *U S Geol S Min Res of U S* 1919, pt 1:9-18 '20
 Platinum and allied metals in 1920. J. M. Hill. *U S Geol S Min Res of U S* 1920, pt 1:37-50 '21
 Platinum and palladium, 1920. J. M. Hill. *Eng & Min J* 111:148 Ja 22 '21
 Platinum in British Columbia. *Min & Sci P* 120:536 Ap 10 '20
 Platinum in Colombia. J. Ovalle. *Eng & Min J* 110:907-8 N 6 '20
 Platinum in 1919. J. M. Hill. *Eng & Min J* 109:112-13 Ja 17 '20
 Platinum occurrences in the South African union. *Min & Met* 168:42 D '20
 Platinum production decreased in 1920. *Eng & Min J* 112:98 Jl 16 '21
 Preparation of pure platinum. E: Wichers. *Am Chem Soc J* 43:1268-73 Je '21
 Production of pure platinum. *Chem & Met Eng* 24:1044 Je 15 '21
 Refining platinum. *diag Chem & Met Eng* 24:1072 Je 15 '21
 Refining platinum fillings. *Sci Am* 123:486+ N 6 '20
 Romance of platinum. C: H. Dorr. *il Sci Am M* 3:547-50 Je '21

Theft

- Uncovering the platinum theft at the Old Hickory powder plant, Jacksonville, Tenn. *Chem & Met Eng* 23:93-6 Jl 21 '20; Same cond. *J Ind & Eng Chem* 12:815-17 Ag '20

Platinum, Substitutes for

- Substitutes for platinum wire in bead and flame tests. C. C. Kiplinger. *J Ind & Eng Chem* 12:500 My '20

See also Cadmium tungstate

Platinum alloys

- Alloying precious metals electrically. D. Willcox. *diag Metal Ind* 19:171 Ap '21

Platinum as money

- Platinum or nickel money. *Eng & Min J* 109:686 Mr 20 '20
 Platinum vs. gold vs. silver monetary bases. *Eng & Min J* 110:149 Jl 24 '20

Platinum black

- Darstellung von platinmohr. R. Feulgen. *Deutsche Chem Gesell Ber* 54:360-1 F '21
 Effect of temperature on platinum black and other finely-divided metals. R. Wright and R. C. Smith. *Chem Soc J* 119:1683-8 O '21

Platinum group

Platinum metals. A. D. Lumb. 63p J. Murray, London '20

Bibliography

Bibliography of the metals of the platinum group: platinum, palladium, iridium, rhodium, osmium, ruthenium, 1748-1917. J. L. Howe and H. C. Holtz. U S Geol S Bul 694:1-558 '19

Plattsburgh, New York

City Hall, Plattsburgh, N.Y.; views and plans. Arch Forum 33:pl 85-8 D '20

Playgrounds

Unusual park playground built in circus form. Pop Mech 35:426 Mr '21

Pleuromonas jaculans. See Protozoa

Pliocyon marshi

Two new fossil carnivora; *pliocyon marshi*. M. R. Thorpe. il Am J Sci 5th ser 1:477-80; Bibliography. 483 Je '21

Pliotron

Electron power tubes and some of their applications. W: C. White. il diag Gen Elec R 23:514-26 Je '20

Production and control of radio frequency oscillations. diags Wireless Age 8:19-20 D '20

Plowing

Depth of plowing. E. A. White. Soc Auto Eng J 7:536 D '20

Electric plowing. Sci Am M 2:371 D '20

Le labourage par le treuil électrique, système J. Estrade. A. Delamarre. Génie Civil 78:161 F 12 '21

Ottawa beach plowing-speed tests. il Soc Auto Eng J 7:274-6 S '20

Cost

Tractor plowing speeds. O. B. Zimmerman. Soc Auto Eng J 6:133-7 F '20; Same. Automotive Ind 42:760-4 Mr 25 '20

Plows

Care and repair of plows and harrows. E. B. McCormick and L. L. Beebe. diags U S Agric Farmers' Bul 946:1-9 '20

Fowler ploughing machinery. Engineering 110:507-8, 510 O 15 '20

Internal-combustion cable ploughing engine. diags Engineering 110:506-7 O 15 '20

Plows. P. S. Rose. Soc Auto Eng J 8:62 Ja '21

Royal agricultural society's trials of agricultural tractors and ploughs. Engineering 110:451, 481-2 O 1-8 '20

Consult the Agricultural Index for additional material

Manufacture

How plow castings are ground and fitted. G. A. Park. il Foundry 48:91 F 1 '20

Plows, Motor

Improved mechanical ploughing appliances. il Engineer 130:428, 434-5 O 29 '20

One-way British motor plows. Sci Am 124:425 My 28 '21

Something new in gasoline-driven plowing machines. J. H. Rodgers. il Sci Am 123:431 O 23 '20

Plowshares**Manufacture**

Plow points made on quantity basis. il Foundry 48:847-52 N 1 '20

Plugs

Making some ball-ended plugs. E. A. Dixie. il diags plan Am Mach 53:453-5 S 2 '20

See also Electric fittings; Spark plugs

Plumb plan

Industrial reconstruction; Plumb plan extended to all industries. G. E. Plumb. Ry Age 68:251-4 Ja 16 '20

See also Railroads and state—United States—Plumb plan

Bibliography

Social movements. S. Zimand. p.109-12 H. W. Wilson co. '21

Plumbago. See Graphite

Plumbers

Abolish examinations for master and journeyman plumbers. E. X. Board. il Dom Eng 92:276-7 Ag 7 '20

Few suggestions and sound advice to the fellow who wants to get on and improve his position and earning capacity. Metal Work 93:420-2 Ap 2 '20

Fundamentals in education of plumbing apprentices. W: C. Groeniger. Metal Work 93:356-7 Mr 19 '20

Is it legal for non-licensed plumber to do plumbing work under supervision of licensed plumber in states requiring licenses? Dom Eng 96:207-8 Jl 30 '21

Master plumber taking job and working with tools himself is entitled to more than a day's wage in absence of agreement to contrary. Dom Eng 93:259-60 N 6 '20

Plumber and his work. R: Sherwood. Dom Eng 94:594-5 Mr 19 '21

Plumbers' examinations in New York. Metal Work 92:551 N 7 '19

Production schedule of Master plumbers' association of Montreal. Monthly Labor R 13:138-40 Jl '21

Qualifying the plumber for best service. O. N. Looker. Metal Work 93:487-8 Ap 16 '20

Report of the committee on relations with architects, contractors and builders. Am Gas Assn Commercial sec v 1:205-9 '19

Service of ethics and the ethics of service. R: Sherwood. Dom Eng 95:462-3 Je 4 '21

Some thoughts on licensed plumbers. A. R. McGonegal. Metal Work 93:181-3 F 6 '20

What a plumber should know about electricity. G: W. Hill. Dom Eng 90:528-9, 629-30+; 91:101+, 387-8 Mr 13, 27, Ap 17, My 29 '20

William M. Anderson's recipe for success. B. Lebharr. Dom Eng 94:182-4 Ja 22 '21

See also Plumbing; Plumbing trade

Plumbers' associations

Explanation of our local associations. D. F. Durkin, jr. Plumber 94:483 N 5 '20

Local association; a few suggestions as to its value to plumbing and heating contractors. E. L. Seabrook. Dom Eng 93:558-9 D 18 '20

North Dakota master plumbers hold first annual convention at Grand Forks. Dom Eng 90:583+ Mr 20 '20

Of what use the Master plumbers association. F. C. Shilling. Plumber 95:388 Je 17 '21

Our state associations; their part in the education of a master plumber. D. F. Durkin, jr. Plumber 94:542 D 3 '20; Same. Dom Eng 93:453 D 4 '20

Practical association work. E. L. Seabrook. Dom Eng 94:593-4 Mr 19 '21

Retail master plumbers' association organized in South Dakota. Dom Eng 91:11-12 Ap 3 '20

Plumbers' tools

Analysis of construction costs and methods. H. A. Call. il Plumber 95:199-201, 269-71, 334-5+; 96:14-15 Ap 8, My 6, Je 3, Jl 1 '21; (cont. in) Sanitary & Heat Eng 96:75-6, 139-41+, 202-3, 260-1 Jl 29, Ag 26, S 23, O 21 '21 (to be cont)

It pays to modernize the back of the shop—good tools are essential. L. M. Hewitt. Dom Eng 91:59 Ap 10 '20

Tools and equipment for plumbing and heating work. W. W. Hughes. il Dom Eng 91:51-2+ Ap 10 '20

Plumbing

Are plumbers to-day as progressive as twenty years ago? N. A. Egan. Metal Work 94:101 Jl 23 '20

Building or health department for plumbing? F. K. Chew. Sanitary & Heat Eng 96:235 O 7 '21

Combination system of plumbing, using soft and hard water. diags plan Dom Eng 90:286-7 F 7 '20

Common sense in plumbing. W: Hutton. diag plan Bldg Age 43:63-4 Ap '21

Country plumbing job installed by carpenter. C. O. Langston. diag Dom Eng 95:59+ Ap 9 '21

Plumbing—Continued

Drainage of public and private garages. W: Hutton. il diags Dom Eng 90:526-7 Mr 13 '20

Economical design of plumbing systems. W: Hutton. plans Bldg Age 41:286-7, 387-8 S, D '19; Same (pt. 1). Metal Work 92:524-6 O 31 '19

Engineer's views on simplified plumbing. A. L. Webster. diags plans Metal Work 92:394-7 O 3 '19

Fundamentals in the education of plumbing apprentices. W: C. Groeniger. Dom Eng 91:285-6 My 15 '20; Same. Metal Work 93:356-7 Mr 19 '20

How plumbing is simplified in Atlanta, Ga. diags Dom Eng 97:156-7 O 22 '21

How practical plumbers solved perplexing problems. diags Dom Eng 91:232-4 My 8 '20

How to draw plumbing plans. R. J. Gordon. diags Dom Eng 90:97-8+ Ja 10 '20

Kinks for plumbers. Dom Eng 94:337 F 12 '21

Making fuller work fool proof. H. A. Call. il diags Plumber 94:421-3 O 8 '20

Menace of plumbing by the incompetent. il Metal Work 93:642-4 My 21 '20

Modern plumbing work in the skyscraper. diag plan Plumber 94:429-31, 454-5 O 8, 22 '20

Plumbing—a necessity to advance civilization. W: C. Groeniger. Dom Eng 94:447 F 26 '21

Plumbing and hot water equipment in British government housing plan. J: Y. Dunlop. diags Dom Eng 94:486-8 Mr 5 '21

Plumbing detail drawings. diags plans Dom Eng 91:6 Ap 3 '20

Plumbing fittings in the English apartment house. diags plans Plumber 95:369-71 Je 17 '21

Plumbing for soda fountains. C. O. Langston. diags Dom Eng 95:507-8 Je 11 '21

Plumbing in the Cunard building. C. R. Place. Arch Forum 35:24 Jl '21

Plumbing installation in the United States housing corporation project at Bridgeport. J. R. Walker. Metal Work 92:549-51 N 7 '19

Public's education in sanitation neglected. Metal Work 93:603-4 My 14 '20

Relations between plumbers and water-works superintendents. G. W. Thompson. N E Water Works Assn J 35:107-12; Discussion. 113-16 Je '21

Sanitary engineering in Chicago's tallest skyscraper; the Wrigley building. E. J. Lomasney. il diags Dom Eng 93:446-8, 510-13 D 4-11 '20

Sanitation and water supply for a group of university buildings; Seminary of St Mary's of the Lake. L. M. Emmett. diags plan Dom Eng 95:100-2 Ap 16 '21

Simplified factory wash room equipment. W. K. Jordan. diags Dom Eng 91:189-90 My 1 '20

\$65,000 plumbing and heating installation in millionaire's home; Allen F. Moore at Monticello, Ill. il Dom Eng 96:186-9 Jl 30 '21

Special fittings simplify plumbing work. T: J. Claffy. il Dom Eng 94:12-12 Ja 1 '21

Standard American plumbing, hot air and hot water heating, steam and gas fitting. G: B. Clow and W: Donaldson. 256p F. J. Drake & co., Chicago '20

Stops and stop waste boxes. diags Metal Work 93:50-1 Ja 9 '20

Swiss plumber's impressions of America. Dom Eng 92:10-11 Jl 3 '20

To-day's plumber is progressive. W: Hutton. Metal Work 94:333-4 S 10 '20

True definition of plumbing. W: C. Groeniger. Metal Work 93:584 My 7 '20

Typical English bathroom equipment. J: Y. Dunlop. diags plans Metal Work 94:307-8+ S 3 '20

Useful suggestions on your plumbing and heating problems. W. W. Hughes. Dom Eng 94:489-90 Mr 5 '21

Warm weather plumbing practice; installation of sanitary equipment in warm climate of Florida. il diag Metal Work 94:142-3 Jl 30 '20

Well arranged Illinois farm. A. Bateman. diag plan Dom Eng 94:185-6 Ja 22 '21

See also Bathrooms; Drainage, House; Gas fitting; Heating; Heating pipes; Hot water supply; Lead burning; Pipe fitting; Pipe fittings; Plumbers; Plumbing fixtures; Plumbing shops; Plumbing supplies; Plumbing trade; Sanitary engineering; Sewer pipes; Sewerage; Shower baths; Sinks; Solder and soldering; Steam pipes; Tanks; Water distribution; Water hammer; Water pipes

Costs

Analysis of construction costs and methods. H. A. Call. il Plumber 95:199-201, 269-71, 334-5+; 96:14-15 Ap 8, My 6, Je 3, Jl 1 '21; (cont. in) Sanitary & Heat Eng 96:75-6, 130-41+, 202-3, 260-1 Jl 29, Ag 26, S 23, O 21 '21 (to be cont)

Estimates

Accurate plumbing and heating estimates—how made. H. A. Call. diag plans Plumber 94:335-7+; 95:35-7+, 97-100, 168-72, 234-9+, 303-4+, 372-3 D 31 '20, Ja 28, F 25, Mr 25, Ap 22, My 20, Je 17 '21; (cont. in) Sanitary & Heat Eng 96:42-3, 108-9, 163-4+, 225-6, 287-9 Jl 15, Ag 12, S 9, O 7, N 4 '21 (to be cont)

Building on a percentage basis. Metal Work 93:766 Je 11 '20

Comparing actual cost with the estimate. J. E. Bullard. Sanitary & Heat Eng 96:223-4 O 7 '21

Exhibitions

Chicago sees sanitary plumbing demonstrated. il Plumber 95:247-8 Ap 22 '21

Exhibit hall at 39th annual convention of the National association of master plumbers. il Plumber 95:381-4 Je 17 '21; Dom Eng 95:570-7 Je 18 '21

Invisible plumbing features Chicago own your home show. il Dom Eng 95:64-6 Ap 9 '21

Plumbing and heating has big place in own your home exposition. Plumber 95:220 Ap 8 '21

Patents

Some principles for potential plumbing inventors. W. Gustin. Dom Eng 96:149-50 Jl 23 '21

Repair

Correcting an old, unventilated, sewer-gas-leaking plumbing job. diag Dom Eng 92:278-9 Ag 7 '20

Overhauling the plumbing in an old colonial mansion. R. J. Gordon. diags plan Dom Eng 89:368-71, 579-81; 90:6-9, 128-30+, 176-8, 277-80+, 335-7+, 482-4, 579-80. 610-11 N 22, D 20 '19, Ja 3, 17-24, F 7-14, Mr 6, 20 '20

Specifications

How to write a plumbing specification. Dom Eng 94:643-4 Mr 26 '21

Important feature in plumbing specifications. J. J. Cosgrove. diags Am Arch 116:705-6 D 3 '19

Standards

After war conditions menace to standardized plumbing. L. J. Devine. Metal Work 92:485-6 O 24 '19

Effect of standardization on small plumb-ers. Metal Work 94:335+, 370 S 10-17 '20; (cont. in) Plumber 94:480-1 N 5 '20

Recommendations of committees on National bureau of standardization of plumbing materials presented and discussed. Dom Eng 91:332-3+ My 22 '20

Shall war-time plumbing remain permanent? A. E. Hansen. Dom Eng 89:9-10, 22 O 4 '19; Same. Metal Work 92:464-6 O 17 '19

Standardization movement gains speed. Metal Work 93:658-61 My 21 '20

Why standardization is essential. W: C. Groeniger. Dom Eng 92:431-2+ Ag 28 '20

See also National bureau of standardization of plumbing materials

Plumbing—Continued**Study and teaching**

- Boy scouts and the apprentice problem. Dom Eng 92:284 Ag 7 '20
- First course for master plumbers and fitters at Dunwoody institute, in Minneapolis, a success. Dom Eng 91:200 My 1 '20
- How to solve the apprentice problem. Dom Eng 94:396-7 F 19 '21
- Technical training essential to success of apprentice. E: Kanney. Sanitary & Heat Eng 96:227+ O 7 '21
- Training apprentice plumbers in Erie, Pa. Sanitary & Heat Eng 96:39+ J1 15 '21

Testing

- Wooden ball used to show fall in plumbing system. C. O. Langston. diag Dom Eng 95:355 My 21 '21

Traps

- Comparative efficiency of vented half-S traps and non-vented, anti-siphon, non-siphoning or resealing traps. Dom Eng 91:485-6+, 539-40+, 92:15-17+, 59-61+, 173-5+, 282-3+, 442-3, 543-5+ Je 12-19, J1 3-10, 24, Ag 7, 28, S 11 '20
- Extrusion of lead pipe. E. Sheldon. il diags Am Mach 52:59-62 Ja 8 '20
- Five years' service of a sink drain without a sewer. diag Metal Work 93:331-2 Mr 12 '20
- Lytton thermo siphon trap. diag Plumber 95:149 Mr 11 '21
- Preliminary report on the proposed uniform plumbing code for Massachusetts. Dom Eng 92:231-2+, 389-90+, 496-7 J1 31, Ag 21, S 4 '20
- Something that will interest plumbing inspectors; does the vent pipe arrangement accomplish any desirable purpose or protect trap seal. diag Plumber 95:143 Mr 11 '21
- Virtue of traps and venting. W. B. Gray. diags Metal Work 92:599-600 N 21 '19

Ventilation

- English plumbing; the vent pipe and what it accomplishes. J: Y. Dunlop. diags Sanitary & Heat Eng 96:169-70 S 9 '21
- Letters of a plumber to his helper; vent pipes for a small plumbing job range and tank heater. W: Hutton. diags Metal Work 93:507-9, 605-6 Ap '23, My 14 '20
- More light on back venting. A. R. McGonegal. diag plan Metal Work 93:716-18 Je 4 '20
- Preliminary report on the proposed uniform plumbing code for Massachusetts. Dom Eng 92:496-7; 93:15+ S 4, O 2 '20
- Settling an argument about wet vents. diags Dom Eng 94:15-16 Ja 1 '21
- Suggestions and criticisms relative to the backventing of plumbing. diags Dom Eng 90:487-8 Mr 6 '20
- Ventilating plumbing and drainage systems. E. L. Field. Metal Work 92:637-9 N 28 '19
- Virtue of traps and venting. W. B. Gray. diags Metal Work 92:599-600 N 21 '19

See also Plumbing—Traps

Plumbing associations

- Putting over a convention with the public; how the Muncie, Ind., association capitalized community spirit. Dom Eng 95:52-6 Ap 9 '21

Plumbing contracts

- Can I secure payment for submitting lowest bid, when higher man secures contract? Dom Eng 91:243-4 My 8 '20
- How much profit may a plumber charge over cost of work, where no contract price is agreed upon? Dom Eng 92:225-6 J1 31 '20
- Importance of signed contracts on all work. W: G. Bergner. Sanitary & Heat Eng 96:77 J1 29 '21
- Is an owner liable in damages for increased cost of labor and materials when contractor is delayed in work by owner's fault? Dom Eng 94:17-18 Ja 1 '21

See also Building contracts

Plumbing exhibits, Traveling

- Farm water-supply truck covers New York state. il Dom Eng 94:13-14 Ja 1 '21

- Special train educates farmer regarding modern home equipment. C: Rosemont. Dom Eng 90:574-6, 626-8 Mr 20-27 '20

Plumbing fixtures

- Essential features of sanitary plumbing fixtures. il diags Am Arch 116:535-41 O 22 '19
- Modern plumbing fixtures. il Bldg Age 43:45 Je '21
- Preliminary report on the proposed uniform plumbing code for Massachusetts. Dom Eng 92:390+ Ag 21 '20
- Weights of various plumbing fixtures. Marine Eng 26:117 F '21
- See also Bathrooms; Sinks; Water closets*

Testing

- Laboratory for testing plumbing apparatus. il Dom Eng 94:81 Ja 8 '21

Plumbing inspection

- Co-operative work of Ohio plumbing inspectors. Metal Work 93:449-50+ Ap 9 '20
- Work of the state plumbing inspector. A. E. Smith. Metal Work 93:414-16 Ap 2 '20

Plumbing laws and regulations

- Administration of public health in Ohio. A. E. Smith. Metal Work 94:69 J1 16 '20
- Basis for standards for adoption of plumbing codes. W: C. Groeniger. diag Dom Eng 95:152-4, 210-12, 259-60, 318-19, 356-8, 414-16, 456-7, 621-3; 96:9-11, 241-2+, 331-2, 423-4+, 518-20; 97:4-6, 100-2, 196-7, 342-3 Ap 23-Je 4, 25-J1 2, Ag 6, 20, S 3, 17, O 1, 15, 29, N 19 '21
- Bill for uniform plumbing regulations for all cities and towns submitted to legislature. Dom Eng 94:474-5+ F 26 '21
- Burlington, Ia., plumbing ordinance. Metal Work 92:665-8 D 5 '19
- Evolution of sanitary ideas and needs; recommendations and conclusions of the Special plumbing board of the Massachusetts board of health. Plumber 94:560-2+ D 17 '20

- Is plumber responsible to owner for damage done by defective fitting? Dom Eng 90:485-6 Mr 6 '20

- Liability of plumber for defects that develop in system where he has been ordered to turn the water on. Dom Eng 90:283-4 F 7 '20

- Limits of plumbing law in a southern city. C. O. Langston. diags plan Dom Eng 94:586-7 Mr 19 '21

- Need of uniformity in plumbing regulations. G: C. Whipple. N E Water Works Assn J 35:117-22 Je '21

- New plumbing ordinance for the township of North Bergen, N.J. Dom Eng 94:235-6+, 347-9 Ja 29, F 12 '21

- Preliminary report on the proposed uniform plumbing code for Massachusetts. Dom Eng 92:20-1+, 68-9+, 125-6+, 231-2+, 389-90+, 496-7; 93:15+, 165+, 263+, 311+ J1 3-17, 31, Ag 21, S 4, O 2, 23, N 6-13 '20

- State law requiring plumbers to be licensed is a valid exercise of the power of the legislature. Dom Eng 96:568-9 S 24 '21

- Why state-wide plumbing regulations are essential. A. E. Smith. Dom Eng 93:305-6 N 13 '20

- Wooden ball used to show fall in plumbing system. C. O. Langston. diag Dom Eng 95:355 My 21 '21

- Work of the state plumbing inspector. A. E. Smith. Metal Work 93:414-16 Ap 2 '20

Plumbing secretaries' national conference

- Organization of secretaries of state and local associations identified with the National association of master plumbers; meeting to be held in 1921 at New Orleans. H. F. Baillet. Metal Work 94:280 Ag 27 '20; Same. Dom Eng 92:445 Ag 28 '20

Plumbing shops

- Big room for you to get a profit. il Plumber 94:527-8+ D 3 '20

- Carelessness and waste time reduce profits. H. Parker. il diags Dom Eng 91:60-1 Ap 10 '20

- Clean-up week in Madison. W. K. Andrews. Dom Eng 91:62-3 Ap 10 '20

Plumbing shops—Continued

- Doctrine of the clean shop. J. C. Greenberg. Dom Eng 94:148 Ja 15 '21
- Follow Moore's formula. il plan Metal Work 93:727-9 Je 4 '20
- Force and foresight trebles large plumbing and heating business in short time. G: Richards. il diag Dom Eng 93:152-4+ O 23 '20
- Good work brings good business. il plan Plumber 95:95-6 F 25 '21
- Ground floor shops promote efficiency. G: Haig. il plan Dom Eng 91:53-4 Ap 10 '20
- I think good window display pays. D. H. Kelly. il Plumber 94:557-8 D 17 '20
- It pays to be on Main street. M. E. Crain. il Dom Eng 92:482-4 S 4 '20
- Make your Christmas window an asset. il Dom Eng 93:560 D 18 '20
- Make your place of business a landmark. il plan Dom Eng 90:376-8 F 21 '20
- Many excellent features in new jobbing house; plant of National plumbing & heating supply co., Chicago. il plan Dom Eng 94:596-9 Mr 19 '21
- Modern showroom develops profitable business. C: Rosemont. il Dom Eng 91:282-4 My 15 '20
- Plumbers have opportunities to build sales at Christmas. H. P. Termansen. il Dom Eng 89:418-19 N 29 '19
- Prosperous business based on good management. il plans Dom Eng 96:554-5 S 24 '21
- Selling plumbing service. il plans Sanitary & Heat Eng 96:161-2 S 9 '21
- Snappy results from fine window display. M. T. Stevens. il Metal Work 93:26-7 Ja 2 '20
- Sound reasons for heating your shop. H: N. Dix, jr. il diag plans Metal Work 93:233-5 F 20 '20
- Washburn-Crosby slogan goes double in Twin Cities. il Dom Eng 94:82-4 Ja 8 '21
- Well arranged Chicago shop. H. P. Termansen. il Dom Eng 91:57-9 Ap 10 '20
- Well planned plumbing shop; Patterson-Stewart co., Springfield, Ill. il Dom Eng 96:50-1 Jl 9 '21

Electric appliance department

- Be a 100 per cent plumbing and heating contractor first. O. C. Small. Dom Eng 94:188-9 Ja 22 '21
- Dauntless plumbing co. sells electrical specialties profitably. T. P. Wallace. il Dom Eng 92:2-4 Jl 3 '20
- Do's and don't's for the plumber's 1920 electrical appliance business. T: F. Chantler. Dom Eng 90:125-7 Ja 17 '20
- How to sell electrical equipment to the farmer. C. H. Griffith. Dom Eng 96:205-6 Jl 30 '21
- Merchandising how-to's for the plumber's retail electrical department. T: F. Chantler. il Dom Eng 93:506-8 D 11 '20

Equipment and supplies

- Analysis of construction costs and methods. H. A. Call. il Plumber 95:199-201 Ap 8 '21
- Better methods make bigger money for Detroit heating concern; Johnson, Larsen & co. il diag Dom Eng 94:63-5 Ja 8 '21
- Bins, benches and racks. H. Richards. il diags Dom Eng 91:55-6+ Ap 10 '20
- Equipment of shop and office for efficiency. W: Hutton. il diag Dom Eng 91:48-50 Ap 10 '20

See also Plumbers' tools

Layout

- Ground floor shops promote efficiency. G: Haig. il plan Dom Eng 91:53-4 Ap 10 '20
- Well arranged plumbing shop of Fred Finder, Champaign, Ill. diags plan Dom Eng 91:487-8 Je 12 '20

Plumbing supplies

See also National bureau of standardization of plumbing materials

Prices

- Future of prices. Dom Eng 93:57-8+, 115+ O 9-16 '20

Plumbing trade

- Advertising value of suggestion. D: H. Cuyler. il Dom Eng 94:645-6 Mr 26 '21

- Are farms in your territory as modern as these? il Dom Eng 94:74-6 Ja 8 '21
- Be square with the customer and never do a poor job. E. D. Swoyer. il Dom Eng 93:606-8 D 25 '20
- Bid for greenhouse business. il Metal Work 93:793-4 Je 18 '20
- Building up farm plumbing business. C. Spreer. Dom Eng 94:589 Mr 19 '21
- Business is built on confidence. il Plumber 95:321-3 Ap 22 '21
- Business leaks—how prevented; careful compilation of written instruction on each job. Plumber 95:206-7 Ap 8 '21
- Business letters you can use. Dom Eng 96:513 S 17 '21
- Business outlook for Master plumbers and heating contractors for the new year. F. B. Lasette; F. J. Klimm. Metal Work 93:2-3 Ja 2 '20
- Canadian plumber builds repair business on cash basis. il Dom Eng 94:434-5 F 26 '21
- Caveat Emptor dethroned. E. L. Seabrook. Dom Eng 95:218-19 Ap 30 '21
- Conditions National trade extension bureau found in one of the large cities. Heat & Ven 17:45-6 O '20
- Cooperation in your business. W. Gustin. Dom Eng 90:131-2 Ja 17 '20
- Co-operation without a legal combine. R. Morehouse. Plumber 95:38-9 Ja 28 '21
- Credits and collections. G. A. Fromm. Metal Work 94:390+ S 24 '20
- Do's and don't's for sanitary and heating engineers. B. C. Monet. Sanitary & Heat Eng 96:167-8 S 9 '21
- Electricity or water—which? il plan Plumber 94:563+ D 17 '20
- Ever present help to make money. F. Steele. Metal Work 92:438-9 O 10 '19
- Every man owes some of his time to the upbuilding of the profession to which he belongs. Dom Eng 94:338-9 F 12 '21
- Every woman wants modern plumbing fixtures. A. W. Williams. Dom Eng 89:512-13+ D 6 '19
- Facts and suggestions about plumbing. A. Mueller. Plumber 96:1-6 Jl 1 '21; Same. Dom Eng 96:12-14, 24-6 Jl 2 '21
- Farmer a good customer for plumbing and heating equipment. J. P. Madison. il Dom Eng 92:320-4+ Ag 14 '20
- Farmer as a prospective customer for plumbing and heating. R. Falconer. il Dom Eng 96:288-9 Ag 13 '21
- Farmer versus the plumbing and heating contractor. H. E. Jones. Dom Eng 92:333-4+ Ag 14 '20
- Few reminders on planning business. R. Duysters. Dom Eng 90:85-7 Ja 10 '20
- Financing your business. G: R. Doyle. Dom Eng 90:95-6 Ja 10 '20
- Getting new business from new home owners. R. Falconer. Dom Eng 96:113-14 Jl 16 '21
- Getting the most out of your business. il plan Dom Eng 96:236-7 Ag 6 '21
- Getting the new and holding the old customers requires tact. Dom Eng 94:186-7 Ja 22 '21
- Give the overhead an overhauling. Metal Work 92:552-4 N 7 '19
- Good farm business goes begging for lack of proper handling. E. J. Howard. il Dom Eng 96:101-3 Jl 16 '21
- He profits most who serves best. G: R. Adams. Plumber 95:202-4 Ap 8 '21
- How can we put the plumbing business on a profitable basis? L: Mellinkoff. Dom Eng 89:428-9 N 29 '19
- How some plumbers make money. Dom Eng 90:281-2 F 7 '20
- How to develop farm business. R. H. Butz. Dom Eng 96:71 Jl 9 '21
- How to meet mail order house competition; prize letters. Dom Eng 93:102-4 O 16 '20
- Importance of collections. W. Gustin. Dom Eng 89:623-4 D 27 '19
- Important feature in plumbing specifications. Metal Work 92:725-6 D 19 '19
- Interest the farmer in your business by showing an interest in his. il Dom Eng 96:510-12 S 17 '21
- It pays to sell high grade plumbing fixtures. il Dom Eng 95:169-70 Ap 23 '21

Plumbing trade—*Continued*

- Keep the customer informed. R. Falconer. Dom Eng 92:113-14 J1 17 '20
- Meet hard competition by hard work. W: Hutton. Dom Eng 92:541-2 S 11 '20
- Meeting mail order house competition. H. E. Jones. Dom Eng 93:403 N 27 '20
- Merchandising in the plumbing field. K. W. Zoeller. Dom Eng 94:66 Ja 8 '21
- Merchandising the water system. H. J. Meyers. il Dom Eng 94:287-8 F 5 '21
- Methods that build business. il plan Sanitary & Heat Eng 96:219-20+ O 7 '21
- Modern home of an Indiana farmer. il Dom Eng 90:428-9 F 28 '20
- National association of master plumbers 39th annual convention, New Orleans. Dom Eng 95:554-69 Je 18 '21
- Normal times bring new retail problems. R. A. Hardy. Sanitary & Heat Eng 96:230-1 O 7 '21
- Opportunities for plumbing and heating contractors in the country. A. B. Cole. il Dom Eng 92:340-1+ Ag 14 '20
- Oversights that reduce profit. J. S. Older. il Dom Eng 95:261-2 My 7 '21
- Path that leads to money in the bank. Metal Work 94:329-31 S 10 '20; (cont. in) Sheet Metal Worker 11:318-19 O 29 '20
- Pencil sketches as business getters. diags plans Dom Eng 90:216-18 Ja 31 '20
- Pencil versus the wrench. il Dom Eng 94:237-8 Ja 29 '21
- Personal solicitation makes the cash register ring. A. L. Goodall. Dom Eng 93:9+ O 2 '20
- Plans for plumbers. J. J. Loughlin. Dom Eng 90:69-70 Ja 10 '20
- Plumber and his relation to humanity. E. D. Swoyer. Dom Eng 94:245-6 Ja 29 '21
- Plumbers should sell water supply systems. H. R. Williams. Dom Eng 92:376 Ag 21 '20
- Poor plans—no specifications—no profits. C. O. Langston. diags Dom Eng 94:385-6 F 19 '21
- Qualifications for a jobbing workman. Metal Work 92:724-5 D 19 '19
- Remodeling plans land alteration contracts. H. B. Charles. diags Sanitary & Heat Eng 96:249-50 O 21 '21
- Reputation doesn't happen—it is built. R. Morehouse. Plumber 94:534 D 3 '20
- Sales manager's message on how to develop water supply business. Dom Eng 91:490-1; 92:64, 489-90 Je 12, J1 10, S 4 '20
- Selling plumbing installations on the installment plan. Dom Eng 96:297+ Ag 13 '21
- Selling the farmer. X. J. Kennedy. il Dom Eng 92:327-8 Ag 14 '20
- Show window helps to develop a half million dollar plumbing business. il Dom Eng 96:339+ Ag 20 '21
- Size up your sales possibilities. J: D. Nelson. Dom Eng 95:162-3 Ap 23 '21
- Standard of production for plumbers. Eng & Contr 56:304-5 S 28 '21
- Straight talk on merchandising. B. C. Monnet. Sanitary & Heat Eng 96:144 Ag 26 '21
- Success in the plumbing business. T: J. Claffy. Dom Eng 89:479-80 D 6 '19
- Successful plumbing and heating business developed in the suburbs. il Dom Eng 97:190-1 O 29 '21
- Suggestions for improving the plumbing and heating business. J. G. Harper. Dom Eng 92:632-4+ S 25 '20
- Summer resort hotels need services of plumbing contractors. il Dom Eng 96:416-17 S 3 '21
- Tell the farmer about plumbing and heating. il Dom Eng 97:95-8 O 15 '21
- Telling them how to get the joys out of plumbing. H. D. Kemperton. Dom Eng 93:139+ O 16 '20
- Tendencies in country plumbing. S. T. Wiggins. Dom Eng 94:639 Mr 26 '21
- Test yourself with these questions to find weak points in your business. W: A. Hershey. Dom Eng 91:7-8 Ap 3 '20
- They are going to buy bathroom accessories—why not from you? il Plumber 95:165-6 Mr 25 '21
- Water supply systems and their selling possibilities. G: Reynolds. il Dom Eng 96:59-60 J1 9 '21

- Ways and means of making money. H. E. Jones. Dom Eng 90:333-4 F 14 '20
- Welding as applied to the plumbing and heating field. il Dom Eng 92:428-30+ Ag 28 '20
- Welding becoming important factor in plumbing and heating. il Dom Eng 97:2-3 O 1 '21
- What a buyer's market means to the plumbing and heating contractor. R. A. Hardy. Sanitary & Heat Eng 96:40-1 J1 15 '21
- What can local associations do to increase business; prize letter. R: Sherwood. Dom Eng 97:7-8 O 1 '21
- What trade extension means. W: J. Woolley. Metal Work 93:448-9 Ap 9 '20
- Words of wisdom from Wisconsin. H. A. Davies. il Dom Eng 92:54-5 J1 10 '20
- See also* Drinking fountains; Plumbing exhibits, Traveling; Plumbing fixtures; Plumbing laws and regulations; Plumbing shops; Shower baths; *also* Trade extension bureau

Accounting

- Accounting the big problem in the contracting trade. Heat & Ven 17:47 O '20
- Bookkeeping for the heating and plumbing contractor. L. M. Emmett. Dom Eng 97:149-52 O 22 '21
- Business leaks—how prevented. J. E. Bullard. Plumber 95:9-10 Ja 14 '21
- Chart of fixed charges or operating costs. Heat & Ven 17:55 D '20; 18:50-1 S '21
- Effecting economies by the study of time slips. A. G. Drury. Dom Eng 91:235-6 My 8 '20
- Figure costs accurately for profit. Metal Work 92:689-91 D 12 '19
- How to handle long time contracts. W. A. Fink. Dom Eng 92:268-70 Ag 7 '20
- Is your bookkeeping system elastic enough to handle expanding business? H. P. Termansen. Dom Eng 91:148-9+ Ap 24 '20
- Material you lose adds no profit. S. E. Nolan. Plumber 95:233+ Ap 22 '21
- Practical bookkeeping system used by Stinson-Kennedy co., Pittsburgh. Dom Eng 95:159-61 Ap 23 '21
- Practical mathematics an aid to progress. il chart Dom Eng 94:640-2 Mr 26 '21
- Simple recording system for the small shop. D: H. Cuyler. Dom Eng 96:107-9 J1 16 '21
- Simplicity is keynote of this system of bookkeeping. il Dom Eng 97:202-4 O 29 '21
- System—the requisite to success. W. H. Moore. Metal Work 93:827-32 Je 25 '20
- Ten minutes a day—\$4,000 a year. Metal Work 94:113-14 J1 23 '20
- What T.E.B. did for this contractor it can do for you. Dom Eng 93:459-61+ D 4 '20
- Years of experience back of this cost system. C: Haig. Dom Eng 96:468-71 S 10 '21

Advertising

- Advertising helps far-west industry competing against eastern prestige. E. Brisacher. Ptr Ink 110:145-6 Ja 15 '20
- Advertising suggestions for local associations. Dom Eng 95:454-5 Je 4 '21
- Are you going to let the other fellow get the shower business? A. V. Gemmill. il Dom Eng 90:56-7 Ja 10 '20
- Are you profiting from your good name? Metal Work 93:457-8 Ap 9 '20
- Bath a day week is here—boost it and build business. Dom Eng 95:614-18+ Je 25 '21
- Bath in every home campaign has big selling possibilities. Dom Eng 95:108-9 Ap 16 '21
- Big show—free tickets. il Plumber 94:505-6+ N 19 '20
- Bigger business from better understanding with public. H. L. Hanson. il Dom Eng 96:280-2+ Ag 13 '21
- Bookkeepers win prizes in May letter-writing contest. Dom Eng 96:7-8+ J1 2 '21
- Building on a percentage basis. Metal Work 93:245-6 F 20 '20
- Connecting link—your mailing list. H. C. Mahan. Dom Eng 90:67-8 Ja 10 '20
- Consistent newspaper advertising proves big aid in building profitable plumbing and heating business. A. J. Richmond. il Dom Eng 93:2-4 O 2 '20
- Constructive ideas in June prize letters. R. E. Urfer. Dom Eng 96:199-200 J1 30 '21

Plumbing trade—Advertising—Continued

- Doing business with owner direct more profitable than with general contractor. C: Rosemont. Dom Eng 90:476-8 Mr 6 '20
- Farmer as a prospect for you. W. Bloeser. il Dom Eng 90:62-3+ Ja 10 '20
- Getting out of the doldrums. R. A. Hardy. Dom Eng 97:206-7 O 29 '21
- Giving public facts about plumbing and heating. il Dom Eng 97:142-5 O 22 '21
- Harvesting the farmer crop. R. Duysters. Dom Eng 92:588+ S 18 '20
- How one master plumber became a merchant. B. Lebharr. il Dom Eng 96:372-4+ Ag 27 '21
- How R. N. Willer put his shop on a profitable basis. H. Parker. il Dom Eng 91:330-1 My 22 '20
- Increase profits by making more sales. J. S. Older. il Dom Eng 94:546-7 Mr 12 '21
- Master plumbers fighting back; newspaper advertising used to refute charges that prices have not been reduced. C: Haig. Dom Eng 95:206-7+ Ap 30 '21
- Mixing brains in useful co-operation; campaign started by the New Orleans association of master plumbers. Sanitary & Heat Eng 96:142-3 Ag 26 '21
- People need hot water—you need business—what's the answer? Dom Eng 94:441-2 F 26 '21
- Planning the year's advertising campaign ahead. J. A. Greig. il Dom Eng 90:58-60+ Ja 10 '20
- Prize-winners in March letter-writing contest. Dom Eng 95:103-4 Ap 16 '21
- Prize-winning letters in February contest. Dom Eng 94:538-9 Mr 12 '21
- Prize-winning letters in April. Dom Eng 95:322-4 My 14 '21
- Reaching the farmer through newspaper advertising. A. James. Dom Eng 92:329-30 Ag 14 '20
- Speeding up fall plumbing supply sales. W. B. Stoddard. il Plumber 94:477-8+ N 5 '20
- Springtime advertising opportunities. J. A. Gray. Dom Eng 91:96-7+ Ap 17 '20
- Take a bath every day. Dom Eng 93:398-400, 498-502, 602-4; 94:88-9, 196-9, 291-2, 391, 500-1+; 95:171-4, 271-3, 364-7, 470-2; 96:67-8+, 387-8 N 27, D 11, 25 '20, Ja 8, 22, F 5, 19, Mr 5, Ap 23, My 7, 21, Je 4, Jl 9, Ag 27 '21
- Use county fair to boom your business. il Metal Work 94:389-90 S 24 '20
- Wahn co. makes war on old-fashioned kitchen sinks. Dom Eng 92:115-16 Jl 17 '20
- We read your ads at the supper table, the evening the paper comes out; newspaper advertising done by Ernest Wykes of Humboldt, Iowa. Dom Eng 94:124-5 Ja 15 '21

Delivery service

- Auto truck as an investment in the plumbing and heating industry. il Plumber 94:512-14 N 19 '20
- Cost of running 2½-ton truck for one year. Dom Eng 93:356-7 N 20 '20
- Motor trucks and the jobber. H. P. Terman. il Dom Eng 90:99-101+ Ja 10 '20
- Substantial truck properly equipped is a good investment. A. B. Hinman. il Dom Eng 93:254-5 N 6 '20

Drafting and planning

- Drafting department for plumbing and heating contractors is a big advance in job management. J: K. Raymond. il Dom Eng 96:380-1+ Ag 27 '21

Exhibitions

- Sanitary and efficiency show, held in connection with the 38th annual convention of the National association of master plumbers. il Dom Eng 91:610-23+; 92:18-19 Je 26-Jl 3 '20; Metal Work 93:850-3 Je 25 '20

Records

- How F. J. Hanley makes money and enjoys life in the plumbing business. H. J. Brown. il Dom Eng 92:216-18+ Jl 31 '20
- Reducing the waste of material. J. E. Bullard. Sanitary & Heat Eng 96:193+ S 23 '21

- Stopping the leaks in repair work. E. L. Seabrook. Dom Eng 93:200-2 O 30 '20
- Value of photographic records to the plumbing and heating contractor. R. Falconer. Dom Eng 94:194-5 Ja 22 '21

Plumbism. See Lead poisoning

Plymetl

- Plymetl—a new engineering material. Aviation 10:625 My 16 '21

Plywood

- Data on the design of plywood for aircraft. A. Elmendorf. il diags U S Nat Advisory Com for Aeronautics 1920:109-22 '21
- Effect of varying the number of plies in plywood. Aerial Age 13:30 Mr 21 '21; Same. Automotive Ind 44:702 Mr 31 '21; Same. Aviation 10:438 Ap 4 '21
- Experimental reinforced plywood truss ribs. B. C. Boulton. diags Aerial Age 13:539-41, 591-4 Ag 15, 29 '21
- Factors affecting the warping of plywood. A. Elmendorf. il diags Aviation 8:25-7 F 1 '20
- Manufacture and use of plywood and glue. B. C. Boulton. 88p Pitman '20
- Plywood and its uses in automobile construction. A. Elmendorf. il diags Soc Auto Eng J 6:299-306 My '20; Discussion. 7:390 O '20
- Plywood as material for automobile body construction. A. Elmendorf. il Automotive Ind 45:414-17 S 1 '21
- Plywood body for five-passenger sedan weighs 120 lb. diags Automotive Ind 42:959 Ap 22 '20
- Plywood in airplane construction. A. Elmendorf. Aviation 10:630-2, 660-3 My 16-23 '21
- Plywood panels; abstract. Am Inst Arch J 9:29-30 Ja '21
- Properties of ordinary wood compared with plywood. Aerial Age 13:6 Mr 14 '21; Same. Automotive Ind 44:711 Mr 31 '21
- Sewn plywood. Sci Am 124:463 Je 11 '21
- Shear strength of plywood webs; abstract. diags Mech Eng 42:577 O '20
- Standard costing principles and practices for the plywood industry. Press of Powers-Tyson ptg. co., Grand Rapids, Mich. '21
- Wood that is stronger than steel. R. H. Moulton. il Sci Am 123:204+ Ag 28 '20

Testing

- Strength tests of screw fastenings of plywood. H. S. Grenoble. Aerial Age 12:535-6 Ja 31 '21; Same. Aviation 10:230 F 21 '21; Same abr. Automotive Ind 45:216 Ag 4 '21
- Uses and properties of water-resistant plywood. A. Elmendorf. il diags Am Soc T M Pro v 20 pt 2:324-54 '20

Pneumatic conveying

- Dust-conveying equipment. diags plan Chem & Met Eng 22:566 Mr 24 '20
- Floating pneumatic grain discharging plant. il diags plan Engineer 131:381-4 Ap 8 '21
- Grain in wrecked elevator pneumatically salvaged. il Pop Mech 36:374-5 S '21
- Pneumatic boat unloader eliminates much labor. il Pop Mech 36:99 Jl '21
- Pneumatic conveying. E. G. Phillips. 108p Pitman '21
- Pneumatic conveying equipment. il diag Concrete 16:sup36-7 F '20
- Pneumatic grain-discharging and sack-handling plant at Bordeaux. il diags Engineering 112:312-14, 316, 370-1, pl 15 Ag 26, S 9 '21
- Pneumatic grain transport plants. W: Cramp. il diags Eng & Ind Management 5:641-7 Je 2 '21
- Pneumatic transmission of messages on warships. il diags Engineering 111:548-50 My 6 '21; Abstract. Mech Eng 43:478 Jl '21; Abstract. Sci Am M 4:91-2 Jl '21
- Salvaging grain by suction. il Sci Am 125:161 S 3 '21
- Soda ash airveyor. il Chem & Met Eng 23:938-9 N 10 '20
- Sucking the cargo out of a ship. il Sci Am 125:131 Ag 20 '21
- Vacuum process successful for unloading copra. il J Elec 47:278 O 1 '21
- See also Pneumatic injectors

- Pneumatic elevators.** See Elevators, Pneumatic
- Pneumatic hammers**
Air hammer used to pulverize sample. H. E. Diller. *il Foundry* 49:411 My 15 '21
Pneumatic hammer for breaking pigs of iron. J. P. Dovel. *il Iron Age* 107:838 Mr 31 '21
Reavell-Mossay pneumatic hammer. *diags Engineering* 111:775 Je 24 '21
- Pneumatic injectors**
Pneumatic injectors for blower and mechanical draft work. J. L. Alden. *diags Heat & Ven* 18:35-7 O '21
- Pneumatic plants.** See Compressed air
- Pneumatic shovels**
Pneumatic hand shovels hasten tunnel excavation. G. C. D. Lenth. *il diag Eng N* 86:500-1 Mr 24 '21
Pneumatic mine shovel is rapid muck loader. *il Pop Mech* 35:481 Ap '21
Spader in pneumatic hammer cuts costs and expedites work on Chicago sewer tunnel. *il Eng & Contr* 55:404-5 Ap 20 '21
- Pneumatic tools**
Care and use of pneumatic tools. H. S. Covey. *Ry Mech Eng* 94:292 My '20
Caring for tools at Puget Sound navy yard. *il Am Mach* 55:94-6 Jl 21 '21
Imperial bridge repair outfit and its accompanying air-operated tools. F. A. McLean. *il Can Eng* 39:431-3 O 14 '20
Imperial pneumatic tie tampers. *diags Ry R* 66:418-21 Mr 13 '20
Ingersoll-Rand little David pneumatic tools. *il Am Mach* 53:42 Jl 1 '20; *Eng & Contr* 54:77 Jl 21 '20
Ingersoll-Rand pneumatic paving breaker. *il Am Mach* 54:798-9 My 5 '21
New sizes of small pneumatic tools. *il Elec Ry J* 56:325 Ag 14 '20
Pavement cutting by pneumatic machinery. L. H. Geyer. *il Eng & Contr* 55:117 F 2 '21
Pneumatic way of cutting rivets and breaking up concrete. *il Eng & Contr* 54:429 O 27 '20
Titan pneumatic tool. *il diag Am Mach* 51:1015-16 D 11 '19
Use of pneumatic tools in track construction. T. W. Bulpin. *Elec Ry J* 55:391 F 21 '20
See also Cement gun; Pneumatic hammers; Pneumatic shovels
- Lubrication**
Lubrication of pneumatic tools. *Elec Ry J* 56:552-3 S 18 '20
- Manufacture**
Heat-treatment of Thor tool parts. J. V. Hunter. *il Am Mach* 54:991-6 Je 9 '21
Some special jigs used in the manufacture of pneumatic tools. H. Fox. *il Am Mach* 53:370 Ag 19 '20
- Pneumatic transmission.** See Compressed air; Pneumatic conveying
- Pneumatics**
See also Aerodynamics; Compressed air; Gases
- Poison gas.** See Gases in warfare
- Polson oak.** See *Rhus diversiloba*
- Poisons**
Anaphylaxia: its role and its treatment. C. Richet. *Sci Am M* 4:221-4 S '21
Detecting poisons in food substances. E. Kohn-Abrest. *Sci Am M* 3:325-8 Ap '21
Poisons: their effects and detection. A. W. Blyth and M. W. Blyth. 5th ed. 745p C. Griffin & co., Ltd., London '20
See also Arsenic poisoning; Gases, Asphyxiating and poisonous; Olive poisoning; Ptomaine poisoning; Toxicity; Venom; *also* names of poisons, e.g. Arsenic, Carbolic acid, Dimethylsulfate, Lobinol, Tetrachlor-ethane
- Poisons, Industrial**
Composite industrial poisons: a review. W. H. Rand. *Monthly Labor R* 10:480-501 F '20
Industrial poisoning: abstract. A. Hamilton. *Sci Am M* 1:89-90 Ja '20

- Industrial poisoning in German war industries. *Monthly Labor R* 11:324-32 Ag '20
Industrial poisoning in making coal-tar dyes and dye intermediates. A. Hamilton. *U S Bur Labor Statistics Bul* 280:1-87 '21
Poisons in the tar products industry. *Monthly Labor R* 11:321-4 Ag '20
Tellurium as an industrial health hazard. *Monthly Labor R* 10:1472-3 Je '20
Three poisons to watch for in your plant. A. Hamilton. *Factory* 26:1401+ Je 15 '21
See also Aniline poisoning; Arsine poisoning; Benzene poisoning; Cadmium poisoning; Carbon monoxide; Hexamethylenetetramine; Lead poisoning; Methyl bromide; Phenylenediamine; Zinc chloride
- Poisson's ratio.** See Elasticity
- Poland**
Peril of Poland. V. Kellogg. *il Nation's Business* 9:36 Ja '21
Technical agricultural education in Poland. *Int Labour R* 3:216-27 Jl '21
See also Russo-Polish war
- Economic conditions**
Business conditions in Poland. A. Griffin. *Am Ind* 21:38-9 O '20
Poland making headway with task of reconstruction. S. de Csesznak. *Annalist* 17:89 Ja 10 '21
Solving Poland's industrial dilemma. H. Anielewski. *il Am Mach* 53:1004-5 N 25 '20
See also Cooperation—Poland
- Industries and resources**
Business in Poland and Austria. E. P. Bicknell. *il Am Ind* 21:40-2 F '21
Electrification of Polish industries. *J Elec* 46:129 F 1 '21
Poland—a great new field of trade. F. E. Ackerman. *Am Ind* 20:36-8 Mr '20
See also Cotton trade—Poland; Iron industry and trade—Poland; Paper industry and trade—Poland; Petroleum—Poland; Steel industry and trade—Poland; Textile industry—Poland
- Politics and government**
Lloyd George in condemnation of Polish uprising—Premier Briand's reply. *Comm & Fin Chr* 112:2151-3 My 21 '21
- Polar explorations.** See Antarctic exploration; Arctic exploration; South pole
- Polariscope**
Determination of the jellying power of gelatins and glues by the polariscope. C. R. Smith. *diag J Ind & Eng Chem* 12:878-81 S '20
Report of the committee to formulate specifications for the construction of a polariscope for laboratory use. *J Ind & Eng Chem* 12:440-2 My '20
See also Optical rotation
- Polarity**
Polarity and ionization from the standpoint of the Lewis theory of valence. W. M. Latimer and W. H. Rodebush. *Am Chem Soc J* 42:1419-33 Jl '20
- Polarization (light)**
Determining stresses by polarized light. G. W. Hall and A. L. Kimball, jr. *il diag Sci Am M* 3:49-53 Ja '21
Examination of ores and metals in polarized light. F. E. Wright. *diags Min & Met* 158: (sec 9) 1-12 F '20
Peculiarities of polarization and energy distribution by speculum gratings. L. R. Ingersoll. *Phys R* 17:493-501 Ap '21
Photo elasticity for engineers. E. G. Coker. *il diags Gen Elec R* 23:870-7, 966-73; 24: 82-8, 222-6, 455-66 N '20-Ja, Mr, My '21
Polarization of secondary X-rays. A. H. Compton and C. F. Hagenow. *Phys R* 18: 97-8 Ag '21
Seeing submerged objects. *Sci Am M* 3:258-9 Mr '21
Strained glass elliptic polarizer and analyzer. A. de Forest Palmer. *Phys R* 17:409-11 Mr '21

Polarization (light)—Continued

Stress determination by means of the Coker photo-elastic method. A. L. Kimball, jr. il diags Gen Elec R 24:73-81 Ja '21

See also Iceland spar; Optical rotation; Polariscope; Stereochemistry

Pole roads. *See* Roads, Pole

Poles

Butt treatment of cedar poles by open-tank method. W. M. Leavitt. il Elec R 78:403-4 Mr 5 '21

Concrete bases for pole-line reinforcement. il Elec R 78:991 Je 18 '21

Earth-boring machine for setting poles. il Eng & Contr 56:279 S 21 '21

Labor-saving machine for boring holes for line construction. il Ry Age 69:494 S 17 '20

Natural life of cedar poles. P. Golsan. diag Elec W 75:257-8 Ja 31 '20

Pole preservation. W. M. Leavitt. il J Elec 45:321-2 O 1 '20

Preservative pole treatment with carbolineum. H. H. Gerhard. Elec R 78:979 Je 18 '21

Preservative treatment of wood poles. Pub Works 50:63 Ja 15 '21

Preserve the pole line. Elec Ry J 57:126 Ja 15 '21

Puncturing of wood poles not harmful. G. A. Clark. il Elec W 78:321 Ag 13 '21

Puncturing poles before impregnation. il Elec Ry J 57:560 Mr 19 '21

Repairing decayed poles. il Elec Ry J 57:1092 Je 11 '21

Results with butt-treated poles in California. P. R. Hicks. Elec Ry J 57:400 F 26 '21

Value of notching poles before treatment with preservative. P. Golsan. Elec W 77:1108 My 14 '21

See also Electric lines—Poles and towers; Gin poles

Poles, Concrete

Concrete track ties and electric poles in China. D. F. McLeod. diags Eng N 85:554-5 S 16 '20

Poles, Gin. *See* Gin poles

Poles, Steel

Getting the best results with steel poles. Elec Ry J 57:84-5 Ja 8 '21

Welding steel poles. G. H. McKelway. Elec Ry J 55:560 Mr 20 '20

Poliakoff machine shop rule

Poliakoff machine-shop rule. Mach 27:1082-3 Jl 21; Same. Am Mach 55:35 Jl 7 '21

Police

Increases in pay of policemen in the District of Columbia. Monthly Labor R 10:153-5 Ja '20

Instructions for police on railway duty. Elec Ry J 58:393 S 10 '21

Weapons

Philadelphia's tear bombs and mobs. W: A. McGarry. il diag Sci Am 125:197+ S 17 '21

Police, Aerial

Dallas organizes aerial police. il Aerial Age 14:175 O 31 '21

Police power

Conflicting sovereignties—rule of reason as applied to the police power of the state. Comm & Fin Chr 113:1404-5 O 1 '21

Polishing. *See* Grinding and polishing

Political platforms. *See* Platforms, Political

Politics, Practical

Campaigning with card-indexes. Nation's Business 8:22-3 My '20

Polysaccharides

Notiz über acetolyse von polysacchariden. M. Bergmann and F. Beck. Deutsche Chem Gesell Ber 54:1574-8 Jl '21

Polysaccharides. P. Karrer. Paper 27:24+ N 17 '20

Polysaccharides. P. Karrer and others. Chem Soc J 120 pt 1:310-13 My '21

Polyzime

Method of testing the amylolytic action of the diastase of aspergillus oryzae. S. A. Waksman. Am Chem Soc J 42:293-9 F '20

Properties of a specially prepared enzymic extract, polyzime, comparing its starch liquefying power with malt diastase. J. Takamine, jr., and K. Oshima. Am Chem Soc J 42:1261-5 Je '20

Pompela

Pompeian wall-painting. Am Arch 117:583-4 My 12 '20

Ponderomotive force

Comparison between the fundamental equations for the ponderomotive force for point charges due to Larmor-Lorentz and to Megh Nad Saha. A. C. Crehore. Phys R 17:249-52 F '21

Pongee silk

L'industrie de la soie sauvage (tussor, pongée) en Mandchourie. Génie Civil 77:138-9 Ag 14 '20

Pontoon bridges

Hudson river pontoon bridge. Sci Am 125:110 Ag 13 '21

Hudson river pontoon bridge preliminary plans. Eng N 87:244-5 Ag 11 '21

Pontoon bridge across Hudson proposed. Eng N 87:207-8 Ag 4 '21

Pontoon bridge to be built of wooden ships. il Pop Mech 36:512-13 O '21

Pontoon drawbridge and temporary girder swingspan. diags plans Eng N 85:271-3 Ag 5 '20

Proposed Hudson river pontoon bridge. Sci Am 125:117 Ag 13 '21

Pontoons

Pontoons for stability in the canoe. L. B. Robbins. diags Pop Mech 34:146-7 Jl '20

Poole engineering and machine company, Baltimore, Maryland

Large work at the Poole engineering and machine co.'s shop. E. A. Suverkrop. il diags plan Am Mach 52:143-5 Ja 15 '20

Poor

Poverty and dependency; their relief and prevention. J: L. Gillin. 707p Century '21

See also Cost of living; Housing problem; Labor and laboring classes; Mothers' pensions; Old age pensions; Saving; Unemployment

Pope, Ralph Wainwright, 1844-

Sketch. por Elec W 78:758 O 15 '21

Popocatepetl

Popocatepetl again in activity. P. Waitz. il Am J Sci 5th ser 1:81-7 Ja '21

Population, Distribution of

Population density as a basis for housing regulations. F. B. Cartwright. il map Eng N 87:318-22 Ag 25 '21

Porcelain

Decoration of porcelain; abstract. H. Barnard. Am Cer Soc J 4:248 Mr '21

Effect of the replacement of free silica by alumina and zirconia in electrical porcelain. R. Twells, jr., and C. C. Lin. Am Cer Soc J 4:195-205 Mr '21

\$18,560,000 in electrical porcelain made in 1920 in U.S. Elec W 78:142 Jl 16 '21

High-tension insulator porcelain. W. D. A. Peaslee. Am Inst E E J 39:445-8 My '20

Making electric insulators of porcelain. R. Howard. il Sci Am 124:205+ Mr 12 '21

Mechanical properties of porcelain. E. Rosenthal. Am Cer Soc J 4 pt 1:509-10 Je '21

New cold method of making porcelain. Sci Am 125:247 O 1 '21

New plant of Mitchell-Bissell co., N.Y. il Textile World 58:1313+ Ag 28 '20

Porcelain insulators. Sci Am M 2:281 N '20

Porcelain that can be worked like glass. Sci Am 123:183 Ag 21 '20

Preparation and composition of ceramic bodies for spark plug insulators. A. V. Bleining. U S Nat Advisory Com for Aeronautics 1919:101-7 '20

Rate of vitrification of porcelain molded under different conditions; with discussion. R. F. Sherwood. Am Cer Soc J 3:837-41 O '20

Recent research on the bone china body; abstract. J. W. Mellor. Am Cer Soc J 3:429 My '20

Porcelain—Continued

Solution of the porcelain insulator problem. E. E. F. Creighton and F. L. Hunt. Am Inst E E J 40:480-2 Je '21; Same. Elec R 79:17-19 Jl 2 '21; Abstract. Elec W 78:10 Jl 2 '21

Studies in pug mill control. H. Spurrier. charts diags plan Am Cer Soc J 3:388-403 My '20

Table of porcelain shrinkage equivalents. L. M. Case. Am Mach 52:352-3 F 12 '20

Time and temperature of burning as factors influencing the constitution and microstructure of a porcelain body. A. A. Klein. il Am Cer Soc J 3:978-83 D '20

Worcester royal porcelain co. develops porcelain for industrial use. il Iron Tr R 65:1588 D 11 '19

See also Pottery

Testing

Porcelain glass pot mixtures. D. H. Fuller. Am Cer Soc J 3:569-74 Jl '20

Testing of chem. porcelain in England. Am Cer Soc J 4:77 Ja '21

Testing of porosity of electrical porcelain. W. D. A. Peaslee. diag Am Soc T M Pro v 20 pt 2:495-9 '20; Excerpt. Elec W 75:1420 Je 19 '20

Porcelain, Dental

Dental porcelain filling; abstract. Am Cer Soc J 3:922-3 N '20

Porcelain as money

German porcelain money—an old idea revived to offset cheap marks. A. A. Hopkins. Sci Am 123:281 S 18 '20

Porcelain guides. See Textile machinery—Porcelain guides

Porches

Enclosing the rear porch. E. J. G. Phillips. il diag plan Bldg Age 43:34-5 N '21

Porches and doorways. il diags Bldg Age 42:19-23 O '20

Porches and treillage design. A. E. Bullock. il diags Arch Rec 47:77-83 Ja '20

Porches, day and night. il Bldg Age 43:31-2 Je '21

Porete. See Concrete, Porous

Porosity

Testing of porosity of electrical porcelain. W. D. A. Peaslee. diag Am Soc T M Pro v 20 pt 2:495-9 '20; Excerpt. Elec W 75:1420 Je 19 '20

Porphyry

Boise basin district in Idaho. S. M. Ballard. il Eng & Min J 109:881-2 Ap 10 '20

Port Arthur, Ontario

Rubble breakwater deposited from railway on ice. il diag plan Eng N 84:1261-3 Je 24 '20

Rapid transit

Thirty years of municipal operation in Port Arthur. il map Elec Ry J 57:478-80 Mr 12 '21

Port Arthur, Texas**Sanitary affairs**

Drainage in Port Arthur. Pub Works 50:172-3 F 19 '21

Streets

Street work in Port Arthur. Pub Works 50:120-1 F 5 '21

Port Said

La situation des Compagnies de navigation françaises à Port-Said et dans la Méditerranée. Génie Civil 76:338-9 Ap 3 '20

Portable houses. See Houses, Portable

Portages

Belgium builds strange railway for river boat portage in the Congo. H. S. White. il Pop Mech 36:495-8 O '21

Portaphone

Portaphone—a wireless set for dance music or the day's news. H. T. Wade. il Sci Am 122:571 My 22 '20

Porter, Henry Hobart, 1865-

Portrait. Elec W 78:102 Jl 16 '21

Portland, Oregon

New building zone ordinance of Portland. C: H. Cheney. Munic Eng 58:198-201 My '20; Same. Am Arch 117:659-61 My 26 '20

Architecture

Extracts from competition program of Scottish Rite cathedral competition, Portland. il diags plans Am Arch 119:358-63 Mr 23 '21

Description

Observations on a Pacific coast trip. F. C. Wight. Eng N 85:1263-4 D 30 '20

Harbor

Harbor obstruction to become shipping aid. H. E. Thomas. il Pop Mech 33:833-5 Je '20

Municipal grain and freight port terminal at Portland. W. P. Hardesty. il diag map plan Eng N 84:179-82 Ja 22 '20

Port development at Portland. G. B. Hegardt. il plan Am Arch 118:863-7 D 29 '20

Preparing for foreign trade; grain elevator and pier at Portland. W. C. Heston. il J Elec 46:8-9 Ja 1 '21

St Johns municipal terminal at Portland. il plan Ry R 66:751-4 My 8 '20

Public buildings

Portland public auditorium; views and plans. Arch Forum 33:pl 1-6 Jl '20

Water supply

Bull Run water for Portland. C: W. Geiger. Pub Works 49:282 S 25 '20

Damming a lava-bottomed lake to insure a city's water supply; Bull Run lake. H. E. Thomas. il map Pop Mech 34:849-52 D '20

Portland cement. See Cement; Cement industry and trade

Portland cement research association, British. See British Portland cement research association

Portland railway, light and power company

Changing 33-cycle apparatus to operate on 60-cycle circuits. D. W. Proebstel and E. H. LeTourneau. il diags Am Inst E E J 39:238-43 Mr '20

Porto, Italy

New port for Rome; ancient harbors of Ostia and Porto on the Tiber. A. A. Hopkins. il map plan Sci Am M 3:442-5 My '21

Porto Rico

Porto Rico: its progress; our duty. W. K. Wing. Am Ind 21:37-8 S '20

Trip to Porto Rico. A. M. Yonge. il Eng & Min J 110:670 O 2 '20

See also Roads—Porto Rico; Water supply—Porto Rico

Capitol

Porto Rico's new capitol. S. Baxter. il plans Arch Rec 49:172-9 F '21

Commerce

Porto Rican as a national intermediary. F: W. Keough. Am Ind 20:34-5 Jl '20

Portraits

Portraits that are permissible in advertising. Ptr Ink 110:52, 57+ Ja 8 '19

Ports

Analysis of New York's port problem. B. F. Cresson, jr. Eng N 85:1241-2; Discussion. 1242-3 D 23 '20

Belt line plan to make New York a rail-head port. il map Eng N 86:182-5 Ja 27 '21

Brief comparison of American and foreign seaports. W. W. Pagon. Am Soc C E Pro 47:342-6 O '21

Development of the smaller ports. F: H. Fay. Am Soc C E Pro 47:321-7 O '21

Discussion on national port problems. W: H. Adams and others. Am Soc C E Pro 47:372-96 O '21

Improvement and development of ports. C. R. Thompson. Am Soc C E Pro 47:353-5 O '21

Lack of co-ordination in design of American ports. J: Meigs. Am Soc C E Pro 47:336-41 O '21

Ports—Continued

- Mexican port improvements. Engineer 131:348 Ap 1 '21
 National phases of port problems. F: W. Cowie. Am Soc C E Pro 47:302-8 O '21
 Port administration. B. F. Cresson, jr. Am Soc C E Pro 47:363-7 O '21
 Le port de Strasbourg; son développement et son avenir. Génie Civil 78:238-9 Mr 12 '21
 Port improvements at Newcastle, New South Wales. P. Allan. Engineering 111:227 F 25 '21; Same. Engineer 131:270 Mr 11 '21; Same. Eng & Ind Management 5:273 Mr 3 '21
 Port improvements in Italy. Engineer 131:522 My 13 '21
 Port of Vancouver and its development. Engineer 130:474 N 12 '20
 Ports of France and their future. F. Miltoun. il Marine R 50:285-7 My '20
 Proposed reorganization of the port of New York. maps plan Ry Age 70:269-74 Ja 28 '21
 Le régime des ports fluviaux du Rhin. Génie Civil 78:362 Ap 23 '21
 Relation of warehouses to port development. M. A. Long. Am Soc C E Pro 47:328-31 O '21
 Report on port facilities; American national committee of the International chamber of commerce. Ry R 69:111-15 Jl 23 '21
 Les résultats d'exploitation des ports fluviaux du Rhin. Lanos. Génie Civil 78:421-2 My 14 '21
 Sea ports: their organization and administration. C. Tomkins. Gen Elec R 24:290-2 Ap '21
 Terminal wastefulness at New York. W: J. Wilgus. il diag Sci Am M 2:61-5 Jl '20
 What the government is doing to help port layout. F. T. Chambers. Eng N 85:850-1 O 28 '20
See also Docks; Freight handling; Harbors; Mechanical handling; Piers; Shipping; Terminals; *also* subdivision Harbor under names of cities, e.g. Baltimore—Harbor, New York (city)—Harbor

Finance

- Some observations on port finances. E. J. Clapp. Am Soc C E Pro 47:347-52 O '21

Portugal

- See also* Agriculture—Portugal; Lumber trade—Portugal

Position finders

- Direction and position finding. H. J. Round. diags Engineering 109:108-12, 161-4 Ja 23-30 '20; Same. Inst E E J 58:224-47 Mr '20; Abstract. Electrician 84:317-19 Mr 19 '20; Discussion. Inst E E J 58:247-57 Mr '20

Positions, Applications for. See Applications for positions

Positive rays. See Canal rays

Possum wood

- Possum wood; a little-known forest product that seems certain to find a place in our economy. S: J. Record. Sci Am 122:569 My 22 '20

Postage stamps

- Automatic presses print stamps by the million. il Pop Mech 34:853 D '20
 Postage stamps in the making. S. R. Winters. il Sci Am 125:102 Ag 6 '21

Postage stamps, Air mail

- Aerial mail stamps. Aerial Age 12:460-1 Ja 10 '21

Postal cars

- New plans and specifications for interchangeable postal cars and fixtures. plans Ry Mech Eng 95:100-1 F '21

Postal rates

- Postal authorities inquire into methods of distributing mail-order catalogues. Ptr Ink 110:111-12 F 12 '20
 To aid our foreign trade. Nation's Business 9:45+ Ap '21
 To reconsider second-class postage rates. Ptr Ink 115:25-8 Je 23 '21
 Vicious postal zone law. A. Capper. Coal Age 16:604 O 9 '19; Same. Elec Ry J 54:692 O 4 '19; Same. Chem & Met Eng 21:639 N 12 '19

Postal savings banks

- Changes in postal savings system proposed by Postmaster-General Hays. Comm & Fin Chr 113:135 Jl 9 '21
 Eugene Meyer jr. suggests financial rehabilitation by raising interest rates on postal savings deposits. Comm & Fin Chr 111:839 Ag 28 '20
 Extent of postal savings deposits. Comm & Fin Chr 112:2156 My 21 '21
 Governmental Ponziism in postal savings plan of Eugene Meyer, jr. I. Kimball. Comm & Fin Chr 111:1041-2 S 11 '20
 Postal saving banks and building finance. E. Meyer, jr. Dom Eng 93:435+ N 27 '20
 Question of increasing postal savings interest rate. H. Davies. Comm & Fin Chr 111:1232 S 25 '20

Postal service

- For prompt delivery of mail. E. C. Hole. Gas Age 46:7-8 Jl 10 '20
 Wreck-proof safe for ocean-going mail. J. Anderson. il Sci Am 122:247+ Mr 6 '20
See also Mail bags; Mail handling; Motor trucks in postal service; Parcel post; Postage stamps; Postal cars; Postal rates; Railway mail service

Laws and regulations

- Is a technical article an advertisement when it gives publicity? Eng & Contr 54:175-6 Ag 25 '20

United States

- Annual report for fiscal year ending June 30, 1920. Ry Age 69:1064-5 D 17 '20
 Co-operation the post office department wants from business. J: C. Koons. Ptr Ink 113:117-18+ D 9 '20
 How business men may help to secure better mail service. E. C. Hole. Am Lumberman 2352:53 Je 12 '20
 Post office seeks to co-operate with railroads. Ry Age 71:529-30 S 17 '21
 Readjustment of salaries in the postal service. Monthly Labor R 11:99-100 Jl '20
 Speeding up the mails. W: H. Hays. Nation's Business 9:11-13 O '21
 Why that letter was late. C. M. Reed. Nation's Business 8:13-14 Ap '20
 Will Hays, letter writer extraordinary. C. H. Claudy. Ptr Ink 117:49-50+ O 6 '21

See also Railway mail service

Postal service, Aerial

- Aerial mail and aviation. Sci Am 122:448 Ap 24 '20
 Aerial mail recommendation endorsed by President Wilson. Aerial Age 12:555-6 F 7 '21
 Aerial mail service. Aerial Age 13:586 Ag 29 '21
 Aerial mail service. J. G. Vincent. Soc Auto Eng J 6:289-90 My '20
 Aeromarine aerial mail delivery system. P. G. Zimmermann. diags Aviation 7:262 O 15 '19
 Air mail. Aviation 11:311 S 12 '21
 Air mail—an economic revolution. Aviation 9:232 N 1 '20
 Air mail and American aeronautics. Aviation 10:68 Ja 17 '21
 Air mail changes. Aviation 10:784 Je 20 '21
 Air mail mileage. Aerial Age 12:661 Mr 7 '21; Same. Automotive Ind 44:660 Mr 24 '21
 Air mail operation and maintenance. Soc Auto Eng J 6:298 My '20
 Air mail reorganization. Aviation 11:23 Jl 4 '21
 Air mail shows commercial possibilities of planes. O: Praeger. Automotive Ind 42:743-5 Mr 25 '20
 Airplane has been put to work in Great Britain. Automotive Ind 42:1253 Je 3 '20
 American press commends air mail. Aviation 10:241-2 F 21 '21
 Are you pushing the extension of the aerial mail service? Aerial Age 12:69-70+ S 27 '20
 Can we fire-proof aerial mail? il Sci Am 123:279 S 18 '20

Postal service, Aerial—Continued

- Civil aviation and air services. F. H. Sykes. Engineering 110:524-6 O 15 '20; Same cond. Engineer 130:385-6; Discussion. Engineering 110:512-14 O 15 '20; Discussion. Engineer 130:372 O 15 '20
- Cost of an air mail route from New York to San Francisco. O: Praeger. il Flying 9:190-2, 276-7+ Ap-My '20
- Crippling American aviation. Sci Am 124:62 Ja 22 '21
- Engineering section of the air mail. Aviation 9:319 N 22 '20
- English air mail rules. Aviation 9:236 N 1 '20
- European air mails. Aviation 10:333 Mr 14 '21
- Extension of air service between the Netherlands and Great Britain. Sci Am 124:29 Ja 8 '21
- Fifteen radio stations to improve air mail service. S. R. Winters. il Wireless Age 8:12-13 Ja '21
- Mail delivery to ships at sea. il Sci Am 122:327 Mr 27 '20
- Monthly reports of U.S. air mail service. See weekly numbers of Aviation
- N.A.C.A. praises air mail. Aviation 10:178 F 7 '21
- Official report on air mail service; third year of operation, May 15, 1920 to May 15, 1921. Aviation 10:682 My 30 '21
- Only American airplanes on new mail routes! Automotive Ind 43:106 Jl 15 '20
- Postmaster General Burleson on the air mail; excerpts from the annual report of the post-office department. Aviation 9:417-19 D 13 '20; Excerpt. Aerial Age 12:411-12 D 27 '20
- Postoffice department issues call for proposals for operation of aerial mail routes. maps Flying 9:437-9 Ag '20
- Radio communication with postal aeroplanes. J. L. Bernard and L. E. Whittemore. il diag Aerial Age 13:105-6, 127-9+, 155-7+ Ap 11-25 '21
- San Francisco-New York mail delivery and the railroads. Mech Eng 43:282 Ap '21
- San Francisco to New York in 33 hrs. 20 min. il Aviation 10:331-3 Mr 14 '21
- Three years of air mail service. il Aviation 10:559-61+ My 2 '21
- Three years of the aerial mail. Aerial Age 13:249+ My 23 '21
- Two years of the aerial mail. Aerial Age 11:361+ My 24 '20
- United States air mail service. 70p U. S. Post-office dept., Washington, D.C. '21
- United States Post office department; air mail service; monthly report of operation and maintenance. Published in Aerial age
- See also Postage stamps, Air mail
- Poster advertising association**
- 30th annual convention, St Louis, July 12-15. Ptr Ink 112:52 Jl 22 '20
- 31st annual convention, Detroit. Ptr Ink 117:73-4 O 20 '21
- Posters**
- British billposters advertise co-operatively. T: Russell. Ptr Ink 115:153 My 26 '21
- Four-wheeled salesmen of the American express company. R. Warner. Ptr Ink M 2:62 D '20
- French lithographic art posters. J. Heppes. Ptg Art 36:149 O '20
- Greek gods advertise a railroad. T: Russell. Ptr Ink M 2:42 My '21
- Parker-Holladay poster service. Mach 28:170 O '21
- Poster advertising rates to be stabilized. Ptr Ink 110:10+ Mr 25 '20
- Poster illumination. il Electrician 87:189 Ag 5 '21
- Poster that sold a national campaign to workers. H. L. Botsford. il Ptr Ink M 2:80 D '20
- Posters promote travel for European railroads. C. P. Russell. Ptr Ink M 2:26-7+ D '20
- Putting the sales appeal in fewest words. Ptr Ink 111:100 Je 10 '20
- Three-thousand-dollar picture to sell a five-cent drink. D. W. Kingsley. Ptr Ink M 2:40+ My '21

Unique harmony of picture and copy with product in Bond bread poster. il Ptr Ink M 3:90+ S '21

See also Billboards

Posts

- Posts and lintels. il Am Arch 120:205-8 S 14 '21
- Quick method of calculating strength of timber posts, struts or columns. E. I. Freese. Bldg Age 41:355-6 N '19
- Woods for posts and stakes. J. T. Bartlett. Sci Am 122:500 My 1 '20
- See also Poles

Postscripts

Some qualities of the postscript. J. T. Bartlett. Ptr Ink 111:60+ My 20 '20

Posture

- Relation of posture to industrial health. E. Hilles. Nation's Health, Chicago, p 339-43 Je '21; Abstract. J Ind Hygiene 3:sup135 O '21
- Work chair. A. B. Emmons and J. E. Goldthwait. il J Ind Hygiene 3:154-8 S '21

Bibliography

Relation of posture to individual health. E. Hilles. Nation's Health, Chicago. p 290-3 My '21

Potamogeton

Potamogeton from the upper cretaceous. E: W. Berry. il Am J Sci 5th ser 1:420-3 My '21

Potash

- Action of lime on greensand. R. N. Shreve. J Ind & Eng Chem 13:693-5 Ag '21; Abstract. Chem & Met Eng 24:831 My 11 '21
- Alsation potash industry. H: Vigneron. il diag map Chem & Met Eng 24:655-61 Ap 13 '21
- Alunite potash industry. Eng & Min J 109:1217 My 29 '20
- Application of the vapor pressures of potassium compounds to the study of the recovery by volatilization. D. D. Jackson and J. J. Morgan. J Ind & Eng Chem 13:292-5 Ap '21
- Conditions of American potash production. F: W. Brown. Chem Age 29:256 Jl '21
- Étude des gisements de potasse du Haut-Rhin. P. Floquet. Chimie & Ind 5:216-21 F '21
- Fertilizers from the mud of the Nile. Sci Am 125:247+ O 1 '21
- Forcing evaporation at potash ponds. Pop Mech 36:270 Ag '21
- German potash mines; possibility of finding potash deposits in this country. R. G. Skerrett. il Sci Am M 3:151-4 F '21
- How German potash is mined. Sci Am 122:673 Je 19 '20
- Identification of potash deposits. W: H. Rose and A. R. Merz. Eng & Min J 109:601-3 Mr 6 '20
- Les mines de potasse d'Alsace et le traitement des minerais. Génie Civil 78:197-9 F 26 '21
- Our mineral supplies; potash. H. S. Gale. U S Geol S Bul 666:81-4 '19
- Phosphoric acid and potash now produced by electricity. Sci Am 123:147 Ag 14 '20
- Physical and chemical character of New Jersey greensand. G: R. Mansfield. il Econ Geol 15:547-66 N '20
- Potash deposits in Spain. H. S. Gale. il maps U S Geol S Bul 715—A:1-16 '20; Same cond. Eng & Min J 108:758-63 N 8 '19
- Potash deposits of Alsace. H. S. Gale. il diag map U S Geol S Bul 715—B:1-55 '20; Abstract. Min & Met 167:35-6 N '20
- Potash from a new source. Sci Am 122:318 Mr 20 '20
- Potash from green sands. Chem & Met Eng 22:815 Ap 28 '20
- Potash from kelp; continuous countercurrent lixiviation of charred kelp. J. W. Turrentine and P. S. Shoaff. flow sheet J Ind & Eng Chem 13:605-9 Jl '21
- Potash from kelp—the experimental distillation of kelp at low temperatures. G. C. Spencer. J Ind & Eng Chem 12:682-4 Jl '20

Potash—Continued

- Potash from kelp; the preliminary examination of kelp distillates. G. C. Spencer. *J Ind & Eng Chem* 12:786-92 Ag '20
- Potash from Texas? *Sci Am* 125:199 S 17 '21
- Potash in New Jersey greensands. G. R. Mansfield. *Min & Met* 169:28-9 Ja '21; Same. without tables. *Sci Am M* 3:94 Ja '21
- Potash in 1918. W. B. Hicks. *U S Geol S Min Res of U S* 1918, pt 2:385-445 '20
- Potash in 1919. W. B. Hicks and M. R. Nourse. *U S Geol S Min Res of U S* 1919, pt 2:77-94 '20; Excerpt. *Chem & Met Eng* 24:216 F 2 '21
- Potash in 1920. M. R. Nourse. *U S Geol S Min Res of U S* 1920, pt 2:97-121 '21
- Potash mineral found in Texas. *Oil Paint & Drug Rep* 99:27 sec 1 Mr 14 '21
- Potash mines of Alsace. *Chem & Met Eng* 22:1206 Je 30 '20
- Potash production in 1920. *Chem Age* 29:92 Mr '21; Same. *Eng & Min J* 111:592 Ap 2 '21
- Potash recovery by metathetical reactions; patent. *Chem & Met Eng* 23:348 Ag 25 '20
- Potash recovery from blast-furnace gases in England. H. Hibbert. *Chem & Met Eng* 21:723-6 D 10 '19
- Potash resources of Nebraska. W. B. Hicks. bibliog *U S Geol S Bul* 715—I:125-39 '21
- Potash salts in 1919. W. C. Phalen. *Eng & Min J* 109:228-30 Ja 17 '20
- Potash saturator installation for the Ogden Portland cement co. il diags plans *Concrete* 15:sup81-3 D '19
- Les potasses d'Alsace; exploitation du gisement, traitement et vente des sels potassiques. J. Carlioz. map *Génie Civil* 76:548-52 Je 19 '20
- Production of potash in the United States. *Chem & Met Eng* 23:320 Ag 25 '20; Same. *Concrete* 17:sup57 O '20
- Putting green sand to work; how hitherto untouched glauconite deposits will insure our future potash requirements. R. N. Shreve. il *Sci Am* 125:40+ Jl 16 '21
- Results of the determination of potash by the Lindo-Gladding method. H. C. Moore and R. D. Caldwell. *J Ind & Eng Chem* 12:1188-9 D '20
- Salts-refining plants at Owens and Searles lakes. L. W. Chapman. il map *Chem & Met Eng* 24:683-8 Ap 20 '21
- Successful recovery of potash as a by-product from cement kilns. C. Krarup. il *Chem & Met Eng* 25:316-20 Ag 24 '21
- Supply of potash in Illinois shale. *Chem & Met Eng* 24:779 My 4 '21
- Treatment of kiln gases for potash recovery at the Santa Cruz Portland cement co's plant. L. T. Bachman. il *Concrete* 19:sup 35-40 S '21
- United States' search for natural deposits of soluble potash. H. D. Ruhm. diags *J Ind & Eng Chem* 12:837-40 S '20
- Wood ashes and production of potash. E. Bateman. il diag plan *Chem & Met Eng* 21:615-19 N 12 '19

Analysis

- Centrifugal method for determining potash. E. Sherrill. *J Ind & Eng Chem* 13:227-8 Mr '21
- DeRoode-perchloric acid method for determining potash. T. E. Keitt. *J Ind & Eng Chem* 12:276-7 Mr '20
- Quantitative determination of potash by the spectrum. D. P. Rogers. *Chem & Met Eng* 25:161 Jl 27 '21
- Results of the determination of potash by the Lindo-Gladding method. H. C. Moore and R. D. Caldwell. *J Ind & Eng Chem* 12:1188-9 D '20
- Potash alum. See Kalinite
- Potash Industry and trade**
- American potash industry and its problems. J. E. Teeple. *J Ind & Eng Chem* 13:249-52 Mr '21
- Domestic potash industry. il *Chem Age* 29:12-14 Ja '21

- French and German potash firms are active in drive for U. S. trade. *Oil Paint & Drug Rep* 99:25 sec 1 Ap 4 '21
- French potash situation. *Concrete* 16:sup51-2 Mr '20
- German potash contract deal confirmed. *Oil Paint & Drug Rep* 99:26 sec 1 Ap 11 '21
- German potash industry. *Chem & Met Eng* 25:828 N 2 '21
- German potash production and prices. *Concrete* 16:sup50-1 Mr '20; Excerpts. *Chem & Met Eng* 22:341 F 25 '20
- New position of the German potash industry. *Eng & Min J* 111:730 Ap 23 '21
- Potash salts in 1919. W. C. Phalen. *Eng & Min J* 109:228-30 Ja 17 '20
- Potash situation in Great Britain. *Sci Am M* 4:84 Jl '21
- Potash statistics. *Chem & Met Eng* 22:366 F 25 '20
- Present status of the Nebraska potash industry. *Chem & Met Eng* 23:578-80 S 22 '20
- Stock promotion and potash in west Texas. *Chem Age* 29:379-80 S '21

Potassium

- Dispersion of light by potassium vapour. M. Baxter. *Philos Mag* 6th ser 42:289-302, pl 11 S '21
- New method for the determination of potassium in silicates. J. J. Morgan. *J Ind & Eng Chem* 13:225-7 Mr '21
- Transference numbers of sodium and potassium in mixed chloride solutions. S. A. Braley and J. L. Hall. *Am Chem Soc J* 42:1770-6 S '20
- Potassium antimony tartrate.** See Tartar emetic

Potassium carbonate. See Potash**Potassium chlorate**

- New crystalline form of potassium chlorate. E. R. Wolcott. il *J Ind & Eng Chem* 13:215-16 Mr '21
- Potassium chlorate as a standardizing substance for solutions of alkali. H. B. Van Valkenburgh. *Am Chem Soc J* 42:757-60 Ap '20
- Sensitiveness of explosives to frictional impact. S. P. Howell. il diags *U S Bur Mines Tech Pa* 234:1-15 '19; Same, without tables (Pendulum-type testing apparatus). *Sci Am M* 1:6-8 Ja '20

See also Potassium perchlorate

Potassium chloride

- Activity coefficient of normal potassium chloride solution and the potential of the normal calomel electrode. J. A. Beattie. *Am Chem Soc J* 42:1128-31 Je '20
- Lowering of the vapor pressure of water at 20° produced by dissolved potassium chloride. B. F. Lovelace, J. C. W. Frazer and V. B. Sease. *Am Chem Soc J* 43:102-10 Ja '21

Potassium chloride calomel cell

- Study of the saturated potassium chloride calomel cell. H. A. Fales and W. A. Mudge. *Am Chem Soc J* 42:2434-53 D '20

Potassium cobaltmalonate

- Inorganic complex salts; potassium ferri-oxalate and potassium cobaltmalonate. W. Thomas. *Chem Soc J* 119:1140-5 Jl '21

Potassium compounds

- Contribution to the stoichiometry of adsorption; adsorption of potassium and barium salts of various anions. S. Odén and E. W. Langelius. *J Phys Chem* 25:385-98 My '21
- Measurement of vapor pressures of certain potassium compounds. D. D. Jackson and J. J. Morgan. diags *J Ind & Eng Chem* 13:110-18 F '21

Potassium cyanide. See Cyanide process**Potassium ferricyanide**

- Electrolytic preparation of potassium ferricyanide. O. W. Brown, C. O. Henke and I. L. Miller. *J Phys Chem* 24:230-7 Mr '20
- Study of the absorption spectra of potassium ferro- and ferricyanides. F. H. Getman. *J Phys Chem* 25:147-59 F '21

- Potassium ferrioxalate**
Inorganic complex salts; potassium ferrioxalate and potassium cobaltmalonate. W: Thomas. Chem Soc J 119:1140-5 J1 '21
- Potassium ferrocyanide**
Potassium ferrocyanide from coal gas residues. G. Grube and B. Dulk. Chem Age 29:37-40 Ja '21
Study of the absorption spectra of potassium ferro- and ferricyanides. F: H. Getman. J Phys Chem 25:147-59 F '21
- Potassium fluoride**
Über die darstellung von fluor aus geschmolzenem kaliumbifluorid. F: Meyer and W. Sandow. diag Deutsche Chem Gesell Ber 54: 759-66 Ap '21
- Potassium hydrogen phthalate**
Further work on potassium hydrogen phthalate as a standard in volumetric analysis. W. S. Hendrixson. Am Chem Soc J 42:724-7 Ap '20
- Potassium hydroxide**
Alkali fusions; fusion of phenylglycine- δ -carboxylic acid for the production of indigo. M. Phillips. J Ind & Eng Chem 13:759-62 S '21
Decomposition of stannous chloride by water and by potassium hydroxide solutions. C. M. Carson. Am Chem Soc J 41:1969-77 D '19
Free energy of potassium hydroxide in aqueous solution and the activities of its ions. Ming Chow. diags Am Chem Soc J 42:488-97 Mr '20
Mechanism of the action of fused alkalis; the action of fused potassium hydroxide on phenylglyceric acid. H: R. Le Sueur and C. C. Wood. Chem Soc J 119:1697-1700 O '21
- Potassium manganate**
Equilibrium conditions of the reaction between manganate, permanganate and manganese dioxide. C: E. Ruby. Am Chem Soc J 43:294-301 F '21
- Potassium nitrate.** See Saltpeter
- Potassium perchlorate**
Determination of potassium as perchlorate. G. P. Baxter and M. Kobayashi. Am Chem Soc J 42:735-42 Ap '20
Determination of potassium as perchlorate. G. P. Baxter and F. E. Rupert. Am Chem Soc J 42:2046-9 O '20
- Potassium permanganate**
Electrolytic production of sodium and potassium permanganates from ferromanganese. R. E. Wilson, W. G. Horsch and M. A. Youtz. J Ind & Eng Chem 13:763-9 S '21
Equilibrium conditions of the reaction between manganate, permanganate and manganese dioxide. C: E. Ruby. Am Chem Soc J 43:294-301 F '21
Influence of potassium permanganate on Kjeldahl nitrogen determinations. D. C. Cochrane. J Ind & Eng Chem 12:1195-6 D '20
Manufacture of potassium permanganate. R. B. Stringfield. flow sheet diags Chem & Met Eng 22:1027-30 Je 2 '20
Potassium permanganate from ferromanganese by electrolysis. M. deK. Thompson. Chem & Met Eng 21:680-1 N 26 '19
Reaction between hydrochloric acid and potassium permanganate. F. P. Venable and D. H. Jackson. Am Chem Soc J 42:237-9 F '20
Use of potassium permanganate in the determination of nitrogen by the Kjeldahl method. D. C. Cochrane. J Ind & Eng Chem 13:358 Ap '21
- Potassium sodium tartrate**
Piezo-electric and allied phenomena in Rochelle salt. J. Valasek. diags Phys R 17: 475-81 Ap '21
- Potassium sulfate**
Formation of the double salts of calcium and potassium sulfates at 100°C. E. Anderson and R. J. Nestell. J Ind & Eng Chem 12:243-6 Mr '20
System potassium sulphate-glucinum sulphate-water at 25°. H. T. S. Britton and A. J. Allmand. Chem Soc J 119:1463-70 S '21
- Potato bugs**
Potato bugs exterminated by new machine. il Pop Mech 33:658 My '20
- Potato drying**
Potato drying in Germany in its technical and economic aspects. H. Jordan. il chart diags Am Soc Heat & V E J 26:735-52, 831-48 N-D '20
- Potato flakes**
Advertising
Making the lowly spud a table aristocrat. M. A. Bartlett. Ptr Ink 114:101+ F 3 '21
- Potato flour**
Making the potato bone dry. E. B. Reid. il Nation's Business 8:50+ F '20
Manufacture of sweet potato flour by the flake process. C. E. Mangels and S. C. Prescott. il Chem Age 29:132-5 Ap '21
Mineral constituents of potatoes and potato flour; effect of process of manufacture on composition of the ash of potato flour. C. E. Mangels. J Ind & Eng Chem 13:418-19 My '21
- Potato starch**
Polysaccharides: degradation of potato starch; abstract. P. Karrer and C. Nägeli. Chem Soc J 120 pt 1:311-12 My '21
- Potatoes**
Mineral constituents of potatoes and potato flour: effect of process of manufacture on composition of the ash of potato flour. C. E. Mangels. J Ind & Eng Chem 13:418-19 My '21
Planting whole potatoes instead of eyes. A. Girard. Sci Am M 2:119 O '20
Rajeunissement et perfectionnement des variétés de pommes de terre. Génie Civil 78:17 Ja 1 '21
See also Sweet potatoes
- Diseases and pests**
Some enemies of the potato. R. B. Harvey. il diag Sci Am M 2:120-2 O '20
- Potential, Electric.** See Electric currents; Electromotive force
- Potentiometers**
Brown portable potentiometer. il Mach 26: 676-7 Mr '20
Potentiometer in pyrometry. C: P. Frey. diags Chem & Met Eng 22:1168-70 Je 23 '20; Excerpt. Iron Age 105:1450-1 My 20 '20
Potentiometer indicator for wall mounting. il Elec R 78:235 F 5 '21
Tinsley's vernier potentiometer. il Electrician 85:630 N 26 '20
- Potholes**
Fascination of waterfalls and gorges; study of pothole grinding and sluice cutting in the Finger Lakes region of New York. O. D. von Engeln. il Sci Am M 2:302-8 D '20
- Potomac river**
Developing power of the Potomac river. J: C. Hoyt. il Elec W 76:421-2 Ag 28 '20
Power commission favors Potomac project. Eng N 86:388-9 Mr 3 '21
See also Great Falls, Virginia
- Potter, Mark Winslow, 1866-**
I. C. commissioner. por Ry Age 68:1420 My 14 '20; Ry R 66:856 My 22 '20
- Potteries**
See also Clay storage
- Pottery**
Ancient art in modern dress. M. O. Goldsmith. il Sci Am 125:120+ Ag 13 '21
Application of pyrometry to the ceramic industries. C. B. Thwing. Min & Met 153:2139-42 S '19; Discussion. 157:(sec 12) 8-9 Ja '20
Casting of heavy pottery; abstract. B. J. Allen. Am Cer Soc J 3:430-1 My '20
Ceramic day at the sixth National exposition of chemical industries. Chem & Met Eng 23:675-6 O 6 '20
Ceramic industries. Sci Am M 1:175-6 F '20
Ceramic industries pocket book. A. B. Searle. 267p Pitman '20

Pottery—Continued

- Ceramic processes associated with colloid phenomena. A. V. Bleininger. *J Ind & Eng Chem* 12:436-8 My '20
- Ceramics. A. Malinovzsky. 274p Van Nostrand '21
- Cobalt stain in white ware bodies. A. S. Watts. *Am Cer Soc J* 4 pt 1:451-2 Je '21
- Commercial pottery of Japan. *Chem & Met Eng* 22:702 Ap 14 '20
- Decorating with colored clay. *il Brick & Clay Rec* 59:359-60 S 6 '21
- Effect of sulfur in coal used in ceramic industries. C. W. Parmelee. *Am Inst Min Bul* 153:1845-50 S '19; Same. *Coal Age* 17:12-14 Ja 1 '20
- Gas for china firing. O. F. Schuette. *Gas Age* 45:566 Je 25 '20
- Glimpses of Ohio ceramic industries. C. H. Jones. *il Chem & Met Eng* 25:562-6, 619-22 S 21-28 '21
- Graphical methods of computing the composition of ceramic bodies; abstract. U. Pfaff and M. Donath. *Am Cer Soc J* 4:307-8 Ap '21
- Mutual relations between art and technology. L. V. Solon. *Am Cer Soc J* 4:263-70 Ap '21
- New ceramic research station at Rutgers college. E. C. Millen. *Chem & Met Eng* 22:410 Mr 3 '20
- Possibilities of pottery manufacture from Iowa clays. W. G. Whitford and O. J. Whittemore. *il diags Iowa state college Bul* 58:1-31 '20
- Pottery making oldest of crafts. N. B. Kastl. *il Am Ind* 22:29-32. O '21
- Relation of the artist to the manufacturer. C. Dressler. *Am Cer Soc J* 4 pt 1:442-5 Je '21
- Research in ceramic decorative processes. *Am Cer Soc J* 4:326-34 My '21
- Sanitary pottery made by casting process. *il diag Plumber* 95:263-5 My 6 '21
- Silica—spine of ceramic ware. *Brick & Clay Rec* 59:581-4 O 18 '21
- Use of American raw materials in the manufacture of white ware pottery. A. V. Bleininger and W. W. McDanel. *Am Cer Soc J* 3:134-48 F '20; Discussion. C. M. Franzheim. 3:997-8 D '20
- See also* Clay; Clay industries; Enamel and enameling; Frits; Glazes; Kilns; Porcelain; Saggers; Stoneware; Terra cotta; Tile; *also* American ceramic society

Bibliography

- Selected bibliography of books, in the English language, dealing with ceramic chemistry and the ceramic industries. *J Ind & Eng Chem* 13:476-8 My '21

Pottery industry

- Pottery and porcelain factories of China. A. L. Hetherington. 15p Dutton '21
- Pottery industry in 1919. *Chem & Met Eng* 23:692 O 6 '20
- Pottery industry of Japan and China. W. Burgess. 36p *il W: Burgess*, Trenton, N.J. '20
- Pottery manufacture in Japan. *il Brick & Clay Rec* 58:308-11 F 22 '21

Pottery workers

- Lead poisoning in the pottery trades. *Chem & Met Eng* 25:78 Jl 13 '21
- New scale of wages in the British pottery industry. *Monthly Labor R* 11:298-300 Ag '20
- Poughkeepsie, New York

Bridges

- Reconstructing Poughkeepsie cantilever bridge for heavy traffic. C. E. Chase. *il diags plans Eng N* 84:528-34 Mr 11 '20

Poulsen arc. *See* Electric arc

Poultry**Advertising**

- He capitalizes the personality of his product. C. C. Sherlock. *il Ptr Ink M* 3:49-50 Jl '21
- When it pays to persuade your competitor to advertise; baby chick business an industry where nearly everybody advertises. J. A. Murphy. *il Ptr Ink M* 3:19-20+ Je '21

Poultry brooders

- Raising chickens electrically. M. S. Barnes. *il J Elec* 45:176-7 Ag 15 '20; Same. *Elec R (Lond)* 89:316 S 2 '21

Poverty

- Abolition of poverty. *Comm & Fin Chr* 112: 1910-11 My 7 '21

Powder plants. *See* Smokeless powder

Powder-post beetles

- Powder-post damage to timber and wood products. A. D. Hopkins and T. E. Snyder. *il Eng N* 87:269-71 Ag 18 '21

Powdered coal. *See* Coal, Pulverized

Powdered iron. *See* Iron, Powdered

Power

- America's power resources; the economic significance of coal, oil and water-power. C. G. Gilbert and J. E. Pogue. 326p *Century* '21; Review. *Automotive Ind* 45:674-8 O 18 '21
- Analysis of industrial power in the Superpower Zone. H. Goodwin, jr. *diags Power* 54:584-8 O 18 '21
- Cheap heat power; final report of the Nitrogen products committee. *Engineer* 129:97 Ja 23 '20
- Destructible power resources. *Min & Sci P* 122:700-2 My 21 '21
- Economical power: the strongest agent for maintaining supremacy in world's trade. W. S. Murray. *Am Inst E E J* 39:27-31; Discussion. 31-3 Ja '20
- Elements of power. A. Walton. *Textile World* 59:4061 Je 18 '21
- L'emploi des eaux thermales comme source d'énergie. P. Caufourier. *diags Génie Civil* 78:37-9 Ja 8 '21; Abstracts (Power generation from natural hot waters). *Mech Eng* 43:200-1 Mr '21; *Power* 53:565 Ap 5 '21
- Energy as a basic commodity. W. N. Polakov. *Ind Management* 60:232-9 S '20
- Europe enters period of steady development of power industry. L. W. Alwyn-Schmidt. *Power Pl Eng* 25:892-5 S 15 '21
- Form value of energy in relation to its production, transportation, and application. C. G. Gilbert and J. E. Pogue. *Mech Eng* 43:26-8 Ja '21
- Fuel and power conservation on the Pacific coast. A. J. Dickie. *Mech Eng* 42:710 D '20
- Future prospects of increasing thermal efficiency. *Power* 52:227-8 Ag 10 '20
- Future status of power. L. W. Alwyn-Schmidt. *Power Pl Eng* 24:927-9 O 1 '20
- Glance into the future. G. H. Ashley. *Elec W* 74:942-4 N 15 '19
- How to determine power required for pumping. *chart Plumber* 94:592-4 D 31 '20
- Industrial power and fuel consumption in superpower zone. *Chem & Met Eng* 25:470, 708-9 S 7, O 12 '21; Same. *Elec W* 78:227 Jl 30 '21; Same. *Iron Age* 108:68 Jl 14 '21
- Industry's supply of energy. G. O. Smith. *Mech Eng* 43:165-6+ Mr '21
- Notes on power production. J. White. *Can Eng* 38:303 Mr 18 '20
- Power consumed in milling. F. A. Parsons. *Am Mach* 53:315-16 Ag 12 '20
- Power consumption of machines. H. E. Collins. *Ind Management* 60:35-7 Jl '20
- Power development in the future. Lazaro-vich-Hrebelianovich. *Power* 52:744-7 N 9 '20
- Power for industrial plants. C. T. Main. *Power* 53:3-5 Ja 4 '21
- Power reserves in the U.S. G. O. Smith. *Power Pl Eng* 24:1203-4 D 15 '20
- Power resources. *Min & Sci P* 121:480 O 2 '20
- Power situation during the war. C. Keller. 300p U.S. Engineer dept., Washington '21
- Power transmission and industrial development. R. J. McClelland. *Gen Elec R* 22:825-32 N '19
- Present and future sources of energy. A. D. Little. *Chem Age* 29:393-6 O '21
- Problem of the world's supply of energy. S. A. Arrhenius. *Chem & Met Eng* 23:67-9 Jl 14 '20; Same. *J Fr Inst* 190:114-21 Jl '20; Same. *Power* 52:57-9 Jl 13 '20; Same. *Engineer* 130:139 Ag 6 '20; Same. *Sci Am M* 2:103-6 O '20; Excerpts. *Can Eng* 39:378 S 23 '20

Power—Continued

- Progress of the world's power industry in the European power field. L. W. Alwyn-Schmidt. *Power Pl Eng* 24:1020-3 N 1 '20
- Recent progress of power development in the world. L. W. Alwyn-Schmidt. *Power Pl Eng* 24:691-3, 738-40 JI 15-Ag. 1 '20
- Revival of industrial activity in Europe; relation to the development of the available sources of power supply. L. W. Alwyn-Schmidt. *Power Pl Eng* 25:205-7 F 15 '21
- Some fundamentals of engineering economics. D. B. Rushmore. *map Gen Elec R* 22:820-4 N '19
- Some phases of the power situation. E. A. Van Deusen. *diags Power Pl Eng* 24:370-3 Ap 1 '20
- Sources of industrial power. *Mach* 27:948 Je '21
- Study of power development and suggestions for future progress. L. W. W. Morrow. *Power* 51:922-4 Je 8 '20
- Thrifty in using power. *Factory* 24:84+, 308+, 464+, 1707-8; 25:294+, 610+, 1146+, 1452+ Ja-F 15, Je 1, JI 15, Ag 15, O 1, N 1 '20
- Trend of power industry in buying markets. L. W. Alwyn-Schmidt. *Power Pl Eng* 25:308-10 Mr 15 '21
- Turning the wheels of a century hence. C. H. Claudy. *Sci Am* 122:700+; 123:36+, 60+ Je 26, JI 10-17 '20
- See also* Compressed air; Dynamometer; Electric power; Force and energy; Horsepower; Hydroelectric power; Machinery; Mining engineering—Power; Muscular power; Pneumatic tools; Power cost; Power factor; Power plants; Power transmission; Rolling mills—Power; Solar power; Steam; Steam, Natural; Steel works—Power; Tide power; Water power; Wind power
- Power banks.** *See* Electric distribution
- Power commission, Federal.** *See* Federal power commission
- Power contracts**
- Agreements for the supply of electrical energy to works. W. Cramp. *Electrician* 84:660-3 Je 18 '20
- Power contracts and substations for industrial loads. E. Pragst and A. G. Darling. *Gen Elec R* 24:507-10 Je '21
- Value of engineering advice in making a power contract. E. C. Lang. *Ind Management* 59:56 Ja '20
- Power cost**
- Analysis of power-plant costs. W. R. Metz. *Power* 53:789-90 My 17 '21
- Analysis of wholesale electric costs. F. M. Van Deventer. *charts Blast F & Steel Pl* 9:374-6, 438-41, 529-31 Je-JI, S '21
- Building transmission lines vs. paying freight on coal. H. L. Wallau. *Elec W* 77:422-3 F 19 '21
- Chart for calculating monthly power plant costs. A. R. Herske. *Power Pl Eng* 25:1049 N 1 '21
- Comparative costs of central-station and oil-engine power. *Elec W* 76:483-4 S 4 '20
- Cost of furnishing rural service. D. O. Vaughn. *Elec W* 75:851-2 Ap 10 '20
- Diesel engined flour mill. *Power* 52:326 Ag 31 '20
- Distributing power costs in a pulp mill using 1,500 hp. H. E. Stafford. *Elec W* 77:1000-1 Ap 30 '21
- Economics of hydro-electric development. A. H. Gibson. *Engineer* 131:367-9, 393-4 Ap 8-15 '21
- Economies to be expected of superstation. J. A. Stevens. *diags maps Power* 51:879-84 Je 1 '20
- Electric current rates for refrigerating and ice making plants. S. Bennis. *diag A S R E J* 8:111-23; Discussion. 123-6 S '21
- Electricity in the development of oil lands. R. A. Balzari, O. A. Kommers and F. V. Boller. *il J Elec* 44:373-7 Ap 15 '20
- Electricity—its development and operating cost in stone quarry operation. W. D. Myers. *N E L A Bul* 7:304-5 My '20
- Electrified oil well proves to be economical. *Elec W* 75:217 Ja 24 '20
- Free as air. H. M. Crawford. *Am Gas Eng J* 113:141-2+ Ag 21 '20
- How to follow up power costs. N. A. Craigie. *il Ind Management* 62:275-9 N '21
- Hydro-electric energy saves community more than \$500,000 in sixteen years. *Elec W* 75:1492-3 Je 26 '20
- Industrial power problems. W. F. Uhl. *Textile World* 56:2742+ N 1 '19
- Internal combustion engines vs. central station power. R. E. Fisher, W. W. Shuhaw and C. Ingalls. *J Elec* 44:353-5 Ap 15 '20
- Low power costs in a small flour mill. F. E. Jones. *Power* 54:329 Ag 30 '21
- Power-cost distribution in mill with 1,800 hp. in motors. F. Krug. *Elec W* 78:425-6 Ag 27 '21
- Power costs at the point of delivery on inter-urban electric railways. J. S. Hagan. *Elec Ry J* 58:409-10 S 10 '21
- Power costs during years 1914 to 1919. H. E. Collins. *chart Ind Management* 59:467-72 Je '20; Same. Sibley *J* 34:136-43 O '20
- Power, light and heat in large buildings; economy of purchased electric power in conjunction with low pressure steam. J. A. McHollan. *diag Arch Forum* 35:141-4 O '21
- Question of service cost. J. C. Smallwood. *diags Power* 52:622-3 O 19 '20
- Reducing manufacturing costs by studying power demand. R. S. Lowry. *Elec W* 78:257-8 Ag 6 '21
- Stability of cost of power. L. W. Alwyn-Schmidt. *Power Pl Eng* 25:405-7 Ap 15 '21; Discussion. F. L. Ray. 25:584 Je 1 '21
- Steam-turbine and Diesel operating costs. *Power* 52:787 N 16 '20
- Steam versus electric driven steel mills. *Power* 51:861-3 My 25 '20; Abstract. *Iron Age* 106:14-15 JI 1 '20
- Studying power costs for steam laundries. P. P. Pine. *Elec W* 75:905-6 Ap 17 '20
- L'utilisation des fleuves par barrages ou dérivations; étude de l'usine et du barrage d'Augst-Wyhlen, sur le Rhin. L. Mähl. *Génie Civil* 76:212-14 F 21 '20
- Variation in costs as affecting distribution design. P. O. Reyneau and H. P. Seelye. *Elec W* 78:365-7 Ag 20 '21
- Water-power and fuel-power costs compared. *Coal Age* 18:913 O 28 '20
- Where to cut power costs. *Factory* 25:1587 N 15 '20
- Why the cost of electricity is low in the western states. *J Elec* 46:606-7 Je 15 '21
- Worcester section A.S.M.E. discusses industrial power. R. J. S. Pigott. *diag Power* 51:113-15 Ja 20 '20
- See also* Electric service, Rural—Cost

Accounting

- How far to carry industrial metering. W. B. Todd. *diags Elec W* 77:469-70 F 26 '20

Power factor

- Active and reactive power, power factor. W. V. Lyon. *Elec W* 75:1417-19 Je 19 '20
- A.I.E.E. power factor session. *Elec W* 76:65-6 JI 10 '20
- Balance-factor in the solution of power problems. A. Rudin. *charts diags Elec W* 77:101-2 Ja 8 '21
- Chart for finding power factor. C. H. Berry. *diag Power* 51:795-6 My 18 '20
- Chart used with two wattmeters to determine power factor. R. G. Warner. *chart Elec W* 75:1095 My 8 '20
- Charts to solve power-factor correction problems. A. Rudin. *charts diags Elec W* 77:101-2 Ja 8 '21
- Computing power-factor problems by graphic methods. T. Schou. *diags Elec R* 78:860-6 My 28 '21
- Connected load versus generator capacity. F. Jeffrey. *il diags Power* 52:162-5 Ag 3 '20
- Control of power-factor on transmission lines. A. Still. *diags Elec R* 77:955-8 D 18 '20
- Correction of power-factor on distribution systems. H. C. Croy. *Elec R* 79:577-80 O 15 '21
- Correction of power-factor with industrial motors. C. W. Drake. *Elec R* 76:767-9 My 8 '20; Same. *Power* 51:822-3 My 18 '20

Power factor—Continued

- Correction of power-factor with static condensers. E: A. Roeser. diag Elec R 76:836-8 My 15 '20
- Cost of low power factor. W. Brown. il diags Power 51:24-6 Ja 6 '20
- Definitions of power factor. D. J. Angus. diag Elec W 78:419-20 Ag 27 '21
- Electric characteristics of transmission circuits; synchronous motors and condensers for power-factor improvement. W: Nesbit. diags J Elec 18:365-73 Ag '21
- Explanation and measurement of power factor. V: H. Todd. il diags Power 51:224-7 F 10 '20
- Le facteur de puissance des installations à courants alternatifs, et les moyens de l'améliorer. A. Soulier. diags Génie Civil 76:39-41 Ja 10 '20
- Graph for measuring three phase power factor. G. R. Morgan. Sibley J 34:8+ Ja '20
- How power factor affects the voltage regulation of an alternator. Q. Graham. Power 51:379-81 Mr 9 '20
- How should power factor be handled? C: J. Russell. Elec W 77:1089+ My 14 '21
- How to measure average power factor with reactive-component meters. diags Elec W 77:1491-2 Je 25 '21
- Improving load power factor by premium and penalty. L. R. Wilson. il chart diag Elec W 78:467-9 S 3 '21
- Improving power factor conditions with induction motors. R. G. Warner and A. E. Knowlton. diags Elec W 76:1021-3 N 20 '20
- Inexpensive method of power-factor correction. C. Fichtel. il Elec W 75:550 Mr 6 '20
- Influence of power factor on charges for electrical supply. G. W. Stubbings. diags Eng & Ind Management 5:463-5 Ap 21 '21
- Low power factor. R. O. Kapp. Engineering 112:79 Jl 8 '21; Same. Electrician 87:38-9 Jl 8 '21; Same. Elec R (Lond) 89:43-4 Jl 8 '21; Discussion. Engineering 112:47-9 Jl 8 '21; Discussion. Electrician 87:39-40 Jl 8 '21; Same. Elec R (Lond) 89:43-4 Jl 8 '21
- Low power factor; its causes, effects, measurements and remedies. C. W. Bates. N E L A Bul 8:520-31 S '21
- Measurement of power at low power factors. H. Cotton. diags Electrician 86:544-5 My 6 '21
- Measurement of power factor for rates. C. E. Brown. diags Elec W 75:721-2 Mr 27 '20
- Must consider three matters in power-factor contracts. R. H. Ashworth. Elec R 77:218 Ag 7 '20
- Pennsylvania electric association discusses power factor. Power 51:744-5 My 4 '20
- Points to consider in adjusting for customers' power factor. Elec W 77:663 Mr 19 '21
- Power factor. E. W. Dorey. diags Elec R (Lond) 89:275-6, 493-4, 723 Ag 26, O 14, N 25 '21
- Power-factor adjustments by the use of synchronous motors. R. Beach. Power 50:807-9 D 16 '19
- Power factor and rates. E. A. Quinn. J Elec 44:372-3 Ap 15 '20
- Power factor as it affects the cost of energy. G. M. Kennedy. Coal Age 17:49-50 Ja 8 '20
- Power factor correction. A. E. Clayton. 108p Pitman '21
- Power-factor correction and its effect. T: F. English. Elec R 77:537-8 O 2 '20
- Power-factor correction by synchronous motors. V: H. Todd. diags Power Pl Eng 24:1174-6 D 15 '20
- Power-factor correction in steel mills. H. K. Sels. diags Elec J 18:419-24 S '21
- Power factor correction on distribution systems. D. M. Jones. Am Inst E E J 39:648-57 Jl '20
- Power factor in electric power rates. H. W. Meyer. Elec W 78:576-7 S 17 '21
- Power-factor in polyphase circuits. A. Nyman. diags Elec J 18:20-2 Ja '21; Same. Power Pl Eng 25:1058-60 N 1 '21
- Power factor in polyphase circuits; preliminary report of special joint committee and abstracts of papers. Am Inst E E J 39:538-46 Je '20; Abstract. Sci Am M 2:281-2 N '20
- Power-factor rate that works both ways. M. L. Sindeband. Elec W 77:1369 Je 11 '21
- Power factors financially considered. F. C. DeWeese. diag Power Pl Eng 24:237-9 F 15 '20
- Power rates based on power factor of customer's load. F. A. Coffin. N E L A Bul 8:551-5 S '21
- Preventing versus correcting poor power-factor. H. Goodwin, jr. diag Gen Elec R 22:970-3 N '19; Same. Power Pl Eng 24:285-7 Mr 1 '20
- Steel mill power-factor and the central station. A. K. Bushman and A. L. Lemon. il diag Gen Elec R 24:483-6 Je '21
- Synchronous motors. W. T. Berkshire. diags Gen Elec R 23:119-21 F '20; Same. Power 51:850-1 My 25 '20
- Testing for phase rotation in three-phase circuits. F. A. Kartak. il Elec W 77:928-9 Ap 23 '21
- Theory of speed and power factor control of large induction motors by neutralized polyphase alternating current commutator machines. J: I. Hull. il diags Am Inst E E J 39:458-70 My '20; Same. Gen Elec R 23:630-44 Jl '20
- Voltage and power factor control of 66,000-volt transmission lines connecting two generating stations. R. Bailey. il diags Am Inst E E J 40:462-9 Je '21
- Wattmeter and power-factor indicator connections. H. C. Yeaton. diags Power 51:846 My 25 '20
- What is power factor? Elec Ry J 56:349 Ag 21 '20
- See also* Reactive factor

Power plants

- Aligning the power plant with the cost department. M. C. W. Tomlinson. Ind Management 61:171-3 Mr 1 '21
- Coal consumption in institutional heating, lighting and power plants. G. B. Nichols. diag Power 51:654-6 Ap 27 '20
- Dodge brothers modern power plant. T: Wilson. il diags plan Power 53:841-9 My 24 '21
- Dodge brothers' new power plant at Detroit. il diag Iron Age 107:1391-4 My 26 '21
- Engineering of power plants. R. H. Fernald and G: A. Orrok. 2d ed. 595p McGraw-Hill '21
- Fuel saving in bleaching, dyeing and finishing. L. Loeb. il diags plan Textile World 59:1103-5+ F 5 '21
- Heating plant as a source of power; turbo-generator unit condensing into the heaters of a hot-water forced circulation system. I. N. Evans. il Power 52:846-9 N 30 '20; Discussion. 53:521-2; 54:115-16 Mr 29, Jl 19 '21
- Industrial power-plant data; census figures. Power 54:139-40 Jl 26 '21
- Keeping up output while changing power plants. il Factory 25:716-17 S 1 '20
- Making waste power pay the bill. J: H. Moss. il Factory 26:1412-14 Je 15 '21
- New Armour plant at Kansas City. il diags plan Power 52:966-9 D 21 '20
- New Armour South St Paul plant. il diag plans Power 51:48-54 Ja 13 '20
- New Ford power plant at River Rouge. T: Wilson. il diags plans Power 54:349-53 S 6 '21
- New power plants for saw mills. J: B. Woods. il Power 51:162-4 F 3 '20
- New turbine plant of the Hudson motor car co. il diags Power 53:572-5 Ap 12 '21
- Non-condensing turbine plant of the Western felt works. il plan Power 53:294-7 F 22 '21
- Plant of the Powers regulator co. il diags plans Power Pl Eng 24:967-71 O 15 '20
- Portland-cement masonry for power stations. B. S. Murphy. Power 54:98-101 Jl 19 '21
- Power plant layout and data record. G: W. Childs. plan Power Pl Eng 24:809-10 Ag 15 '20
- Power plants that are ornamental as well as useful. il Power 52:209 Ag 10 '20
- Purchasing power by performance. C. M. Garland. Factory 24:1700-1 Je 1 '20
- Review of the year in the power-plant field. Power 53:2-23 Ja 4 '21

Power plants—Continued

- Some power plant troubles. H. A. Jahnke. diags Power Pl Eng 25:669-71 J1 1 '21
 Symposium on the power plant in the chemical industries. Chem & Met Eng 25:592-3 S 28 '21
 Terminal power plant. W. J. Harding. Ry R 66:133-4 Ja 24 '20
 Third power kink book. 264p McGraw-Hill '21
 Thrift in using power. Factory 24:1707-8 Je 1 '20
 Works of Messrs. Marshall, sons and co., ltd., Gainsborough. il diag Engineering 109:673-5, 686; 110:164-5, pl 38 My 21, J1 30 '20
 Year's progress in the power field. il Power 51:2-16 Ja 6 '20

See also Boiler plants; Electric plants; Gas power plants; Hydroelectric plants; Lubrication and lubricants; Steam plants

Accidents

- Power-plant accidents. S. F. Jeter. Power 53:19-20 Ja 4 '21

Accounting

- Accounting for steam production and distribution. A. R. Smith. diag Power 54:630-3 O 25 '21; Same. Gen Elec R 24:957-63 N '21
 Armour system of power-plant accounting. O. A. Anderson. Power 53:128-31, 170-4, 219-22 Ja 25-F 8 '21
 Keeping power plant operating costs. A. F. Brewer. Power Pl Eng 24:1080-1 N 15 '20
 Maintenance department methods; distributing the costs. H. E. Collins. Power 53:503-6 Mr 29 '21
 Planning records of cost data; with analyses. chart diag Power Pl Eng 24:8-19, 47-9 Ja 1 '20
 Power plant accounts. W. E. Miller. Power 54:408-10, 448-51, 489-91, 528-30, 558-60, 596-9, 636-8, 680-4, 719-23, 769-72, 806-9, 848-52 S 13-N 29 '21

Construction

- Colfax power station of the Duquesne light company, Springdale, Pa. il Arch & Bldg 53:38-40, pl 65-9 My '21
 Hazards of power plant construction. il Power 52:839-40 N 23 '20
 Power house foundations. E. M. Lurie. il diags plan Power Pl Eng 24:167-73 F 1 '20
 Some sidelights on construction work. N. L. Rea. il Gen Elec R 22:913-17 N '19

Design

- Developments in power station design. Engineer 132:70-1, 90-1, 142-4, 162-3, 190-1, 214-16, 234-6, 258-60, 282-4, 324-5, 336-8, 364-5, 390-2, 445-7, 502-4, 530-2, 558-9, 601, 613-14 J1 15-22, Ag 5-O 14, 28, N 11-D 9 '21
 Tendencies in the design of power stations. P: Junkersfeld. il Elec W 77:5-7 Ja 1 '21
 Unit idea in power station design. L: R. Lee. diag Elec Ry J 57:73-6 Ja 8 '21

Employees

- Human factor in problems of power-plant efficiency. R. June. Elec R 78:461-3 Mr 19 '21
 Salaries of operating engineers. Power 50:648-50 O 28 '19

Equipment

- Developments in power station design. il diags Engineer 132:282-4 S 16 '21
 Engineer's tool list for a new plant. J: A. Stevens. Paper 27:120-1 N 10 '20
 Equipment costs. H. E. Collins. Power Pl Eng 25:213-14 F 15 '21
 Improvements and replacements. charts Power Pl Eng 24:63-9 Ja 1 '20
 Power plant machine shops. W. O. Rogers. il diags Power 54:12-19 J1 5 '21
 Power production and lower prices. L. W. Alwyn-Schmidt. Power Pl Eng 24:555-7 Je 1 '20

Inspection

- Use and occupancy; losses due to shutdowns and the responsibilities therefor. A. D. Palmer. diag Power Pl Eng 25:613-14 Je 15 '21

Lighting

- Lighting of power houses. A. D. Bell. il Power Pl Eng 24:885-7 S 15 '20

Location

- Location of an industrial power plant. M. K. Bryan and A. S. Wells. diags Power 53:387-9 Mr 8 '21

Management

- Analysis of power-plant costs. W. R. Metz. Power 53:789-90 My 17 '21
 Economies in steam generating stations. S. M. Finn. Elec Ry J 54:1047-8 D 27 '19
 Educating power plant operators. W. E. East. Eng & Contr 52:568-9 N 12 '19
 Efficient operation of power plants. F. C. Torrance. Power 50:799-800 D 16 '19
 Efficient organization of power plant help. H. A. Wilcox. Power Pl Eng 24:226-8 F 15 '20
 Elimination of waste in industrial power plants. D: M. Myers. Chem & Met Eng 25:413-16 Ag 31 '21
 Engineer's opportunity; necessity of educating plant owners to obtain economical power plant operation. H. A. Cranford. Power Pl Eng 24:1081-2 N 15 '20
 General operating instructions. W. A. Darter. Power Pl Eng 25:725-6 J1 15 '21
 How to get your suggestions across with industrialism quiet. K. Rankin. Power Pl Eng 25:513-14 My 15 '21
 Load regulation; planning operating schedules. diags Power Pl Eng 25:78-84 Ja 1 '21
 Maintenance-department methods. H. E. Collins. Power 53:418-21, 464-8, 503-6 Mr 15-29 '21
 Management of the power plant. R. June. il Textile World 57:229+, 1197+, 2509, 3503+, 4236; 58:109+, 883+ Ja 10, F 7, Ap 3, My 8, Je 5, J1 3, Ag 7 '20; Same abr. Elec R 76:109-11, 308-10 Ja 17, F 21 '20
 Nigger in the coal pile; power plant management. R. June. Gas Age 47:274-5 Ap 11 '21
 Power plant troubles. H. A. Jahnke. diags Power Pl Eng 24:620-2, 709-10 Je 15, J1 15 '20
 Practical ways to cut your coal bill. C: L. Hubbard. il diags Factory 24:1325-8, 1711-13 My 1, Je 1 '20
 Proper methods to use in preparing a plant for the summer shut-down. P. Budd. diags Power Pl Eng 25:672-3 J1 1 '21
 Results of mastering power production. L. P. Alford. chart Ind Management 59:273-80 Ap '20
 Review of industrial power plant practice. D: M. Myers. Ind Management 61:274-7+ Ap 1 '21
 Treatment of power-plant trouble. M. A. Saller. Power 51:58-9 Ja 13 '20
 Value of metering fuel oil and water. A. F. Brewer. Power Pl Eng 25:161-2 F 1 '21

See also Boiler plants

Piping

See Piping (power plants)

Records

- Economics of power generation; abstract. R. H. Parsons. Mech Eng 42:458-9 Ag '20
 How to follow up power costs. N. A. Craigie. il Ind Management 62:275-9 N '21
 Maintenance-department methods; keeping the power-plant records. H. E. Collins. Power 53:418-21 Mr 15 '21
 Management of the power plant. R. June. Textile World 56:2729+ N 1 '19
 Power plant data forms. A. D. Palmer. Power 53:1025-6 Je 21 '21
 Power-plant log sheet. P. R. Duffey. Power 51:344-5 Mr 2 '20
 Power plant records and analysis. il Power Pl Eng 24:2-62 Ja 1 '20

See also Electric motors—Records

Power plants—Continued

Testing

- A. S. M. E. power test codes. Mech Eng 42:718-19+ D '20
 Power test codes. Power 53:118-22 Ja 18 '21
See also Boilers—Testing; Hydroelectric plants—Testing; Steam plants—Testing
 Power requirements of electrochemical processes. *See* Electrochemical industries
 Power requirements of tools. *See* Electric driving
 Power stations. *See* Power plants
 Power test codes. *See* Power plants—Testing
 Power transmission
 Cotton rope for power transmission; abstract. J. M. Alison. il diag Mech Eng 42:575-6 O '20
 Dorman sonic wave-power tools. il Mech Eng 42:633-4 N '20
 Drives used in limited space. M. A. Saller. il diag Power Pl Eng 25:379-80 Ap 1 '21
 Motor drive takes less power for starting with chain than with belt. H. E. Stafford. Elec W 76:25-6 Jl 3 '20
 Power may be transmitted by wave motion. il Coal Age 18:1135-6 D 2 '20
 Power transmission by fluid waves. il Sci Am 124:171 F 26 '21
 Power transmission by sonic waves. J. Herck. Mech Eng 42:359-60 Je '20; Same. Sci Am M 1:567-8 Je '20
 Power transmission by wire rope. A. J. Dixon. diags Power 53:893-6 My 31 '21
 Reducing friction loss in transmission. N. P. Winchell, jr. il Paper 25:17-20 Ja 21 '20
 Sonic transmission of power. il Min & Sci P 121:609-10 O 23 '20
 La transmission de l'énergie mécanique par les liquides au moyen des vibrations acoustiques (sonicité). système G. Constantinesco. Génie Civil 76:358-9 Ap 10 '20
 La transmission de l'énergie par les vibrations de l'eau dans les conduites. C. Camichel. Génie Civil 77:259 S 25 '20
 La transmission de l'énergie par les vibrations de liquides dans les conduites. Génie Civil 77:399-400 N 13 '20
 Transmission wastes. Power Pl Eng 25:85-93 Ja 1 '21
 Wave power transmission. Chem & Met Eng 23:913 N 10 '20
 Wave system (sonic waves) of power transmission. diags Ry R 67:791-4 N 20 '20
 Wave transmission of power. diags Am Mach 53:1122-5 D 16 '20
 Wave transmission of power; a new hydraulic power system analogous to alternating current electric power. il Sci Am M 2:346-8 D '20
 What it pays to know about power transmission. C. L. Hubbard. il diags Factory 26:1394-7 Je 15 '21
See also Belting; Cables; Chain gear; Compressed air; Electric distribution; Electric driving; Electric lines; Electric transmission; Gearing; Hydroelectric plants; Machinery; Pulleys; Rope driving; Shafting

Tables, calculations, etc.

- Transmission formulas for balata and fabric belts. W. F. Schaphorst. Am Mach 55:84 Jl 21 '21
 Power units. *See* Kilowatt
 Powers regulator company
 Plant of the Powers regulator co. il diags plans Power Pl Eng 24:967-71 O 15 '20
 Practipedists
 Advertising to develop public esteem for practipedists. Ptr Ink 111:111-12 Je 3 '20
 Prague
 Housing problem met and overcome in Prague; volunteer work of students. il Am Arch 119:66-7 Ja 19 '21

Architecture

- Prague—as a city of the Baroque. S. Brinton. il Am Arch 119:343-9 Mr 23 '21

Prague—the mediaeval city. S. Brinton. il Am Arch 118:739-43 D 8 '20

Prague: the palace-fortress of Hradcany. S. Brinton. il Am Arch 118:268-72 S 1 '20

Pratt, Robert Winthrop, 1876-1920

Sketch. G: W. Fuller and M. Knowles. Boston Soc C E J 7:241-3 O '20

Precious metals

Recovering precious metals from waste liquid residues. G: E: Gee. 380p Spon '20

Precious stones

Gems and precious stones in 1919. B. H. Stoddard. bibliog U S Geol S Min Res of U S 1919,pt 2:165-80 '21

New England economic minerals and gem stones exhibited in Boston. G: F. Kunz. Eng & Min J 111:422 Mr 5 '21

Precious stones in 1919 and in the first half of 1920. G: F. Kunz. Eng & Min J 111:160 Ja 22 '21

See also Diamonds; Heliodor; Opals; Sapphires

Precious stones, Artificial

Artificial production of precious stones. Eng & Min J 111:297 F 12 '21

Industrial applications of hydrogen; synthetic production of jewels. H. L. Barnitz. diags Sci Am M 3:343 Ap '21

Man-made precious stones. C. M. Lewis. il Sci Am 125:48-9+ Jl 16 '21

Advertising

Synthetic sapphires and rubies advertised. Ptr Ink 114:105-6 Mr 24 '21

Precipitation (chemistry)

Adsorption by precipitates. H. B. Weiser and E. B. Middleton. J Phys Chem 24:30-73, 630-63 Ja, N '20

Salt precipitation by refrigeration; abstract. B. Block. diag Mech Eng 42:122 F '20; Same. Sci Am M 1:178-9 F '20

Some factors affecting rhythmic precipitation. A. E. Koenig. il J Phys Chem 24:466-77 Je '20

Precision motor cycle works, Birmingham, England

Precision motor cycle works. il diags plans Engineer 130:575-8, 586 D 10 '20

Preheated air. *See* Air heaters

Preheating of air. *See* Furnaces, Recuperative

Premiums

Comparison of wage incentive systems and the 100 per cent. time premium. L. V. Estes. Ind Management 60:210-17 S '20

See also Bonus system

Preparedness, Military. *See* United States—Defences

President's industrial conference. *See* Industrial conference, Washington, 2d

Press

See also Foreign language press; Newspapers; Periodicals

Press agents

Advertising agents awake to the menace of the press agent. Ptr Ink 110:19-20 Mr 4 '20

Advertising agents condemn free publicity. Ptr Ink 111:196+ Ap 15 '20

Examples of press agent activity. Ptr Ink 110:8+ Mr 11 '20

How dare the publisher discriminate against the press agent! F. W. Wilson. Ptr Ink 110:132-3+ Mr 18 '20

Press agent has his day. E: L. Bernays. Ptr Ink 110:107-8 F 26 '20

Publicity evils up to the publishers. A. G. Newmyer. Ptr Ink 111:85-6+ Je 10 '20

Publisher's view of the press agent. Ptr Ink 110:25-7+ Mr 25 '20

Who gains, if editorial columns are perverted by the press agent? Ptr Ink 110:173+ Mr 25 '20

Why press agents are usually turned down with a bang. Ptr Ink 111:49-50+ Je 10 '20

Press tools. *See* Trimming tools

Pressed steel. *See* Steel, Pressed

Presses

- Atlas arbor presses. *il Mach* 26:778-9 Ap '20
 Cutting costs with the power press. E. K. Hammond. *il diags Mach* 28:96-101 O '21
 Double screw press built by Toledo machine & tool co. *il diag Iron Tr R* 68:1252 My 5 '21
 Ferracute embossing press. *il Am Mach* 52:370 F 12 '20
 500-ton and 800-ton tie rod presses adopted to automotive work. *il Iron Age* 106:911 O 7 '20; *Iron Tr R* 67:1002 O 7 '20; *Automotive Ind* 43:867 O 28 '20
 Flexible power press. *il Mach* 27:495 Ja '21
 Giant Toledo power press. *il Am Mach* 52:692 Mr 25 '20
 Hercules arbor press. *il Mach* 27:91 S '20
 Home-made armature-bearing press. N. E. Drexler. *il Elec Ry J* 55:159 Ja 17 '20
 Increasing the energy of a power press fly-wheel. D. A. Hampson. *diags Mach* 27:325 D '20
 Keeping presses at work with oxyacetylene. I. B. Rich. *il Am Mach* 53:1073-4 D 9 '20
 Marquette pressure locking device for power press. *diags Mach* 27:596-7 F '21
 Massillon trimming press. *il Am Mach* 54:481 Mr 17 '21
 Power press with pressure range to 20 tons. *il Iron Age* 107:140 Ja 13 '21
 Press equipment for fastening and closing perforated can cap. S. A. McDonald. *il diags Mach* 28:16 S '21
 Press of imposing proportions. *il Sci Am* 124:291 Ap 9 '21
 Presses, système Penkala, pour l'agglomération des matières et pour l'extraction des liquides qui y sont contenus. M. Biver. *il diag Génie Civil* 78:265-7 Mr 26 '21
 Relation of power presses and dies to the automobile industry. H. J. Hinde. *diag Engineering* 112:523 O 7 '21
 Releasing the locked dies of a heavy power press. C. F. George. *diags Mach* 27:974-5 Je '21
 Self-contained Toledo no. 54A straight column press. *il Iron Age* 106:970 O 14 '20; *Iron Tr R* 67:1140 O 21 '20
 Small toggle press for the bench. J. V. Romig. *diags Pop Mech* 34:300 Ag '20
 Spring buckling press. *il diags Engineering* 112:502-3 O 7 '21
 Sub-press for blanking, drawing and punching; abstract. J. Blakey and J. Shankley. *diag Mech Eng* 43:546-7 Ag '21
 Thomas power presses. *il Mach* 26:882-3 My '20
 Toggle type forming and roofing press. *il Iron Tr R* 66:1004 Ap 1 '20; *Iron Age* 105:959 Ap 1 '20
 Toledo double-crank press. *il Am Mach* 54:836 My 12 '21; *Iron Age* 107:1242 My 12 '21
 Toledo toggle drawing and stamping press. *il Mach* 26:473-4 Ja '20; *Iron Age* 105:266 Ja 22 '20
 Use of inclinable power presses. N. T. Thurston. *il diag Mach* 27:1125-6 Ag '21
 Utility screw press. *il Iron Age* 106:528 Ag 26 '20
 Williams-White no. 40-A straight side press. *il Am Mach* 52:1162 My 27 '20; *Mach* 26:988 Je '20
See also Dies; Hydraulic presses; Printing presses; Punching machinery

Safety devices

- Automatic safety device used on toggle presses. *diag Elec R* 77:673 O 30 '20
 Device to prevent operators' hands being caught in presses. W. A. Harris. *diags Elec W* 77:321-2 F 5 '21
 Increasing power press safety without reducing production. C. A. Briggs. *il diag Automotive Ind* 43:614-16 S 23 '20
 Magnetic clutch and button control make toggle presses safe. J. K. Govan. *diag Elec W* 76:981 N 13 '20
 Safety device for toggle presses. *il diag India Rubber W* 63:177 D '20
 Safety devices for power presses. *il diags Mach* 27:1106-9; 28:40-2 Ag-S '21

Pressure

- Allowable pressure in thick hollow cylinders. chart *Power* 51:104 Ja 20 '20
 Causes of high pressure in refrigeration systems. V. D. Froid. *diag Power* 53:255-6 F 15 '21
 Concerning ice; high pressure experiments on water. P. W. Bridgman. *il Sci Am* 124:512+ Je 25 '21
 Contact pressures and stresses. E. G. Coker, K. C. Chakko and M. S. Ahmed. *diags Engineering* 111:373-6, 387-9, 439-40, 471-3 Mr 25-Ap 15 '21; Same cond. *Engineer* 131:328-30 Mr 25 '21; Discussion. *Engineering* 111:364-5 Mr 25 '21; *Engineer* 131:325, 463-4 Mr 25, Ap 29 '21
 Industrial employment of extremely high pressures; production of synthetic ammonia. *Sci Am M* 1:511-12 Je '20
 Pressures for mounting wheels and applying crank pins. J. Partington. *Ry Mech Eng* 94:34 Ja '20
 Researches at high temperatures and pressures; investigation into the internal conditions of the earth. C. A. Parsons. *diags Sci Am M* 1:432-8 My '20; Abstract. *Engineering* 109:150-1 Ja 30 '20
 Theoretical maximum pressure developed in own volume by thirteen military explosives. J. E. Crawshaw. *J Fr Inst* 189:607-25 My '20
 What happens under a pressure of 300,000 lb. per sq. in.; abstracts. P. W. Bridgman. *Eng & Min J* 112:535 O 1 '21; *Mech Eng* 43:738-9 N '21
See also Earth pressure; Vapor pressure; Wind pressure
- Pressure gages**
 Absolute pressure gauge for wind tunnel use. J. G. Coffin. *il diags Aviation* 8:235-7 Ap 15 '20
 Bourdon gage spring. W. L. Parker. *diag Power* 51:722 My 4 '20
 Calibrating pressure gauges. *diags Pop Mech* 36:137 Jl '21
 * Extension of the range of the McLeod gauge. A. H. Pfund. *diag Phys R* 18:78-82 Jl '21
 Measurement of mercury vapor pressure from 0° to 35° C. by the Knudsen pressure gauge. C. F. Hill. *diag Phys R* 18:113-15 Ag '21
 Philo multigage. *il Power* 52:811 N 23 '20
 Pressure and vacuum gages. *il Power Pl Eng* 24:84-5 Ja 1 '20
 Pressure gages for airplanes. *il Aviation* 9:357-8 N 29 '20
 Studies with the ionization gauge. S. Dushman and C. G. Found. *diags Phys R* 17:7-19 Ja '21
See also Manometers
- Pressure measurement**
 Piezoelectric method of measuring explosion pressures. D. A. Keys. *diag Philos Mag* 6th ser 42:473-88, pl 16 O '21
- Pressure regulators**
 Arca automatic regulating apparatus. *diag Mach* 27:398-9 D '20
 Low-pressure steam control device. J. W. Smith. *diag Mech Eng* 42:694-5 D '20; Same. *Sci Am M* 2:374 D '20
 R. K. hydro-electric pressure regulator. *diag Power* 51:888 Je 1 '20
 Wilkins pressure regulator. *il diags Power* 53:1041 Je 28 '21
- Pressure relief diaphragms**
 Experiments on special types of pressure relief diaphragms. H. F. Stimson. *A S R E J* 7:380-2 Mr '21
- Pressure vessels**
 Proposed code for welded pressure vessels. S. W. Miller. *Power* 54:192-4 Ag 2 '21; Discussion. W. F. Schaphorst. 54:423 S 13 '21
See also Air compressors; Boilers
- Presswork.** *See Printing, Practical—Presswork*
- Price, Frank Shrieve**
 Portrait. *Elec W* 77:752 Ap 2 '21
- Price cutting**
 Beech-nut company wins first round in tussle with Federal trade commission. *Ptr Ink* 110:17-18 Mr 4 '20

Price fixing

- American hardwood manufacturers' association; open competition plan hearing held. Am Lumberman 2339:45-9; 2340:45+; 2345:56+ Mr 13-20, Ap 24 '20
- Commission puts blame for high prices on industrial associations. A. E. Heiss. Nat Pet N 13:29+ Ap 27 '21
- Details of open price plan. R. A. Cheney. Textile World 60:2168-9 O 15 '21
- Does price dictation encourage profiteering? E. C. Strauss. Ptr Ink 111:136-7 Je 17 '20
- Fixing resale prices at retail—conflicting decisions. Comm & Fin Chr 111:129-30 Jl 10 '20
- Legality of resale prices—manufacturers' rights under the Sherman act. Chem & Met Eng 22:228-9 F 4 '20
- New war on the trusts and price fixers. E. A. Bradford. Annalist 17:659-60 Je 20 '21
- New York law forbidding labor union price fixing. Comm & Fin Chr 112:2040 My 14 '21
- Open price association; how it works and what it does. C. H. Rohrbach and J. A. Murphy. Ptr Ink 111:133-4+ Je 3 '20
- Open-price bureau and scheme to sustain price declared unlawful. Coal Age 17:710-13 Ap 8 '20
- Open price plan. R. A. Cheney. Textile World 59:3065+ My 7 '21
- Reverse side of the open price association. C. H. Rohrbach and J. A. Murphy. Ptr Ink 111:41-2+ Je 24 '20
- Selfridge leads price reform in England. T. Russell. Ptr Ink 112:137+ Jl 22 '20
- Supreme court holds against price fixing contracts. Ptr Ink 110:60 Mr 4 '20
- Vexing problem of price maintenance still unsettled. C. T. Murchison. Annalist 17:207+ F 7 '21

See also Restraint of trade

Bibliography

- Price fixing policies of industrial associations. H. Graham and M. Quinlisk. Special Lib 12:122-33 Je '21

Price fixing, Government

- Does price fixing destroy liberty? G. H. Earle, jr. 183p G. H. Earle, Philadelphia '20
- Menace of government price regulation. Eng & Contr 54:479-80 N 17 '20
- Price fixing by the government during the war. C. F. Stoddard. Monthly Labor R 10:1095-1119 My '20
- Shall the policy of government price-control be adopted in the United States? J. W. Scroggs, ed. 110p (University of Oklahoma bulletin. New ser. no. 204. Extension no. 59) University of Oklahoma, Norman '20

Bibliography

- Government regulation of prices before 1800 A. D. M. G. Lacy, comp. Special Lib 12:50-2 Mr '21

Price guarantees

- Advertising that prevents price-slump hysteria among dealers. R. L. Burdick. Ptr Ink 113:18-20 O 21 '20
- Colver presents his views on price guarantee investigation. Ptr Ink 110:69-70 Ja 29 '20
- Digest of replies in response to an inquiry of the Federal trade commission relative to the practice of giving guarantee against price decline. 68p U.S. Federal trade commission, Govt. print. off. '20
- For and against price guarantees. Nation's Business 9:67 Ja '21
- Guarantee of prices against decline. R. S. McBride. Am Mach 53:783-4 O 21 '20
- Guarantees against decline. Dom Eng 93:463-4 D 4 '20
- Is a price guarantee lawful? Federal trade commission seeking to fix rule. Nation's Business 8:52+ O '20
- Price guarantee on the grill. Ptr Ink 113:41-2+ O 14 '20
- Price guarantees. Dom Eng 93:243+ O 30 '20

Price lists

- Selling from a price list. C. A. Radford. Inland Ptr 65:626 Ag '20

Price marking

- What! \$45 for a \$25 dress? L. D. H. Weld. Nation's Business 8:22+ S '20

Prices

- After all, it is the customer who makes the price. W. R. Hotchkiss. Ptr Ink 115:25-7 My 26 '21
- Bringing price and the consumer's means together. R. Cole. Ptr Ink 114:69-70+ Ja 20 '21
- Careless buyer hurts us all. A. Williams. Ptr Ink 111:26-7+ Ap 1 '20
- Contract prices. W. P. Digby. Inst E E J 58:870-6; Discussion. 876-80 S '20
- Control of price movements. J. C. Howell. Gas Age 46:139-40 Ag 25 '20
- Declining prices and deflation. A. B. Hepburn. Comm & Fin Chr 110:2133-5 My 22 '20
- Dyestuff industry and the adjustment of prices. Color Tr J 8:73-5 Mr '21
- Economic balance of 1920. K. L. Hyder. diag Eng & Contr 54:220-1 S 1 '20
- Effect of exports upon average commodity prices. Eng & Contr 53:503-4 My 5 '20
- Evolution and tendency of wage and price levels. H. H. Manchester. Am Ind 20:14-18 Mr '20
- Evolution of wage and price levels. H. H. Manchester. chart Am Mach 52:1123-7 My 27 '20
- Face your men with the facts. G. E. Roberts. Nation's Business 9:11-13 Ja '21
- Falling prices change credit standards. J. Oakwood. Annalist 17:661+ Je 20 '21
- Federal reserve forces for controlling prices. J. H. Case. Comm & Fin Chr 111:1903-4 sec 1 N 13 '20
- Federal trade commission's report on price readjustments—lower retail costs necessary. Comm & Fin Chr 112:1821-3 Ap 30 '21
- Finding the stop loss price point. H. R. Boston. Ind Management 62:266-8 N '21
- Flood tide of extravagance wanes. W. P. Beazell. Am Ind 20:22-5 Ap '20
- Formula for predicting average prices. H. P. Gillette. Eng & Contr 53:285 Mr 17 '20
- Future of prices as the National city bank sees it. Ptr Ink 112:125-6 Jl 8 '20
- Getting ready for a decline in prices. L. W. Alwyn-Schmidt. Ind Management 60:55-6 Jl '20
- Great wars and the price cycles. H. H. Manchester. Am Ind 21:15-16 S '20
- Has the silk shirt worm turned? F. C. Kelly. Nation's Business 8:32+ Jl '20
- High prices and deflation. E. W. Kemmerer. 86p Princeton university press '20
- How to get back to normal quickly. C. E. Knoeppel. Foundry 49:176-8, 223-4 Mr 1-15 '21; Same. Iron Tr R 68:692-4, 760-1 Mr 10-17 '21
- Increased costs and their retarding effect on the public utility industry. E. B. Lee. N E L A Bul 7:317-22 Je '20
- Inflation and high prices; causes and remedies, ed. by H. R. Seager. 144p Academy of political science, Columbia university '20
- Influence of commodity price movement upon public utility valuations. H. R. Allensworth. W Soc E J 26:139-70 Ap '21
- Irregular deflation checking trade resumption. C. T. Chenery. Annalist 18:174+ Ag 22 '21
- Is increased currency the cause or the effect of high prices? Eng & Contr 53:587-8, 589 My 26 '20
- Judging things by their price tags. J. R. Hammond. Inland Ptr 66:324-5 D '20
- Labor cost chief wedge between wholesale and retail prices. G. E. Putnam. Annalist 7:565 My 23 '21
- Labor held blameless for price increases. W. J. Lauck. Coal Age 17:1089-91 My 27 '20
- Lower price levels will better credits. G. E. Roberts. Ptr Ink 113:153-4+ O 7 '20
- Lower prices raised our profits. L. Topkis. il System 40:21-4+ Jl '21
- Master puzzle of the cause of high prices. Comm & Fin Chr 110:1575-7 Ap 17 '20
- Money and prices. J. F. Johnson. Administration 1:477-82 Ap '21

Prices—Continued

- More about your prices to me. *Ptr Ink* 115:57-8+ *My* 12 '21
- Past and future wage levels. H. P. Gillette. *Eng & Contr* 56:97-101 *Ag* 3 '21
- Paying prosperity's debts. G. E. Roberts. *Nation's Business* 9:17-18 *Jl* '21
- Present price and credit situation. G. E. Roberts. *Comm & Fin Chr* 111:2097-8 *sec* 1 *N* 27 '20
- Present tendency upwards in prices began quarter of a century ago. W. F. Gephart. *Am Gas Eng J* 113:105-8 *Ag* 7 '20
- Price and wage indices—their composition and characteristics. *Eng & Contr* 56:397-400 *O* 26 '21
- Price as determined by the law of supply and demand. H. P. Gillette. *Eng & Contr* 54:29-30 *Jl* 14 '20
- Price changes and business prospects. L. P. Ayres. *Administration* 2:215-26 *Ag* '21
- Price changes and business prospects. L. P. Ayres. *diags* 27p *The Cleveland trust co.* '21
- Price comparisons that show the relative cost of merchandise. *Ptr Ink* 116:17-18 *S* 1 '21
- Price fluctuations. *Pub Works* 49:306-7 *O* 2 '20
- Price levels in relation to value. C. F. Elmes. *Mech Eng* 42:553-7 *O* '20
- Price of basic commodities. *Eng & Min J* 110:937 *N* 13 '20
- Price relationships returning. J. W. Hill. *charts Iron Tr R* 68:824-8 *Mr* 24 '21
- Price system. C. S. Duncan. *Annalist* 18:175 *Ag* 22 '21
- Prices and cost of living. See monthly numbers of *Monthly labor review*
- Prices and the cost of living. R. Meeker. *Eng N* 84:1103 *Je* 3 '20
- Prices in 1914 and now. *Pub Works* 48:518-25 *Je* 12 '20
- Prices—today, yesterday and before the war. R. Howard. *il Sci Am* 124:81+ *Ja* 29 '21
- Quantitative analysis of all factors that affect average prices and formula for predicting price changes. H. P. Gillette. *Eng & Contr* 53:381-402 *Ap* 7 '20; *Correction.* 53:422 *Ap* 14 '20
- Report of the Federal trade commission on the causes of high prices of farm implements. *U S Fed Tr Comm* 713p *My* 4 '20
- Retail price fluctuations in various countries. *Int Labour R* 1:91-105, 203-17; 2:32-47; 3:116-33; 4:82-95 *Ja-F*, *Ap*, *Jl*, *O* '21
- Rewards of wartime development not unmixed. R. J. McFall. *Annalist* 17:688-9 *Je* 27 '21
- Secretary Wallace advocates new price level 70% above old level. *Eng & Contr* 55:270 *Mr* 23 '21
- Sees no general price decline before 1921. F. S. Cunningham. *Ptr Ink* 111:117-18 *Je* 10 '20
- Some imaginary causes of the present high price level. H. P. Gillette. *Eng & Contr* 53:450 *Ap* 21 '20
- Stability as related to present price trends. N. G. Shidle. *Automotive Ind* 45:501-2 *S* 15 '21
- Study of prices. E. D. Fisher. *Am Arch* 119:107-8, 133-4, 163-4 *Ja* 26-F 9 '21
- Suggested way of stabilizing price levels. H. P. Gillette. *Eng & Contr* 54:508-9 *N* 24 '20
- Value of money and other things. A. H. Deane. *Am Ind* 20:27-8 *Jl* '20
- What a new price policy did for our business. L. H. Bronson. *il System* 40:275-7+ *S* '21
- What are prices? J. L. Laughlin. *Nation's Business* 8:11-12 *Ap* '20
- What are right prices? B. M. Anderson, jr. *Comm & Fin Chr* 113:1329 *S* 24 '21
- What is to be the future price level? H. Working. *charts Annalist* 17:686-7+ *Je* 27 '21
- What wars do to prices. L. P. Ayres. *Nation's Business* 9:25-6 *Je* '21
- When to advertise the price. C. P. Russell. *Ptr Ink* 113:41-2+ *D* 23 '20
- Wholesale prices in different countries, 1913-1920. *Int Labour R* 1:106-14 *Ja* '21
- Wholesale prices in various countries. *Int Labour R* 1:347-62; 2:166-81; 4:76-81 *Mr*, *My*, *O* '21

Why we are pushing sales now—and getting them. W. Wrigley, jr. *System* 40:397-401+ *O* '21

Why we must find the right price. J. Wallace. *System* 40:415+ *O* '21

Worldwide fall in prices. *Comm & Fin Chr* 111:2096 *sec* 1 *N* 27 '20

Your prices to me. R. Dickinson. *Ptr Ink* 115:57-8+ *Ap* 28 '21

See also Cost of living; Farm produce—Marketing; Food supply; Index numbers (economics); Money; Price cutting; Price fixing; Wages; also subdivision Prices under names of commodities, e.g. Building materials—Prices, Chemicals—Prices, Coal—Prices, Dry goods—Prices

California

Current prices of standard commodities in small wholesale lots on San Francisco Bay. Published in first issue of each month of Mining and scientific press

Chile

Prices of various commodities in Chile in 1920. *Monthly Labor R* 13:348-9 *Ag* '21

Czechoslovakia

Retail prices in Czechoslovakia, 1914 and March, 1921. *Monthly Labor R* 13:550-2 *S* '21

Finland

Retail prices in Finland in 1920. *Monthly Labor R* 13:114-15 *Jl* '21

France

Decline in wholesale and retail prices in France. *Comm & Fin Chr* 112:1232 *Mr* 26 '21

Germany

Retail prices of food in Germany. *Monthly Labor R* 13:350-1 *Ag* '21

Wholesale prices of commodities in Germany. *Monthly Labor R* 12:1161-3 *Je* '21

Great Britain

British commodity prices in 1920 nearly quadrupled 1900 figures. *Americas* 7:14-16 *Mr* '21

Iceland

High cost of living in Iceland. *Monthly Labor R* 13:555-6 *S* '21

Spain

Cost of living in Spain in April, 1921. *Monthly Labor R* 13:558-9 *S* '21

Switzerland

Cost of living in Zurich, Switzerland. *Monthly Labor R* 13:559-60 *S* '21

United States

- After the Civil war and now. H. H. Manchester. *Am Mach* 53:389-92 *Ag* 26 '20
- Chicago stock exchange record of prices for 1919. *Comm & Fin Chr* 110:409-10 *Ja* 31 '20
- Course of United States wholesale prices for 100 years. R. G. Hurlin. *il Annalist* 17:425 *Ap* 11 '21; *Excerpts. Factory* 26:1184-5 *My* 15 '21
- Denies adoption of radical deflation policy; extent of agricultural aid. W. P. G. Harding. *Comm & Fin Chr* 111:2284-6 *D* 11 '20
- Denies that commodity price break is due to federal reserve system. D. C. Wills. *Comm & Fin Chr* 113:684 *Ag* 13 '21
- Fluctuations in wholesale prices, 1914-1921. *Am Mach* 55:326-7 *Ag* 25 '21
- Ford sets an avalanche of price cuts in motion. *Nation's Business* 8:40+ *N* '20
- History of prices and wages during and following our Civil war. H. P. Gillette. *Eng & Contr* 53:420-1 *Ap* 14 '20
- Labor rates and conditions throughout the country. *Eng N* 86:404-8 *Mr* 3 '21
- Long time trend of prices in the United States. R. G. Hurlin. *Annalist* 17:707-8 *Jl* 4 '21
- Monthly review of credit and business conditions in the second Federal reserve district. Federal reserve bank of New York, N.Y.

Prices—United States—Continued

- Retail prices, 1913 to December, 1919. chart diags U S Bur Labor Statistics Bul 270:1-498 '21
 Wholesale prices 1917-20 and average prices for 1913. Monthly Labor R 12:47-51 F '21;
 Excerpts. Eng & Contr 55:291 Mr 23 '21
 Wholesale prices of leading articles in United States markets, January, 1918, to December, 1919. U S Bur For & Dom Com misc ser 104:1-14 '20

Prickly pear. See Cactus**Priestley, Joseph, 1733-1804**

- Presentation of a portrait of Priestley. C. A. Browne. J Ind & Eng Chem 13:879-81 O '21
 Priestley in America, 1794-1804. E. F. Smith. 173p P. Blakiston's son & co., Philadelphia '20

Priestman plan

- Both sides of the Priestman plan. Factory 24:814-15 Mr 15 '20
 Two years' working of the Priestman plan. C. H. S. Tupholme. Factory 24:436-9 F 15 '20
 Where men work three times as fast. Factory 25:540-1 Ag 15 '20
 Why increase production? J. H. H. Boyd. Eng & Ind Management 5:74-6 Ja 20 '21;
 Discussion. 5:141-3 F 3 '21

Printers

- Changes in union wage rates in printing and publishing trades from May 15 to August 31, 1920. Monthly Labor R 11:953-8 N '20
 Clothes. R. T. Porte. Inland Ptr 67:229-30 My '21
 High wages—low costs. D. Kimball. Inland Ptr 66:41-5 O '20
 Minimum wages for printers in Switzerland. Monthly Labor R 12:797-8 Ap '21
 Pioneers in printing. A. Pemberton. Inland Ptr 67:637-8 Ag '21
 Printers who came over in the Mayflower. H: L: Bullen. il Inland Ptr 64:318-20 D '19
See also Linotype operators; *also* names of printers, e.g. Bradford, William; Braverman, Louis A.; Caslon, William; Cave, Edward; Caxton, William; Coster, Laurens Janszoon; Didot family; Elzevir family; Eskeu, William; Estienne, Henry; Estienne, Robert; Franklin, Benjamin; Groves, Andrew; Gruver, Arthur C.; Hunt, Haywood H.; Manutius, Aldus; Radcliffe, B. W.; Thomas, Isaiah; Timperly, C. H.; Volmerhaus, Otto; *also* International association of printing house craftsmen; Printing house craftsmen clubs; United typothetæ of America

Diseases and hygiene

- Industrial dermatosis among printers. Monthly Labor R 13:197-8 Jl '21
 Silica as a cause of printers' phthisis. E. H. Ross. J Ind Hygiene 2:sup196-7 F '21
 To overcome printing dermatosis. Safety Eng 42:31-2 Jl '21

Printers' marks

- Brief history of the official emblem of the craftsmen clubs. A. B. Carty. Inland Ptr 66:800 Mr '21

Printers' strike, New York, 1919

- Vacations in the printing industry in New York city. A. J. Portenar. Monthly Labor R 10:270-9 Ja '20

Printing

- Essential business fact in printing. E: E. Bartlett. Ptg Art 36:123-4 O '20
 Sure way to beat the game. O. H. Mickel. Inland Ptr 67:336 Je '21
See also Advertisements; Book industries and trade; Borders (printing); Calendars; Capitalization; College annuals; Color printing; Compound words; Duraplates; Electrotypes in advertising; Ink; Letterheads; Linotype; Lithography; Paper; Photography; Posters; Printers; Printing offices; Printing presses; Printing trade; Proofreading; Rotogravure; Stereotype; Textile printing; Title pages; Type; Typesetting; Zincography

Bibliography

- Catalogue of the Technical reference library of works on printing and the allied arts. 999p '19 Technical reference library, St Bride foundation institute, London
 Select bibliography of the art of printing to 1640. J. Ross, comp. Librarian and Book World 10:119-26, 142-6, 165-8 Mr-My '21

Design

- Design in typography. H. L. Gage. Inland Ptr 65:749-50 S '20
 Examples of decorative design and lettering. G: F. Trenholm. Inland Ptr 67:496a-h Jl '21
 Golden proportions in design. F. T. Singleton. diags plan Ptg Art 37:133-40 Ap '21
 Interior decorator vs. the printing decorator. Ptg Art 37:441-2 Jl '21
See also Borders (printing)

Exhibitions

- Exhibition in praise of printing. H: L: Bullen. Inland Ptr 65:459-60 Jl '20
See also Graphic arts exposition

History

- Account of Laurens Janszoon Coster and the introduction of printing in Europe. H: L: Bullen. il Inland Ptr 66:358-60 D '20
 Biography of Aldus Manutius, greatest of all printers. H: L: Bullen. il Inland Ptr 66:477-80 Ja '21
 Biography of Isaiah Thomas, America's most successful printer. H: L: Bullen. il Inland Ptr 67:483-6 Jl '21
 Dictionary of printers and printing, by C. H. Timperly, London, 1839. Review. Inland Ptr 66:488 Ja '21
 Elzevir dynasty of printers. H: L: Bullen. il Inland Ptr 67:341-3 Je '21
 History of John Baskerville, famous printer and typefounder. H: L: Bullen. il Inland Ptr 67:628-30 Ag '21
 Pilgrim printers of Plymouth in New England. H: L: Bullen. Inland Ptr 66:334-5 D '20
 Printing. W. R. Reinicke. Paper 28:11+ Jl 6 '21
 Robert and Henry Estienne and the Estienne dynasty of printers. H: L: Bullen. Inland Ptr 67:198-200 My '21
See also Printers' marks; *also* names of printers, e.g. Cave, Edward; Caxton, William; De Vinne, Theodore Low; Didot family; Wechel, Christian

Law

- Printing salesman serves by knowledge of property rights in typography. W. Fawcett. Inland Ptr 67:513-14 Jl '21

Libraries

- John M. Wing foundation of the Newberry library. E. E. Sheldon. Inland Ptr 65:199-200 My '20

Societies

- See also* International association of printing house craftsmen; Printing house craftsmen clubs

Specimens

- Examples of typography of character. Inland Ptr 66:64a-d O '20
 Exhibits of composition and type arrangement by the printers in the shop of Marion S. Burnett company, Chicago. Inland Ptr 67:640a-h Ag '21
 Sahlin's topography. Inland Ptr 64:448a-448f Ja '20
 Some examples of the typography of Albert Schiller, New York. Inland Ptr 67:784a-h S '21
 Specimens. J. L. Frazier. *See* monthly numbers of Inland printer
See also Labels

Standards

- Standardization in the graphic arts. N. J. Werner. Inland Ptr 65:598-9 Ag '20

Printing—Continued

Study and teaching

See Printing, Practical—Study and teaching

Year-books

Master printers' annual & typographical year book, 1920. Spottiswoode, Ballantyne & co., London '20

Malay Peninsula

Printing in southeastern Asia. W. T. Cherry. Inland Ptr 68:225-6 N '21

Printing, Practical

Adding to the value of printed matter by die cutting. H. Burgess. il Inland Ptr 65:203-7 My '20

Commercial engraving and printing. C. W. Hackleman. 846p Commercial engraving pub. co., Indianapolis, Ind. '21

Importance of good position. J. L. Frazier. Inland Ptr 68:209-11 N '21

Use of gas in the newspaper plants of Boston. W. W. Cummings. Am Gas Assn Commercial sec v 2:14-29 '20; Same abr. Am Gas Eng J 113:491-2, 496-7 D 11 '20; Excerpts. Gas Age 46:450-1 N 25 '20; Discussion. Am Gas Assn Commercial sec v 2:29-31 '20

With typewriter and offset press: how the Scientific American was manufactured in the absence of compositors and pressmen. il Sci Am 121:581+ D 13 '19

Your printer as a customer. I. Ginsberg. Am Gas J 115:203 S 3 '21

See also Color printing; Dummies (printing); Engraving; Ink; Linotype; Printing offices; Printing offices—Management; Printing presses; Printing trade; Proof-reading; Type; Typesetting; Wood engraving

Accounting

Cost and method. B. Daniels. See monthly numbers of Inland printer

Cost system or no cost system, which? C. A. Jettinger. Inland Ptr 67:617-19 Ag '21

Crook's fund. R. T. Porte. Inland Ptr 67:490-1 Jl '21

John Smith's bookkeeping. R. T. Porte. il Inland Ptr 64:439-40, 571-3, 718-20; 65:59-61, 227-9, 350-2, 479-80, 613-14, 738-9; 66:57-8, 195-6 Ja-N '20

Practical cost system for printing offices. R. T. Porte. Porte pub. co., Salt Lake City, Utah

Treatise on the Standard accounting system for printers, interlocking with the Standard cost finding system, prepared by Committee on education, United typothetae of America. 156p Chicago '20

Uniform cost accounting methods in the printing industry by W. B. Lawrence. Review. Administration 2:561-4 O '21

United typothetae of America standard accounting system for printers interlocking with the standard cost finding system. 64p United typothetae of America, Chicago '20

Bibliography

Some books on printing: English & American textbooks published since 1900 and now in Saint Bride foundation technical library. W. T. Berry. 20p Printed by students of Saint Bride foundation printing school, London 1919/20

Composition

See Typesetting

Costs

Cost and method. B. Daniels. See monthly numbers of Inland printer

Cost of manufacturing the agate line. R. Dickinson. Ptr Ink 113:3-4+ O 28 '20

High wages—low costs. D. Kimball. Inland Ptr 66:41-5 O '20

Imposition, etc.

Useful information concerning book impositions, including all the modern and many

special layouts hitherto not generally known. 2d ed., rev. and enl. 59p J. F. Tapley co., New York '20

Presswork

Mechanical helps for the printer. il Sci Am 124:411 My 21 '21

Platen press production. J. S. Skinner. Inland Ptr 65:498 Jl '20

Pressroom. See monthly numbers of Inland printer

Problem of register. Inland Ptr 65:83-4 Ap '20

Steaming device saves print paper and ink. il Pop Mech 35:211-12 F '21

Things that make for speed in handling college annuals. D. A. James. Inland Ptr 67:621-2 Ag '21

Using graphic charts to increase pressroom production. W. R. Hyde. Inland Ptr 66:791-2 Mr '21

See also Printing presses

Study and teaching

Lewis system of teaching printing, in high, junior high, vocational and pre-vocational schools. T. T. Lewis, Newark, N.J. '20

Present-day problem of printers' apprentices. A. Levitas. Ptg Art 36:37-40 S '20

Printing as taught in trade and high schools. W. U. S. Gerhart. Inland Ptr 64:435 Ja '20

Printing student's handbook. Looseleaf ed., rev. 24 numb. l. Cass tech printery, Detroit '21

Problem of industrial education. A. Levitas. Inland Ptr 68:212 N '21

Shall apprentices be trained or educated in printing? F. K. Phillips. Inland Ptr 65:721-3 S '20

They do these things better in France. il Inland Ptr 66:342 D '20

Style manuals

Concise manual of style. H. A. Reed. Rev. ed. 75p American Baptist pub. soc., Philadelphia '20

Manual of style. 7th ed. 300p Univ. of Chicago press, Chicago '20

Manual of the mechanics of writing. R. W. Pence. 211p Macmillan '21

Text, type and style. G. B. Ives. 305p Atlantic monthly press, Boston '21

Printing, Textile. See Textile printing

Printing house craftsmen's clubs

Past achievements and future possibilities of the craftsmen movement. H. Hillman. Inland Ptr 68:82-4 O '21

Why are craftsmen's clubs? W. R. Goodheart. Inland Ptr 67:477-8 Jl '21

Printing machinery

Development and influence of automatic machinery in the printing industry. F. W. Gage. Inland Ptr 67:663-4 Ag '21

Old machine. B. Daniels. Inland Ptr 66:193 N '20

See also Linotype; Printing presses

Exhibitions

6th international printing, stationery, and allied trades exhibition. il Engineer 131:521-2 My 13 '21; Engineering 111:559 My 6 '21; Elec R (Lond) 88:610-11 My 13 '21

Printing offices

Building romance into a print shop. J. A. Ford. il Inland Ptr 67:780-2 S '21

Doctoring a sick printing office. E. White. Inland Ptr 67:619-20 Ag '21

Equipment and supplies

By what method do you add to your equipment? G. H. Brown. Inland Ptr 67:475-6 Jl '21

Lighting

Effective printing-plant illumination. A. D. Bell. il plan Elec W 76:1153-5 D 11 '20

Management

Billing the goods. Ptg Art 37:62-4 Mr '21
Composing room foreman. L. A. Braverman. Inland Ptr 66:612-14 F '21

Printing offices—Management—Continued

- Efficiency in the print shop. F. B. Howard. Inland Ptr 67:41-5 Ap '21
 For a general clean up day in printing plants. Inland Ptr 67:337-8 Je '21
 Human side of the printing industry. R. F. Saladé. il Ptg Art 36:305-10 D '20
 Idea man. M. E. Crain. Inland Ptr 67:480 Jl '21
 Layout man. E. D. Berry. Inland Ptr 64:425-6 Ja '20
 Old man's efficiency man. H. E. Miles. Inland Ptr 65:593-4 Ag '20
 On producing more and wasting less. J. E. Allen. Ptg Art 37:226-8 My '21
 Overlooked opportunities. M. Heir. Inland Ptr 64:553-5, 683-5 F-Mr '20
 Planning and routing in the printing plant. A. R. Neptune. Inland Ptr 65:189-91 My '20
 Possibilities of a small plant. F. B. Wilke. Inland Ptr 66:627-8 F '21
 Printer's defensive advertising—his stationery. J. R. Hammond. Inland Ptr 65:46-7 Ap '20
 Salvage your paper cutoffs. A. R. Neptune. diags Inland Ptr 67:622-3 Ag '21
 Solving the labor problem in the printing industry. R. F. Saladé. Inland Ptr 65:331-3 Je '20
 Standardizing work in composing rooms. E. D. Berry. Inland Ptr 65:185-7 My '20
 Systems. R. T. Porte. Inland Ptr 66:757-9 Mr '21
 Two years of system. A. F. McCarthy. Inland Ptr 67:331-4 Je '21
 What about the proprietor's wage? R. T. Porte. Inland Ptr 65:457-8 Jl '20

Printing plates. See Plate printing

Printing presses

- Automatic presses print stamps by the million. il Pop Mech 34:853 D '20
 New line of controllers for high-speed printing presses. il Elec R 79:69 Jl 9 '21
 Press prints, addresses, and signs letters. il Pop Mech 33:360 Mr '20
 Some causes of noise in presses, with suggested remedies. G. Wagenlander. Inland Ptr 64:557-60 F '20
 What I learned about self feeding platens. E. A. Seagers. Inland Ptr 67:478-9 Jl '21

See also Printing, Practical—Presswork

Printing telegraph. See Telegraph, Printing

Printing trade

- All the world loves a specialist. R. E. Ramsay. Inland Ptr 65:723-4 S '20
 American engineering council finds waste in printing industry. Am Ind 22:33-5 S '21
 Arbitration awards in book and job printing trades of New York city. Monthly Labor R 12:565-8 Mr '21
 Are printers good business men? M. Droke. Ptg Art 36:297-9 D '20
 Business that sometimes rides on a hobby horse. C. T. Hubbard. Inland Ptr 66:326-7 D '20
 Descriptions of occupations; coal and water gas, paint and varnish, paper, printing trades, rubber goods. p 31-43 '19 U.S. Bureau of labor statistics, Washington, D.C.
 Getting business. R. T. Porte. Inland Ptr 67:347-8 Je '21
 Golden opportunities for specialty printers. R. F. Salade. Inland Ptr 67:761-3 S '21
 Holmes wakes up. W. C. Moore. Ptg Art 37:417-20 Jl '21
 How better letters help the printer. C. T. Hubbard. Inland Ptr 68:41-2 O '21
 How the printer can boost his home town. F. H. Williams. Ptg Art 36:210-12 N '20
 Inducing the outside show case to earn a daily polishing. J. R. Hammond. Inland Ptr 64:687-8 Mr '20
 Interdependency of printers and paper merchants. T. Lang. Inland Ptr 66:492 Ja '21
 Modern tendencies in the salesmanship of printing. J. R. Hammond. Ptg Art 36:125-8 O '20
 National council for the printing trades. C. R. Walker, jr. Monthly Labor R 12:23-44 Ja '21

- Printing trades. 52p Life-planning institute, Chicago, New York '21
 Recent changes in union wage rates in printing and publishing trades. Monthly Labor R 12:103-7 Ja '21
 Selling paper—plus. B. Venable. Inland Ptr 66:771-4 Mr '21
 Strike of photo engravers on New York papers ended. Comm & Fin Chr 112:2490-2 Je 11 '21
 Thinking backward; considering the other fellows jobs instead of your own. R. T. Porte. Inland Ptr 66:470-1 Ja '21
 Without benefit of preparation. M. Gross. Inland Ptr 66:321-3 D '20

See also Printing offices

Accounting

See Printing, Practical—Accounting

Advertising

- Adverse advertising. L. Griffis. Inland Ptr 66:45-6 O '20
 Cashing in on the printer's house-organ. F. H. Williams. Inland Ptr 66:615-16 F '21
 Direct advertising. R. E. Ramsay. Inland Ptr 68:195-7 N '21
 Getting the butcher, baker and electric light maker to advertise printing for you. R. E. Ramsay. Inland Ptr 66:177-9 N '20
 Illustration of the kind of publicity many printers find it advantageous to use. Ptg Art 37:48a-k Mr '21
 Making 'em call him mister again. A. G. Brenton. Inland Ptr 66:753-5 Mr '21
 Most poorly advertised industry. R. E. Ramsay. Inland Ptr 65:43-5 Ap '20
 Printers and direct advertising service. M. E. Crain. Inland Ptr 65:595-6 Ag '20
 Printer's printing should be right. J. L. Frazier. Inland Ptr 66:485-6 Ja '21
 Printer's publicity. F. L. Martin. See monthly numbers of Inland printer
 Selling campaigns more profitable than single orders. W. A. Kittredge. Inland Ptr 67:185-6 My '21
 Should a printer advertise only through printed matter? F. H. Williams. Inland Ptr 67:334-5 Je '21
 Some specimen pages from a recent booklet. il Ptg Art 36:148a-f O '20
 Start a better printing week in your town. F. H. Williams. Ptg Art 37:129-31 Ap '21
 Why don't printers practice what they preach? R. E. Ramsay. Ptg Art 37:117-20 Ap '21
 Why the printer should advertise. N. T. Praigg. Inland Ptr 67:216 My '21

Price raising

- What to do if your costs are found high. C. A. Jettinger. Inland Ptr 67:764-6 S '21

Salesmen

- When will the salesmen of the printing industry organize? R. E. Ramsay. Ptg Art 37:505-8 Ag '21

Prints. See Engravings

Priorities, Industrial

- Cleveland and Akron object to lake priority. Ry Age 69:393-4 S 3 '20
 Commission takes drastic steps to end coal shortage east of Mississippi river. Coal Age 17:1297-8 Je 24 '20
 Middle West retailers given emergency coal. Coal Age 18:819-20 O 14 '20
 More priority ordered for coal shipments; service orders nos. 20 and 21. Ry Age 69:655-7 O 15 '20; Same abr. Comm & Fin Chr 111:1530 O 16 '20
 New priority order for New England coal. Ry Age 69:193-5 Jl 30 '20
 New priority order issued for lake coal. Ry Age 69:158-9 Jl 23 '20
 New service orders issued by I.C.C. Ry Age 69:535-6 S 24 '20
 Priority for coal shipments. Ry Age 68:1967-8 Je 25 '20
 Priority in transportation. Ry Age 68:1439 My 21 '20
 Priority of capital and materials for essential industries. Ry Age 68:1389-90 My 14 '20

Priorities, Industrial—Continued

- Senate committee criticises priority orders. Ry Age 69:1113 D 24 '20
Suggested schedule of petroleum priority. R. S. McBride. *il Eng & Min J* 110:869-71 O 30 '20

Prisms

- Correction for shear of the differential equation for transverse vibrations of prismatic bars. S. P. Timoshenko. *diag Philos Mag* 6th ser 41:744-6 My '21
Infra-red transmission and refraction data on standard lens and prism material. W. W. Coblentz. *bibliog U S Bur Stand Sci Pa* 401:701-14 '20

Prisons

- Federal prison, Atlanta, Ga. *il Am Arch* 117:697-9 Je 2 '20
General view, Sing Sing prison and buildings, views and plans. *Am Arch* 117:34, pl 8-15 Ja 14 '20
New Illinois penitentiary at Stateville is a model prison. *il Concrete* 17:170 N '20
Sewage disposal at Saskatchewan penitentiary. R. F. Uniacke. *il diags plans Can Eng* 39:403-7 O 7 '20; *Abstract. Eng & Contr* 54:465 N 10 '20
State of Illinois now has model penitentiary. *il Pop Mech* 34:855-8 D '20
Wingdale prison site. L. F. Pilcher. *il Am Arch* 117:113-15 Ja 28 '20
See also Sing Sing prison

Heating and ventilation

- Heating system for the new Sing Sing prison. G. B. Nichols. *diags plans Heat & Ven* 17:27-32 N '20

Mechanical equipment

- Features of the mechanical equipment of the Wingdale, N.Y., prison buildings. G. B. Nichols. *diags plans Am Arch* 117:57-66 Ja 14 '20

Private car lines

- Private car question. *Sci Am* 122:37 Ja 10 '20
Steel manufacturers use own cars to fill fuel needs. *il Iron Tr R* 67:1469-71 N 25 '20

Private sales. *See Retail trade—Private sales*

Private secretaries. *See Secretaries, Private*

Privies

- Insanitary privies a menace to rural water supplies. F. R. King. *il diags plans Dom Eng* 92:534-7 S 11 '20
Passing of an ancient evil. *Metal Work* 93:583+ My 7 '20
Scavenging privy vaults. *il Pub Works* 48:99 F 14 '20
See also Water closets

Prize contests. *See Advertising—Prize contests*

Probabilities

- Law of probability applied to the formation of fats from carbohydrates. E. J. Witze-mann. *J Phys Chem* 25:55-60 Ja '21
Probability curve. W. L. Hart. *diags Am Water Works Assn J* 7:811-20 N '20
See also Errors, Theory of

Procaine

- Relationship between chemical constitution and physiological action in local anesthetics; homologs of procaine. O. Kamm. *Am Chem Soc J* 42:1030-3 My '20

Proctor & Gamble company

- How will the jobber elimination policy affect advertising? L. Allen. *Ptr Ink* 112:26-7+ JI 29 '20

- What has happened to industrial co-operative plans? R. Dickinson. *Ptr Ink M* 3:32-3, 66 Je '21

Produce trade**Advertising**

- Boston marketmen advertise to justify the middleman. *Ptr Ink* 112:33-4 JI 15 '20

Producer gas. *See Gas producers*

Producers' consolidated oil company

- Filling station promotion makes work for diligent receivers. P. Truesdell. *Nat Pet N* 13:33-4 Ag 10 '21

Production

- Are workers really producing less today than before the war? H. D. Thweatt. *Ind Man-agement* 61:30-1 Ja 1 '21

- Business press and increased production. J. H. McGraw. *Elec Ry J* 55:947-8 My 8 '20
Cost of labor and the labor-cost. E. W. Leach. *Am Mach* 53:1188-9 D 23 '20

- Economics of production. D. A. McCabe. *Am Mach* 55:289-91, 332, 381-2, 419-20, 455-6, 497-8, 539-40 Ag 25-O 6 '21

- Elimination of waste in building industry. S. E. Thompson. *Eng & Contr* 55:422-4 Ap 27 '21

- Federated American engineering societies attacks industrial waste problem. L. W. Wallace. *Am Mach* 54:513-14 Mr 24 '21; *Same. Mech Eng* 43:284-5 Ap '21; *Same. Min & Met* 172:7-8 Ap '21; *Excerpts. Elec W* 77:673 Mr 19 '21; *Eng N* 86:472-3 Mr 17 '21; *Am Inst E E J* 40:345-6 Ap '21

- "I am producing more" contest that doubled output. C. W. Ferguson. *Factory* 26:332-4 F 1 '21

- Importance of continuing production. S. H. Bunnell. *Iron Age* 107:24-5 Ja 6 '21

- Industrial waste. H. Hoover. *Am Mach* 54:340-2 F 24 '21; *Same. Eng & Contr* 55:185-7 F 23 '21; *Same. Eng N* 86:342-3 F 24 '21; *Excerpts. Iron Age* 107:466 F 17 '21; *Iron Tr R* 68:497 F 17 '21; *Am Ind* 21:13-14 Mr '21; *Am Inst E E J* 40:253-4 Mr '21; *Mech Eng* 43:217+ Mr '21; *Gas Age* 47:286-7 Ap 11 '21; *Nation's Business* 9:34+ Ap '21

- Influence of variety, quantity and complexity of product in manufacturing control. G. D. Babcock. *Ind Management* 61:270-3 Ap 1 '21

- Interdepartment production contests. R. R. Potter. *Soc Auto Eng J* 7:258-62 S '20; *Discussion. 7:473-4 N '20*

- Less wages, or more work? M. Droke. *Ind Management* 61:103-5 F 1 '21

- Meeting radical propaganda with reason why copy; a banker's answer to a labor leader's statement. *Ptr Ink* 112:129-30+ Ag 26 '20

- Problems of industry and trade. C. W. Park. *Am Mach* 52:1241 Je 10 '20

- Production and the advertising outlook. *Ptr Ink* 115:146+ Ap 21 '21

- Production budget. J. O. McKinsey. *Administration* 1:358-67 Mr '21

- Some notes on foundries and production. Lord Weir. *Engineering* 110:687-9 N 19 '20

- Some thoughts on modern trade unionism. E. Brown. *Eng & Ind Management* 6:237-9 S 1 '21

- What a production engineer should know. A. McDonald. *Ind Management* 60:185-7 S '20

- Why increase production? J. H. H. Boyd. *Eng & Ind Management* 5:73-6 Ja 20 '21; *Discussion. 5:141-3, 199-200 F 3, 17 '21*

- See also Economics; Factory management; Machine shop management; Planning; Routing systems; Waste*

Production, Standards of

- Standard of production for plumbers. *Eng & Contr* 56:304-5 S 28 '21

- Standardization of output by agreement. E. Stewart. *Monthly Labor R* 13:263-4 Ag '21; *Same. Eng & Contr* 56:315 S 28 '21

See also Time study

Production control. *See Factory management*

Production engineers. *See Industrial engineers*

Production records. *See Progress records*

Profession, Choice of. *See Occupations, Choice of*

Professional advertising

- Advertising. A. P. Richardson. *J Account* 29:127-30 F '20

- Advertising and professional ethics. *Ptr Ink* 116:12 JI 7 '21

- Breaking down the ethical bar to advertising. S. C. Lambert. *Ptr Ink* 111:35-6 Je 24 '20

See also Architects—Advertising

Professional associations

- How other professions than engineering are organized. C. W. Baker. *Eng N* 84:1250-3 Je 24 '20

Professional associations—Continued**Accounting**

Accounting for a professional institute. E. E. Leffler. J Account 30:174-9 S '20

Professional education

Professional school. C: R. Mann. Eng Educ 11:162-70 D '20

See also Engineering education; Pharmacy—Study and teaching

Professional ethics

Canons of ethics. Eng N 84:679-80 Ap 1 '20

See also Engineering ethics; Professional advertising; Professional service

Professional service

Engineering activities of universities and government bureaus. Min & Sci P 120:717-18 My 15 '20

Public office and private practice. Min & Sci P 120:35-6, 73-4, 183-4, 260 Ja 10-17, F 7, 21 '20

Professions

Common professional platform; address at the Inter-professional conference. T: R. Kimball. Eng N 83:808-9 O 30 '19; Same. Am Arch 116:692, 695 D 3 '19; Same. Am Inst Arch J 8:5-6 Ja '20

See also Inter-professional conference

Profiling

Automatic multiple-spindle profiling machine. il diag Am Mach 52:1322-4 Je 17 '20; Mach 26:982-3 Je '20

Tool engineering; design of profiling fixtures. A. A. Dowd and F. W. Curtis. diags Am Mach 55:256-61 Ag 18 '21

Profit

May employer include his salary as an expense where superintendent is to share in net profits of a contract? Dom Eng 94:497+ Mr 5 '21

On what should profits be based? W. L. Churchill. Ind Management 58:375-80 N '19

Profiting. W. L. Churchill. Metal Ind 18:125-7 Mr '20

Profits, wages and prices. D. Friday. 256p Harcourt, Brace & Howe '20

Risk, uncertainty and profit. F. H. Knight. 381p Houghton '21

What is a fair profit? W. R. Basset. Ptr Ink 111:138+ Je 24 '20

What is a reasonable profit? S. Chase. J Account 29:416-34 Je '20

When profits fall off. H. D. Grant; S. Gilman. Administration 1:768-72; 2:376-80 Je, S '21

Wrong profiteering root cause of industrial ills. Brass W 17:27-9 Ja '21

See also Capitalism; Interest; Mercantile system; Profiteering; Turnover

Profit sharing

Analysis of profit-sharing plans. P. L. Burkhard. Administration 1:458-64 Ap '21

British plan of profit sharing; how gas companies should divide with their employees. T. Sington. Am Gas J 115:165-6 Ag 20 '21

British profit sharing. Gas Age 46:223 S 25 '20

Builders of business; J. H. Leighton. R. D. Penney. por 40:282-4+ S '21

Cost plus contract involving profit sharing between owner, contractor and employees. J. A. L. Waddell. Eng & Contr 53:20-3 Ja 7 '20

Economic fallacies of profit sharing. E. Szepesi. Textile World 58:97+ Jl 3 '20

Equal profit sharing with employes; plan of Harvard knitting mills. Textile World 57:1156-7 F 7 '20

Financier's view of profit sharing. M. L. Schiff. Automotive Ind 41:1247-9 D 25 '19

History of profit sharing in the British Isles. W. Wallace. Ind Management 61:85-9 F 1 '21

How rewards help workers at their jobs. Iron Age 107:317-20 F 3 '21

Industrial partnerships depend upon approach rather than system used. H. Tipper. Automotive Ind 43:932-3 N 4 '20

Is profit sharing coming back? R. Dickinson. Ptr Ink 115:57-8+ Je 2 '21

Leighton system of co-operative industries. J: H. Leighton. 48p Leighton press, San Francisco, Cal. '20

Lower labor costs with bigger pay envelopes. W: Baum. Elec W 78:369-70 Ag 20 '21

Making profit-sharing obligatory in France. Factory 27:39-40 Jl '21

New business conscience is good business. R. Dickinson. Ptr Ink 112:109-10+ Jl 15 '20

Norwegian plan for profit sharing. Monthly Labor R 11:365-7 F '21

Novel profit-sharing plan. T. F. Moriarty. Factory 27:254+ Ag '21

La participation ouvrière aux bénéfices de la production. P. Razous. Génie Civil 78:59-61, 84-7 Ja 15-22 '21

Paying salesmen to get results. R. E. Heilman. System 40:561-4+ N '21

Practical experience with profit sharing in industrial establishments. M. W. Alexander. Iron Age 106:205 Jl 22 '20

Profit-sharing and labour co-partnership. 244p Gt. Brit. Ministry of labour, London '20

Profit-sharing and labour co-partnership in Great Britain. Int Labour R 4:114-26 O '21

Profit sharing by American employers. 416p Dutton '21

Profit sharing in mining. Eng & Min J 112:124, 443-4 Jl 23, S 17 '21

Profit sharing in practice. Eng & Ind Management 5:513-14 My 5 '21

Profit-sharing plan that makes employees real partners. D. Kirkland. Ptr Ink 112:137+ S 2 '20

Profit sharing results. Ptr Ink 112:112+ Ag 12 '20

Real profit-sharing plan. W. Webb. Textile World 57:1156 F 7 '20

Right of profit-sharing. Comm & Fin Chr 110:23-4 Ja 3 sec 1 '20

Sharing losses as well as profits. C: N. Winship. Factory 24:1875-8 Je 15 '20

Shoe company's profit-sharing plan. Ptr Ink 110:116 Ja 8 '20

Simple plan for paying profits on top of wages. Factory 25:1579 N 15 '20

Trade unions and profit-sharing agreements. Elec R (Lond) 88:806 Je 24 '21

Trend in profit-sharing. R. A. Clemen. map Factory 24:810-11 Mr 15 '20

True Americanism rules workers' life. W. G. Welborne. Iron Tr R 67:1751 D 23 '20

What has happened to industrial co-operative plans? R. Dickinson. Ptr Ink M 3:32-3+ Je '21

What may we expect of profit sharing in industry? R. E. Heilman. Mech Eng 42:26-7 Ja '20; Same. Iron Tr R 66:347-8 Ja 29 '20

Why profit-sharing is economically unsound. W. R. Basset. Dom Eng 93:111-12 O 16 '20

Why share profits? A. Kauffmann. Factory 24:1536-7 My 15 '20

Why William M. Anderson is opposed to profit-sharing. B. Lehar. Dom Eng 93:298-9+ N 13 '20

See also Bonus system; Cooperation; Employees as stockholders

Bibliography

Report on profit-sharing and labor co-partnership in the United Kingdom. (Cmd. 544) p. 215-27 Great Britain. Ministry of Labor. Intelligence and Statistics Dept.

Profiteering

Labor held blameless for price increases. W. J. Lauch. Coal Age 17:1089-91 My 27 '20

Profiteering act of the union of South Africa. Monthly Labor R 11:1076-7 N '20

Refutes profiteering charges made by Lauck and Senator Walsh. J. D. A. Morrow. Coal Age 17:1114-15 My 27 '20

Roads mulcted for excess profits on maintenance and betterments. W. J. Lauck. Coal Age 17:1253 Je 17 '20

Programs. See Advertising mediums—Programs

Progress records

Color cycle production control. C. M. Bigelow. diags Ind Management 61:168-70 Mr 1 '21

Progress records—Continued

- Graphic production control in railway shops. E. T. Spidy. charts Ry Mech Eng 94:227-30 Ap '20; Same. Ry R 66:364-8 Mr 6 '20
How I meet my shipping dates. L. I. Thomas. Factory 24:1709-11 Je 1 '20
Lincoln motor production plan. I. J. Beatty. Factory 24:793-6 Mr 15 '20
Output in boot and shoe factories. J. Love-day and S. H. Munro. Eng & Ind Management 5:70-2 Ja 20 '21
Progress control as a staff function. J. W. McConnell. Am Mach 53:970-1 N 18 '20
Routing considered as a function of up-to-date management; evolution of the progress sheet. H. K. Hathaway. charts Ind Management 61:126-34 F 1 '21
System for production control; methods employed in the plant of the American multigraph co. il Mach 27:647-50 Mr '21

Prohibition

- Attorney-general's ruling permitting unlimited amount of liquor for medicinal purposes. Comm & Fin Chr 112:1096-7 Mr 19 '21
Beer, ale, porter, and other intoxicating malt liquors permitted as medicine. Comm & Fin Chr 113:1940 N 5 '21
Industrial alcohol and its relation to prohibition enforcement from the manufacturer's standpoint. M. C. Whitaker. J Ind & Eng Chem 13:647-50 Jl '21
Industrial alcohol and prohibition enforcement. M. H. Ittner. Chem Age 29:211-12 Je '21; Same. Chem & Met Eng 24:1088-90 Je 22 '21
Industrial alcohol and prohibition enforcement; committee report. Chem & Met Eng 24:1088-93 Je 22 '21
Lighting up a dry town; effect of prohibition on power companies. il J Elec 46:384-5 Ap 15 '21
Run-running privateers. J. A. Palmer. Am Ind 21:18 D '20
Where John Barleycorn's money is going. C. P. Russell. Ptr Ink 111:170+ Je 3 '20
See also Liquor laws; United States—Constitution—18th amendment

Projectiles

- Dispersion of projectiles. Sci Am M 3:438 My '21
Les gaz de combat, et leur emploi dans la guerre européenne, de 1915 à 1918. D. Florentin. il diags Génie Civil 76:427-32 My 8 '20
Incendiaries in modern warfare. A. B. Ray. il diags J Ind & Eng Chem 13:714-22 Ag '21
See also Ballistics; Gunnery; Rockets; Shells (projectiles); Temple driver

Testing

- Measurement of projectile velocities. P. E. Klopsteg and A. L. Loomis. il plan Am Inst E E J 39:98-104 F '20
Projectiles, Photography of. See Photography of projectiles
Projection apparatus
Increasing the scope of projection apparatus. L. E. King. il Mach 27:463-4 Ja '21
Projective covariance
Principle of projective covariance. I. Maizlish. Phys R 18:1-12 Jl '21

Promerycochærus

- John Day promerycochæri, with descriptions of five new species and one new subgenus. M. R. Thorpe. il Am J Sci 5th ser 1:215-44 Mr '21

Promissory notes

- Beware of giving promissory notes as accommodation to friends. E. J. Buckley. Metal Work 93:392 Mr 26 '20
Business trouble maker—the promissory note. E. J. Buckley. Metal Work 93:115-16 Ja 23 '20

Promoters

- Encouragement of the pioneer a pressing need of industry. C. T. Chenery. Annalist 17:589 My 30 '21
Financing an enterprise. 5th ed. 3v Ronald press '21

Pinch of salt. C. T. Hutchinson. Min & Sci P 121:123-31 Jl 24 '20

Protection for the promoter. S. Norman. Min & Sci P 122:673-6 My 14 '21

See also Townsite companies

Promotion of employees. See Employees—Promotion

Proofreading

- How should the proofreader treat the copyholder? M. Fairfield. Inland Ptr 64:685-7 Mr '20
Learning to be a proofreader. F. H. Teall. Inland Ptr 66:63 O '20
Proofreader's task. A. Pemberton. Inland Ptr 66:47-8 O '20
Proofreading and its problems. F. H. Teall. Inland Ptr 65:188-9 My '20
Proofroom. F. H. Teall. See monthly numbers of Inland printer

See also Capitalization; Compound words; Printing, Practical—Style manuals; Punctuation

Propaganda

- Aroused interest in our merchant marine is coming through advertising. A. E. Haase. Ptr Ink 111:73-4+ My 13 '20
Can advertising stop bomb outrages? W. S. Lockwood. Ptr Ink 112:73-4+ S 30 '20
Can propaganda take the place of advertising? Ptr Ink 113:65-6+ O 7 '20
Using paid space to influence British public opinion. T. Russell. Ptr Ink 111:57-8+ My 6 '20
See also Liquor traffic—Propaganda; Publicity

Propellers

- Boats driven by airplane propellers. G. F. Paul. il Am Mach 52:828 Ap 15 '20
Characteristics of a marine propeller in a non-uniform stream. T. B. Abell. diags Engineer 130:291 S 24 '20
Design of screw propellers, with special reference to their adaptation for aircraft. H. C. Watts. Longmans '20
Detail design of marine screw propellers. D. H. Jackson. 91p Pitman '20
Erosion of bronze propellers; abstracts. O. Silberrard. Engineering 111:174-5 F 11 '21; Engineer 131:146 F 11 '21; Eng & Ind Management 5:302 Mr 10 '21
Estimates of propeller performance from self-propelled model tests. W. McEntee. il diag Int Marine Eng 25:417-20 My '20
Measuring propeller blades. J. McIntosh. diag Am Mach 54:71-2 Ja 13 '21
Problem of the hull and its screw propeller. C. W. Dyson. Marine Eng 26:315-20, 398-405, 453-7, 553-6, 617-20 Ap-Ag '21
Ships' propellers: note on results of experimental research regarding cavitation as affecting propulsive efficiency. E. R. Mumford. Engineering 112:85-6 Jl 8 '21; Discussion. 112:114 Jl 15 '21
Shrouded screw propellers show efficiency in tests. il Pop Mech 36:177 Ag '21
Spring thrust bearings for propeller shafts. T. W. Gordon. il diag Gen Elec R 24:161-3 F '21
Strength of propellers. J. Hecking. diags Marine Eng 26:762-7 O '21
See also Airplane propellers; Ship propulsion

Manufacture

- Boring an 11-ton propeller. il Am Mach 53:555 S 16 '20
Finishing propellers with abrasives. il Marine R 51:244-5 My '21
Modern methods of casting propellers. il Marine Eng 26:696-9 S '21
Moulding bronze propellers. C. T. Cleve. Metal Ind 18:10 Ja '20
New, improved method of casting propellers. il Pop Mech 36:40-1 Jl '21
Propeller wheel mold standardized; Thacher process. E. Touceda. il Foundry 49:431-5 Je 1 '21; Excerpts. Iron Age 107:1310-12 My 19 '21; Min & Met 172:37-8 Ap '21; Sci Am M 3:381-2 Ap '21
Propellers cast in British shop. W. J. Lambert. il diags Foundry 49:351-5, 391-6 My 1-15 '21

Propellers—Manufacture—Continued

- Screw propeller patternmaking. W: H. Parry. *il Metal Ind* 19:353-6 S '21
 Six propeller blades made in one mold. J. L. Sendner. *il Foundry* 48:183 Mr 1 '20

Repair

- Repairing defective propellers. C: T. Perry. *il Int Marine Eng* 25:515-16 Je '20
 Two notable features in a propeller repair job. *il Marine Eng* 26:604 Ag '21

Propellers, Airplane. See Airplane propellers

Propine

- Unsaturation and molecular compound formation. O. Maass and J. Russell. *diags Am Chem Soc J* 43:1227-30 Je '21

Proportion

- Golden proportions in design. F. T. Singleton. *diags plan Ptg Art* 37:133-40 Ap '21
 Proportion in architecture. W. H. Ritter. *il diags Arch Forum* 35:51-4 Ag '21

Proportioning concrete. See Concrete mixing

Props

- Telescopic props can be used and re-used. *diags Coal Age* 20:601 O 13 '21

Propyl alcohol

- Conductance of solutions of ternary electrolytes in propyl alcohol. C: A. Kraus and J: E. Bishop. *Am Chem Soc J* 43:1568-75 Jl '21

Propylene

- Action of the chlorides of sulphur on substituted ethylenes; the action of propylene on sulphur monochloride and the synthesis of $\beta\beta'$ -dichlorodi-n-propyl sulphide. S: Coffey. *Chem Soc J* 119:94-8 Ja '21

Propylthiophene

- Über thiophen-verbindungen; die isomeren *n*-propyl- und isopropyl-thiophene. H. Scheibler and M. Schmidt. *Deutsche Chem Gesell Ber* 54:139-54 Ja '21

Proso millet

- Proso millet investigations—analysis of the oil—a characteristic alcohol. B. A. Dunbar and E. R. Binnewies. *Am Chem Soc J* 42:658-66 Mr '20

Prospecting

- Airplanes in mining operations. E. S. Bisbee. *Eng & Min J* 109:452 F 14 '20
 Desert prospecting. L. A. Palmer. *il Eng & Min J* 110:850-3 O 30 '20
 Desert prospector's guide. L. A. Palmer. *il Eng & Min J* 109:338-42 Ja 31 '20
 Discovery of the first operating mine in Manitoba. J. E. Spurr. *il Eng & Min J* 109:650-3 Mr 13 '20
 Drilling results and dredging returns. C: W. Gardner. *Eng & Min J* 112:646-9, 688-92 O 22-29 '21
 Exploration in southeastern Asia. M. H. Love-man. *Eng & Min J* 108:869-70 D 6 '19
 Factors to be considered in interpretation of prospect-drilling results. H. C. George. *diags Min & Met* 170:15-16 F '21
 Future prospector. A. G. Wolf. *Eng & Min J* 109:489 F 21 '20
 Placer prospecting practice. G. H. Hutton. *Min & Met Eng* 176:15-17 Ag '21; Discussion. A. C. Ludlum. 179:27-8 N '21
 Profession of ore-hunting. A: Locke. *Econ Geol* 16:243-78 Je '21
 Prospecting. *Min & Sci P* 122:706-7, 739-41, 774-8, 800-1, 803-5; 123:51, 53-4 My 21-Je 11, Jl 9 '21
 Prospecting in Canada. C: A. Bramble. *Min & Sci P* 122:183-4 F 5 '21
 Prospecting, past and future. T. A. Rickard. *Min & Sci P* 122:559-66 Ap 23 '21; Discussion. 122:742-3 My 28 '21
 Prospector. J. Mulholland. *Min & Sci P* 120:770 My 22 '20
 Study of underground electrical prospecting. C. Schlumberger. *diags Eng & Min J* 111:782-8, 818-23 My 7-14 '21
 Systematic prospecting. W. H. Grant. *il Eng & Min J* 109:928-31 Ap 17 '20; Discussion. 109:1250-1 Je 5 '20
 To help the prospector. J: T. Reid. *Min & Sci P* 123:565-7 O 22 '21

- Training for foreign exploration. H. F. Bain. *Mo U Sch Mines & Met Bul* 13:1-15 Je '21
 Valuation of placer deposits. G. H. Hutton. *il Min & Sci P* 123:365-8 S 10 '21; Same cond. *Min & Met* 176:15-17 Ag '21

See also Assaying; Divining rod; Mine examination; Mine surveying; Mine valuation; Mines and mineral resources; Ore sampling; Petroleum—Prospecting

Protactinium. See Protoactinium

Protalbinic acid

- Gold numbers of protalbinic and lysalbinic acids. R. A. Gortner. *Am Chem Soc J* 42:595-7 Mr '20

Protection, Metal. See Metal protection

Proteins

- Application of the Van Slyke method to hydrolyzed protein extracts of silage crops. R. E. Neidig and R. S. Snyder. *Am Chem Soc J* 43:951-9 Ap '21

- Chemical and physical behavior of proteins. J. Loeb. *Chem & Met Eng* 24:550-3 Mr 30 '21

- Method of purifying certain kinds of proteins. A. M. Field. *Am Chem Soc J* 43:667-8 Mr '21

- Origin of the humin formed by the acid hydrolysis of proteins. R. A. Gortner and G: E. Holm. *Am Chem Soc J* 42:821-7 Ap '20

- Ragweed pollen proteins. F: W. Heyl and H. H. Hopkins. *Am Chem Soc J* 42:1738-43 Ag '20

See also Amino acids; Casein; Gelatin

Protoactinium

- Über die eigenschaften des protaktiniums; seine lebensdauer und sein gehalt in uran-mineralien. O: Hahn and L. Meitner. *Deutsche Chem Gesell Ber* 54:69-77 Ja '21

Protoplasm

- Components and colloidal behavior of protoplasm. D. T. MacDougal. *Sci Am M* 2:271-2 N '20

- Viscosity values of protoplasm. W: Seifriz. *Sci Am M* 3:314 Ap '21

Protozoa

- Smallest animal in existence; results of some recent studies of the pleuromonas jaculans. L. A: Hausman. *il diags Sci Am M* 3:391-2 My '21

- Tiny creatures that make bad water. L. A. Hausman. *il Sci Am* 122:427+ Ap 17 '20

Protractagraph

- Turner protractagraph. *il Am Mach* 55:119-20 Jl 21 '21

Protractors

- Combination dip-chart and protractor. W. E. Gaby. *diag plan Min & Sci P* 123:201 Ag 6 '21

- New interior protractor for stadia work. P. J. Barry. *diag Can Eng* 39:591+ D 9 '20

Prouty, Charles Azro, 1853-1921

- Director of valuation of the Interstate commerce commission. *por Ry Age* 71:110 Jl 16 '21; *Ry R* 69:93 Jl 16 '21

Proverbs

See also Maxims

Prows

- French devise adjustable prow to increase speed of barges. *diag plan Eng N* 85:851-2 O 28 '20

Prunes

- New apparatus used to treat prunes. *il Pop Mech* 36:358 S '21

- Story of the prune; how California growers handle their crops. G. Orb. *il Sci Am* 124:52 Ja 15 '21

Prussic acid. See Hydrocyanic acid

Pseudocycas

- Pseudocycas from British Columbia. E: W. Berry. *il Am J Sci* 2:183-6 S '21

Psychical research

- Edison's views on life and death; interview regarding his attempt to communicate with the next world. A. C. Lescarbours. *Sci Am* 123:446+ O 30 '20

Psychology

Principles of modern psychology; enabling the individual to develop his good points to the best advantage. W. A. White. Sci Am M 3:501-2 Je '21

Psychology and education. Engineering 111: 674-5 Je 3 '21

Psychology and industry. Eng & Contr 54: 318-19 S 29 '20

See also Ability tests; Brain; Personality; Physiognomy; Psychical research

Psychology, Applied

Introduction to the psychological problems of industry. F. Watts. 240p Macmillan '21

Psychology of industry. J. Drever. 148p [bibliog. p. 133-5] Dutton

See also Advertising—Psychology

Psychology, Experimental. See Psychology, Physiological

Psychology, Physiological

Charting the mind. T. A. Marchmay. il Sci Am M 1:298-304 Ap '20

College uses curious instruments to test mental alertness of prospective students. il Pop Mech 35:744-5 My '21

Psychrometry

New Hill psychrometric chart. Heat & Ven 17:35-6, 50-1 O '20

Psychrometric chart explained. L. A. Wilson. chart Sibley J 33:68-70 Je '19

Ptomaine poisoning

Fallacy of ptomaine poisoning. F. L. Healy. Sci Am M 4:113-14 Ag '21

Public buildings

See also Baths, Public; Capitol buildings; Community centers; Courthouses; Fire houses; Libraries; Library architecture; Municipal buildings; Orphanages; Prisons; Public comfort stations; Public works; Schoolhouses; State buildings

Heating and ventilation

Fan and heater arrangements for public buildings. C. L. Hubbard. diags Dom Eng 94:5-7 Ja 1 '21

Growing importance of ventilation in public buildings. E. C. Allan. il Dom Eng 89:481-3 D 6 '19

Lighting

Lighting for art galleries and public buildings. E. H. Parker. il Elec R 79:375-6, 543-5 S 10, O 8 '21

Porto Rico

Recent civic architecture in Porto Rico, Adrian C. Finlayson, architect. S. Baxter. il plans Arch Rec 48:137-58 Ag '20

United States

Building for the Chamber of commerce of the United States of America. Am Arch 116: 811-12, pl 219-21 D 31 '19

Connecticut state library and Supreme court building. D. Barber. il plan Arch Forum 34:115-17, pl 53-5 Ap '21

Economy resulting from co-operation shown in housing of local government offices in the new Pittsburgh city-county building. Am Arch 117:267 F 25 '20

Public hall, Cleveland, Ohio; views. Arch & Bldg 53:8, pl 6-7 Ja '21

Public comfort stations

Allentown, Pa., builds modern underground comfort station. G. Preston. il plan Dom Eng 93:52-5 O 9 '20

Asheville, N. C., has fine public comfort station. J. S. Whitney. il plan Dom Eng 95:2-3 Ap 2 '21

Design of public comfort station for Allentown, Pa. C. E. Parry. il Munic Eng 59: 14-16 Jl '20; Same abr. Concrete 17:77-82 S '20

Minneapolis spends \$37,000 on new comfort station. W. W. Hughes. plans Dom Eng 95: 27-8 Ap 2 '21

Nation-wide survey of public comfort station situation. Dom Eng 95:4-7+ Ap 2 '21

Need for building public convenience stations. il diags plans Am Arch 117:773-6 Je 16 '20; Same. Metal Work 94:66-8 Jl 16 '20

New public rest building in Atlanta, Ga. is modern structure. il plans Dom Eng 96: 328-30+ Ag 20 '21

Public comfort station, Detroit, Mich.; views and plans. Am Arch 118:606h-j N 10 '20

Public comfort station in Wisconsin. diags plan Pub Works 48:561-2 Je 26 '20

Public comfort station with unusual equipment. plan Eng N 85:1145-6 D 9 '20

Public comfort stations a state and municipal necessity. F. R. King. diags Dom Eng 93: 158-60+, 256-8+, 353-5+; 95:29+ O 23, N 6, 20 '20, Ap 2 '21

Public comfort stations of England. diags plan Plumber 95:4-5 Ja 14 '21

Public convenience stations in Detroit. il plan Dom Eng 95:508 Je 11 '21

San Francisco builds first comfort station. M. M. O'Shaughnessy. il plan Dom Eng 95:13-14 Ap 2 '21

Small comfort station in New Jersey. il plans Dom Eng 96:143-4 Jl 23 '21

Trenton, N. J., remodels old newspaper plant into comfort station. J. O. Hunt. il diag Dom Eng 95:8-9 Ap 2 '21

Ventilation of public comfort stations. il diags plans Am Arch 118:611-14 N 10 '20

Wisconsin first state to pass public comfort station law and adopt uniform code. F. R. King. map Dom Eng 95:16-18 Ap 2 '21

Costs

Cost and maintenance of public convenience stations in Washington, D. C. A. R. McGon-egal. il Dom Eng 95:24-6 Ap 2 '21

What it costs to construct and maintain public comfort stations. Dom Eng 95:10-12 Ap 2 '21

Public economy. See United States—Appropriations and expenditures

Public health

Common good. E. M. Rabe. Textile World 58:2306+ O 2 '20

Engineering aspects of public health. J. A. Tobey. Eng N 86:668-70 Ap 21 '21

Essential functions of a state department of health. C. E. McCombs. Eng N 83:1002-3 D 11 '19

Relation of filth to public health. Pub Works 51:12-14 Jl 2 '21

Relation of the engineer to public health work. C. M. Baker. Eng & Contr 55:366-7 Ap 13 '21

Relation of water supplies to public health. J. W. S. McCullough. Can Eng 40:199-200 F 10 '21

See also Building laws; Disinfection and disinfectants; Dust removal; Factory sanitation; Health boards; Housing problem; Hygiene, Industrial; Influenza; Insects as carriers of contagion; Leprosy; Malaria; Milk supply; Mortality; Nuisances; Physical examinations; Plague; Plumbing laws and regulations; Public comfort stations; Refuse disposal; Safety devices and measures; Sanitary districts; Sanitary engineering; Sanitation; Sewage disposal; Smoke prevention; Street cleaning; Swimming pools; Vaccination; Ventilation; Water pollution; Water supply

Bibliography

Suggested list of books on hygiene for the town library. 11p Massachusetts Dept. of public health, Boston '20

Exhibitions

Chicago holds first health and sanitation exposition. il Dom Eng 93:457-8 D 4 '20

United States

Health administration at U.S. public health service's model village, Perryville, Md. Eng & Contr 55:570 Je 8 '21

Nation's healthiest town; Framingham, Mass. R. H. Moulton. il Pop Mech 34:885-8 D '20

Venezuela

With our Latin customers; engineering works that have put Venezuela abreast of the twentieth century. H. C. Plummer. il Sci Am 122:675+ Je 19 '20

Public health officers. See Health boards

Public opinion

Economic intelligence in public opinion. H: T. Suzzallo. *Comm & Fin Chr* 113:118-21 sec 2 O 29 '21

Public ownership. See Government ownership; Municipal ownership

Public ownership league of America

Conference, Chicago, Nov. 15-17. *Elec Ry J* 54:895 N 15 '19

Public service commissions. See Public utilities commissions

Public service corporation of New Jersey

11th annual report, 1919. *Comm & Fin Chr* 110:1306-13 Mr 27 '20

Twelfth annual report—for the year ending December 31, 1920. *Comm & Fin Chr* 112:1298-1304 Mr 26 '21

Map of electric railway lines controlled by Public service corporation of New Jersey. *Comm & Fin Chr* 110:(sec 2) 80-1 Ap 24 '20

Public service oil corporation

Old co-operative service station act now showing in Ohio. W. K. Halbert. *il map* Nat Pet N 13:19-22 My 11 '21

Public service railway of New Jersey

Public service railway valuation announced. *Elec Ry J* 57:747-8 Ap 16 '21

Public service railway's last stand. *Elec Ry J* 58:458-9 S 17 '21

Zone plan in New Jersey. H. C. Eddy. *Elec Ry J* 55:29-32 Ja 3 '20

Public utilities

Arrested development of public utilities. E: N. Hurley. *N E L A Bul* 8:251-5 My '21; Same cond. *Elec W* 77:1037-9 My 7 '21; Excerpts. *J Elec* 46:567-8 Je 1 '21; Abstract. *Elec Ry J* 57:856-7 My 7 '21

Coal-car priority for utilities continued in separate order. *Elec W* 76:649 S 25 '20

Commission, the public and the utility. B. M. C. Dening. *Am Gas J* 114:557-8 Je 25 '21

Communities are judged by their utilities. *Elec W* 77:1002-3 Ap 30 '21

Engineer's influence in public utilities. S: In-sull. *W Soc E J* 25:358-63 My 20 '20; Abstract. *Power* 51:611 Ap 13 '20

Europe making big strides in public utilities. *Elec R* 79:5 J1 2 '21

Fair play for public utilities. G: B. Cortelyou. *Nation's Business* 9:63 Ja '21

Fallacy of competition in a regulated monopoly. E. O. Edgerton. *J Elec* 46:380 Ap 15 '21; Same. *Eng & Contr* 55:499 My 18 '21

My business, your business, and our business. *N E L A Bul* 8:443-50 Ag '21

Practical value and importance of accident prevention in public utility companies from the viewpoint of an operator. H. E. Niesz. *N E L A Bul* 8:37-8 Ja '21

Public policy and investors. *Gas Age* 45:166-8 F 25 '20

Relation of the banking business to public utilities. A. L. Freehafer. *N E L A Bul* 7:875-8 D '20

Tells truths about utilities. J: C. Mellett. *Am Gas J* 114:423-4 My 14 '21

See also Carriers; Corporation law; Corporations; Depreciation; Electric railroads; Electric utilities; Express companies; Gas companies; Government ownership; Municipal ownership; Public utilities commissions; Railroads; Railroads and state; Street railroads; Telegraph; Telephone; Valuation; Water companies; Waterworks

Accounting

Accounting for construction in public utilities. W. C. Reyer. *J Account* 32:183-91 S '21

Accounting for customer-ownership sales. W. P. Little. *il Elec W* 78:822-5 O 22 '21

Accounting for property withdrawn from service. H. M. Brundage. *N E L A Bul* 7:311-12 My '20

Accounting for public utility replacements. L. R. Nash. *Eng & Contr* 54:71-2 J1 21 '20; Same. *N E L A Bul* 7:843-6 N '20

Financial problems confronting utilities during reconstruction period. H: E. Mendes. *Elec Ry J* 56:786-8 O 16 '20

Importance of a reliable investment account.

A. E. Lamb. *N E L A Bul* 7:931-4 D '20

Mechanical cost accounting. C. W. Platt. *Am Gas J* 115:346 O 15 '21

Regulation of bond discount. R. D. Armstrong. *J Account* 30:18-35 J1 '20

See also Electric railroads—Accounting; Electric utilities—Accounting; Public utilities—Regulation; Railroads—Accounting

Advertising

Important advertising lesson is learned by corporations. G. A. Nichols. *Ptr Ink* 115:19-20+ Je 16 '21

In the good will ledger. A. A. Higgins. *Ptr Ink* 112:109-10+ S 16 '20

Public utility as a community booster. W. W. Freeman. *N E L A Bul* 7:173-5 Ap '20

Should a public utility company advertise? G: A. Davis. *N E L A Bul* 8:426-7 J1 '21

Utilities underwrite clever essays on public service subjects. *Elec W* 78:734 O 8 '21

When the public utility features local industries; how the United electric light company, of Springfield, Mass., is winning good-will by advertising its customers. *Ptr Ink* 116:33-4 Ag 25 '21

See also Electric utilities—Advertising; Railroads—Advertising; Telegraph companies—Advertising; Telephone companies—Advertising

Contracts

Master's report condemns management contract in case of Columbus railway, power & light co. *Elec Ry J* 58:714-15 O 15 '21

Employees

Coöperation between engineering schools and the utilities. H. B. Shaw. *Ind Management* 60:377-80 N '20

Employee-investors build thrift and good will; Utica gas & electric co. G: H. Stack. *Elec W* 77:269-70 Ja 29 '21

Hold labor in utility field should receive higher wages than in any other calling. W. A. Fairservis. *Am Gas Eng J* 113:301-2 O 16 '20

No circumstances apparently under which public is willing to concede utility employee's right to strike. W. A. Fairservis. *Am Gas Eng J* 113:343-4 O 30 '20

Public utilities and employees. J: D. Kuster. *Gas Age* 45:201-2+ F 25 '20

Restoring the office personnel of a public utility company. P. W. Herring. *Am Gas Assn Accounting* sec v 2:12-22; Discussion. 22-33 '20

Specifications used by utility company in employing engineers. *N E L A Bul* 8:491-2 Ag '21

See also Railroads—Employees; Street railroads—Employees

Finance

Advantages and advisability of financing utilities locally. G. R. C. Wiles. *N E L A Bul* 8:509-11 S '21

Borrowing power and a fair return for public utilities. W: G. Raymond. *Eng N* 85:1281-3 D 30 '20

Common stock fundamental in public utility financing. W. E. Creed. *J Elec* 47:224 S 15 '21

Cost of money. *J Elec* 45:229-30 S 1 '20

Cost of money and credit of utilities. O. B. Willcox. *Elec W* 75:1309-10 Je 5 '20

Cost of organizing and financing a public-utility project. F. B. H. Paine. *Eng & Contr* 53:679-82 Je 16 '20; Same. *Mech Eng* 42:557-60 O '20

Creating a market for public utility securities. F. H. Sisson. *Gas Age* 44:486-8 D 1 '19

Depreciation reserve fund. W. Fish. *Elec Ry J* 55:239-47 Ja 31 '20

Difficulties in utility financing. *Elec Ry J* 55:939-41 My 8 '20

Economic future of transportation utilities. J. R. Bibbins. *W Soc E J* 24:1-10 Ja 5 '20; Abstract. *Eng N* 83:947 N 27 '19

Public utilities—Finance—Continued

- Element of security of investment should not have weight it has had in determining percentage that constitutes reasonable rate of return. S. E. Mulholland. Am Gas Eng J 112:359-61, 364+ My 8 '20
- Elements of public utility credit outlined. S: Insull. Elec W 76:649-50 S 25 '20
- Financial problems confronting utilities during reconstruction period. H: E. Mendes. Elec Ry J 56:786-8 O 16 '20
- Financial problems of public utilities. P. H. Gadsden. Eng & Contr 56:61-3 JI 20 '21
- Financing gas company extensions. Gas Age 46:253-5, 425-7 O 11, N 25 '20
- Financing public service. P. H. Gadsden. Elec Ry J 57:137-8 Ja 15 '21
- Fire insurance from the public utility viewpoint. J. G. Reese. Am Gas Assn Accounting sec v 2:49-59 '20; Excerpt. Elec W 77:159-60 Ja 15 '21; Discussion. Am Gas Assn Accounting sec v 2:59-65 '20
- Future trend of public utility financing. H: D. Thrall. Elec R 77:11-14 JI 3 '20; Same cond. Elec W 75:1481-2 Je 26 '20
- General Dawes blames Chicago politics. Elec Ry J 55:999-1000 My 15 '20
- Increased costs and their retarding effect on the public utility industry. E: B. Lee. N E L A Bul 7:317-22 Je '20
- Interests of public and utility cannot be separated without injuring both. P. P. Haynes. N E L A Bul 8:131-3 Mr '21
- Just how much the policyholder is interested in the financial welfare of public utilities. H: W. George. Am Gas Eng J 113:65-6+ JI 24 '20
- Justice of current-cost valuations. P. B. Warren. Elec W 76:1249-51 D 25 '20
- Present high cost of money to public utilities. D. R. Gwinn. Munic Eng 58:152-4 Ap '20; Same. Am Water Works Assn J 7:516-21; Discussion. 521-2 JI '20
- Public service companies must earn a sufficient revenue for expansion. L. H. Tyng. N E L A Bul 8:84-5 F '21
- Public utilities and the railroad commission. E. O. Edgerton. J Elec 45:514 D 1 '20
- Public utility financing. E. O. Edgerton. map Elec W 75:1039-71 My 8 '20
- Public utility financing and its relation to public interest and regulation. C. D. Jackson. N E L A Bul 7:665-71 O '20; Excerpts. Elec W 76:831-3 O 23 '20
- Public utility financing for the future. A. B. Forbes. Elec J 18:428-30 O '21
- Public utility situation from investors' standpoint. Elec R 77:730-1 N 6 '20
- Reasonable rate of return on investments. C. L. S. Tingley. Elec Ry J 55:1096-7 My 29 '20
- Reward for efficiency. E. O. Edgerton. N E L A Bul 7:385-9 JI '20; Same. J Elec 44:599-602 Je 15 '20; Same. Gen Elec R 23:715-18 Ag '20
- Servants—public and otherwise. G. M. Walker. Nation's Business 8:18-19 O '20
- Tendencies in utility financing. A. N. Kemp. Elec W 77:985-7 Ap 30 '21
- Utility companies should have better understanding of fire insurance policies. C: B. Scott. chart N E L A Bul 8:134-6 Mr '21
- Utility situation reviewed. O. B. Wilcox. Elec Ry J 56:706 O 9 '20
- What bankers will demand and how they can help the industry. F. H. Rawson. Elec Ry J 56:56-8 JI 10 '20
- What constitutes a reasonable return. W. H. Bohling. Elec W 78:261-6 Ag 6 '21
- Why the utilities are the people's business. H. M. Addinsell. N E L A Bul 8:10-13 Ja '21
- See also* Electric railroads—Finance; Electric utilities—Finance; Gas companies—Finance; Public utilities—Rates; Public utilities—Securities; Railroads—Finance; Waterworks—Finance; *also* Public service corporation of New Jersey

Franchises

- Contractual obligations of utility corporations under their franchises. R. C. Dawes. Am Gas Assn Accounting sec v 2:38-47 '20; Same. Am Gas Eng J 113:447-8+ N 27 '20; Discussion. Am Gas Assn Accounting sec v 2:47-8 '20

- Indeterminate franchise. J. W. Dana. Am Gas J 115:179-81+ Ag 27 '21
- Public utility service at cost. Gas Age 47:55-6 Ja 25 '21

See also Street railroads—Franchises

Law

- Indiana commission law. E. Bullock. Gas Age 47:173 F 25 '21
- Massachusetts commission opposes interlocking contractual relations. Elec W 77:732-3 Mr 26 '21
- New Illinois utility bill condemned by Western society of engineers. Eng & Contr 55:592-3 Je 15 '21

Libraries

- Libraries for public utilities. I. A. May. Special Lib 12:106 My '21

Management

- District manager. S. M. Kennedy. il J Elec 44:256-60 Mr 15 '20
- Good-will value of an efficient accounting organization. I: S. Hall. N E L A Bul 7:849-51 N '20
- Municipal water and light plant management. J. C. Manning. Munic Eng 57:274+ D '19
- Service is fundamental in operation of public utilities. Am Gas Eng J 113:540 D 25 '20
- Standards of service in the public utility. J: D. Kuster. J Elec 43:502-3 D 1 '19
- Three essential points for the public service industry. W. E. Creed. Elec W 78:228-9 JI 30 '21
- See also* Electric utilities—Management; Gas companies—Management; Railroads—Management; Waterworks—Management

Public relations

- Achievements of Illinois committee on public utility information. Elec W 77:1003-4 Ap 30 '21
- Art of conciliation. S. M. Kennedy. J Elec 44:171-4 F 15 '20
- Bright spot in the industry in Charleston. Elec Ry J 55:108-10 Ja 10 '20
- Commission, public and utility. B. M. Clendenning. Gas Age 47:410-11 My 25 '21
- Corporation stockholder a barrier against public prejudice. I. K. Friedman. Ptr Ink 111:57-9 My 20 '20
- Creating public good will for the utility company. M. DellPlain. Elec R 79:499-500 O 1 '21
- Cuss words and our utilities. E: N. Hurley. Nation's Business 9:14-15 Je '21
- Customer ownership of securities. W: H. Hodge. Elec W 76:1018-20, 1156-9 N 20, D 11 '20
- Cutting off utility noses ruins community faces. P. S. Arkwright. Elec Ry J 58:137-8 JI 23 '21
- Do we know our customers? E: N. Hurley. N E L A Bul 8:394-5 JI '21
- Editors want publicity. M. D. Beuick. Gas Age 46:314 O 25 '20
- Educating the public to utility problems. B. J. Mullaney. Elec R 78:31-2 Ja 1 '21
- Educational efforts of utility companies producing results. Am Gas J 114:461-2+ My 28 '21
- Financial outlook in the public utility field. C. Corey. il Elec R 76:480-2 Mr 20 '20
- Five million pieces of literature distributed; two-year record of Illinois utility information committee. Am Gas J 114:377-8+ Ap 30 '21
- Frankness between utilities, regulatory commissions and the public essential for successful operation. W. M. Smith. N E L A Bul 8:3-6 Ja '21
- Good citizenship and the public utilities. H. L. Aller. Elec W 78:79 JI 9 '21
- Human relations of public utilities. H. C. Pepper. Munic Eng 61:149-50 O '21
- Illinois pioneering in public relations. B. J. Mullaney. Elec J 18:445-7 O '21
- Important factors in bettering public relations. J: A. Britton. Elec W 78:278-9 Ag 6 '21

Public utilities—Public relations—Continued

- In national advertising state the facts. N. C. Kingsbury. Am Gas Eng J 111:347-8, 389-92 O 18 '19; Excerpts (Value of publicity in securing friendly relations). Gas Age 44:489-92 D 1 '19
- Indiana public utility association launches campaign of education. Am Gas J 114:359-60+ Ap 23 '21
- Indiana utilities join in meeting devoted to public relations. Elec Ry J 57:181-5 Ja 22 '21
- Influence of publicity in establishing relations between utilities and the public. N. C. Kingsbury. Am Gas Assn General Sessions sec v 1:130-45 '19
- Interest of the public in utility development. J. A. Perry. Elec W 77:1379-80 Je 11 '21
- Meeting the public in the commercial office. J. H. Ghegan. Elec W 78:378-9 Ag 20 '21
- Michigan utilities have unique plan. H. W. Douglas. Am Gas Eng J 114:163-4 F 19 '21
- Must keep truth to fore. W. M. Willett. Am Gas J 114:249-50 Mr 19 '21
- Ohio utilities have active association. D. K. Rennels. Am Gas Eng J 114:134-5 F 12 '21
- Organization and activities of state committees on public utility information. G. F. Oxley. N E L A Bul 8:267-73 My '21
- People's project; public utilities in California. R. H. Ballard. Elec W 77:777-9 Ap 2 '21
- Promoting a good understanding between utilities and people. E. I. Lewis. Elec W 77:1436-7 Je 18 '21
- Public interest demands that eight million dollars be spent in gas company betterments and improvements in next two years in Indiana alone. P. P. Haynes. Am Gas Eng J 112:503-5 Je 26 '20
- Public opinion and the utility problem. J. H. Wilkerson. N E L A Bul 8:142-4 Mr '21
- Public relations of public utilities. J. F. Greenawalt. Elec W 75:558 Mr 6 '20
- Public relations round table discussion. Elec Ry J 56:1016-17 N 13 '20
- Public utility from the customer's viewpoint. B. H. Peck. Elec W 78:765-6 O 15 '21
- Publicity in utility sales. W. W. Lowry. Munic Eng 60:74-6 F '21
- Publicity must be temperate. Elec Ry J 58:136 J1 23 '21
- Public's interest in utility development. J. A. Perry. N E L A Bul 8:382-6 J1 '21
- Relationship between public and its utilities. C. H. Lehmann. Am Gas J 115:159-61 Ag 20 '21
- Report of committee on public information. J. F. Gilchrist. N E L A Bul 7:484-7 Ag '20
- Report of the committee on sale of company securities to customers and resident citizens. N E L A Bul 7:624-30 S '20
- Report of the Inman investigating committee on the Railroad commission of California. J Elec 46:337-8 Ap 1 '21
- Sale of public utility securities to customers. F. H. Scheel. Elec R 77:979-80 D 18 '20
- Spreading the good-will gospel for public utilities; operation of Illinois committee on public utility information. Elec R 78:699-701 Ap 30 '21
- That the people may know. S. M. Kennedy. il J Elec 44:58-61 Ja 15 '20
- Utilities must be frank with public Indiana association is told. Am Gas Eng J 114:73-5+ Ja 22 '21
- Utility growth to come through public information. N. Read. Elec W 77:1225 My 28 '21
- Winning public support and confidence. G. L. Myers. Elec Ry J 58:210 Ag 6 '21
- See also* Electric railroads—Public relations; Electric utilities—Public relations; Railroads—Public relations; Street railroads—Public relations

Rates

- Breaking of rate contracts with municipalities justified. W. A. Shaw. Elec W 77:1003 Ap 30 '21
- Cities cannot enforce low rates on contract theory, Supreme court holds. Elec W 77:895-6 Ap 16 '21

- Establishing rates for service rendered by public utilities by contract. W. A. Shaw. Am Water Works Assn J 8:321-36 J1 '21
- Future of electrical construction aided by utility laws. J. H. Wilkerson. Elec R 78:214-15 F 5 '21
- Public service commission of Maryland for constructive policy in rates for public utilities. Comm & Fin Chr 110:323-4 Ja 24 '20
- Public service rates in Texas cities. F. M. Stewart, comp. Tex U Bul 1971:1-191 D 20 '19
- Public utility company in court. W. L. Ransom. Am Gas Assn General Sessions sec v 2:99-118 '20
- Public utility rates as affected by fluctuating unit prices. C. E. Grunsky. J Elec 44:277-8 Mr 15 '20
- Ready to serve element in public utility rates. C. E. Grunsky. J Elec 44:317 Ap 1 '20
- Tendencies in rate regulation. L. R. Nash. Elec W 75:431 F 21 '20
- See also* Electric rates; Gas rates; Railroads—Rates; Water rates

Regulation

- Adequate rate of return. W. S. Barstow. Gas Age 47:135-6 F 25 '21
- Adequate service—sufficient rate. W. M. Smith. Gas Age 46:289-95 O 25 '20
- Appeal for reason in utility regulation. J. A. Perry. Elec Ry J 58:787-8 O 29 '21; Same. Elec W 78:867-8 O 29 '21
- Both regulator and regulated heard at large meeting in Baltimore. W. M. Maloy; J. E. Aldred. N E L A Bul 8:137-9 Mr '21
- Central-station rates in theory and practice; public utilities and public regulation. H. E. Eisenmenger. Elec R 75:1008-11, 1048-53 D 20-27 '19
- Commission regulation of accounting systems. map J Elec 44:520-1 My 15 '20
- Competition in the public utility industry. G. L. Myers. J Elec 45:310-14 O 1 '20
- Current aspects of utility regulation. E. I. Lewis. N E L A Bul 8:397-403 J1 '21
- First hand information on public utility operation by Seattle. O. Hansen. Eng & Contr 53:457-9 Ap 21 '20
- Future of electrical construction aided by utility laws. J. H. Wilkerson. Elec R 78:214-15 F 5 '21
- Governors hold state regulation of utilities essential. Elec W 77:363-4 F 12 '21
- Helpful utility regulation an aid in industrial growth. E. O. Edgerton. J Elec 46:198-9 F 15 '21; Same. Eng & Contr 55:398 Ap 20 '21
- Improving laws concerning regulation of public utilities. E. O. Edgerton. J Elec 46:279-80 Mr 15 '21
- Norfolk invites the public utility investor. Elec Ry J 55:682 Ap 3 '20
- Operating a water works plant under state supervision. C. M. Roos. Am Water Works Assn J 8:337-45 J1 '21; Same. Munic Eng 60:164+ Ap '21; Same. Can Eng 40:385-7 Ap 14 '21; Excerpts. Eng & Contr 55:467-9 My 11 '21; Discussion. Am Water Works Assn J 8:345-55 J1 '21
- Philadelphia commission reports. Elec Ry J 55:1160-3 Je 5 '20
- Public ownership and operation criticised by commissioners; report. Elec W 76:1028-9 N 20 '20; Same. Ry R 67:816-17 N 27 '20
- Public ownership of public service companies. W. R. Creed. Elec W 78:29-30 J1 2 '21
- Public service regulation in Maine. N E L A Bul 8:451-3 Ag '21
- Public utility company in court. W. L. Ransom. Am Gas Assn General Sessions sec v 2:99-118 '20
- Regulation of public utilities. H. S. Carr. N E L A Bul 8:651-7 N '21; Excerpts. Elec Ry J 58:211-12 Ag 6 '21
- Regulation of utilities in Wisconsin. il Elec Ry J 58:765-8 O 29 '21
- Some Pennsylvania commission policies. Elec Ry J 57:180 Ja 22 '21
- State regulation of public utilities vs. city council control. Eng & Contr 54:263-4 S 15 '20

Public utilities—Regulation—Continued

- State versus local regulation of public utilities. W: J. Hagenah. Elec R 77:435-42 S 18 '20
- State versus local viewpoint on filter plant control. R. B. Morse. Am Water Works Assn J 8:356-8 J1 '21; Same. Eng & Contr 56:138 Ag 10 '21
- State vs. municipal regulation. W: G. Busby. N E L A Bul 7:395-6 J1 '20
- Status of private property and the future of individual enterprise now being fought out in numerous court rooms. W: L. Ransom. Am Gas Eng J 113:443-6, 454-6 N 27 '20
- Trend of regulation. C. D. Jackson. N E L A Bul 7:344-9 Je '20
- Utility regulation and rate of return; abstracts. C. F. Elmes. chart Eng & Contr 54: 400-4 O 20 '20; Elec Ry J 56:760-4 O 16 '20
- Views by chief engineer on all public service matters. H. Z. Osborne, jr. Gas Age 47:376 My 10 '21
- See also* Electric utilities—Regulation; Gas companies—Regulation; Government regulation of industry; Public utilities commissions; Railroads and state; Waterworks—Laws and regulations

Salesmen

- Great need of permanent salesmen; how they help to gain prestige for the organization. J. E. Bullard. Am Gas J 114:205-6 Mr 5 '21

Securities

- Creating a market for utility securities. F. H. Sisson. Am Gas Assn General Sessions sec v 1:98-107 '19; Abstract. Gas Age 44:486-8 D 1 '19
- Customer ownership of securities. W: H. Hodge. Elec W 76:1018-20, 1156-9 N 20, D 11 '20
- Effect on public utilities of tax-exempt securities. G: L. Myers. Elec R 79:590 O 15 '21
- Exemption of utility securities from federal taxation urged. Elec W 77:1120-1 My 14 '21
- Factors in the market for utility securities. Elec R 76:823-4 My 15 '20
- Finances of California utilities. Gas Age 47: 143-4 F 25 '21
- Important advertising lesson is learned by corporations. G. A. Nichols. Ptr Ink 115:19-20+ Je 16 '21
- Intensive sale of public utility securities. P. H. Whiting. il Elec W 77:1226-7 My 28 '21
- Investment bankers' association of America report of committee on Public service securities. O. B. Wilcox. N E L A Bul 7:777-85 N '20; Excerpts. Gas Age 46:297-9 O 25 '20
- Present tendency upwards in prices began quarter of a century ago. W. F. Gephart. Am Gas Eng J 113:105-8 Ag 7 '20
- Public utilities. Published in monthly Bank and quotation section of Commercial and financial chronicle
- Relation of the investor to public utility good will. Elec W 76:982-3 N 13 '20
- Report of the committee on sale of company securities to customers and resident citizens. N E L A Bul 7:624-30 S '20
- Sale of public utility securities to customers. F. H. Scheel. Elec R 77:979-80 D 18 '20
- Sales taxes uncollectible on urban car fares. Elec Ry J 57:902-3 My 14 '21
- Selling stock to the small investor in a consumers' ownership campaign. Elec W 78: 128-9 J1 16 '21
- Some thoughts in connection with the sale of stock to customers. J: F. Gilchrist. Elec J 18:161-3 My '21
- Stability of public utility investments. S: Insull. Elec R 77:514-16 O 2 '20
- Status of public utility securities. O. B. Wilcox. Elec Ry J 55:937-9 My 8 '20
- Taking your customers into partnership. J: F. Gilchrist. N E L A Bul 8:390-1 J1 '21
- \$207,617,530 in maturities. Elec Ry J 57:101 Ja 8 '21
- Utility regulation and rate of return; abstracts. C. F. Elmes. chart Eng & Contr 54: 400-4 O 20 '20; Elec Ry J 56:760-4 O 16 '20

Water power developments. D. W. Mead. Elec J 18:224-9 My '21

See also Employees as stockholders

Bibliography

Bibliography of the regulation of the security issues of railroads and other utilities. In Railroad capitalization, by J. C. Bonbright, p.186-94. (Columbia univ. studies in history, economics and public law, v. 95, no. 1) Longmans '20

Statistics

Seventeen years' growth of public utilities. chart Elec W 78:460 S 3 '21

Taxation

How taxation affects public utilities. P. H. Gadsden. Elec Ry J 58:212-13 Ag 6 '21

Taxation of public utilities. C. Dalton. Gas Age 46:410-12 N 25 '20

Valuation

- Actual cost versus reproduction cost in public utility appraisals. H. Almert. Elec W 76:1118-19 D 4 '20
- Are railway and public utility companies entitled to dividends upon unearned increments in value? Eng & Contr 53:671-2 Je 16 '20
- California commission bars out good will as element in valuation. Elec W 77:281 Ja 29 '21
- Chicago rate case valuation. A. S. B. Little. Gas Age 46:174-80 S 10 '20
- Construction period. H. C. Anderson. Can Eng 38:506-7 My 27 '20; Same. Eng & Contr 53:694-5 Je 16 '20; Same. Mech Eng 42:560-1+ O '20
- Danger in valuations at present-day figures. Elec W 76:366 Ag 21 '20; Discussion. 76: 1118-19; 77:260, 597-8, 936-7 D 4 '20, Ja 29, Mr 12, Ap 23 '21
- Elements in valuation of public utility properties. T: E. Phipps. Elec R 76:568-71 Ap 3 '20
- Fluctuating valuation has nothing to recommend it. C. D. Jackson. Elec W 75:1186-7 My 22 '20
- Influence of commodity price movement upon public utility valuations. H. R. Allensworth. W Soc E J 26:139-70 Ap '21
- Necessity for uniform practice in presenting rate and valuation cases shown. N E L A Bul 7:310-11 My '20
- New method of valuing public utilities. Comm & Fin Chr 112:1827 Ap 30 '21
- No accurate estimates can be made on useful life of public utility property except as to minor elements. L. R. Nash. Am Gas Eng J 113:43-4+ J1 17 '20
- Price levels in relation to value. C. F. Elmes. Mech Eng 42:553-7 O '20
- Two conflicting theories of valuation of railways and utilities. H. P. Gillette. Eng & Contr 52:580-2 N 19 '19
- Valuation and rate of return of public utilities. R. A. Brown. Elec W 77:1058-9 My 7 '21
- Valuation of public utility properties for rate making. F. V. Gallagher. Elec W 77:1104-5 My 14 '21
- Value versus investment as a basis for utility service rates. W: G. Raymond. Am Water Works Assn J 8:27-37 Ja '21; Same. Can Eng 40:233-6 F 17 '21; Excerpt. Eng & Contr 55:129-31 F 9 '21
- What is value for rate making purposes? W: G. Raymond. Ry Age 69:353-7 Ag 27 '20
- See also* Depreciation; Electric railroads—Valuation; Railroads—Valuation; Street railroads—Valuation; Waterworks—Valuation
- Public utilities association of West Virginia**
Annual convention, Charleston, Oct. 20-21. Elec Ry J 58:786-7 O 29 '21
- Public utilities commissions**
Commission popular in Keystone state. il Elec Ry J 58:163-6 J1 30 '21
- How Indiana's commission works. il Elec Ry J 57:254-8 F 5 '21

Public utilities commissions—Continued

- New York utility commission at work. chart Elec Ry J 56:1000-8 N 13 '20
- New York's new utility law. T. H. Whitney. Gas Age 47:282-3 Ap 11 '21
- Norfolk sets the pace in dealing equitably with the utilities. E. C. Miles. Am Gas Eng J 112:277-80, 289-92 Ap 10 '20
- Observations concerning the Public service commission. J. W. Ledoux. Am Water Works Assn J 7:528-35 Jl '20
- Public service commissions of the Bay State. il Elec Ry J 56:1276-82 D 25 '20
- Public utilities commission of the Nutmeg state. Elec Ry J 57:210-13 Ja 29 '21
- Regulation means that the public shall receive adequate service at reasonable rates. W. A. Shaw. N E L A Bul 7:867-73 D '20; Same abr. Ry R 67:763-7 N 20 '20
- Sulphur Springs meeting convinces commissioners. Gas Age 46:228-9 S 25 '20
- Thirty-seven governors give views on utility regulation. Am Gas Eng J 114:149-51 F 12 '21; Same. Gas Age 47:266-7 Mr 25 '21
- Utility commissioners hold spirited convention. Elec Ry J 56:1013-14 N 13 '20
- See also* Louisiana—Public service commission; National association of railway and utilities commissioners

Public works

- Advantages of standard plans and specifications and centralized control for government work; abstracts. R. C. Marshall, jr. Eng & Contr 53:188-9 F 18 '20; Am Arch 117:165-8 F 4 '20
- Approval by voters of public works bond issues is countrywide. Eng N 85:960-1, 1011-12 N 11-18 '20
- Contributions from the National public works department association. M. O. Leighton. Eng N 84:252-3 Ja 29 '20
- Corps of engineers and public works. F. C. Shenehon. Eng N 85:1056 N 25 '20
- Economy of early contract awards. C. D. Franks. Munic Eng 60:99-100 Mr '21
- Important contracting questions decided in Cleveland clearwater basin suit. Eng N 86:549-52 Mr 31 '21
- Is municipal construction feasible in winter? W. C. Clark. Can Eng 39:418-20 O 7 '20; Same. Eng & Contr 54:472-4 N 10 '20
- Labor for public works: unskilled labor in United States; tabulation. map Pub Works 50:121-9 F 5 '21
- La prévision des prix de revient sur les chantiers de travaux publics. E. Pobegu. Génie Civil 76:157-9 F 7 '20
- Say it with public jobs. Eng & Contr 56:225-6 S 7 '21; Same. Arch & Bldg 53:sup 20+ O '21
- What risks should cities take in installing relatively untried processes?; symposium. Eng N 84:132-5 Ja 15 '20

See also Contracts, Letting of; Irrigation; Municipal engineering; Public buildings; Rivers—Regulation; Roads; *also* subdivision Public works under names of places, e.g. Canada—Public works, Greece—Public works, Spain—Public works

Bibliography

Index of the month's periodicals: articles treating of public works and utilities which have appeared during the past month in the leading periodicals. *See* Public Works, second issue of each month

Public works department association, National. *See* National public works department association

Publicity

- Court of public opinion. I. L. Lee. Administration 1:736-8 Je '21
- It pays us to tell our business secrets. R. W. Stewart. il System 40:568-70+ N '21
- Looking forward; mass education through publicity. C. F. Higham. 200p Knopf
- Public information on technical matters. D. K. Boyd. Eng & Contr 53:719-20 Je 23 '20
- Publicity as an aid to cotton industry. A. A. Talmage. Textile World 57:3043+ Ap 24 '20

Rumors and big business. R. Dickinson. Ptr Ink 116:3-4+ Jl 7 '21

See also Advertising; Electric railroads—Public relations; Public utilities—Public relations; Railroads—Public relations; Street railroads—Public relations

Publishers**Advertising**

Where is advertising going? R. S. Durstine. Ptr Ink 112:154+ S 23 '20

Publishing

- Books of forty years. F. E. Woodward. il Sci Am 122:383 Ap 10 '20
- La crise de l'édition en France. A. B. des Chaumes. Génie Civil 77:88-91 Jl 31 '20

Accounting

Accounting for a magazine publishing business. L. A. Buettner. J Account 30:12-17 Jl '20

Puddling

Puddled iron practice improves; abstracts. J. E. Fletcher. diags Iron Tr R 66:153-6 Ja 8 '20; Mech Eng 42:119-20 F '20; Sci Am M 1:179-80 F '20

Puddling furnaces

New plant puddles iron mechanically; Lebanon valley iron & steel co., Lebanon, Pa. il diags Iron Age 104:1053-7 N 27 '19

Puddled iron practice improves; abstracts. J. E. Fletcher. diags Iron Tr R 66:153-6 Ja 8 '20; Mech Eng 42:119-20 F '20; Sci Am M 1:179-80 F '20

Puffers

Puffer fishes; interesting uses of their skins. E. W. Gudger. il Sci Am M 1:321-4 Ap '20

Pug mills

Studies in pug mill control. H. Spurrier. charts diags plan Am Cer Soc J 3:388-403 My '20

Pulitzer trophy race. *See* Airplane races

Pulleys

Aid to determine pulley diameter and speeds. G. W. Childs. Am Mach 53:175 Jl 22 '20

Aid to determine pulley diameters and speeds. J. Klein. Am Mach 52:1076 My 20 '20

Bollen cable pulley. diags Engineering 111:771 Je 24 '21

Changing sizes of cone pulleys. F. Szabo. diags Am Mach 55:238-9 Ag 11 '21

Compressed-spruce pulley. il Power 51:885 Je 1 '20

Data on belts and pulleys. W. L. Tryon. diag Foundry 47:584a, 648a, 704a, 788a, 820a, 852a, 900a S 1-O 1, N 1-D 15 '19

Evolution of the split pulley. H. Botsford. il Am Mach 55:65-6 Jl 14 '21

Graissage automatique des poulies, système Lawrence, Dorman and co. diag Génie Civil 78:509 Je 11 '21

Match plate for small pulleys. E. W. Leach. diags Am Mach 52:406 F 19 '20

Pulleys for the paper mill. N. P. Ward. Paper 27:122+ N 10 '20

Removing keyed pulleys from a shaft. G. H. Radebaugh. il diags Brick & Clay Rec 59:275-8 Ag 23 '21

Rules for finding speed and size of pulleys. Heat & Ven 17:68 F '20

Standard pulley sizes for motors recommended by power club. il Elec W 76:580 S 18 '20

Theory of crowned pulleys. F. O. Hoagland. diag Mech Eng 43:413 Je '21

Weighed and found wanting. G. H. Wallace. diags Power Pl Eng 25:428-9 Ap 15 '21

See also Belting; Shafting

Manufacture

Emergency pattern for a pulley. M. E. Duggan. diag plan Foundry 49:118-19 F 1 '21

Flanges for friction pulleys. J. S. Watts. diags Am Mach 53:372-3 Ag 19 '20

Improved method of crowning pulleys. il Ry Mech Eng 95:324 My '21

Machining cone pulleys. R. E. Flanders. il diags Mach 26:1140-1 Ag '20

Pulleys—Manufacture—Continued

- Making a pulley without a pattern. J. Allen. *il Foundry* 48:117-18 F 1 '20
 Making a wooden pulley for crushing rolls. C: Labbe. *diags Eng & Min J* 109:337 Ja 31 '20
 Pulleys predominate in unique shop. P. Dwyer. *il diag Foundry* 49:293-9 Ap 15 '21
 Should a pulley be made of wood, paper, cast iron or steel? W. F. Schaphorst. *Am Gas Eng J* 113:152 Ag 21 '20; Same. *Textile World* 58:1317 Ag 28 '20

Testing

- Investigation of compressed spruce pulleys. G: S. Wilson. *il diag Wash U Eng Exp Sta Bul* 10:1-72 O '20; Abstract. *Mech Eng* 42:451-2 Ag '20
Pulleys, Magnetic. See Magnetic separator pulleys
Pullman cars. See Sleeping cars
Pullman company
 Pullman company adopts employee representation. *Ry Age* 69:1114 D 24 '20
 Pullman fare hearing. *Ry Age* 70:1463-4 Je 24 '21
Pulp and paper association, Canadian. See Canadian pulp and paper association
Pulp and paper mill superintendent's association, American. See American pulp and paper superintendent's association

Pulpstones

- Pulp stones. J. L. Barnard. *Paper* 27:15+ Ja 19 '21
Pulverized coal. See Coal, Pulverized
Pulverized cotton. See Cotton, Pulverized
Pulverized fuel. See Coal, Pulverized
Pulverized lignite. See Lignite, Pulverized
Pulverized peat. See Peat, Pulverized
Pulverized wool. See Wool, Pulverized
Pulverizing machine. See Crushing machinery

Pumice

- Koka Seki and its uses. *Sci Am* 124:79 Ja 22 '21
 Pumice industry. *Eng & Min J* 110:1046 N 27 '20

Pumping

- Electric pumping in Concord. *Pub Works* 48:566-7 Je 26 '20
 How to determine power required for pumping. chart *Plumber* 94:592-4 D 31 '20
 Kind of pump—the size of pipe—how to figure it. R. E. S. Geare. *diag Concrete* 17:99-100 S '20
 Long suction pipe problem. *diags Metal Work* 93:265-7 F 27 '20
 Power assisted by air overcomes troubles. *il Plumber* 94:559 D 17 '20
 Principles of pump suction. F. R. Parsons. *Eng & Contr* 56:198-9 Ag 31 '21
 Pumping Croton water by hydraulic power: water supply of New York. W. D. Hubbard. *diag Am Water Works Assn J* 7:461-70 Jl '20
 Well-arranged condensing water-pumping plant. G: B. Leland. *il diag Elec W* 74:947-8 N 15 '19
 See also Mine pumping; Petroleum—Pumping; Pumping stations; Pumps; Sewage pumping

Cost

- Comparative cost estimates of various types of waterworks pumping equipment for Sacramento, Calif.; tabulation. *Eng N* 85:448 S 2 '20
 Comparative costs of steam and electric operation of turbine pumps. C. F. Bekenn. *Eng & Contr* 54:329-30 S 29 '20
 Comparison of gasoline and electric pumping. H. R. Turner. *il Pub Works* 48:322-4 Ap 17 '20
 Comparison of high duty and centrifugal pumps. L. A. Day. *Munic J* 48:24-5 Ja 17 '20; Discussion. G: H. Gibson. *Pub Works* 48:309-10 Ap 10 '20

Cost of operating Diesel engines at Appleton, Wis., pumping station. *Eng & Contr* 53:441 Ap 14 '20

Economic electrical pumping plant at Delphi, Indiana. G. C. Blalock. *Eng & Contr* 54:457-8 N 10 '20

Electrical operation of railway pumping plants. J. E. Gardner. *Ry R* 68:703-4 My 7 '21

Electrical pumping for Kingston water works. *Can Eng* 38:489 My 20 '20

Electrically driven centrifugal pumps at St Paul. *Pub Works* 50:71-2 Ja 22 '21

Record system of steam and motor pumping costs. O. A. Anderson. *il Power* 53:886-92 My 31 '21

Reservoir versus additional pumpage capacity for supplying peak demands. L. A. Quayle. *Am Water Works Assn J* 8:463-78 S '21; Same abr. *Eng & Contr* 56:360-2 O 12 '21; Same cond. *Eng N* 87:328-30 Ag 25 '21

Some cost and operating data for small waterworks. D. D. Ewing. *Eng & Contr* 54:379 O 13 '20

Some problems encountered in the rebuilding of water works. C: Brossman. *il Munic Eng* 58:217-18 My '20; Same. *Eng & Contr* 53:660-1 Je 9 '20; Abstract. *Elec R* 76:1064 Je 26 '20

Pumping machinery

- Comparison between reciprocating pumping engines and turbo-driven centrifugal pumps. H. Lupton. *Engineering* 112:74-6 Jl 8 '21; Same cond. *Power* 54:237-8 Ag 9 '21; Discussion. *Engineer* 132:31-2 Jl 8 '21; *Engineering* 112:42, 279 Jl 8, Ag 19 '21
 Duplex unaflo pump-engine water valves. *il diags Power* 52:734-5 N 9 '20
 Early steam pumping in Peru. W. B. Paley. *diags Eng & Min J* 111:666-7 Ap 16 '21
 Efficiency of pumps and ejectors. E: C. Bowden-Smith. 205p Van Nostrand '20
 Groundwater pumping and hydraulic excavation for beach hotel foundation. *il diag plans Eng N* 86:52-5 Ja 13 '21
 Honk Kong water supply—triple-expansion pumping engines; diagrams. *Engineer* 131:supp F 18 '21
 Investigation of automatic pump valves and their influence on the operation of pumping machinery. L. Krauss. *diags Mech Eng* 43:269-70 Ap '21
 Louisville's mammoth pumping engine. *il Power* 54:404-6 S 13 '21
 Pumping by compressed air. E. M. Ivens. 2d ed 266p Wiley '20
 Recent developments in railway water supply. C. R. Knowles. *Ry R* 66:756-9 My 8 '20; Same. *W Soc E J* 25:556-62 O '20; Same cond. *Ry Age* 68:1301-2 Ap 30 '20; Same cond. *Eng & Contr* 53:646 Je 9 '20; Discussion. *W Soc E J* 25:562-4 O '20
 Scored pump cylinders. R. A. Cultra. *Power Pl Eng* 25:929-30 S 15 '21
 Single engine pumps oil from many wheels. *il Pop Mech* 36:582-4 O '21
 Triple Corliss pumping engine for Margate waterworks. *il diags Engineer* 131:588, 589-90 Je 3 '21
 Union engineering handbook; pumping machinery, air compressors, condensers. E. P. Ordway, comp. Union steam pump co., Battle Creek, Mich. '21
 Well points used in excavating for beach resort hotel. F. P. Kemon. *il Eng N* 85:890 N 4 '20
 What electrical operated valves are doing for the city of Buffalo. *il diag Pub Works* 51:189-91 S 3 '21; Same. *Munic Eng* 61:105-7 S '21
 See also Air lifts; Air pumps; Fire engines; Gasoline pumps; Hydraulic rams; Injectors; Measuring pumps; Pumping stations; Pumps; Tire pumps; Vacuum pumps

Pumping machinery, Electric

- Advantages of electric motors over gas engines for pumping. *Nat Pet N* 12:98+ Ap 14 '20
 Application of electric motive power to small waterworks plants in Indiana. D. D. Ewing and G. C. Blalock. *Power* 52:155-6 Jl 27 '20

Pumping machinery, Electric—Continued

- Automatic control for motors driving pumps and compressors. B. W. Jones. *il diags Power* 51:498-502 Mr 30 '20
- Deterioration of insulation resistance in the high pressure fire service motors, city of New York. W: W. Brush. *Munic Eng* 60:38-40 Ja '21
- Economic electrical pumping plant at Delphi, Indiana. G. C. Blalock. *Eng & Contr* 54:457-8 N 10 '20; *Abstract. Elec W* 76:790 O 16 '20
- Electric and steam power for pumping plants. *il Pub Works* 48:70-3 F 7 '20
- Electric-motor drives for pumps. G. Fox. *il Power* 54:2-5 Jl 5 '21
- Electric pumping. L. F. Adams and R. A. Jones. *il Gen Elec R* 24:562-5 Je '21
- Electric pumping in Concord. *Pub Works* 48:566-7 Je 26 '20
- Electric waterworks systems for farms. *il Pop Mech* 35:590 Ap '21
- Electrical operation of railway pumping plants. J. E. Gardner. *Ry R* 68:703-4 My 7 '21
- Electrical pumping for Kingston water works. *Can Eng* 38:489 My 20 '20
- Electrically operated water works pumping plants in Indiana. G. C. Blalock. *il Munic Eng* 58:83-6+ F '20; *Same. Power* 51:276-7 F 17 '20; *Same. Elec R* 76:184-7 Ja 31 '20; *Excerpts. Eng & Contr* 53:161-2 F 11 '20
- Energy consumption of electrical pumps in copper mines. *Elec W* 75:435 F 21 '20
- Five thousand horse power electrically operated pumping plant. E. Bachman and W. J. Delehanty. *il diag Gen Elec R* 23:684-7 Ag '20
- Groupes moto-pompes électriques submersibles pour navires et pour mines. *il diag Génie Civil* 77:238 S 18 '20
- Irrigation in Montana with electrically operated pumping plants. K. A. Hills. *il Gen Elec R* 24:853-63 O '21
- Modern practice in supplying water to isolated residences. G. C. Blalock. *Munic Eng* 60:80+ F '21; *Abstract. Elec W* 77:494 F 26 '21
- Motor-driven centrifugal pumps in filtration plant. *Elec R* 79:364 S 3 '21
- Permanence of electric pumping in California. C: H. Lee. *il J Elec* 44:161-3 F 15 '20
- Remarkable pumping performance at the North-east pumping station, Minneapolis. F. W. Cappelen. *Am Water Works Assn J* 7:88-101 Ja '20
- Use of electricity for pumping water. C. R. Knowles. *Ry Age* 69:760 O 29 '20
- Well pumping in Savannah. *Pub Works* 48:385 My 1 '20
- See also Pumps, Submersible*
- Pumping stations**
- American pipe lines for pumping oil. *il Engineer* 132:392-3 O 14 '21
- Application of electric motive power to small waterworks plants in Indiana. D. D. Ewing and G. C. Blalock. *Power* 52:155-6 Jl 27 '20
- Boston high pressure water system. *Pub Works* 51:110 Ag 6 '21
- Combined gas and motor-driven pressure booster station. A. E. Walden. *il diags plan Power* 51:950-2 Je 15 '20
- Combined water works and electric plant at Rockport, Indiana. A. K. Kennedy. *Pub Works* 48:233 Mr 27 '20
- Comparison of gasoline and electric pumping. H. R. Turner. *il Pub Works* 48:322-4 Ap 17 '20
- Design of small storm-water pumping station at Dayton, O. *diag plan Munic Eng* 59:22+ Jl '20
- Difficulties in building the Louisville pumping station. J. B. Wilson. *il Am Water Works Assn J* 7:663-71 S '20
- Division pumping station at Cleveland, Ohio, and its operation. J. N. H. Christman. *Am Water Works Assn J* 8:433-41 Jl '21
- Economies in pumping-station operation at St Louis. *il diags Power* 52:599-601 O 12 '20
- Efficient irrigation pumping plant. *diag Pub Works* 49:250 S 18 '20
- Electric and gas engine pumping at Milltown. S: Speirs. *Pub Works* 48:98-9 F 14 '20
- Electric and steam power for pumping plants. *il Pub Works* 48:70-3 F 7 '20
- Electrically driven centrifugal pumps at St Paul. *Pub Works* 50:71-2 Ja 22 '21
- Electrically operated water works pumping plants in Indiana. G. C. Blalock. *il Munic Eng* 58:83-6+ F '20; *Same. Power* 51:276-7 F 17 '20; *Same. Elec R* 76:184-7 Ja 31 '20; *Excerpts. Eng & Contr* 53:161-2 F 11 '20
- Five thousand horse power electrically operated pumping plant. E. Bachman and W. J. Delehanty. *il diag Gen Elec R* 23:684-7 Ag '20
- Gas-engine-driven pumping plant at the Tilbury docks. *il diags Engineering* 110:532-4 O 22 '20
- Instructions to employees at pumping stations and filter plants; abstracts. D. R. Gwinn. *Eng N* 85:540 S 16 '20; *Eng & Contr* 54:373-4 O 13 '20
- Modern air-light pumping plant. J: Oliphant. *diag Mech Eng* 43:482 Jl '21; *Same. Sci Am M* 4:90-1 Jl '21
- Modern pumping station design and operation. R. J. Newsom. *N E Water Works Assn J* 35:46-50 Mr '21; *Excerpt. Eng N* 85:660 S 30 '20
- New pumping installation; Conaway river plant. *il J Elec* 45:259 S 15 '20
- New pumping plant for water-works of Peekskill, New York. H: W. Taylor. *il Eng N* 84:1114-15 Je 3 '20
- New reinforced concrete water tower, reservoir and centrifugal pumping plant for the city of Albert Lea, Minn. S. von Mehren and J. H. A. Brahtz. *il diags Munic Eng* 60:27-8+ Ja '21
- Novel condenser pump house at Kenova, W. Va., designed to be flood proof. *il diags plans Elec Ry J* 58:387-91 S 10 '21
- Performance of direct connected turbine-centrifugal pumping unit on irrigation project near Palisade, Colo. S. O. Harper. *il diag Eng & Contr* 54:131-2 Ag 11 '20
- Plan and cross-section of pumping station of Randfontein central gold mining co., South Africa. *Eng & Min J* 111:509 Mr 19 '21
- Pumping plant for rice land. J. W. Coons. *il J Elec* 46:76-7 Ja 15 '21
- Pumping plant of new Hunter's Point drydock. C: W. Geiger. *il diags plans Power Pl Eng* 25:151-6 F 1 '21
- Pumping project with low-level storage and semi-gravity supply. R. A. Trufant. *Eng N* 85:701-2 O 7 '20
- Pumping station at Toledo, Ohio, rebuilt without interrupting service. *il map plan Power Pl Eng* 25:351-6 Ap 1 '21
- Pumping station undermined by leaks and shut down. *il diag Eng N* 83:941 N 27 '19
- Pumps for small water plants. *Pub Works* 50:427 My 21 '21
- Randfontein central pumping plant. W. D. Galpin. *il Gen Elec R* 24:901-3 O '21
- Revamping Toledo pumping station under service. G: N. Schoonmaker. *il diags plans Eng N* 84:1184-6 Je 17 '20
- Some economic features of pumping station operation. L. A. Day. *il diags Am Water Works Assn J* 7:795-810 N '20; *Same cond. Eng N* 85:459-62 S 2 '20; *Same. Can Eng* 39:243-5 Ag 12 '20; *Same. Munic Eng* 59:102-4+ S '20
- Steam power plants for pumping stations. P. J. Kiefer. *Munic Eng* 58:227-8 My '20
- Unsuccessful waterworks plant. *Pub Works* 48:218 Mr 20 '20
- Unusual experiences in steam engineering in France. C. F. Merriam. *Power* 53:132-5 Ja 25 '21
- Water-works pumping plant for the city of Regina, Saskatchewan. C. O. Thomas. *diag Power* 54:454-5 S 20 '21; *Same. Eng & Contr* 56:443 N 9 '21
- See also Mine pumping; Pumping machinery; Pumps; Sewage pumping; Water supply; Water supply engineering; Water-works*
- Cost**
- Pumping plant installation costs. *J Elec* 47:194 S 1 '21

Pumps

- Aldrich Ydrange triplex pump. *il* Min & Sci P 120:733 My 15 '20
- By movement of a rotor three spaces enlarge and contract, thus drawing and expelling water. *diags* Coal Age 19:805-6 My 5 '21
- Chaine Helice. F. A. Simpson. *diags* Engineering 109:441 Ap 2 '20
- Choosing the type of pump and the size of pipe on construction jobs. R. E. S. Geare. *diag* Munic Eng 58:36-8 Je '20; Abstract. Good Roads n s 19:295-6 Je 9 '20
- Comparison of high duty and centrifugal pumps. L. A. Day. *Munic J* 48:24-5 Ja 17 '20; Discussion. G. H. Gibson. *Pub Works* 48:309-10 Ap 10 '20
- Cup-leather packing for pump plungers. A. J. Dixon. *diag* Power 53:552 Ap 5 '21
- De-leading pump. C. W. Rosenberger. *diags* Metal Ind 18:177 Ap '20
- Direct acting pumps. *il* Marine R 51:295 Je '21
- Exeter rotary pump suitable for high heads. S. H. Farkas. *il* *diags* Elec R 79:217-18 Ag 6 '21; Excerpts (with table). *Chem & Met Eng* 24:1025-6 Je 8 '21; *Power Pl Eng* 25:740-1 Jl 15 '21; *Marine Eng* 26:686 S '21
- Handling condensate. C. L. Hubbard. *diags* *Power Pl Eng* 24:462-5 My 1 '20
- High pressure turbine pumping set. *il* *diag* Engineer 129:228-9 F 27 '20
- Home-made oil pump. O. B. Critchlow. *diag* *Power* 53:335 Mr 1 '21
- Humphrey pump. *il* *diags* Engineer 131:232, 238 Mr 4 '21
- Humphrey pump. W. J. Walker. *Engineering* 111:157-8 F 11 '21
- Hydraulic presses and pumping machinery. *il* *diags* Engineering 111:394 Ap 1 '21
- Jennings steam-turbine-driven return-line heating pump. *il* *Chem & Met Eng* 25:337 Ag 24 '21; Same cond. *Power* 54:6 Jl 5 '21
- Magma pump. *il* *Chem & Met Eng* 25:801 O 26 '21
- Main gear, eccentric and crosshead of gathering pump run in oil. *il* Coal Age 19:864 My 12 '21
- Manifold that reverses flow for oil pumps. *il* Pop Mech 36:242 Ag '21
- New departure in pump design. S. R. Winter. *il* Sci Am 121:641 D 27 '19
- Operation and adjustment of turbine machinery—oil pumps. E. H. Thompson. *diags* *Power* 52:863-4 N 30 '20
- Positive rotary pump that employs novel principle. *il* Pop Mech 36:550 O '21
- Prescott-Menominee electric pump lifting 2400 feet. *il* Min & Sci P 123:523-4 O 8 '21
- Pulsating type pumps. *diags* *Power Pl Eng* 25:332 Mr 15 '21
- Pump for elevating tailing. *il* *diag* Min & Sci P 121:918 D 25 '20
- Pump problems. R. L. Tullis. *Power* 52:865-6 N 30 '20
- Pump troubles. A. P. Blackstead and G. R. Hargis. *il* *diags* Pop Mech 35:773-5, 930-2; 36:127-30, 286-9, 446-8 My-S '21
- Pumps for oil pipe lines. *il* Eng & Min J 109:1033 My 1 '20
- Pumps in the pulp and paper mill. J. H. Hodgkinson. *il* Paper 27:140-1 N 10 '20
- Rotary pumps of new design built in France. *diags* Iron Age 106:4 Jl 1 '20
- St Louis rotary piston pump. *il* *diag* Iron Age 107:211 Ja 20 '21
- Single-acting pump that discharges during both strokes. N. G. Near. *diag* *Power Pl Eng* 24:1194 D 15 '20
- Traylor superpump. *il* Min & Sci P 121:219-20 Ag 7 '20
- Troubles with pump valves. R. A. Cultra. *diags* *Power Pl Eng* 25:1011-14 O 15 '21
- Turbine driven air and condensate pump. *il* *Power Pl Eng* 25:785-6 Ag 1 '21
- Two pump-stopping devices. J. Redmond. *diags* *Power* 53:518 Mr 29 '21
- See also* Air lifts; Air pumps, Gasoline pumps; Heat pumps; Measuring pumps; Pumping machinery; Pumping stations; Tire pumps; Vacuum pumps

Advertising

- Goulds advertises to win public appreciation of pumps. A. D. Albin. *Ptr Ink* 110:69-70+ F 12 '20

Manufacture

- Continuous milling of pump bodies. *il* chart Am Mach 54:108-9 Ja 20 '21
- Machining a gear-type water pump. F. A. Stanley. *il* *diag* Am Mach 53:61-2 Jl 8 '20

Repair

- Increasing water delivery through old pipe line. A. G. Drury. *Power* 54:566 O 11 '21
- Method of repairing pumps with special reference to leather valve replacement. F. N. Parks. *diags* Metal Work 94:207-8 Ag 13 '20
- Repairs to rotary pumps. R. C. Baker. *diag* Eng & Min J 110:117-18 Jl 17 '20
- Welding cracked pump cylinder by thermit process. *il* *Munic Eng* 60:79-80 F '21; Same. *Pub Works* 50:277 Ap 2 '21

Testing

- Effect of worn runners on dredge pump efficiency. I. E. Houk. *diag* Eng N 86:169-70 Ja 27 '21
- New application of pitot tube in testing pumps. A. L. Collins. *diag* *Power* 54:563 O 11 '21; Same. *Eng N* 87:616-17 O 13 '21
- Well tests—the basis for pump selection. G. M. Shepard. *Munic Eng* 59:137-8 O '20
- See also* Pumps, Centrifugal—Testing
- Pumps, Air. *See* Air pumps
- Pumps, Air lift. *See* Air lifts
- Pumps, Ammonia
- Making a difficult but rapid repair to an ammonia pump. D. L. Fagnan. *diags* *Power* 52:904-5 D 7 '20

Pumps, Centrifugal

- Auxiliary centrifugal pumps underground. W. F. Boericke. *diag* Eng & Min J 111:270-1 F 5 '21
- Baltimore pump sets new duty record for centrifugals. *il* Eng N 86:938-9 Je 2 '21; Discussion. 87:785-6 N 10 '21
- Centrifugal pump. *diags* *Power Pl Eng* 24:603-5 Je 15 '20
- Centrifugal pump. R. A. Fiske. *diags* *Power Pl Eng* 25:218-20 F 15 '21
- Centrifugal pump formulas. Coal Age 19:827-8 My 5 '21
- Centrifugal pump runs over twelve years without needing any repairs. D. C. Ashmead. *il* Coal Age 19:804-5 My 5 '21
- Centrifugal pump takes water at the outer edge of its impeller. *il* Coal Age 18:854 O 21 '20
- Centrifugal pumps. W. D. Canan. *diags* *Power* 53:698-700, 780-2 My 3, 17 '21; Discussion. F. W. Rabe. 54:32-3 Jl 5 '21
- Centrifugal pumps. R. S. Lewis. *diags* Min & Sci P 121:83-9 Jl 17 '20
- Centrifugal pumps; a brief study of their characteristics, tests and methods of driving. *diag* *Power Pl Eng* 24:785-8 Ag 15 '20
- Centrifugal pumps for high head at Shenandoah, Pa. F. Gannett and J. L. Crane, jr. *il* Eng N 86:983 Je 9 '21
- Comparison between reciprocating pumping engines and turbo-driven centrifugal pumps. H. Lupton. *Engineering* 112:74-6 Jl 8 '21; Same cond. *Power* 54:237-8 Ag 9 '21; Discussion. Engineer 132:31-2 Jl 8 '21; Engineering 112:42, 279 Jl 8, Ag 19 '21
- Design of centrifugal pumps. T. M. Jones and A. T. Clark. *Can Eng* 40:312 Mr 17 '21
- Does not corrode or become air-bound. *il* Coal Age 20:602 O 13 '21
- Dredging pump of novel construction. W. J. White. *il* *diags* Mech Eng 42:1-7+ Ja '20
- Economy resulting from the use of variable speed induction motors for driving centrifugal pumps. M. L. Enger and W. J. Putnam. *Am Water Works Assn J* 7:536-41 Jl '20; Same. Eng & Contr 53:545-6 My 12 '20; Same. *Munic Eng* 59:69-70+ Ag '20; Same. Eng N 85:1126-7 D 9 '20
- Gasoline-engine drive for centrifugal pumps. T. M. Heermans. *il* *Power* 53:376-7 Mr 8 '21
- High-voltage motors for centrifugal pumps. *il* Iron Tr R 67:724-5 S 9 '20

Pumps, Centrifugal—Continued

- Hydraulic equipment and operations on dam construction, Lockington, O. il plan Eng & Contr 54:386-7 O 20 '20
- Maintenance of motor-driven centrifugal pumping units. J. E. Housley. diags Power 54:442-3 S 20 '21
- Meeting difficulties of centrifugal pumping by suitable construction. il Coal Age 17: 898-9 My 6 '20
- Motor driven centrifugal pumps at Quincy, Ill. W. R. Gelston. il Pub Works 48:505-7 Je 12 '20
- Motor-driven centrifugal pumps in filtration plant. Elec R 79:364 S 3 '21
- Parallel discharge of centrifugal pumps. T. M. Heermans. il diags Power 51:554-5 Ap 6 '20
- Pumps for corrosive liquids. il diags Engineering 110:253-4 Ag 20 '20; Same cond. Mach 27:114 O '20; Abstract. Sci Am M 2: 277-8 N '20
- Ross two-way centrifugal pump. il Ry Mech Eng 95:197 Mr '21
- Special impellers for pumps in dredging stumpy ground. W. J. White. il diags Eng N 85:166-70 Jl 22 '20
- Synchronous motors for driving centrifugal pumps. S. H. Mortensen. il diags Power 51: 90-3 Ja 20 '20
- Synchronous motors for driving centrifugal pumps. G. G. Rehfield. Power 52:108-9 Jl 20 '20
- Use of centrifugal pumps in municipal water plants. R. A. Murdoch. Munic Eng 58:253-5+ Je '20
- What type of mine pump shall I specify. J. W. Hallock. diags Coal Age 18:1229-33 D 16 '20
- White iron pump shells for hydraulic fill work of Miami conservancy district. il Eng & Contr 54:167-8 Ag 18 '20
- Wilfley centrifugal pump. diag Engineer 131: 96 Ja 28 '21; Engineering 111:116 Ja 28 '21; Power 53:497 Mr 29 '21; Discussion. Engineering 111:255 Mr 4 '21
- See also Pumps, Feed water; Pumps, Submersible

Testing

- Motor-driven pumps develop high efficiency. il diag plan Elec R 76:635-7 Ap 17 '20
- New method of determining efficiency of centrifugal pumps. A. F. Sherzer. Eng N 86: 1114-15 Je 30 '21; Discussion. 87:334-5 Ag 25 '21

Pumps, Feed water

- Centrifugal boiler feed pumps. J. White. il diag Electrician 85:23-5 Jl 2 '20
- Piping connections for automatic control of boiler-feed pumps. diag plan Heat & Ven 17:44-5 N '20
- Pump versus trap feed. W. H. Wakeman. diags Power Pl Eng 25:434-5 Ap 15 '21; Discussion. 25:583 Je 1 '21
- Why boiler-feed pump gives better service than an injector. T. H. Green. Coal Age 18:172 Jl 22 '20

Pumps, Gasoline. See Gasoline pumps**Pumps, Heat. See Heat pumps****Pumps, Measuring. See Measuring pumps****Pumps, Submersible**

- High-lift submersible motor pump. il Engineer 131:24 Ja 7 '21
- Submersible electric motor pump. il diag Engineering 110:274-5 Ag 27 '20
- Submersible electric pump for salvaging ships. il Pop Mech 34:537 O '20
- Submersible pumps. il diag Engineer 128:595 D 12 '19
- Submersible sea salvage pumps. il Sci Am M 1:22-3 Ja '20

Pumps, Vacuum. See Vacuum pumps**Punched card system**

- Cost accounting by machinery; the Hollerith system. E. W. Workman. il Eng & Ind Management 6:314-18 S 22 '21
- Mechanical devices in accounting department of San Antonio & Aransas Pass railway. F. Eiserloh. Ry R 68:44-8, 80-5 Ja 8-15 '21

Punching

- Bulging with a rubber punch. L. J. Voorhees. diag Am Mach 53:423-4 Ag 26 '20; Discussion. F. Richards. 53:730-1 O 14 '20
- Expanding punch for aluminum ware. F. A. Stanley. il Am Mach 53:199 Jl 29 '20
- Gang punch for lead plates. F. A. Stanley. il diags Am Mach 52:256-7 Ja 29 '20
- Laws of high-speed punching. T. J. Tresidder. Engineer 130:126-7 Ag 6 '20; Abstract. Sci Am M 2:186-7 O '20; Abstract. Mech Eng 42:584 O '20
- Multiple piercing tool. A. Ferber. diags Am Mach 52:577 Mr 11 '20
- Semi-automatic adjustable center-punch. S. M. Lowry. diag Mach 27:891-2 My '21

Punching machinery

- Design of sub-presses. D. H. Chason. diags Mach 26:841-3 My '20
- Henry & Wright dieing machine. il Am Mach 55:526-7 S 29 '21
- Marquette even-pressure spring cushion. il Am Mach 55:570-1 O 6 '21
- Plunger press for multiple operation. il Iron Age 108:1132 N 3 '21
- Press for making paper tags. G. G. Little. diags Am Mach 54:424-5 Mr 10 '21
- Punching storage-battery insulating sheets. C. O. Herb. il diags Mach 28:8-10 S '21
- Steam locomotive as a punch-press. il Sci Am 124:467+ Je 11 '21
- Toledo large multiple punch press. il Iron Age 106:1408 N 25 '20
- Two light punching-machine jobs. J. Simon. diags Am Mach 53:1075-6 D 9 '20

See also Dies

Safety devices

- D. & M. guard for punch presses. diag Iron Age 105:1790 Je 24 '20; Mach 26:994 Je '20
- Increasing production by safeguarding power press operation. A. L. Kaems. il Am Mach 53:398-9 Ag 26 '20; Same. Iron Age 106:387 Ag 12 '20
- Littell automatic punch-press feeding devices. J. V. Hunter. il Am Mach 54:209-12 F 10 '21
- Making the punch press safe and efficient. N. G. Shidle. il Automotive Ind 43:1118-20+ D 2 '20
- Punch-press guard pushes worker's hand from die. il Pop Mech 34:509 O '20
- Safety guards for punch presses. il Safety Eng 41:145 Mr '21
- Safety-trip for punch presses. C. E. Wildoner. il Safety Eng 42:61-2 Ag '21
- Wiesman punch press safeguard. il Mach 26: 883 My '20

Punctuality. See Tardiness**Punctuation**

- Duty of the proofreader as to punctuation. F. H. Teall. Inland Ptr 66:353 D '20
- Punctured punctuation. Ptr Ink 112:109-10 Jl 29 '20

See also Printing, Practical—Style books

Puncture plant

- Puncture plant protection. il Sci Am 125:183 S 10 '21

Punta Alegre sugar company

- 5th annual report—for the year ended May 31 1920. Comm & Fin Chr 111:1481 O 9 '20

Pupin, Michael Idvorsky, 1858-

- Edison medal awarded for work in mathematical physics and its application to the electrical transmission of intelligence. Am Inst E E J 40:66-7 Ja '21; Same. Elec R 78: 36-7 Ja 1 '21
- Portrait. Elec W 77:412 F 19 '21
- Romance of invention; Pupin, exponent of pure science. C. H. Claudy. por Sci Am 122:244+ Mr 6 '20

Purchase contracts

- Treatment of commitments of purchasers, etc., on certified balance-sheets. H. N. Sweet. J Account 31:167-72 Mr '21
- See also Sales

Purchased power. See Electric plants—Central stations vs. isolated plants

Purchasing

- Advantages of centralized municipal purchasing. C. A. Bingham. *Munic Eng* 59:49-50 Ag '20
- Art of buying. J: J. Ralph. *Iron Age* 108:757 S 22 '21
- Business of a purchasing department. *Paper* 28:16 My 18 '21
- Buying commodities by weight or measure. *il U S Bur Stand misc pub* 45:1-42 '20
- Buying goods after inspection and getting something different. E. J. Buckley. *Metal Work* 92:400-1 O 3 '19
- Buying involves many problems. F. B. Jacobs. *Iron Tr R* 66:851-2 Mr 18 '20
- Buying methods. *Factory* 24:190, 1430+, 1568+, 1800+; 25:1088+, 1432+, 1754+; 26:1210+; 27:110+ Ja, My 1-Je 1, O 1, N 1, D 1 '20, My 15, Jl 1 '21
- Buying responsibility. J: J. Ralph. *Iron Age* 108:1139-40 N 3 '21
- Centralized buying. E. Higgins. *Min & Sci P* 123:403-4 S 17 '21
- Dollar control; executive management should watch purchases no less carefully than income. J: J. Ralph. *Iron Age* 108:514 S 1 '21
- Even in a seller's market there is yet opportunity for a competent purchasing department to effect large savings for the utility. J. M. Knowles. *Am Gas Eng J* 112:217-18 Mr 20 '20
- Final cost—the real test in economical buying. *Factory* 25:1396-8 N 1 '20
- Gears from a purchaser's standpoint. G. D. Stanbrough. *Iron Age* 105:1498 My 27 '20
- Handling purchases at least cost. E. D. Liphardt. *Factory* 26:453-4 F 15 '21
- How do you regulate materials? H: H. Farquhar. *Am Mach* 52:1338-40 Je 24 '20
- How our sales records tell us what to buy. E. C. Peck. *Factory* 26:1297-9 Je 1 '21
- How to systematize the stock room. W. A. Fink. *Dom Eng* 93:553 D 18 '20
- Ideas for the man who buys. *System* 39:199, 367-8, 659+; 40:289-90+ F-Mr, My, S '21
- Modern production methods. W. R. Basset. *Am Mach* 52:873-6 Ap 22 '20
- Modern purchasing methods for pulp and paper mills. N. P. Winchell, jr. *Paper* 26:23-5 Je 30; 14-15 Jl 14; 19-21+ Jl 28 '20
- New department in Timken-Detroit axle co.'s Detroit plant; factory planning engineer. D. F. Kennedy. *Iron Age* 106:1177-9 N 4 '20
- Planning efficient purchasing. M. H. Potter. *Iron Tr R* 66:286-9 Ja 22 '20
- Purchases budget. J. O. McKinsey. *Administration* 1:465-76 Ap '21
- Purchasing. A. B. Johnson. *Paper* 28:17-19+ Jl 13 '21
- Purchasing and handling material in a moderate sized factory. G. V. Sweet. *Ind Management* 61:335-7, 399-402; 62:18-21 My 1-Jl '21
- Purchasing department records. G. W. Greenwood. *Ind Management* 59:383-6 My '20
- Purchasing plan that helps make profits. *Factory* 26:50-1 Ja 1 '21
- Report of committee on purchasing agent's office records; and report of committee on lumber. *Ry Age* 68:1868-9 Je 16 '20; *Ry R* 66:1089-90 Je 26 '20
- Specializing in efficient buying. R. N. Ladd. *Iron Tr R* 65:1650-1 D 18 '19
- Taking the guesswork out of buying. M. L. Cramer. *Factory* 25:1038-42 O 1 '20
- Three policies that make steady profits. E. L. Rhodes. *System* 39:544+ Ap '21
- Timely buying helps. *System* 40:50+ Jl '21
- We couldn't get along without these records. E. M. Sunne. *Factory* 26:330-1 F 1 '21
- When, what and how much to buy; pre-determining raw material needs as a function of cost accounting. C: W. Dean. *Ind Management* 60:362-4 N '20
- See also Coal purchasing; Dye purchasing; Electric railroads—Purchasing; Merchandizing; Railroads—Purchasing
- Purchasing, Cooperative**
- Collective buying will enable retailers to lower prices. C. M. Harrison. *Ptr Ink* 112:121-2 Jl 22 '20

Co-operative buying agitation grows as competition increases. *Ptr Ink* 114:49-50+ F 24 '21

Druggists benefit by co-operative purchasing. *Ptr Ink* 110:78 Ja 1 '20

English schoolmasters plan co-operative buying. T: Russell. *Ptr Ink* 115:102+ Ap 21 '21

Is collective buying the answer to the growing chain store menace? G. A. Nichols. *Ptr Ink* 110:17-20+ Ja 15 '20

Powerful boost for co-operative buying by farmers. G. A. Nichols. *Ptr Ink* 115:81-2 Je 30 '21

Retail buying association—an issue that will not down. *Ptr Ink* 115:17-18 Je 16 '21

Some associations are now pooling their purchases. M. Hastings, jr. *Ptr Ink* 113:25-7 N 4 '20

Purchasing agents

Advertising to offset influence of political purchasing agents. *Ptr Ink* 113:134+ O 7 '20

Purdy, Ross C.

Portrait. *Chem & Met Eng* 25:226 Ag 10 '21

Pure oil company

Pure oil co. files amended petition against the Export oil corporation. *Nat Pet N* 13:21-2 Ag 3 '21

7th annual report—for the year ended March 31, 1921. *Comm & Fin Chr* 112:2318 My 28 '21

Systematic efforts to reduce outage cut loss to minimum. W. K. Halbert. *il Nat Pet N* 12:30-2 D 22 '20

Putrefaction

Putrefaction and decomposition. M. Seyt. *Chem & Met Eng* 22:1188 Je 30 '20

Putty

Selection of putty. *Bldg Age* 42:53 Je '20

Puyallup and Sumner fruit growers

Big business behind fruit industry. W. Brindley. *Ptr Ink* 116:87-8 Jl 14 '21

Puzzles

Wooden key-and ring-puzzle. E. K. Wehry. *il diags Pop Mech* 34:143-4 Jl '20

Pyramids

Another theory as to how the pyramids were constructed. E. E. Benedict. *diag Eng & Contr* 54:410 O 27 '20

Engineers of ancient Egypt; mechanical devices used in constructing pyramids and erecting obelisks. G. A. McWilliams. *il diags Sci Am* 124:132+ F 12 '21

New theory on the method of constructing the pyramids. *il Eng & Contr* 53:751-3 Je 30 '20

Theories on the construction of the pyramids. *Am Arch* 118:751-2 D 8 '20

Pyranhydrones

Über pyranhydrone, eine neue gruppe von farbigen, chin-hydrone-artigen additionsverbindungen. W. Schneider and H. F. W. Meyer. *Deutsche Chem Gesell Ber* 54:1484-1503 Jl '21; *Abstract. Chem Soc J* 120 pt 1: 680-1 S '21

Pyrazines

Pyrazines. C. Gastaldi. *Chem Soc J* 120 pt 1: 602-5 Ag '21

Pyrazolone

Pyrazolone dyes. A. Meyer. *Color Tr J* 6: 89-90 Mr '20

Pyridine

Recovery of pyridine from byproduct coke ovens. F. E. Dodge and F. H. Rhodes. *diag Chem & Met Eng* 22:274-5 F 11 '20

Synthese von γ -alkylierten pyridinen. E. Koenigs and W. Jaeschke. *Deutsche Chem Gesell Ber* 54:1351-7 Je '21

Tautomerie des α -amino-pyridins und seiner derivate. A. E. Tschitschibabin, R. A. Konowalowa and A. A. Konowalowa. *Deutsche Chem Gesell Ber* 54:814-22 Ap '21

Über die synthese des 3-acetyl-4-methyl-pyridins und des β -kollidins. P. Rabe and E. Jantzen. *Deutsche Chem Gesell Ber* 54:925-9 My '21

Über verbindungen des pyridins mit den alkalimetallen. B. Emmert and R. Buchert. *Deutsche Chem Gesell Ber* 54:204-9 F '21

Pyridinecarboxylic acids

Synthese einiger carbonsäuren und keto-carbonsäuren des pyridins. O: Mumm and O: Böhme. Deutsche Chem Gesell Ber 54:726-37 Ap '21

Pyridinecarboxylic esters

Partielle hydrierung von pyridincarbonsäureestern. O: Mumm and W. Beth. Deutsche Chem Gesell Ber 54:1591-1603 Jl '21; Abstract. Chem Soc J 120 pt 1:686-7 S '21

Pyridinesulfonic acid

Über γ -pyridylmercaptan und γ -pyridin-sulfonsäure. E. Koenigs and G: Kinne. Deutsche Chem Gesell Ber 54:1357-62 Je '21

Pyridylmercaptan

Über γ -pyridylmercaptan und γ -pyridin-sulfonsäure. E. Koenigs and G: Kinne. Deutsche Chem Gesell Ber 54:1357-62 Je '21

Pyrimidines

Researches of pyrimidines; the condensation of benzamidine with ethyl γ -diethoxy-aceto-acetate. T. B. Johnson and L: A. Mikeska. Am Chem Soc J 42:2349-55 N '20
Spiro-pyrimidines; cyclobutane-1,5-*spiro*-pyrimidines. A. W. Dox and L. Yoder. Am Chem Soc J 43:677-84 Mr '21

Pyrites

Chemical data on coal pyrite. H. F. Yancey. il Chem & Met Eng 22:105-9 Ja 21 '20
Flotation of pyrite. W. S. Morley. Sci Am M 4:92-3 Jl '21; Same. Min & Met 176:32-3 Ag '21
Heat of dissociation of iron pyrites. H. Kamura. Chem & Met Eng 24:437 Mr 9 '21
Manufacture of sulphuric acid in the United States. A. E. Wells and D. E. Fogg. U S Bur Mines Bul 184:35-47 '20
Manufacturing pig iron from pyrites cinders il electric furnaces; abstracts. M. Guédras. Chem & Met Eng 23:795-6 O 20 '20; Stahl & Eisen 41:233-4 F 17 '21
Pyrite at the Haile mine, Kershaw, South Carolina. F. C. Schrader. U S Geol S Bul 725—F:331-45, pl 15 '21
Pyrite in the Huelva district, Spain. C. DeKalb. il map Min & Sci P 122:125-30 Ja 22 '21; Correction. 122:487 Ap 9 '21
Some Canadian occurrences of pyritic deposits in metamorphic rocks. G: Hanson. il map plan Econ Geol 15:574-609 N '20
Spanish pyrites. Eng & Min J 110:1181 D 18 '20
Sulphur, pyrites, and sulphuric acid in 1919. A. E. Wells. Eng & Min J 109:222-3 Ja 17 '20

Pyrocatechin. See Catechol

Pyroligneous acid

Determination of acetic acid in pyroligneous acid. V. E. Grotlich. diags J Ind & Eng Chem 12:1183-6 D '20

Pyrometers and pyrometry

Application of pyrometry to the ceramic industries. C. B. Thwing. Min & Met 153:2139-42 S '19; Discussion. 155:3025-6 N '19; 157: (sec 12) 8-9 Ja '20
British pyrometry practice. E. J. Davis. diags Foundry 49:463-7 Je 15 '21
Brown cold junction compensated pyrometer. il diags Ry Mech Eng 95:595 S '21; Iron Age 108:680 S 15 '21; Power Pl Eng 25:1028 O 15 '21; Gas Age 48:473 O 15 '21; Iron Tr R 69:1006 O 20 '21; Chem & Met Eng 25:757-8 O 19 '21
Calibration of an optical pyrometer. W. E. Forsythe. Chem & Met Eng 22:1211-13 Je 30 '20
Contact pyrometers. diags Elec R (Lond) 89:526-7 O 21 '21
Difficulties in maintaining a pyrometer installation in a works. R. S. Whipple. diags Engineering 111:693-5 Je 3 '21
Disappearing filament optical pyrometer free from diffraction effects at the filament. C. O. Fairchild. diags Phys R 18:116-18 Ag '21
Don't neglect your pyrometers. Ry Mech Eng 94:750-1 D '20
Engelhard pyrometer recording instrument. il Ry Mech Eng 94:557 Ag '20

Die fortschritte der pyrometrie. A. Mahlke. Stahl & Eisen 41:1420-8 O 6 '21

Hump method for heat treating steel. il diags plan Blast F & Steel Pl 8:181-5 Mr '20; Abstract. Mach 26:673-4 Mr '20

Importance of temperature measurement. A. Walton. Textile World 57:2813+ Ap 17 '20

Measurement of casting temperatures in the brass foundry. J: Arnott. il Engineering 110:277 Ag 27 '20; Same. Foundry 48:766-7 O 1 '20

Measuring the temperature of molten steel. F. W. Brooke. J Elec 44:115-17 F 1 '20; Same. Foundry 48:197-8 Mr 1 '20

Melting point methods at high temperatures. L. I. Dana and P. D. Foote. diags Chem & Met Eng 22:23-8, 63-70 Ja 7-14 '20

New instrument measures heat with light waves. il Pop Mech 35:862 Je '21

Optical and radiation pyrometry. P. D. Foote and C. O. Fairchild. il diags Min & Met 152:1389-1415 Ag '19; Discussion. 157: (sec 12) 73-4 Ja '20

Portable optical pyrometer for measuring high temperatures. Iron Tr R 67:597 Ag 26 '20

Potentiometer in pyrometry. C: P. Frey. diags Chem & Met Eng 22:1168-70 Je 23 '20; Excerpt. Iron Age 105:1450-1 My 20 '20

Pyrometers promote locomotive efficiency. il Ry Mech Eng 95:433 Jl '21

Les pyromètres à radiation et les pyromètres optiques. Génie Civil 77:263 S 25 '20

Pyrometric practice. P. D. Foote, C. O. Fairchild and T. R. Harrison. J Fr Inst 191:530-5 Ap '21

Pyrometry. 701p American institute of mining and metallurgical engineers, New York '20

Pyrometry in blast-furnace work. P. H. Royster and T. L. Joseph. Min & Met 153:1953-67 S '19; Same cond. Iron Tr R 65:1452-6 N 27 '19; Discussion. Min & Met 156:3199-3202 D '19; 157: (sec 12) 18-20 Ja '20

Resilia voltmeter for pyrometers. il diags plan Engineering 111:318 Mr 18 '21

Setting a recording pyrometer for cold junction temperature. L. W. Hopkins; K. Marsh. Chem & Met Eng 25:180 Ag 3 '21

Setting a recording pyrometer for cold-junction temperature. K. Marsh. Chem & Met Eng 24:1152 Je 29 '21

Signaling pyrometer. R. P. Brown. Mech Eng 42:297-8 My '20

Simple pyrometer adjustment. diag Chem & Met Eng 22:367 F 25 '20

Some difficulties experienced in maintaining a pyrometer installation in a works. R. S. Whipple. Electrician 86:753 Je 17 '21

Temperature indicating and controlling systems. F. D. Jones. 59p Industrial press, New York '21

Temperature problems in foundry and melting room. J: P. Goheen. Min & Met 179:36 N '21

Types of pyrometers and their uses. R: P. Brown. Ry Mech Eng 93:663-7 N '19

Wedge optical pyrometer. il Chem & Met Eng 23:295-6 Ag 18 '20; Iron Age 106:527 Ag 26 '20

See also Temperature—Measurement; Thermocouples; Thermometers and thermometry

Standards

Works standardization of pyrometers. R. Gates. Inst E E J 57:sup317-21 '19

Pyrophoric alloys

Ferrocium and the other pyrophoric alloys. Sci Am M 4:343 O '21

Pyrotechnics. See Fireworks

Pyrotip

Industrial applications of local heating with the pyrotip. E. A. Wagner. il Gen Elec R 24:628-31 Jl '21; Excerpts. Chem & Met Eng 25:251 Ag 10 '21

Pyroxenes

See also Augite

Pyrrol

Metallic salts of pyrrol, indol and carbazol.
E: C. Franklin. J Phys Chem 24:81-99 F '20

Pyrylium compounds

Arylated pyridines and their relationships to the corresponding pyrylium compounds; abstract. W. Dilthey and others. Chem Soc J 120 pt 1:735-7 O '21

Pyrylium compounds; abstract. W. Dilthey and others. Chem Soc J 120 pt 1:188-90 Mr '21

Zur kenntnis der violone (über pyryliumverbindungen). W. Dilthey and B. Burger. Deutsche Chem Gesell Ber 54:825-30 Ap '21

Q

Qualitative analysis. See Chemistry, Analytic—Qualitative

Quality in production. See Inspection

Quantitative analysis. See Chemistry, Analytic—Quantitative

Quantity system of estimating

Function of the quantity survey discussed by the New Jersey chapter A. I. A. Am Arch 116:758-9 D 17 '19

Quantity survey. W: G. Smith. Am Arch 116:756 D 17 '19

Quantity survey: how quantities are used in bidding. W: G. Smith. Eng & Contr 52:620 N 26 '19

Quantity surveying; a definite element in architectural practice. Arch Forum 35:71-2 Ag '21

Quantity surveying in Great Britain. G: W. Grey. Concrete 18:148 Mr '21

Quantity surveys and estimate payments in construction. Eng N 86:903 My 26 '21

Quantity surveys; seven room stucco house and five room frame home. Bldg Age 43:26-8 O '21

Tentative suggestions regarding quantity surveys. Heat & Ven 18:63-4 Jl '21

Work of the quantity surveyor. F. H. A. Harcastle. Eng & Contr 55:308-9 Mr 30 '21

Quantity theory of money. See Money

Quantum theory

Balmer series of hydrogen, and the quantum theory of line spectra. R. T. Birge. Phys R 17:589-607 My '21

Copernican atom radiating energy; physical interpretation of Planck's quantum rule. A. C. Crehore. diags Phys R 17:544-8 Ap '21

Distinction between intrinsic and spurious contact e.m.f.'s and the question of the absorption of radiation by metals in quanta. R. A. Millikan. diag Phys R 18:236-44 S '21

Faraday's magnetic lines as quanta. H. S. Allen. Philos Mag 6th ser 42:523-37 O '21

Molecular energy in gases. J. A. Ewing. Engineering 109:842-4 Je 18 '20

Philosophy and the new physics. L: Rougier. 159p Blakiston '21

Problems of X-ray emission. D: L. Webster. bibliog diags Nat Research Council Bul v 1, pt 7:427-55 D '20

Quantum theory. Engineering 112:434-5 S 23 '21; Discussion. 112:467-8 S 30 '21

Quantum theory. E. P. Adams. (National Research Council Bul. v 1, no. 5) p 301-81 O '20 National research council, 1701 Massachusetts av, Washington, D.C.

Quantum theory of vision. J. Joly. Philos Mag 6th ser 41:289-304 F '21

Statistical mechanics and chemistry. E. P. Adams. Am Chem Soc J 43:1251-4 Je '21

Quarantine, Agricultural

Our botanical immigrants; the quarantine regulations of California. il Sci Am M 1:317-19 Ap '20

Quarries and quarrying

Bethlehem steel company develops new dolomite quarry. E. C. Kreutzberg. il Iron Tr R 66:409-13 F 5 '20

Changing stone quarry from hand to steam shovel methods. I. Warner. Munic Eng 61: sup24, 26, 28-9 S '21

Electricity—its development and operating cost in stone quarry operation. W. D. Myers. N E L A Bul 7:304-5 My '20

Factors which will limit highway construction during the coming season. O. P. Chamberlain. Good Roads n s 19:123-6 Mr 3 '20; Same abr. Eng & Contr 53:471-2 Ap 21 '20

Method of turning railroad type shovel in quarry. E. J. Strock. Eng & Contr 54:587 D 15 '20

Modernize limestone quarry near Myerstown, Pa. il Iron Tr R 68:1783-4 Je 30 '21

New crushing installation at Security plant. A. W. Cox. il Concrete 18:sup95-7 Je '21

New quarry opened. il diag Concrete 17:sup 21-2 Ag '20

Novel method of quarrying with compressed air. Pop Mech 36:218 Ag '21

Plant must be operated not to interfere with health of neighboring residents. Chem & Met Eng 23:1031 N 24 '20

Problems to be considered in changing a quarry from hand to steam shovel methods. I. Warner. Concrete 19:sup3-6 Jl '21

Quarry spoil disposer. il Engineer 132:199 Ag 19 '21

Quarrying and crushing. T. V. Anderson. Can Eng 38:339-40 Ap 1 '20

Quarrying limestone having clay seams. O. Bowles. il Concrete 16:sup48-9 Mr '20

Record block of granite quarried. il Pop Mech 36:243 Ag '21

Relative sizes of quarry equipment. O. Bowles and others. Concrete 17:sup8-10 Jl '20

Remote-control electric haulage in quarry service. plan Eng N 86:956-7 Je 2 '21

Shooting rock for steam shovel quarrying. O. Bowles. Concrete 15:sup93 D '19

Stones and quarries. I. A. Howe. (Common commodities and industries ser.) 137p Pitman '20

Unique quarry methods used at Gulf states quarry. il diags plan Concrete 18:sup59-62 Ap '21

Well drill blasting in rock quarries. H. H. Hamilton. Concrete 16:sup11-12 Ja '20

See also Blasting; Limestone; Mines and mineral resources

Accidents

Accidents in granite quarrying industry in 1921. Eng & Contr 56:294 S 21 '21

Accidents in trap-rock quarries in 1920. Eng & Contr 56:279 S 21 '21

Premature explosions in quarrying from sparks from steam shovels and locomotives. S. P. Howell and J. E. Crashaw. Eng & Contr 54:589 D 15 '20

Quarry accidents in the United States during the calendar year 1918. A. H. Fay. U S Bur Mines Tech Pa 245:1-51 '20

Quarry accidents in the United States during the calendar year 1919. W: W. Adams. U S Bur Mines Tech Pa 275:1-66 '21

Tamping causes blasting accident. O. Bowles and J. E. Crawshaw. Concrete 17:sup5-6 Jl '20; Same. Eng & Contr 54:163-4 Ag 18 '20

Cost

Cost of quarrying and crushing operations in eastern Ontario. T. V. Anderson. Eng & Contr 53:415-16 Ap 7 '20

Safety measures

Preventing quarry accidents. Concrete 17: sup56 O '20

Safety factors in the use of explosives in quarrying. W. O. Snelling. Eng & Contr 52: 586-9 N 19 '19; Excerpt. Concrete 15:sup91-2 D '19

Quartz

Manifold uses of quartz. Eng & Min J 112: 100 Jl 16 '21

Microscopic study of vein quartz. S. F. Adams. il Econ Geol 15:623-64 D '20

Non-biological oxidation of elementary sulfur in quartz media. W. H. MacIntire, F. J. Gray and W. M. Shaw. J Ind & Eng Chem 13:310-13 Ap '21

Quartzite

Ueber die möglichkeit der herstellung erstklassiger silikasteine aus felsquarziten. E. Lux. Stahl & Eisen 41:258-64, pl 1 F 24 '21; Discussion. 41:792-5 Je 9 '21

Quays. See Wharves

Quebec

See also Railroads—Quebec; Roads—Quebec; Water supply—Quebec

Industries and resources

Graphite in Quebec, Canada. H. P. H. Brumell. Eng & Min J 109:548-50 F 28 '20

See also Chromite; Mines and mineral resources—Quebec

Streams commission

How the province of Quebec controls its water power. O. Lefebvre. Eng N 84:423-6 F 26 '20

Quebec (city)**Bridges**

Forth and Quebec bridges. C. E. Inglis. Engineer 132:350-1 S 30 '21

Water supply

Water supply of the city of Quebec. C. P. Casgrain. Am Water Works Assn J 7:880-1 N '20

Quebracho

Quebracho. Sci Am M 1:189 F '20

Queensland

See also Mines and mineral resources—Queensland

Queenston-Chippawa canal

Big spoil dump to cover 200 acres maximum depth of 60 feet. il Eng N 84:42-3 Ja 1 '20

Canada's Niagara development; details of the Queenston-Chippawa project. J. F. Springer. il Sci Am 124:44+ Ja 15 '21

Construction of the hydroelectric power canal at Niagara Falls. il Engineering 110:734, 740 D 3 '20

Consulting engineers report on cost and progress of Queenston development. Can Eng 40:396 Ap 21 '21

Design features of Queenston-Chippawa, Ontario, power canal. T. H. Hogg. plan Eng & Contr 54:572-3 D 8 '20; Same. Eng N 85:742-4 O 14 '20; Same. Can Eng 39:354-6 S 16 '20

Economic features of the Queenston-Chippawa development. H. G. Acres. Can Eng 39:368-9+ S 23 '20; Excerpts. Eng N 85:744-6 O 14 '20

Electrical features of the Queenston-Chippawa development. E. T. J. Brandon. Can Eng 39:399 S 30 '20

50,000-hp. wheels for 500,000-hp. Queenston-Chippawa plant. E. T. J. Brandon. il map plan Elec W 77:697-9 Mr 26 '21

Hydraulic installation of the Queenston-Chippawa power development. M. V. Sauer. diags plan Can Eng 39:469-71 O 28 '20; Same. Eng N 85:746-7 O 14 '20

Progress on Queenston-Chippawa power canal. il Can Eng 39:347-52 S 16 '20

Sliding form for lining Chippawa power canal. il Eng N 87:20-1 Jl 7 '21

Quenching

Fuels, burners and quenching mediums for heat treatment. S. P. Rockwell. il diags Mach 26:837-40 My '20

Quenching machine

Browning gear quenching machine. il Mach 26:775-6 Ap '20; Am Mach 52:748 Ap 1 '20; Iron Age 105:887 Mr 25 '20

Nut quenching machine. il Mach 26:974 Je '20

Quercitron

Distinction between fustic and quercitron. Color Tr J 9:166 O '21

Questionnaires

Getting results from a questionnaire. M. Olds. Ptr Ink 115:142+ Ap 28 '21

Go to the people. Ptr Ink 117:113-14+ O 27 '21

Quicksand

Quicksand; its nature, behavior and control. C. R. Gow. diags Can Eng 39:392-5 S 30

'20; Excerpts. Eng & Contr 54:389-92 O 20 '20; Abstracts. Eng N 85:543 S 16 '20; Pub Works 50:98-100 Ja 29 '21

Quicksilver. See Mercury

Quill cleaning machine

Double end Utsman quill cleaning machine with individual motor drive. il Textile World 59:1859 Mr 12 '21

Quinaldine

Doebner-Miller quinaldine synthesis. W: H. Mills, J: E. G. Harris and H. Lambourne. Chem Soc J 119:1294-1300 Ag '21

Methiodides of the condensation products of some cyclic aldehydes with quinaldine and alpha picoline, and their possible value as indicators in acidimetry. L: F. Werner. Am Chem Soc J 42:2309-14 N '20

Quinazolines

Researches on quinazolines; the synthesis of certain nitro and amino benzoylene ureas and some compounds related thereto. M. T. Borgert and G: Scatchard. Am Chem Soc J 41: 2052-68 D '19

Quincy, Illinois**Water supply**

Water-works operating problems. W. R. Gelston. Eng N 83:1019-20 D 11 '19

Quincy, Massachusetts

Miller stile inn, Quincy, Mass. S. Baxter. il plan Arch Rec 48:14-30 Jl '20

Quinic acid

Neue derivat der chinasäure. H. O. L. Fischer. Deutsche Chem Gesell Ber 54:775-84 Ap '21

Quinine

Quinine production. Oil Paint & Drug Rep 99:61 sec 1 F 21 '21

Testing the purity of quinine. Sci Am 125:278 O 15 '21

Quinoline compounds

Physical and physiological properties of some hydrogenated quinoline compounds. A. Shimomura and J. B. Cohen. Chem Soc J 119: 740-7 My '21

Quinoline red

Über im pyridinkern verknüpfte di- und trichinolyl-methane; di-chinolyl-2-methan und die synthese des pseudo-isocyanins und des chinolinrots. G. Scheibe. Deutsche Chem Gesell Ber 54:786-95 Ap '21

Quinolines

Alkylene and some alkyl halides of 2(4-hydroxy-3-methoxy-styryl)quinoline. L: F. Werner. Am Chem Soc J 43:890-1 Ap '21

Quinone

Oxidation and reduction of hydroquinone and quinone from the standpoint of electromotive-force measurements. F. S. Granger and J. M. Nelson. Am Chem Soc J 43:1401-15 Jl '21

Über die kondensation von 2.4.6-trinitrophenyl-hydrazin mit chinonen. W. Borsche. Deutsche Chem Gesell Ber 54:1287-90 Je '21

Quinotoxins

Synthetic investigations in the quinine series; aliphatic quinotoxins. L. Ruzicka and C. T. Seidel. Chem Soc J 120 pt 1:585-7 Ag '21

R

Races. See Airplane races; Automobile racing; Balloon races; Bicycle racing

Racine, Wisconsin**Rapid transit**

Unlimited-ride, transferable weekly pass at Racine. Elec Ry J 55:43-6 Ja 3 '20

Radcliffe, B. W.

Master typographers of today. J. L. Frazier. por Inland Ptr 66:635-7 F '21

Radiation

Beta-ray emission from thin films of the elements exposed to Röntgen rays. L: Simons. Philos Mag 6th ser 41:120-40 Ja '21

Radiation—Continued

- Cloudland studies. J. Dewar. Engineering 111:144-5 F 4 '21
- Constants of radiation of a uniformly heated inclosure. W. W. Coblentz. U S Bur Stand Sci Pa 357:529-35 '20
- Distinction between intrinsic and spurious contact e.m.f.'s and the question of the absorption of radiation by metals in quanta. R. A. Millikan. diag Phys R 18:236-44 S '21
- Distribution of energy in the spectrum of an acetylene flame. W. W. Coblentz. U S Bur Stand Sci Pa 362:639-51 '20
- Electromagnetic theory of radiation. H. Bateman. Philos Mag 6th ser 41:107-13 Ja '21
- Larger opportunities for research on the relations of solar and terrestrial radiation. C. G. Abbot. (Reprint & Circ. Ser. 7) 15p n.d. 20c National research council, 1701 Massachusetts av, Washington, D.C.
- Methods for computing and intercomparing radiation data. W. W. Coblentz. U S Bur Stand Sci Pa 360:617-24 '20
- New spectropyrheliometer and measurements of the component radiations from the sun and from a quartz-mercury vapor lamp. W. W. Coblentz and H. Kahler. il diag U S Bur Stand Sci Pa 378:233-47 '20
- Present status of the constants and verification of the laws of thermal radiation of a uniformly heated inclosure. W. W. Coblentz. U S Bur Stand Sci Pa 406:1-46; Bibliography. 46-8 '20
- Problems of temperature radiation of gases. Megh Nad Saha. Philos Mag 6th ser 41:267-78 F '21
- Radiating and ionizing potentials of hydrogen. K. T. Compton and P. S. Olmstead. Phys R 17:45-53 Ja '21
- Radiation and chemical change. W. C. M. Lewis. Sci Am M 1:256-8 Mr '20
- Radiation as a factor in chemical action. I. Langmuir. Am Chem Soc J 42:2190-9; Discussion. 2199-2205 N '20
- Radiation effects in thermometry. C. S. Robinson. bibliog J Ind & Eng Chem 13:820-2 S '21
- Radiation theory of chemical action and catalysis. Engineering 112:512-13 O 7 '21
- Radiation theory of thermal reactions. W. C. M. Lewis and A. McKeown. Am Chem Soc J 43:1288-1306 Je '21
- Rayonnement; principes scientifiques de l'éclairage. A. Blanc. 212p A. Colin, Paris '21
- Relation between the emissive power of a metal and its electrical resistivity. C. Davison and J. R. Weeks. Phys R 17:261-3 F '21
- Remeasurement of the radiation constant, h , by means of X-rays. W. Duane, H. H. Palmer and C. Yeh. Phys R 18:98-9 Ag '21
- Secondary high frequency radiation. A. H. Compton. Phys R 18:96-7 Ag '21
- Signalling by invisible rays. Engineering 109:797-8 Je 11 '20
- Studies in the field of light radiation. C. Fabry. J Fr Inst 192:277-90 S '21
- Ultra-violet and visible transmission of various colored glasses. K. S. Gibson, E. P. T. Tyndall and H. J. McNicholas. il U S Bur Stand Tech Pa 148:1-27 '20
- Wave-length of hard gamma rays. A. H. Compton. diag Philos Mag 6th ser 41:770-7 My '21
- See also* Alpha rays; Electromagnetic theory; Gamma-rays; Heat; Heat radiation; Heating—Tables, calculations, etc.; Light; Radiators; Radiography; Radium; Solar radiation; Sound; Spectrum; Ultra-violet rays; X rays
- Radiation, Electric.** *See* Electric radiation
- Radiators**
- Determination of radiant heat given off by a direct radiator. J. R. Allen and F. B. Rowley. il diags Am Soc Heat & V E J 26:305-18 Mr '20
- Forward stride in heating and ventilation. il Sci Am 124:454 Je 4 '21
- Heat losses from direct radiation. J. R. Allen. diags Am Soc Heat & V E J 26:103-18 Ja '20; Same abr. Dom Eng 90:530-2. 577-8+ Mr 13-20 '20; Abstract. Heat & Ven 17:33-6 Mr '20
- Heating guidance for residence work. il diags plan Metal Work 94:97-100 Jl 23 '20
- How to get the most heat out of a radiator. diags Heat & Ven 17:44-6 Ap '20
- Is more coal consumed when concealed radiators are used? H. V. Walsh. il diags Bldg Age 41:353-4 N '19; Same. Metal Work 93:47-9 Ja 9 '20
- Locating direct radiation. diags Dom Eng 95:105-7 Ap 16 '21
- Radiator troubles. W. H. Wakeman. diags Dom Eng 94:637-9 Mr 26 '21
- Ventilating steam radiator supplies heated fresh air. il Pop Mech 36:100 Jl '21
- What it pays to know about radiator piping. M. W. Ehrlich. diags Dom Eng 93:451-3 D 4 '20
- See also* Heating; Hot, water heating; Steam heating.
- Radiators, Airplane.** *See* Airplane engines—Radiators
- Radiators, Automobile.** *See* Automobile engines—Radiators
- Radiators, Cooling**
- Automotive radiators. K. F. Walker. il Soc Auto Eng J 7:549-53 D '20
- Investigation of water-air radiators for cooling generators and motors. H. G. Reist and E. H. Freiburghouse. il diags Gen Elec R 23:91-8 F '20
- Sea-water radiators employed on electric ships. J. W. Hammond. Elec R 79:700-1 N 5 '21
- See also* Airplane engines—Radiators; Automobile engines—Radiators; Motor truck engines—Radiators
- Radicals and radicalism**
- Labor and radicalism. T. C. Knoles. Comm & Fin Chr 113:146-9 sec 2 O 29 '21
- Radio apparatus.** *See* Wireless apparatus
- Radio cable.** *See* Wireless signals
- Radio corporation of America**
- Annual report, 1920. Wireless Age 8:7 Je '21
- Organization of Radio corporation of America. Elec W 75:93 Ja 10 '20
- Wide expansion of trans-ocean wireless assured. il Wireless Age 8:7 O '20
- World wide wireless new company's plan. Sibley J 34:25 F '20
- Radioactive substances**
- Other metals with radioactive properties. Sci Am 123:39 Jl 10 '20
- Radio-active pottery. Sci Am 123:500 N 13 '20
- Self-luminous materials. N. E. Dorsey. U S Nat Advisory Com for Aeronautics 1918:339-49 '20
- Les sulfures phosphorescents et leurs applications. A. A. Guntz. il Chimie & Ind 4:597-611 N '20
- See also* Protoactinium; Radium; Uranium
- Radioactivity**
- Chemical effects of alpha particles and electrons. S. C. Lind. 182p Chemical catalog co., New York '21
- Distribution of the active deposits of radium, thorium, and actinium in electric fields. G. H. Briggs. diags Philos Mag 6th ser 41:357-77 Mr '21
- Does the earth emit ultra X-rays? J. Perrin. Sci Am M 4:106-8 Ag '21
- How the study of radioactivity gives us a yard-stick to use on the years. H. N. Russell. diag Sci Am 124:452+ Je 4 '21
- Interpretation of radium, and the structure of the atom. F. Soddy. 4th ed., rev. and enl. 260p J. Murray, London '20
- Long-range particles from thorium active deposit. A. B. Wood. diags Philos Mag 6th ser 41:575-84 Ap '21
- Mass of the long-range particles from thorium. C. E. Rutherford. Philos Mag 6th ser 41:570-4 Ap '21
- Physics of radioactivity. N. E. Dorsey. 223p Williams & Wilkins co., Baltimore '21
- Radioactivity and soil fertility; some important researches by Professor Gabriel Petit, of Alfort, France. Sci Am M 3:415-17 My '21
- Radio-activity and some practical applications.** C. W. Davis. Min & Sci P 122:229-32 F 12 '21

Radioactivity —Continued

Le rayonnement et le dégagement de chaleur du radium et du mésothorium. P. Curie. *Génie Civil* 78:400 My 7 '21
 Ultra X-rays and cosmogony. J. Perrin. *Sci Am M* 4:248-50 S '21

See also Alpha rays; Electrons; Helium; Ionization; Phosphorescence; Radiography; Radium; X rays

Radiography

Bringing the X-ray to the patient. R. Howard. *il Sci Am* 122:511 My 8 '20
 Detecting defects in metals with the X-ray. W. E. Ruder. *Iron Age* 105:1027-8 Ap 8 '20
 La détermination du temps de pose. G. Contremoulins and E. Puthomme. *Génie Civil* 78:43 Ja 8 '21
 Efficiency of high-tension transformers as used for X-ray purposes. R. Morton. *il diags Inst E E J* 58:719-26; Discussion. 732-46 Ag '20
 Examination of materials by X-rays; abstracts. G. W. C. Kaye. *Engineer* 131:437-8 Ap 22 '21; *Elec R (Lond)* 88:602-3 My 6 '21; *Eng & Contr* 56:220 Ag 31 '21
 Finger prints amplified by X-ray photography. *il Pop Mech* 36:436 S '21
 High-tension transformers for X-ray work. R. S. Wright. *diags Inst E E J* 58:730-2; Discussion. 732-46 Ag '20
 Intensity of scattered X-rays in radiography; abstract. R. B. Wilsey. *J Fr Inst* 192:385 S '21
 Lehrbuch der röntgenographie. H. Traut. 160p W. Knapp, Halle (Saale) '20
 Objects radiographed 85 yards from X-ray tube. *il Pop Mech* 36:530-1 O '21
 Present-day radiography. G. W. C. Kaye. *il Electrician* 84:142-4 F 6 '20
 Problems of interrupted and fluctuating currents in radiography. C. E. S. Phillips. *Inst E E J* 58:727-9; Discussion. 732-46 Ag '20
 Radiographic technique. T. T. Baker. 196p Constable and co., London '21
 Radiology applied to the testing of materials. A. P. M. Fleming and J. R. Clarke. *diags Engineering* 110:850-2. 877-9 D 24-31 '20; Abstract. *Engineer* 130:642 D 24 '20
 La radiométallographie sa pratique et ses applications industrielles. Pilon. *il diag Génie Civil* 79:321-3 O 15 '21
 Radioscopic examination of mind as well as body. *il Pop Mech* 36:165 Ag '21
 Something new in fluorescent screens for radioscopic work. M. Tevis. *Sci Am* 122:395 Ap 10 '20
 Special applications of metal-radiography. H. S. Rawdon. *il Blast F & Steel Pl* 8:144-6+ F '20
 X-ray detective. G. Vanderveer. *il Sci Am M* 3:261-2 Mr '21
 X-ray examination of materials. J. R. Clarke. *Sci Am M* 3:476-7 My '21
 X-ray innovation. J. A. van Brakle. *Sci Am* 125:185 S 10 '21
 X-ray paper. A. H. J. Keane. *Sci Am* 122:623 Je 5 '20
 X-ray tests of old paintings. M. Tevis. *il Sci Am M* 3:165-7 F '21; Excerpt. *Sci Am* 124:165 F 26 '21

See also Radioactivity; X rays

Radiophone. *See* Wireless telephone

Radiotelegraphy. *See* Wireless telegraph

Radiotéléphony. *See* Wireless telephone

Radltherapy. *See* Radium—Therapeutic use

Radiotron

See also Kenotron

Radium

Adsorption of radium by barium sulfate. F. E. E. Germann. *Am Chem Soc J* 43:1615-21 J1 '21
 America now the foremost producer of radium, the world's most interesting substance. *il Americas* 7:21-5 J1 '21
 Box with one gram of radium presented to Madame Curie. *il Pop Mech* 36:371 S '21
 Color given to gem stones by exposure to radium. *Pop Mech* 36:435 S '21
 Concentration of radium and mesothorium by fractional crystallization. J. L. Nierman. *J Phys Chem* 24:192-200 Mr '20

Crystallization of a radium-barium solution. C. E. Scholl. *Am Chem Soc J* 42:889-96 My '20

Distribution of the active deposits of radium, thorium, and actinium in electric fields. G. H. Briggs. *diags Philos Mag* 6th ser 41:357-77 Mr '21

Emptying eight freight cars into a thimble. *il Sci Am* 123:171 Ag 21 '20

Find vast radium deposits on Madagascar island. *Pop Mech* 35:366 Mr '21

Finding jobs for radium. H. A. Mount. *il Sci Am* 124:310+ Ap 16 '21

Gram of radium for Mme Curie. L. F. Vogt. *Eng & Min J* 111:656 Ap 16 '21

Importance of radium paints. L. G. Herbert. *Metal Ind* 19:408-9 O '21

Interpretation of radium, and the structure of the atom. F. Soddy. 4th ed., rev. and enl. 260p J. Murray, London '20

Isotopism of mesothorium and radium and the separation of these elements from barium. R. K. Strong. *Am Chem Soc J* 43:440-52 Mr '21

Marie Sklodowska Curie and the story of radium. R. Abbe. *Eng & Min J* 111:824 My 14 '21; Same. *Comm & Fin Chr* 112:2139-40 My 21 '21

New determination of the absolute value of the radium: uranium ratio. S. C. Lind and L. D. Roberts. *Am Chem Soc J* 42:1170-7 Je '20

Notes on the coloring and thermoluminescence of glass produced by radium radiation. S. C. Lind. *J Phys Chem* 24:437-41; Discussion. 441-3 Je '20

Practical methods for the determination of radium: alpha-ray method, gamma-ray method, miscellaneous. S. C. Lind. *il diag J Ind & Eng Chem* 12:469-72 My '20

Precious radium is stored in massive leaden safe. *il Pop Mech* 35:728 My '21

Presentation of the Gibbs medal to Mme. Curie. *Chem & Met Eng* 24:1132-40 Je 29 '21

Radio-activity and some practical applications. C. W. Davis. *Min & Sci P* 122:229-32 F 12 '21

Radium. *Ry Mech Eng* 94:481 J1 '20

Radium. *Sci Am M* 3:371 Ap '21

Radium. H. Foley. *Min & Sci P* 121:563 O 16 '20

Radium—a new element in the safety movement. *Am Gas Eng J* 113:376 N 6 '20; Same. *Am Arch* 118:700-1 D 1 '20; Same cond. *Ind Management* 60:408 D 1 '20; Same cond. *Elec R* 77:920 D 11 '20

Radium, an essential factor in safety. *Am Ind* 22:32 Ag '21

Radium and its works; how the alpha, beta and gamma rays are being applied in commerce and in medicine. P. Howard. *Sci Am* 123:221 S 4 '20

Radium in 1919. R. B. Moore. *Eng & Min J* 109:214 Ja 17 '20

Radium institute in Paris: the scientific equipment of Madame Curie's new radium pavilion. T. A. Marchmay. *il Sci Am M* 3:223-6 Mr '21

Radium ore discovered in White signal district, N.M. F. I. Leach. *Eng & Min J* 109:989 Ap 24 '20

Radium production in America. H. D. d'Aguiar. flow sheet *Chem & Met Eng* 25:825-8, 877-80 N 2-9 '21

Radium resources. *Eng & Min J* 110:168 J1 24 '20

Radium's discoverer and her gift from American women. *Sci Am* 124:293 Ap 9 '21

Range and ionization of the α particles from radium C and thorium C. G. H. Henderson. *Philos Mag* 6th ser 42:538-51, pl 17 O '21

Relative activity of radium and the uranium with which it is in radioactive equilibrium. J. H. L. Johnstone and B. B. Boltwood. *Am J Sci* 50:1-19 J1 '20; Abstract. *Sci Am M* 2:182 O '20

Story of radium. H. A. Mount. *il Sci Am* 122:454+ Ap 24 '20

Uranium and radium in 1920. R. B. Moore. *Eng & Min J* 111:151-2 Ja 22 '21

Wasting our radium supply. *Eng & Min J* 109:1346 Je 19 '20

Radium —Continued

Why of luminous paints. M. A. Henry. *il Sci Am* 124:265+ Ap 2 '21

X-ray and radium protection. *Engineering* 112:13 Jl 1 '21

See also Carnotite; Radioactivity; Radiography

Therapeutic use

Applying radium to cure man's ills. H. A. Mount. *il Sci Am* 123:375+ O 9 '20

Costliest remedy in the world, otherwise known as radium. *Sci Am* 125:217 S 24 '21

Radium luminous material corporation

Even radium can be advertised. R. Dickinson. *Ptr Ink* 111:25-7+ Je 24 '20

Raffinose

Revision of the optical method for analyzing mixtures of sucrose and raffinose. C. A. Browne and C. A. Gamble. *J Ind & Eng Chem* 13:793-7 S '21

Rafts

Flexible rafts protect river banks from cutting; improved type of current retards on the Missouri river. *il diags map plan Ry Age* 68:945-8 Mr 19 '20; Same cond. *Eng & Contr* 53:677-8 Je 16 '20

See also Catamarans

Rag rugs. *See* Rugs

Rags

Handling and costing raw materials; how rags are handled; with discussion. F. C. Clark. *Paper* 26:11-15 Mr 31 '20

Rags converted into waste by new machine. *il Pop Mech* 35:905 Je '21

See also Paper making materials

Ragweed

Ragweed pollen proteins. F. W. Heyl and H. H. Hopkins. *Am Chem Soc J* 42:1738-43 Ag '20

Rail. *See* Rails

Rail bonds

Arc-weld rail bonds which have a direct weld between copper and steel. *il Elec Ry J* 56:1066-7 N 20 '20

Arc-welded bonds eliminate moisture and defy corrosion. W. P. Bovard. *il Coal Age* 17:923 My 6 '20

Bonded intersections recommended by Bureau of standards. *Elec Ry J* 58:391-3 S 10 '21

Bonding and bond testing on electrified steam roads. J. W. Logan, jr. *Elec Ry J* 55:1191-2 Je 12 '20

Bonding in special locations. G. H. McKelway. *il diags Elec Ry J* 56:355-9 Ag 21 '20

Characteristics of rail bonds. R. H. Rice. *Elec Ry J* 55:523-6 Mr 13 '20

Double rail bond is readily detached and easily installed. *diags Coal Age* 18:1177 D 9 '20

Inspection of rail bonding. G. H. McKelway. *Elec Ry J* 57:119-20 Ja 15 '21

Labor economy in rail bonding. *il Eng & Contr* 54:582 D 15 '20

Modern practice in the construction and maintenance of rail joints and bonds in electric railways. E. R. Shepard. *il U S Bur Stand Tech Pa* 62:1-131 '20; Abstract. *Elec Ry J* 55:558 Mr 20 '20

O-B signal bond. *il Ry R* 67:63-4 Jl 10 '20

Soldered bonds for track bonding. G. H. McKelway. *il diag Elec Ry J* 54:899-901 N 15 '19

Some bonding results. R. J. Custer. *Elec Ry J* 55:606 Mr 20 '20

Speeding up rail bonding. *diags Elec Ry J* 57:186 Ja 22 '21; Same. *Eng & Contr* 55:166 F 16 '21

Types of rail bonds. R. W. Palmer. *Elec Ry J* 55:529-31 Mr 13 '20

Using brazed and welded bonds. G. H. McKelway. *il Elec Ry J* 55:796-9 Ap 17 '20

Welded bond that resists violence. *diags Coal Age* 17:933-4 My 6 '20

West Virginia-Kentucky mine, mechanical and electrical engineers discuss bonding of track in coal mines. R. D. Hall. *Coal Age* 20:537-8 O 6 '21

Which type of bond is best? E. W. Rowland. *Elec Ry J* 55:531-2 Mr 13 '20

Wilson arc-welding machine for rail bonding and trackwork. *Elec Ry J* 57:563 Mr 19 '21; *Eng & Contr* 55:266 Mr 16 '21; *Elec R* 79:32 Jl 2 '21

See also Rail joints

Testing

Bond testing cars. G. H. McKelway. *il Elec Ry J* 58:82-4 Jl 16 '21

Electric bond tester. *il Coal Age* 17:394 F 26 '20

Portable bond testers. G. H. McKelway. *il Elec Ry J* 57:525-7 Mr 19 '21

Rail chairs

English foundry makes rail chairs. H. C. Estep. *il diags plans Foundry* 48:733-40 S 15 '20

Rail fastenings

Device for holding down rails to concrete foundations. *il diags Engineer* 131:131-2 F 4 '21; Same. *Eng & Contr* 55:309-10 Mr 30 '21

Traverse de chemin de fer démontable, système Marcel, supprimant les tirefonds et les coussinets. E. Löwenguth. *il Génie Civil* 79:133-4 Ag 6 '21

See also Rail joints; Railroad tie plates; Spikes (railroad)

Specifications

Standard specifications for high-carbon steel splice bars; English and French. *diag U S Bur For & Dom Com Industrial Standards* 106:1-14 '21

Standard specifications for medium-carbon steel splice bars; English and French. *diag U S Bur For & Dom Com Industrial Standards* 105:1-14 '21

Standard specifications for quenched alloy-steel track bolts; English and French. *U S Bur For & Dom Com Industrial Standards* 143:1-12 '21

Standard specifications for quenched carbon-steel track bolts; English and French. *diag U S Bur For & Dom Com Industrial Standards* 142:1-12 '21

Rail handling

Handling of permanent way materials. C. J. Allen. *Eng & Contr* 55:647-8 Je 29 '21

Machines for handling heavy track material. J. B. Baker. *Eng N* 83:1061 D 25 '19

Rail joints

Arc welding of rail joints without planing the plates. H. H. George. *il Elec Ry J* 55:1254 Je 19 '20

Butt-welded joints installed on the lines of the Pittsburgh railways. *il Elec Ry J* 55:393 F 21 '20

Compromise joints in electric railway trackwork. R. C. Cram. *il diags Elec Ry J* 56:1107-10 N 27 '20; Same abr. *Eng & Contr* 54:587 D 15 '20

Experiences with thermit insert welding at Southampton. W. T. Robson. *il Elec Ry J* 54:1049 D 27 '19

Light-weight rail preheater. *il Elec Ry J* 56:425 Ag 28 '20

Modern methods of prolonging track life. E. A. Hoffman. *Elec Ry J* 55:1258-60 Je 19 '20

Modern practice in the construction and maintenance of rail joints and bonds in electric railways. E. R. Shepard. *il U S Bur Stand Tech Pa* 62:1-131 '20; Summary. *Elec Ry J* 55:558 Mr 20 '20

New rail joint. *il diag Ry Age* 69:1173 D 31 '20; *Eng & Contr* 55:57 Ja 19 '21

New rail joint that speeds up work of moving rails ahead on a pipe-laying job. *il Sci Am* 124:135 F 12 '21

Progress in rail joint construction. R. C. Cram. *Elec Ry J* 56:415-19 Ag 28 '20

Rail joint reclamation. *il Elec Ry J* 56:122 Jl 17 '20

San Francisco rail jointing methods. *Elec Ry J* 56:498 S 11 '20

Solving track problems at St Joseph; thermit welding. H. L. Chaffee. *il Elec Ry J* 55:1135 Je 5 '20

Specifications for bolts used in construction. H. H. George. *Elec Ry J* 55:387-9 F 21 '20

Rail joints—Continued

- Strengthening rail joints by heat treatment. Sci Am 122:36 Ja 10 '20
- Successful use of welded joints in Baltimore. W. W. Wysor. il diags Elec Ry J 58:170-1 J1 30 '21
- Thermit welding for special trackwork repairs. R. H. Dalglish. il Elec Ry J 56:883 O 23 '20
- Using the metallic arc for track welding. C. J. Hopkins. diags Elec Ry J 55:253 Ja 31 '20
- Welding rail joints to obtain flexibility. il Elec Ry J 56:882 O 23 '20
- Why do mechanical rail joints become loose? H. H. George. Elec Ry J 55:987-9 My 15 '20
- See also* Rail bonds

Rail laying. See Railroads—Track**Rail washers**

- Rail washer reduces flange and rail wear. il diags Ry Mech Eng 95:465-6 J1 '21
- See also* Lubricators, Flange

Railroad administration. See United States—Railroad administration**Railroad boards of labor adjustment. See Railroads—Employees—National agreements****Railroad bonds. See Railroads—Securities****Railroad bridges. See Bridges, Railroad****Railroad construction. See Railroad engineering; Railroads—Construction****Railroad crossings. See Grade crossings; Railroads—Crossings****Railroad engineering**

- American railway engineering association 22d annual convention, Chicago. Ry R 68:435-49 Mr 19 '21; Eng N 86:515-18 Mr 24 '21; Elec Ry J 57:631-6 Ap 2 '21

- Annual meeting of the American railway engineering association, Chicago. Ry R 66:475-7, 497-9 Mr 20 '20

- Application of engineering to transportation problems. J. A. Peabody. W Soc E J 25:565-71 N '20; Same. Ry R 67:578-80 O 16 '20; Excerpts. Eng & Contr 54:590-1 D 25 '20; Excerpts. Ry Age 69:1170-1 D 31 '20; Discussion. W Soc E J 25:572-3 N '20

- Early railroad engineering; the London and Birmingham railway—a story of its difficulties, failures and success. H. T. Walker. il Sci Am M 4:157-64 Ag '21

- Institution of civil engineers; engineering conference. Engineering 112:20-1, 49-54 J1 1-8 '21

- Railway engineering association has active technical discussions at annual convention of American railway engineering association. Eng N 84:613-16 Mr 25 '20

- Recollections of early railroading. G. Hawley. Ry R 67:14-15 J1 3 '20

- Sequence of notes for and calculation of cross-section. O. G. Bunsen. diags Eng N 84:472-3 Mr 4 '20

- Succeeding in railway mechanical engineering. R. F. Yates. Sci Am 123:152 Ag 14 '20

See also Grade crossing elimination; Locomotives; Railroad surveying; Railroads—Construction; Railroads—Earthwork; Railroads—Location; Railroads—Maintenance and repair; Railroads—Track

Study and teaching

- Effect of railway conditions on civil engineering curricula. C. C. Williams. Eng & Contr 54:164-6 Ag 18 '20

Tables, calculations, etc.

- Field and office tables, specially applicable to railroads. 3d ed. C. F. Allen. 289p McGraw-Hill '20

See also Railroads—Curves and turnouts

Railroad engineers

- How the engineer can advance himself in railway service. J. R. Leighty. Eng & Contr 54:158-9 Ag 18 '20

- New opportunities for the railway engineer. G. W. Hand. Eng & Contr 53:578-9 My 19 '20

Official classification of engineering positions. C. E. Drayer. Eng & Contr 56:51-2 J1 20 '21

- 2d annual railroad conference of the American association of engineers, Chicago. Ry R 66:472-5 Mr 20 '20

- Special training for engineers in railway service. Eng N 84:657-8 Ap 1 '20; Same. Eng & Contr 53:301 Mr 17 '20

- Why do engineer graduates shun railway jobs? Ry Age 68:713-17, 758, 1049-50 Mr 5-12, 26 '20

- Work of the Russian Railway service corps. P. Wright. il map Ry Age 69:153-6 J1 23 '20

See also Locomotive engineers

Salaries

- Technical engineer and the pending railway legislation. Eng & Contr 53:75 Ja 21 '20

Railroad labor. See Railroads—Employees**Railroad labor board**

- Analysis of labor provisions of the new transportation act. Monthly Labor R 10:880-7 Ap '20

- Carriers again ask Labor board to decrease wages. Ry Age 70:1335-7 Je 10 '21

- Concerning the railroad situation. Ry R 69:303-6 S 3 '21

- Decisions of the Railroad labor board. Monthly Labor R 11:504-7 S '20

- Employees begin fight on wage reductions. Ry Age 70:1075-6 My 6 '21

- Employees win several cases before Labor board. Ry Age 70:1437-8 Je 24 '21

- Employees win verdict in Erie controversy. Ry Age 70:547-51 Mr 11 '21; Same. Ry R 68:391-4 Mr 12 '21

- Hearings before Railroad labor board—Lauck alleges capital combine and efficiency. Comm & Fin Chr 112:1699-1700 Ap 23 '21; Answer of the railroads. Comm & Fin Chr 112:2040-1 My 14 '21; Ry Age 70:1113-16 My 13 '21

- Hearings before Railroad labor board on National agreements. See Railroads—Employees—National agreements

- Hustling the Railroad labor board. Ry Age 69:3-4 J1 2 '20

- Implement men vote to abolish Labor board. Ry Age 71:766 O 22 '21

- I.C.C. and public group of Labor board meet. Ry Age 71:759-60 O 22 '21

- Labor board acts in Pennsylvania case. Ry R 69:412-17 S 24 '21

- Labor board announces wage reductions for July 1. Ry Age 70:1259-62 Je 3 '21; Same (with list of parties to the dispute). Ry R 68:864-70 Je 4 '21

- Labor board considers wage reduction pleas. Ry Age 70:1389-90 Je 17 '21

- Labor board defines its power and legal status. Ry Age 71:579-82 S 24 '21

- Labor board denies New York Central petition for wage cut. Ry R 68:577 Ap 9 '21

- Labor board opens hearings on working conditions. Ry Age 70:199-202 Ja 14 '21; Ry Mech Eng 95:92-3 F '21

- Labor board opens inquiry into threatened strike. Ry Age 71:819-23 O 29 '21

- Labor board resumes hearings on working rules. Ry Age 70:519-21 Mr 4 '21

- Labor board rules national agreements end July 1. Ry Age 70:987-91 Ap 22 '21; Same abr. Ry Mech Eng 95:287-9 My '21; Excerpt (Text). Ry R 68:635-8 Ap 23 '21; Same. Comm & Fin Chr 112:1580-1 Ap 16 '21

- Labor board should be abolished. J. M. Glenn. Ry R 69:329-30 S 10 '21

- Labor faces economic readjustments in 1921. [portraits of Labor board] Ry Age 70:77-80 Ja 7 '21

- National agreements revised by the Railroad labor board, Oct. 8. Ry R 69:767-76 D 3 '21; Comm & Fin Chr 113:1731-2 O 22 '21; Ry Age 71:1087-8 D 3 '21; Ry Mech Eng 95:701-2 N '21

- New classification of railway employees ordered by Railroad labor board. Ry Age 70:1459-61 Je 24 '21

- New members of labor board; S. Higgins, W. L. McMenimen and B. W. Hooper. Ry Age 70:986 Ap 22 '21

Railroad labor board—Continued

- New wage conferences begin at Washington. Ry Age 68:783-5 Mr 12 '20
- Pennsylvania challenges authority of Labor board. Ry Age 71:399-400 Ag 27 '21
- Pennsylvania declines to appear before Labor board. Ry Age 71:619-20 O 1 '21
- Public's representation on the Labor board. Ry Age 70:777-8 Mr 25 '21
- Railroad labor board and the Pennsylvania railroad. Comm & Fin Chr 113:1399-1401 O 1 '21
- Railroad labor board applies 12% reduction to practically all roads. Comm & Fin Chr 113:33-4 Jl 2 '21
- Railroad labor board appointed. Ry Age 68:1204 Ap 16 '20; Same. Ry Mech Eng 94:268-9 My '20
- Railroad labor board appointed by President Wilson. Ry R 66:648 Ap 17 '20
- Railroad labor board awards higher wages. Ry R 67:113-20 Jl 24 '20; Same abr. with table. Ry Age 69:135-9 Jl 23 '20
- Railroad labor board decision announced. Ry Mech Eng 94:517-18 Ag '20
- Railroad labor board hears threat by union official. Ry R 66:942 Je 5 '20
- Railroad labor board wage hearings. Ry Age 68:1255-8, 1311-15, 1359-62, 1417-18, 1473-5, 1531-5; 69:13-14 Ap 23-My 28, Jl 2 '20
- Railroad labor board wage hearings. Ry R 66:684-5, 734-5, 817-18, 844-6, 892-3, 1107-8; 67:25-6 Ap 24-My 1, 15-29, Je 26-Jl 3 '20
- Railroad labor board's formal decision as to strike vote. Comm & Fin Chr 113:1943 N 5 '21
- Railway executives summoned by Labor board. Ry Age 70:723-6 Mr 18 '21
- Regulations relating to nominations for the Labor board. Ry Age 69:832 N 12 '20; Same. Ry R 67:745-6 N 13 '20
- Reply of the Pennsylvania railroad to Labor board. Ry R 69:315-16, 449-51, 574-5 S 3, O 1, 29 '21
- Short lines contest employees' wage demand. Ry Age 69:747-8, 786, 837, 935 O 29-N 12, 26 '20
- Situation before the Labor board. Comm & Fin Chr 110:1792-4 My 1 '20
- Some suggestions as to the sixteen points of decision no. 119. Ry Age 70:1018-19 Ap 29 '21
- Strike directed against Labor board say eastern executives. Ry Age 71:761 O 22 '21
- Subordinate officers ask recognition. Ry Age 68:963-4, 1040-1 Mr 19-26 '20
- Wage hearing before the Labor board. Ry R 68:711 My 7 '21
- Will the Labor board enforce the closed shop? Ry Age 71:97-8 Jl 16 '21
- Railroad law**
- Applications for certificates of convenience and necessity. Ry Age 69:14 Jl 2 '20
- Complete text of new railroad bill. Ry R 66:319-35 F 28 '20; Same. Ry Age 68:555-73 F 20 '20
- Federal intervention in railroad disputes. L. Magnusson and M. A. Gadsby. Monthly Labor R 11:26-43 Jl '20
- Labor provisions of the railroad bill in conference. Ry R 66:61-3 Ja 10 '20
- Proposed change in law as to railroad purchases. Ry Age 69:1070 D 17 '20
- Railroad land, "Where is thy value?" F. Rhea. Ry R 66:836-8 My 22 '20
- Railroad law departments to settle claims for director general. Ry Age 68:1140 Ap 9 '20
- Railroad return bill completed in conference; with text of bill. Comm & Fin Chr 110:715-19 F 21 '20
- Regulations governing directorships and applications under Clayton law. Ry R 69:623-4 N 5 '21
- See also* Carriers; Eminent domain; Locomotives—Inspection; Railroads—Employees; Railroads—Equipment trust; Railroads—Rates; Railroads—Safety devices and measures; Railroads—Valuation; Railroads and state; Street railroads—Law; Transportation act, 1920
- Railroad management.** *See* Railroads—Management

Railroad master blacksmiths' association, International. *See* International railroad master blacksmiths' association

Railroad motor cars. *See* Motor cars (railroad)

Railroad passes. *See* Railroads—Passes

Railroad rates. *See* Railroads—Rates

Railroad regulation. *See* Railroads and state

Railroad shops. *See* Electric railroads—Shops; Locomotive shops; Railroads—Shops

Railroad signals. *See* Railroads—Signals

Railroad speed. *See* Railroads—Train speed

Railroad stations. *See* Railroads—Stations

Railroad supplies. *See* Railroads—Equipment and supplies

Railroad supplies industry

American railway supplies in South America.

J. P. Risque. *il* Ry Age 69:313-15 Ag 20 '20

Art of selling machinery in Latin America.

Eng & Ind Management 5:746+ Je 30 '21

Brazil as a market for American railway supplies. J. P. Risque. *il* Ry Age 70:835-7

Ap 1 '21

Exports of railway supplies break all records.

il Ry Age 68:134-5 Ja 2 '20

Huge railroad purchases will help to stabilize business. J. G. Condon. *Ptr Ink* 113:

25-8 D 9 '20

Prices for engineering and maintenance material. Ry Age 70:92-4 Ja 7 '21

Railroad buying in 1920 disappointing. *Iron*

Age 107:47-8 Ja 6 '21

Railway supply exports in 1920 show marked decline. Ry Age 70:166-7 Ja 7 '21

Selling American railway supplies abroad.

D. Van Alstyne. Ry Age 70:373-6 F 11 '21

United States helping to rebuild railways of the world. *Coal Age* 18:1043 N 18 '20

What will effectively restore business? E.

B. Leigh. Ry R 69:483-6 O 8 '21; Same. *Am*

Ind 22:36-8 N '21

Why buy now program by railways is needed; symposium. Ry Age 70:23-8 Ja 7 '21

See also Railroad ties

Exhibitions

Construction and maintenance appliances on

exhibition by National railway appliances

association. Ry R 68:455-6 Mr 19 '21

List of exhibitors at the Railway supply

manufacturers association, Atlantic City,

June 9-16. Ry Age 68:1601-15 Je 9 '20

100,000 square feet of exhibits. *Elec Ry J* 55:

1205, 1261-2 Je 12-19 '20

Railroad surveying

Airplane saved large sum in railroad recon-

naissance survey. E. S. Piontkowski. *Eng*

N 87:71 Jl 14 '21

Alaska railroad location surveys through

Broad Pass. T. W. Secrist. *il* map *Eng* N

86:632-3 Ap 14 '21

Methods, costs and results of survey for log-

ging railroad. *Eng & Contr* 53:454-5 Ap 21

'20

Practice of railway surveying and perma-

nent way work. S. W. Perrott and F. E.

G. Badger. 303p E. Arnold, London '20

Railroad reconnaissance by aeroplane. *Aerial*

Age 13:399 Jl 4 '21; Same. *Aviation* 11:110

Jl 25 '21

Ramsey surveys for a short-cut line be-

tween Pittsburgh and New York. map Ry R

66:791-2 My 15 '20

Resurveys of old railway lines. J. G. Wether-

ell. chart *Eng* N 84:575-7 Mr 18 '20

Simple method of resurvey for line adjust-

ment. P. Vassallo. *diag Eng* N 86:798 My 12

'21

See also Railroad engineering; Railroads

—Curves and turnouts

Railroad tie plates

Copper in steel tie plates reduces corro-

sion. *il* Ry Age 69:146 Jl 23 '20; Excerpts.

Iron Age 106:444 Ag 19 '20; Excerpts. *Eng*

& *Contr* 54:256 S 15 '20

Principles to be followed in tie plate design.

H. H. George. *Elec Ry J* 56:359-60 Ag 21

'20; Same cond. *Eng & Contr* 54:595 D 15

'20

Railroad steel tie plates rust less with cop-

per in them. *Sci Am* 125:169 S 3 '21

Railroad tie plates—Continued

- Service stresses in tie plates. E. P. Gowing. diags Ry R 68:644-5+ Ap 23 '21
Should tie plates be cambered? A. Morrison. Ry R 66:1099 Je 26 '20; Same. Eng & Contr 54:69 Jl 21 '20; Discussion. C. W. Baldridge. Ry R 67:81-2 Jl 17 '20

Specifications

- Tentative specifications for steel tie plates. Am Soc T M Pro v 20 pt 1:493-6 '20

Railroad tie producers, National association of.
See National association of railroad tie producers**Railroad tie pullers**

- Owen tie puller. Ry R 68:472 Mr 19 '21

Railroad tie rods

- Tie rod specifications assist in reducing failures. H. H. George. Elec Ry J 55:655-6 Mr 27 '20

Railroad ties

- Chattanooga's successful creosote plant. il diags plan Elec Ry J 58:101-2 Jl 16 '21
Chotani device for preventing cracking of railway ties. il Eng & Contr 54:319-20 S 29 '20
Classifying ties for service requirements. Ry Age 69:654 O 15 '20
Complete wood preserving plant mounted on cars. il Ry Age 67:453-5 S 5 '19; Same. Sci Am S 88:332-3 D 6 '19; Same abr. Eng & Contr 52:334 S 17 '19
Decay of ties in storage. C. J. Humphrey. 35p American wood-preservers' association, Baltimore, Md. '20
Discussion on ties and rails. Can Eng 40:143+ Ja 20 '21
Distributing and renewing ties. H. M. Lull. Ry R 69:51-2 Jl 9 '21
Estimated service life of western tie timber. P. R. Hicks. Ry Age 70:996-7 Ap 22 '21
Experiences with metal ties on Indian railways. Eng & Contr 54:333 S 29 '20
Grouping of ties in treatment. H. J. von Leer. Ry R 66:638-40 Ap 17 '20
Handling and renewing ties. Ry R 69:401-3 S 24 '21; Same. Eng & Contr 56:379-80 O 19 '21
Handling of cross ties. T. W. Fouts. Eng & Contr 56:162 Ag 17 '21
Imperial pneumatic tie tampers. diags Ry R 66:418-21 Mr 13 '20
Influence of treated timber on annual cross tie requirements. L. Smith. charts Eng & Contr 53:688 Je 16 '20
Jackson electric tie tamper. il diags Ry R 66:90-3 Ja 17 '20
Laminated wood cross-tie. diags Eng & Contr 53:462 Ap 21 '20
Machine perforates timber to facilitate preservative treatment. Eng N 86:730 Ap 28 '21; Elec Ry J 57:819 Ap 30 '21
Machining railroad cross-ties. D. W. Edwards. il Am Mach 53:1237-40 D 30 '20; Same. Ry R 68:2-5 Ja 1 '21; Same cond. Mech Eng 43:99-101 F '21
Manufacture of cross ties with portable saw mills. R. J. Witherell. Ry R 66:738-9 My 1 '20; Same abr. Eng & Contr 53:565-6 My 19 '20
Mechanical tie handling at treating plants. il diags Ry R 66:279-82 F 21 '20
Methods of supervising tie renewals. Eng N 84:709 Ap 8 '20; Same. Can Eng 38:384 Ap 15 '20
New tie preserving plant for the Norfolk & Western Ry.; with layout. il Ry R 69:353-7 S 17 '21
New tie treating plant for the Oregon short line R. R. plan Ry R 68:696-7 My 7 '21
No immediate necessity for substitute cross-ties. Ry Age 69:275-7 Ag 13 '20
Pacific coast cross ties. E. O. Faulkner. Eng & Contr 55:158 F 16 '21
Production of cross ties on the Pacific coast. E. M. Blake. Am Lumberman 2347:62-3 My 8 '20; Excerpt. Eng & Contr 53:570 My 19 '20
Railroad cross tie situation. M. E. Towner. Am Lumberman 2325:56 D 6 '19
Rapid decay in sap pine-ties. C. O. Deabler. Eng & Contr 53:464 Ap 21 '20

- Relative merits of metal and wood ties. Eng & Contr 54:250-3 S 15 '20

- Report on cross tie situation. Ry R 68:936-7 Je 18 '21; Same. Ry Age 71:490 S 10 '21

- Scientific study of railway track under load; second progress report. Ry Age 68:776-8 Mr 12 '20; Eng N 84:409-12 F 26 '20; Eng & Contr 53:292-3 Mr 17 '20; Elec Ry J 55:704-6 Ap 3 '20

- Steel ties on North Eastern Ry. in England. il diags Eng & Contr 56:199 Ag 31 '21

- Stresses in railroad track. A. N. Talbot. Can Eng 38:479 My 20 '20

- Test to determine the cost of pneumatic tie tamping. Ry Age 70:721 Mr 18 '21; Same. Eng & Contr 55:386 Ap 20 '21

- Tie producers' convention, Chicago. Ry R 66:723-5 My 1 '20

- Tie producers discuss production outlook. Ry Age 68:1295-8 Ap 30 '20

- Tie renewals in relation to average life. Eng & Contr 55:251 Mr 16 '21; Same. Elec Ry J 57:901 My 14 '21

- Timbers of tropical America and railway tie supply. A. W. Buel. Eng N 85:1139-41 D 9 '20

- Traverse de chemin de fer démontable, système Marcel, supprimant les tirefonds et les coussinets. E. Lœwenguth. il Génie Civil 79:133-4 Ag 6 '21

- Use of electric tie tampers on the Michigan Central railroad. il diags Ry R 67:84-6 Jl 17 '20

- Where are our ties coming from? H. Von Schrenk. Eng & Contr 54:393-6 O 20 '20; Excerpts. Ry Age 69:659-60 O 15 '20; Abstract. Eng N 85:1141-2 D 9 '20

- Wood-preservers' association 16th annual meeting, Chicago. Ry Age 68:491-5 F 13 '20; Ry R 66:252-4 F 14 '20; Elec Ry J 55:653 Mr 27 '20

- Zinc-chloride loss from treated ties. Eng N 85:843 O 28 '20

See also Railroads—Construction; Railroads—Track

Specifications

- Specifications for wood ties. H. H. George. Elec Ry J 56:555-6 S 18 '20

- Tie producers' convention discusses specifications. Ry Age 70:475-6 F 25 '21; Same. Ry R 68:327-8 F 26 '21; Same. Eng & Contr 55:255-6 Mr 16 '21

Testing

- Service test methods and record of ties in track. Eng N 86:584 Ap 7 '21

- Service tests of a substitute wood and steel tie. il diags Ry Age 70:252 Ja 21 '21

Railroad ties, Concrete

- Concrete track ties and electric poles in China. D. F. McLeod. diags Eng N 85:554-5 S 16 '20

- Ferro-concrete sleepers for light railways. Engineering 110:534 O 22 '20

- Ickes railway tie. il diags plans Concrete 18:252-3 My '21

- New reinforced concrete railroad tie. diags plan Eng & Contr 55:164 F 16 '21

- Status of the reinforced-concrete tie. Eng N 84:499 Mr 11 '20

- Substitute ties. T. A. Ferneding. Elec Ry J 58:635 O 8 '21

- Twenty years of reinforced-concrete railway ties. C. H. Wakefield. diags Eng N 84:522-6 Mr 11 '20

- Railroad tracks. See Mine tracks; Railroads—Track

- Railroad watches. See Watches, Railroad

- Railroad yards. See Railroads—Yards

- Railroad Y.M.C.A. See Young men's Christian association—Railroad department

Railroads

- Dream that came too soon. J. Burnham. Nation's Business 9:42-3+ S '21

- Good railway service the primary need of business. W. Sproule. Ry R 66:1062-5 Je 19 '20

- Kolonial- und Kleinbahnen. F. Baltzer. 2v. Vereinigung wissenschaftlicher Verleger, Berlin, Leipzig '20

Railroads—Continued

Railroad conditions in foreign countries. D: Van Alstyne. Ry R 68:673-5+ Ap 30 '21
 Railroad transportation. D. E. Willard. Mech Eng 43:17-18 Ja '21; Same cond. Ry Age 69:1009-10 D 10 '20; Same cond. Ry R 67:887-8 D 11 '20; Excerpts. Eng N 85:1193 D 16 '20
 Railway transportation. F. L. McVey. 406p Lincoln institute of business, Chicago '21
 Transportation by sea and land; review of seventy-five years of progress. il diags Sci Am 123:327-30+ O 2 '20
See also Air brakes; Bridges, Railroad; Cableways; Carriers; Cars; Electric railroads; Elevated railroads; Eminent domain; Express service; Freight car service; Freight cars; Grade crossings; Great Britain—Army—Railway traffic establishment; Locomotive shops; Locomotive terminals; Locomotives; Mine tracks; Motor cars (railroad); Mountain railroads; Private car lines; Rail bonds; Rail fastenings; Rail joints; Railroad engineering; Railroad ties; Rails; Railway mail service; Rapid transit; Roundhouses; Ship railroads; Street railroads; Subways; Terminals; Train dispatching; Train resistance; Transportation; Trestles; Tunnels and tunneling; *also* names of railroads, e.g. Baghdad railway, Chicago and Northwestern railway, Pan-American railroad (proposed), Pennsylvania railroad

Accidents

Accident bulletin no. 72; statistics of railroad accidents in the United States in the months of April, May and June, 1919. Ry Age 68:1148-9 Ap 9 '20
 Accident investigations—April, May and June. Ry Age 71:459-60 S 3 '21
 Accident reports, third quarter, 1920. Ry Age 70:505 Mr 4 '21
 Accidents on the railroads of the United States for the last quarter of 1919. Ry Age 69:894 N 19 '20; Abstract. Ry R 67:738 N 13 '20
 Acme, Schenectady, Bertha collisions. Ry Age 69:454 S 10 '20
 Bureau of safety reports on Porter collision. map Ry Age 70:808-9 Mr 25 '21
 Calling-on signals, telephones, and track-circuit control. Ry Age 68:637-8 F 27 '20
 Causes of South Pittston collisions. Ry Age 69:1176 D 31 '20
 Derailed locomotive lodges on side of precipice. il Pop Mech 35:654 My '21
 Electric locomotives in two wrecks. il Elec Ry J 56:371-2 Ag 21 '20
 Fire risks in sleeping cars. Ry Age 71:433-4 S 3 '21
 Four British railway accident reports. Engineer 131:286 Mr 18 '21
 Handling wrecks and derailments involving loaded tank cars. W. S. Topping. Ry Mech Eng 94:157-8 Mr '20
 Lesson from the collision statistics. Ry Age 68:1438-9 My 21 '20
 Locomotive overturned rounding curve. Eng N 86:1024 Je 16 '21
 Lostock Junction railway collision. diag Engineer 130:348 O 8 '20
 Manual signal statistics and the accident record. W. P. Borland. Ry Age 69:95-7 Jl 16 '20
 Passenger trains in disastrous collision, at Porter, Ind. il plan Ry Age 70:495-7 Mr 4 '21; Ry R 68:347-9 Mr 5 '21
 Pere Marquette resort special in head-on collision, June 14. il Ry Age 68:1934 Je 18 '20
 Railroad accidents and how they work. R. Howard. il Sci Am 124:241+ Mr 26 '21
 Railroad accidents in Great Britain, 1919. Ry Age 69:858 N 12 '20
 Report of A., B. & A. derailment. Ry Age 71:665-6 O 8 '21
 Report of the Bureau of locomotive inspection. Ry Age 69:1071-3 D 17 '20
 Report on Adamsville collision. Ry Age 68:193-4 Ja 9 '20
 Report on butting collision at Trussville, Alabama. Ry Age 68:1662 Je 11 '20

Report on collision at Abermule, Wales. Ry Age 70:1450 Je 24 '21
 Report on Erie collision. Ry Age 69:1060 D 17 '20
 Report on Onawa collision. Ry Age 68:1063 Mr 26 '20
 Report on Piedmont collision. Ry Age 70:726 Mr 18 '21
 Report on Riverside (Vermont) collision. Ry Age 68:1572 Je 4 '20
 Report on South Chicago collision. Ry Age 69:406-7 S 3 '20
 Report on Walton collision. Ry Age 68:970 Mr 19 '20
 Reports of accident investigations in the three months ending with March 31, 1920. Ry Age 69:407 S 3 '20
 Safety on the Chicago & Northwestern railway. Ry R 66:893-4 My 29 '20
 Selby railway accident report. Engineer 129:72 Ja 16 '20
 Speed too great for elevation of outer rail caused derailment. plan Eng N 84:433-4 F 26 '20
 Statistical report of collisions, derailments and other accidents for the quarter ending December 31, 1918. Ry Age 68:377-8 Ja 30 '20
 Summary of collisions investigated by the Interstate commerce commission, which occurred in automatic block signal territory, due to the failure of enginemen to observe or to be governed by signal indications, covering the fiscal years 1912-1920, inclusive. W. P. Borland. W Soc E J 26:36-9 F '21; Same. Ry R 67:620 O 23 '20
 Train accidents; monthly summaries published in the Railway age
 Vincent derailment, Southern Pacific Ry. il diags Ry R 66:241-4 F 14 '20; Ry Age 68:489 F 13 '20
 Welsh railway disaster. il Engineer 131:127, 145-6 F 4-11 '21
See also Electric railroads—Accidents; Explosives—Transportation; Grade crossing accidents; Railroads—Safety devices and measures; Railroads—Signals; Rails—Failures; Street railroads—Accidents

Accounting

Accounting for railroad construction. G: M. Hofford. J Account 29:191-7 Mr '20
 Accounting officers' association annual meeting, Atlantic City. Ry Age 68:1457-65 My 21 '20
 Accounting officer's work from the executive's viewpoint. L. F. Loree. Ry Age 70:1343-5 Je 10 '21
 Ask accountant's help in increasing efficiency. J: C. Owers. Ry Age 71:457-8 S 3 '21
 A. R. A. billing; with discussion. C. C. Stone. Ry Mech Eng 94:778-80 D '20
 Association of railway accounting officers 33d annual meeting, Atlantic City. Ry Age 70:1343-54, 1403-6 Je 10-17 '21
 Common errors in freight accounts. F. W. Pope. Ry R 67:64-5 Jl 10 '20
 Comparing unit costs in railway operations. M. O. Lorenz. Ry R 69:143-4 Jl 30 '21
 Cost accounting—the key to cost control. G: W. Armstrong. Ry Mech Eng 94:374-9 Je '20
 Effect upon public utilities of depreciation charges on freight rates. N E L A Bul 7:404-8 Jl '20
 Fuel accounting. Ry Mech Eng 95:546 S '21
 How a railway simplified its disbursements accounting. C. O. Price. Ry R 68:134-40 Ja 22 '21
 How material costs affect railway income; material versus personnel expenses considered upon the basis of the equated locomotive day. H. Emerson. Ry R 68:851-4 Je 4 '21
 Loading down railway labor statistics; new classification rules. S. Thompson. Ry R 68:870-1 Je 4 '21
 Maintenance charges during the guaranty period. W. A. Colston. Ry Age 70:1403-5 Je 17 '21
 Material accounting on the Canadian Pacific. A. A. Goodchild. Ry Age 69:392 S 3 '20

Railroads—Accounting—Continued

- Mechanical devices in accounting department of San Antonio & Aransas Pass railway. F. Eiserloh. Ry R 68:44-8, 80-5 Ja 8-15 '21
- Needs of the accounting department. il Ry Age 68:55-6 Ja 2 '20
- Plea for improvements in maintenance accounting. C. A. Morse. Eng & Contr 55:394 Ap 20 '21
- Radical analysis of railway operations; comparisons on the basis of the equated locomotive day. H. Emerson. Ry R 68:729-35 My 14 '21
- R.A.O.A. mandatory interline accounting rules. 79p Railway accounting officers assn., Washington '21
- Railway accounting. C. S. Sikes. LaSalle extension university, Chicago, Ill. '20
- Railway accounting officers' association 1921 synopsis. E. R. Woodson, ed. 400p Railway accounting officers' association, 1116 Woodward building, Washington, D.C. '21
- Reconstruction of railroad property. W. W. Vincent. J Account 31:343-8 My '21
- Reducing the clerical expense in railway accounting. C. O. Price. Ry R 68:239-41 F 12 '21
- Remedies for wastes in railway operation. F. J. Lisman. Ry Age 71:59-63 Jl 9 '21
- Report of committee on material accounting. Ry Age 68:1820-2 Je 15 '20; Same. Ry R 66:1085-6 Je 26 '20
- Report on fuel accounting. Ry Age 70:1276-7 Je 3 '21
- Rules pertaining to the preparation of operating statistics on the Pennsylvania system. 83p '20
- Simplified system of freight accounting. J. J. Murray. il Ry R 66:562-7 Ap 3 '20
- Some criticisms and suggestions. B. H. Meyer. Ry Age 70:1345-7 Je 10 '21
- Sorting and tabulating machines in disbursement work. Ry R 67:51-2 Jl 10 '20
- Unit cost data reduce freight train expense. J. E. Hutchison. Ry Age 71:161-3 Jl 23 '21
- Use of accounting machines in freight accounts. il Ry R 66:131-3 Ja 24 '20
- Use of accounting machines in local railroad offices. il Ry R 65:841-3 D 6 '19
- Why mechanical men object to modernizing motive power. F. P. Roesch. Ry R 69:291-2 S 3 '21

See also Railroads—Finance; Railroads—Records; Railroads—Valuation

Advertising

- Farmer's mental kinks recognized in Seaboard's colonization campaign. Ptr Ink 113:64+ N 11 '20
- Greek gods advertise a railroad. T. Russell. Ptr Ink M 2:42 My '21
- How advertising may help to solve the merchandising problem of the railroads. J. G. Condon. Ptr Ink 114:41-4 F 17 '21
- Illinois Central R. R. seeks service improvement through advertising. Ptr Ink 112:17-18 S 23 '20
- Lure of history draws tourists to Southern Pacific. Ptr Ink 114:77-8 Mr 10 '21
- Opening advertising guns of the returned railroads. Ptr Ink 110:57-8 Mr 4 '20
- Ours is a tough old problem, too, railroads tell farmers. M. Hussobee. Ptr Ink 116:17-19 Ag 18 '21
- Phoebe Snow returns to grace the advertising pages. J. G. Condon. Ptr Ink 116:8+ S 22 '21
- Posters promote travel for European railroads. C. P. Russell. Ptr Ink M 2:26-7+ D '20
- Railroad advertises dangers of grade crossings. Ptr Ink 114:85-6 F 10 '21
- Railroad tells how it has served. il Ptr Ink 116:84+ S 29 '21
- Railroads are planting the seed of improved transportation. J. G. Condon. Ptr Ink 113:137-8+ N 4 '20
- Railroads make radical change in advertising. Ptr Ink 114:41-2+ Mr 24 '21
- Railroads may become big advertisers for freight. J. G. Condon. Ptr Ink 110:33-5 F 26 '20
- Railroads sell America to Americans. C. P. Russell. il Ptr Ink M 3:35-6+ Jl '21

What we may expect in railroad advertising after March first. J. G. Condon. Ptr Ink 110:146+ Ja 29 '20

Why railroad advertising has not yet blossomed. J. G. Condon. Ptr Ink 111:61-2+ Ap 15 '20

Why the promised big railroad advertising drive is held up. J. G. Condon. Ptr Ink 112:17-20+ Jl 29 '20

Why the railroads should advertise collectively to remove prejudiced public opinion. M. H. Wright. Ptr Ink 117:25-7 O 13 '21

See also Railroads—Public relations; Street railroads—Advertising

Air brakes

See Air brakes

Automatic stop

- Application of automatic signals and train stops. C. C. Anthony. Ry Age 68:443-5 F 6 '20; Same. Ry R 66:284-6 F 21 '20
- Automatic train control. Engineer 130:355-6 O 8 '20
- Automatic train control. J. P. Latimer. Ry R 68:984 Je 25 '21; Discussion. L. F. Wilson. 69:49-50 Jl 9 '21
- Automatic train control. F. J. Sprague. chart Ry R 66:634-8 Ap 17 '20
- Automatic train control before the New York joint committee. Ry R 68:489-93 Mr 26 '21
- Automatic train control demonstrated on B. R. & P. il Ry Age 71:817-18 O 29 '21
- Automatic train control—government viewpoint. W. P. Borland. W Soc E J 26:33-41 F '21; Same. Ry R 67:618-21 O 23 '20; Same cond. Ry Age 69:708-9 O 22 '20; Discussion. W Soc E J 26:52-9 F '21
- Automatic train control on the Cincinnati, Indianapolis & Western. R. R. il Ry R 67:496-8 O 2 '20
- Automatic train control on the North Staffordshire railway. Engineer 131:288 Mr 18 '21
- Automatic train control problem. H. S. Ballet. Ry R 66:514-15 Mr 27 '20; Same cond. Ry Age 68:1057-8; Discussion. 1058-62 Mr 26 '20; Discussion. Ry R 66:520-5 Mr 27 '20
- Automatic train control trials on the North Staffordshire Ry. diags Ry R 68:740-1 My 14 '21
- Automatic train stop committee's progress report. Ry Age 70:497 Mr 4 '21
- Contemplated installations of automatic train control systems. Ry R 68:902-3 Je 11 '21
- Frenchman's view of automatic train control. M. Gouineau. Ry R 68:530-2 Ap 2 '21
- Inspection of Casale train control installation. Ry Age 68:948 Mr 19 '20
- Inspection of Shadle automatic train signal and stop. Ry Age 69:562 O 1 '20
- Installation of automatic train control on the C.R.I. & P. Ry. Ry R 66:496-7 Mr 20 '20
- I. C. C. announcement on automatic train control. Ry R 69:973 Je 25 '21
- New York commission and automatic stops. Ry Age 70:715-16 Mr 18 '21
- Problems in installation of automatic train control. W. B. Murray. W Soc E J 26:42-7 F '21; Same. Ry R 67:621-3 O 23 '20; Same cond. Ry Age 69:709-10 O 22 '20
- Question of government policy on automatic train control; report of committee on equipment policies of the Railway business association. Ry R 68:569-71 Ap 9 '21
- Railroad operating view of automatic train control. W. G. Bied. W Soc E J 26:47-52 F '21; Same cond. Ry Age 69:801-2 N 5 '20
- Regan automatic train control exhibited in France. il Ry Age 70:565-6 Mr 11 '21
- Regan automatic train control system. Engineer 130:348 O 8 '20; Ry Age 69:724 O 22 '20
- Regan automatic train control system, C.R.I. & P. Ry. il Ry R 66:720-3 My 1 '20; Same. Ry Age 68:1293-4 Ap 30 '20
- Report of the automatic train control committee. Ry R 66:204-9, 248-51 F 7-14 '20; Same (pt.1). Ry Age 68:227-32 Ja 16 '20
- Report of the automatic train control committee; editorial. Ry R 66:180-3 Ja 31 '20
- Les signaux de chemins de fer. J. Netter. il diags Génie Civil 78:121-6 F 5 '21

Railroads—Automatic stop—Continued

- Single track operation without train orders.
F. H. Bagley. plans Ry Age 68:1205-6 Ap 16 '20
Super-refined block signaling. J: C. Howard.
Ry Age 68:1132-3 Ap 9 '20
Train control committee digressed from its subject. J. Beaumont. Ry Age 68:605-6 F 27 '20
Train operation and automatic train control.
J. B. Latimer. Ry Age 70:977-9 Ap 22 '21

Baggage

See Baggage

Bibliography

- Bibliography of railroads in the Pacific Northwest. Washington Historical Quarterly 12:91-114 Ap '21

Brakes

See Air brakes; Brakes

Branch lines

See Railroads, Short line

Buffers

See Buffers (railroad)

Buildings and structures

- New stationery building of the Santa Fe R.
R. T: J. Brennan. il Ry R 67:273-4 Ag 21 '20
Pre-fabricated steel buildings for railway service. L. W. Allison. il Ry R 66:487-9 Mr 20 '20
Report of committee on buildings and structures. Ry Age 68:1871-3 Je 16 '20; Ry R 66:1091-2 Je 26 '20
Use of reinforced concrete on railways; abstracts. W: W. Grierson. Engineering 112:79-80 Jl 8 '21; Engineer 132:59 Jl 15 '21; Discussion. Engineering 112:49-50 Jl 8 '21
See also Ash pits; Bridges, Railroad; Car houses; Coaling stations; Culverts; Freight houses; Locomotive shops; Locomotive terminals; Railroads—Shops; Railroads—Stations; Railroads—Terminals; Railroads—Train sheds; Roundhouses; Warehouses

Car departments

- The carman. Ry R 68:582-3 Ap 9 '21
Educating the carman. Ry R 68:177-8 Ja 29 '21
Position of the car foreman. Ry R 68:615-16 Ap 16 '21
What's wrong with the car department? Ry R 69:283-4 Ag 27 '21
Widening the outlook of the local car foreman. L. K. Silcox. Ry Mech Eng 95:371-4 Je '21
Work of the railway carman. E. K. Hogan. 201p Brotherhood railway carmen of America, Kansas City, Mo. '21

Cars

See Brakes; Car axles; Car cleaning; Car couplings; Car curtains; Car doors; Car heating; Car inspection; Car lighting; Car painting; Car roofs; Car seats; Car trucks; Car wheels; Cars; Dining cars; Freight cars; Motor cars (railroad); Postal cars; Refrigerator cars; Sleeping cars; Tank cars

Chief clerks

- Inadequate recognition of chief clerks' position. Ry Age 71:159-60 Jl 23 '21; Discussion. 71:236, 397-8, 661-2, 922 Ag 6, 27, O 8-N 12 '21

Claims

- A.R.A. starts freight claim prevention campaign. Ry Age 69:750-1, 887-90 O 29, N 19 '20; Ry R 67:769-70 N 20 '20
Damages a shipper of goods may secure from a railroad where consignment is delayed in transportation. Dom Eng 97:161-2 O 22 '21
Freight claim reduction on the Central of Georgia. G. L. Candler. Ry Age 70:991-2 Ap 22 '21
How one road plans to reduce loss and damage; steps taken by Chicago, Rock Island & Pacific. Ry Age 70:895-6 Ap 8 '21

- Impact and its relation to damage claims. J. A. Pilcher. Ry Age 71:77-9 Jl 9 '21

- Interest on overcharge claims. Ry Age 68:644 F 27 '20
Loss and damage as a factor in transportation costs. Ry Age 71:475-6 S 10 '21
Loss of entire package. Ry Age 70:1042-3 Ap 29 '21
New ruling by Interstate commerce commission prevents railroads taking unfair advantage of shipper under clause in bill of lading. E. J. Buckley. Metal Work 93:276-7 F 27 '20
No exception month on the Illinois Central. Ry Age 71:170 Jl 23 '21
Personal injury, freight loss and damage claims. Ry R 68:360-1 Mr 5 '21
R.A.O.A. overcharge and agency relief claim rules. 1921 ed. 75p Railway accounting officers assn., Washington '21
Suits against railroads for freight delays due to congestion. E. J. Buckley. Metal Work 94:119 Jl 23 '20
What can be done to reduce freight claims. W. P. Holabird. Ry Age 70:551-2 Mr 11 '21
See also Electric railroads—Claims; Pacific claim agents' association; Street railroads—Claims

Coal stock ownership

- Lehigh Valley files segregation plan. Ry Age 71:718-19 O 15 '21

Consolidation

- New plan for railroad consolidations. J: E. Oldham. Comm & Fin Chr 113:1950-2 N 5 '21; Ry Age 71:895-7 N 5 '21; Ry R 69:688-92, 724-8 N 19-26 '21
Proposed consolidation of railroad properties of United States into a limited number of systems; tentative plan of Interstate commerce commission based upon Ripley report. maps Ry R 69:423-37 O 1 '21; Ry Age 71:609-16 O 1 '21; Comm & Fin Chr 113:1429-31 O 1 '21
Railroad consolidations. Ry Age 71:701-2 O 15 '21
Regrouping the railroads. R: Waterman. Nation's Business 9:27-8 N '21
Twenty systems in I. C. C. consolidation plan. Ry Age 71:455-6 S 3 '21

Bibliography

- Consolidation of railroads. Library Journal 46:63-6 Ja 15 '21

Construction

- Construction of the Hetch Hetchy railroad. il diag map plan Ry R 65:907-11 D 20 '19
Curtailed construction activities mark the year. Ry Age 68:107-12 Ja 2 '20
Frisco secures maximum benefit for modest outlay. diags maps Ry Age 71:663-5 O 8 '21
Heavy construction on San Diego and Arizona railway. il Eng N 84:481-2 Mr 4 '20
High line construction for the Kansas City passenger terminal. il diags maps Ry R 67:263-9 Ag 21 '20
Line improvement of the New York Central at Tonawanda, N.Y. B. S. Voorhees. il plans Ry R 66:455-9 Mr 20 '20
Location and structures of a heavy industrial railway. il diags map plans Eng N 84:604-12 Mr 25 '20
New construction conspicuous by its absence in 1920. Ry Age 70:153-9 Ja 7 '21; Excerpt. Eng & Contr 55:63 Ja 19 '21
Pending railroad construction generally confined to current transportation needs. Eng N 86:37-9 Ja 6 '21
Rapid railway construction at Slough. il Engineering 109:306 Mr 5 '20
Southern Pacific builds long tunnel to eliminate operating hazard. il map Eng N 87:367-8 S 1 '21
Tunnel widening on the Virginia railway. il diags Ry R 68:387-9 Mr 12 '21; Excerpt. Eng & Contr 55:397 Ap 20 '21

Railroads—Construction—Continued

Virginian builds double track to relieve congestion. *il diag Ry Age 71:487-90 S 10 '21*

See also Ballast; Bridges, Railroad; Culverts; Electric railroads—Construction; Elevated railroads; Grade crossing elimination; Mountain railroads; Rail handling; Railroad engineering; Railroad ties; Railroads—Curves and turnouts; Railroads—Earthwork; Railroads—Electrification; Railroads—Grades; Railroads—Location; Railroads—Maintenance and repair; Railroads—Stations; Railroads—Terminals; Railroads—Track; Rails; Trestles; Trestles—Filling; Tunnels and tunneling

Cost of construction

Analysis of railroad grading develops trend curves. *Ry Age 70:195-8 Ja 14 '21; Abstract. Eng & Contr 55:396 Ap 20 '21*

Expressing railway grading costs by trend curves. L. A. von Rosenberg. *map Ry Age 71:623-5 O 1 '21; Same cond. Eng & Contr 56:455-6 N 16 '21*

Cost of maintenance

Cost of maintenance of rails. *Eng N 85:849 O 28 '20*

Cost of operation

Comparative cost of government operation. S: M. Felton. *Ry Age 69:749-50 O 29 '20*

Cost of train stops. *Ry Age 70:1432 Je 24 '21*

How material costs affect railway income; material versus personnel expenses considered upon the basis of the equated locomotive day. H. Emerson. *Ry R 68:851-4 Je 4 '21*

Possible economies in railroad management. W. J. Lauck. *Ind Management 62:7-9 Jl '21*

Railway operating costs and railway rates. S: M. Felton. *Ry Age 71:677-8 O 8 '21*

Relation of punitive overtime to freight train operation. G. D. Brooke. *diag Ry Age 68:1104 Ap 2 '20*

Costs

St Paul electrification results. R. Beeuwkes. *diags Elec Ry J 56:227-30 Jl 31 '20; Same. Ry Age 69:235-8 Ag 6 '20; Same. Am Inst E E J 39:813-18 S '20; Same. Gen Elec R 23:724-30 S '20; Same cond. J Elec 45:117-18+ Ag 1 '20*

Crossings

Concrete slabs under crossing frogs. *diag plan Eng & Contr 53:469 Ap 21 '20*

Constructing steam railroad track crossings by means of welding. *il Sci Am 124:309 Ap 16 '21*

Construction and maintenance of railroad crossings. *diag Ry R 69:437-8 O 1 '21*

Cost analysis of replacing three crossing diamonds. *Eng & Contr 53:64-5 Ja 21 '20*

Non-interlocking, no-stop railroad crossing; a proposed signal layout to control train movements automatically at intersection points. L. B. Porter. *diags Ry Age 70:1165-8 My 20 '21; Discussion. C. A. Christoferson. 71:523-4 S 17 '21*

Recent improvements on the Eymon crossing. *plan Ry Age 69:667 O 15 '20; Eng & Contr 54:491 N 17 '20*

Welded railway crossings withstand vibration. *il Pop Mech 35:410 Mr '21*

See also Grade crossings; Street railroads—Crossings

Curves and turnouts

Computations for track turnouts. J. B. Babcock. *Eng N 84:640 Mr 25 '20*

Curve traverse chart for lining track. J. G. Wetherell. *chart Eng N 86:719 Ap 28 '21*

Gages and flangeways for curved crossing. *diags Ry R 68:439-40 Mr 19 '21*

Method of laying out split-switch turnout. *diag Eng N 84:102-3 Ja 8 '20*

Method of locating split-switch turnouts. L. E. Ratcliff. *Eng N 84:341 F 12 '20*

New transition curve based upon the lemniscate. J. E. Williams. *diags Eng N 85:406-7 Ag 26 '20*

Present practice favors use of easement curves. *Ry Age 70:933-6 Ap 15 '21; Excerpts. Eng & Contr 55:496 My 18 '21*

Railroad curves and earthwork. 6th ed, rev. C. F. Allen. 219p McGraw-Hill '20

Simplified curve and switch work. W. F. Rench. 2d ed. 206p Railway educational press, Chicago '21

Solutions of compound curve problems. L. R. Brown. *diags Elec Ry J 55:160-1 Ja 17 '20; Same. Eng N 84:378-9 F 19 '20*

True transition curve for railway problems. G: Paaswell. *diags Eng N 85:407-9 Ag 26 '20*

Vertical curves for coal piers and hump yards. *Eng N 85:208-9 Jl 29 '20*

Damages from floods, etc.

Railroad losses in Colorado exceed five millions. *il Ry Age 70:1399-1401 Je 17 '21*

Railroads suffer heavy losses in Colorado floods. J. B. Day. *il Ry Age 70:1341-2 Je 10 '21*

Depots

See Railroads—Stations

Earthwork

Bank protection and restoration: a problem in sedimentation. W. C. Curd. *il Eng & Contr 54:459-61 N 10 '20; Same. Ry R 67:923-6 D 18 '20; Same cond. Ry Age 69:829-31 N 12 '20*

Density tests of earth shrinkage in railway fills. *Eng N 85:782-3 O 21 '20; Discussion. C: Prelini. 85:1007 N 18 '20*

Embankment across channel made in novel manner. *il Pop Mech 36:688-9 N '21*

Experiments give data on embankment shrinkage. *il Ry Age 68:1573-7 Je 4 '20; Abstract. Eng & Contr 53:682-3 Je 16 '20*

Method of preventing slides in clay soil in railway cut. *Eng & Contr 55:393 Ap 20 '21*

Method of remedying railway slip in clay cut. *diag Eng & Contr 55:321 Mr 30 '21*

Methods of investigating subsidence under railway fills. *diags Eng N 86:437-8 Mr 10 '21*

Question of earthwork shrinkage in valuation. *Ry R 66:89-90 Ja 17 '20; Same abr. Eng & Contr 53:190 F 18 '20*

Shrinkage and swell of materials in railway fills. *Eng N 85:418-19 Ag 26 '20*

Shrinkage in railway fills. H. S. Marshall. *Eng & Contr 54:591 D 15 '20*

Shrinkage of earthwork. W. A. Shaw; C: Prelini. *Eng N 85:474-5 S 2 '20*

Shrinkage of embankments. *Eng & Contr 53:562 My 19 '20*

Subsidence of earth fills as a factor in valuation. *diags Eng N 86:434-6 Mr 10 '21*

Test of a Jordan ditch, C.R.I. & P. Ry. *il Ry R 67:481-2 S 25 '20; Same. Eng & Contr 54:405 O 20 '20*

See also Culverts; Earthwork; Railroads—Grades; Trestles—Filling

Electric equipment

Automatic substation for alternating-current railway signal power supply. H. M. Jacobs. *il diags Gen Elec R 23:902-8, 949-53 N-D '20*

Electrical developments in railroad service. J. E. Gardner. *Ry R 68:525-30 Ap 2 '21*

Electricity a help in intensive development. *il Ry Age 68:51-4 Ja 2 '20*

Institution of electrical engineers; inaugural address. R. T. Smith. *Inst E E J 58:1-15 D '19; Excerpts. Engineer 128:510-11, 533-4 N 21-28 '19*

See also Car lighting; Railroads—Signals; Railroads—Telegraph

Electrification

All-metal electric multiple unit cars. R. E. Thayer. *il diags plans Ry Mech Eng 94:81-93 F '20; Same. Ry Age 68:549-54 F 20 '20*

All of Swiss federal railways to be electrified. *map Ry Age 69:115-16 Jl 16 '20*

A.c.-d.c. multiple-unit maintenance on the New Haven. *il diags map plan Elec Ry J 55:1147-55 Je 5 '20*

Railroads—Electrification—Continued

- L'aménagement hydraulique du bassin de la Dordogne et l'électrification du réseau de la Compagnie du chemin de fer d'Orléans. G. Tochon. map Génie Civil 77:170-2, 190-3 Ag 28-S 4 '20
- A. R. E. A. committee on electricity gives results of study of C., M. & St P. electrification. Elec Ry J 55:695-8 Ap 3 '20
- Application of electric traction on trunk lines. P. Dawson. Elec Ry J 56:1151-3 D 4 '20
- Application of the electric locomotive to main-line traction on railways. H. E. O'Brien. diags Inst E E J 58:858-69 S '20; Abstract. Electrician 86:102-3 Ja 21 '21; Abstract. Elec R (Lond) 88:395-6 Mr 25 '21; Discussion. Inst E E J 59:339-42 Mr '21; Elec R (Lond) 88:397-8 Mr 25 '21
- Australian electric railway power plant. il diag map plan Power Pl Eng 24:595-9 Je 15 '20
- Austria plans extensive electrification. map Ry Age 71:450-1 S 3 '21
- Auxiliary and lighting control equipment of the Chicago, Milwaukee & St Paul locomotives. J. A. Clarke, jr. il diags Elec J 17:244-8 Je '20
- Baby electric railroad is a buster; Northeastern Oklahoma railroad company. il map Elec Ry J 57:842-5 My 7 '21
- Bonding and bond testing on electrified steam roads. J. W. Logan, jr. Elec Ry J 55:1191-2 Je 12 '20
- Branch of St Paul R. R. electrified. il diags plans Elec Ry J 57:637-9 Ap 2 '21
- British railway electrification situation. Elec Ry J 57:773 Ap 23 '21
- C. M. & St Paul electrification. R. Beeuwkes. Elec Ry J 55:1103-4 My 29 '20; Same, with map. Ry Age 68:1923-5 Je 18 '20; Excerpt (table). Eng & Contr 54:173 Ag 18 '20
- Chicago, Milwaukee & St Paul railway completes electrification of Pacific coast division. W. A. Scott. il Elec R 76:496-8 Mr 20 '20
- Chicago, Milwaukee & St Paul railway electrification. il Eng N 85:1068-71 D 2 '20
- Commercial aspects of railway electrification. E. B. Criddle, W. L. Frost and G. B. Kirker. J Elec 44:386-7 Ap 15 '20
- Comparaison entre les divers systèmes de traction électrique susceptibles d'être utilisés sur les grands réseaux français. Génie Civil 78:350-3 Ap 23 '21
- La concession des chutes de la Haute-Dordogne à la Compagnie du chemin de fer d'Orléans. G. Tochon. Génie Civil 79:29-32 Jl 9 '21
- Cost of electric traction. Electrician 85:614-15 N 26 '20
- Demand for increased track capacity will bring electrification. F. J. Sprague. Ry R 67:651-3 O 30 '20; Same cond. Elec Ry J 56:923-4 O 30 '20; Excerpt. Am Inst E E J 39:1044 D '20; Abstract. Mech Eng 42:680 D '20
- Design, maintenance and operation of electric rolling stock. Elec Ry J 55:1200-4 Je 12 '20
- Direct current for England. Elec Ry J 58:826-7 N 5 '21
- Direct current transmission for electrification. A. Raworth. diag Ry Age 68:179-80 Ja 9 '20
- Direct or alternating current for railroad electrification; abstract. Elec W 76:936-7 N 6 '20
- Economic aspects of railway electrification. A. H. Armstrong. J Fr Inst 191:493-502 Ap '21; Same. Gen Elec R 24:405-13 My '21; Same. Elec R 78:723-7 My 7 '21; Abstract. Elec Ry J 57:453-4 Mr 5 '21
- Electric operation on Coast divisions, C., M. & St P. R. R. il Ry R 66:547-8 Ap 3 '20
- Electric operation on the B., A. & P.; with cost tables. F. W. Bellinger. Elec Ry J 55:1101-2 My 29 '20
- Electric operations—Butte, Anaconda & Pacific. F. W. Bellinger. il Ry Age 68:1657-8 Je 11 '20
- Electric power supply for the Puget Sound lines of the Chicago, Milwaukee & St Paul railroad. A. W. Copley. il diags maps Elec J 17:3-9 Ja '20
- Electric railroad over the Rockies. B. S. Beach. il map Sci Am 122:362 Ap 3 '20
- Electric railway notes from Italy. F. C. Cusani. Elec Ry J 55:709-10 Ap 3 '20
- Electric railway traction. A. G. Everett. Inst E E J 57:sup312-16 '19
- Electric traction; abstracts. P. Dawson. Electrician 86:278-9 Mr 4 '21; Elec R (Lond) 88:294 Mr 4 '21
- Electric traction in Austria. diags map Electrician 87:235-9 Ag 19 '21
- Electric traction in Europe and America. M. Parodi. Electrician 85:442-3 O 15 '20
- Electric traction in Switzerland. il diags map Electrician 87:321-6, 348-52 S 9-16 '21
- Electric traction on Swedish railways. Engineer 129:265-6 Mr 12 '20
- Electrical enterprise in Spain. P. F. Martin. Elec R (Lond) 89:579-80 O 28 '21
- Electrical equipment and control of the Chicago, Milwaukee & St Paul locomotives. P. L. Mardis. il diags Elec J 17:235-44 Je '20
- Electrical operation of mountain railways in Switzerland; abstract. Gioelet. Elec R 79:203-4 Ag 6 '21
- Electricity a help in intensive development. il Ry Age 68:51-4 Ja 2 '20
- L'électrification des chemins de fer anglais. Génie Civil 78:88-9 Ja 22 '21
- L'électrification des chemins de fer aux États-Unis. M. Mauduit. il diags Génie Civil 76:141-7 F 7 '20
- L'électrification des chemins de fer aux États-Unis et la protection des lignes télégraphiques et téléphoniques. M. Pomey. Génie Civil 76:182-6 F 14 '20
- L'électrification générale des chemins de fer et de l'industrie de la Yougo-Slavie. Génie Civil 78:553-4 Je 25 '21
- Electrification in Brazil. R. C. Brown. Sci Am 123:153+ Ag 14 '20
- Electrification in central Europe. E. C. Zehme. Elec Ry J 57:438-40 Mr 5 '21
- Electrification in Montreal. il Elec Ry J 56:496-7 S 11 '20
- Electrification of British railways. Engineering 111:261-2 Mr 4 '21
- Electrification of British railways. A. H. Bridge. Elec R 77:685-6 O 20 '20
- Electrification of Indian railways. diags Engineer 130:530-1, 550-1 N 26-D 3 '20
- Electrification of main line railways in relation to traffic working; with discussion. P. Nash. Electrician 86:273-5 Mr 4 '21
- Electrification of Melbourne suburban railways. il diags map plans Engineer 129:40, 44-7, 66, 70-2 Ja 9-16 '20; Engineering 109:6-10, 16, 40-6 Ja 2-9 '20; Ry Age 68:403-12 F 6 '20; Elec Ry J 54:902-6; 55:136-42 N 15 '19, Ja 17 '20; Electrician 84:32-4, 55-9, 90-1 Ja 9-23 '20
- Electrification of Quebec railroads urged. H. E. Weyman. Elec Ry J 57:444 Mr 5 '21
- Electrification of railways. Elec R (Lond) 89:371-2 S 16 '21; Same abr. Electrician 87:270 Ag 26 '21
- Electrification of railways. G. Gibbs. Engineer 132:122-3 Jl 29 '21
- Electrification of railways. H. F. Trewman. 78p Pitman '20
- Electrification of railways in Great Britain; abstracts. Elec Ry J 56:968-9 N 6 '20; Electrician 85:412-13 O 8 '20; Am Inst E E J 39:983-4 N '20; Ry Age 69:808 N 5 '20
- Electrification of St Gotthard line, Switzerland. H. W. Schuler. il map Ry Age 70:1107-12 My 13 '21
- Electrification of South African railways. Ry Age 70:886 Ap 8 '21
- Electrification of steam railroads; a brief survey of operating results on the Norfolk & Western and the C. M. & St P. il diag map Ry Age 70:101-6 Ja 7 '21
- Electrification of steam railroads in 1919. E. B. Katte. Ry R 65:837-8 D 6 '19
- Electrification of Swiss railways profitable. il Can Eng 39:216 Ag 5 '20
- Electrification of the Austrian state railways. A. Halstead. Ry R 66:1098-9 Je 26 '20; Abstract. Elec W 75:1413 Je 19 '20
- Electrification of the Belgian state railways. Elec R (Lond) 88:149 F 4 '21

Railroads—Electrification—*Continued*

- Electrification of the Central Limones, Cuba. O. Wortman. il diags map Elec J 17:477-80 O '20
- Electrification of the Coast and Cascade divisions of the C., M. & St P. Ry. E. S. Johnson. il diags Gen Elec R 23:263-71 Ap '20
- Electrification of the French railways; a comparison between the different systems. Electrician 87:12-13 J1 1 '21
- Electrification of the Hershey Cuban railway. F. W. Peters. il diags map plans Gen Elec R 23:307-12 Ap '20; Same. Ry R 66:593-5 Ap 10 '20; Same cond. Sci Am M 1:540-2 Je '20; Abstract. Elec Ry J 55:757-8 Ap 10 '20
- Electrification of the Italian railways. Engineer 131:400 Ap 15 '21
- Electrification of the Paulista railway, Brazil. diag Ry R 66:755-6 My 8 '20
- Electrification of the Paulista railway, Brazil, South America. W. D. Bearce. il map Gen Elec R 24:620-7 J1 '21; Same. Elec Ry J 57:1079-84 Je 11 '21; Same cond. Ry Age 71:80-3 J1 9 '21; Same cond. Ry R 69:1-5 J1 2 '21
- Electrification of the Prussian railways in Silesia. diags map Elec Ry J 56:499-502 S 11 '20
- Electrification of the South African railways. R. E. Thayer. diags map Ry Age 67:1051-5 N 28 '19
- Electrification of the steel plant railroad. R. B. Gerhardt. Blast F & Steel Pl 9:613-17 O '21
- Electrification of the Swiss federal railways. L. Thormann; Wyssling. Engineer 132:335, 376-7, 389-90 S 30-O 14 '21
- Electrification of the Swiss railways. Engineer 131:563-4 My 27 '21
- Electrification of the Turin-Cirie-Lanzo railway. Elec W 75:798 Ap 3 '20
- Electrification progress on Italian railways. G. B. Santi. il maps Ry Age 71:439-42 S 3 '21
- Electrification reviewed from the standpoint of service. C. C. Whittaker. il Ry R 68:483-7 Mr 26 '21; Abstract. Ry Age 70:838 Ap 1 '21
- Electrification schemes for Holland. R. V. Laming. Engineer 130:186 Ag 20 '20
- Electrification situation summarized. G. Gibbs. Elec Ry J 56:970 N 6 '20
- Electrification solves the congested traffic problem in Philadelphia. W. T. Whalen. il Ry R 66:85-6 Ja 17 '20
- Electrification status on a number of steam railroad properties. C. C. Whittaker. Elec Ry J 57:734 Ap 16 '21
- Electrification work in Switzerland. Engineer 129:69, 581 Ja 16, Je 4 '20
- L'état actuel de la traction électrique sur les grands réseaux de chemins de fer, en Europe et en Amérique. M. Parodi. Génie Civil 76:528-31 Je 12 '20
- Exploitation électrique des chemins de fer suburbains de Melbourne (Australie). il Génie Civil 77:85-8 J1 31 '20
- Extension of the Valtellina railway from Lecco to Milan. G. Huldshiner. diags Electrician 87:173-5 Ag 5 '21; Elec Ry J 58:816-17 N 5 '21
- \$4,000,000 electrification plan on 80 miles of Grand Trunk railway. Elec Ry J 57:459-60 Mr 5 '21
- Fourteen points for electrification. A. H. Armstrong. Ry Mech Eng 94:759-61; Discussion. 762-4 D '20
- France undertakes huge electrification program. O. F. Allen. il map Ry Age 71:155-8 J1 23 '21
- French railway to electrify its Alpine lines. Eng & Contr 55:582 Je 15 '21
- Handling suburban traffic at congested centers. C. F. Harding. il map Elec Ry J 56:662-74 O 2 '20
- Heavy traction locomotives. W. B. Potter. Am Inst E E J 39:313-15 Mr '20
- Increased railroad rates as an accelerator of electrification. C. Townley. Elec J 17:433-4 O '20
- Increased track capacity greatest boon conferred by electrification. R. Beeuwkes. Elec Ry J 56:930-2 O 30 '20; Same. Ry R 67:700-1 N 6 '20
- Institution of electrical engineers; inaugural address. R. T. Smith. Inst E E J 58:1-15 D '19; Excerpts. Engineer 128:510-11, 533-4 N 21-28 '19
- Last stand of the reciprocating steam engine. A. H. Armstrong. il diags map Am Inst E E J 39:209-18 Mr '20; Same. Gen Elec R 23:249-62 Ap '20; Same. Sci Am M 1:451-7 My '20; Same. Elec Ry J 55:373-9 F 21 '20; Same cond. Elec R 76:395-9 Mr 6 '20; Ry Age 68:521-7 F 20 '20; Ry R 66:463-8 Mr 20 '20; Excerpt. Eng & Contr 53:306-7 Mr 17 '20; Abstract. Mech Eng 42:242-3 Ap '20
- Locomotives, steam vs. electric; debate on relative merits of types of motive power. Ry R 67:651-65, 692-704 O 30-N 6 '20; Mech Eng 42:680-8+ D '20
- Melbourne suburban electrification, Australia. W. D. Bearce. il map Gen Elec R 23:662-8 Ag '20
- Milwaukee electrification. F. H. Shepard. Elec Ry J 55:1211-12 Je 12 '20
- Multiple-unit train operation. S. B. Schenck. il diag Elec J 17:457-60 O '20
- N.E.L.A. discusses heavy traction at 43d convention, Pasadena. Elec Ry J 55:1038-42 My 22 '20
- Need of steam railway electrification. N. W. Storer. Ry R 65:975-7 D 27 '19
- New equipment for the Philadelphia electrification. W. H. Smith. il diags Elec Ry J 55:1207-11 Je 12 '20
- New power supply for the St Paul. il map Elec Ry J 55:481-2 Mr 6 '20
- Operating results on the electrified Riksgränsen road. E. Wist. Elec W 78:935-6 N 5 '21
- Power indicating and limiting apparatus for the Chicago, Milwaukee & St Paul railroad. B. H. Smith. il diags Elec J 17:42-6 F '20
- Power-limiting and indicating system of the C., M. & St P. Ry. J. J. Linebaugh. il diags Gen Elec R 23:292-306 Ap '20; Excerpts. Elec Ry J 55:759-61 Ap 10 '20; Excerpt. Ry Age 68:1146 Ap 9 '20
- Problems of electrification; struggle toward a standard. R. G. Skerrett. il Sci Am 123:444+ O 30 '20
- Progress of electrification in Brazil. il Ry R 68:708-9 My 7 '21
- Progress of electrification in Switzerland. Ry R 66:759 My 8 '20
- Progress report on the superpower survey. Ry Age 70:727-8 Mr 18 '21; Same. Elec W 77:539-40 Mr 5 '21; Same abr. Chem & Met Eng 24:445-6 Mr 9 '21; Same abr. Power 53:395-6 Mr 8 '21; Same abr. Elec R (Lond) 58:405-6 Ap 1 '21; Excerpts. N E L A Bul 8:189-90 Ap '21; Excerpt. Eng & Contr 55:396 Ap 20 '21
- Railroad electrification at high voltage. F. H. Shepard. il Ry Age 70:1441-4 Je 24 '21
- Railroad electrification for the superpower zone. J Elec 46:336-7 Ap 1 '21
- Railroad electrification in the Rocky mountains. Sci Am 124:22 Ja 8 '21
- Railroad electrification in the West. il J Elec 44:301-2 Ap 1 '20
- Railway electrification in Europe. J. V. Dobson and F. E. Wynne. il Elec Ry J 57:1068-74 Je 11 '21
- Railway electrification in South Africa. Ry R 66:943-4 Je 5 '20
- Railway electrification in the super-power zone. W. B. Potter. map Gen Elec R 23:246-8 Ap '20; Same. Ry R 66:763-5 My 8 '20
- Railway electrification plans for South Africa. C. H. Merz and W. McLellan. Eng N 84:227-8 Ja 29 '20
- Rational electrification of steam railroads. G. R. Henderson. Ry Age 70:1037-8 Ap 29 '21
- Recommends electrification commission. F. J. Sprague. Elec Ry J 57:1084 Je 11 '21
- Regulation and inductive effects in single-phase railway circuits. A. W. Copley. diags Elec J 17:326-38 Ag '20
- Relative merits of steam and electric traction. Ry Mech Eng 94:757-64 D '20
- Report of A.E.R.A. on heavy electric traction; with discussion. Ry Age 71:685-7 O 8 '21
- Report of the A.R.E.A. committee on electricity. Elec Ry J 57:631-3 Ap 2 '21

Railroads—Electrification—Continued

- Result of twelve year's heavy haulage on the single-phase electrification of the Grand Trunk railway system. R. L. Hermann. Elec J 17:480-2 O '20
- Review of operating data on B. & O. R. R. electrification. J. H. Davis. il chart map Gen Elec R 24:877-84 O '21
- Russia's electrification. Elec R (Lond) 89:239-40 Ag 19 '21
- St Paul electric service out of Seattle begins. Elec Ry J 55:601-2 Mr 20 '20
- St Paul electrification results. R. Beeuwkes. diags Elec Ry J 56:227-30 Jl 31 '20; Same. Ry Age 69:235-8 Ag 6 '20; Same. Am Inst E E J 39:813-18 S '20; Same. Gen Elec R 23:724-30 S '20; Same cond. J Elec 45:117-18+ Ag 1 '20
- Should railroads buy power for electric traction? Ry Age 68:1515-16 My 28 '20
- Significance of electrification. E. G. Buckland. il Elec Ry J 55:1187-90 Je 12 '20
- Single-phase in thirteen years successful operation on the Erie. Q. W. Hershey. il map Elec J 17:460-3 O '20; Same. Ry R 67:540-2 O 9 '20
- Standards for railroad electrification. Ry Age 71:583-4 S 24 '21
- Status of foreign railroad electrification. E. C. Zehme. Elec W 77:527-9 Mr 5 '21
- Status of heavy traction abroad. Elec Ry J 57:31-6 Ja 1 '21
- Steam railroad electrification. Elec W 75:1247 My 29 '20
- Steam railway electrification in foreign countries. Ry R 66:553-4 Ap 3 '20
- Summary of French mission's report on railway electrification; abstracts. A. Mauduit. Gen Elec R 23:239-45 Ap '20; Ry R 66:679-81 Ap 24 '20
- Superpower survey shows advantages of system including electrification; report of W. S. Murray and others for Geological survey. maps Elec Ry J 58:818-23 N 5 '21; Ry Age 71:881-5 N 5 '21; Ry Mech Eng 95:739-43 D '21
- Swedish state railway electrification. G. Brochuer. Elec Ry J 55:895 My 1 '20
- Swiss railway electrification. H. W. Schuler. Eng & Contr 56:147 Ag 17 '21
- 3000 volt current collectors for the Chicago, Milwaukee & St Paul locomotives. W. Schaake. il diags plan Elec J 17:278-80 Jl '20
- Les usines d'Amsteg et de Ritom pour l'électrification de la ligne du Gothard. Génie Civil 77:379 N 6 '20
- Westinghouse to electrify big Chilean railway. il Elec R 79:559-60 O 8 '21; Ry R 69:607 N 5 '21
- World's survey shows extensive electrification plans. Elec Ry J 58:351-2 S 3 '21
- See also Electric locomotives; Electric railroads; Third rails

Safety measures

- Electrical hazards and safeguards on the New York Central. H. S. Balliet. Ry R 69:109-11 Jl 23 '21; Excerpts. Safety Eng 41:272-4 Je '21

Employees

- Annual report of the Division of labor. W. S. Carter. Ry Age 68:365-7 Ja 30 '20; Ry R 66:171-3 Ja 31 '20
- Annual report of Women's service section of the Division of labor. Ry Age 68:351-7 Ja 30 '20; Ry R 66:173-4 Ja 31 '20
- Apprenticeship system of the Southern Pacific railway. F. A. Stanley. il Am Mach 55:12-15 Jl 7 '21
- Associated industries of Massachusetts opposed to closed shop railroads. O. L. Stone. Am Ind 21:9-10 O '20
- Benefits derived from apprentice training. J. H. Linn. Ry Age 70:714 Mr 18 '21
- Britain's plans for solution of labor problems. Ry Age 71:341-2 Ag 20 '21
- Butler county R. R. labor case. Ry R 69:480-3 O 8 '21
- The carman. Ry R 68:582-3 Ap 9 '21
- Centralized system for the feeding of laborers. Ry Age 69:846 N 12 '20

- Classification of subordinate officials. Ry Age 69:607 O 8 '20
- College men in railway work. F. H. Dixon. Ry Age 69:7-8 Jl 2 '20; Same. Eng & Contr 54:66-7 Jl 21 '20
- Conference with employes on labor questions. W. W. Atterbury. Ry R 68:5-6 Ja 1 '21
- Decision of the Labor board on certain rules and working conditions for shop crafts. Ry R 69:275-7 Ag 27 '21
- Decisions Railway board of adjustment no. 1: January 1919-March 1920. 4 pts 487p, 293p, 423p, 422p '19-'20 U.S. Railroad administration, Washington, D.C.
- Descriptions of occupations; railroad transportation. p 92-115 '18 U.S. Bureau of labor statistics, Washington, D.C.
- Developments in the shop labor situation. Ry Mech Eng 94:17-18 Ja '20
- Do the railroads want college men? Ry Age 70:1384; 71:153-4, 703-4, 866 Je 17, Jl 23, O 15, N 5 '21
- Educating the carman. Ry R 68:177-8 Ja 29 '21
- Educating the practical railroad man. D. C. Buell. Ry R 68:603-5 Ap 16 '21
- Education on the Great Western railway. Eng. & Ind Management 5:230-1 F 24 '21
- Employees buying railroad stock. Ry R 67:667 O 36 '20
- Employees win several cases before Labor board. Ry Age 70:1437-8 Je 24 '21
- Employees win verdict in Erie controversy. Ry Age 70:547-51 Mr 11 '21; Same. Ry R 68:391-4 Mr 12 '21
- Engineers professional men in new railway classification. Eng N 87:209 Ag 4 '21
- Executives outline future labor policy; abstracts. Ry Age 70:451-4 F 25 '21; Ry R 68:313-17 F 26 '21
- Federal employers' liability act. C. F. Bray. Ry R 66:681-2 Ap 24 '20
- Federal intervention in railroad disputes. L. Magnusson and M. A. Gadsby. Monthly Labor R 11:26-43 Jl '20
- Foreman. G. M. Basford. diags plans Ry R 68:319-25 F 26 '21; Same abr. Ry Age 70:459-62 F 25 '21; Same. Ry Mech Eng 95:151-4 Mr '21; Discussion. Ry R 68:326 F 26 '21
- Functions of a railway employment service. J. C. Clark. Ry Age 70:329-31 F 4 '21; Excerpt. Eng & Contr 55:596 Je 15 '21
- Fundamental issues in labor controversy made plain. Ry Age 70:443-5 F 25 '21
- Great increases in number and wages of employees. Ry Age 70:468-9 F 25 '21
- Housing and feeding maintenance of way employees on the N. C. & St L. Ry. H. McDonald. il diags Ry R 67:843-6 D 4 '20; Excerpt. Eng & Contr 54:584-5 D 15 '20
- How one railway personnel department operated. C. C. Cook. Ry Age 69:325-6 Ag 20 '20
- How sincerely do railroads want college men? F. E. Hanson. Ry Age 71:121-2 Jl 16 '21
- Human element and management problems. Ry Age 71:325-7 Ag 20 '21
- Importance of the human element in railroading; consideration of personnel departments and morale. W. S. Wollner. Ry Age 69:691-4 O 22 '20
- Increasing the efficiency of employees. P. H. Pearson. Ry Age 71:587 S 24 '21
- I.C.C. will not measure efficiency of railroad labor. Ry Age 71:291-3 Ag 13 '21; Excerpt. Eng & Contr 56:288-9 S 21 '21
- Is the college graduate properly equipped for railroad work? S. Ennes. Ry Age 71:323-4 Ag 20 '21; Discussion. 71:480, 523 S 10-17 '21
- Is the railway employee overpaid and underworked? C. W. Baker. Eng N 84:385-6 F 19 '20; Discussion. 84:539-40 Mr 11 '20
- Joint reviewing committee of the Pennsylvania railroad system. Monthly Labor R 12:606-9 Mr '21
- Labor board acts in Pennsylvania case. Ry R 69:412-17 S 24 '21
- Labor board orders new election on Pennsylvania. Ry Age 71:257-8 Ag 6 '21
- Labor board rules against carriers on open shop policy. Ry R 68:982-3 Je 25 '21
- Labor board rules out shop organization plan of Pennsylvania. Ry R 69:177-80 Ag 6 '21

Railroads—Employees—*Continued*

- Labor board settles overtime controversy. Ry Mech Eng 95:559-61 S '21; Same abr. Ry Age 71:419-21 Ag 27 '21
- Labor conditions on French railways and tramways. Monthly Labor R 10:893-7 Ap '20
- Labor faces economic readjustments in 1921. Ry Age 70:77-80 Ja 7 '21
- Labor organizations again spread strike threats. Ry Age 71:443-4 S 3 '21
- Labor turnover—not a disease but a symptom. J. C. Clark. Ry Age 69:1157-9 D 31 '20
- Lehigh Valley plan for selling stock to employees. A. F. Bayfield. Ry Age 69:883-4 N 19 '20
- Living conditions of trainmen who lie over at railway terminals. Ry Age 69:1160 D 31 '20
- Making work a game. L. K. Sillcox. Ry R 67:977-8 D 25 '20
- Management problems and the human element. il Ry Age 70:1309-12 Je 10 '21
- Methods for increasing efficiency of maintenance of way employees. Eng & Contr 55:591 Je 15 '21
- Methods of stimulating friendly rivalry among track forces. G. Koontz. Ry R 69:510-11 O 15 '21
- Need for increased number of railway mechanics—the source of supply. Ry R 68:978-80 Je 25 '21
- New classification of railway employees ordered by Railroad labor board. Ry Age 70:1459-61 Je 24 '21
- New decision extends shop agreement and cuts off overtime pay. R. M. Barton. Ry R 69:24 Jl 2 '21
- New labor policy outlined. E. Lee. Ry Age 71:493-4 S 10 '21; Same abr. Comm & Fin Chr 113:1008 S 3 '21
- Number of railroad employees reduced 400,000 in a year. Ry Age 70:1382-3 Je 17 '21
- Orleans railway company's system of engineering apprenticeship. Marchand. Eng & Ind Management 5:692-4 Je 16 '21
- Over 600,000 employees laid off between August, 1920 and March, 1921. Ry Age 71:114 Jl 16 '21
- Paris-Orleans apprentice work organized. M. Lacoïn and M. Chassagne. il Ry Mech Eng 95:313-16 My '21; Same cond. Génie Civil 77:537-8 D 25 '20; Same cond. Elec Ry J 57:686 Ap 9 '21
- Pennsylvania and its employees. Ry Age 71:14 Jl 2 '21
- Pennsylvania challenges authority of Labor board. Ry Age 71:399-400 Ag 27 '21
- Pennsylvania plan. W. W. Atterbury. Ind Management 61:147-9 F 1 '21
- Pennsylvania railroad denies it has defied Labor board and states its position in shopmen's case. Comm & Fin Chr 113:1731 O 22 '21
- Pennsylvania railroad's dispute with Shop crafts union. Comm & Fin Chr 113:693-5 Ag 13 '21
- Pennsylvania's new agreement with trainmen. Ry Age 70:106 Ja 7 '21; Same. Ry R 68:59 Ja 8 '21
- Personnel department for the railways. J. C. Clark. Ry Age 68:1921-2 Je 18 '20
- Piece-work, bonus systems and higher efficiency. C. C. Cook. Ry Age 70:1263-4 Je 3 '21
- Piece work dispute again before Labor board. Ry Age 71:297-8, 351-4 Ag 13-20 '21
- Position of the car foreman. Ry R 68:615-16 Ap 16 '21
- Present methods of obtaining railway labor. Eng & Contr 55:169-70 F 16 '21
- President declines railway employees' requests. Ry Age 70:363-7 F 11 '21
- Production efficiency of facilities and employees. Ry Age 70:1152-3 My 20 '21
- Railroad labor and the freight rate problems. C. A. Prouty. Ry Age 68:499-500 F 13 '20
- Railroad labor crisis to-day. J. A. Emery. Am Ind 21:7-9 O '20
- Railroad labor organizes cooperative commission. Ry Age 68:255-6 Ja 16 '20
- Railroad labor situation. W. W. Atterbury. Ry R 67:892-8 D 11 '20; Excerpts. Ry Age 69:965-7 D 3 '20
- Railroad shop's apprentice school. J. V. Hunter. il Am Mach 54:97-8 Ja 20 '21
- Railroad strike call—text of announcement. Comm & Fin Chr 113:1734 O 22 '21
- Railroad workers frame labor council plan. Comm & Fin Chr 112:1474-5 Ap 9 '21
- Railroaders' next step. W. Z. Foster. 47p
- Trade union educational league, Chicago '21
- Railroads and the labor problem. Ry Age 68:1130-1 Ap 9 '20
- Railroads continue conferences with employees. Ry Age 70:810-11 Mr 25 '21
- Railroads fail badly in training shopmen. Ry Mech Eng 94:168-72 Mr '20
- Railroads—open or closed shop? J. L. Lovett. Ry R 68:825 My 28 '21
- Railway employees as capitalists. Ry Age 69:733-4 O 29 '20
- Railway labor situation today and tomorrow. F. H. Hardin. Ry Age 68:969-70 Mr 19 '20; Same. Ry Mech Eng 94:225-6 Ap '20
- Railway unions form alliance for concurrent action. Ry Age 68:613-14 F 27 '20
- Recent strike on the French railways. F. Jaques. il Ry Age 68:1355-9 My 7 '20
- Recruiting bridge and building employees. Ry R 69:611-13 N 5 '21; Same. Eng & Contr 56:465 N 16 '21; Same cond. Ry Age 71:785-6 O 22 '21
- Rehabilitating our railroad organizations. C. F. Balch. Ry Age 69:1111-13 D 24 '20
- Santa Fe apprentice system. A. A. Klein. Ry R 66:116-18 Ja 17 '20
- Santa Fe apprentice system. F. W. Thomas. W Soc E J 25:404-10 Jl 20 '20; Same cond. Ry Age 68:1349-51 My 7 '20
- Satisfied employee. G. H. Kelsay. Elec Ry J 58:64 Jl 9 '21
- Saving the railroads for private control; securing the right kind of co-operation from the men. F. Snow. Ry Age 71:415-16 Ag 27 '21
- Some remarkable labor turn-over statistics. W. S. Wollner. Ry Age 71:582 S 24 '21
- Strikes and continued freight congestion. Ry Age 68:1397-8 My 14 '20
- Subordinate officers ask recognition. Ry Age 68:963-4, 1040-1 Mr 19-26 '20
- System of progressive shop discipline. G. Gibson. chart Ry Mech Eng 95:319-20 My '21
- Traffic apprenticeships on North Eastern railways of England. Ry R 67:763 N 20 '20
- Train service board of adjustment. Ry Age 71:682 O 8 '21
- Training and developing the railroad worker. J. C. Clark. Ry Age 70:719-21 Mr 18 '21
- Training of apprentices on the Victorian railways. Engineer 132:111 Jl 29 '21
- Training of railway staffs. Lord Ashfield. Engineer 130:435 O 29 '20
- Union viewpoint on labor questions. L. S. Kronheimer. Ry Mech Eng 95:5-6 Ja '21
- Views on Plumb plan league. Ry Age 68:1262-3 Ap 23 '20
- War and its effect on French railway labor. O. F. Allen. il diag plans Ry Age 71:401-4 Ag 27 '21
- Welfare campaign among Mexican laborers in the Southwest. F. M. Richardson. Ry Age 70:1026 Ap 29 '21
- Widening the outlook of the local car foreman. L. K. Sillcox. Ry Mech Eng 95:371-4 Je '21
- Will railway employees help reduce operating expenses? Ry Age 69:957-8 D 3 '20
- Woman labor in the Prussian-Hessian railroad service. Monthly Labor R 11:377-82 F '21
- See also* Electric railroads—Employees; Locomotive engineers; Railroad engineers; Railroad labor board; Railroads—Chief clerks; Railroads—Management; Railroads—Officials; Railroads—Wage dispute, 1921; Railroads—Wages; Railway board of adjustment; United brotherhood of maintenance of way employees and shop laborers; Young men's Christian association—Railroad department

Railroads—Employees —Continued

National agreements

- Controversy before Labor board continues. Ry Mech Eng 95:160-2 Mr '21
- Controversy between railroads and employees over National agreements and wage reductions. Comm & Fin Chr 112:526-9 F 5 '21
- Cross examination before Labor board on National agreements fails. Ry Age 70:803-7 Mr 25 '21; Same cond. Ry Mech Eng 95:219-22 Ap '21
- Employees seek to end National agreements case. Ry Age 70:411-13 F 18 '21
- Hearings before Railroad labor board on National agreements. Comm & Fin Chr 112:216-17 Ja 15 '21
- Hearings before United States Railroad labor board. Ry R 68:209-14, 495-8 F 5, Mr 26 '21
- Hearings on National agreements continue. Ry Age 70:899-904 Ap 8 '21
- Home rule for the railroads; National chamber of commerce unanimously oppose the creation of National boards of adjustment. G: A. Post. Nation's Business 9:15-16 Ja '21
- How National agreements cause huge wastes; examples cited before Labor board. Ry Age 70:243-5 Ja 21 '21
- How the National agreements rob the public. Ry Age 70:223-4 Ja 21 '21
- Labor board approves joint agreements by shop crafts to apply in all departments. Ry R 68:951-2 Je 18 '21
- Labor board opens hearings on working conditions. Ry Age 70:199-202 Ja 14 '21; Ry Mech Eng 95:92-3 F '21
- Labor board rules National agreements end July 1. Ry Age 70:987-91 Ap 22 '21; Same abr. Ry Mech Eng 95:287-9 My '21; Excerpt (Text). Ry R 68:635-8 Ap 23 '21; Same. Comm & Fin Chr 112:1580-1 Ap 16 '21
- Labor case of the Pennsylvania railroad. Ry R 69:69-80 Jl 16 '21; Ry Age 71:115-17 Jl 16 '21
- Labor's Bill of rights and the seniority rule. L. E. Gardner. Ry Age 71:168-9 Jl 23 '21
- Manufacturers call meeting to fight National adjustment boards. Ry Age 70:84 Ja 7 '21
- National agreement with shopmen. F. McManamy. Ry R 66:515-18 Mr 27 '20; Same cond. Ry Age 68:959-61 Mr 19 '20; Same cond. Ry Mech Eng 94:233-5 Ap '20
- National agreements and how they operate; from a statement issued by authority of the Association of railway executives. il Ry R 68:242-4 F 12 '21
- National agreements must be abrogated at once; with text of General Atterbury's statement to the Board. Ry Age 70:317-19 F 4 '21
- National agreements revised by the Railroad labor board, Oct. 8. Ry R 69:767-76 D 3 '21; Comm & Fin Chr 113:1731-2 O 22 '21; Ry Age 71:1087-8 D 3 '21; Ry Mech Eng 95:701-2 N '21
- National railroad labor agreement. Mach 27:739 Ap '21
- Pennsylvania railroad appeals from Labor board regarding National agreements. Comm & Fin Chr 113:893-5 Ag 27 '21
- Philadelphia Bourse protests against efforts to nationalize railroads through adjustment boards. Comm & Fin Chr 112:218 Ja 15 '21
- Railroad labor issue joined. R: Waterman. Nation's Business 9:26+ Ap '21
- Railroad stationary engineering; how National agreements work. A. D. Palmer. Power 53:667-9 Ap 26 '21; Discussion. 53:793 My 17 '21
- Rates, wages and rules for working conditions. E: A. Bradford. Annalist 18:411-12 O 31 '21
- Shop employees' wage agreement. Ry Mech Eng 93:637-42 N '19; Excerpt. Ry Age 67:1241-3 D 26 '19
- Shopmen's National agreement framed by union men. E. T. Whiter. Ry R 68:983-4 Je 25 '21

Some suggestions as to the sixteen points of decision no. 119. Ry Age 70:1018-19 Ap 29 '21

Transportation combinations and the public interest. J. A. Emery. Ry R 67:967-70 D 25 '20; Same cond. Ry Age 69:1107-9 D 24 '20

Equipment and supplies

- A.R.A., section VI, purchases and stores first annual meeting. Ry Age 68:1813-22 Je 15 '20; Ry R 66:1083-93 Je 26 '20
- Before buying equipment consult the mechanical department. Ry Age 68:1132 Ap 9 '20
- Chemistry of railroading. C: Browning, jr. Ry R 67:4-8 Jl 3 '20
- Economic administration of a supply department. H: B. Spencer. Eng & Contr 52:572-3 N 12 '19
- Equipment standardization. L. B. Stillwell. Ry Age 71:22-3 Jl 2 '21
- Funds for equipment and other facilities. Ry Age 69:31-2 Jl 2 '20
- Handling of purchases and supplies. E. J. Roth. il Ry R 66:644-8 Ap 17 '20
- Hearing on loan fund for equipment. Ry Age 68:1561-2 Je 4 '20
- Help the railways get materials. Ry Age 68:1229-30 Ap 23 '20
- Importance of rubber in modern railroad transportation. R. C. Busbey. diag India Rubber W 63:113-14 N '20
- Little things that count big; refinement of details that marks our present railroad development. H. T. Walker. Sci Am 124:126 F 12 '21
- Mechanical division A.R.A. issues committee reports. Ry R 69:231-40 Ag 20 '21
- Need for additional railroad equipment. Ry Age 68:1409-11 My 14 '20
- Operations of supply trains on Southern Pacific. Ry Age 68:1983-4 Je 25 '20
- Proposed capital expenditures for 1920. Ry Age 69:326 Ag 20 '20
- Railroads' mechanical facilities inadequate. Ry Mech Eng 94:5-10 Ja '20
- Railway equipment in South America. J. P. Risque. il diag Ry Mech Eng 94:364-8 Je '20
- Report of committee on supply train operation. Ry Age 68:1873-4 Je 16 '20; Ry R 66:1092-3 Je 26 '20
- Report on specifications and tests for materials. diags Ry Age 68:1795-1800 Je 15 '20
- Report on stores department book of rules. Ry Age 68:1818-20 Je 15 '20
- Service of supply under federal control. G: G. Yeomans. Ry R 69:559-62, 646-9 O 29, N 12 '21
- Specifications and tests for materials. Ry Age 71:355-9 Ag 20 '21; Same. Ry Mech Eng 95:565-9 S '21
- See also* Air brakes; Brakes; Car couplings; Cars; Freight cars; Locomotives; Office appliances; Railroad supplies industry; Railroad ties; Railroads—Electric equipment; Railroads—Electrification; Railroads—Fuel; Railroads—Ice supply; Railroads—Maintenance and repair; Railroads—Management; Railroads—Purchasing; Railroads—Rolling stock; Railroads—Safety devices and measures; Railroads—Scrap material; Railroads—Shops; Railroads—Signals; Railroads—Standards; Railroads—Stores systems; Railroads—Tools; Railroads—Water supply; Rails; Track scales; Turn tables

Exhibitions

See Railroad supplies industries—Exhibitions

Equipment trust

- High surtaxes kill sale of equipment trusts. E. Meyer, jr. Ry Age 71:845 O 29 '21
- New plan for financing standard equipment. Ry Age 68:306-8 Ja 23 '20
- See also* Electric railroads—Equipment trust

Express service

See Express service

Railroads—Continued

Fares

- Argument on state vs. interstate passenger fares. Ry Age 69:668 O 15 '20
 Carriers suggest rates to meet the wage increases. Ry R 67:160-1 J1 31 '20; Same. Ry Age 69:183-4 J1 30 '20
 Division of interline passenger fares; basis proposed by the R.A.O.A. passenger committee. L. C. Esschen. map Ry Age 71:671-3 O 8 '21
 I.C.C. orders increase in intrastate passenger fares. Ry Age 69:973-5 D 3 '20
 New passenger rates in United States and Europe. Ry Age 69:493-4 S 17 '20
 Passenger fares increased in Great Britain. Ry Age 69:363-4 Ag 27 '20
 Pullman fare hearing. Ry Age 70:1463-4 J6 24 '21

See also Baggage; Electric railroads—Fares; Railroads—Passes; Street railroads—Fares

Finance

- Additional loans recommended for equipment and facilities. Ry Age 69:289-90 Ag 13 '20
 Additional loans to carriers. Ry Age 69:248 Ag 6 '20
 Administration of loan fund complicated. Ry Age 69:528 S 24 '20
 Administration's railroad funding bill passed by House. Comm & Fin Chr 113:910-12 Ag 27 '21
 Aftermath of federal operation. S. Thompson. Ry R 67:317-18 Ag 28 '20
 Analysis of financial statistics of railroads. J. P. Muller. Ry R 66:53-6 Ja 10 '20
 Analysis of operating expenses, taxes and rents of United States railroads. Comm & Fin Chr 112:2146-7 My 21 '21
 Answer of the railroads to the charge of inefficiency by Lauck. J. G. Walber; E. H. Seneff. Comm & Fin Chr 112:2040-1 My 14 '21
 Answer to W. G. McAdoo on railroad funding plan. R. S. Binkerd. Comm & Fin Chr 113:914-15 Ag 27 '21
 Appropriation for Railroad administration reduced. Ry Age 68:1259-62 Ap 23 '20
 Are the carriers doing their part? D. Willard. Nation's Business 9:13-14 J1 '21
 Canada's heavy loss from government railways. J. L. Payne. Ry Age 70:883-5, 929-30 Ap 8-15 '21
 Carriers answer Lauck's charges before Railroad labor board. Ry Age 70:1113-16 My 13 '21
 Citizen's part in railway development; report of the Railway business association's Committee on adequate facilities. Ry Age 69:1067-8 D 17 '20
 Col. Colston's rail financing plan. Comm & Fin Chr 113:36 J1 2 '21
 Commission announces plans for use of \$125,000,000 for equipment. Ry Age 68:1674-6 Je 11 '20
 Commission approves loans for equipment and other improvements. Ry Age 69:100 J1 16 '20
 Comparison of 1918 and 1919 earnings with standard return; tabulation. Ry R 66:607 Ap 10 '20
 Corporate executives' views on railway problems. Ry Age 68:12-13 Ja 2 '20
 Deficiency appropriation passed. Ry R 66:693-5 Ap 24 '20
 Distribution of the railway dollar; charts. Ry R 66:56-7 Ja 10 '20
 Division of surplus earnings. Ry Age 68:221-2 Ja 16 '20
 Dual control of expenses and revenue violates business principles. S. Anderson. Ry R 69:449 O 1 '21
 Earnings of individual passenger trains; method for determining whether selected trains pay out of pocket or other costs. T. W. Mathews. chart Ry Age 70:981-3 Ap 22 '21
 Entire rate advance goes to labor, none to capital. S. Thompson. Ry R 67:291-2 Ag 21 '20
 Executives make recommendations for use of loan fund. Ry Age 68:1475 My 21 '20
 Executives urge assurance to new investors. Ry Age 68:185-91 Ja 9 '20
 Expenditures of the railways for labor and material. Ry Age 71:919-202 J1 30 '21; Same abr. Eng & Contr 56:280-1 S 21 '21
 February returns show large deficit. Ry Age 68:1203 Ap 16 '20
 Federal control of roads results in \$900,000,000 deficit; abstract of annual report of Division of finance. S. Sherley. Ry R 66:878-81 My 29 '20; Same. Coal Age 17:1150-2 Je 3 '20
 Figures of Mr McAdoo; answer to the statement that railroad deficit is due to private operation. S. O. Dunn. Nation's Business 8:23-4 D '20
 Financial conditions of English and French railways. Eng & Contr 56:293 S 21 '21
 Financial position of the English railways. W. M. Acworth. Ry Age 69:1079-80 D 17 '20
 Financial relief for carriers proposed. Ry Age 69:31-2, 57-9 J1 2-9 '20
 Financial situation of the railroads and its effect on improvement policies. T. D. Cuyler. Eng N 86:7-9 Ja 6 '21
 Funds for equipment and other facilities. Ry Age 69:31-2, 57-9 J1 2-9 '20
 Future railway expenses and rates. Ry Age 71:3-4 J1 2 '21
 Government guarantee to the railways. Ry Age 71:602-3 O 1 '21
 Government view of the railroad situation. Annalist 17:352 Mr 21 '21
 Hearing, May 29, on loan applications. Ry R 66:890-2 My 29 '20; Same abr. Ry Age 68:1536 My 28 '20
 Hearing on Burlington and Lackawanna financing. Ry Age 70:417-19 F 18 '21
 Hearing on loan fund for equipment. Ry Age 68:1561-2 Je 4 '20
 Hearing on proposed capitalization of Burlington surplus. Ry Age 69:945 N 26 '20
 How operating costs absorbed railway profits. Comm & Fin Chr 113:595-6 Ag 6 '21
 Increased rate award brings 66 per cent relief to the railways. S. Thompson. Ry R 67:238-9 Ag 14 '20
 Increased rates authorized by I.C.C. Ry Age 69:223-34 Ag 6 '20; Same abr. Ry R 67:187-97 Ag 7 '20; Same. Comm & Fin Chr 111:549-56 Ag 7 '20
 I.C.C. authorizes Lackawanna stock dividend. Ry Age 70:995-6 Ap 22 '21
 Interstate commerce commission refuses loan to Kansas City Mexico and Orient R.R.—sets forth principles. Comm & Fin Chr 111:145 J1 10 '20
 Investment and railroad intelligence. See weekly numbers of the Commercial & financial chronicle
 Is \$5,000,000 sufficient revenue for the railways in 1920? Ry R 66:175-6 Ja 31 '20
 Is the railroad problem really being solved? S. O. Dunn. Ry Age 70:275-9 Ja 28 '21
 Labor's share of railroad earnings. Ry Age 68:755-6 Mr 12 '20
 Latest earnings of the railroads; tabulation. Annalist 17:304 Mr 7 '21
 Law enough for the railroads. A. B. Cummins. il Nation's Business 9:11-12 Ap '21; Same. Ry Age 70:785-6 Mr 25 '21
 Lesson from the Missouri, Kansas & Texas. Ry Age 70:1305-6 Je 10 '21
 Loans from revolving fund. Ry Age 69:916 N 26 '20
 Maintenance allowance during guaranty period. Ry Age 69:397-404 S 3 '20
 Mr Warfield's plan; testimony before senate committee. Ry Age 70:1448-50 Je 24 '21; Comm & Fin Chr 112:2711-12 Je 25 '21
 National railway service corporation organized. Ry R 67:212-14 Ag 7 '20; Same. Ry Age 69:241-2 Ag 6 '20
 National railway service organization suggested in proposed railroad plan. S. D. Warfield. Ry R 68:498-501 Mr 26 '21; Excerpts. Ry Age 70:793-5 Mr 25 '21; Excerpts. Comm & Fin Chr 112:1243-4 Mr 26 '21
 Need for additional railroad equipment. Ry Age 68:1409-11 My 14 '20
 Net operating income of railroads. chart Ry R 66:34-5 Ja 3 '20

Railroads—Finance—Continued

- Nine months' operation shows 90 per cent operating ratio. Ry R 65:843-4 D 6 '19
- No funds to meet wage increases. S. Thompson. Ry R 67:26-7 JI 3 '20
- No real prosperity without justice to the railroads. W. Sproule. Ry R 69:509-10 O 15 '21
- Official Washington optimistic over the railroads. R. Bean. Annalist 18:171-2 Ag 22 '21
- 134 roads earned less than standard return. Ry Age 68:769-71 Mr 12 '20
- Operating revenue and how it was expended; conditions from 1912 to 1920. Ry Age 71:203-6 JI 30 '21
- Opposition to administration's railroad funding bill. W. G. McAdoo. Comm & Fin Chr 113:912-14 Ag 27 '21
- Partial payments under six months' guaranty and loans from revolving fund. Comm & Fin Chr 113:697 Ag 13 '21
- Plan for financing the railroads. S. H. Barker. Comm & Fin Chr 112:2043-4 My 14 '21
- Plan to stabilize railway operation and finances. L. F. Loree. Ry R 68:968-9 Je 25 '21
- Plans for advances of \$500,000,000 to railroads. A. W. Mellon. Comm & Fin Chr 113:149-50 JI 9 '21
- Present railway situation. S. O. Dunn. Ry Age 70:1233-4 My 27 '21; Excerpts. Ry Mech Eng 95:423-4 JI '21
- Pres. Rea's railroad program. Comm & Fin Chr 113:1645-6 O 15 '21
- Prevent restrictions on railways, urges U.S. Chamber of commerce. Ry R 68:698-9 My 7 '21
- Progress of railway liquidation. J. C. Davis. Ry R 69:141-3 JI 30 '21; Same. Comm & Fin Chr 113:488-9 JI 30 '21
- Proposed Hill line financing plan disapproved. Ry Age 70:499-504 Mr 4 '21
- Public interest in the railroad question. R. Waterman. Ry R 69:53-5+ JI 9 '21
- Rail loan in doubt; buying curtailed. Iron Tr R 66:1416-17 My 13 '20
- Railroad administration asks \$420,000,000 additional appropriation. Ry Age 68:1138-9 Ap 9 '20
- Railroad administration's improvement program. Ry Age 68:88-90 Ja 2 '20
- Railroad bill as a relief for unemployment. Ry Age 71:747-9 O 22 '21
- Railroad credit and prosperity. F. Strauss. Ry R 66:870-1 My 29 '20; Same. Ry Age 68:1520-1 My 28 '20
- Railroad earnings as affected by cost of labor, fuel, etc. Comm & Fin Chr 113:1739-42 O 22 '21
- Railroad funding bill. Ry Age 71:299-300, 335-6, 417-18 Ag 13-27 '21
- Railroad funding plan. Ry R 69:377-8 S 17 '21
- Railroad gross and net earnings; monthly statistics. Comm & Fin Chr 110:115-18, 605-8, 1023-5; 111:1515-18, 1702-3, 1893-6, 2272-5; 112:1213-15, 1562-5, 2026-8, 2470-3; 113:229-32, 676-9, 1096-9, 1624-7 Ja 10, F 14, Mr 13, O 16, 30, N 13, D 11 '20, Mr 26, Ap 16, My 14, Je 11, JI 16, Ag 13, S 10, O 15 '21
- Railroad gross and net earnings for the calendar year, 1919. Comm & Fin Chr 110:916-22 Mr 6 '20
- Railroad gross and net earnings for the calendar year, 1920. Comm & Fin Chr 112:1078-83 Mr 19 '21
- Railroad gross and net earnings for the six months ending June 30; editorial. Comm & Fin Chr 113:781-6 Ag 20 '21
- Railroad hearings before Senate committee. Ry Age 70:1125-8, 1175-80, 1219-26, 1395-7, 1445-8; 71:19-20, 70-2 My 13-27, Je 17-JI 9 '21
- Railroad labor board's announcement. Comm & Fin Chr 112:2128-30 My 21 '21
- Railroad power of rehabilitation returning. Ry Age 70:29-32 Ja 7 '21
- Railroad securities bill reported to Senate. Ry Age 71:879-80 N 5 '21
- Railroad settlement plan announced by President. Ry Age 71:193-6 JI 30 '21
- Railroad situation. W. H. Finley. Ry R 69:336-8 S 10 '21
- Railroads complete rate advance testimony. Ry Age 68:1567-72 Je 4 '20
- Railroads facing financial difficulties. il Ry Age 68:105-6 Ja 2 '20
- Railroads file application for rate advance. Ry Age 68:1337-43 My 7 '20
- Railroads handle a month's traffic without return. Ry Age 69:868 N 19 '20
- Railroads in the post-war readjustment. A. Pomerene. Ry Age 71:64 JI 9 '21
- Railroads will spend \$700,000,000 in 1920. Ry R 67:239-40 Ag 14 '20
- Railway dollar. S. Thompson. chart Ry R 68:487-8 Mr 26 '21
- Railway earnings. Published in monthly Railway earnings section of Commercial and financial chronicle
- Railway earnings in 1919. Ry Age 69:756 O 29 '20
- Railway executives make final report on loans. Ry R 67:289 Ag 21 '20
- Railway funded debt. Ry Age 70:368 F 11 '21
- Railway funded debt maturing each year from 1921 to 1949, and each ten-year period thereafter. Ry R 69:626 N 5 '21
- Railway operating expenses and income for the first six months of 1921. Ry R 69:300-1 S 3 '21
- Railway outlook encouraging for all industry. W. F. Wamsley. Annalist 18:123-4 Ag 8 '21
- Railway revenues and expenses in 1919. J. H. Parmelee. il charts Ry Age 68:93-7 Ja 2 '20
- Railway revenues and expenses in the year 1920. J. H. Parmelee. Ry Age 70:129-32 Ja 7 '21
- Railway statistics for year ending August 31, 1921. Ry Age 71:898-9 N 5 '21
- Rate advance decision. Ry Age 69:215-16 Ag 6 '20
- Real problem of the railroads. T. D. Cuyler. Ry R 69:604-7 N 5 '21
- Receiverships and foreclosure sales during 1919. Ry Age 68:99-100 Ja 2 '20
- Receiverships and foreclosure sales during 1920. Ry Age 70:133-4 Ja 7 '21
- Reconstruction of railroad credit. J. E. Oldham. Ry Age 67:1149-50 D 12 '19
- Reduction of rates vs. improved service; interesting railway income catechism. Ry Age 70:557-9 Mr 11 '21
- Refunding the railroad debt. C. T. Chenery. Annalist 18:294-5 S 26 '21
- Report on allocation of the revolving fund. Ry R 67:37-9 JI 10 '20
- Results on the Chicago, Milwaukee & St Paul. H. E. Byram. Ry Age 70:1284-5 Je 3 '21
- Revenues and expenses of railways; monthly statistics published in Railway age
- Roads that did not accept six months guaranty. Ry Age 68:1030 Mr 26 '20
- St Louis Southwestern railway 30th annual report. map Ry Age 71:395-6, 428-9 Ag 27 '21
- Security association urges necessity for regulation of earnings. Ry Age 68:299-300 Ja 23 '20
- Signs of the times in the American railroad world. E. Lee. Ry Age 71:11-12 JI 2 '21
- Six billion dollars for capital expenditures. Ry Age 68:9-11 Ja 2 '20
- Solution of railroad problems. S. H. Church. Comm & Fin Chr 113:366 JI 23 '21
- Striking diagram for railroad stockholders; statement prepared for Southern Pacific shareholders. J. Kruttschnitt. Ry Age 71:207-8 JI 30 '21
- Summary of operating revenues, expenses, and the net income compiled from the March, 1920, reports. Ry R 66:1000-2 Je 12 '20
- Testimony before the Senate Inter-state commerce committee. J. Kruttschnitt. Comm & Fin Chr 112:2044-6 My 14 '21; Excerpts. Ry R 68:750-3 My 14 '21
- Those concealed profits. J. P. Woodworth. Ry R 69:376-7 S 17 '21
- Trend of railway earnings shown in charts. H. M. Sperry. Ry Age 70:1332-4 Je 10 '21
- Two great problems before American railroads. W. W. Atterbury. Ry Age 69:563-5 O 1 '20
- U.S. Chamber of commerce discusses railroads. Ry Age 70:1039-40 Ap 29 '21

Railroads—Finance—Continued

- Use of the \$300,000,000 revolving fund. Ry Age 70:95-100 Ja 7 '21
 Views on railroad funding bill. Comm & Fin Chr 113:696-7 Ag 13 '21
 War finance corporation bill. E. H. Morton. Ry Age 71:607-8 O 1 '21
 What is the trouble with the railroads? C: F: Carter. il Sci Am 124:484+ Je 18 '21
 Where the money is going. Ry Age 69:1050-1 D 17 '20

See also Electric railroads—Finance; Railroads—Accounting; Railroads—Coal stock ownership; Railroads—Cost of construction; Railroads—Cost of operation; Railroads—Costs; Railroads—Equipment trust; Railroads—Fares; Railroads—Management; Railroads—Rates; Railroads—Securities; Railroads—Valuation; *also* names of railroads, e.g. Norfolk & Western railway; *also* National railway service corporation

Fire protection

- Fire fighting on the Duluth South Shore & Atlantic R. R. C. E. Lytle. il Ry R 66:421 Mr 13 '20
 Fire protection association meets in Chicago. Ry Age 71:837-40 O 29 '21
 Fire protection for railway timbered tunnels. H. Pollard. Eng N 87:731 N 3 '21
 Hazards incident to the location of industries on railroad rights-of-way. Ry R 67:713-15 N 6 '20
 Railway fire protection association 7th annual meeting, Baltimore. Ry Age 69:695-7 O 22 '20
 Railway fire protection equipment. C. R. Knowles. diags Ry R 65:645-8, 660 N 1 '19; Excerpt. Ry Age 67:980-1 N 14 '19

See also Railway fire protection association

Forms, blanks, etc.

- Report of committee on stationery. Ry Age 68:1863-4 Je 16 '20; Ry R 66:1087-8 Je 26 '20

Freight

- August breaks freight traffic record. Ry Age 69:843-4 N 12 '20
 Car loading decreases. Ry Age 69:931-2 N 26 '20
 Commission points to records made by railroads showing improvement in efficiency. Ry Age 69:753-6 O 29 '20
 Decline in business activity shown in loadings. Ry Age 69:885-6 N 19 '20
 Diminished traffic not result of increased rates. E: Chambers. Ry Age 70:1279-84 Je 3 '21
 Enormous increase in loss and damage of freight. Ry Age 69:731 O 29 '20
 Feeder lines for railroads. C. A. Morse. Ry R 67:888-92 D 11 '20; Same cond. Mech Eng 43:19-20 Ja '21; Excerpt. Eng & Contr 55:55-7 Ja 19 '21; Abstracts. Ry Age 69:1010-12 D 10 '20; Eng N 85:1195 D 16 '20
 Freight car loading. *See* weekly numbers of Railway age
 Freight car loading highest since last November. Ry Age 71:843-5 O 29 '21
 Freight car loadings show temporary reductions. Ry Age 69:575-7 O 1 '20
 Freight tariff book. C: F. Walden, comp. 153p Association press, New York '21
 Freight traffic red book. 428p The Traffic publishing co., New York '20
 Freight traffic statistics for first six months of 1921. Ry Age 71:638 O 1 '21
 Heavy freight traffic continues. Ry Age 69:805-6 N 5 '20
 Inspection of freight equipment. L. K. Sillcox. Ry Mech Eng 94:526-30 Ag '20
 Intensive methods of speeding up operations; New York railroad club meeting discusses program for increased car efficiency. Ry Age 69:525-7 S 24 '20
 Motor truck and the railroad. R. W. Hutchinson, jr. il Ind Management 62:131-8 S '21
 Prevention of loss and damage. A. C. Kenly. Ry Age 68:246 Ja 16 '20
 Production is limited by lack of freight cars. il Ry Age 68:27-32 Ja 2 '20

Railroads handle increased amount of freight. S: M. Felton. Ry Age 69:15-16 Jl 2 '20

- Railroads handling larger freight tonnage. Ry Age 69:367-8 Ag 27 '20
 Railroads make good. H. Elliott. Nation's Business 9:13-14 Ja '21
 Recent slump in traffic worst in history. Ry Age 70:941-3 Ap 15 '21
 Report of committee on loading rules. diags Ry Age 68:1892-6 Je 17 '20; Ry R 66:1047-8 Je 19 '20
 Report of committee on loading rules. il diags Ry Age 71:366-8 Ag 20 '21; Same. Ry Mech Eng 95:576-8 S '21
 Road transport by railways in England. Eng N 87:309 Ag 25 '21
 Rules for prompt payment of freight charges. Ry Age 68:1687-8 Je 11 '20
 Simplified system of freight accounting. J: J. Murray. il Ry R 66:562-7 Ap 3 '20
 Systematic plan for the movement of freight traffic. Ry Age 71:254-5 Ag 6 '21
 Terminal operation needs constructive study. E. H. Shaughnessy. Ry Age 70:971-2 Ap 22 '21; Same. Nat Pet N 13:43 My 18 '21
 Terminals need is real rail problem. O. W. Stiles. Iron Tr R 67:1279-80 N 4 '20
 Traffic manual. 156p American commerce assn., Chicago '20
 Why buyers and producers should ship now. Ry Age 70:9-19 Ja 7 '21

See also Bills of lading; Demurrage; Electric railroads—Freight; Freight car service; Freight cars; Freight handling; Priorities; Industrial; Railroads—Claims; Railroads—Rates; Railroads—Terminals; Railroads—Theft losses; Railroads—Tracing service; Railroads—Train load; Railroads—Yards; Refrigerator cars; Tank cars; Terminals; Track scales

Freight cars

See Freight cars

Fuel

- Central coal committee report. Ry R 66:142-3 Ja 24 '20; Same. Ry Age 68:369-70 Ja 30 '20
 Centralized purchase of railway fuel defended. E. Ludlow. Coal Age 20:264 Ag 18 '21
 Cost of railroad fuel. Ry Age 69:601 O 8 '20
 Cost of railroad fuel in 1920. Ry Age 70:980 Ap 22 '21
 Fuel accounting. Ry Mech Eng 95:546 S '21
 Fuel conservation effort should be continued. Ry Age 68:85-6 Ja 2 '20
 Fuel conservation plan of the Central of Georgia. Ry Age 71:285-7 Ag 13 '21
 Fuel supervision pays on the D. & R. G. Ry Age 68:1150 Ap 9 '20
 How the B. and O. is organized for fuel economy. il plan Ry R 69:80-3 Jl 16 '21
 International railway fuel association 13th annual convention. Ry R 68:813-16 My 28 '21
 Organization of fuel economy. L. G. Plant. il plans Ry R 68:801-9 My 28 '21; Abstract, with discussion. Ry Age 70:1272-5 Je 3 '21
 Payment for coal diverted by the railroads. Ry R 65:884-5 D 13 '19
 Preparation and distribution of fuel. P. E. Bast. Ry Age 70:1271-2 Je 3 '21; Same. Ry Mech Eng 95:682-3 N '21
 Radical or reactionary—which? E. McAuliffe. Ry R 68:823-5 My 28 '21
 Report on fuel accounting. Ry Age 70:1276-7 Je 3 '21
 Saving fuel in railroad power plants. R. S. Twogood. il Ry R 69:532-5 O 22 '21
 Value of individual fuel performance records. R. Collett. Ry Age 70:1275; Discussion. 1275-6 Je 3 '21
 What the railways paid for fuel in 1919 and 1920. Ry R 68:862-4 Je 4 '21

See also Coaling stations; Locomotives—Fuel

Gages

- Australia's railway gages. Sci Am 123:251 S 11 '20
 Railway gage problem in Australia. E: J. Norton. Eng N 85:255 Ag 5 '20
See also Railroads, Narrow gage

Railroads—Continued**Government ownership***See* Railroads and state**Grades**

Analysis of railroad grading develops trend curves. Ry Age 70:195-8 Ja 14 '21; Abstract. Eng & Contr 55:396 Ap 20 '21

Economy of low grades for heavy railway traffic. W. Michel. Eng N 84:244-5 Ja 29 '20; Discussion. 84:736 Ap 8 '20

Expressing railway grading costs by trend curves. L. A. von Rosenberg. map Ry Age 71:623-5 O 1 '21; Same cond. Eng & Contr 56:455-6 N 16 '21

See also Grade crossings; Mountain railroads

Ice supply

Report on purchasing, storage and distribution of ice. Ry Age 68:1865-8 Je 16 '20; Ry R 66:1088-9 Je 26 '20

Inspection

See Car inspection; Locomotives—Inspection

Inspection service

How the New York Central inspects perishables. F. S. Welsh. Ry Age 71:117-18 Jl 16 '21

Law

See Railroad law

Lighting

Electrical developments in railroad service. J. E. Gardner. Ry R 68:528-30 Ap 2 '21

See also Car lighting; Railroads—Stations—Lighting; Railroads—Yards—Lighting; Roundhouses—Lighting

Loading rules

See Railroads—Freight

Location

Costly railroad re-location; shifting 15 miles of double-track railroad around Huffman dam, Miami conservancy district. Pub Works 50:273-5 Ap 2 '21

Economics of location as affected by introduction of electric locomotives. Elec Ry J 57:633-4 Ap 2 '21

Effect of electric traction on economies of railway location. Eng & Contr 55:261 Mr 16 '21; Same. Eng N 86:674 Ap 21 '21

Highest elevations on principal western railroads. Ry Age 69:896 N 19 '20

Line improvement of the New York Central at Tonawanda, N.Y. B. S. Voorhees. il plans Ry R 66:455-9 Mr 20 '20

Miami conservancy relocates four railways. il diags map Ry Age 67:1001-5 N 21 '19

New York Central relocates line in Tonawanda, N.Y. il diag map Ry Age 68:347-50 Ja 30 '20

Railroad and highway location. F. Lavis. Eng N 84:786 Ap 15 '20

Railroad line change in the Tehachapi Pass. map Eng N 87:569 O 6 '21

Railway relocation to eliminate sliding hillside. il map Eng N 87:18-20 Jl 7 '21

See also Railroad surveying; Railroads—Construction; Railroads—Curves and turnouts

Maintenance and repair

Can railroads compete with contract shops? J. W. Roberts. Ry Age 71:667-9 O 8 '21

Cost of contract vs. railway shop repairs. J. W. Roberts. il Ry Age 71:729-31 O 15 '21

Increased efficiency in maintenance of way work. A. M. Burt. Ry Age 68:257-8 Ja 16 '20

Maintenance allowance during the guaranty period. Ry Age 69:711-14 O 22 '20

Maintenance charges during the guaranty period. W. A. Colston. Ry Age 70:1403-5 Je 17 '21

Methods for increasing efficiency of maintenance of way employees. Eng & Contr 55:591 Je 15 '21

Motor trucks in railway maintenance work. Eng & Contr 53:179 F 18 '20

Outside repairs to railway equipment justified. T. D. Cuyler. Ry Age 70:291-2 Ja 28 '21; Same. Ry R 68:159-61 Ja 29 '21

Railroad shop vs. the contract shop; abstracts. J. W. Roberts. il Ry Mech Eng 95:631-5 O '21; Ry Age 71:631-3 O 1 '21

Railway maintenance in 1920. J. H. Parmelee. Eng N 86:33-6 Ja 6 '21

Real versus actual railway retrenchments. Ry Age 69:867-8 N 19 '20

Repairs in outside shops. Ry R 68:216-17 F 5 '21

Repairs in outside shops defended. Ry Age 70:984 Ap 22 '21

Repairs in outside shops to be investigated; I.C.C. issues formal order. Ry Age 70:184-6 Ja 14 '21

Safety of the cotton belt lines is questioned. Ry Age 68:543-7 F 20 '20

Should the railroads repair their equipment? Ry Age 71:345-6 Ag 20 '21

What determines adequacy of railway maintenance. J. P. Hallinan. Ry Age 70:471-2 F 25 '21

Why the Frisco placed outside contracts for repairs of locomotives and cars. J. M. Kurn. Ry R 68:128-30 Ja 22 '21

See also Cars—Repair; Freight cars—Repair; Locomotive shops; Locomotives—Repair; Railroad ties; Railroads—Equipment and supplies; Railroads—Management; Railroads—Roadmasters; Railroads—Shops; Railroads—Track; Rails; Rails, Used

Maintenance of way

See Railroads—Track

Management

Advantages of a liberal motive power policy. il diags Ry R 68:559-65 Ap 9 '21

Application of engineering to transportation problems. J. A. Peabody. W Soc E J 25:565-71 N '20; Same. Ry R 67:578-80 O 16 '20; Excerpts. Eng & Contr 54:590-1 D 25 '20; Excerpts. Ry Age 69:1170-1 D 31 '20; Discussion. W Soc E J 25:572-3 N '20

Duplicating bureau, Southern Pacific co. E. W. Irwin. il Ry R 67:1-3 Jl 3 '20

Fate of railroad administration innovations. Ry Age 70:81-4 Ja 7 '21

Ford has not wrought miracle with D., T. & I. Ry Age 71:405-8 Ag 27 '21

Future of the railroads from the standpoint of the public. V. E. McBee. Ry R 67:944-5 D 18 '20

Graphic study of federal and private railroad management. F. L. Hutchins. charts Annalist 17:472-3 Ap 25 '21

Henry Ford's experiment in cutting out freight solicitors. S. C. Lambert. Ptr Ink 116:17-20 Ag 25 '21

High freight rates halting industry. L. F. Loree, H. E. Byram and W. J. Lauck. Ind Management 62:1-9 Jl '21

How railways are making economies. R. H. Aishton. Ry R 68:783-5 My 21 '21

How to better bad railroad conditions. G. N. Brown. Ry Age 71:904-5 N 5 '21; Discussion. W. F. Thichoff. 71:1078 D 3 '21

If I ran the railroads. H. Ford. Nation's Business 9:7-9 N '21; Excerpts. Eng N 87:698 O 27 '21; Ry Age 71:939-40 N 12 '21; Ry Mech Eng 95:689-70 N '21; Discussion. Ry Age 71:1023-4 N 26 '21

Intensive use of railway facilities. J. Kruttschnitt. Ry R 67:898 D 11 '20

Mechanical aids in preparing the railroad payroll. Ry R 66:423-4 Mr 13 '20

Necessity of maximum use of locomotives and freight cars. Ry R 67:465-7 S 25 '20

New Pennsylvania regional organization. Ry Age 68:965-8 Mr 19 '20

Observations on a transcontinental journey. W. S. Wollner. Ry Age 69:1161-2 D 31 '20

Organization of fuel economy. L. G. Plant. il plans Ry R 68:801-9 My 28 '21; Abstract, with discussion. Ry Age 70:1272-5 Je 3 '21

Payment of wages by divisional paymasters. T. W. Mathews. Ry Age 69:1061-4 D 17 '20

Pennsylvania R. R. system reorganized into four regions. Ry R 66:303-4 F 21 '20

Railroads—Management—Continued

- Pennsylvania system organized into four regions. map Ry Age 68:547-8 F 20 '20
- Pres. Rea's railroad program. Comm & Fin Chr 113:1645-6 O 15 '21
- Pressing problems of management. Ry Age 71:558-9 S 24 '21
- Private management has not produced railroad inefficiency. D. Willard. Comm & Fin Chr 112:2147-9 My 21 '21
- Problem of the day—how to please the public. J. M. Hustis. Ry Age 68:629-30 F 27 '20
- Radical changes in Erie railroad organization. map Ry Age 68:540-1 F 20 '20
- Railroad organizations and new conditions. Ry Age 68:1551-2 Je 4 '20
- Railroads need research directors. G. W. Grupp. Ry R 68:185-7 Ja 29 '21
- Railway operation and maintenance under the divisional plan of organization. A. Price. Ry R 66:1006-8 Je 12 '20
- Railway water service organization. Eng N 84:676 Ap 1 '20
- Railways must work together better. Ry Age 68:1961-2 Je 25 '20
- Remedies for wastes in railway operation. F. J. Lisman. Ry Age 71:59-63 Jl 9 '21; Discussion. T. C. Powell. 71:397 Ag 27 '21
- Shipper's view on the evolution of transportation and its effect on steam railways; abstracts. G. C. Conn. Ry R 69:438-42 O 1 '21; Ry Age 71:635-8 O 1 '21
- Some railway operating problems. H. W. Thornton. Engineer 129:560 My 28 '20
- Suggestions as to economies in railroad operation. G. R. Henderson. Ry Age 71:259-60 Ag 6 '21
- Suggestions for a comprehensive service department. J. B. Hutchinson. Ry R 69:106-8 Jl 23 '21
- Systematizing the handling of labor conference boards. W. I. Finch. Ry Age 68:774 Mr 12 '20
- Traffic field changes present unsolved problem. il Ry Age 68:73-6 Ja 2 '20
- Trends in management; what can the manufacturer expect of the railroad situation? F. Zimmermann. Factory 25:1234-6 O 15 '20
- Two great problems before American railroads. W. W. Atterbury. Ry Age 69:563-5 O 1 '20
- Utilizing motive power on the lines of the Delaware & Hudson; effective methods of terminal management permit constant control of locomotives. F. P. Gutelius. Ry R 67:961-7 D 25 '20
- What is wrong with railroad management? F. Roberts. Ry Mech Eng 94:137-40 Mr '20

See also Car inspection; Freight car service; Freight cars—Central ownership; Freight handling; Railroads—Claims; Railroads—Employees; Railroads—Equipment and supplies; Railroads—Finance; Railroads—Maintenance and repair; Railroads—Office management; Railroads—Public relations; Railroads—Purchasing; Railroads—Rates; Railroads—Records; Railroads—Refuse disposal; Railroads—Road masters; Railroads—Rules; Railroads—Safety devices and measures; Railroads—Ticket offices; Railroads—Tracing service; Railroads—Train load; Train dispatching

Mechanical departments

- Labor-saving office devices in a railway mechanical department. D. M. Sellards. il diag Ry R 66:946-51 Je 5 '20
- Mechanical department must tackle big program. Ry Age 70:1309-20 Je 10 '21
- Railroad mechanical department activities in 1919. Ry Age 68:759-63 Mr 12 '20; Same. Ry Mech Eng 94:200-4 Ap '20
- Will the mechanical department make good? il Ry Age 71:325-34 Ag 20 '21

Office management

- Advantages of machine billing in railroad offices. Ry R 66:11-12 Ja 3 '20

- Division of interline passenger fares; basis proposed by the R.A.O.A. passenger committee. L. C. Esschen. map Ry Age 71:671-3 O 8 '21
- Mechanical devices in railroad freight offices. C. G. Johnson. Ry R 68:855-7; 69:9-13 Je 4, Jl 2 '21
- Mechanical devices speed up the work in division offices. C. O. Price. Ry R 68:693-6 My 7 '21
- Office efficiency. C. C. Henkel. Ry Age 69:396 S 3 '20
- Securing increased efficiency in railway offices. il charts Ry Age 70:797-9 Mr 25 '21
- Selection and maintenance of office equipment; Pennsylvania's methods. D. T. Jones. Ry Age 70:1215-18 My 27 '21
- Who pays the man for waiting on the bench? G. Gibson. Ry Age 71:461-2 S 3 '21

Officials

- Problems of the supervising officers; duties and responsibilities under private management. S. O. Dunn. Ry Mech Eng 94:689-91 N '20
- Subordinate officials defined. Ry R 67:744-5 N 13 '20; Same. Ry Age 69:831 N 12 '20
- See also* Railroads—Roadmasters; *also* Society of railway financial officers

Salaries

- Fancy salaries of railway officers. Ry Age 70:1060-1 My 6 '21; Same. Eng & Contr 55:581 Je 15 '21
- Salaries of railroad officers in 1917. Ry Age 68:1654-5, 1659-62 Je 11 '20
- Salaries of \$20,000 and over paid to railroad officials in 1917. Comm & Fin Chr 110:325-7 Ja 24 '20

Organization

See Railroads—Management

Passenger traffic

- Earnings of individual passenger trains; method for determining whether selected trains pay out of pocket or other costs. T. W. Mathews. chart Ry Age 70:981-3 Ap 22 '21
- Long Island R. R. leads in passenger traffic density. Ry R 67:551 O 9 '20
- Observations on a transcontinental journey. W. S. Wollner. Ry Age 69:1161-2 D 31 '20
- Passenger traffic under increased rates. Ry Age 70:824-5 Ap 1 '21
- 24,500 passenger cars needed in next three years. il Ry Age 68:37-40 Ja 2 '20

Passes

- Free transportation on Canadian railways. Ry R 66:115 Ja 17 '20

Public relations

- Citizen's part in railway development: report of the Railway business association's Committee on adequate facilities. Ry Age 69:1067-8 D 17 '20
- Illinois Central's public relations work. Ry Age 71:654, 683-5 O 8 '21
- Problem of the day—how to please the public. J. M. Hustis. Ry Age 68:629-30 F 27 '20
- Public's confidence, how did we get it, and how can we hold it? A. W. Towsley. Ry R 67:624-5 O 23 '20
- Public's faith in railroad men—what they are doing to merit it. F. H. Hammill. Ry R 67:625-6 O 23 '20
- Relation of the public to the railroads. C. A. Prouty. Ry Age 68:1155-6 Ap 9 '20
- Shippers and the railroads. F. H. Dixon. Ry Age 67:1145 D 12 '19
- Shippers of freight advertise for the comeback of the railroads. J. G. Condon. Ptr Ink 111:121+ My 20 '20
- Transportation and the citizen's responsibility. A. B. Johnson. Ry Age 69:737-8 O 29 '20
- Transportation combinations and the public interest. J. A. Emery. Ry R 67:967-70 D 25 '20; Same cond. Ry Age 69:1107-9 D 24 '20

Railroads—Public relations—Continued

Work of the Public service division, U.S.R.A., in 1919. M. Thelen. Ry R 66:139-41 Ja 24 '20; Same. Ry Age 68:323-5 Ja 23 '20

See also Railroads and state

Purchasing

Annual report, Division of purchases. Ry Age 68:577-8 F 20 '20; Same. Ry R 66:307-9 F 21 '20

Controlling purchases and stores in a run-away market. Ry R 68:859-60 Je 4 '21

Co-ordinating the purchase of coal. E. Ludlow. Ry Age 71:20-1 Jl 2 '21

Next step toward preventing depressions; stability of railway purchases. Ry Age 70:33-8 Ja 7 '21

Organization of a strong service of supply. il Ry Age 69:917-19, 969-72 N 26-D 3 '20

Plan to encourage buying by the railroads. Iron Age 107:193-4 Ja 20 '21

Purchasing agency for short line railroads. L. W. Moffett. Iron Age 107:1693-4 Je 23 '21

Purchasing offices of foreign railways in United States. Ry R 67:736-7 N 13 '20

Purchasing railway supplies on a service basis. M. E. Towner. Ry R 69:209-10 Ag 13 '21

Railroad buying in 1920 disappointing. Iron Age 107:47-8 Ja 6 '21

Railroads ready to spend a third of a billion. J. G. Condon. Ptr Ink 114:33-4+ Mr 17 '21

Rules governing railway purchases under sec. 10, Clayton act. Ry R 68:700-2 My 7 '21

Service of supply as a business institution. H. C. Pearce. Ry Age 70:279-82 Ja 28 '21

Service of supply subjects feature American railway association general meeting, Chicago. Ry R 68:937-42 Je 18 '21; Ry Age 70:1355-62 Je 10 '21

Service of supply under federal control. G. G. Yeomans. Ry R 69:559-62, 646-9 O 29, N 12 '21

Short lines establish consolidated purchasing agency. Ry Age 70:1401-2 Je 17 '21; Same abr. Ry R 68:980 Je 25 '21

Stability of railway purchases; letter to Sec. Hoover from the Railway business association. Ry Age 70:852-4 Ap 1 '21

What will effectively restore business? E. B. Leigh. Ry R 69:483-6 O 8 '21; Same. Am Ind 22:36-8 N '21

Why buy now program by railways is needed; symposium. Ry Age 70:23-8 Ja 7 '21

See also Railroad supplies industry

Rails

See Rails

Rates

Additional reductions in railroad rates on export and other traffic. Comm & Fin Chr 113:1014-15 S 3 '21

Administration seeking way to reduce rates. Ry Age 70:979-80 Ap 22 '21

Advance in mileage rates on privately owned freight cars. J. E. Fairbanks. Ry R 67:393 S 11 '20

Advances in rates on foreign railways. Ry Age 68:1335, 1947 My 7, Je 18 '20

Application of increased freight rates in Illinois. Ry Age 69:315-16 Ag 20 '20

Argument of New England roads for revision of through tariffs. Ry R 67:824-9 N 27 '20

Association of railway executives takes issue with the Farmers' national council. Ry Age 69:1033-4 D 10 '20

Attitude of the railways regarding rates. Ry Age 70:1382 Je 17 '21

Blanket supplement authorized for rate advance. Ry Age 69:287-9 Ag 13 '20

Building material rates to stand. Ry Age 70:1365 Je 10 '21

Campaign to protect western refiners from unfair rates. C. Thorne. Nat Pet N 12:56-7 N 3 '20

Canadian railway rates. Ry R 67:641-2 O 23 '20

Canadian railways' rate increase. Ry Age 69:479-81 S 17 '20

Carriers announce policy on rates and wages. T. D. Cuyler. Ry R 69:538-41 O 22 '21

Carriers suggest rates to meet the wage increases. Ry R 67:160-1 Jl 31 '20; Same. Ry Age 69:183-4 Jl 30 '20

Cement freight rate hearings. I. D. Foos. Concrete 18:sup103-5 Je '21

Collection of freight charges. Ry Age 68:1249-50 Ap 23 '20

Commerce commission makes new ruling as to export freight rates on iron and steel articles. Iron Age 105:1305 My 6 '20

Commission recommends caution in adjustment of grain rates. W. V. Hardie. Ry Age 70:882 Ap 8 '21

Commission reduces western grain rates. Ry Age 71:833-6 O 29 '21

Commissioner Woolley on railway rates and cost of living. Ry Age 68:283-4 Ja 23 '20

Companies' proposals as to railway rates. Engineer 130:422 O 29 '20

Cost of transportation in relation to other cost factors. J. H. Parmelee. Ry Age 70:1079-80 My 6 '21

Courts enjoin state interference with increased rates. Ry R 67:322-3 Ag 28 '20

Deadlocked on iron ore rates. A. J. Hain. Iron Tr R 68:1469 My 26 '21

Dealers oppose seasonal coal rates. Iron Tr R 66:1349 My 6 '20

Decision of Interstate commerce commission ordering increase to interstate basis. Ry R 67:807-9 N 27 '20

Diminished traffic not result of increased rates. E. Chambers. Ry Age 70:1279-84 Je 3 '21; Abstract. Ry R 68:876-7 Je 4 '21

Effect of freight rates upon the location of industries. J. G. Condon. Ptr Ink 113:57-8+ D 23 '20

Effect of increased rates on railroad construction. C. A. Morse. Eng N 85:618 S 23 '20

Effect of new English railway rates on cost of living. Ry R 66:737-8 My 1 '20

Effect of the rate increases disappointing. Ry Age 70:71-3 Ja 7 '21

Effect upon public utilities of depreciation charges on freight rates. N E L A Bul 7:404-8 Jl '20

English railway rate committee reports. Ry Age 70:347 F 4 '21

Error in combination rate rule forms basis for reparation claims. Nat Pet N 12:35 N 10 '20

Exchange surcharge on shipments between U.S. and Canada. Ry Age 70:250-1 Ja 21 '21

Expediting the rate increase inquiry. F. Rhea. Ry R 66:930-1 Je 5 '20

Extensive rate reductions made by roads in recent months. T. D. Cuyler. Ry R 69:545 O 22 '21

Farmers' organizations demand rate reduction. Ry Age 70:1034 Ap 29 '21

Federal intrastate rate control. Eng N 85:1114-15 D 9 '20

First reductions in iron and steel rates. Iron Age 108:411-12 Ag 18 '21

Freight rate reductions. Ry R 69:15 Jl 2 '21

Freight rate reductions made since Ex Parte 74. Ry Age 71:869-70 N 5 '21

Freight rates and prosperity. J. A. Campbell. Ry R 69:609 N 5 '21

Freight rates are not responsible for business depression. J. Kruttschnitt. Comm & Fin Chr 112:2044-5 My 14 '21

Freight rates as a deterrent to common brick industry. Eng N 87:205, 460 Ag 4, S 15 '21

Freight rates influence New England's choice of coal. Coal Age 18:290-2 Ag 5 '20

Freight rates on cement contested. I. D. Foos. Concrete 17:sup92 D '20

Freight rates on construction materials. E. G. Sutton. Eng & Contr 54:338-9 O 6 '20

Freight rates on iron ore discussed. Iron Age 106:5-7 Jl 1 '20

Future railway expenses and rates. Ry Age 71:3-4 Jl 2 '21

Governor's committee opposes rate raise in New England. Ry Age 70:1071-2 My 6 '21

Grain rate cut, while possibly illegal, likely to stand—estimated annual loss to railroads—previous rate cuts. Comm & Fin Chr 113:1848 sec 1 O 29 '21

Railroads—Rates—Continued

- Hearing on general rate advance case. Ry Age 68:1412, 1517-24, 1681-5, 1940-7, 1977-81; 69:64-8, 145-6 My 14, 28, Je 11-25, Jl 9, 23 '20
- Hearing on rate increases before the I. C. C. Ry R 66:927-30, 1060-2; 67:60-2 Je 5, 19, Jl 10 '20
- Hearings before Inter-state commerce commission on rate adjustments. Comm & Fin Chr 110:1252-4 Mr 27 '20
- Hearings by New England governors' committee. J. H. Hustis. Ry Age 70:801-2 Mr 25 '21
- Hearings on application of railroads for higher freight rates. Comm & Fin Chr 110:2624-6 Je 26 '20
- Hearings on concrete freight rates. I. D. Foos. Concrete 18:sup69-71 Ap '21
- Hearings on western grain and hay rates. Ry Age 71:449-50, 491-3 S 3-10 '21
- Higher freight rates bringing about industrial readjustment. Annalist 17:447 Ap 18 '21
- Higher freight rates fail to curtail shipping. Ry Age 70:69-70 Ja 7 '21
- How the 5½ per cent basis for rates will affect New England roads. Ry R 66:211-12 F 7 '20
- Illinois state commission refuses increased rates. Ry R 67:240-1 Ag 14 '20
- Important grain rate decision. Ry Age 71:810-11 O 29 '21
- Increase in railway rates. Engineering 109:17-18 Ja 2 '20
- Increase in rates on French railroads. F. Jaques. Ry Age 68:1423 My 14 '20
- Increased freight rates add little to cost of living. Ry R 67:292-3 Ag 21 '20
- Increased freight rates and the cost of living. Ry Age 68:1524 My 28 '20
- Increased rates authorized by I. C. C. Ry Age 69:223-34 Ag 6 '20; Same abr. Ry R 67:187-97 Ag 7 '20; Same. Comm & Fin Chr 111:549-56 Ag 7 '20
- Increases in freight rates on iron and steel products, ranging from 25 to 40 per cent according to territory. Iron Age 106:552-3 Ag 26 '20
- Industry must unite in demanding fall of railroad rates. C. Thorne. Nat Pet N 13:37+ Ap 6 '21
- Industry still split on rate increase after conference. Nat Pet N 12:27-8 O 13 '20
- Interpretation of tariffs. R. R. Lethem. 152p Traffic service corporation, Chicago, Ill. '21
- I.C.C. declines to fix New England rate divisions. Ry Age 71:237-43 Ag 6 '21
- Interstate commerce commission favors seasonal coal rates. Ry Age 68:1364-5 My 7 '20
- I.C.C. holds hearing on rate-making procedure. Ry Age 68:1031-6 Mr 26 '20
- I.C.C. orders increase in Illinois freight rates. Ry Age 70:334-5 F 4 '21
- I. C. C. orders increase in intrastate rates. Ry Age 69:913-16 N 26 '20; Excerpts. Comm & Fin Chr 111:2010-12 sec 1 N 20 '20
- Interstate commerce commission orders increase in Texas rates. Ry Age 70:504-5 Mr 4 '21
- Inter-state commerce commission orders increases in intra-state railroad rates in Illinois. Comm & Fin Chr 111:2186-7 D 4 '20
- Inter-state rates on grain, grain products, and hay, in west declared unreasonable. Comm & Fin Chr 113:1845-8 sec 1 O 29 '21
- Investigating iron and steel freight rates. Iron Age 107:910 Ap 7 '21
- Jones & Laughlin propose prorating proposed rail advance between Northern and Southern lines to maintain competitive balance between lake and interior furnaces. Iron Tr R 66:1741-2 Je 17 '20
- Law makes rate cut difficult. Iron Tr R 68:1184 Ap 28 '21
- Losses to Union Pacific Rr. which would result from reduced rates on grain. Comm & Fin Chr 113:1012-13 S 3 '21
- Majority of shippers favor rate advance; summary of testimony before I.C.C. Ry Age 69:20-6 Jl 2 '20
- Mid-continent refiners show injustice in new rate schedule. J. B. Gambrell, jr. Nat Pet N 12:29-30 Ag 11 '20
- National industrial traffic league demands reduction of freight rates. Coal Age 20:545 O 6 '21
- National side of the New England crisis. J. S. Eaton. Annalist 18:173 Ag 22 '21
- Necessary increase in rates. S. Thompson. Ry R 66:842-3 My 22 '20
- New freight rates and H.C.L. R: H. Tingley. Am Ind 21:29-30 S '20
- New intra-state railroad rates—over ruling of local opposition—constitutionality still to be determined. Comm & Fin Chr 111:2466-7 D 25 '20
- New problems of management and regulation. E. E. Clark. Ry Age 70:857-8 Ap 1 '21
- New railway goods classification. Elec R (Lond) 88:427-8 Ap 1 '21
- New York state board holds up higher rates. Ry R 67:281 Ag 21 '20
- Opposes freight rate reductions on grain sought by western states. L. E. Wettling. Comm & Fin Chr 113:918 Ag 27 '21
- Organized business and the railways. A. B. Johnson. Ry R 69:504-5 O 15 '21
- Our railroads must have higher freight rates. E. E. Riggs. Ry R 67:27-8 Jl 3 '20
- Permission to reduce ore rates granted. L. W. Moffett. Iron Age 108:944+ O 13 '21
- Piratical commission merchants' attacks on freight rates. Ry Age 70:967-8 Ap 22 '21
- Present freight rates do not restrain commerce. C. F. Balch. Ry Age 71:499-500 S 10 '21
- President finds railroad problem difficult. Ry Age 70:1041-2 Ap 29 '21
- President not urging general rate cut. Ry Age 70:1337-8 Je 10 '21
- President urges reduction of transportation costs. Ry Age 70:931-2 Ap 15 '21
- Principles of railway rates. Ry R 68:171-3 Ja 29 '21
- Problem of rates on the Canadian railways. E. W. Beatty. Ry Age 70:112 Ja 7 '21
- Progress in rate reductions. Ry Age 71:8 Jl 2 '21
- Proportion of oil traffic moved by rail growing less. Nat Pet N 13:25-7 Ag 17 '21
- Protest from the commission merchants. Ry Age 70:1201-2 My 27 '21
- Prussian-Hessian railways' financial position. R. E. Thayer. Ry Age 68:1976 Je 25 '20
- Purchasing agents of mid-continent oil companies join forces in fight on higher freight rates on tubular goods. Nat Pet N 13:45 Mr 9 '21
- Rail rates take toll on foundry sand. Foundry 49:320-1 Ap 15 '21
- Railroad labor and the freight rate problems. C: A. Prouty. Ry Age 68:499-500 F 13 '20
- Railroad rate plan proposed by Labor board. Comm & Fin Chr 113:1736 O 22 '21
- Railroads complete rate advance testimony. Ry Age 68:1567-72 Je 4 '20
- Railroads have already made extensive decreases in rates. Ry Age 71:762 O 22 '21
- Railway freight rates increased in Great Britain. R. E. Thayer. Ry Age 68:575-7 F 20 '20
- Railway operating costs and railway rates. S: M. Felton. Ry Age 71:677-8 O 8 '21
- Railway rate inquiry in England. Ry Age 69:30 Jl 2 '20
- Railway traffic and rates. L: H: Haney. 44p La Fayette inst. '21
- Railways and the commission merchants. Ry Age 70:1199-1201 My 27 '21
- Raise in railroad rates. Nation's Business 8:9-10 S '20
- Rate adjustment hearing shows sentiment for percentage changes. A. E. Heiss. Nat Pet N 13:32 Jl 8 '21
- Rate increase and cost of living. W. J. Lauck. Ry Age 69:238 Ag 6 '20
- Rates and wages must both come down. W. W. Atterbury. Ry R 69:472-3 O 8 '21
- Rates on articles in common use. Ry Age 69:561 O 1 '20
- Rates on hay and grain to be reduced. Ry R 69:568-70 O 29 '21

Railroads—Rates —Continued

- Rates to intermountain territory found not unreasonable. Ry Age 70:1034-6 Ap 29 '21
- Reduction in freight rates on grain. Comm & Fin Chr 113:806 Ag 20 '21
- Reduction of live stock rates proposed. Ry Age 71:165-6 Jl 23 '21
- Reduction of rates vs. improved service; interesting railway income catechism. Ry Age 70:557-9 Mr 11 '21
- Regulation of railway rates and securities; an unsuspected bond between them disclosed by recent decisions of the I.C.C. E: A. Bradford. Annalist 17:515-16 My 9 '21
- Regulation of railways is regulation of all commerce. E: A. Bradford. Annalist 17:563-4 My 23 '21
- Relation of freight charges to values of commodities. J. Kruttschnitt. Ry Age 67:1105-6 D 5 '19
- Relation of the railways to foreign trade. W: Sproule. Ry Age 68:1453-5 My 21 '20
- Remove inequalities in interstate freight rates from head of lakes; virtual mileage basis in effect. Coal Age 19:684 Ap 14 '21
- Report of committee of N.W.D.A. on transportation. Oil Paint & Drug Rep 100:42-4 O 4 '21
- Representatives of state commissioners association approve rate advance. Ry Age 69:243 Ag 6 '20
- Resuscitation of business and the railroads awaits reasonable period of stable price conditions. G. N. Snider. Coal Age 20:467-8 S 22 '21
- Roads ask to raise iron, steel rates. Iron Tr R 66:1348-9 My 6 '20
- Roads denied general advance on petroleum products in Kansas. Nat Pet N 12:30 N 3 '20
- Roads win huge rate increase. Iron Tr R 67:364-6 Ag 5 '20
- Rule of rate making. E. E. Clark. Ry Age 68:420 F 6 '20
- Seasonal coal freight rates. Coal Age 17:653-4, 864-5, 948-9, 1214 Ap 1, 29, My 6, Je 10 '20
- Seasonal coal rate bill text. Coal Age 17:1153-4 Je 3 '20
- Seasonal coal rates to be put into effect. Ry Age 68:1477-9 My 21 '20
- Seasonal differential rates in coal proposed. Ry Age 68:1047-9 Mr 26 '20
- Seasonal freight rates will affect coal fields in varying degrees. F. G. Tryon. Coal Age 17:1033-7 My 20 '20
- Seasonal rate bill reported by committee. Coal Age 17:1038 My 20 '20
- Shipping board asks re-establishment of rates. Ry Age 70:717-18 Mr 18 '21
- Southern Pacific continues rate information campaign. Ry Age 69:566 O 1 '20
- Southern roads decline to reduce melon rates. Ry Age 70:1163-4 My 20 '21
- Southern shippers propose plan of co-operation on rates. Ry Age 68:781 Mr 12 '20
- Standardization of rates and charges recommended for British railways. S. Thompson. Ry R 68:170-1 Ja 29 '21
- State commissioners to fight. Ry Age 69:523-4 S 24 '20
- State rate question argued in Supreme court. Ry Age 70:511-13, 716-17 Mr 4, 18 '21
- State versus interstate rate regulation. Ry Age 71:830 O 29 '21
- States to attack railroad rates. Iron Tr R 68:537 F 24 '21
- Status of intrastate advanced rate proceedings. Ry Age 69:312, 351-2, 390-2, 477-8, 611 Ag 20-S 3, 17, O 8 '20
- Tidewater refiner in strong plea for percentage increase in rates. Nat Pet N 12:27 Jl 14 '20
- Transportation needs in Eastern district; abstracts. D. Willard. Ry Age 68:1521-2 My 28 '20; Ry R 66:869-70 My 29 '20; Comm & Fin Chr 110:1937-9 My 8 '20
- Transportation needs of the country; abstracts. H. Elliott. Ry R 66:865-9 My 29 '20; Ry Age 68:1517-20 My 28 '20; Comm & Fin Chr 110:2254-5 My 29 '20
- 20 per cent cut in rates possible only with 30 per cent lower wages. S. Thompson. Ry R 69:549-50 O 22 '21

- Western roads apply for rate advance. Ry Age 68:1399-1400 My 14 '20
- Western roads must cut rates soon to hold oil traffic. Nat Pet N 13:23+ O 5 '21
- What increased freight rates amount to primarily. Ry R 67:522-3 O 2 '20
- Why increased rates did not benefit roads. D. Willard. Comm & Fin Chr 112:2267 My 28 '21
- Wisconsin intrastate rate case—brief of the appellee. Ry R 68:361-7, 396-401 Mr 5-12 '21
- Work out comprehensive readjustment plan for oil freight rates. Nat Pet N 13:29+ Jl 1 '21

See also Railroads—Fares; Railroads—Passes; Railway mail service

Bibliography

- List of references on provisions of the Cummins bill regarding standards of rate-making and limitation of profits. Special Libraries 11:49-64 F '20

Records

- A. R. A. billing; with discussion. C. C. Stone. Ry Mech Eng 94:778-80 D '20
- B. & O. passing report. Ry Age 68:1973-4 Je 25 '20
- New system of track work records on St L.-S. F. Ry. Eng N 85:949-52 N 11 '20
- Storage of records. F. H. Harvey. Ry Age 69:270 Ag 13 '20

See also Railroads—Forms, blanks, etc.

Refuse disposal

- Economical handling of railway waste material. Il Eng & Contr 54:597 D 15 '20

Repair shops

See Railroads—Shops

Reports

- Compiling tonnage reports by aid of accounting machines. Ry R 66:493-4 Mr 20 '20

Roadmasters

- Everyday duties of a roadmaster. E. Keough. Ry R 68:357-60 Mr 5 '21; Excerpt. Eng & Contr 55:171 F 16 '21

Rolling stock

- Condition of rolling stock in France today. F. Jaques. Ry Age 67:1223-5 D 26 '19
- Equipment orders in the first nine months of 1920. Ry Age 69:597-8 O 8 '20
- Equipment purchases provided by loan fund. Ry Age 69:57-9 Jl 9 '20
- Financing and final allocation of the standard equipment. Ry Age 69:278-9 Ag 13 '20
- Little progress in reducing equipment shortage. Ry Age 70:47-9 Ja 7 '21
- Locomotives and rolling stock in 1919. Il Engineer 129:18-20 Ja 2 '20
- Locomotives and rolling stock of 1920. Il (supp) diag Engineer 131:10-12, 14 Ja 7 '21
- Railroads' mechanical facilities inadequate. Ry Mech Eng 94:5-10 Ja '20
- Railways of Czecho-Slovakia. Dr Franke. Ry R 67:48-51 Jl 10 '20; Same abr. Ry Age 69:27-8 Jl 2 '20

See also Cars; Dining cars; Freight cars; Locomotives; Motor cars (railroad); Postal cars; Private car lines; Refrigerator cars; Sleeping cars; Tank cars

Roundhouses

See Roundhouses

Rules

- Standard code of the American railway association. Authorized ed. 597p American railway assn., New York '20

Safety devices and measures

- Annual report of the Bureau of safety. Ry Mech Eng 94:26-8 Ja '20
- Anti-telescoping devices for railway carriages. Il Engineer 132:8 Jl 1 '21
- Cars must be equipped with safety appliances. Ry Age 69:482 S 17 '20; Same. Ry Mech Eng 94:640 O '20

Railroads—Safety devices and measures—Cont.

- Chief interchange car inspectors' and car foremen's association convention. Ry Mech Eng 94:769-84 D '20
- Dangers in the yards. Ry R 68:467 Mr 19 '21
- Economic value of railway safety work. S: O. Dunn. Ry Age 69:605-7 O 8 '20
- Essentials of safety work. H. J. Bell. Ry Age 69:876 N 19 '20
- I.C.C. annual report of the chief of the Bureau of safety. Ry Mech Eng 95:29-30 Ja '21; Excerpts. Ry Age 69:1165-7 D 31 '20
- National safety council 9th annual congress, Milwaukee. Ry Age 69:617-19 O 8 '20
- New wheel guard for railroads. il Sci Am 123: 256 S 11 '20
- Northwestern Pacific's safety organization. W: S. Wollner. Ry Age 70:1218 My 27 '21
- Proposed national stop-look-and-listen campaign. M. A. Dow. Ry Age 71:666 O 8 '21
- Protection of railway track from falling rocks. Eng N 87:602 O 13 '21
- Safety appliances, further extension of time denied. Ry R 67:470-1 S 25 '20
- Safety-first catechism. B. T. Horough. Ry Age 70:358 F 11 '21
- Safety first on the Chicago & North Western. Ry Age 70:1038 Ap 29 '21
- Safety of passengers in steel railway cars. F. M. Brinckerhoff. il diag Ry Age 70:781-5 Mr 25 '21; Same. Ry Mech Eng 95:223-7 Ap '21; Same cond. Elec Ry J 57:605-8 Mr 26 '21
- Safety on American railroads. H. J. Bell. Ry R 66:438-9 Mr 13 '20
- Space interval on railroads with light traffic. Ry Age 68:1023 Mr 26 '20
- Spirit of safety first. C: E. Norman. Ry Age 70:552 Mr 11 '21
- Working of single lines of railway. il diags Engineer 131:115-16 F 4 '21

See also Air brakes; Brakes; Car couplings; Derails; Interstate commerce commission—Accident bulletins; Railroads—Automatic stop; Railroads—Electrification—Safety measures; Railroads—Fire protection; Railroads—Signals

Salaries

See Railroads—Officials—Salaries; Railroads—Wages

Sanitation

- Sanitary regulations in the Maintenance of way department, N. C. & St L. Ry. H. McDonald. Ry R 67:936-7 D 18 '20

See also Railroads—Refuse disposal

Scrap material

- Finding \$700,000 in the scrap heap. il Factory 26:48-9 Ja 1 '21
- New model scrap reclaiming rolls. diags Ry Mech Eng 95:383 Je '21
- New scrap classification. Iron Age 108:478 Ag 25 '21; Same abr. Iron Tr R 69:500-1 Ag 25 '21; Same cond. Elec Ry J 58:383 S 3 '21
- Profitable railroad reclamation project; rolling mill at the Beech Grove (Indianapolis, Ind.) shops. il Ry Mech Eng 95:185-7 Mr '21
- Railway reclamation of damaged and old materials. Eng N 84:806 Ap 22 '20
- Reclamation a by-product of the railway business. R. K. Graham. il Ry R 68:843-8 Je 4 '21; Excerpts. Eng & Contr 56:64-5 Jl 20 '21
- Reclamation of bridge, building and water supply materials. Ry R 67:746-50 N 13 '20; Excerpts. Ry Age 69:803-4 N 5 '20
- Reclamation of old railway material. Eng & Contr 53:305-6; 55:500 Mr 17 '20, My 18 '21
- Reclamation work on the Virginian. F. S. Tinder. il Ry Mech Eng 95:509-10 Ag '21
- Reclaiming scrap material. F. B. Nielsen and others. Ry Mech Eng 94:605-8 S '20
- Report on reclamation of material. Ry Age 68:1859-63 Je 16 '20; Ry R 66:1086-7 Je 26 '20

Saving materials in railroad shops. F. A. Stanley. il diags Am Mach 54:943-4 Je 2 '21

See also Rails, Used

Securities

- Analysis of American railroad credit. F. J. Lismann. Ry Age 68:1935-6 Je 18 '20
- Attitude of investors toward railroad securities. Ry Age 70:53-6+ Ja 7 '21
- Dividend changes on railroad stocks. Ry Age 68:98 Ja 2 '20
- Dividend changes on railroad stocks in 1920. Ry Age 70:91 Ja 7 '21
- Duty of railroad security owners in railroad crisis. J: J. Pulleyn. Comm & Fin Chr 113: 35 Jl 2 '21
- General quotations of bonds and stocks. Published in monthly Bank and quotation section of Commercial and financial chronicle
- Great Northern-Northern Pacific bonds approved by I.C.C. Ry Age 70:1031-3 Ap 29 '21
- Increasing confidence in railroad securities. Ry Age 69:642 O 15 '20
- I. C. C. holds hearing on interest rates. Ry Age 69:239-41 Ag 6 '20
- I. C. C. rules for railroad asking authority to issue securities. Ry R 67:153-5 Jl 31 '20
- Lackawanna proposes a stock distribution. Ry Age 69:517-18 S 24 '20
- Northern Pacific-Great Northern \$230,000,000 bond issue. Ry R 68:709-10 My 7 '21
- Our unwatered railroads—strong moral position of security holders. E. Lee. Ry R 69:99-103 Jl 23 '21
- Outlook for railroad securities. J. Speyer. Comm & Fin Chr 112:100-1 Ja 8 '21
- Possibilities of raising new capital. Ry Age 68:1083-4 Ap 2 '20
- Railroad bonded indebtedness. E. Lee. Comm & Fin Chr 112:2712-13 Je 25 '21
- Railroad securities; a course of study with references. A. M. Sakolski. 105p Doubleday (for Investment bankers assn. of America) '21
- Railway stocks and bonds. Comm & Fin Chr Railway and industrial section 110:3-139 My 29 '20 [Issued semi-annually, May and November]
- Regulation of railway rates and securities; an unsuspected bond between them disclosed by recent decisions of the I.C.C. E: A. Bradford. Annalist 17:515-16 My 9 '21
- Regulations regarding issuance of new railroad securities under transportation act. Comm & Fin Chr 111:1814-16 N 6 '20
- Security owners' position defended. H. Fiske. Ry Age 70:928 Ap 15 '21; Same. Comm & Fin Chr 112:1582-3 Ap 16 '21
- See also* National association of owners of railroad securities

Bibliography

- Bibliography of the regulation of the security issues of railroads and other utilities. J. C. Bonbright. p. 186-94 (Columbia univ. studies in history, economics and public law, v. 95, no. 1) Longmans '20

Shops

- Around the freight car yards and shops. Ry R 69:60-1 Jl 9 '21
- British railway workshops in war time. il Engineer 127:576-9, 604+, 630; 128:104-5, 178-9, 200-2, 228-9, 232, 326-7, 334, 375, 402-3, 484-5, 490, 581-2; 129:426, 430-2, 568-9, 578; 130:27-30, 77 Je 13-27, Ag 1, 22-S 5, O 3, 17-24, N 14, D 12 '19, Ap 23, Je 4, Jl 9, 23 '20
- Can railroads compete with contract shops? J. W. Roberts. Ry Age 71:667-9 O 8 '21
- Canadian Pacific to extend Angus shops. Ry Mech Eng 94:383 Je '20
- Car repair shops for the great Northern Ry. P. P. Barthelemy. il diags Ry R 67:725-6 N 13 '20
- C. I. & L. builds modern car repair shop. il diag plans Ry Age 70:1325-7 Je 10 '21
- Cost of contract vs. railway shop repairs. J. W. Roberts. il Ry Age 71:729-31 O 15 '21
- Design of railway car repair shops. Eng N 86: 512 Mr 24 '21
- Economies possible by car wheel grinding. il Ry Mech Eng 94:355-8 Je '20
- Essentials of efficiency in railroad shops. F. McManamy. Ry Age 67:1101-4 D 5 '19; Same. Ry Mech Eng 93:727-30 D '19

Railroads—Shops—Continued

- Example of successful shop administration. J. W. George. Ry R 66:780 My 8 '20
- Extension to world's largest railway shops; Angus shops at Montreal. L. A. Wright. il plan Can Eng 39:643-7 D 30 '20
- Extensive additions to C. & O. shop at Huntington, W. Va.; with layout. il Ry Mech Eng 94:471-7 J1 '20
- Freight car repairs on the E. P. & S. W. A. M. Dow. il diags Ry Mech Eng 94:281-4 My '20
- General shop practice at Du Bois shops of the Buffalo, Rochester & Pittsburgh. G. W. Armstrong. il Ry Mech Eng 95:179-81 Mr '21
- Graphic production control in railway shops. E. T. Spidy. charts Ry Mech Eng 94:227-30 Ap '20; Same. Ry R 66:364-8 Mr 6 '20
- Heavy brass castings for railroad shops; operating brass foundries in conjunction with railroad shops. diags plan Ry Mech Eng 94:725-6 N '20
- If labor don't watch out. Ry R 69:15-16 J1 2 '21
- Improving a shop by a limited expenditure. G. M. Lawrence. il Ry Mech Eng 95:355-6 Je '21
- Indian-built rail and road motor vehicles. F. C. Coleman. il Ry R 65:829-30 D 6 '19
- Inflammable and explosive liquids in shops. Ry Mech Eng 94:295-6 My '20
- Large shop marks development of western road; new locomotive facilities at Cheyenne exemplify the rapid growth of the Union Pacific. il diags plan Ry Age 69:687-90 O 22 '20
- Minnesota and North Dakota require car repair sheds. diag Ry Mech Eng 94:457-8 J1 '20; Same. Ry Age 69:69 J1 9 '20
- Modernizing freight car repair facilities. G. E. Lemmerich. il diags plan Ry Age 68:608-13 F 27 '20; Same. Ry Mech Eng 94:143-8 Mr '20; Same. Ry R 66:375-80 Mr 6 '20
- National agreement with shopmen. F. McManamy. Ry R 66:515-18 Mr 27 '20; Same cond. Ry Age 68:959-61 Mr 19 '20; Same cond. Ry Mech Eng 94:233-5 Ap '20
- New Cornwall railroad shop has walls of glass. J. C. Childs. il plan Ry Age 71:197-8 J1 30 '21
- New railroad shops at San Bernardo, Chile. C. V. Cruchaga. il plans Am Mach 53:982-6 N 25 '20
- N.Y.C. steel car shop at East Buffalo. il diag plan Ry Mech Eng 94:701-3 N '20
- Old way and the new; a car shop story; autocratic management proved a failure, but an entire change of policy brought the desired results. T. Rudolf. Ry Mech Eng 94:161-5 Mr '20
- Organize shops to meet present conditions. Ry Age 71:331-3 Ag 20 '21
- Outside repairs to railway equipment justified. T. D. Cuyler. Ry Age 70:291-2 Ja 28 '21; Same. Ry R 68:159-61 Ja 29 '21
- Promoting efficiency in railway shops. M. C. Whelan. Mach 27:961 Je '21
- Railroad and industrial shop management. C. C. Edmonds. Ry Mech Eng 94:513-14 Ag '20
- Railroad shop management. H. C. Venter. Ry R 66:268 F 14 '20
- Railroad shop notes. S. A. Hand. il diags Am Mach 54:773-7 My 5 '21
- Railroad shop practice; methods and tools. F. A. Stanley. 331p McGraw-Hill '21
- Railroad shop vs. the contract shop; abstracts. J. W. Roberts. il Ry Mech Eng 95:631-5 O '21; Ry Age 71:631-3 O 1 '21
- Railway machine shop practice. E. K. Hammond. il Mach 27:721-9, 855-8, 945-8, 1015-17, 1098-9 Ap-Ag '21
- Railway shop conditions in England. R. E. Thayer. Ry Mech Eng 94:35-6 Ja '20
- Repairs in outside shops defended. Ry Age 70:984 Ap 22 '21
- Repairs in outside shops to be investigated: I.C.C. issues formal order. Ry Age 70:184-6 Ja 14 '21
- Report of committee on repair shop layouts. plans Ry Age 68:1801-6 Je 15 '20; Ry R 66:1037-9 Je 19 '20

- Requirements for a modern car repair shop. H. H. Dickinson and P. Schioler. plans Ry Age 71:890-3 N 5 '21; Same. Ry Mech Eng 95:759-62 D '21
- Scheduling and routing systems for car shops. H. Gardner. Ry Mech Eng 95:502-4 Ag '21
- Scheduling and routing work in the A.E.F. shop. C. E. Lester. il Ry Mech Eng 94:97-102 F '20
- Scheduling car repairs increases shop output. E. T. Spidy. Ry Mech Eng 95:349-52 Je '21
- Shop accidents. J. A. McNally. Ry R 67:715-16 N 6 '20
- Shop inspection committees. Ry R 68:793-4 My 21 '21
- Shop kinks from the Milwaukee at Tacoma. F. H. Colvin. diags Am Mach 53:1128-9 D 16 '20
- Shop practice at Transcona. S. Lewis. diags Ry Mech Eng 93:661-2 N '19
- Shop wage agreement. Ry Mech Eng 94:329 Je '20
- Should the railroads repair their equipment? Ry Age 71:345-6 Ag 20 '21
- Speeding up the shop production. Ry Age 70:1317-19 Je 10 '21
- System of progressive shop discipline. G. Gibson. chart Ry Mech Eng 95:319-20 My '21
- Systematizing work in shops and engine houses. W. F. Canavan. Ry Age 70:702 Mr 18 '21
- Taking up the slack in production. E. T. Spidy. il charts Ry Mech Eng 94:392-4 Je '20
- Terminal facilities. F. F. Gaines. Ry R 67:546-8 O 9 '20
- Up-to-date railroad blacksmith shop. G. Fraser. Ry Age 67:426-8 Ag 29 '19; Same. Ry Mech Eng 93:544-5 S '19; Same. Ry R 65:490-1 O 4 '19; Same. Eng & Contr 52:595-6 N 19 '19
- Use of gas in railroad shops. R. G. Munroe. il Am Gas Assn Commercial sec v 2:32-45 '20; Excerpts. Ry Mech Eng 95:458 J1 '21
- Use of the original record of repairs. Ry Mech Eng 94:214-15 Ap '20
- Visit to a prominent mid-west railroad shop. S. W. Mullinix. il Ry Mech Eng 95:365-6 Je '21
- Waste of material in railroad shops. Ry R 68:184-5 Ja 29 '21
- See also* Electric railroads—Shops; Locomotive shops; Locomotive terminals; Railroads—Tools; Roundhouses

Electric equipment

- Electric power and light for railroad shops. J. E. Gardner. Ry Mech Eng 95:515-18 Ag '21

Equipment

- Draw-cut shaper in the railroad shop. F. A. Stanley. il Am Mach 54:448-51 Mr 17 '21
- Forge shop and other railroad shop tools. F. A. Stanley. il diags Am Mach 55:354-6 S 1 '21
- Four efficient Santa Fe machine shop devices. J. R. Phelps. il Ry Mech Eng 95:317-18 My '21
- Handling material in railroad shops. F. A. Stanley. il Am Mach 53:953-4 N 18 '20
- Handling tools in railroad shops. J. V. Hunter. il Am Mach 54:312-14 F 24 '21
- Heat treating steel in railway shops. H. Otto. il Ry Mech Eng 95:47-8 Ja '21
- Heat treatment of steel in the tool room. M. H. Williams. il diags Ry Mech Eng 94:39-47 Ja '20
- How jigs simplify shop operation on the E. P. & S. W. F. G. Lister. diags Ry R 69:136-9 J1 30 '21
- Improvements in methods of handling railway shop material. F. A. Stanley. il Am Mach 54:511-13 Mr 24 '21
- Labor-saving devices on the Santa Fe. J. R. Phelps. il diags Ry Mech Eng 94:721-2, 795-6 N-D '20
- Master wheel and tire gage for railway shops. J. H. Vincent. il diags Am Mach 54:33 Ja 6 '21

Railroads—Shops—Equipment—Continued

- Miscellaneous railroad shop tools and methods. F. A. Stanley. *il* diags *Am Mach* 55:87-90 *Jl* 21 '21
- Modern equipment facilitates repair of steel cars. H. R. Simonds. *il* *Iron Tr R* 67:1746-9 *D* 23 '20
- Modernizing railway shops and tools. F. G. Lister. *il* *Ry R* 68:899-901 *Je* 11 '21
- New machinery designed for railway shops. *il* *Ry R* 69:452-5 *O* 1 '21
- Problem of machine tool selection. R. S. Men-
nie. *Ry Mech Eng* 95:353-5 *Je* '21
- Railroad blacksmith machine equipment. J. V. Hunter. *il* *Am Mach* 54:17-18 *Ja* 6 '21
- Railroad shop safety devices. F. A. Stanley. *il* *Am Mach* 54:184-6 *F* 3 '21
- Railroad shop turret lathe practice. H. Volz. *il* diags *Ry Mech Eng* 95:111-13 *F* '21
- Railroads need modern machine tools. R. V. Wright. *il* *Ry Mech Eng* 94:359-62 *Je* '20; Same cond. *Mach* 26:975-6 *Je* '20
- Railway shop grinding needs. *Ry Mech Eng* 94:190-1 *Ap* '20
- Revivifying the railroad shop. G. W. Arm-
strong. *il* *Ry Mech Eng* 95:341-5 *Je* '21
- Scientific tool hardening. *Ry Mech Eng* 94:189-90 *Ap* '20
- Sheet metal shop equipment for railroad work. J. V. Hunter. *il* *diag Am Mach* 54:683-6 *Ap* 21 '21
- Shop and enginehouse equipment and facilities. *il* *Ry Age* 68:45-7 *Ja* 2 '20
- Some small railroad shop devices. *il* *Am Mach* 53:68-9 *Jl* 8 '20
- Tools and operations in a railroad blacksmith shop. F. A. Stanley. *il* *diag Am Mach* 54:648-9 *Ap* 14 '21
- Tools from a railroad blacksmith shop. F. H. Colvin. diags *Am Mach* 53:795-7 *O* 28 '20

Signals

- A G A grade crossing signal. *il* *Ry R* 66:435 *Mr* 13 '20
- Adler's visual highway crossing signal. *il* *Ry Age* 69:1124 *D* 24 '20
- American railway association; affairs of the Signal section. F. W. Pfleging. *Ry R* 68:905-6 *Je* 11 '21
- American railway association annual meet-
ing, Chicago. *Ry Age* 70:1329-32 *Je* 10 '21
- Appareil avertisseur de signaux pour loco-
motives, système U. Bertrand. *il* *Génie Civil* 76:417 *My* 1 '20
- Application of automatic signals and train stops. C. C. Anthony. *Ry Age* 68:443-5 *F* 6 '20; Same. *Ry R* 66:284-6 *F* 21 '20
- Augereau's wireless cab signal. *il* diags *Ry Age* 68:1351-2 *My* 7 '20
- Automatic substation for alternating-current railway signal power supply. H. M. Jacobs. *il* diags *Gen Elec R* 23:902-8, 949-53 *N-D* '20
- Block signal and train order statistics; an-
nual tabulation. *Ry R* 66:993 *Je* 12 '20; Same. *Ry Age* 68:1676 *Je* 11 '20
- Block signal mileage on January 1, 1921. *Ry Age* 71:400 *Ag* 27 '21
- Cab signals in Europe. L. Weissenbruch. *Ry Age* 69:29-30 *Jl* 2 '20
- Calling-on or slow speed signal. *Ry Age* 68:1131 *Ap* 9 '20
- Calling-on signals, telephones, and track-
circuit control. *Ry Age* 68:637-8 *F* 27 '20
- Derails and the stop-and-proceed rule. C. C. Anthony. *Ry Age* 71:814-15 *O* 29 '21
- Electric lighted block signals contribute to economical operation. *Ry Age* 68:1082-3 *Ap* 2 '20
- Electric lighting of railroad signals. L. C. Porter and F. S. Stallknecht. *il* diags *Illum Eng Soc* 15:223-42 no 4 '20; Abstract. *Elec Ry J* 55:590 *Mr* 20 '20
- Electric signalling at Victoria station. *il* *Elec-
trician* 84:371-3 *Ap* 2 '20
- Engineering aspects of signaling. A. H. Rudd. *Safety Eng* 41:277-8 *Je* '21
- Etude des moyens permettant de prévenir le
dépassement des signaux d'arrêt. H. Möl-
lering. *Génie Civil* 78:68 *Ja* 15 '21
- False clear signal cause of damage suit. *Ry Age* 68:1300 *Ap* 30 '20
- Flash light signals on the Norwegian state
railways. *diag Ry R* 67:82-3 *Jl* 17 '20
- Fog signalling on railways. *il* *Engineer* 132:47 *Jl* 8 '21
- Fool-proof railway signalling. *Engineer* 132:401 *O* 14 '21
- Généralisation de la répétition des signaux
sur les locomotives, en France. J. Trévi-
ères. diags *Génie Civil* 76:391-4 *Ap* 24 '20
- Interlocking extensions at Kansas City
union station terminal. *il* plans *Ry R* 67:9-12 *Jl* 3 '20
- Is there a deficiency in signal construction?
il *Ry Age* 68:48-50 *Ja* 2 '20
- Manual signal statistics and the accident
record. W. P. Borland. *Ry Age* 69:95-7 *Jl* 16 '20
- Massey signal foundation and battery well. *il* *Ry R* 66:390, 656-7 *Mr* 6, *Ap* 17 '20
- Morrison's flashlight signal for highway
crossings. *il* *diag Ry Age* 71:846 *O* 29 '21
- New design of position-light signal. *il* diags
Ry Age 71:538-9 *S* 17 '21
- New traffic locking of C. & O. relieves con-
gestion. H. E. Johnson. *il* plan *Ry Age* 71:25-6 *Jl* 2 '21
- Night colors for block signals. L. S. Werth-
muller. *Ry R* 67:830-1 *N* 27 '20
- Non-interlocking, no-stop railroad crossing; a
proposed signal layout to control train
movements automatically at intersection
points. L. B. Porter. diags *Ry Age* 70:1165-8
My 20 '21
- Novel crossing sign. *il* *Ry Age* 70:1168 *My* 20
'21
- Oscillating motor crossing flagman. *il* *Elec Ry J* 55:816-17 *Ap* 17 '20
- Overlap vs. A. P. B. for signaling single
track. *Ry Age* 69:439-41 *S* 10 '20
- Pennsylvania's highway crossing signals. *il*
diags *Ry Age* 71:458-9 *S* 3 '21
- Power-operated signals. *Elec Ry J* 58:368 *S* 3
'21
- Power railway signalling at Southport. *il*
plan *Engineer* 129:150-1 *F* 6 '20
- Railroad crossings and crossing signs. R. S. Messenger. *Elec Ry J* 58:744-5 *O* 22 '21
- Railway signals and interlocking on the de-
cline. *Ry Age* 68:118-24 *Ja* 2 '20
- La répétition sur les locomotives des indica-
tions données par les signaux détonants.
diag Génie Civil 78:510 *Je* 11 '21
- Signal and interlocking work reaches low
mark in 1920. *Ry Age* 70:160-4 *Ja* 7 '21
- Signal engineers' 25th annual convention. *Ry Age* 69:147-8 *Jl* 23 '20
- Signalman and his work. K. L. Van Auken. 248p
Brotherhood of railroad signalmen of
America, Chicago '21
- Les signaux de chemins de fer: le bloc-sys-
tème automatique et son développement aux
États-Unis. J. Netter. *il* *Génie Civil* 78:99-102, 121-6 *Ja* 29-*F* 5 '21
- Small change in signal system makes ma-
terial saving. R. M. Phinney. *il* *Ry Age* 68:785-6 *Mr* 12 '20
- Some aspects of English and French railway
signalling. L. Hiller. *Engineering* 110:605-6
N 5 '20
- Stop or proceed versus stop and proceed. A. H. Rudd. *Ry Age* 71:247-8 *Ag* 6 '21; Dis-
cussion. 71:478-9, 867-9 *S* 10, *N* 5 '21
- Succeeding in signal engineering. R. F. Yates. *Sci Am* 123:610 *D* 18 '20
- Super-refined block signaling. J. C. Howard. *Ry Age* 68:1132-3 *Ap* 9 '20
- Track circuits. *Electrician* 85:111-12 *Jl* 23 '20
- Train operation by signal indication. H. M. Sperry. *il* *Ry Age* 68:1553-8, 1669-74 *Je* 4-11 '20 [reprinted by author, 347 Madison
ave., N.Y.]
- Train signal operated by electricity. *diag Ry Mech Eng* 94:731-2 *N* '20
- United States electric train signal. *il* *diag Ry Age* 69:365 *Ag* 27 '20
- Visual signals vs. automatic stops. A. H. McKeen. *Ry Age* 69:1144 *D* 31 '20
- Wireless railroad signals. *il* *diag Wireless Age* 8:10-11 *Ja* '21

See also Electric railroads—Signals; Rail-
roads—Automatic stop; Railroads—Tele-
phone

Railroads—Continued

Snow protection and removal

- Keeping switches free of ice. F. C. Perkins. il diags Sci Am 121:586 D 13 '19
 Plan auto road on railroad snowsheds. il diag Pop Mech 34:805 D '20
 Pneumatic tie tampers used in breaking ice on tracks. il Ry R 66:778-9 My 8 '20
 Railroading under roof. C. F. Carter. il Sci Am 125:112+ Ag 13 '21
 Snow fighting equipment. W. H. Winterrowd. il diags Ry R 66:973-8 Je 12 '20
 Transandean railway's winter handicap. il Pop Mech 36:707 N '21
 Tree planting to serve as railway snow fences. Eng & Contr 53:308-9 Mr 17 '20
 Using a ballast spreader to remove ice from tracks. il Ry Age 68:1986 Je 25 '20
 Winter railroading in the East and Canada. Ry Age 68:527 F 20 '20

See also Snow melters, Electric

Standards

- Progress and standardization; development of brake beam and air brake illustrates need for free play of inventive genius. Ry Mech Eng 93:707-9 D '19
 Standardization of railway equipment; views of the railway supply trade. A. B. Johnson. Ry R 65:534-6 O 11 '19; Same. Ry Age 67:1113-15 D 5 '19

See also Rails—Standards

Stationery

- New stationery building of the Santa Fe R.R. T: J. Brennan. il Ry R 67:273-4 Ag 21 '20

See also Railroads—Forms, blanks, etc.

Stations

- Dignified station design for London & Port Stanley railway of Ontario at St. Thomas. il plan Elec Ry J 55:1059 My 22 '20
 First unit of St Paul union station completed. il plans Ry Age 68:1442-6 My 21 '20
 Grand Central development seen as great civic center. il diags (supp) Eng N 85:496-504 S 9 '20
 Le Brun scholarship competition, 1920-21. il plans Am Inst Arch J 9:85-91 Mr '21
 Method of heating railroad passenger stations. diags Heat & Ven 18:41-2 Ag '21
 Missouri Pacific rebuilds station in record time. E. A. Hadley. il plans Ry Age 71:617-18 O 1 '21
 New Haven freight transfer facilities at Cedar Hill. il plan Ry Age 71:751-4 O 22 '21
 Report of the American railway bridge and building association on the construction and maintenance of passenger platforms; with discussion. Ry Age 71:784-5 O 22 '21
 Small station layout illustrated in new structures. il plans Eng N 87:482-3 S 22 '21

See also Railroads—Terminals

Lighting

- Some recent developments in lighting at Waterloo station. il Illum Engr 13:270-2 O '20

Statistics

- Analysis of financial statistics of railroads. J. P. Muller. Ry R 66:53-6 Ja 10 '20
 Comparative railway statistics; United States and foreign countries, 1916. Bur Railway Econ misc ser 35:1-66 '20
 Curtailed construction activities mark the year. Ry Age 68:107-12 Ja 2 '20
 English railway statistics. L. G. Lauck. Ry Age 69:790 N 5 '20
 Expenditures of the railways for labor and material. Ry Age 71:199-202 Jl 30 '21; Same abr. Eng & Contr 56:280-1 S 21 '21
 How R.R. construction and equipment building has fallen off. Ry R 66:621 Ap 10 '20
 How railway statistics are compiled; modern office appliances. Ry R 68:277-83 F 19 '21
 Interesting study in railway efficiencies; operating efficiency of freight cars. F. L. Hutchins. Ry R 68:857-9 Je 4 '21
 I.C.C. to continue railroad administration operating statistics. Ry Age 68:236-8 Ja 16 '20

- Need for railroad statistics. A. Bonn. Ry Age 71:381-2 Ag 20 '21

New construction conspicuous by its absence in 1920. Ry Age 70:153-9 Ja 7 '21; Excerpt. Eng & Contr 55:63 Ja 19 '21

Operating of British and U.S. railways compared. Ry Age 69:937-9 N 26 '20

Operating statistics for August. Ry Age 69:936 N 26 '20

Operating statistics for September. Ry Age 69:976 D 3 '20

Operating statistics for December and 1920; tabulation. Ry Age 70:510 Mr 4 '21

Radical analysis of railway operations; comparisons on the basis of the equated locomotive day. H. Emerson. Ry R 68:729-35 My 14 '21

Railroad administration operating statistics. Ry Age 68:87 Ja 2 '20

Railroad gross and net earnings for the calendar year, 1920. Comm & Fin Chr 112:1078-83 Mr 19 '21

Railroads making good in meeting lack of equipment. Ry R 66:1109-11 Je 26 '20

Railway mileage of the world, 1917. Ry Age 70:367 F 11 '21; Same. Eng & Contr 55:251 Mr 16 '21

Railway operating expenses and income for the first six months of 1921. Ry R 69:300-1 S 3 '21

Railway revenues and expenses in 1919. J. H. Parmelee. il charts Ry Age 68:93-7 Ja 2 '20

Railway revenues and expenses in the year 1920. J. H. Parmelee. Ry Age 70:129-32 Ja 7 '21

Railway statistics for year ending August 31, 1921. Ry Age 71:898-9 N 5 '21

Reasonable statistics would save millions to carriers. S. Thompson. Ry R 69:610-11 N 5 '21

Revenues and expenses of railways; monthly statistics published in Railway age

Statistical control of railroad operations. A. M. Sakolski. Administration 2:3-13 Jl '21

Statistics of the railways in 1919. Ry Age 68:91-135 Ja 2 '20

Steam railroad statistics to December 31, 1918. Ry Age 67:1045-8 N 28 '19

Le trafic et les tarifs sur les chemins de fer des principaux états du monde, de 1908 à 1912. P. Kandaouroff. Génie Civil 76:91-3 Ja 24 '20

Trend in railway operation: all class 1 roads, 1919 to date; chart. Ry R 69:518 O 15 '21

Trend of railway earnings shown in charts. H. M. Sperry. Ry Age 70:1332-4 Je 10 '21

Vitalizing railway statistics. L. F. Loree. Ry R 68:974-5 Je 25 '21

Why the railroads should invest \$6,000,000,000 in new facilities within the next three years. Ry Age 68:7-60 Ja 2 '20

See also Cars—Statistics; Freight cars—Statistics; Locomotives—Statistics; Railroads—Accidents; Railroads—Finance

Stores systems

- American electric railway engineering association meeting, Atlantic City, N.J.; report on standardization and its effect on stores. Elec Ry J 56:830-3 O 16 '20
 Management of a railroad stores department. E. H. Polk. Ry R 66:167-70 Ja 31 '20
 Neglect of storekeeping causes big loss to carriers. W. J. Cunningham. Ry R 69:444-5 O 1 '21
 Observations on stores department management. G. G. Yeomans. Ry R 68:849-51 Je 4 '21
 Opportunities and responsibilities of the railroad stores department. E. J. Roth. il Ry R 66:348-9 F 28 '20
 Organization of a strong service of supply. il Ry Age 69:917-19, 969-72 N 26-D 3 '20
 Service of supply as a business institution. H. C. Pearce. Ry Age 70:279-82 Ja 28 '21
 Service of supply subjects feature American railway association general meeting, Chicago. Ry R 68:937-42 Je 18 '21; Ry Age 70:1355-62 Je 10 '21
 Uniform accounting. H. H. Laughton. Ry Age 70:1357-8 Je 10 '21

Railroads—Stores systems —Continued

Unit piling of material an aid to better storekeeping. J. G. Stuart. *il Ry R* 68:943-5 *Je* 18 '21

See also Railroads—Purchasing

Strikes

See Strikes

Supplies

See Railroads—Equipment and supplies

Surveying

See Railroad surveying

Switches, frogs, etc.

Frogless switch sidetracks muck cars at tunnel heading. N. A. Eckert. *diag Eng N* 84:489 *Mr* 4 '20

Relative economy of repairing frogs, switches and crossings by welding. *Ry R* 67:483-4 *S* 25 '20

See also Railroads—Crossings

Manufacture

Grinding manganese steel castings. F. B. Jacobs. *il Foundry* 49:767-70 *O* 1 '21

Switching

Centralizing the operation of outlying switches. J. E. Saunders. *il Ry Age* 69:621-2 *O* 8 '20

Electric locomotives in switching service. O. Wortman. *il Ry R* 66:913-14 *Je* 5 '20

Heavy power for industrial switching service. *il diag Ry Age* 69:797-9 *N* 5 '20

Increasing the miles per car per day; discussion of means. A. G. Smart and others. *Ry Age* 69:827-8 *N* 12 '20

Outlying switch control facilitates train movements; development of low-voltage mechanisms controlled from a central point. C. C. Anthony. *Ry Age* 70:1077-9 *My* 6 '21

Reform needed in switching operation and the handling of the individual car. C. E. Rochambeau. *Ry R* 68:30-1 *Ja* 1 '21

Remote control for railway switches. *diag Eng N* 86:1043 *Je* 16 '21

Telegraph

New telegraph office in Indianapolis union station. *il plan Ry Age* 68:765-7 *Mr* 17 '20

Railroad electrical communication. H. C. Chace. *W Soc E J* 26:326-9 *S* '21; *Abstract. Ry Age* 71:380-1 *Ag* 20 '21

Railway telegraph construction. M. G. Tweedie. *Electrician* 86:329 *Mr* 18 '21

Railway telephone and telegraph systems. M. G. Tweedie. *Electrician* 86:197-8 *F* 11 '21

Some phases of railroad telegraph and telephone engineering. S. Rhoads. *il diags Am Inst E E J* 40:224-32, 315-25, 387-97 *Mr-My* '21

Telegraph and telephone section of A.R.A. hold annual meeting; radio and wired wireless in railroad work. *Ry Age* 71:585-7 *S* 24 '21

Telephone

Some phases of railroad telegraph and telephone engineering. S. Rhoads. *il diags Am Inst E E J* 40:224-32, 315-25, 387-97 *Mr-My* '21

System of railway traffic control by telephone. T. F. Lee. *diags Electrician* 86:382-4 *Ap* 1 '21

Telegraph and telephone section of A.R.A. hold annual meeting; radio and wired wireless in railroad work. *Ry Age* 71:585-7 *S* 24 '21

Terminals

Acceleration of freight handling at terminals. H. M. Harding. *Ry R* 66:792-5 *My* 15 '20

Adapting motor truck to railroad terminal expansion. B. F. Fitch. *Eng N* 85:785 *O* 21 '20

Automatic terminal railway for New York. *plan Eng & Contr* 55:491-5 *My* 18 '21

Cincinnati terminal problem. W. Baldwin. *Ry Age* 68:1287-8 *Ap* 30 '20

Co-ordination of railway and marine terminals. *Ry Age* 69:1040 *D* 10 '20

Curing our transportation ills. O. W. Stiles. *Am Ind* 21:11-12+ *Mr* '21

Denver & Rio Grande terminal at Soldier Summit, Utah. *maps Eng N* 84:1069-72 *My* 27 '20

Economic aspect of terminals. W. B. Parsons. *Ry R* 67:933-6 *D* 18 '20; Same cond. *Ry Age* 69:1013-14 *D* 10 '20; Same cond. *Mech Eng* 43:21+ *Ja* '21; Same cond. *Eng & Contr* 55:63-4 *Ja* 19 '21; *Abstract. Eng N* 85:1193-4 *D* 16 '20

Electrical equipment of Kansas City terminal. R. W. Budd. *il Elec R* 76:933-6 *Je* 5 '20

Enlarged Waterloo station, London and Southwestern Ry. *il diags plans Eng N* 86:426-30 *Mr* 10 '21

Freight and passenger terminal problems at Chicago. *Eng N* 86:1077 *Je* 23 '21

Function of the terminal survey. J. R. Bibbins. *W Soc E J* 26:201-2 *My* '21

Giant freight terminal, Chicago. R. H. Moulton. *il Sci Am* 124:133 *F* 12 '21

Grand Central development seen as great civic center. *il diags (supp) Eng N* 85:496-504 *S* 9 '20; *Ry R* 68:197-204 *F* 5 '21

High line construction for the Kansas City passenger terminal. *il diags maps Ry R* 67:263-9 *Ag* 21 '20

Joint terminals and facilities. J. F. Wallace. *Ry Age* 71:21-2 *Jl* 2 '21

Lehigh Valley plans comprehensive terminal. *il diags plan Ry Age* 69:599-601 *O* 8 '20

Los Angeles terminal plan is ordered. *Eng N* 86:829-30 *My* 12 '21

Motorizing railroad freight terminals; abstracts. B. F. Fitch. *il Ry R* 66:459-63 *Mr* 20 '20; *Am Mach* 52:646-7 *Mr* 18 '20; *Eng N* 84:508-11 *Mr* 11 '20; *Iron Tr R* 66:924-5 *Mr* 25 '20; *Ry Age* 68:681-3 *Mr* 5 '20; *Textile World* 57:1995+ *Mr* 13 '20; *Sci Am M* 1:448-50 *My* '20

Municipal freight terminals. O. W. Stiles. *Ry R* 67:233-5 *Ag* 14 '20

New Chicago freight terminal of Alton railroad. *diags plans Eng N* 85:728-31 *O* 14 '20

New civic and railway development plan in Chicago. *plans Ry Age* 70:891-4 *Ap* 8 '21; Same. *Ry R* 68:565-9 *Ap* 9 '21

New freight and shop terminal of Southern Pacific company at Bayshore. C. W. Geiger. *il diags plans Ry R* 68:771-6 *My* 21 '21

New freight terminal nearing completion in Chicago. *il diag plans Ry Age* 71:65-9 *Jl* 9 '21

New loop station for North Shore line. *il Elec Ry J* 55:234 *Ja* 31 '20

New passenger terminal for Cleveland planned. *Ry Age* 70:498 *Mr* 4 '21

New Union railroad facilities at Jacksonville. *il plan Ry Age* 68:157-60 *Ja* 9 '20

On the trail of the last-minute shopper; a special class of stores has grown up in terminals. J. F. Cameron. *Ptr Ink M* 2:65-6 *F* '21

Operating a modern freight house efficiently. W. E. Phelps. *il diag plan Ry Age* 70:187-90 *Ja* 14 '21

Principles of correlation of railroad terminals with the city plan. C. H. Cheney and J. P. Newell. *Ry Age* 68:1286-7 *Ap* 30 '20

Proposed improvement of Chicago railway terminals. *diags Eng N* 86:845-7 *My* 19 '21

Rail and water terminal for Nashville, Tenn. *diags Eng N* 86:766-7 *My* 5 '21

Railway reorganization and gorge terminal at Niagara Falls, N.Y. *il Can Eng* 40:379 *Ap* 14 '21

Railway terminal problem has many phases. *Ry Age* 70:1169-71 *My* 20 '21

Railway terminal problems of greater New York. J. J. Mantell. *Ry Age* 70:473-4 *F* 25 '21; *Excerpt. Eng N* 86:370 *Mr* 3 '21

Relation of railroad terminal problem to city planning. W. J. Wilgus. *diags Eng N* 84:901-2 *My* 6 '20; Same. *Ry Age* 68:1285-6 *Ap* 30 '20; Same. *Eng & Contr* 53:563-4 *My* 19 '20

Terminal built for special operating conditions. *il diags map plans Ry Age* 68:1025-30 *Mr* 26 '20

Terminal service possibilities of the electric railways. J. R. Bibbins. *Elec Ry J* 58:591-2 *O* 8 '21

Terminal's need is real rail problem. O. W. Stiles. *Iron Tr R* 67:1279-80 *N* 4 '20

Railroads—Terminals —Continued

- \$32,000,000 terminal improvement; electric interurban and steam lines at Los Angeles ordered to start work at once on new Union depot. Elec Ry J 57:868 My 7 '21
- Transportation and the city. plan. N. P. Lewis. Can Eng 39:509-11 N 11 '20; Same abr. Eng & Contr 54:547-8 D 1 '20
- Truscon construction in new express terminal at Chicago. il Ry R 66:433-5 Mr 13 '20
- Twenty miles a day; inadequate terminal facilities and their part in our freight congestion. J: Lathrop. Sci Am 125:148 Ag 27 '21
- Unified terminal operation held essential to economy. G: H. Kimball. Eng N 86:893 My 26 '21
- Unified terminals result in increased efficiency. il Ry Age 68:77-80 Ja 2 '20
- Valley terminal of the cotton belt route at East St Louis, Illinois. il plan Ry R 66:671-2 Ap 24 '20
- What additions to physical property are necessary? Ry Age 70:39-42 Ja 7 '21
- See also* Electric railroads—Terminals; Freight houses; Freight tunnels; Locomotive terminals; Railroads—Stations; Railroads—Yards; Terminals

Pictures

- Where railroads end; five etchings. J. Pennell. Nation's Business 9:33-8 Mr '21

Theft losses

- Preventing thieving and pilfering on the railroads. A. S. Lyman. Ry Age 70:833-4 Ap 1 '21
- Theft of goods in transit. A. L. Green. Ry R 68:547-8 Ap 2 '21

Ticket offices

- Better railway ticket selling. R. Howard. il Sci Am 124:225 Mr 19 '21
- Cash register in a ticket office. il Ry Age 71:260-2 Ag 6 '21
- How advertising may help to solve the merchandising problem of the railroads. J. G. Condon. Ptr Ink 114:41-4 F 17 '21
- How Pullman space is sold. A. R. Surface. il Sci Am 124:145 F 19 '21
- New idea in ticket cabinets. il plans Ry Age 71:33-4 Jl 2 '21

Tickets

- New machine for making R.R. tickets in individual offices. il Ry R 67:829-30 N 27 '20
- New ticket printing and recording machine. il Ry Age 71:462 S 3 '21
- See also* Railway ticket protective bureau

Ties

See Railroad ties

Time tables

- First published timetable of the oldest railroad in America. J. T. Doyle. Ry R 67:269-70 Ag 21 '20

Tools

- American railway tool foremen's association 10th annual convention, Chicago. Ry R 67:386-7 S 11 '20; Ry Mech Eng 94:653-9 O '20
- Issuing and checking tools in locomotive and car shops. J. B. Hasty. Ry Mech Eng 94:659 O '20
- Production of boiler flue beading tools in railway tool shops. J. V. Hunter. il Power 53:904 N 11 '20

See also Railroads—Shops—Equipment

Tracing service

- Value of the tracing service. P. W. Gates. Ry Age 71:255 Ag 6 '21

Track

- Appareil, système Amsler, pour la mesure de la pression des roues de locomotives et de wagons sur les rails. il diags Génie Civil 78:357 Ap 23 '21
- Budget system as applied to track work. C. A. Morse. Ry R 69:396-400 S 24 '21; Same. Eng & Contr 56:370-2 O 19 '21; Same cond. Ry Age 71:571-3 S 24 '21

- Chicago-Indianapolis improvement Big Four railroad. diags Eng N 85:606-7 S 23 '20
- Clyde track laying machine. Eng & Contr 55:602 Je 15 '21; Sci Am 125:23 Jl 9 '21.
- Concrete base track approach for Chicago union station. diags Eng N 85:223 Jl 29 '20
- Concrete block track supports on Italian railways. diags Eng N 87:689-90 O 27 '21
- Concrete roadbed for track, tunnels and stations. diags plan Eng N 84:826-8 Ap 22 '20
- Cost analysis of replacing three crossing diamonds. Eng & Contr 53:64-5 Ja 21 '20
- Duties of a roadmaster. R. E. Keough. Eng & Contr 55:171 F 16 '21
- Effect of train speed on cost of track maintenance. C. C. Williams and J. M. Burt. Eng & Contr 56:152-5 Ag 17 '21; Abstract. Eng N 86:507 Mr 24 '21
- Electrolytic destruction of steel due to leakage from electric railroads. Sci Am 122:124 Ja 31 '20
- English devices for rail renewals. diags Eng N 87:273 Ag 18 '21
- Equation of track values for equalizing lengths of sections. Eng & Contr 54:396 O 20 '20
- Experiences of an English trackman. G. Hopes. Ry R 67:423-5 S 18 '20
- Features of locomotive design affecting wear on track. F. Williams. diags Ry R 68:737-9 My 14 '21
- How Southern Pacific Ry. solved some of its track problems. Eng & Contr 56:286 S 21 '21
- Improvement of track maintenance. C: Weiss. Ry R 69:240-2 Ag 20 '21; Same abr. Eng & Contr 56:290 S 21 '21
- Keeping our railroads up to the mark; pneumatic apparatus that constitutes the prime factor in trunk-line maintenance of way. R. G. Skerrett. il Sci Am 124:384+ My 14 '21
- Labor saving devices in maintenance of way work. il Eng & Contr 53:174-5 F 18 '20
- Lehigh Valley modernizes the laying of rail. il Ry Age 69:1017-18 D 10 '20; Same. Eng & Contr 55:69 Ja 19 '21
- Maintenance of way by the railroad administration. il Ry Age 68:57-60 Ja 2 '20
- Maintenance of way cyclopedia. E. T. Howson and others. 860p Simmons-Boardman pub. co., New York, Chicago '21
- Manganese steel in track work. J. B. Strong. Ry Age 69:928 N 26 '20; Same. Eng & Contr 54:499 N 17 '20
- Mechanical permanent way repairing plant. Cartault. Engineering 112:281-2 Ag 19 '21
- Mechanical section gang repairs railroad tracks. il Pop Mech 35:746 My '21
- Method of supporting track over trench with maximum clearance. J: H. Sawkins. diags Eng N 84:440 F 26 '20
- Methods of increasing efficiency of track labor. F. G. Jonah. Eng N 85:662 S 30 '20; Same cond. Eng & Contr 54:384 O 20 '20
- Methods of standardizing track work. E. Stimson. Ry R 67:813-16 N 27 '20; Same. Eng & Contr 54:579-82 D 15 '20
- New system of track work records on St L.-S. F. Ry. Eng N 85:949-52 N 11 '20
- Piece work plan for maintenance of way labor. C. C. Cook. Eng & Contr 56:164 Ag 17 '21
- Practical track maintenance. K. L. Van Auker. 2d ed. 274p Railway educational press, Chicago '21
- Protection of railway track from falling rocks. Eng N 87:602 O 13 '21
- Rail laying with locomotive cranes. W. C. Barrett. il Eng & Contr 55:265 Mr 16 '21
- Raising track. C: Weiss. il Ry R 69:364-6 S 17 '21; Discussion. 69:505-6 O 15 '21
- Roadway and track. W. F. Rensch. 242p Simmons-Boardmann pub. co., New York '21
- Scientific study of railway track under load; second progress report. Ry Age 68:670-3, 775-9 Mr 5-12 '20; Eng N 84:406-13 F 26 '20; Eng & Contr 53:289-96 Mr 17 '20; Elec Ry J 55:704-6 Ap 3 '20
- Single track cut-off for double tracking main line on St Louis-San Francisco railway. diag plan Eng N 85:1033 N 25 '20
- Stopping track creepage on heavy grades. A. M. Shaw. Eng N 84:101 Ja 8 '20

Railroads—Track—Continued

Stresses in railroad track. A. N. Talbot. Can Eng 38:479 My 20 '20

Testing roadbed conditions by the resistance method. S. R. Winters. il Sci Am 124:305+ Ap 16 '21

Time tests in relaying 105-lb. rail. Eng & Contr 52:583 N 19 '19

Track and locomotive. Eng N 84:403-4 F 26 '20

Track improvements on the C.R.I. & P. Ry. C. A. Morse. Ry R 69:140-1 J1 30 '21

Track labor cost data. B. V. Crandall. 110p Kenfield-Leach co., Chicago '20

Track maintenance. W. H. Kirkbride. Ry R 68:328-31 F 26 '21

Track supply exhibit at Roadmasters' convention. Ry Age 69:542-3 S 24 '20

Tracklayer for logging railways. diag Eng N 84:373-4 F 19 '20

Year of progress in maintenance of way. Ry Age 70:85-6 Ja 7 '21

See also Ballast; Electric railroads—Track; Grade crossings; Mine tracks; Rail chairs; Railroad ties; Railroads—Construction; Railroads—Curves and turnouts; Railroads—Grades; Railroads—Snow removal; Railroads—Switches, frogs, etc.; Railroads—Weed removal; Rails; Rails, Used; Spikes (railroad); Street railroads—Track; Trackman's rule

Track elevation

Chicago electrification and elevation on C., M. & St P. Ry. il diags Eng N 85:1226-30 D 23 '20

Elevation of C. B. & Q. tracks at Aurora, Ill. il map Ry R 66:405-9 Mr 13 '20

Grade separation report takes a broad stand; plans for Beaumont, Tex. Ry Age 71:831-2 O 29 '21

Interesting type of flat slab construction. diags plans Ry Age 68:1233-5 Ap 23 '20; Same. Eng & Contr 53:600-2 My 26 '20

Lackawanna elevates tracks through East Orange. il diags Ry Age 71:281-4 Ag 13 '21

Railway grading with stiffleg derrick draglines. il Eng & Contr 52:691-2 D 17 '19

Track making machinery

Cross-cutting, adzing and boring machine for railway sleepers. diags Engineer 132:348, 353-4 S 30 '21

Track removal

Railway tracks removed from streets of Dallas. il map Eng N 87:646-8 O 20 '21

Traffic

Higher freight rates fail to curtail shipping. Ry Age 70:69-70 Ja 7 '21

See also Freight car service; Railroads—Freight; Railroads—Passenger traffic

Train load

Best method of handling freight trains. Ry Mech Eng 94:699-700 N '20

D. and S. L. presents difficult operating problem. il map Ry R 69:357-61 S 17 '21

Economics of the freight train load. W: J. Cunningham. Ry R 67:42-5 J1 10 '20

Increasing locomotive operating efficiency. R. S. Mounce. Ry Age 68:1191-6 Ap 16 '20; Same abr. Ry Mech Eng 94:270-4 My '20

Inflated tonnage ratings. L. Greenleaf. Ry Mech Eng 94:330 Je '20

Making motive power management more efficient. L. G. Plant. il Ry R 68:664-7 Ap 30 '21

Train sheds

Passing of an historic passenger train shed; structure over tracks of North station, Boston, removed after nearly fifty years' service. il diags plan Ry Age 70:1211-13 My 27 '21

Trainshed roof of steel arches instead of columns. il diags plan Eng N 85:350-2 Ag 19 '20

Train speed

British and French railway speed in 1920. Engineer 131:253 Mr 11 '21

Effect of train speed on cost of track maintenance. C. C. Williams and J. M. Burt. Eng & Contr 56:152-5 Ag 17 '21; Abstract. Eng N 86:507 Mr 24 '21

Effect of train speed on energy consumption. G. S. Chiles and R. G. Kelley. Ry Age 70:1083-4 My 6 '21

Étude graphique de l'accélération d'un train. P. Caufourier. diags Génie Civil 79:253-4 S 17 '21

Railway speed in 1919. Engineer 129:59-60 Ja 16 '20

Trains

Efficient handling of trains; committee report. Ry R 67:458-60 S 25 '20; Same cond. Ry Age 69:519-20 S 24 '20

Electrification of main line railways in relation to traffic working; with discussion. P. Nash. Electrician 86:273-5 Mr 4 '21

Elimination of train orders will accomplish saving. Ry Age 69:1099 D 24 '20

Handling 9000 tons down a 1.6 per cent grade. il Ry R 68:515-21 Ap 2 '21; Abstract. Mech Eng 43:407 Je '21

Improvements in train braking. il diags Sci Am 124:506-7 Je 25 '21

Marking another milestone in air brake achievement. il diags Ry R 68:885-94 Je 11 '21

Measures to reduce overtime in train service. R. H. Aishton. Ry Age 68:245 Ja 16 '20

Measuring sticks for trains costs. O. O. Carr. Ry R 67:777-8 N 20 '20

Record train loading features Virginian operation; Demonstration of double-capacity brake. il maps Ry Age 70:1203-8, 1407-10 My 27, Je 17 '21; Same cond. Ry Mech Eng 95:428-32 J1 '21

Reducing the railroads' waste line. Ry R 69:116-19 J1 23 '21

Relation of punitive overtime to freight train operation. G. D. Brooke. diag Ry Age 68:1104 Ap 2 '20

Signal system for expediting the starting of trains. Elec Ry J 58:399 S 10 '21

Single track operation without train orders. F. H. Bagley. plans Ry Age 68:1205-6 Ap 16 '20

Systematic plan for the movement of freight traffic. Ry Age 71:254-5 Ag 6 '21

Tonnage vs. overtime. O. O. Carr. Ry R 67:177-8 J1 31 '20

Train handling with electric locomotives. W. S. H. Hamilton. il Ry Age 70:227-31, 323-6, 455-8 Ja 21, F 4, 25 '21

Train operation by signal indication. H: M. Sperry. il Ry Age 68:1553-8, 1669-74 Je 4-11 '20 [reprinted by author, 247 Madison ave., N.Y.]

Virginian Ry. will handle 16,000 tons in single train. Ry R 68:739-40 My 14 '21

See also Freight car service; Railroads—Signals; Railroads—Train load; Train dispatching; Train resistance

Valuation

Analysis of the current valuation report on the Kansas City Southern properties. S: W. Moore. Eng N 86:818-21 My 12 '21

Chicago & Eastern Illinois compensation fixed. Ry Age 68:1042 Mr 26 '20

Cost of acquisition of lands must be included in valuation. Ry Age 68:786 Mr 12 '20

Cost of locomotives for valuation purposes. Ry Age 69:387-90 S 3 '20

Curves of building cost increases used in valuation work. F. E. Barnes. Eng N 85:702 O 7 '20

Decision favors railroad in land valuation case. J. White. Eng N 84:563-4 Mr 18 '20

Developing prices for federal valuation of railroads. H: J. Saunders. Eng N 83:930-3 N 27 '19

Field work in valuation practically ended. il Ry Age 68:115-17 Ja 2 '20

Final valuations served on four railroads. Ry Age 70:887-90 Ap 8 '21; Abstract. Ry R 68:598-9 Ap 16 '21; Abstract. Eng N 86:686-7 Ap 21 '21

Final values of railroads. il Ry R 66:347 F 28 '20

How much is a railroad worth? R: H. Tingley. Annalist 18:342-3 O 10 '21

Railroads—Valuation—Continued

- How the Interstate commerce commission fixed the valuation. Ry Age 70:299 Ja 28 '21
- I.C.C. has served valuations on 106 railroads. Ry Age 71:288-90 Ag 13 '21
- I.C.C. holds hearing on rate-making procedure. Ry Age 68:1031-6 Mr 26 '20
- Land and right of way valuation methods of the Interstate commerce commission. Eng & Contr 55:260-1 Mr 16 '21
- Progress with federal valuation of railways. F: H. Lee. Ry R 68:130-2 Ja 22 '21
- Question of earthwork shrinkage in valuation. Ry R 66:89-90 Ja 17 '20; Same abr. Eng & Contr 53:190 F 18 '20
- Railroad land, "Where is thy value?" F. Rhea. Ry R 66:836-8 My 22 '20
- Railroad valuation and the unearned increment. H. B. Vanderblue. Ry Age 68:1105-11 Ap 2 '20
- Railroad valuation figures disputed by Clifford Thorne. Ry R 67:12-14 Jl 3 '20; Same cond. Nat Pet N 12:99+ Jl 7 '20
- Railway valuation. F. Rhea. Ry R 66:600-4, 641-4, 672-5, 725-7, 801-5, 988-92; 67:228-32, 275-9, 311-13, 359-61, 389-92, 429-31, 544-6, 676-9, 771-5, 809-13, 898-901; 68:11-15, 50-5, 94-7+, 217-21+, 247-51, 402-5+, 536-9 Ap 10-My 1, 15, Je 12, Ag 14-S 18, O 9, 30, N 20-27, D 11 '20, Ja 1-15, F 5-12, Mr 12, Ap 2 '21
- Rational valuation—a comparative study. J. R. Bibbins. Mech Eng 42:549-53 O '20
- Special slide rules prove useful in valuation work. C. S. Meyer. Eng N 85:1174-5 D 16 '20
- Subsidence of earth fills as a factor in valuation. diags Eng N 86:434-6 Mr 10 '21
- Supreme court decision in valuation case. Ry R 66:471-2 Mr 20 '20
- Supreme court upholds the roads in valuation case. Ry R 66:403-4 Mr 13 '20
- Tentative valuation of railways—book figures of railroads sustained. Comm & Fin Chr 111:1813-14 N 6 '20
- Tentative valuation of the Chicago, Rock Island & Pacific. Ry Age 71:527-8 S 17 '21
- Tentative valuation results and the carriers' investments. F. Rhea. Ry R 67:124-7 Jl 24 '20
- Tentative valuations issued. Ry Age 71:26-7, 100, 164 Jl 2, 16-23 '21
- Two important valuation developments in 1920; Kansas City Southern decision and transportation act. Ry Age 70:74-6 Ja 7 '21
- Useless valuation of the railroads. Comm & Fin Chr 113:341-2 Jl 23 '21
- Valuation arguments heard by I. C. C. Ry Age 68:181-3 Ja 9 '20
- Valuation hearing. Ry Age 70:336-7 F 4 '21
- Valuation of Western Union lines on R.R. rights-of-way. F. Rhea. Ry R 66:735-6 My 1 '20
- Valuations as tentatively completed for an additional 44 railroads. Comm & Fin Chr 113:1539-40 O 8 '21
- Valuations as tentatively completed for the first 106 railroads. Comm & Fin Chr 113:1008-11 S 3 '21
- See also Electric railroads—Valuation; Public utilities—Valuation

Wage dispute, 1921

- Administration strike policy more conciliatory. H. F. Lane. Ry Age 71:827-9 O 29 '21
- Administration takes strike threat calmly. Ry Age 71:763-4 O 22 '21
- Another crisis on the railroads. Ry Age 71:745-7 O 22 '21
- Brotherhoods fail in vaunted leadership skill. C: Lovell. Annalist 18:412+ O 31 '21
- Conductor's view of the threatened strike. Ry R 69:591-2 O 29 '21
- Carriers again ask Labor board to decrease wages. Ry Age 70:1335-7 Je 10 '21
- Controversy before Labor board continues. Ry Mech Eng 95:160-2 Mr '21
- Controversy between railroads and employees over National agreements and wage reductions. Comm & Fin Chr 112:526-9 F 5 '21
- Emergency organization for meeting strike situation. Ry Age 71:873-4 N 5 '21

- Employees begin fight on wage reductions. Ry Age 70:1075-6 My 6 '21
- Labor board considers wage reduction pleas. Ry Age 70:1389-90 Je 17 '21
- Labor board opens inquiry into threatened strike. Ry Age 71:819-23 O 29 '21
- Labor board rules national agreements end July 1. Ry Age 70:989-91 Ap 22 '21
- Labor board surrenders to unions to avert strike. Ry R 69:570-4 O 29 '21
- Labor leaders call strike for October 30. Ry Age 71:755-8 O 22 '21
- Labor leaders meet in Chicago to determine policy on wage reductions. Ry Age 71:69 Jl 9 '21
- Lee endeavors to explain strike cause. Ry Age 71:826 O 29 '21
- National agreements must be abrogated at once. W. W. Atterbury. Ry Age 70:317-19 F 4 '21
- Railroad advertising in advance of threatened strike. J. G. Condon. Ptr Ink 117:8+ N 3 '21
- Railroad labor board's formal decision as to strike vote. Comm & Fin Chr 113:1943 N 5 '21
- Railroad strike called off. Comm & Fin Chr 113:1849-52 sec 1 O 29 '21
- Railroads' course as to wage cuts defended. Comm & Fin Chr 113:1852-4 sec 1 O 29 '21
- Railroads hold conferences on wage reductions. Ry Age 70:709-10 Mr 18 '21
- Railroads prepare against strike possibility. Ry Age 71:825-6 O 29 '21
- Railroads unions' resolution calling off strike. Comm & Fin Chr 113:1943-4 N 5 '21
- Railway labor board hearing—reply of carriers to demand for a living wage. Comm & Fin Chr 112:2042 My 14 '21
- Satisfactory settlement ends threatened strike. Ry Age 71:871-3 N 5 '21
- Strike directed against Labor board say eastern executives. Ry Age 71:761 O 22 '21
- Strike settlement leaves many issues confused. H. F. Lane. Ry Age 71:887-9 N 5 '21

Wages

- Annual compensation per railway employee, class 1 railways, 1915-1919; table. Ry R 66:339 F 28 '20
- Answer to labor leaders on wage demands. Ry Age 68:719-21 Mr 5 '20
- Average pay of railroad employees 1915-1920. Ry Age 68:1446 My 21 '20
- Award may end yard rates for enginemen. Ry Age 68:1209-10 Ap 16 '20
- British railway wages. N. C. Adams. Monthly Labor R 10:610-19 Mr '20
- Brotherhood unit-action on wage award fails. Ry Age 69:185-6 Jl 30 '20
- Carriers announce policy on rates and wages. T: D. Cuyler. Ry R 69:538-41 O 22 '21
- Decision of Labor board on piece work. Ry R 69:541-2 O 22 '21; Same cond. Ry Age 71:788-9 O 22 '21
- Developments in the shop labor situation. Ry Mech Eng 94:17-18 Ja '20
- Employees demand minimum wage of \$2,500 a year. Ry Age 68:1577-8 Je 4 '20
- Employees win verdict in Erie controversy. Ry Age 70:547-51 Mr 11 '21; Same. Ry R 68:391-4 Mr 12 '21
- Engineers in railroad wage award. Eng N 85:571-2 S 16 '20
- Fair treatment for railway employees. W: Ellis. Am Ind 20:24-5 Jl '20
- Great increases in number and wages of employees. Ry Age 70:468-9 F 25 '21
- How much railway wages really have advanced. Ry Age 68:1438 My 21 '20
- How railroad wages should be readjusted. Ry Age 71:808-9 O 29 '21; Discussion. 71:922-3 N 12 '21
- Increased wages consumed 97 per cent of increased rates. Ry Age 67:1236 D 26 '19
- Is the railway employee overpaid and underworked? C: W. Baker. Eng N 84:385-6 F 19 '20; Discussion. 84:539-40 Mr 11 '20
- Labor board announces general wage reduction. Ry Mech Eng 95:379-80 Je '21
- Labor board announces wage reductions for July 1. Ry Age 70:1259-62 Je 3 '21; Same (with list of parties to the dispute). Ry R 68:864-70 Je 4 '21

Railroads—Wages—*Continued*

Labor board concludes short line hearings. Ry Age 69:963-4 D 3 '20

Labor board decision in the A. B. & A. Ry. case. Ry R 68:680-2 Ap 30 '21; Excerpts. Ry Age 70:1036 Ap 29 '21

Labor board decision on maintenance of way wages, St Louis Southwestern railway. Ry R 68:651-3 Ap 23 '21

Labor board denies New York Central petition for wage cut. Ry R 68:577 Ap 9 '21

Labor board grants higher wages on Bangor & Aroostook R.R. Ry R 67:395-7 S 11 '20

New railroad map—the route of wages. M. W. Alexander. Iron Tr R 69:1162 N 3 '21

New system of wage adjustment for railways. Monthly Labor R 10:1120-3 My '20

New tribunal proposed to settle wage demands. Ry Age 68:529-39 F 20 '20

New wage conferences begin at Washington. Ry Age 68:783-5 Mr 12 '20

Payroll for 1920 was \$3,733,816,186. Ry Age 70:894 Ap 8 '21

Pennsylvania railroad discusses wage reduction with employees. Comm & Fin Chr 112:1354-5 Ap 2 '21

Pennsylvania railroad is driven through economic conditions to reduce pay of officers and workers. Comm & Fin Chr 112:984 Mr 12 '21

Percentage of wage reductions ordered by Labor board. Ry Age 70:1278 Je 3 '21

Piece work plan for maintenance of way labor. C. C. Cook. Eng & Contr 56:164 Ag 17 '21

Present wages and rules ruining Canadian railways. J. L. Payne. Ry Age 70:787-9 Mr 25 '21

Railroad employees and their compensation for January 1920, compared with same month of previous year. Ry Age 68:1422-3 My 14 '20

Railroad labor board applies 12% reduction to practically all roads. Comm & Fin Chr 113:33-4 Jl 2 '21

Railroad labor board awards higher wages. Ry R 67:113-20 Jl 24 '20; Same abr. with table. Ry Age 69:135-9 Jl 23 '20

Railroad labor board decision announced. Ry Mech Eng 94:517-18 Ag '20

Railroad labor board hears threat by union official. Ry R 66:942 Je 5 '20

Railroad labor board raises wages of railway expressmen. Ry R 67:236-8 Ag 14 '20; Same. Ry Age 69:271-2 Ag 13 '20

Railroad labor board to hand down decision soon. Ry R 67:25-6 Jl 3 '20

Railroad labor board wage hearings. Ry Age 68:1255-8, 1311-15, 1359-62, 1417-18, 1473-5, 1531-5; 69:13-14 Ap 23-My 28, Jl 2 '20

Railroad labor board wage hearings. Ry R 66:684-5, 734-5, 817-18, 844-6, 892-3, 1107-8; 67:25-6 Ap 24-My 1, 15-29, Je 26, Jl 3 '20

Railroad labor board's report on wages of railroad employees. 1920. Monthly Labor R 11:959-65 N '20

Railroad unions agree to settle wage demands through Cummins-Esch bill—president's letter to unions. Comm & Fin Chr 110:929-33 Mr 6 '20

Railroad unions also view wage delay with alarm. Ry Age 68:1471-2 My 21 '20

Railroad wage decision near. Ry R 66:1107-8 Je 26 '20

Railroad wage statistics. Comm & Fin Chr 112:1105-6 Mr 19 '21

Railroads compelled to reduce pay of officials and workers. Comm & Fin Chr 112:983 Mr 12 '21

Railway employees and their compensation; I.C.C. report. Ry Age 70:795-6 Mr 25 '21

Railway unions agree to wage armistice. Ry R 66:287-93 F 21 '20

Railway wage negotiations are broken off. Ry R 66:618-20 Ap 10 '20

Railway wages and the cost of living. Ry Age 70:700-1 Mr 18 '21

Rates and wages must both come down. W. W. Atterbury. Ry R 69:472-3 O 8 '21

Recent labor agreements and decisions; railroads. Monthly Labor R 13:143-51 Jl '21

Reception of the wage award by railroad workers. Ry R 67:127-8 Jl 24 '20

Rejection by railway employees of American federation of labor of time and a half decision. Comm & Fin Chr 113:1012 S 3 '21

Results of the abolition of piece work pay. Ry Age 70:297-9 Ja 28 '21; Ry R 68:205-7 F 5 '21

Scope of wage reduction extended in new order. Ry Age 71:13-14 Jl 2 '21

Shop employees' wage agreement. Ry Mech Eng 93:637-42 N '19; Excerpt. Ry Age 67:1241-3 D 26 '19

Shop wage agreement. Ry Mech Eng 94:329 Je '20

Short lines contest employees' wage demand. Ry Age 69:747-8, 786, 837, 935 O 29-N 12, 26 '20

\$600,000,000 in wage increases awarded to railroad employees and harbor men. Comm & Fin Chr 111:347-50 Jl 24 '20

Solvency of the railroads depends on reduced labor costs. Annalist 17:204+ F 7 '21

Some practical details of the railway wage regulations. Eng N 86:631 Ap 14 '21

Statement commenting on the award of the Railroad labor board. S. Gompers. Ry Age 69:192 Jl 30 '20

Status of railway wages. charts Ry R 69:212-13 Ag 13 '21

Technical engineer and the pending railway legislation. Eng & Contr 53:75 Ja 21 '20

Transportation tied up by unauthorized strikes. il Ry Age 68:1184-5 Ap 16 '20

20 per cent cut in rates possible only with 30 per cent lower wages. S. Thompson. Ry R 69:549-50 O 22 '21

U. S. Railroad labor board's approval of time-and-a-half overtime. Comm & Fin Chr 113:915-16 Ag 27 '21

Wage changes of railroad employees in recent years. Monthly Labor R 12:977-81 My '21

Wage controversy to go to Labor board. Ry Age 68:1139-40 Ap 9 '20

Wage cut of 10% as means to reduction in freight rates voted by railroad executives. Comm & Fin Chr 113:1733-4 O 22 '21

Wage demands refused by director general and referred to president. Ry Age 68:497-8 F 13 '20

Wage differential important factor. W. J. Cunningham. Ry Age 71:764-5 O 22 '21

Wage fixing by government is wrong. J. E. Ewell. Ry R 69:624-5 N 5 '21

Wage hearing before the Labor board. Ry R 68:711 My 7 '21

Wage increases under government control. Ry Age 68:68-72 Ja 2 '20

Wage movement of organized railway employees, 1919-20. Monthly Labor R 10:1123-6 My '20

Wage reduction authorized. Ry R 69:24-5 Jl 2 '21

Wage reductions averaging 12% and involving \$400,000,000 made by Railroad labor board. Comm & Fin Chr 112:2377-8 Je 4 '21

Wage statistics inquiries. 38p Railway accounting officers' association, 1116 Woodward bldg., Washington, D.C. '21

Wages and the cost of living. Ry Age 68:1501-2 My 28 '20

Wages increases of railway employees. Eng & Contr 54:174 Ag 18 '20

Wages of railway employees. Eng & Contr 53:195 F 18 '20

Wages on the steam railroads. Elec Ry J 57:774 Ap 23 '21

Western carriers petition Labor board to restore 1917 wage scale. Ry R 68:921-2 Je 3 '21

What is a yearly living wage? S. Thompson. Ry R 66:1065-6 Je 19 '20

Why railway labor costs are so high—expensive rules. J. Kruttschnitt. Comm & Fin Chr 112:2144-6 My 21 '21

Why railway wages must be reduced. S. Thompson. Ry R 68:710-11 My 7 '21

See also Railroad engineers—Salaries; Railroads—Officials—Salaries; Railroads—Wage dispute, 1921

Water supply

E.P. & S.W. rebuilds 141-mile wood stave pipe line. J. L. Campbell. il map Ry Age 71:245-6 Ag 6 '21

Railroads—Water supply—Continued

Keeping the railroads afloat; the water that our steam lines use in a year and what they do with it. C: F: Carter. Sci Am 125:218 S 24 '21

New plan for water service administration of the Union Pacific. il Ry Age 69:111-12 J1 16 '20

Prevention of water waste on railroads. C. R. Knowles. il Can Eng 39:131-3 J1 8 '20; Same. Eng & Contr 54:139-41 Ag 11 '20; Same. Am Water Works Assn J 8:82-7 Ja '21

Railway water consumption and waste prevention. Eng N 84:1202-4 Je 17 '20

Railway water service organization. Eng N 84:676 Ap 1 '20

Railway water supply at Atkins, Iowa. F. D. Yeaton. diag Eng N 85:463-4 S 2 '20

Railway water treatment pays large returns; results obtained on Rock Island. P. M. La-Bach. il Ry Age 70:247-8 Ja 21 '21; Excerpt. Eng & Contr 55:170 F 16 '21

Recent developments in railway water supply. C. R. Knowles. Ry R 66:756-9 My 8 '20; Same. W Soc E J 25:556-62 O '20; Same. cond. Ry Age 68:1301-2 Ap 30 '20; Same cond. Eng & Contr 53:646 Je 9 '20; Abstract. Eng N 85:113 J1 15 '20; Discussion. W Soc E J 25:562-4 O '20

Securing uncontaminated water in coal territory. R. Reimann. Ry Age 69:152 J1 23 '20

Six-track coal and water station for through trains. il plan Eng N 85:107-8 J1 15 '20

Traffic troubles reduced by enlarging water supply; Southern Pacific effects annual saving of \$104,000. il map Ry Age 70:1339-41 Je 10 '21

Waterworks system for the Norfolk & Western Ry., at Roanoke, Va. diags plans Ry R 69:469-72 O 8 '21

See also Locomotive terminals—Water supply

Weed removal

Atlas weed killer service. il Ry R 68:683-4 Ap 30 '21

Gas-propelled weed cutting machine. il Elec Ry J 58:448 S 17 '21

Mowing the weeds along the tracks. il Elec Ry J 57:1045 Je 4 '21

Railroad right of way singed clear of weeds. il Pop Mech 36:237 Ag '21

Turning live steam into weed destroyer. il Sci Am 125:261 O 8 '21

Weed-burning car on Texas & Pacific railway. il Ry R 68:79-80 Ja 15 '21; Ry Age 70:1033-4 Ap 29 '21; Eng & Contr 55:584 Je 15 '21

Yards

Around the freight car yards and shops. Ry R 69:60-1 J1 9 '21

Dangers in the yards. Ry R 68:467 Mr 19 '21

Economic aspect of terminals. W: B. Parsons. Ry R 67:933-6 D 18 '20; Same cond. Ry Age 69:1013-14 D 10 '20; Same cond. Mech Eng 43:21+ Ja '21; Same cond. Eng & Contr 55:63-4 Ja 19 '21; Abstract. Eng N 85:1193-4 D 16 '20

Gravity freight yard for Michigan Central railroad. diags plans Eng N 84:81-4 Ja 8 '20

Improve old freight yard for better operation. diags plan Eng N 85:996-9 N 18 '20

Michigan Central builds large classification yard. il plans Ry Age 68:287-91 Ja 23 '20

New Haven builds freight yards at Cedar Hill. il diag plan Ry Age 69:179-83 J1 30 '20

What additions to physical property are necessary? Ry Age 70:39-42 Ja 7 '21

See also Railroads—Switching

Lighting

Correct illumination for yards and scale-houses. J. H. Kurlander. il chart diags Ry Age 71:337-40 Ag 20 '21

Africa

Development of railroads in Africa. Ry R 67:755 N 13 '20

Proposed Trans-Saharan railway. maps Ry Age 67:1245-7 D 26 '19

Trans-Sahara railroad; technical features of its construction. maps Sci Am M 1:237-9 Mr '20

Alaska

Alaska railroad. F: Mears. W Soc E J 26:323-5 S '21

Alaska railroad location surveys through Broad Pass. T. W. Secrist. il map Eng N 86:632-3 Ap 14 '21

Alaskan railroad makes rich country accessible. F. Le R. Thurmond. il map Eng & Min J 108:767-9 N 8 '19

Alaskan railways. J. F. Springer. il Sci Am 122:62+ Ja 17 '20

Difficulties of winter work on Alaska railway. Eng N 84:952 My 13 '20

Government railroad soon to reach heart of Alaska. P. A. Jenkins. il map Pop Mech 34:501-6 O '20

Progress of Alaskan railroad. F. K. Lane. map Ry Age 67:1195-6 D 19 '19; Excerpt. Ry R 66:134-5 Ja 24 '20

Progress on Alaska railroad. map Ry Age 69:1163-4 D 31 '20

Argentina

British railways predominate in Argentina. J: P. Risque. il Ry Age 70:406-9, 464-7, 506-9 F 18-Mr 4 '21

Australia

Commonwealth railways of Australia. Engineering 109:250 F 20 '20

Electrification of Melbourne suburban railways. il diags map plans Engineer 129:40, 44-7, 66, 70-2 Ja 9-16 '20; Engineering 109:6-10, 16 Ja 2 '20; Ry Age 68:403-12 F 6 '20; Elec Ry J 54:902-6; 55:136-42 N 15 '19, Ja 17 '20

North and South transcontinental of Australia. map Ry Age 67:1152-4 D 12 '19

Austria

Austria plans extensive electrification. map Ry Age 71:450-1 S 3 '21

Electric locomotives for the Austrian state railways. A. Palme. diags Elec Ry J 57:644-5 Ap 2 '21

Electrification of the Austrian state railways. A. Halstead. Ry R 66:1098-9 Je 26 '20; Abstract. Elec W 75:1413 Je 19 '20

Belgium

Electrification of the Belgian state railways. Elec R (Lond) 88:149 F 4 '21

Railway reconstruction in France and Belgium. O. F. Allen. il Ry Age 70:878-82 Ap 8 '21

Railways in war ridden regions greatly improved. O. F. Allen. il diags Ry Age 70:1265-7 Je 3 '21

War left Belgian railways in fair condition. O. F. Allen. il Ry Age 71:31-2 J1 2 '21

War's devastation aids railway reconstruction; depreciated land values in ruined sections of France and Belgium permit increased facilities. O. F. Allen. il maps Ry Age 70:1020-2 Ap 29 '21

Bolivia

Meter gage railways the standard in Bolivia. J: P. Risque. il map Ry Age 69:735-7, 791-3 O 29-N 5 '20

New railroad across the Andes is made up of grades and curves. il Pop Mech 34:562-3 O '20

Brazil

Brazil as a market for American railway supplies. J: P. Risque. il Ry Age 70:835-7 Ap 1 '21

Brazil's railway and the opportunities they offer to foreign capital. W: Tweedie. Americas 7:34-5 My '21

Electric motive power for Paulista railway; abstracts. S. B. Cooper. il Ry Age 71:721-2 O 15 '21; Ry R 69:507-9 O 15 '21

Electrification in Brazil. R. C. Brown. Sci Am 123:153+ Ag 14 '20

Electrification of the Paulista railway. diag Ry R 66:755-6 My 8 '20

Electrification of the Paulista railway, Brazil, South America. W. D. Bearce. il map Gen Elec R 24:620-7 J1 '21; Same. Elec Ry J 57:1079-84 Je 11 '21; Same cond. Ry Age 71:80-3 J1 9 '21; Same cond. Ry R 69:1-5 J1 2 '21

Railroads—Brazil—Continued

Engineering marks Sao Paulo as novel railway. il diags Ry Age 70:704-7 Mr 18 '21
 Progress of electrification in Brazil. il Ry R 68:708-9 My 7 '21
 Railway system of Brazil. C. S. Cooper. il Ry R 66:368-71, 415-18 Mr 6-13 '20

California

Construction of the Hetch Hetchy railroad. il diag map plan Ry R 65:907-11 D 20 '19
 Criticism of the California state highways and a reply by the state highway board. Eng & Contr 55:205-8 Mr 2 '21; Excerpt (Reply of state highway commission). Eng N 86:340-1 F 24 '21

Canada

Canadian Pacific's offer to take over other Dominion roads. Comm & Fin Chr 112:1804-5 Ap 30 '21
 Canadian railway developments during 1919. J. L. Payne. il Ry Age 68:141-2 Ja 2 '20
 Canadian railway results in calendar year 1920. J. L. Payne. Ry Age 71:294-6 Ag 13 '21
 \$4,000,000 electrification plan on 80 miles of Grand Trunk railway. Elec Ry J 57:459-60 Mr 5 '21
 Government and private operation in Canada. J. L. Payne. Ry Age 71:107-9 Jl 16 '21
 Light railways for Canada. map Eng N 87:399 S 8 '21
 Location betterments on Canadian National railways. H: K. Wicksteed. maps Eng N 85:759-60 O 14 '20; Same. Can Eng 39:499-500 N 4 '20
 Lord Shaughnessy proposes C. P. R. operate Canadian National. Ry Age 70:1069-71 My 6 '21
 Outlook for National railways. Can Eng 40:237 F 17 '21
 Present wages and rules ruining Canadian railways. J. L. Payne. Ry Age 70:787-9 Mr 25 '21
 Problem of rates on the Canadian railways. E. W. Beatty. Ry Age 70:112 Ja 7 '21
 Railway developments in Canada in the year 1920. J. L. Payne. Ry Age 70:109-11 Ja 7 '21
 Railways have passed their worst difficulties; amalgamation of G.T.R. and Canadian National simplifies problems. G: W. Austen. Can Eng 39:655-6 D 30 '20
 Reviews operating problems of Canadian Pacific in 1920. E. W. Beatty. Ry R 68:744-5 My 14 '21
 Steam railway track laid in Canada during 1920. Can Eng 40:171 Ja 27 '21
See also Railroads and state—Canada; also Canadian Pacific railway; Hudson Bay railway

Chile

Chilean state railways are an open market. J: P. Risque. il map Ry Age 70:181-3, 241-2, 283-5 Ja 14-28 '21
 New railroad shops at San Bernardo, Chile. C. V. Cruchaga. il plan Am Mach 53:982-6 N 25 '20
 Westinghouse to electrify big Chilean railway. il Elec R 79:559-60 O 8 '21; Ry R 69:607 N 5 '21

China

China notes. Ry Age 70:818 Mr 25 '21
 Kin-Han railway buys Prairie type locomotives. il Ry Age 68:479 F 13 '20
 Railroad problems of China and Japan. G: R. Henderson. il Ry Age 69:109-10 Jl 16 '20
 Railways of the Orient. D. F. McLeod. map Eng N 85:952-5 N 11 '20
 Shanghai-Nanking railway. Engineer 130:656 D 31 '20

Colombia

Colombian indemnity can be made a boon to both countries. E. Harding. map Annalist 17:587-8 My 30 '21
 South America invites American rail construction. J: P. Risque. map Ry Age 69:573-4 O 1 '20; Discussion. 69:686 O 22 '20

Colorado

Colorado commission urges building three tunnels. map Ry Age 68:371-3 Ja 30 '20
 Flood at Pueblo—an emergency in railroad-ing. il Ry R 69:46-9 Jl 9 '21
 Railroad losses in Colorado exceed five millions. il Ry Age 70:1399-1401 Je 17 '21
 Railroads suffer heavy losses in Colorado floods. J. B. Day. il Ry Age 70:1341-2 Je 10 '21

Cuba

Cuba's main line railways are well developed. J: P. Risque. il map Ry Age 68:223-6, 301-5 Ja 16-23 '20
 Electrification of the Hershey Cuban railway. F. W. Peters. il diags map plans Gen Elec R 23:307-12 Ap '20; Same. Ry R 66:593-5 Ap 10 '20; Same cond. Sci Am M 1:540-2 Je '20; Abstract. Elec Ry J 55:757-8 Ap 10 '20
 New power for the United railways of Havana. il Ry Age 70:897-8 Ap 8 '21

Czechoslovakia

Railways of Czecho-Slovakia. Dr Franke. Ry R 67:48-51 Jl 10 '20; Same abr. Ry Age 69:27-8 Jl 2 '20

England

Direct current for England. Elec Ry J 58:826-7 N 5 '21

Europe

Electrification in central Europe. E. C. Zehme. Elec Ry J 57:438-40 Mr 5 '21
 European railroad problems similar to ours. S: M. Felton. Ry Age 71:625-6 O 1 '21
 Railway electrification in Europe. J. V. Dobson and F. E. Wynne. il Elec Ry J 57:1068-74 Je 11 '21
 Railway revival Central Europe's greatest need. W. B. Causey. il map Ry Age 71:705-8 O 15 '21
 Status of foreign railroad electrification. E. C. Zehme. Elec W 77:527-9 Mr 5 '21
 Status of heavy traction abroad. Elec Ry J 57:31-6 Ja 1 '21

Far East

Railways of the Orient. D. F. McLeod. map Eng N 85:952-5 N 11 '20

Federated Malay states

New works for the Federated Malay states government railways. diags map plans Engineer 129:440-2 Ap 30 '20
 Railways in British Malaya; report for 1919. Engineer 130:433 O 29 '20
 Railways in British Malaya; report for 1920. Engineer 132:247 S 2 '21

France

Condition of rolling stock in France today. F. Jaques. Ry Age 67:1223-5 D 26 '19
 La destruction des moyens de transport pendant la guerre et leur restauration. M. A. Moutier. diags map Soc Ing Civils Bul 74:98-116 Ja '21
 Devastation of France. il Engineering 111:778, 782-4, pl 43-6 Je 24 '21
 Les dispositions techniques spéciales adoptées sur le réseau du Nord pendant la guerre. diags map Génie Civil 76:554-6 Je 19 '20
 Les efforts de la Compagnie du chemin de fer du nord pendant et après la guerre. il maps Génie Civil 79:25-8 Jl 9 '21
 Electrification of the French railways; a comparison between the different systems. Electrician 87:12-13 Jl 1 '21
 Fast railway tunneling in France during the war. A. Moutier. diag Eng N 85:844 O 28 '20
 France undertakes huge electrification program. O. F. Allen. il map Ry Age 71:155-8 Jl 23 '21
 Fuel conditions on the French railways. M. de Boysson. Ry Age 70:1237-40 My 27 '21; Excerpts. Ry Mech Eng 95:562-4 S '21
 Present condition of the French railways. M. Peschaud. Ry Age 70:122-4 Ja 7 '21
 Railroad reconstruction in France. Eng & Contr 55:255 Mr 16 '21; Same. Am Mach 54:536a Mr 24 '21; Excerpt. Eng N 86:591 Ap 7 '21; Excerpt. J Fr Inst 191:524 Ap '21

Railroads—France—Continued

- Railway reconstruction in France and Belgium. O. F. Allen. *il Ry Age* 70:878-82 Ap 8 '21
- Railways in war ridden regions greatly improved. O. F. Allen. *il diags Ry Age* 70:1265-7 Je 3 '21
- Reconstruction of bridges and tunnels in France. O. F. Allen. *il Ry Age* 70:973-6 Ap 22 '21
- Résultats de l'exploitation des compagnies de chemins de fer français, en 1919. Génie Civil 78:223 Mr 5 '21
- Some aspects of English and French railway signalling. L. Hiller. *Engineering* 110:605-6 N 5 '20
- Standard rails and splice bars on French railways. *diags Eng N* 86:473 Mr 17 '21
- Les trois projets de réorganisation des chemins de fer d'intérêt général français. P. Razous. *Génie Civil* 77:30-4 Jl 10 '20
- War and its effect on French railway labor. O. F. Allen. *il diag plans Ry Age* 71:401-4 Ag 27 '21
- War's devastation aids railway reconstruction; depreciated land values in ruined sections of France and Belgium permit increased facilities. O. F. Allen. *il maps Ry Age* 70:1020-2 Ap 29 '21

See also Railroads and state—France

Germany

- Die eisenpreise für die eisenbahnverwaltung. J. Reichert. *Stahl & Eisen* 41:298-300 Mr 3 '21
- Germany's economic position as a world nation. R. E. Thayer. *il Ry Age* 68:1199-1203 Ap 16 '20
- Der haushalt des reichsverkehrsministeriums für die rechnungsjahre 1920 und 1921. *Stahl & Eisen* 41:1071-4 Ag 4 '21
- Prussian-Hessian railways' financial position. R. E. Thayer. *Ry Age* 68:1976 Je 25 '20
- Railway situation in Germany. R. E. Thayer. *il diags plan Ry Mech Eng* 94:331-8 Je '20

See also Railroads and state—Germany

Great Britain

- Amalgamation of North-Western and L. and Y. railways. *Engineer* 131:358 Ap 1 '21
- Britain's plans for solution of labor problems. *Ry Age* 71:341-2 Ag 20 '21
- British labor railroad bill—progress in consolidations. *Eng N* 87:76-7 Jl 14 '21
- British railway electrification situation. *Elec Ry J* 57:773 Ap 23 '21
- British railways in 1919. *Engineer* 129:4-5 Ja 2 '20
- Cross-country express trains. *Engineer* 129:214-15 F 27 '20
- Districting the railways. *Engineer* 129:627-8 Je 18 '20
- L'électrification des chemins de fer anglais. *Génie Civil* 78:88-9 Ja 22 '21
- Electrification of British railways. *Engineering* 111:261-2 Mr 4 '21
- Electrification of British railways. A. H. Bridge. *Elec R* 77:685-6 O 30 '20
- Electrification of railways in Great Britain; abstracts. *Elec Ry J* 56:968-9 N 6 '20; *Electrician* 85:412-13 O 8 '20; *Ry Age* 69:808 N 5 '20; *Am Inst E E J* 39:983-4 N '20
- English railroads during the year 1919. R. E. Thayer. *Ry Age* 68:143-5 Ja 2 '20
- English railway bill proposes many changes; roads to be returned to owners in August. *Ry Age* 70:1209-10 My 27 '21
- English railway developments during 1920. R. E. Thayer. *Ry Age* 70:115-21 Ja 7 '21
- English railway rate committee reports. *Ry Age* 70:347 F 4 '21
- English railway statistics. L. G. Lauck. *Ry Age* 69:790 N 5 '20
- Fifty years of railway life in England, Scotland and Ireland. J. Tatlow. 223p *Railway gazette*, London '20
- Financial position of the English railways. W. M. Acworth. *Ry Age* 69:1079-80 D 17 '20
- Management of a locomotive repair shop; English railway practices. H. E. O'Brien. *il Ry Mech Eng* 95:42-6 Ja '21

Ministry of transport fiscal year estimates. *Ry Age* 68:1353-4 My 7 '20

- New British railway statistics. *Engineer* 129:416 Ap 23 '20
- New railway at Stoke-on-Trent. *diags Engineer* 131:467 Ap 29 '21
- New railway goods classification. *Elec R (Lond)* 88:427-8 Ap 1 '21
- Operating of British and U.S. railways compared. *Ry Age* 69:937-9 N 26 '20
- Passenger fares increased in Great Britain. *Ry Age* 69:363-4 Ag 27 '20
- Principles of railway rates. *Ry R* 68:171-3 Ja 29 '21
- Proposed grouping of Great Britain's railways. *map Ry Age* 68:1366-8 My 7 '20
- Proposed grouping of railways in Great Britain. *Eng N* 86:341 F 24 '21
- Proposed reorganization of British railways. *Ry R* 67:88-90 Jl 17 '20
- Railroad accidents in Great Britain, 1919. *Ry Age* 69:858 N 12 '20
- Railway executive committee. *Engineer* 128:631 D 26 '19
- Railway freight rates increased in Great Britain. R. E. Thayer. *Ry Age* 68:575-7 F 20 '20
- Railway grouping in Great Britain. M. Meredith. *Ry R* 66:942-3 Je 5 '20
- Railway rate inquiry in England. *Ry Age* 69:30 Jl 2 '20
- Railway rates. *Engineering* 110:870-1 D 31 '20
- Railway shop conditions in England. R. E. Thayer. *Ry Mech Eng* 94:35-6 Ja '20
- Railway situation. *Engineering* 111:264-5 Mr 4 '21
- Railways bill. *Engineer* 131:545-6, 551, 597 My 20, Je 3 '21; *Engineering* 111:620-1 My 20 '21; *Elec R (Lond)* 88:667 My 20 '21
- Railways in 1920. *Engineer* 131:7-8 Ja 7 '21
- Railways of Great Britain. *Engineering* 111:558-9 My 6 '21
- Some aspects of English and French railway signalling. L. Hiller. *Engineering* 110:605-6 N 5 '20
- Some railway operating problems. H. W. Thornton. *Engineer* 129:560 My 28 '20
- Traffic on British railways in 1919. *Ry R* 66:1016-17 Je 12 '20
- Welsh railway disaster. *il Engineer* 131:127, 145-6 F 4-11 '21

See also Railroads and state—Great Britain

Greece

- La réorganisation des chemins de fer grecs. *Génie Civil* 78:201-2 F 26 '21

India

- Electrification of Indian railways. *diags Engineer* 130:530-1, 550-1 N 26-D 3 '20
- Future of the railways of India. *Engineer* 132:346, 381-2 S 30-O 7 '21
- Indian-built rail and road motor vehicles. F. C. Coleman. *il Ry R* 65:829-30 D 6 '19
- Indian railway administration report. *Engineer* 129:304-5 Mr 19 '20
- Indian railway report. *Engineer* 131:315-16 Mr 25 '21
- Indian railways. *Engineer* 130:515 N 19 '20
- India's demand for transportation. W. E. Weld. 127p *Columbia university*, New York '20
- Railway situation of India. *Ry Age* 70:1049-50 Ap 29 '21

Ireland

- Curious little monorail road in Ireland. *il Sci Am* 123:515 N 20 '20

Italy

- Electric railway notes from Italy. F. C. Cusani. *Elec Ry J* 55:709-10 Ap 3 '20
- Electrification of the Italian railways. *Engineer* 131:400 Ap 15 '21
- Electrification progress on Italian railways. G. B. Santi. *il maps Ry Age* 71:439-42 S 3 '21
- Extension of the Valtellina railway from Lecco to Milan. G. Huldshiner. *diags Electrician* 87:173-5 Ag 5 '21; *Elec Ry J* 58:816-17 N 5 '21
- Railway situation in Italy. H. C. MacLean. *Ry R* 67:270-3 Ag 21 '20; *Abstract. Elec Ry J* 56:722 O 9 '20

Railroads—Continued

Japan

Railroad problems of China and Japan. G. R. Henderson. *il Ry Age* 69:109-10 *Jl* 16 '20
See also Railroads and state—Japan

Jugoslavia

Les chemins de fer de la Yougo-Slavie. *Génie Civil* 77:493 *D* 11 '20
 L'électrification générale des chemins de fer et de l'industrie de la Yougo-Slavie. *Génie Civil* 78:553-4 *Je* 25 '21
See also Railroads—Serbia

Kansas

Kansas one-man railroad. *Ry R* 67:787 *N* 20 '20

Kongo, Belgian

Proposed railway developments in the Belgian Congo. *Engineer* 131:386 *Ap* 8 '21

Latvia

Latvia's railroads and their requirements. V. Leitis. *Am Mach* 55:742d *N* 3 '21

Mexico

Mexican railways lease American equipment. *Ry Age* 70:382-3 *F* 11 '21
 Present railway condition in Mexico. W. M. Whitenton. *Ry Age* 70:113-14 *Ja* 7 '21
 Railroads of Mexico. F. W. Powell. 226p [Bibliography: p. 195-220] Stratford co., Boston '21
 Railways of Mexico to connect with Tampico. *Ry R* 67:755-6 *N* 13 '20
 Reconstruction and extensions on the National railways of Mexico. *Ry Age* 68:1159-60 *Ap* 9 '20
 Restoring Mexico's railroads. G. F. Weeks. *il Sci Am* 122:249 *Mr* 6 '20
 Status of the railroads of Mexico. W. D. Hornaday. *Ry R* 67:548-50 *O* 9 '20

Morocco

Le chemin de fer de Tanger à Fez et le réseau du Maroc septentrional. C. Galatoire-Malégarie. *maps Génie Civil* 77:130-4 *Ag* 14 '20

Netherlands

Electrification schemes for Holland. R. V. Laming. *Engineer* 130:186 *Ag* 20 '20

New England

Argument of New England roads for revision of through tariffs. *Ry R* 67:824-9 *N* 27 '20
 Boston mayor opposes consolidation of New England roads. A. J. Peters. *Ry Age* 70:386-7 *F* 11 '21
 Condition of New England railroads. P. Cabot. *Ry R* 69:242-5 *Ag* 20 '21
 Dilemma of the New England railroads. *Comm & Fin Chr* 113:1194-6 *S* 17 '21
 Governor's committee opposes rate raise in New England. *Ry Age* 70:1071-2 *My* 6 '21
 Hearing on divisions for New England roads. *Ry Age* 70:327-8 *F* 4 '21
 Hearings by New England governors' committee. J. H. Hustis. *Ry Age* 70:801-2 *Mr* 25 '21
 I. C. C. declines to fix New England rate divisions. *Ry Age* 71:237-43 *Ag* 6 '21
 National side of the New England crisis. J. S. Eaton. *Annalist* 18:173 *Ag* 22 '21
 New England railroad crisis due to general railroad difficulties aggravated by local. *Comm & Fin Chr* 112:987-9 *Mr* 12 '21
 Plans for helping New England roads considered. *Ry Age* 70:296 *Ja* 28 '21
 Solution for New England railroad problem. *Ry Age* 70:1028-9 *Ap* 29 '21

New Zealand

Piercing New Zealand's mountain barrier. O. Johnson. *il Sci Am* 122:363+ *Ap* 3 '20

North America

See also Pan-American railroad (proposed)

Ohio

Miami conservancy relocates four railways. *il diags map Ry Age* 67:1001-5 *N* 21 '19

Peru

American equipped British railways of Peru. J. P. Risque. *il map Ry Age* 69:443-5, 489-91 *S* 10-17 '20

Quebec

Electrification of Quebec railroads urged. H. E. Weyman. *Elec Ry J* 57:444 *Mr* 5 '21

Queensland

Railway work in Queensland. *Eng N* 87:690 *O* 27 '21

Rumania

Locomotives recently exported to Roumania. *il Ry Age* 69:567-8 *O* 1 '20
 Railroad conditions in Roumania. F. Jaques. *Ry Age* 68:1274 *Ap* 23 '20

Russia

Condition of the railroads in soviet Russia. *Am Mach* 54:624d-e *Ap* 7 '21
 Development of Russia's railway system. *Ry R* 68:350-1 *Mr* 5 '21
 Great Northern railway of Russia. K. Durant. *map Ry Age* 67:1104-5 *D* 5 '19
 Mechanical equipment on the Tomsk railway. J. Grant. *il diags map plans Ry Mech Eng* 95:7-14 *Ja* '21
 Russia's electrification. *Elec R (Lond)* 89:239-40 *Ag* 19 '21
 Viaduc métallique de 2561 mètres, à Simbirsk, sur la Volga, pour le chemin de fer de Volga-Bougoulma (Russie). S. Koziarski. *il diags maps plans Génie Civil* 77:425-30 *N* 27 '20
 Work of the Russian Railway service corps. P. Wright. *il map Ry Age* 69:153-6 *Jl* 23 '20

Serbia

Railway condition in Serbia. *Ry R* 67:795-6 *N* 20 '20
 Railway system of Jugo Slavia. G. Gordon-Smith. *map Ry R* 66:831-2, 915-17 *My* 22, *Je* 5 '20
 Systematic destruction of Serbian railways by enemy armies. G. Gordon-Smith. *il Ry R* 67:225-7 *Ag* 14 '20

Silesia

Electrification of the Prussian railways in Silesia. *diags maps Elec Ry J* 56:499-502 *S* 11 '20

South Africa

Electrification of South African railways. *Ry Age* 70:886 *Ap* 8 '21
 Electrification of the South African railways. R. E. Thayer. *diags map Ry Age* 67:1051-5 *N* 28 '19
 Railway electrification in South Africa. *Ry R* 66:943-4 *Je* 5 '20
 Railway electrification plans for South Africa. C. H. Merz and W. McLellan. *Eng N* 84:227-8 *Ja* 29 '20
 Railway practice in South Africa. A. E. Snape. *Engineer* 130:461 *N* 5 '20

South America

American railway supplies in South America. J. P. Risque. *il Ry Age* 69:267-9 *Ag* 13 '20
 Latin-American railway notes. *Engineer* 131:214 *F* 25 '21
 New meter gage locomotives for South America; Mallet, Mikado and Santa Fe type. *il Ry Age* 69:839-41 *N* 12 '20
 Railway equipment in South America. J. P. Risque. *il diag Ry Mech Eng* 94:364-8 *Je* '20
 Railway system of South America needs new links. F. B. Morris. *map Eng N* 84:182-3 *Ja* 22 '20
 Some impressions of South American railways. S. T. Henry. *il Ry Age* 69:645-7 *O* 15 '20
 Start construction of new trans-Andine line. *Eng N* 86:824 *My* 12 '21
See also Pan-American railroad (proposed)

Spain

Narrow-gauge railway construction in Spain. *Engineer* 131:316 *Mr* 25 '21

Railroads—Continued

Sweden

Electric traction on Swedish railways. Engineer 129:265-6 Mr 12 '20

Switzerland

All of Swiss federal railways to be electrified. map Ry Age 69:115-16 Jl 16 '20
 American capital to finance Swiss railway electrification. Elec W 77:225 Ja 22 '21
 Electrification of St Gotthard line, Switzerland. H. W. Schuler. il map Ry Age 70:1107-12 My 13 '21
 Electrification of the Swiss federal railways. L. Thormann; Wyssling. Engineer 132:335, 376-7, 389-90 S 30-O 14 '21
 Electrification of the Swiss railways. Engineer 131:563-4 My 27 '21
 Electrification work in Switzerland. Engineer 129:69, 581 Ja 16, Je 4 '20
 Improvement program of federal railways includes double tracking, bridge reinforcement, electrification and stations. diags Eng N 87:242-3 Ag 11 '21
 Progress of electrification in Switzerland. Ry R 66:759 My 8 '20
 Les usines d'Amsteg et de Ritom pour l'électrification de la ligne du Gothard. Génie Civil 77:379 N 6 '20

United States

Academy of political science 39th annual meeting, New York. Ry Age 67:1145-50 D 12 '19
 American railroad problem. I. L. Sharfman. 474p Century '21
 America's wealth due largely to railway expansion. J. M. Goldstein. Ry Age 71:875-9 N 5 '21
 Annual meeting and banquet of Railway business association, New York. Ry Age 68:1089-96 Ap 2 '20
 Business man and the railroads. T: D. Cuyler. Administration 1:169-74 F '21
 Condition of our railroads: the true story. J. G. Condon. Ptr Ink 112:33-6 Jl 22 '20
 Co-ordination of rail and water transport. C: H. Markham. Ry Age 69:1057-60 D 17 '20
 Critical period under the new transportation act. W. D. Hines. Ry R 66:820-2, 846-7 My 15-22 '20; Same. Ry Age 68:1413-16 My 14 '20
 Economic aspects of railway electrification. A. H. Armstrong. J Fr Inst 191:493-502 Ap '21; Same. Gen Elec R 24:405-13 My '21; Same. Elec R 78:723-7 My 7 '21; Abstract. Elec Ry J 57:453-4 Mr 5 '21
 Efficient transportation machine a national necessity. H. Elliott. Ry R 65:880-2 D 13 '19
 Electrification of steam railroads in 1919. E. B. Katte. Ry R 65:837-8 D 6 '19
 General railroad developments during the year, 1920. Ry Age 70:59-62 Ja 7 '21
 How railroads may be enabled to promote general prosperity. W. W. Atterbury. Comm & Fin Chr 113:1738-9 O 22 '21
 Industry waits on railroad recovery. E. C. Boehringer. il Iron Tr R 68:2-6 Ja 6 '21
 Investigation of the railroad situation proposed. Ry Age 70:560 Mr 11 '21
 Making of the Burlington. G: W. Holdrege. map Ry R 68:123-6 Ja 22 '21
 Must the railroads be more intensively developed? il Ry Age 68:41-4 Ja 2 '20
 National industrial traffic league annual meeting, New York city. Ry Age 69:939-40 N 26 '20
 Need of extensive development of the railways. F. J. Lisman. Ry Age 68:14-17 Ja 2 '20
 New era of railroad transportation in America. L. J. Spence. Ry Age 69:1153-4 D 31 '20
 New order of things in the railway world. L. C. Fritch. Ry R 67:521-2 O 2 '20
 Operating of British and U.S. railways compared. Ry Age 69:937-9 N 26 '20
 Optimistic view of the railway situation. J. H. Parmelee. Ry Age 70:377-8 F 11 '21
 Plan for merging the railroads. J: E. Oldham. Ry R 66:209-11 F 7 '20; Same. Nation's Business 8:9+ F '20

Present day problems of the railroads. D. Willard. Ry Age 70:427-8 F 18 '21; Same. Eng & Contr 55:256-7 Mr 16 '21; Excerpts. Comm & Fin Chr 112:1476 Ap 9 '21
 Problem of restoring stable railroad conditions. E. E. Clark. Ry R 68:571-3 Ap 9 '21
 Proposed consolidation of railroad properties of United States into a limited number of systems; tentative plan of Interstate commerce commission based upon Ripley report. maps Ry R 69:423-37 O 1 '21; Ry Age 71:609-16 O 1 '21
 Public opinion can restore railroad credit and public prosperity. W: Sproule. Comm & Fin Chr 113:121-3 sec 2 O 29 '21
 Railroad consolidation possibilities. Ry R 67:823 N 27 '20
 Railroad problem. Min & Sci P 122:771-2 Je 4 '21
 Railroad problem discussed at the National conference of state manufacturers' associations, Chicago. Ry Age 71:675-9 O 8 '21
 Railroad situation. J. Kruttschnitt. charts Ry R 68:661-4 Ap 30 '21
 Railroad situation from the newspaper publisher's standpoint. V: H. Hanson. Ry R 67:101-3 Jl 17 '20
 Railroad situation today. W. B. Storey. W Soc E J 26:75-8 Mr '21; Same. Ry R 68:285-7 F 19 '21
 Railroad situation—views of a layman. W. Newcomer. Ry R 66:1051 Je 19 '20
 Railroad situation yesterday, today and tomorrow. E. A. Hadley. Munic Eng 61:55-9 Ag '21
 Railroads and their effect on business. G: W: Armstrong. Annalist 18:245-6 S 12 '21
 Railroads' appeal to the intelligent public. S: Rea. Ry Age 71:709-11 O 15 '21; Excerpts. Ry R 69:506-7 O 15 '21
 Railroads need more freedom. J: A. Campbell. Iron Tr R 69:1160-2 N 3 '21
 Railroads, the foundation of national prosperity. Sci Am 123:4 Jl 3 '20
 Railway business association addresses President Harding. A. B. Johnson. Ry R 69:6-8 Jl 2 '21; Same. Ry Age 71:17-18 Jl 2 '21
 Railway lines abandoned during the year 1919. il Ry Age 68:113-14 Ja 2 '20
 Railway lines abandoned during the year 1920. Ry Age 70:151-2 Ja 7 '21
 Railway situation and the duty it imposes. J. Kruttschnitt. Ry R 67:689-90 N 6 '20
 Railways far behind in construction of new lines. il maps Ry Age 68:18-26 Ja 2 '20
 Railways—financially and physically. Eng N 84:12-14 Ja 1 '20
 Reconstruction of railway transportation. A. P. Thom. Ry Age 69:765-7 O 29 '20
 Return of the railroads to corporate management and their problems. S: O. Dunr. W Soc E J 25:253-66 Ap 20 '20
 Review of the railroad situation for the year. T: D. Cuyler. Ry Age 69:1159-60 D 31 '20; Same. Ry R 68:1-2 Ja 1 '21
 Signs of the times in the American railroad world. E. Lee. Ry Age 71:11-12 Jl 2 '21
 Six billion dollars for capital expenditures. Ry Age 68:9-11 Ja 2 '20
 Summary of French mission's report on railway electrification; abstracts. A. Mauduit. Gen Elec R 23:239-45 Ap '20; Ry R 66:679-81 Ap 24 '20
 Three epochs of American history. D. Willard. Ry Age 70:854-6 Ap 1 '21
 Transportation and its part in the upbuilding of America. il Americas 7:24-32 F '21
 Transportation and the citizen's responsibility. A. B. Johnson. Ry R 67:626-7 O 23 '20
 Transportation conditions. A. H. Smith. il Ry R 66:676-9 Ap 24 '20; Abstract. Ry Age 68:1236 Ap 23 '20
 Transportation conditions during the year 1920. Ry Age 70:63-8 Ja 7 '21
 Twenty systems in I.C.C. consolidation plan. Ry Age 71:455-6 S 3 '21
 Vital factors in the railroad problem. Ry Age 68:2-3 Ja 2 '20
 What the railroads have accomplished in ten months. AV: Sproule. Annalist 17:114-15 Ja 17 '21
 What the railroads need. G. T. Winger. Ry R 68:704-7, 779-83 My 7, 21 '21

Railroads—United States—Continued

Where the railroads stand in the spring of 1920. A. J. County. Ry R 66:838-42 My 22 '20

See also Electric railroads—United States; Interstate commerce commission; Railroads—Consolidation; Railroads—Securities; Railroads and state—United States

Bibliography

Consolidation of railroads. Library Journal 46:63-6 Ja 15 '21

Railroads, Electric. *See* Electric railroads

Railroads, Elevated. *See* Elevated railroads

Railroads, Farm

Mechanical farm minimizes hand labor; feeding hogs by train. G. H. Dacy. il Pop Mech 36:80-1 Jl '21

Railroads, Industrial

Both motor trucks and industrial railway used on road job. H. E. Breed. il Eng N 86:289-91 F 17 '21

Combining motor truck and industrial railway haulage on concrete road job. il Eng & Contr 55:456 My 4 '21

Continuity of operation essential to success in the use of industrial railway. H. E. Breed. il plan Eng N 84:273-6 F 5 '20

Industrial railway for rapid construction of heavy concrete road. J. W. Wheeler. il Concrete 18:136 Mr '21

Industrial railway in road work. Good Roads n s 19:217-18 Ap 28 '20

Location and structures of a heavy industrial railway. il diag map plans Eng N 84:604-12 Mr 25 '20

Nebraska uses industrial railway in construction of gravel roads. G. E. Johnson. il Munic Eng 61:86-8 S '21

Rubble breakwater deposited from railway on ice. il diag plan Eng N 84:1261-3 Je 24 '20

Saving trips for the factory switch-engine. diag Factory 25:208-11 Jl 15 '20

See also Conveying machinery; Electric railroads, Industrial; Hetch Hetchy railroad; Mine tracks

Cost of operation

Electrification of railways at large steel plants; with cost table. R. B. Gerhardt. Eng N 87:652-3 O 20 '21

Railroads, Interurban. *See* Interurban railroads

Railroads, Military

Is the use of narrow-gauge railways profitable in war? W: Kelly. Can Eng 39:572-3 D 2 '20

Light railways of the battle front in France. F. G. Jonah. il diag map Ry Age 68:421-4 F 6 '20; Same cond. Engineering 109:277-9 F 27 '20

Narrow-gauge railways on the western front. A. L. Stead. Engineering 109:747-9 Je 4 '20

Railroads, Monorail. *See* Railroads, Single rail

Railroads, Municipal

See also Hetch Hetchy railroad

Railroads, Narrow gauge

Is the use of narrow-gauge railways profitable in war? W: Kelly. Can Eng 39:572-3 D 2 '20

Light railways for Canada. map Eng N 87:399 S 8 '21

Light railways of the battle front in France. F. G. Jonah. il diag map Ry Age 68:421-4 F 6 '20; Same cond. Engineering 109:277-9 F 27 '20

Narrow-gauge railway construction in Spain. Engineer 131:316 Mr 25 '21

Narrow-gauge railways on the western front. A. L. Stead. Engineering 109:747-9 Je 4 '20

Results of South African experiences with narrow gauge railways. W: Hoy. Eng & Contr 54:331 S 29 '20

Solving the short-haul problem: the role of the light, narrow-gage railway in the local transportation of the future. C: F. Lang. il Sci Am 122:600+ My 29 '20

Railroads, Short line

Feeder lines for railroads. C. A. Morse. Ry R 67:888-92 D 11 '20; Same cond. Mech Eng

43:19-20 Ja '21; Excerpt. Eng & Contr 55:55-7 Ja 19 '21; Abstracts. Ry Age 69:1010-12 D 19 '20; Eng N 85:1195 D 16 '20

Making railroad branch lines pay. D. A. Hampson. il Mech Eng 43:346-7 My '21
Short lines contest employees' wage demand. Ry Age 69:747-8, 786, 837, 935 O 29-N 12, 26 '20

Short lines establish consolidated purchasing agency. Ry Age 70:1401-2 Je 17 '21; Same abr. Ry R 68:980 Je 25 '21

Short lines to ask court to determine status. Ry Age 70:1213-14 My 27 '21

Solving the short-haul problem; the role of the light, narrow-gage railway in the local transportation of the future. C: F. Lang. il Sci Am 122:600+ My 29 '20

Special meeting of the American short line railroad association, Washington. Ry Age 68:1237-49 Ap 23 '20

Transportation problem and the short line roads. Ry R 68:860-2 Je 4 '21

See also American short line railroad association

Railroads, Single rail

Belgium builds strange railway for river boat portage in the Congo. H: S. White. il Pop Mech 36:495-8 O '21

Curious little monorail road in Ireland. il Sci Am 123:515 N 20 '20

Railroads, Toy

Tiny railroad, at once a toy and a tool. il Sci Am 123:55 Jl 17 '20

Railroads and state

Inefficiency marks government operation abroad. D: Van Alstyne and F. H. Shepard. Ry Age 70:985-6 Ap 22 '21

Public ownership and operation. Ry Age 69:836 N 12 '20

Regulation means that the public shall receive adequate service at reasonable rates. W. A. Shaw. N E L A Bul 7:867-73 D '20; Same abr. Ry R 67:763-7 N 20 '20

See also Railroads—Rates; Railway mail service

Bibliography

List of publications pertaining to government ownership of railways. Bur Railway Econ Sup Bul 62:1-64 '21 (Typew)

Canada

Canada's heavy loss from government railways. J. L. Payne. Ry Age 70:883-5, 929-30 Ap 8-15 '21

Canadian government railways now total 22,000 miles. Ry Age 68:666-8 Mr 5 '20

Canadian government takes over control of Grand Trunk. Eng N 86:830-1 My 12 '21

Government and private operation in Canada. J. L. Payne. Ry Age 71:107-9 Jl 16 '21

Government railway operation in Canada. W. G. Cates. Annalist 18:222 S 5 '21

France

La concession des chutes de la Haute-Dordogne à la Compagnie du chemin de fer d'Orléans. G. Tochon. Génie Civil 79:29-32 Jl 9 '21

Germany

Die reichseisenbahnen, dargestellt auf grund der bestimmungen der reichsverfassung und des gesetzes betr. den staatsvertrag über den übergang der staatseisenbahnen auf das reich; von Dr Adolf Starter. 236p J. Bensheimer, Mannheim '20

Great Britain

Departmental committee on railway agreements. Engineer 131:186-7, 199-200 F 18-25 '21

New policy for British railways outlined. E. Geddes. Ry Age 69:187-9 Jl 30 '20

Railway rates advisory committee's report. Engineer 129:87 Ja 23 '20

Recent developments on the railways of England. R. E. Thayer. Ry Age 68:1419-20 My 14 '20

Return of British railways to private control. Comm & Fin Chr 113:1118 S 10 '21

Railroads and state—Great Britain—*Continued*
Transport in relation to the state. E. Geddes.
Engineer 129:332-3 Mr 26 '20; Abstract. Ry
Age 68:1157-8 Ap 9 '20

Japan

Japan's railway progress under state owner-
ship. Eng N 85:364 Ag 19 '20

United States

Address before the meeting of the National
association of railway and utilities commis-
sioners. E. B. Clark. Ry R 67:726-9 N 13 '20
Adequate and continuous transportation. S.
C. Mason. Am Ind 20:8-9 F '20
American federation of labor in favor of gov-
ernment ownership. Ry Age 69:16-17 Jl 2
'20
Analysis of the railroad situation. W. D.
Hines. Ry R 66:212-16 F 7 '20
Bryan solution for the railroad problem. Ry
Age 68:485-6 F 13 '20
Comparison of various railroad bills. Eng N
83:874-5 N 13 '19
Conference committee still far from agree-
ment on railroad bill. Ry Age 68:291-2 Ja
23 '20
Conservative view of national railroad prob-
lem. S. Rea. Ry Age 67:1075-9 N 28 '19
Continent marking time. G. W. Simmons. Ry
R 66:557-60 Ap 3 '20
Essentials of pending railroad legislation.
A. P. Thom. Ry R 65:838-41 D 6 '19
Executives plan for resumption of private
operation. Ry Age 68:194-5 Ja 9 '20
Executives urge assurance to new investors.
Ry Age 68:185-91 Ja 9 '20
Farmers declare for return of railroads. Ry
Age 68:439-40 F 6 '20
Federal and state authority as to railroads.
Comm & Fin Chr 111:2363-5 D 18 '20
Gen. Atterbury opposes nationalization of
railroads. Ry R 67:558-60 O 9 '20
Maintenance allowance during the guaranty
period. Ry Age 69:711-14 O 22 '20
National association of railway and utilities
commissioners convention, Atlanta, Ga. Ry
Age 71:723-7 O 15 '21
National industrial traffic league on railroad
legislation. Ry Age 68:379-80 Ja 30 '20
National railway service organization sug-
gested in proposed railroad plan. S. D.
Warfield. Ry R 68:498-501 Mr 26 '21; Ex-
cerpts. Ry Age 70:793-5 Mr 25 '21; Excerpts.
Comm & Fin Chr 112:1243-4 Mr 26 '21
National railway service; Warfield plan. Ry
Age 70:872-3 Ap 8 '21
Needs of the railroads. R. M. Calkins. Ry R
65:973-5 D 27 '19
New intra-state railroad rates—over ruling of
local opposition—constitutionality still to
be determined. Comm & Fin Chr 111:2466-7
D 25 '20
New tribunal proposed to settle wage de-
mands. Ry Age 68:529-39 F 20 '20
Partners in prosperity. J. S. Frelinghuysen.
Ry R 66:560-2 Ap 3 '20
Payment of guaranty delayed. Ry Age 69:
664-6 O 15 '20
People, as well as railroads, are on trial.
C. H. Markham. Ry Age 68:1677-80 Je 11
'20
Plain duty of Congress. Ry Age 68:4-6 Ja 2
'20
Present railroad situation. A. M. Sakolski.
Comm & Fin Chr 110:1142-3 Mr 20 '20
President proclaims return of the railroads.
Ry R 66:14-16 Ja 3 '20
Private ownership with regulation no long-
er an open question. P. J. Lucey. N E L A
Bul 7:879-81 D '20
Problems involved in return of railroads. B.
Clagett. Ry Age 67:1015-18 N 21 '19
Public's stake in the railroad problem. F. H.
Sisson. Ry Age 68:430-1 F 6 '20
Putting our railways on a business basis. A.
B. Johnson. Ry Age 67:1049-50 N 28 '19
Railroad conferees considering compromise.
Ry Age 68:357 Ja 30 '20
Railroad legislation as developed up to date.
R. S. Lovett. Ry Age 67:1181-6 D 19 '19
Railroad legislation still in uncertain stage.
il Ry Age 68:136-40 Ja 2 '20

Railroad situation reviewed by the director
general. W. D. Hines. Ry Age 68:161-5 Ja
9 '20; Same. Ry R 66:57-61 Ja 10 '20; Ex-
cerpts. Comm & Fin Chr 110:(sec 1) 134-5
Ja 10 '20

Railway unions agree to wage armistice. Ry
R 66:287-93 F 21 '20

Reconstruction of transportation. A. P. Thom.
Ry R 67:573-8 O 16 '20

Return of roads means higher cost of living.
R. W. Woolley. Ry Age 68:249-50 Ja 16 '20

Return of the roads and cost of commodi-
ties. J. Kruttschnitt. Ry R 66:217-18 F 7
'20; Same. Ry Age 68:425-6 F 6 '20

Scientific investigation of the railroad situa-
tion. F. W. Noxon. Ry R 66:63 Ja 10 '20

Some fundamental principles in control of
common carriers. C. O. Ruggles. Adminis-
tration 1:759-62 Je '21

Success or failure of railroads depends upon
I.C.C. C. A. Prouty. Ry Age 68:473-8 F
13 '20

Treasury department holds up payment of
R.R. guaranties. Ry R 67:590-1 O 16 '20

U.S. Supreme court finds Reading coal com-
bination in violation of Sherman anti-trust
act. Comm & Fin Chr 110:1816-17 My 1
'20; Ry Age 68:1298-1300 Ap 30 '20

Views of executives on proposed legislation.
Ry Age 68:196-204 Ja 9 '20

What the railroads need. T. D. Cuyler. Ry R
66:178 Ja 31 '20

Wisconsin intrastate rate case—brief of the
appellee. Ry R 68:361-7, 396-401 Mr 5-12
'21

See also Interstate commerce commission;
Railroad labor board; Railroad law; Rail-
roads—Employees—National agreements;
Railroads—Valuation; Transportation act,
1920; United States—Railroad administra-
tion

Bibliography

List of references on provisions of the Cum-
mins bill regarding standards of rate-mak-
ing and limitation of profits. Special Li-
braries 11:49-64 F '20

List of references on the conflict of authority
between the State commissions and the
Interstate commerce commission in the con-
trol of rates under the transportation act
of 1920. 19 mim. p D 21 '20 Bureau of rail-
way economics, Washington, D.C.

Cummins bill

Amendments to be offered to the Cummins
bill. Ry R 65:894-5 D 13 '19

Cummins bill and the railroad problem. O.
W. Underwood. Ry Age 68:239-44 Ja 16 '20

Cummins bill goes to conference. Ry R 65:973
D 27 '19

Cummins railroad bill encounters opposition.
Ry Age 67:1151-2 D 12 '19

Cummins railroad bill passed by Senate. Ry
Age 67:1249-55 D 26 '19

Daniel Willard endorses the fixed return plan.
Ry R 66:254-5 F 14 '20

Interstate rates not restored by the Cum-
mins bill. Ry R 66:101-2 Ja 17 '20

Limited earnings feature of the Cummins bill.
R. S. Lovett. Ry R 65:922-3 D 20 '19

Railroad bill debated in the Senate. Ry Age
67:1095-7 D 5 '19

Senate dallying with the Cummins railroad
bill. Ry R 65:923-4 D 20 '19

Senate debate on the Cummins railroad bill.
Ry Age 67:1191-4 D 19 '19

Senate discusses the railroad bill. Ry Age 67:
967-8 N 14 '19

Senator Cummins proposes railroad legisla-
tion. Ry Age 69:927 N 26 '20

Shippers oppose provisions of Cummins rail-
road bill. Ry Age 68:256 Ja 16 '20

Esch bill

Analysis of the Esch railway bill. E. E. Deni-
son. Eng N 83:885 N 13 '19

House bill. S. Merritt. Ry Age 67:1148-9 D 12
'19

Principal provisions of the Esch railroad bill.
Ry Age 67:983-90 N 14 '19

Railroads and state—United States—Continued

Government operation, 1917-1920

- Comparative cost of government operation. S: M. Felton. Ry Age 69:749-50 O 29 '20
 Director general estimates loss from railroad operation. Ry Age 70:1120-2 My 13 '21
 Director general Hines answers criticisms. Ry Age 68:413-17 F 6 '20
 Figures of Mr McAdoo; answer to the statement that railroad deficit is due to private operation. S: O. Dunn. Nation's Business 8:23-4 D '20
 Financing of railroads by government—deficit in operation. S. Sherley. Comm & Fin Chr 110:2352-4 Je 5 '20
 Government loss under guaranty \$659,000,000. Ry Age 69:810-11 N 5 '20
 Graphic study of federal and private railroad management. F. L. Hutchins. charts Annalist 17:472-3 Ap 25 '21
 If U.S. pays what it owes the railroads industry will profit. A. E. Heiss. Nat Pet N 13:25 F 23 '21
 Interstate commerce commission decides against railroads on labor inefficiency allowance. Comm & Fin Chr 113:695-6 Ag 13 '21
 Legislation urged to require payment of guaranty. Ry Age 70:233-6 Ja 21 '21
 Loss to government in operating railroads. Comm & Fin Chr 112:2143-4 My 21 '21
 Payments to carriers by treasury. Ry R 69:59-60 Jl 9 '21
 Problem of our railroads. Sci Am 122:128 F 7 '20
 Railroad administration ready to let go. Ry Age 68:643-4 F 27 '20
 Railroad brief advocates partial payments of guaranty. Ry Age 70:249-50 Ja 21 '21
 Railroad claims arising out of federal control—adjustment of disputes. Comm & Fin Chr 112:2498-9 Je 11 '21
 Railroad guaranty bill; Winslow bill. Ry Age 70:326, 383-4 F 4-11 '21
 Railroad labor board splits difference between \$750,000,000 cut and no relief. S. Thompson. Ry R 68:942-3 Je 18 '21
 Railroads returned to private ownership. Ry R 66:363-4 Mr 6 '20
 Railroads to receive partial guaranty payments. Ry Age 70:513-14 Mr 4 '21
 Railways—financially and physically. Eng N 84:12-14 Ja 1 '20
 Safety of the cotton belt lines is questioned. Ry Age 68:543-7 F 20 '20
 Service of supply under federal control. G: G. Yeomans. Ry R 69:559-62, 646-9 O 29, N 12 '21
 Settlements with government under consideration. Ry Age 71:9-10 Jl 2 '21
 Settlements with the railroad administration. Ry Age 70:73 Ja 7 '21
 Some of the failures of government management. Ry Age 68:615-17 F 27 '20
 Statement before committee of Senate. S: Rea. Ry R 68:917-21 Je 11 '21; Same cond. Ry Age 70:1285-8 Je 3 '21
 Status of the railroad contract negotiations. Ry Age 68:101-4 Ja 2 '20
 Two years of government operation. Ry Age 68:63-7 Ja 2 '20
 Winslow partial payment bill passed by Senate. Ry Age 70:477-8 F 25 '21
 Withholding of guaranty declared injury to nation's economic structure. J: S. Drum. Ry Age 70:319-20 F 4 '21

See also United States—Railroad administration

Plumb plan

- Views on Plumb plan league. Ry Age 68:1262-3 Ap 23 '20

Transportation act, 1920

See Transportation act, 1920

Railroads in war

- British railway workshops in war time. il Engineer 127:576-9, 604+, 630: 128:104-5, 178-9, 260-2, 228-9, 232, 326-7, 334, 375, 402-3, 484-5, 490, 581-2, 129:426, 430-2, 568-9, 578: 130:27-30, 36, 77 Je 13-27, Ag 1, 22-S 5, O 3, 17-24, N 14, D 12 '19, Ap 23, Je 4, Jl 9, 23 '20

- Les dispositions techniques spéciales adoptées sur le réseau du Nord pendant la guerre. diags map Génie Civil 76:554-6 Je 19 '20
 East Indian railway and the war. Engineer 128:612 D 19 '19
 Les efforts de la Compagnie du chemin de fer du nord pendant et après la guerre. il maps Génie Civil 79:25-8 Jl 9 '21
 English transport service in France. W. M. Acworth. Ry Age 68:1407-8 My 14 '20
 Le réseau des chemins de fer de la Belgique et du Nord de la France, pendant la guerre. H: Marchand. Génie Civil 76:208-10 F 21 '20
 War and its effect on French railway labor. O. F. Allen. il diag plans Ry Age 71:401-4 Ag 27 '21

Rails

- American railway engineering association Rail committee report. Iron Age 107:792-3 Mr 24 '21
 Co-efficients for calculating the weight of special work. W: Kahn, Eng & Contr 56:281 S 21 '21
 Creeping of rails. J. A. L. Waddell. Ry R 67:17-19+, 871-3, 908-10 N 27-D 11 '20; Excerpts. Eng & Contr 54:490-1 N 17 '20; Ry Age 69:841-2 N 12 '20; Elec Ry J 56:1057 N 20 '20; Discussion. Eng & Contr 55:60-1, 264, 497-8 Ja 19, Mr 16, My 18 '21
 Discussion on ties and rails. Can Eng 40:143+ Ja 20 '21
 French rail sections; diagrams. Eng & Contr 55:599 Je 15 '21
 Fundamentals essential to soundness of steel rails. G: A. Dornin. Chem & Met Eng 24:504-5 Mr 23 '21
 Future of railway track in Great Britain. Eng & Contr 53:730-1 Je 30 '20
 Making accurate measurement of rail wear. A. D. Ferguson, diags Elec Ry J 54:1006 D 20 '19
 Many roads considering the use of heavier rail. Ry Age 71:413-15 Ag 27 '21
 More information on burning holes in rails. J. H. Good. Elec Ry J 56:361-2 Ag 21 '20
 Moulds for rails to ascertain the extent to which a rail has been worn under traffic. Engineer 130:163-4 Ag 13 '20
 1919 rail production lowest in five years. Ry Age 68:1421 My 14 '20
 Present tendencies of railroads regarding heavier rails. Eng & Contr 56:291 S 21 '21
 Production of rails by processes, in gross tons, 1904-1919. Iron Age 105:1321 My 6 '20
 Rail orders in heavier volume in 1920. Iron Tr R 68:93 Ja 6 '21
 Rail production in 1920. Ry Age 70:997-8 Ap 22 '21
 Rail shortage estimated at 12,000,000 tons. C: W. Gennet, jr. Iron Age 106:1475, 1513-14 D 2 '20; Same cond. Ry Age 69:921-2 N 26 '20
 Rail statistics for 1920. Eng & Contr 55:485 My 18 '21
 Rails and railroads; figures in new and old steel rails. R. G. Skerrett. Sci Am 124:287+ Ap 9 '21
 Reclaiming repair rail by resawing. Eng & Contr 55:262 Mr 16 '21
 Report of committee on rail, handling and distribution. Ry Age 68:1870-1 Je 16 '20; Ry R 66:1090-1 Je 26 '20
 Report of the American railway engineering association committee on rail. C. W. Gennet, jr. Ry R 68:440-1 Mr 19 '21
 Rise and fall of the Bessemer rail. Chem & Met Eng 22:919 My 19 '20; Same. Eng & Contr 53:687 Je 16 '20
 La standardisation du matériel des voies des chemins de fer français, la suppression de l'inclinaison des rails au 1/20. diags Génie Civil 78:458-9 My 28 '21
 Steel rail output in 1919. Ry R 66:797 My 15 '20; Same. Iron Tr R 66:1347 My 6 '20
 Steel rails. C. W. Gennet, jr. W Soc E J 26:77-83 Mr '21; Same. Iron Age 106:1475, 1513-14 D 2 '20; Same. Ry R 67:849-53 D 4 '20; Same abr. Elec Ry J 57:898-9 My 14 '21; Same cond. Ry Age 69:921-2 N 26 '20; Excerpts. Eng & Contr 54:586; 55:401 D 15 '20, Ap 20 '21; Excerpt. Chem & Met Eng 23:1227 D 22 '20; Discussion. W Soc E J 26:83-5 Mr '21

Rails—Continued

- Steel rails at ball-mill lining. E. B. Morse. diags Min & Sci P 122:465-6 Ap 2 '21
 Successful prophecy, and the future of rail quality. Eng N 85:969 N 18 '20; Discussion. R. H. Hunt. 85:1149-51 D 9 '20
 Time tests in relaying 105-lb. rail. Eng & Contr 52:583 N 19 '19
 Two roads adopt heavier rail. il Ry Age 71:336 Ag 20 '21
 Weight of rail in tons. G. W. White. Eng N 85:156-7 Jl 22 '20
See also Electric railroads—Track; Rail bonds; Rail chairs; Rail handling; Rail joints; Railroads—Track; Rails, Used; Spikes (railroad); Street railroads—Track; Third rails

Corrugation

- New theory of rail corrugation. A. Wichert. Elec Ry J 57:1135 Je 18 '21
 Riffelbildung durch reibschwingungen. A. Wichert. il diags Stahl & Eisen 41:1181-7 Ag 25 '21
 Ursachen der riffelbildung auf strassenbahnschienen. P. Oberhoffer. Stahl & Eisen 41:1137-41 Ag 18 '21

Costs

- Cost of maintenance of rails. Eng N 85:849 O 28 '20
 Economic weights of rails. Ry Age 69:531-3 S 24 '20; Abstract. Eng & Contr 54:392-3 O 20 '20; Abstract. Eng N 85:715 O 7 '20

Failures

- Another turn in rail study. Eng N 85:51 Jl 8 '20
 Cause of brittleness in steel rails. M. H. Wickhorst. il Eng & Contr 53:455-7 Ap 21 '20; Abstract. Eng N 85:690 O 7 '20
 Decrease in rail failures confirmed by latest statistics. M. H. Wickhorst. Eng N 85:1071 D 2 '20
 Deseamed rails show reduced base failures. Ry Age 69:323-4 Ag 20 '20
 Do mill defects cause transverse fissures? C. W. Baldrige. Ry Age 70:1029-30 Ap 29 '21
 Nature of the defects revealed by the deep etching of transversely fissured rails. H. S. Rawdon. il Chem & Met Eng 22:505-8 Mr 17 '20; Abstract. Eng N 84:129-30 Ja 15 '20
 Presence of internal fractures in steel rails and their relation to the behaviour of the material under service stresses. H. S. Rawdon. il Engineering 111:470-1 Ap 15 '21
 Preventing rail fractures resulting from minute fissures. Sci Am M 1:165-6 F '20
 Punishment of rails; mechanical hardness and thermal hardness and their causes. il Iron Age 107:1375-6 My 26 '21
 Rail failure statistics for 1918. Eng & Contr 52:592-3 N 19 '19
 Rail failure studies by the Bureau of safety. W. P. Borland. Ry Age 68:500-1 F 13 '20
 Rail failures due to seams. Iron Age 105:1017 Ap 8 '20
 Rail statistics show improvement for 1914 rolling. Ry Age 69:1168 D 31 '20
 Reason for rail failures. G. Charpy and J. Durand. il Iron Age 105:331 Ja 29 '20
 Relationship between segregation and rail failures. G. F. Comstock. Chem & Met Eng 24:148-9 Ja 26 '21
 Relationship between transverse rail fissures, flakes and defects in fusion welds. S. W. Miller. Chem & Met Eng 21:729-33 D 10 '19
 Seams in the base of rails. Ry Age 68:961-3 Mr 19 '20
 Service results with titanium-treated rail. Ry Age 68:1365 My 7 '20
 Shattered zones in certain steel rails, with notes on the interior origin of transverse fissures. J. E. Howard. Am Soc T M Pro v 20 pt 2:44-59 '20; Excerpts. Iron Tr R 67:25-7 Jl 1 '20; Discussions. Am Soc T M Pro v 20 pt 2:60-9 '20; Iron Tr R 67:22-3 Jl 1 '20; Chem & Met Eng 22:1189-90 Je 30 '20; Iron Age 106:20-2 Jl 1 '20
 Split-head rail failure shows rupture. J. E. Howard. il Iron Age 108:393-5 Ag 18 '21; Excerpts. Ry Age 71:72 Jl 9 '21

Study of transverse fissures; report on the derailment of a freight train on the Chesapeake & Ohio near Hardware, Va. Ry Age 68:1466 My 21 '20

What makes the rails wear out? R. C. Cram. il diags Elec Ry J 55:149-54 Ja 17 '20; Abstract. Eng & Contr 53:176 F 18 '20

Wheel burning injures rail. Ry Age 70:832 Ap 1 '21

Wheel-burnt rails. il Chem & Met Eng 24:850-1 My 11 '21

Wheel or snow-burned rails. Sci Am 125:85 Jl 30 '21

Wheel pressures and steel rail failures. Iron Age 106:1399-1400 N 25 '20

See also Rails—Stresses

Joints

See Rail joints

Manufacture

- Annular blooms for rail manufacture. diags Ry Age 69:150 Jl 23 '20
 Economic utilization of old rails; rerolling plant of Sweet's steel co. il Eng & Contr 56:167 Ag 17 '21
 Manufacture of steel rails. R. W. Hunt. Am Inst Min Bul 153:sup2339-46 S '19; Same. Ry Age 67:1063-5 N 28 '19; Excerpts. Iron Tr R 65:901-2 O 2 '19; Excerpts. Iron Age 105:267-8 Ja 22 '20; Excerpt. Eng & Contr 52:439 O 15 '19; Discussion. G. B. Waterhouse. Am Inst Min Bul 156:3156-8 D '19; Same. Iron Age 104:1059-60 N 27 '19
 New process necessitates costly equipment. T. H. Mathias. Iron Tr R 66:1606 Je 3 '20
 Pipeless rolled products from annular blooms. C. A. Witter. diags Iron Age 105:1593-5 Je 3 '20; Same abr. Blast F & Steel Pl 8:414-16 Jl '20; Same cond. Iron Tr R 66:1604-6 Je 3 '20
 Rail depends upon ingot. Elec Ry J 56:554-5 S 18 '20
 Rerolling discarded steel rails. J. D. Knox. il plan Iron Tr R 69:226-31 Jl 28 '21
 Rerolling rails at Sweet's steel co. S. G. Koon. il diag plan Iron Age 107:1227-32 My 12 '21
 Rerolling rails in new Ohio mill. J. D. Knox. il Iron Tr R 68:1384-7 My 19 '21
 Sound ingots and rails as a matter of course. R. S. Hadfield. il Chem & Met Eng 25:772-3 O 26 '21
 Steel rails from sink-head and ordinary rail ingots. G. K. Burgess. il diags U S Bur Stand Tech Pa 178:1-61 '21; Excerpts. Chem & Met Eng 23:921-5, 969-75, 1017-22 N 10-24 '20; Abstract. Iron Tr R 67:114-16 Jl 8 '20; Abstract. Ry Age 70:333-4 F 4 '21; Abstract. Eng & Contr 56:159 Ag 17 '21
 Steel rails from sink-head and ordinary rail ingots. E. Gathmann. Chem & Met Eng 23:1196 D 22 '20

Specifications

- Australian railway rail. diag Elec Ry J 58:825 N 5 '21
 Australian standard rail sections and specifications. diags Eng N 87:611-12 O 13 '21
 New specification for rails; abstracts. R. W. Hunt. Ry Age 71:255-6 Ag 6 '21; Blast F & Steel Pl 9:500-2 Ag '21; Eng N 87:202-3 Ag 4 '21; Iron Age 108:262-3 Ag 4 '21; Ry R 69:219-21 Ag 13 '21
 Situation on rail specifications. G. J. Ray. Ry R 68:532-3 Ap 2 '21
 Standard specifications for carbon steel rails; English and French. U S Bur For & Dom Com Industrial Standards 102:1-26 '21

Standards

- New standard rail sections for French roads. diags Ry Age 70:1129 My 13 '21
 Standard rails and splice bars on French railways. diags Eng N 86:473 Mr 17 '21
 La standardisation du matériel des voies des chemins de fer français, la suppression de l'inclinaison des rails au 1/20. diags Génie Civil 78:458-9 My 28 '21
 Two recent foreign standard rail sections. diags Elec Ry J 56:1106 N 27 '20

Rails —Continued

Stresses

- Damage to tyres and rails caused by brakes or slipping wheels; abstracts. C. P. Sandberg. *il Engineering* 112:82-4 J1 8 '21; *Engineer* 132:59-60 J1 15 '21; *Elec R (Lond)* 89:229 Ag 12 '21; *Elec Ry J* 58:362 S 3 '21; Discussion. *Engineering* 112:54-5 J1 8 '21
- Effect of locomotive counterbalancing on stresses in rails. *Ry Age* 68:1084 Ap 2 '20
- Internal service-strains in steel. J. E. Howard. *Chem & Met Eng* 25:275-8 Ag 17 '21; Excerpts. *Engineering* 111:693 Je 3 '21; Same. *Eng & Ind Management* 6:157-8 Ag 11 '21
- Old rails with high internal strains contained no fissures. W. C. Cushing. *Eng N* 84:527 Mr 11 '20; Same. *Chem & Met Eng* 22:615-16 Mr 31 '20
- Scientific study of railway track under load; second progress report. *Ry Age* 68:670-3, 775-9 Mr 5-12 '20; *Eng N* 84:406-13 F 26 '20; *Eng & Contr* 53:289-96 Mr 17 '20; *Elec Ry J* 55:704-6 Ap 3 '20

Testing

- Rails should be tested head down. M. H. Wickhorst. *Ry Age* 70:983-4 Ap 22 '21
- Reporting the life story of rails. R. G. Skerrett. *il diags Sci Am* 125:66+ J1 23 '21
- Results of extended tests with titanium treated rails; abstracts. *Ry Age* 70:1122 My 13 '21; *Elec Ry J* 58:248 Ag 13 '21
- Some deep-etching experiments on new steel rails. G. F. Comstock. *il Chem & Met Eng* 23:1081-2 D 1 '20
- Steel mill experts discuss drop and impression tests of steel rails before the American electric railway engineering association. *Elec Ry J* 58:636-7 O 8 '21
- Steel rails from sink-head and ordinary rail ingots. G. K. Burgess. *il diags Chem & Met Eng* 23:1017-22 N 24 '20
- Story of the rail. G. H. Dacy. *il Sci Am* 125:150 Ag 27 '21

Rails, Used

- Classification and distribution of secondhand rail. L. E. Dale. *Ry R* 69:403-5 S 24 '21; Same. *Eng & Contr* 56:463-4 N 16 '21; Same cond. *Ry Age* 71:573-4 S 24 '21
- Economic utilization of old rails; rerolling plant of Sweet's steel co. *il Eng & Contr* 56:167 Ag 17 '21
- Rerolling rails at Sweet's steel co. S. G. Koon. *il diag plan Iron Age* 107:1227-32 My 12 '21
- Railway accounting officers. Association of. See Association of railway accounting officers
- Railway and utilities commissioners, National association of. See National association of railway and utilities commissioners
- Railway board of adjustment
- Decisions of Railway boards of adjustment nos. 1, 2, and 3 to December 31, 1918. (Bul. 10) 469p '19 U.S. Railroad administration, Washington, D.C.
- Decisions Railway board of adjustment no. 1; January 1919-March 1920. 4 pts 487p, 293p, 423p, 422p '19-'20 U.S. Railroad administration, Washington, D.C.
- Railway business association
- Annual meeting and banquet, New York, March 31. *Ry Age* 68:1089-96 Ap 2 '20; *Ry R* 66:557-62, 608-9 Ap 3-10 '20
- Annual meeting, New York, March 31. *Ry Age* 70:851-8 Ap 1 '21
- Citizen's part in railway development; report of the Committee on adequate facilities. *Ry Age* 69:1067-8 D 17 '20
- Executive committee report. *Ry R* 68:575-7 Ap 9 '21
- Next step toward preventing depressions; stability of railway purchases. *Ry Age* 70:33-8 Ja 7 '21
- Railway electrical engineers, Association of. See Association of railway electrical engineers
- Railway engineering association, American. See American railway engineering association

Railway executives, Association of. See Association of railway executives

Railway fire protection association

- 6th annual meeting, Chicago, Nov. 18-20. *Ry Age* 67:1067-72 N 28 '19; *Ry R* 65:778-81 N 22 '19
- 7th annual meeting, Baltimore, Oct. 19-21. *Ry Age* 69:695-7, 751-2 O 22-29 '20
- 8th annual convention, Chicago, Oct. 18-20. *Ry Age* 71:837-40 O 29 '21
- Railway fuel association, International. See International railway fuel association

Railway mail service

- Changes in railway mail service. *Ry Age* 71:769-70 O 22 '21
- Inter-state commerce commission decides upon space basis for carrying mails. *Comm & Fin Chr* 110:934-5 Mr 6 '20
- Mail cranes—danger from them obvious. *Ry Age* 70:256-7 Ja 21 '21
- Mail pay hearings in Washington. *Elec Ry J* 54:1002-4 D 20 '19
- New travelling post-offices. *il diags Engineer* 128:610, 611 D 19 '19
- Post office seeks to co-operate with railroads. *Ry Age* 71:529-30 S 17 '21
- Postmaster general objects to new mail rates. *Ry Age* 68:677-9 Mr 5 '20
- Railway mail pay. *Ry Age* 70:274 Ja 28 '21
- Railway mail pay rates increased by I.C.C. *Ry Age* 68:309-19 Ja 23 '20; Excerpt. *Ry R* 66:176-7 Ja 31 '20
- Reply to postmaster general in mail pay case. *Ry Age* 68:971-3 Mr 19 '20
- Report of the mail pay committee of the A.E.R.A. *Elec Ry J* 58:613-14 O 8 '21

Cars

See Postal cars

Railway motors. See Electric motors, Railway

Railway service corporation, National. See National railway service corporation

Railway signal division. See American railroad association—Signal division

Railway storekeepers' association. See American railroad association—Purchases and stores section

Railway ticket protective bureau

Re-establishment of the Railway ticket protective bureau. *Ry Age* 69:438 S 10 '20

Railway tool foremen's association, American. See American railway tool foremen's association

Rain and rainfall

- Analysis of New Orleans' rainfall statistics for twenty-five years. *Eng N* 84:963 My 13 '20
- California precipitation. A. H. Palmer. map J *Elec* 44:607-10; 45:25-7 Je 15-J1 1 '20
- Cause of cloud bursts. *Eng & Contr* 55:556-7 Je 8 '21
- Centralized stream-flow records would be helpful. B. E. White. *Elec W* 76:1073 N 27 '20
- Cloudburst in Toledo floats pavement away. *il Eng N* 85:467-8 S 2 '20
- Colorado rainfall records and flood estimate. maps *Eng N* 87:23-4 J1 7 '21
- Data on effect of weather on various roads. T. G. Shipman. *Motor Age* 37:25 Ap 22 '20
- Dry season rainfall records at Panama. *Eng & Contr* 54:128 Ag 11 '20
- Early measurements of rainfall and stream flow. *Eng N* 86:379 Mr 3 '21
- Excess rainfall in southern lumber states. *Am Lumberman* 2337:56-7+ F 28 '20
- Excessive rainfall frequencies at Springfield, Mass. C. W. Sherman. *Eng N* 85:445-6 S 2 '20
- Fifty-year rainfall record, Norfolk, Va. E. B. Noyes. *Eng N* 87:199 Ag 4 '21
- Ground water—hydrology. *Engineering* 112:256-9 Ag 12 '21
- High rainfall and run-off from small areas. I. E. Houk. *Eng N* 87:480-1 S 22 '21
- Inquiry into the effect of meteorological conditions upon the efficiency of storage, filtration, and chlorination, based upon a study of the Hagerstown water supply. A. Wolman. map *Am Water Works Assn J* 7:352-63 My '20

Rain and rainfall—Continued

- Maximum rates of precipitation at Boston for various frequencies of occurrence. H. P. Eddy. *il map Boston Soc C E J* 7:47-79 F '20
- Nitrogen and other compounds in rain and snow. J. E. Trieschmann. *Sci Am S* 88:328 N 29 '19
- No relation between cultivation and rainfall. *Sci Am* 123:171 Ag 21 '20
- Prediction of probable rainfall intensities. K. Allen. *Eng N* 86:588-90 Ap:7 '21; Discussion. L. S. Hall; K. Allen. 86:825-6 My 12 '21
- Rainfall and runoff in the Miami Valley. I. E. Houk. 234p I. E. Houk, Dayton, O. '21
- Rainfall and run-off studies. C. E. Grunsky. *map Am Soc C E Pro* 47:203-42, pl 5 S '21
- Rainfall and stream flow. N. L. Davendorf. *Power* 54:86-7 JI 19 '21
- Rainfall at Muscatine, Iowa. W. P. Molis. *Am Water Works Assn J* 7:127-31 Ja '20; Discussion. R. E. Horton. 7:764-5 S '20
- Rainfall in New England. X. H. Goodnough. *N E Water Works Assn J* 35:228-93 S '21
- Rainfall records at Hartford. *Pub Works* 48:395 My 8 '20
- Relation between the flood flow of streams and intensity of rainfall. H. P. Eddy. *Munic Eng* 60:147-50 Ap '21
- Relation of run-off to rainfall. *Engineering* 112:513-14 O 7 '21
- Relation of run-off to rainfall. H. Lapworth. *Engineering* 112:169; Discussion. 146-7 JI 22 '21; Abstract. *Engineer* 132:87 JI 22 '21
- Relations between rainfall and runoff. I. E. Houk. *Pub Works* 50:472-3 Je 4 '21
- Report of committee on rainfall and run-off measurements. *map N E Water Works Assn J* 35:151-83; Discussion. 183-6 Je '21
- Some notes on California rainfall. C. E. Grunsky. *J Elec* 44:204-6 Mr 1 '20
- Utilité et applications de la mesure des précipitations atmosphériques. P. Lévy-Salvador. *diags Génie Civil* 76:149-51 F 7 '20
- Utilizing freshet water for power generation with venturi tube in turbine. C. Herschel. *diag Power* 52:861-2 N 30 '20
- See also* Floods; Meteorology; Run-off; Snow; Water storage
- Rainbow**
- Airmen sometimes see rainbow as circle. *diags Pop Mech* 35:762 My '21
- Rainmaking**
- Artificial rainmaking by aircraft not yet successful. *Aerial Age* 12:350 D 6 '20
- Rainy river**
- Existing and proposed power development on the Rainy river. A. Langlois. *diags map Can Eng* 39:519-20 N 11 '20
- Raisins**
- Electric operation for Fresno raisin packing plant. *il J Elec* 45:469-71 N 15 '20
- Electrical construction features of raisin plant. W. A. Scott. *il Elec R* 78:543-5 Ap 2 '21
- Electricity makes possible a lower cost and cleaner product. W. M. Giffen. *J Elec* 46:379-80 Ap 15 '21
- See also* California raisin growers' association
- Ramie**
- Degumming of ramie. *Sci Am* 125:59 JI 23 '21
- Flax fibre substitutes. A. S. Moore. *Textile World* 58:3631+ N 27 '20
- Proximate compositions of Korean hemp and ramie. Y. Uyeda. *J Ind & Eng Chem* 12:573-6 Je '20
- Ramies and textile nettles as paper fibre. *Paper* 26:15-16, 30 JI 7 '20
- See also* Hemp
- Ramps**
- Ramp construction in small garage. *plans Motor Age* 38:38-9 S 9 '20
- Ramp construction which saves space. H. F. Blanchard. *diag Motor Age* 37:18 Mr 11 '20
- When is a ramp desirable? T. Wilder. *diags Motor Age* 38:7-9+ S 9 '20
- Rams, Hydraulic.** *See* Hydraulic rams
- Rancidity**
- Kreis reaction of cottonseed-oil products. W. B. Smith. *J Ind & Eng Chem* 12:764-6 Ag '20
- Rand, Charles Frederic, 1856-**
- Retires as president of the United engineering society. *por Mech Eng* 42:141 F '20
- Rand mines, limited**
- Balance sheet, 31st December, 1919. *Comm & Fin Chr* 110:2678-9 Je 26 '20; Same. *Min & Sci P* 121:sup40-1 JI 17 '20
- See also* Gold mines and mining—Transvaal
- Randolph, Epes**
- Epes Randolph; a tribute. P. N. Moore. *Eng N* 87:537-8 S 29 '21
- Epes Randolph, an appreciation. *Ry Age* 71:437-8 S 3 '21
- Sketch. *Eng N* 87:379-80 S 1 '21; *Elec Ry J* 58:382-3 S 3 '21
- Random flights**
- Problem of random flights. T. J. I. Bromwich. *Philos Mag* 6th ser 42:432-5 S '21
- Range boilers.** *See* Boilers, Range
- Range finding**
- Graduating range finder sights. I. B. Rich. *il Am Mach* 52:1097-8 My 20 '20
- Manufacture of artillery range finders. G. H. Thomas. *il diags Am Mach* 51:1045-7; 52:249-54, 301-4, 403-4 D 18 '19, Ja 29-F 5, 19 '20
- Navigation is made safer by use of range finder. *Pop Mech* 33:824-5 Je '20
- Le repérage des batteries par le son; abstract. *Génie Civil* 78:447 My 21 '21
- Sound-ranging. A. Trowbridge. *diags J Fr Inst* 189:133-46 F '20
- Use of rangefinders. *il Marine R* 50:670 D '20
- Ranges**
- Mountain-peak grazing. W. F. Wilcox. *il Sci Am* 122:108+ Ja 31 '20
- Rankine formula.** *See* Columns
- Ransome, Frederick Leslie, 1868-**
- Geologists of note. *por Eng & Min J* 112:99 JI 16 '21
- Rapid construction.** *See* Building—Rapid construction
- Rapid transit**
- City building and transportation. J. R. Bibbins. *diags maps plans W Soc E J* 25:411-59; Discussion. 459-69 Ag 20 '20
- Development of rapid transit lines. B. I. Budd. *Elec J* 18:437-8 O '21
- Functions of rapid transit lines in cities. H. M. Brinckerhoff. *il charts Elec Ry J* 56:630-6 O 2 '20; Same. *Eng N* 85:1235-9 D 23 '20
- Rapid transit arithmetic; the principle of the economic unit applied to large cities' utilities. J. Lathrop. *Sci Am* 125:185+ S 10 '21
- Relation of steam roads to rapid transit development. B. J. Arnold. *W Soc E J* 26:196-8 My '21; Same abr. *Elec Ry J* 57:1000-1 My 28 '21
- Traffic and housing in large cities. A. Ertel. *diags Elec Ry J* 58:199-201 Ag 6 '21
- See also* Electric railroads; Elevated railroads; Motor buses; Railroads; Street railroads; Subways; *also* subdivision Rapid transit under names of cities, e.g. New York (city)—Rapid transit; Paris—Rapid transit; St Louis—Rapid transit; Sydney, New South Wales—Rapid transit
- Rare earths.** *See* Earths, Rare
- Rastall, Walter H., 1880-**
- Head of new division of Department of commerce. *por Am Mach* 55:247 Ag 11 '21
- Rate setting**
- What the workers think about management. A. Fry. *Ind Management* 60:324-5 N '20
- See also* Time study
- Rateau, Auguste C. E., 1863-**
- French society presents A.S.M.E. honorary membership to M. Rateau. *por Mech Eng* 42:481-3 Ag '20

Rats

- Bubonic plague. Sci Am M 3:76 Ja '21
 Building out the bubonic plague; how the twentieth century controls by waging war on rats. H. G. Adams. il diag Sci Am 123:466+ N 6 '20
 Engineering problems in bubonic plague control. E. B. Besselièvre. il Eng N 86: 113-14 Ja 20 '21
 Guide to the proper rat-proofing of buildings. C. E. Hauer. 13p U.S. Public health service, Washington '21
 Information concerning rat surveys and rat-proofing, with a model ordinance designed to regulate building with reference to rat-proofing. 16p U.S. Public health service '20
 Rat extermination and proofing with relation to the prevention of plague. L. L. Williams. Boston Soc C E J 8:53-63; Discussion. 63-7 F '21
 Rat menace. E. A. Goldman. Pub Works 51: 96 Jl 30 '21
 World war on rats. G. Gaulois. il Sci Am 124:105+ F 5 '21
 World's rat-killing record is held by automobile. Pop Mech 35:709 My '21

Rawhide

- Application and maintenance of rawhide gearing. O. N. Stone. Am Mach 52:950 Ap 29 '20
 Design and manufacture of non-metallic gears; characteristics of gears made from rawhide and fabric-base materials. F. R. Daniels. il diags Mach 27:1005-11 Jl '21

Rawlplugs

- How a nation-wide business was built for Rawlplugs during 1921. W. R. Howard. Ptr Ink 117:125-6+ N 3 '21

Rayleigh, John William Strutt, 3d baron, 1842-1919

- Work of the late Lord Rayleigh. Elec R (Lond) 88:439-40 Ap 8 '21

Raymond, Robert Matthew

- Sketch. por Eng & Min J 110:365 Ag 21 '20

Raymond, Rossiter Worthington, 1840-1918

- Appreciation. F: W. Davis. Eng & Min J 109:1110-11 My 15 '20

Rays. See Alpha rays; Canal rays; Gamma rays; Radiation; X rays**Rays (fish)**

See also Manta

Rays, Positive. See Canal rays**Razors**

See also Gillette safety razor company

Advertising

- Advertising to bring the standard razor back into popular favor. J. S. Hinkley. Ptr Ink 111:97-8+ My 27 '20
 How Durham-Duplex made August its biggest month. T. C. Sheehan. Ptr Ink 116:53-4+ S 22 '21

Reactance

- Current limiting reactances. R. H. Kiel. diag Blast F & Steel Pl 8:554-6 O '20

Reactions, Chemical. See Chemical reactions**Reactive factor**

- Explanation and measurement of reactive factor. V: H. Todd. il diags Power 51:620-1 Ap 20 '20

Reactive power

- Reactive power and magnetic energy. J. Slepian. diags Am Inst E E J 39:448-54 My '20
 Reactive power and unbalanced circuits. W. V. Lyon. diag Elec W 75:1417-20 Je 19 '20

Reactivity

- Investigation on the influence of negative groups of different character on the reactivity of hydrogen atoms carried by the same carbon atom. B. M. Gupta. Chem Soc J 119: 298-304 Mr '21

See also Chemical reactions

Reactors

- Current unbalance in furnace leads reduced with reactors. R. H. N. Lockyer. il diags Elec W 77:433-4 F 19 '21

Power control and stability of electric generating stations. C: P. Steinmetz. diags Gen Elec R 23:688-701, 756-68 Ag-S '20; Abstract. Am Inst E E J 39:554-6 Je '20

Reactors for electric furnace circuits. H. A. Winne. il diags Am Inst E E J 39:589-92 Je '20

Remodeling switchgears for power systems. S. Q. Hayes. il diags Power Pl Eng 25: 320-4 Mr 15 '21

Stabilizing large generating systems. charts Elec W 76:5-8 Jl 3 '20; Discussion. 76:62-3 Jl 10 '20

Three-phase current limiting reactors. M. E. Skinner. il diags Elec J 18:23-5 Ja '21

Unbalanced reactor on three-wire generator causes flicker. R. H. N. Lockyer. diag Elec W 76:187 Jl 24 '20

Use of power-limiting reactors for synchronous operation. C: P. Steinmetz. Elec R 77:523-7 O 2 '20

Use of reactors on transmission lines. diags Elec R 77:699-700 O 30 '20

Voltage stresses in reactors in service. F. H. Kierstead and R. Meeker. diags Am Inst E E J 39:552-4 Je '20

See also Choke coils

Reading company

Reading dissolution plan filed at Philadelphia. Ry Age 70:425-6 F 18 '21

Reading Iron company, Reading, Pennsylvania

Reorganization and expansion. Iron Age 104: 1279 D 18 '19

Ready-reckoners

Device for rapid multiplication and division. H. Hertzberg. diag Pop Mech 34:925 D '20

Reagents, Chemical. See Chemical reagents**Real estate business**

Appraising the value of lots of unusual dimensions. Arch Forum 32:131-2 Mr '20

Estimating the selling price of a suburban residence. Arch Forum 32:165 Ap '20

Real estate guide; or, How to make a success of the real estate business. J: F. Macdonald. 280p Macdonald co-operative realty co. inc., San Diego, Calif. '21

Real estate outlook for 1921. J. P. Day. Am Arch 119:7-8 Ja 5 '21

Salesmanship and advertising. T: H. Russell . . . Real estate. G: W. Kirkman. 328p Lincoln institute of business, Chicago '21

See also Home owning; Rent; Townsite companies

Real property

Selected cases on real property. J. D. Sullivan. 1096p Callaghan & co., Chicago '21

Reamers

Adjustable boring head or reamer. F. Condie. diags Mach 27:48 S '20

Metal cutting tools. il diags Am Mach 54: 508-10 Mr 24 '21

Novel adjustable reamer. W. H. Frick. il diags Am Mach 51:957 N 27 '19

Reaming tube sheet holes. G: Brexton. il diags Ry Mech Eng 95:318 My '21

Repairing expansion reamers. W. F. Hollis. diag Am Mach 52:888 Ap 22 '20

Tools for locomotive steam pipe joints. F. A. Stanley. il diags plans Am Mach 54: 218-20 F 10 '21

Valve-seat reamer. C. H. Dengler. diags Am Mach 54:383 Mr 3 '21

Wetmore cylinder reaming sets. il Mach 26: 1185-6 Ag '20; Iron Tr R 67:249 Jl 22 '20

Reaming

Correcting hand reamer chatter. J. C. Nicholson. Am Mach 53:1189 D 23 '20

Reaming fixture with locating plugs. H. M. Fay. diags Am Mach 52:355 F 12 '20

Reaming reversing valve bushings. C: W. Schane. diags Ry Mech Eng 95:184 Mr '21

Rearrangements, Molecular. See Molecular rearrangements**Receipts**

Thousand and one formulas; the laboratory handbook for the experimenter. S. Gernsback. 160p Experimenter publishing company, inc., New York '20

Receivers

Accounting

Receivership accounting. M. J. Root. J Ac-
count 31:275-85 Ap '21

Receivers, Wireless. See Wireless receivers

Recessing tools

Recessing and chamfering tool for horizon-
tal boring machine. diags Mach 27:681-2
Mr '21

Recessing tool. H. Moore. diags Mach 27:644
Mr '21

Recessing tool design. C. Ruiz. diags Mach
26:972-4 Je '20

Recessing tool for drilling machines. W:
Keller. diags Mach 26:317 D '19

Rough-recessing tool for motor cylinder bore.
diags Mach 28:93 O '21

Reciprocal insurance. See Insurance, Recipro-
cal

Reclamation of land

Desert to be Salt Lake City market garden.
F: Kinney. il Pop Mech 33:191-2 F '20

Making bad land good. H. A. Crafts. il Sci
Am 122:542+ My 15 '20

Minnesota swamp land reclaimed for farm
use. M. H. Dappert. il plan Eng N 87:552-4
O 6 '21

Reclaimed land to become city's truck gar-
den. D. L. Harry. il map Pop Mech 35:
226-8 F '21

Reclamation of Derwent Valley river lands,
England. diags map Engineer 130:470-3 N
12 '20

Report on development of unused lands. Eng
N 84:375-7 F 19 '20

Something for nothing; combination of engi-
neering, water and land that makes wealth.
C. H. Claudy. il Sci Am 124:32+ Ja 8 '21

Sumas Lake reclamation project. map Can
Eng 38:460+ My 13 '20

Wyoming and reclamation service co-opera-
tive investigations. Eng N 87:199-200 Ag
4 '21

See also Clearing of land; Drainage; Irri-
gation; Reclamation service (United
States); Zuider Zee

Reclamation service (Canada)

Annual report of the Reclamation service,
1919-20. il map plan 80p Canada Dept. of In-
terior, Ottawa '20

Reclamation service (United States)

Engineering studies of reclamation service
resumed. Eng N 86:161 Ja 27 '21

Metal flume inspection on the Uncompahgre
project. F. D. Pyle. Eng N 85:1284-5 D 30
'20

Reclamation service achievements to June
30, 1920. Eng N 86:213 F 3 '21

Reclamation service invasion. Eng N 84:438-
9 F 26 '20

Results in our reclamation service. Sci Am
124:282 Ap 9 '21

Results of irrigation by U.S. reclamation ser-
vice. Eng & Contr 56:270-1 S 14 '21

Something for nothing; combination of engi-
neering; water and land that makes wealth.
C. H. Claudy. il Sci Am 124:32+ Ja 8 '21

Tile drain maintenance and repair on U.S.
R.S. projects; abstracts. C. M. Jump and
A. R. McGinness. Eng N 85:1146-8 D 9 '20;
Eng & Contr 54:560-2 D 8 '20

Bibliography

Price list of publications of the Reclama-
tion service. 32p United States Reclama-
tion Service, Washington, D.C.

Reconstructed milk. See Milk, Reconstructed

Reconstruction (European war)

Importance of coal in European reconstruc-
tion. E. A. Filene. Factory 25:1788+ D 1
'20

Belgium

Railways in war ridden regions greatly im-
proved. O. F. Allen. il diags Ry Age 70:
1265-7 Je 3 '21

Rebuilding France and Belgium electrically.
O. F. Allen. il Elec W 76:1208-9 D 18 '20

Reconstruction of Belgian devastated area. Am
Arch 117:818 Je 30 '20

Reconstruction work in the Liège district.
Engineer 129:630+ Je 18 '20
See also Railroads—Belgium

France

Amazing recovery of devastated France. C:
B. Going. il map Ind Management 62:65-71+
Ag '21

American contractors and labor conditions
in France. E. J. Mehren. il Eng N 85:
340-2 Ag 19 '20; Same. Am Mach 53:524b-c
S 9 '20; Excerpt. Coal Age 18:590 S 16 '20

Clearing away the scars of war. il Sci Am
124:109 F 5 '21

La destruction systématique par les Alle-
mands des houillères du Nord de la France
et l'état actuel des efforts de reconsti-
tution. il diag Génie Civil 78:365-9 Ap 30
'21

Devastation of France. il Engineering 111:366-
7, 604-8, 670-4, 778, 782-4, pl 30-3, 37-40,
43-6 Mr 25, My 20, Je 3, 24 '21

France makes steady progress in repairing the
ravages of war. il Americas 7:6-16 F '21

France solves her problems of reconstruction.
J. A. M. De Sanchez. Ptr Ink 112:129-30+
S 30 '20

France's rapid rehabilitation. Comm & Fin
Chr 112:2134 My 21 '21

Greatest progress in former war zone. il
map Iron Tr R 68:57-60 Ja 6 '21

Notes from London. il Am Arch 117:453-9,
463-4 Ap 14 '20

Railways in war ridden regions greatly im-
proved. O. F. Allen. il diags Ry Age 70:
1265-7 Je 3 '21

Rebuilding France and Belgium electrically.
O. F. Allen. il Elec W 76:1208-9 D 18 '20

Reconstruction in France. Eng N 87:613-14 O
13 '21

Reconstruction in northern France. R. Fan-
ning. il Am Arch 119:167-71 F 16 '21

Reconstruction of bridges and tunnels in
France. O. F. Allen. il Ry Age 70:973-6 Ap
22 '21

Reconstruction of devastated France. R.
Fanning. il Am Arch 117:781-4; 118:71-4+,
345-8, 401-5, 540-2 Je 23, Jl 21, S 15, 29, O
27 '20

Reconstruction of French textile industries.
il Textile World 58:3844+ D 4 '20

Reconstruction progress and city planning in
France. G. B. Ford. Eng & Contr 54:421-2
O 27 '20

Le III^e congrès du bâtiment et des travaux
publics, (Paris, 18 et 19 janvier 1921). P.
Razous. Génie Civil 78:109-11 Ja 29 '21

To turn war debris into houses. M. D. Mor-
rill. il Concrete 19:69-70 Ag '21

War's devastation aids railway reconstruc-
tion; depreciated land values in ruined sec-
tions of France and Belgium permit in-
creased facilities. O. F. Allen. il maps Ry
Age 70:1020-2 Ap 29 '21

See also Railroads—France

Italy

Asiago recovers from war's devastation. il
Bldg Age 42:55-6 S '20

Latvia

Reconstruction in republic of Latvia. C: W.
Ozols. Am Ind 21:34-5 O '20

United States

Problems of reconstruction. L. Cromwell.
Textile World 57:3257+ My 1 '20

Some phases of reconstruction. W: C. Redfield.
Sci Am 122:60+ Ja 17 '20

Recording instruments

Machine running recorder. il diags plan En-
gineering 111:580-2 My 13 '21; Abstract.
Pop Mech 36:194 Ag '21

Records

Are you overlooking important personnel
data? G: O: Swartz. chart Ind Manage-
ment 60:381-2 N '20

Automatic inventory for hosiery mill; per-
manent record of goods in process. Textile
World 55:3505+; 56:1055+, 3363+; 57:2153+
Je 7, Ag 23, D 13 '19, Mr 20 '20

Records—*Continued*

Combination bonus and production control. C. E. Woods. chart Administration 1:313-36 Mr '21

Designing forms for office control. W. Clark. Administration 1:483-90 Ap '21

Electrical inspection report for direct-driven machines. R. E. Peters. Elec W 75:386-7 F 14 '20

Handling plant appropriations. J. J. Zimmerman. Iron Tr R 66:634-7 F 26 '20

How to make a report for the chief executive. H. J. Fletcher. Ind Management 61:12-13 Ja 1 '21

Instrument record system. F. J. Schlink. Power 52:510 S 28 '20

Keeping production up with sales. H. S. Hamilton. Factory 25:873-5 S 15 '20

Keeping records for the contracting job. J Elec 44:216-17 Mr 1 '20

Keeping the factory busy all the year 'round. E. Newman. il Factory 25:876-9 S 15 '20

Lincoln motor production plan. I. J. Beatty. Factory 24:623-6, 1547-9 Mr 1, My 15 '20

Making every idea pay dividends. il Factory 24:1137 Ap 15 '20

Making it easy to trace materials. L. E. Dodd. il diags Factory 27:330-2 S '21

Measurement record for railroad shops. H. L. Burrhus. diags charts Ry Mech Eng 94:299-301 My '20

Personal card. C. G. Hobart. Ind Management 60:153-5 Ag '20

Planning and progress on a big construction job. C. Penrose. il charts diag Eng N 84: 554-61, 627-33 Mr 18-25 '20

Plant order and register division of inventory control. C. E. Woods. Administration 2:330-44 S '21

Plotting needs—a plan that eliminates balances. H. C. Comey. Factory 26:53-7 Ja 1 '21

Production planning and tracing system at Moreland motor truck plant. il Iron Age 106:183-5 Jl 22 '20

Purchasing department records. G. W. Greenwood. Ind Management 59:383-6 My '20

Ratio chart and its applications. P. A. Bivins. Ind Management 62:10-14, 99-104 Jl-Ag '21

Receiving and delivering shop stores. H. B. Twyford. Iron Age 105:469-71 F 12 '20

Record of materials used in machine construction. H. Levine. Mach 27:1133-5 Ag '21

Records that almost keep themselves. Factory 24:955 Ap 1 '20

Simple method of charting sales procedure. A. R. Burnet. Administration 2:373-5 S '21

Simplified recording system for maintenance work. A. F. Owen. Mach 26:1154-5 Ag '20

Use of the original record of repairs. Ry Mech Eng 94:214-15 Ap '20

Value of the personal record. C. S. Bundesman. chart Ind Management 58:380 N '19

We couldn't get along without these records. E. M. Sunne. Factory 26:330-1 F 1 '21

When an invention is not an invention; printed forms for the keeping of accounts. Sci Am 124:82 Ja 29 '21

See also Accidents, Industrial—Records; Building—Records; Electric motors—Records; Factory management; Files and filing (documents); Log sheets; Motor trucks—Records; Photographic records; Power plants—Records; Progress records; Railroads—Records; Sales records; Steam plants—Records; Stores systems; Time keeping; Tools—Records

Recoverance

Capacity of a material to return immediately the energy that has been imparted to it by external forces. R. G. Guthrie. Chem & Met Eng 23:671-2 O 6 '20

Stress results within elastic limit: abstracts. R. G. Guthrie. il Iron Age 106:649-51 S 9 '20; Iron Tr R 67:843-5 S 23 '20; Soc Auto Eng J 8:65-8 Ja '21

Widney modulimeter. il Ind Management 60: 254-6 S '20; Same cond. Power Pl Eng 24: 1102-3 N 15 '20

Recreation

See also Forest recreation

Recreation buildings

Recreation building erected by the city of Eveleth, Minn.; view and plans. Arch Rec 47:87-8 Ja '20

Recreation centers. *See* Community centers

Recruiting and enlistment

Marine corps puts over a jazz campaign. C. H. Claudy. Ptr Ink 110:33-4 F 19 '20

Ohio national guard advertises for recruits. Ptr Ink 111:10+ Ap 15 '20

Rectangles

Section moduli of rectangles. J. S. Watts. chart diags Am Mach 53:410-11 Ag 26 '20

Rectification of spirits. *See* Distillation

Rectifiers. *See* Electric current rectifiers

Rectifiers, Mercury arc. *See* Electric current rectifiers

Recuperative furnaces. *See* Furnaces, Recuperative

Red

Fastness properties of the principal red dyes. B. De Puyster. Color Tr J 8:106-14 Mr '21

See also Paranitraniline red; Quinoline red

Red cross

American Red cross in France. Comm & Fin Chr 113:344-5 Jl 23 '21

Red lead

Lead paint for wood and metal. J. S. Springer. il Gas Age 47:137-9 F 25 '21

Recommended specifications for red lead, dry and paste. U S Bur Stand Circ 90:1-8 '20

Red-lead and how to use it in paint. A. H. Sabin. 3d ed. rewritten and enl. 139p Wiley '20

Red rice

Laboratory experiments on the manufacture of Chinese ang-khak in the United States. M. B. Church. J Ind & Eng Chem 12:45-6 Ja '20

Red river of the North

Flood prevention projects to protect Winnipeg. D. L. McLean. diag map Can Eng 38:333-5 Ap 1 '20

Hydraulic control of the Red river of the North. diags map Eng N 85:225-6 Jl 29 '20

Red trade union international

1st congress, Moscow, July 9-18. Int Labour R 4:47-9 O '21

Reduction, Chemical

Application of the rotating zinc reductor in the determination of molybdenum. W. Scott. J Ind & Eng Chem 12:578-80 Je '20

Oxidation and reduction of hydroquinone and quinone from the standpoint of electromotive-force measurements. F. S. Granger and J. M. Nelson. Am Chem Soc J 43:1401-15 Jl '21

Quantitative reduction by hydriodic acid of halogenated malonyl derivatives; the amides and s.-di-alkyl- and aryl-substituted amides of mono- and bi-bromomalonic acid. J. V. Backes, R. W. West and M. A. Whiteley. Chem Soc J 119:359-79 Ap '21

Red phosphorus as a reducing agent. L. Rosenstein. Am Chem Soc J 42:883-8 My '20

Reduction by means of silicon. L. Kahlenberg and W. J. Trautmann. Am Electrochem Soc Trans v 39 (preprint 13):95-134 Ap '21

Reduction by metals in acid solutions; the reduction of acid ferric sulphate solutions by zinc and magnesium. S. Sugden. Chem Soc J 119:233-8 Mr '21

Relations entre les réactions métallurgiques et les lois physico-chimiques. L. Guillet. Génie Civil 78:151-3, 169-73, 190-2 F 12-26 '21

Über die reduktionsstufen von arylderivaten der salpetersäure. K. H. Meyer and W. Reppe. Deutsche Chem Gesell Ber 54:327-37 F '21

See also Hydrogenation

- Reduction, Electrolytic**
 Electric furnace reduction of garnet. M. deK. Thompson and J. Davenport. *Chem & Met Eng* 22:596 Mr 31 '20
 Reduction of manganiferous silicate slags. E. F. Kern. *Am Electrochem Soc Trans v* 37 (preprint 15):221-32 Ap '20
 Use of sulphur dioxide as a reducing agent in the electrolysis of copper solutions; patent. *Chem & Met Eng* 23:988 N 17 '20
- Redwood**
 Some special uses of redwood. A. L. Dahl. *il Sci Am* 124:286+ Ap 9 '21
 Tests of bearing strength of redwood agree with Howe's formula. R. R. Martel. *Eng N* 85:959 N 11 '20
- Reed**
 Chemical composition of the reed phragmites communis Trin; abstract. C. J. West. *Paper* 28:16-17 Je 1 '21
 Reed as paper making material. A. Klein. *il Paper Trade Journal* 73:38+ S 22 '21
 Silica content of the reed phragmites communis Trin. C. J. West. *Paper* 28:24-5 Jl 20 '21
 Utilization for paper pulp of phragmites communis Trin. C. J. West. *il Paper* 27:22-5+ Mr 9; 26-9 Mr 16; 28:23-6 Mr 23 '21
 Utilization of reed in paper manufacture. E. Heuser. *Paper* 27:23+ N 3 '20
- Reefer, E. J.**
 Sketch. M. E. Berkowitz. *por System* 39:46-7 Ja '21
- Reefs**
 Removal of reefs in the Rio Guadiana. J. S. Owens. *il Engineer* 130:201-2 Ag 27 '20
- Reels, Electric cable.** See Electric cable reels
- Reference books**
Bibliography
 Recent reference books. C. L. Cannon. *Library Journal* 46:363-6, 549-50 Ap 15, Je 15 '21
 Reference books of 1919-1920. I. G. Mudge. *Library Journal* 46:7-16 Ja 1 '21
- Refinite**
 Interlocking campaign for industrial and household sales. C. E. Duffie. *Ptr Ink* 111: 97-8+ Ap 8 '20
- Reflection (optics)**
 Absolute method for determining coefficients of diffuse reflection. F. A. Benford. *il Gen Elec R* 23:72-6 Ja '20
 Coefficients of utilization. W. Harrison and E. A. Anderson. *Illum Eng Soc* 15:97-123 no 2 '20
 Experimental study of the reflection of X-rays from calcite. B. Davis and W. M. Stempel. *diags Phys R* 17:608-23 My '21
 Intensity of reflexion of X-rays by rocksalt. W. L. Bragg, R. W. James and C. H. Bosanquet. *diags Philos Mag* 6th ser 41:309-37 Mr '21
 Magnetic reflection. J. D. Ross. *diags J Elec* 46:246-8 Mr 1 '21
 Measurement of reflection factors. C. H. Sharp and W. F. Little. *diag Illum Eng Soc* 15:802-10 no 9 '20; Same. *Elec R* 78: 255-7 F 12 '21; Discussion. *Illum Eng Soc* 15:817-26 no 9 '20
 Preparation and reflective properties of some alloys of aluminum with magnesium and with zinc. R. G. Waltenberg and W. W. Coblenz. *U S Bur Stand Sci Pa* 363:653-7 '20
 Reflecting power of monel metal, stellite, and zinc. W. W. Coblenz. *U S Bur Stand Sci Pa* 379:249-52 '20
 Reflection of light explained by electron theory. T. Croft. *Elec R* 77:408 S 11 '20
 Reflection of radiation from an infinite series of equally spaced planes. K. W. Lamson. *Phys R* 17:624-5 My '21
 Total reflection of light in water by animalcules. *Sci Am M* 4:211 S '21
 Walls and floors—their effects on lighting. V. R. Lansingh. *il diags Illum Eng Soc* 15:124-31; Discussion. 131-8 no 2 '20
 See also Reflectors
- Reflectometer**
 Measure of interior lighting. S. R. Winters. *il Sci Am* 124:205+ Mr 12 '21
- Measurement of diffuse reflection factors, and a new absolute reflectometer.** A. H. Taylor. *bibliog diags U S Bur Stand Sci Pa* 391:421-36 '20; Excerpt. *Elec W* 76:467-9 S 4 '20
- Portable reflectometer.** *Am Inst E E J* 39: 1004 N '20
- Simple portable instrument for the absolute measurement of reflection and transmission factors.** A. H. Taylor. *il diags U S Bur Stand Sci Pa* 405:1-6 '20; Same. *Illum Eng Soc* 15:811-17 no 9 '20; Same cond. *Illum Engr* 13:265-9 O '20; Discussion. *Illum Eng Soc* 15:817-26 no 9 '20
- Reflectors**
 Correction by means of coloured reflectors. *diags Illum Engr* 13:37-42 F '20
 Devices for controlling headlight glare; Crockett head lamp reflector. *il diags Automotive Ind* 44:1199-1200 Je 9 '21
 Generating a parabolic reflector. L. J. Voorhees. *diags Am Mach* 54:70-1 Ja 13 '21
 Metal mirrors for searchlights. R. B. Hussey. *il Metal Ind* 18:227-9 My '20
 Reflecting device for inspecting bores. L. E. Olsen. *diag Mach* 27:48 S '20
 RLM standard reflector for industrial lighting. W. Harrison. *il diags Illum Eng Soc* 15: 374-84 no 6 '20; Abstract. *Illum Engr* 13: 253-4 S '20
- Reforestation.** See Forests and forestry
- Refraction**
 Refraction of light in plant tissues. B. H. Brown. *Sci Am M* 2:365 D '20
- Refraction, Atomic**
 Atomic refraction. W. Swientoslawski. *Am Chem Soc J* 42:1945-51 O '20
- Refraction, Double**
 On magnetic double refraction of gold colloids. Y. Björnstål. *diags Philos Mag* 6th ser 42:352-68, pl 13 S '21
- Refraction, Molecular**
 Ein beitrag zur summationsmethodik der molekularrefractionen, besonders bei aromatischen kohlenwasserstoffen. A. L. von Steiger. *Deutsche Chem Gesell Ber* 54:1381-93 Je '21
 Molekularer brechungskoeffizient, sein additives verhalten und seine verwendbarkeit zur konstitutionsbestimmung; die zahlenmässigen zusammenhänge in der reihe der polymethylen-verbindungen. F. Eisenlohr. *Deutsche Chem Gesell Ber* 54:299-320 F '21
- Refractive index**
 Determination of indices of refraction of transparent solids. *Am J Sci* 49:148-50 F '20
 Determination of refractive indices of oils. H. S. Simms. *diags J Ind & Eng Chem* 13: 546-7 Je '21
 Note on the paper by Ch. Fabry entitled: Méthode par immersion pour la mesure des indices de réfraction des corps solides. H. S. Uhler. *diag Am J Sci* 49:143-5 F '20
- Refractometer**
 Application of the immersion refractometer to the analysis of aqueous salt solutions. C. A. Clemens. *J Ind & Eng Chem* 13:813-16 S '21
 Refractometer for polished plate glass. K. A. Rice. *il Sci Am M* 1:23 Ja '20
- Refractory materials**
 American malleable cast iron; fuel and refractories. H. A. Schwartz. *il maps Iron Tr R* 68:1458-60 My 26 '21
 American practice in refractories. W. J. Rees. *Engineering* 111:695-6 Je 3 '21
 Art of systematic inquiry (research), its place in industry. H. E. Armstrong. *Engineering* 109:735-7 My 28 '20; Excerpts. *Eng & Contr* 53:757-8 Je 30 '20
 Ceramic society 7th meeting. *Engineering* 109:610-11, 645-6 My 7-14 '20
 Electric furnace refractories. A. F. Greaves-Walker. *Chem & Met Eng* 23:933-6 N 10 '20
 Experiments in the use of dolomite refractories. *Eng & Min J* 111:586 Ap 2 '21
 Laboratory furnace for deformation temperature of refractories. L. R. Office. *il diags Chem & Met Eng* 25:162 Jl 27 '21

Refractory materials —Continued

- Magnesite refractories. J. S. McDowell and R. M. Howe. *il Am Cer Soc J* 3:185-237; Bibliography. 237-46 Mr '20
- Making refractories in America. C. B. Stowe. *Iron Tr R* 68:1309-11 My 12 '21; Same. *Foundry* 49:444-6 Je 1 '21
- Melting point of refractory materials. L. I. Dana. *diag Min & Met* 153:1571-86 S '19; Discussion. 156:3153 D '19; 157:(sec 12) 7 Ja '20
- 1919 sees improvements in refractories. R. M. Howe. *Blast F & Steel Pl* 8:59-60 Ja '20
- Note on the load behavior of aluminous refractories. A. V. Bleininger. *Am Cer Soc J* 3:155-7 F '20
- Physical characteristics of specialized refractories. M. L. Hartmann and O. A. Hougen. *il Am Electrochem Soc Trans v* 37 (preprint 22):349-54 Ap '20
- Physical characteristics of specialized refractories. M. L. Hartmann and J. F. Kobler. *il Am Electrochem Soc Trans v* 37 (preprint 23):355-8 Ap '20
- Physical characteristics of specialized refractories. M. L. Hartmann and W. A. Koehler. *diag Am Electrochem Soc Trans v* 40 (preprint 9):129-36 S '21
- Physical characteristics of specialized refractories. M. L. Hartmann, A. P. Sullivan and D. E. Allen. *diag Am Electrochem Soc Trans v* 38 (preprint 1):1-15 O '20
- Possibilities for research and development in the field of refractories. H. F. Staley. *Chem & Met Eng* 23:1167-71 D 15 '20
- Rail tieup blow to refractories. *Iron Tr R* 68:32 Ja 6 '21
- Refractories and their relation to furnaces. *Blast F & Steel Pl* 9:53-4+ Ja '21
- Refractories division of the American ceramic society. *Chem & Met Eng* 24:420-1 Mr 9 '21
- Refractories for bottom connected electric furnaces. F. W. Brooke. *Iron Age* 106:1316 N 18 '20
- Refractories for electric furnaces. R. M. Howe. *Foundry* 48:911-13 N 15 '20; Same. *Iron Tr R* 67:1541-3 D 2 '20
- Refractories for electric furnaces; symposium. *Chem & Met Eng* 23:769-70 O 20 '20
- Refractories have long life in rotating furnace. *Elec R* 77:998 D 25 '20
- Refractories in the zinc industry. J. A. Audley. Review, by A. J. Lambert. *Am Cer Soc J* 3:81-2 Ja '20
- Refractories; symposium at the 58th meeting of the American chemical society. *Engineering* 109:98-9, 128-9 Ja 16-23 '20
- Refractory industry; production statistics. *Iron Age* 108:10 Jl 7 '21
- Refractory materials as a field for research. E. W. Washburn. (Reprint & Circ. Ser. 3) 24p n.d. 30c National research council, 1701 Massachusetts av, Washington, D.C.
- Refractory materials of bauxite bricks. E. C. Buck. *Iron Age* 105:872 Mr 25 '20
- Refractory product problems; abstract. A. Bigot. *Am Cer Soc J* 3:163-4 F '20
- Refractory substances. A. Bigot. *Sci Am M* 2:133-5 O '20
- Report of the investigation into the properties of refractory materials used in coke-oven construction. W. C. Hancock. *Iron & Steel Inst C S M* 10:41-63 '20
- Reversible expansion of refractory materials; abstract. H. J. Hodsman and J. W. Cobb. *Am Cer Soc J* 3:581 Jl '20
- Securing long lived furnace linings. C. H. Booth. *Iron Tr R* 67:1745 D 23 '20
- Silica refractories; factors affecting their quality and methods of testing the raw materials and finished ware. D. W. Ross. *il diag U S Bur Stand Tech Pa* 116:1-84 '19
- Specifications for refractories for glassworks' use; abstract. W. T. Rees. *Am Cer Soc J* 3:332-3 Ap '20
- Strength of refractories at different temps. V. Bodin. *Am Cer Soc J* 4:69-70 Ja '21
- Tracing 109 years of refractories making. C. B. Stowe. *Brick & Clay Rec* 58:904-6 My 31 '21

See also Carborundum; Electric furnaces —Refractories; Fire brick; Fire clay; Ganister; Magnesite; Saggers; Sillimanite; Zirconia

Testing

- High temperature testing furnace. W. M. Hepburn. *diag Am Cer Soc J* 4:755-8 S '21
- High-temperature transverse-strength test as a method of testing sagger mixtures. S. C. Linbarger and C. F. Geiger. *il diag Am Cer Soc J* 3:543-50; Discussion. 550-5 Jl '20
- Refractories under load conditions. H. J. Knollman. *Am Cer Soc J* 4:759-70 S '21
- Report of committee C-8 on refractories. *Am Soc T M Pro v* 20 pt 1:275-7 '20
- Tentative test for slagging action of refractory materials. *diags Am Soc T M Pro v* 20 pt 1:620-3 '20
- Testing coke oven refractories. F. A. Harvey and E. N. McGee. *il Am Cer Soc J* 4 pt 1:474-90; Discussion. 491-2 Je '21
- Uniform high temperature throughout a large volume. E. F. Northrup. *diag J Ind & Eng Chem* 13:639 Jl '21
- See also* Fire clay—Testing
- Refrigerating machines, Domestic**
- Household refrigerating machine. J. E. Starr. *A S R E J* 6:34; Discussion. 34-45 Jl '19
- Rating of household refrigerating machines. R. F. Massa. *A S R E J* 6:432-6 My '20
- Some problems of household refrigerating machine design; with discussion. G. A. Kramer. *diags A S R E J* 7:29-40 Jl '20
- Testing of household refrigerating machines. H. L. Lincoln. *diags A S R E J* 6:91-102 S '19
- See also* Refrigerators, Electric
- Safety devices and measures**
- Safety devices for household refrigerating machines. H. E. Willsie. *A S R E J* 8:1-5; Discussion. 5-10 Jl '21
- Refrigerating plants**
- Coal or oil fuel refrigerating plants? J. E. Porter. *Power* 51:389-90 Je 1 '20
- Conveying machinery in the refrigerating industry. E. McQueen. *il A S R E J* 6:344-63 Mr '20; Abstract. *Eng & Ind Management* 5:311-12 Mr 10 '21; Discussion. *A S R E J* 6:363-8 Mr '20
- Economical refrigerating plant in the Manhattan street branch of the Sheffield farms co. *il Metal Work* 93:447 Ap 9 '20
- Explosion in refrigerating plant. J. Henderson. *Power* 53:300 F 22 '21
- Falls' meat markets find gas most satisfactory means of refrigeration. F. M. Reilly. *il Am Gas Eng J* 112:303-4 Ap 17 '20
- Flow meters in refrigerating plants. H. D. Fisher. *il diags A S R E J* 6:409-28; Discussion. 428-31 My '20
- Ford uses large refrigeration plant in making automobiles. E. H. Peterson. *il diags Power* 51:366-70 Mr 9 '20
- Fulton market cold storage plant, Chicago. *il plan Power* 54:470-3 S 27 '21
- Improving a refrigerating plant. J. C. Moran. *diags Power* 53:958-9 Je 14 '21
- Refrigerating plant at Los Angeles wholesale terminal. C. W. Geiger. *il Power Pl Eng* 24:1059-61 N 15 '20
- Refrigerating plant economies and capacities. I. L. Kentish-Rankin. *il diags Power Pl Eng* 25:471-7 My 1 '21
- Refrigeration plant problem. J. C. Moran. *diag Power* 53:385-6 Mr 8 '21
- Refrigeration study course: erection and operation. H. J. Macintire. *il Power* 52:1015-17 D 28 '20
- Refrigeration system gave trouble. A. C. McHugh. *diags Power* 54:567-8 O 11 '21
- T-wharf plant, Quincy market cold storage and warehouse co., Boston. C. H. Bromley. *il diags plans Power* 50:638-44 O 28 '19; Abstract. *Mech Eng* 42:66-7 Ja '20
- Thermal equilibrium of refrigerating plants. E. C. West. *chart Engineering* 110:853-5 D 31 '20
- Typical refrigerating plant showing principal equipment. *Power* 54:supp S 6 '21
- Why the absorption system failed. M. C. Jackson. *diag Power* 54:599 O 18 '21

Refrigerating plants —Continued

World's largest freezer; new Armour & co. plant has 750-ton refrigerating capacity. il diags plans Power Pl Eng 24:549-54 Je 1 '20

See also Electricity in refrigeration; Ice—Manufacture; Refrigeration and refrigerating machinery

Accounting

Armour system of power plant accounting.

O. A. Anderson. Power 53:170-4 F 1 '21

Preliminaries to cost accounting in refrigerating plants. P: Neff. Power 52:130-3 JI 27 '20

Management

Care of refrigerating plant auxiliaries. B. C. Hill. il diag Power 52:387-9 S 7 '20

Refrigerating-plant economy simplified. V: J. Azbe. Power 50:612-13 O 21 '19

Refrigerating plant experiences. R. L. Tullis. Power 51:30 Ja 6 '20

Refrigeration plant operation. hints. W. A. Darter. diags Power Pl Eng 24:948-9 O 1 '20

Power

Electric current rates for refrigerating and ice making plants. S. Bennis. diag A S R E J 8:111-23; Discussion. 123-6 S '21

Internal-combustion engines as prime movers for refrigeration plants. W. H. Motz. il diag Power 54:58-60 JI 12 '21

Large installation of synchronous motors in cold-storage plants. il Elec R 76:301-4 F 21 '20

Steam engines for refrigerating plants. W. H. Motz. il Power 53:916-19 Je 7 '21

Records

Keeping records in the refrigerating plant. N. Druin. Power 54:321-2 Ag 30 '21

Repair

Refrigerating-plant troubles. J. C. Moran. diag Power 53:138-9, 212-13, 344 Ja 25, F 8, Mr 1 '21

Trouble-hunting in refrigerating plants. J. C. Moran. diags Power 52:87-9, 168-70 JI 20, Ag 3 '20

Troubles with an absorption system. W. S. Doan. diag Power Pl Eng 24:851-2 S 1 '20

Safety devices and measures

Proposed code for installing and operating refrigerating plants. diags Heat & Ven 17:60-2 Mr '20

Safety regulations for refrigerating plants. G. H. Crawford. diags Power 53:28-30 Ja 4 '21

Refrigeration and refrigerating machinery

Absorption machine merely needed better steam circulation. W. E. Parsons. Power 51:69 Ja 13 '20

Absorption refrigerating machine. H. J. Macintire. diags Power 50:692-4, 750-2 N 11, 25 '19

Ammonia in refrigeration. A. G. Solomon. il Power Pl Eng 24:576-8 Je 1 '20

Arc welding applied to refrigerating machinery. A. M. Candy. il diags A S R E J 7:259-80 Ja '21

Back pressure. A. G. Solomon. Power Pl Eng 24:663-4 JI 1 '20

Back pressure on compression systems. A. G. Solomon. Power Pl Eng 24:147-50 Ja 15 '20; Discussion. C. E. Moulson. 24:302-3 Mr 1 '20

Behavior of ammonia in refrigerating plants. J: H. Ryan. il diag Power 52:613-14 O 19 '20

CO₂ refrigeration system. F. T. Flenniken. diags Power 53:582 Ap 12 '21

Causes and prevention of the formation of noncondensable gases in ammonia absorption refrigeration machines. E. C. McKelvy and A. Isaacs. il U S Bur Stand Tech Pa 180:1-10 '20; Excerpts. Power 53:446 Mr 15 '21

Causes of high pressure in refrigeration systems. V. D. Froid. diag Power 53:255-6 F 15 '21

Combination brine and freezing tank using direct-expansion ammonia coils. diags plans Heat & Ven 17:51-2 Mr '20

Conférence internationale du froid, Paris. E. Barbet. Chimie & Ind 3:85-7 Ja '20

Considérations sur les machines frigorifiques. M. Ponchon. diags Chimie & Ind 3:24-7 Ja '20

Feed-water heaters and ammonia receivers. A. G. Solomon. Power Pl Eng 25:527-9 My 15 '21

Field of refrigerants. F. E. Matthews. diag A S R E J 6:437-45 My '20

Flooded system for evaporating coils. G. H. Crawford. diags Power 52:44-5 JI 13 '20

Freezing of brine a puzzle. C. A. Goodwin. Power 51:35-6 Ja 6 '20; Discussion. C. T. Baker. 51:476 Mr 23 '20

Handling the flooded-type brine cooler. B. E. Hill. plan Power 52:464-5 S 21 '20

Hints on refrigeration practice. A. G. Solomon. diag Power Pl Eng 24:394-6, 481-3 Ap 1, My 1 '20

Improper oil clogs refrigerating plant. C. E. Anderson. diags Power Pl Eng 24:1039-41 N 1 '20

Lubrication of refrigeration equipment. J: R. Battle. plan Nat Pet N 13:33+ Ag 17 '21

Make ice with gas in summer. W. F. Schaphorst. il Gas Age 45:120-2 F 10 '20

Making castings for ice machines. il Foundry 49:419-25 Je 1 '21

Modern propeller design for brine agitation and circulation. E. A. Burrows. il diags A S R E J 8:127-34 S '21

New methods for applying refrigeration; with discussion. E. S. H. Baars. diags A S R E J 7:14-21 JI '20; Same. Am Soc Heat & V E J 26:489-96 JI '20

Notes on refrigeration. R. L. Tullis. diags Power 53:709-10 My 3 '21

Oil in the expansion coils of the refrigerating system. F. L. Brewer. Power 53:71, 435-6 Ja 11, Mr 15 '21

On the road with the refrigerating troubleman. J. C. Moran. Power 51:420-1, 509-11, 807-9, 873-4 Mr 16, 30, My 18, Je 1 '20

Oxy-acetylene welding of refrigerating apparatus. F. E. Rogers. il diags A S R E J 7:432-50 My '21; Same. Gas Age 47:541-6 Je 25 '21; Discussion. A S R E J 7:450-1 My '21

Physical characteristics of lubricating oils as applied to refrigerating machinery. W. F. Osborne. A S R E J 7:161-6 S '20

Power and refrigeration for model ice cream and dairy plant. il diag plan Power 51:752-7 My 11 '20

Practical pointers on refrigeration. L. S. Spencer. Power Pl Eng 24:344-6 Mr 15 '20

Practical refrigeration for the operating engineer—getting acquainted with the plant. B. E. Hill. il Power 51:320-2 Mr 2 '20

Practical refrigeration for the operating engineer—regulation of pressures and temperatures. B. E. Hill. il Power 51:581-3 Ap 13 '20

Precautions when pumping ammonia from coils. B. E. Hill. il Power 51:718-19 My 4 '20

Refrigerating equipment for Edgewood arsenal. J. O. Schultz. A S R E J 6:46-9 JI '19

Refrigerating industry. F. E. Matthews. Power 53:18-19 Ja 4 '21

Refrigeration. C: L. Hubbard. il diags Am Arch 119:528-33, 587-91, 654-8 Ap 27, My 25, Je 22 '21

Refrigeration a gas-using prospect. il Gas Age 48:1-2 JI 11 '21

Refrigeration: a practical treatise. M. W. Arrowood. 272p American technical society, Chicago '20

Refrigeration, cold storage and ice-making. A. J. Wallis-Taylor. 6th ed. 652p C. Lockwood and son, London '20

Refrigeration in air conditioning. L. Nusbaum. A S R E J 7:170-2 S '20; Excerpt. Heat & Ven 18:47 My '21

Refrigeration in Russia and America's participation in its future development. N. A. Borodin. A S R E J 7:167-9 S '20

Refrigeration problems. R. L. Tullis. Power 53:315 F 22 '21

Refrigeration questions. Power Pl Eng 24:354-5 Mr 15 '20; Answers. 24:541 My 15 '20

Refrigeration and refrigerating machinery*—Continued*

- Refrigeration study course; absorption machine. H. J. Macintire. diags plan Power 52:430-3 S 14 '20
- Refrigeration study course; ammonia and ammonia piping. H. J. Macintire. diags Power 52:19-20 J1 6 '20
- Refrigeration study course; ammonia fittings and accessories. H. J. Macintire. diag Power 51:459-60 Mr 23 '20
- Refrigeration study course—applications of refrigeration. H. J. Macintire. diags Power 52:943-4 D 14 '20
- Refrigeration study course; applications of refrigeration—ice making. H. J. Macintire. diags Power 52:781-3 N 16 '20
- Refrigeration study course—automatic refrigeration. H. J. Macintire. diags Power 51:840-2 My 25 '20
- Refrigeration study course; cold-storage and packing-house refrigeration. H. J. Macintire. diags Power 52:855-7 N 30 '20
- Refrigeration study course; cooling water. H. J. Macintire. il diags Power 51:1004-6 Je 22 '20
- Refrigeration study course; erection and operation. H. J. Macintire. il Power 52:1015-17 D 28 '20
- Refrigeration study course; insulation. H. J. Macintire. diags map Power 51:630-2 Ap 20 '20
- Refrigeration study course; low temperature ammonia compression. H. J. Macintire. diags plan Power 51:669-71 Ap 27 '20
- Refrigeration study course—refrigerants. H. J. Macintire. diags Power 51:914-16 Je 8 '20
- Refrigeration study course; the ammonia-compression system. H. J. Macintire. diag Power 51:138-9 Ja 27 '20
- Refrigeration study course—the ammonia compressor. H. J. Macintire. diags Power 51:220-2 F 10 '20
- Refrigeration study course—the ammonia condenser. H. J. Macintire. diags Power 51:301-3 F 24 '20
- Refrigeration study course; the brine system. H. J. Macintire. diag Power 51:540-1 Ap 6 '20
- Refrigeration study course—the high-speed ammonia compressor. H. J. Macintire. il diags Power 51:769-72 My 11 '20
- Refrigeration study course; what is mechanical refrigeration? H. J. Macintire. diags Power 51:63-5 Ja 13 '20
- Refrigeration troubles. R. L. Tullis. Power 52:941-2 D 14 '20
- Rotary compressor and its application in mechanical refrigeration; with discussion. W. G. E. Rolaff. diags A S R E J 7:1-13 J1 '20
- Salt precipitation by refrigeration: abstract. B. Block. diag Mech Eng 42:122 F '20; Same. Sci Am M 1:178-9 F '20
- Setting ammonia expansion valves. J. C. Moran. diags Power 53:579-81 Ap 12 '21
- Some CO₂ compressor valve and gland packing defects, with their remedies. W. I. Esplin. diags Int Marine Eng 25:71-2 Ja '20
- Some points about dense-air refrigerating machines. W. D. Forbes. Power 52:578-80 O 12 '20
- Some practical refrigeration problems. C. H. Herter. diag Power 54:253-4 Ag 16 '21
- Suction line; how long suction reduces compressor capacity. A. Ulmann, jr. Power Pl Eng 25:868-9 S 1 '21
- Suggestions for conserving ammonia. C. T. Baker. Power Pl Eng 24:1041 N 1 '20
- Testing for ammonia leaks in refrigerating plants. B. E. Hill. il Power 51:955-6 Je 15 '20; Same. Sci Am M 2:173 O '20
- To offset the high cost of ice. W. Lambert. il Sci Am 122:539+ My 15 '20
- Warming buildings with refrigerating equipment. R. Matthews. diags Power 53:628-31 Ap 19 '21; Same. Sci Am M 3:439-42 Je '21
- Water in a refrigerating system. M. C. Jackson. Power 54:414-15 S 13 '21
- What happens at the expansion valve. diags Power 54:678-9 N 1 '21
- What it pays to know about refrigeration. C. L. Hubbard. il diags Factory 26:1300-3 Je 1 '21

Where the ammonia charge goes. J. E. Porter. Power 51:618-19 Ap 20 '20

See also Ammonia compressors; Ammonia condensers; Cold storage; Cooling; Electricity in refrigeration; Ethyl chloride; Ice—Manufacture; Insulation (heat); Pumps, Ammonia; Refrigerating machines, Domestic; Refrigerating plants; Refrigerator barges; Refrigerator cars; Refrigerators

Bibliography

Bibliography of American literature relating to refrigeration, with synopsis of papers and reports covering the year 1915. P: Neff. p 11-97 American association of refrigeration, Chicago

Specifications

Specifications for refrigerating apparatus. G. H. Crawford. Power 53:854-6 My 24 '21

Word on specifications to the refrigerating-plant operator. B. E. Hill. Power 52:219-20 Ag 10 '20

Tables, calculations, etc.

- Armour system of power plant accounting. O. A. Anderson. Power 53:170-4 F 1 '21
- Refrigeration problem; brine tank capacity. A. G. Solomon. Power Pl Eng 24:956-8 O 1 '20
- Refrigeration problem in figuring capacity and horsepower. G. Grow. diag Power 53:506-7 Mr 29 '21
- Refrigeration study course—ammonia pipe calculations. H. J. Macintire. diag Power 52:702-4 N 2 '20
- Refrigeration study course; ammonia piping calculations. H. J. Macintire. Power 52:299-301 Ag 24 '20
- Standard unit adopted by the refrigerating industry. F. E. Matthews. diag Power 53:184-7 F 1 '21; Discussion. C. H. Herter. 53:559-60 Ap 5 '21
- Tables of physical properties of various refrigerants and steam. Power 53:116, 477 Ja 18, Mr 22 '21
- Temperature and pressure tables for saturated ammonia. Power 53:96-7 Ja 18 '21
- Two indirect methods of finding the weight of ammonia in circulation in compression refrigeration. J. W. Gavett, jr. diags Power 51:1042-5 Je 29 '20
- Refrigeration on motor trucks**
- System of transit refrigeration and heating. L: Penwell. diags A S R E J 7:149-51 S '20
- Refrigeration on shipboard**
- American progress in marine refrigeration. J. F. Farish. Int Marine Eng 25:169-70 Mr '20
- Balsa ice chest for deck installation. il diag plan Int Marine Eng 25:140-2 F '20
- Balsa insulation for refrigerator ships. il diags Marine Eng 26:557-60 J1 '21
- British frozen meat cargo steamer Tairoa. diags plans Marine Eng 26:583-7 Ag '21
- Refrigerator and cargo steamer City of Pekin. diags plans Marine Eng 26:657-61 S '21
- Refrigerator barges**
- Cold storage barges for the Rhine. Engineering 109:765; 110:863 Je 4, D 31 '20
- Refrigerator cars**
- Canadian Pacific builds refrigerator cars. il diags Ry Age 67:1041-4 N 28 '19; Same. Ry Mech Eng 93:712-16 D '19
- Clinton refrigerating car gas eliminating system. diags plan Ry Mech Eng 94:545-6 Ag '20
- Controlling refrigerator car temperature in winter months. diags Ry R 69:293-7 S 3 '21
- Development of a standard refrigerating car. M. E. Pennington. diags plan A S R E J 6:1-12; Discussion. 12-24 J1 '19
- Express refrigerator car shown in model form. il Pop Mech 33:218 F '20
- Gas eliminating system for refrigerator cars. diags plan Ry Age 68:1481-2 My 21 '20
- Inspection of freight equipment. L. K. Sillcox. Ry Mech Eng 94:587-8 S '20
- Insulating refrigerator cars. Ry Mech Eng 95:447-8 J1 '21

Refrigerator cars—Continued

Insulation of passenger and refrigerator cars. A. J. Wood. diag Ry Mech Eng 95:547-9 S '21

Pacific fruit express refrigerator cars. il diags Ry Age 69:1145-8 D 31 '20; Same. Ry Mech Eng 95:25-8 Ja '21

Refrigeration by jolting and swaying. R. H. Moulton. il Sci Am 121:612 D 20 '19

Shock absorber for refrigerator cars. il diags Ry Mech Eng 94:737-8 N '20; Same cond. Ry Age 70:340 F 4 '21

System of transit refrigeration and heating. L. Penwell. diags A S R E J 7:140-51; Discussion. 151-60 S '20

Transportation economics of the refrigerator car. H. R. Newlean. A S R E J 7:383-9 Mr '21

Use of car tanks for transporting milk. il Ry R 69:543-4 O 22 '21

Wilson & co. adopt new scheme of transit refrigeration. Ry R 66:579-80 Ap 3 '20

Testing

Comparative tests of refrigerator cars. diags Ry Mech Eng 94:28-32 Ja '20; Same. Ry Age 68:631-5 F 27 '20; Same cond. Ry R 65:875-7 D 13 '19

Refrigerators

Making evaporation take the place of the ice man. il Sci Am 121:637 D 27 '19

Meat counter is shop's refrigerator. il Pop Mech 36:568-9 O '21

Research department report on refrigerator manufacturers. 8p Weyerhaeuser forest products, St Paul '21

See also Cold storage; Refrigerating machines, Domestic; Refrigeration and refrigerating machinery

Refrigerators, Concrete

Concrete refrigerators. il diag Concrete 17:132 O '20

Refrigerators, Electric

Complete household electric refrigerator. il Elec R 78:1027-8 Je 25 '21

Doing away with the ice man. A. A. Hopkins. il Sci Am 125:134-5 Ag 20 '21

Domestic electric refrigeration should be developed. V. Tallman. Elec W 76:1124-5 D 4 '20

Domestic refrigerators as a central-station load. R. Montgomery. Elec R 76:440-2 Mr 13 '20

Electrical refrigeration a dealer's opportunity. il diag Elec R 78:647-8 Ap 23 '21

Motor-driven refrigerators give Detroit no trouble. Elec W 75:276 Ja 31 '20

Revenue and load furnished by the home electric refrigerator. H. L. Lincoln. Elec W 75:851 Ap 10 '20

Refuse, Utilization of

Converting garbage into a real asset. Sci Am 123:192 Ag 21 '20

Feeding garbage to hogs at St Paul. Eng N 84:289-90 F 5 '20

Garbage and refuse collection and hog feeding at Salt Lake City. S. J. Truman. Eng N 84:959-60 My 13 '20

Garbage disposal and the economic recovery of valuable constituents of municipal waste. S. A. Greeley. Munic Eng 58:22-6 Ja '20

Garbage reduction and rubbish incinerator plants recommended for Baltimore. H. G. Perring. Eng & Contr 55:472-3 My 11 '21

Paper-wrapped garbage makes trouble. Eng N 84:907 My 6 '20

Pig feeding for disposal of garbage. F. S. Besson. il Munic J 47:306-9 N 22 '19

Recent practice in garbage disposal by feeding to pigs. Eng & Contr 52:672-3 D 10 '19

Sewage filters from refuse. W. Scouller. Pub Works 48:81-2 F 7 '20; Same. Eng & Contr 53:370 Mr 31 '20

Some features of garbage disposal by hog feeding at Baltimore, Md. il Munic Eng 59:90-1 S '20

See also Refuse disposal—Reduction plants

Refuse collection

Experiences in garbage collection and disposal at Akron, Ohio. F. C. Tolles. Eng N 83:1013-14 D 11 '19

Garbage and refuse collection and hog feeding at Salt Lake City. S. J. Truman. Eng N 84:959-60 My 13 '20

Garbage collection by trailer and tractor. S. E. Bates. il Munic J 48:21-4 Ja 17 '20

Package garbage collection in Trenton, N. J. Pub Works 50:428 My 21 '21

Refuse disposal in Passaic, N.J. C. R. Wise. il Pub Works 50:367-9+ Ap 30 '21

Trailers in municipal service. H. W. Perry. il Eng N 86:374-6 Mr 3 '21

Trailers in refuse collection. il Pub Works 50:235-7 Mr 19 '21

Transportation of garbage with data on garbage disposal in various cities. S: A. Greeley. Munic Eng 59:132-4 O '20

Use of trailers in garbage and ash removal. il Munic Eng 59:sup10+ D '20

See also Ash cans; Ash handling

Cost

Comparative costs of street cleaning ash and garbage collection and disposal in 16 cities. Eng & Contr 55:142 F 9 '21

Le prix de revient de l'enlèvement des ordures ménagères de Genève (Suisse), en 1920. Génie Civil 79:294-5 O 1 '21

Two ton truck saves \$4,000 per year on ash collection work. C: E. Firth. Munic Eng 61:sup10+ O '21

Refuse disposal

Baltimore waste disposal report. H. G. Perring. Pub Works 50:493-6 Je 11 '21

Collection and disposal of municipal refuse. R. Hering and S: A. Greeley. 653p McGraw-Hill '21

Committee reports on N.Y. waste disposal. Eng N 86:1135-6 Je 30 '21

Disposal of municipal wastes. J. Goder. Pub Works 48:444-6, 473-6, 497-8 My 22-Je 5 '20

Experiences in garbage collection and disposal at Akron, Ohio. F. C. Tolles. Eng N 83:1013-14 D 11 '19

Garbage disposal in leading cities of U.S. Eng & Contr 55:482 My 11 '21

Refuse disposal in London boroughs. Pub Works 50:503-4 Je 11 '21

Refuse disposal in Savannah. il Pub Works 48:343-4 Ap 24 '20

Refuse incineration for Wilmington, Delaware. Pub Works 51:311-13 O 22 '21

Rubbish collection and disposal, District of Columbia. F. S. Besson. il plan Eng N 85:1182-4 D 16 '20

Street cleaning, refuse disposal and snow removal in Buffalo, N.Y. G: H. Norton. Munic Eng 58:21-2 Ja '20; Same. Can Eng 38:177 Ja 29 '20

Temporary and permanent garbage disposal methods at Baltimore. Eng N 87:694 O 27 '21

Toledo garbage disposal. Pub Works 50:263 Mr 26 '21

Transportation of garbage with data on garbage disposal in various cities. S: A. Greeley. Munic Eng 59:132-4 O '20

See also Acid waste; Ash handling; Dye waste; Railroads—Refuse disposal; Refuse, Utilization of; Refuse collection; Refuse incinerators; Sewage disposal; Street cleaning; Trade waste; Waste removal; Water pollution

Bibliography

Municipal wastes, their character—collection—disposal. H. R. Crohurst. 98p U.S. Public health service '20

Contracts

Army camp garbage prices for two years. F. C. Bamman. Eng N 84:230 Ja 29 '20

Refuse disposal contract for Boston. Pub Works 51:25-6, 42-4 Jl 9-16 '21

Summary of contract terms for garbage feeding at three cities. Eng N 84:416 F 26 '20

Cost

First year's operation of Washington's municipal garbage reduction works. F. C. Bamman. il Eng N 84:908-11 My 6 '20

Refuse disposal—Cost—Continued

Garbage disposal in the District of Columbia—estimates for disposal by pig feeding, by new reduction works and by improvements to existing works. F. S. Besson. Eng N 85:1072-5 D 2 '20

Garbage reduction and rubbish incinerator plants recommended for Baltimore. H. G. Perring. Eng & Contr 55:472-3 My 11 '21

Study in the economics of garbage reduction. F. S. Besson. Eng N 86:258-9 F 10 '21

Law

Liability of municipality for nuisance in garbage disposal. J. Simpson. Pub Works 50:354-6 Ap 23 '21

Reduction plants

Study in the economics of garbage reduction. F. S. Besson. Eng N 86:258-9 F 10 '21

Reduction plants, Municipal

Columbus municipal reduction plant. W. D. Bee. Pub Works 49:441-2 N 6 '20; Same. Can Eng 39:488-9 N 4 '20; Same. Eng & Contr 54:458 N 10 '20

First year's operation of Washington's municipal garbage reduction works. F. C. Bamman. il Eng N 84:908-11 My 6 '20

Nine years' operation results of the municipal garbage reduction works at Columbus, Ohio. J. W. Follin. Eng N 85:991-4 N 18 '20

Report on equipment and operation of Chicago's municipal reduction plant. I. S. Osborn. Eng & Contr 55:476-80 My 11 '21; Abstract. Eng N 86:856 My 19 '21

Refuse incinerators

Garbage incinerator at White Plains. il Pub Works 49:337-8 O 9 '20

Incinerator for mill refuse made of brick and concrete. diags Eng N 87:727-8 N 3 '21

Little Giant garbage incinerator that is odorless. il Am Gas Eng J 112:20 Ja 3 '20

Refuse disposal in Passaic, N.J. C. R. Wise. il Pub Works 50:367-9+ Ap 30 '21

Revenue from garbage incineration uncommon this side the Atlantic. E. H. Foster. Eng N 86:133 Ja 20 '21

Sarnia garbage and refuse incinerator. E. M. Proctor. il diags Can Eng 40:223-5 F 17 '21

Toronto incinerators; a design suitable for small towns. E. A. James. il diags Can Eng 38:175-6 Ja 29 '20

Refuse incinerators, Concrete

Concrete refuse-burner. W. J. Galipeau. il Can Eng 38:339 Ap 1 '20

Regeneration (chemistry)

Continuous process for electrolytic regeneration of chromic acid. R. H. McKee and S. T. Leo. diags J Ind & Eng Chem 12:16-26 Ja '20

Regional planning

Industrial decentralization as a cause for regional planning. T. Adams. Eng N 85:31-2 Jl 1 '20

Regional planning in the Pittsburgh district. M. Knowles and M. R. Scharff. il chart maps Eng Soc W Pa 36:683-726; Discussion. 727-33 Ja '21

Regional surveys in relation to municipal planning. Eng N 87:201-2 Ag 4 '21

Suitable areas for regional plans. T. Adams. Eng N 84:950 My 13 '20

Regulators, Hydraulic. See Hydraulic regulators

Regulators, Voltage. See Voltage regulators

Relms

Rebuilding of Rheims. plans Am Inst Arch J 8:336-7 S '20

Reims cathedral

Photographs by Anthony-Thouret. Am Inst Arch J 8:19-26 Ja '20

Reconstruction of Rheims. Am Inst Arch J 8:272-3 Jl '20

Reindeer

Rodeos north of Arctic circle; reindeer fairs in Alaska. L. W. Pedrose. il Pop Mech 34:687-91 N '20

Reinforced concrete. See Concrete, Reinforced

Reinforced lead. See Lead, Reinforced

Rejuvenation. See Longevity

Relativity (physics)

Absolute relations of time and space. A. A. Robb. 80p University press, Cambridge, England '21

Development and present position of the theory of relativity. A. Einstein. Electrician 86:756-7 Je 17 '21

Einstein theories; a physical and astronomical review of their contents and the evidence pro and con. W. H. Pickering. Sci Am M 3:292-5 Ap '21

Einstein's principle of relativity and its bearing upon physics. J. S. Ames. J Fr Inst 191:1-21 Ja '21

Einstein's relativity theory of gravitation. E. Cunningham. Sci Am M 1:116-19 F '20

Einstein's theories of relativity and gravitation. J. M. Bird, ed. 345p Scientific American pub. co., New York '21

Einstein's theories will remain popular mystery. il Pop Mech 33:372 Mr '20

Einstein's theory of relativity. H. P. Gillette. Eng & Contr 55:272-3 Mr 23 '21

Electronic energy and relativity. F. Slate. Philos Mag 6th ser 41:96-106 Ja '21

General principle of relativity in its philosophical and historical aspect. H. W. Carr. 165p Macmillan, London '20

Gravitation and relativity. C. W. Kanolt. diags J Fr Inst 190:211-42 Ag '20

Integration theorems of four-dimensional vector analysis. H. T. Flint. Philos Mag 6th ser 41:389-404 Mr '21

Introductory statement of the place occupied by relativity as a phase of human thought. F. E. Law and others. diag Sci Am 124:186-7+ Mr 3 '21

Nature of things; Einstein's theory of relativity. J. Q. Stewart. Sci Am 122:10+ Ja 3 '20

New concepts of time and space; what Einstein has done to these fundamental notions. M. Francis. diag Sci Am 124:146-7+ F 19 '21

On gravitation and relativity; being the Halley lecture delivered on June 12, 1920. R. A. Sampson. 24p Clarendon press, Oxford '20

Philosophy and the new physics. L. Rougier. 159p Blakiston '21

Physical theory and relativity. Electrician 85:386-7 O 1 '20

Planetary motions and the Einstein theories; a possible alternative to the relativity doctrines that would save the Newtonian law. C. L. Poor. Sci Am M 3:484-6 Je '21

Principle of relativity—a statement of what it is all about, in ideas of one syllable. H. Elliot. Sci Am 124:226+ Mr 19 '21

Quest of the absolute; an essay on modern developments in theoretical physics. F. D. Murnaghan. Sci Am M 3:196-8 Mr '21

Relativity. F. W. Lanchester. diags Engineering 111:477-9, 514-16 Ap 22-29 '21

Relativity and a rotating disk; an application of Einstein's theory that has caused much misunderstanding. L. Page. Sci Am 124:247+ Mr 26 '21

Relativity, the electron theory, and gravitation. E. Cunningham. 2d ed. 148p Longmans '21

Relativity; the special and general theory. A. Einstein. 168p Holt '20

Relativity; the winning essay for the Eugene Higgins five thousand dollar prize. L. Bolton. Sci Am 124:106-7 F 5 '21

Relativity theories in physics. R. C. Tolman. Gen Elec R 23:486-92 Je '20

Space and time in contemporary physics, an introduction to the theory of relativity and gravitation. M. Schlick. 89p Oxford '20

Space, time and gravitation; an outline of the general relativity theory. A. S. Eddington. 218p University press, Cambridge '20; Review. Engineering 110:757-8 D 10 '20

Theory of relativity. 2d ed. R. D. Carmichael. 112p Wiley '20

Time—the fourth dimension of space. A. H. Halloran. J Elec 44:267-9 Mr 15 '20

Relays

- Alabama power company's system, its development and operation. J. M. Oliver, B. Nikiforoff and C. B. McManus. *il diag plan Gen Elec R 22:984-90 N '19*
- Application and operation of relay systems. E. R. Stauffacher and L. J. Moore. *diags J Elec 46:497-503 My 15 '21*
- Applying relays to large power systems. R. F. Gooding. *diags Elec W 77:1421-4 Je 18 '21*
- Construction of a polarized relay. T. W. Benson. *diags Pop Mech 34:623-4 O '20*
- Current-balance relay protection. E. R. Stauffacher. *il diags Elec W 76:465-7 S 4 '20*
- Electrical layout of large power systems. R. Treat. *Gen Elec R 22:924-6 N '19*
- Home-made relay has accurate timing mechanism. G. E. Armstrong. *il diag Elec W 75:1198 My 22 '20*
- New type of definite time control relay. A. B. Campbell. *il diags Gen Elec R 24:964-7 N '21*
- New type of signal or trip-free relay. *il Power Pl Eng 24:544 My 15 '20*
- Overload relays—principles of operation. V. H. Todd. *il diags Power 51:131-4 Ja 27 '20*
- Present-day practice in relay protection. H. R. Woodrow. *diags Elec W 75:133-4 Ja 17 '20*
- Protecting industrial distribution lines. R. B. Gerhardt. *il diags Elec W 76:176-8 J1 24 '20*
- Protective and service-restoring relays. V. H. Todd. *il diags Power 51:912-14 Je 8 '20*
- Protective apparatus for alternating-current systems; abstract. M. Rosebourne. *Elec W 75:962 Ap 24 '20*
- Protective-relay applications and testing practice. H. P. Sleeper. *diags Elec R 77:871-5 D 4 '20*; Same. *Power Pl Eng 25:173-8 F 1 '21*
- Protective relays. V. H. Todd. *il diag Power Pl Eng 24:429-33, 517-21 Ap 15, My 15 '20*
- Protective relays—reverse-power type. V. H. Todd. *il diags Power 52:689-92 N 2 '20*; Discussion. *52:987-8; 53:401 D 21 '20, Mr 8 '21*
- Relay for strong currents; abstract. *diag Elec W 77:554 Mr 5 '21*
- Relay protection for large power stations. O. C. Traver. *il diags Gen Elec R 22:885-99 N '19*
- Relay protection on extensive power system. E. R. Stauffacher. *Elec R 79:13-14 J1 2 '21*
- Relay protective systems. G. E. Armstrong. *J Elec 44:368-9 Ap 15 '20*
- Relay selection for large power systems. R. F. Gooding. *diags Elec W 77:987-9 Ap 30 '21*
- Remodeling switch gears for power systems. S. Q. Hayes. *il diags Power Pl Eng 25:221-5 F 15 '21*
- Reverse-current relays installed on emergency service. W. D. Lewis. *diags Power 51:36 Ja 6 '20*
- Schemes of relay protection. E. A. Hester. *diags Am Inst E E J 40:690-1 Ag '21*
- Special relay permits use of high resistance in neutral grounds. A. W. Copley. *diags Elec W 76:834-5 O 23 '20*
- Street-lamp burn-outs prevented by relay scheme. J. H. Robertson. *diag Elec W 77:995-6 Ap 30 '21*
- Switching and protection of transmission circuits. S. Q. Hayes. *il diags Elec J 17:264-8 Je '20*
- Tendencies in relay protection. R. N. Conwell. *Elec W 77:254-5 Ja 29 '21*
- Types of contactors and relays for motor control. G. J. Kirkgasser and E. W. Seeger. *il diags Elec R 79:273-8 Ag 20 '21*
- Typical relay connections. L. A. Terven. *diags Elec J 18:29-32, 61-5, 99-102 Ja-Mr '21*
- See also Electric protective apparatus; Track circuits*

Bibliography

- Application and operation of relay systems; bibliography, 1910-1921. E. R. Stauffacher and L. J. Moore. *J Elec 46:502 My 15 '21*

Testing

- Checking differential relay installations. R. Bailey. *il diags Elec W 75:429-30 F 21 '20*
- Compact kit for testing a wide range of relays. A. L. Brownlee. *diag Elec W 75:733-4 Mr 27 '20*
- Improved testing of reverse power relays. A. N. Geyer. *Elec W 77:940 Ap 23 '21*
- Protective relays; their care and method of testing. J. T. Kane. *diags Power Pl Eng 24:332-3 Mr 15 '20*
- Relay tests and inspection. R. Bailey. *diags Elec W 77:809-12 Ap 9 '21*
- Testing alternating-current relays. V. H. Todd. *il diags Power 53:98-101 Ja 18 '21*; Discussion. H. D. Matthews. *53:478 Mr 22 '21*
- Testing direct-current relays. V. H. Todd. *diags Power 52:850-2 N 30 '20*
- Testing reverse-power relays without removing leads. R. Bailey. *il diags Elec W 77:319-20 F 5 '21*
- Timing relays with a cycle counter. V. H. Todd. *il diags Power 52:751-2 N 9 '20*

Relays, Telegraph

- Oscillatory valve relay: a thermionic trigger device. L. B. Turner. *diags Inst E E J 57:sup50-9; Discussion. 59-65 '19*

Relief maps

- Cast-aluminum relief world map. *il Foundry 48:910 N 15 '20*
- Mighty map made for Smithsonian institution. S. K. Winters. *il Sci Am 124:133 F 12 '21*
- World's largest relief map is over 40 feet long. *il Pop Mech 35:70 Ja '21*

Relieving attachments

- Fullswing relieving attachment for lathes. *il Ry Mech Eng 94:309-10 My '20*
- Jones relieving attachment. *il Mach 26:579 F '20*
- Relieving attachment for lathes. *diags Engineering 109:345-6, 348 Mr 12 '20*; Same cond. *Mach 26:1151-2 Ag '20*; Excerpts. *Sci Am M 1:474-6 My '20*; Abstract. *Mech Eng 42:295-7 My '20*

Remington arms company

- Remington arms co. now marketing cutlery. C. P. Russell. *Ptr Ink 115:19-20+ Je 9 '21*

Remington typewriter company, inc.

- 27th annual report, 1919. *Comm & Fin Chr 110:1324 Mr 27 '20*
- 28th annual report for the year ending December 31, 1920. *Comm & Fin Chr 112:1529 Ap 9 '21*

Remodeled houses. See Houses, Remodeled**Remora**

- Fish that are trained to catch fish; the remora. M. Tevis. *il Sci Am M 2:330-1 D '20*

Rennie, George, and Rennie, John, Blackfriars, London

- Short histories of famous firms. *diags Engineer 131:366-7 Ap 8 '21*

Rent

- Are high rents responsible for slow sales? C. James, pseud. *Ptr Ink 115:61-2 My 19 '21*
- Building prospect; rents and values. W. I. King. *Arch Rec 49:433-9 My '21*
- Present construction costs and corresponding office building rentals. R. G. Walker. *Eng & Contr 54:192-3 Ag 25 '20*
- Rental values for construction equipment. F. J. Herlihy. *Eng N 84:125-8 Ja 15 '20*
- What is a fair house rent? L. H. Allen. *Bldg Age 41:349-50 O '19*; Same. *Arch & Bldg 51:75-6 D '19*
- What is a fair rental? *Arch & Bldg 53:9-10 Ja '21*
- See also Housing laws; Landlord and tenant; Real estate business*

Repair ships

- Foundry maintained on repair ship; the U.S.S. Prometheus. R. F. Nourse. *il diags Foundry 49:23-5 Ja 1 '21*

See also Ships—Repair

Repair shops

- Belt or motor-driven machines? *il Motor Age 38:10-11 S 16 '20*
- Grinding wheels for repair shops. J. F. Springer. *Gas Age 48:14-15 J1 11 '21*
- Machine tools in repair shops. *il Textile World 58:1521+ S 4 '20*

Repair shops—Continued

Problem of overhead in the repair shop. L. W. Alwyn-Schmidt. Mach 26:1161-2 Ag '20

See also Electric plants—Repair shops; Electric railroads—Shops; Mine shops; Railroads—Shops; Repair ships

Repairing. *See* subdivision Maintenance and repair or Repair under various subjects, e.g. Electric lines—Maintenance and repair, Freight cars—Repair

Repaving. *See* Pavements—Maintenance and repair

Repetitive operation. *See* Fatigue

Replacement insurance. *See* Insurance, Replacement

Reporting

Aircraft an aid to journalism. H. Mingos. il Am Ind 22:29-31 Ag '21

Fight copy—its lesson for advertisers. S. C. Lambert. Ptr Ink 116:73-4+ Jl 14 '21

Newspaper's use of the radio phone. il Wireless Age 8:10-11 N '20

Reports, Engineering. *See* Engineering reports

Reproduction

See also Alternation of generation; Parthenogenesis; Plants—Reproduction; Sterility in animals

Republic iron and steel company

20th annual report—for the fiscal year ending December 31, 1919. Comm & Fin Chr 110:878-9 F 28 '20; Same, without tables. Iron Age 105:681-2 Mr 4 '20

21st annual report—for the fiscal year ending December 31, 1920. Comm & Fin Chr 112:754-5 F 19 '21

Reredos

St Thomas' church. Arch & Bldg 52:front, 44, pl 40-1 Ap '20

Research

Address at S.A.E. summer meeting. D: Bee-croft. Automotive Ind 44:1091-5 My 26 '21

Function of educational institutions in research. Chem & Met Eng 24:283, 725 F 16, Ap 27 '21

High pressure and temperature researches. Engineering 109:150-1 Ja 30 '20

Organization of research in Great Britain. Special Lib 11:169-70 S '20

Research and boards: need of establishing laboratories to study the problems of the lumber industry. O. M. Butler. il Sci Am M 3:59-62 Ja '21

Research and everyday life. W. Bishop. Nation's Business 9:20-1 N '21

Research work in special libraries. A. L. Pace. Special Lib 12:2-3 Ja '21

Some present-day research problems in electrical engineering. V. Karapetoff. Am Mach 53:260-2 Ag 5 '20

See also Aeronautic research; Automobile research; Business research; Chemical research; Dye research; Gas research; Geological research; Government research; Highway research; Industrial research; Libraries, Government; Mining research; Psychological research; Scientific research; Textile research; *also* British cast iron research association; Canada—Advisory council for scientific and industrial research; International research council; National research council; Science service

Research information service. *See* National research council

Reservoirs

Birkenhead new water supply. Engineering 112:286-8 Ag 19 '21; Excerpt. Eng N 87:535 S 29 '21; Discussion 87:701 O 27 '21

Boating and fishing in water-supply ponds; abstracts. X. H. Goodnough. Can Eng 39:416-17+ O 7 '20; Eng & Contr 54:369-71 O 13 '20; Eng N 85:542-3 S 16 '20

Discussion on reservoir evaporation. C. E. Grunsky. J Elec 47:29-30 Jl 1 '21

Evaporation from reservoirs. H. A. Barre. J Elec 46:489-90 My 15 '21

Flood control reservoirs on the Minnesota river. diags map Eng N 87:140-3 Jl 28 '21

Impounding reservoir for water supply of Oklahoma City. diags plan Eng N 84:478-9 Mr 4 '20

New \$1,250,000 Milton reservoir of Youngstown, O. F. M. Lillie. Eng & Contr 53:167 F 11 '20

Reservoir and plant for new Southern water power at Bridgewater, N.C. W: S. Lee. and R: Pfaehler. il diags maps plan Eng N 84:1088-95 Je 3 '20; Abstract. Elec W 75:1299-1303 Je 5 '20

Reservoir capacity curves without topographic survey. C. C. Jacob. Eng N 86:948-9 Je 2 '21

Reservoir floor partly supported on concrete arches. diags plan Eng N 83:1062 D 25 '19

Reservoir maintenance in Hartford. Pub Works 48:344-5 Ap 24 '20

Reservoir pressure vs. direct pressure in water systems. W. R. Gelston. Munic Eng 59:25-6 Jl '20

Reservoir versus additional pumpage capacity for supplying peak demands. L. A. Quayle. Am Water Works Assn J 8:463-78 S '21; Same abr. Eng & Contr 56:360-2 O 12 '21; Same cond. Eng N 87:328-30 Ag 25 '21

Review of progress in reservoir construction throughout the world. W: Gore. il diags Can Eng 40:179-84 F 3 '21

Silt problem of river reservoirs. H. F. Robinson. Eng N 84:145 Ja 15 '20

Worcester water-works reservoirs drawn down against spring floods. G: W. Batchelder. Eng N 84:762 Ap 15 '20

See also Dams; Flood control; Irrigation; Retaining walls; Water storage; Water supply; Water supply engineering; Water-works

Repair

Repairing a damaged reservoir. il Pub Works 48:96-7 F 14 '20

Reservoirs, Concrete

Les bétons légers et les records de la grande construction. C: Rabut. diags Génie Civil 76:256-8 Mr 6 '20

Concrete fuel oil reservoirs. H. B. Andrews. diags plans Sci Am M 1:60-1 Ja '20

Concrete oil reservoir with flat-slab roof and floor at Three Rivers, Que. E. E. Halmos. il diags plans Eng N 86:260-3 F 10 '21

La construction des réservoirs en béton armé à l'aide de formes et d'échafaudages mobiles. il diags Génie Civil 78:441-2 My 21 '21

Design of an octagonal reservoir at Enid, Oklahoma. I. S. Siegrist. diags plan Eng N 85:36-7 Jl 1 '20

Embankment and concrete work for large oil reservoirs. il diag Eng N 84:905-7 My 6 '20

Features of new water works at Minot, North Dakota. F: Bass and E. J. Thomas. il diags Munic Eng 59:142-4 O '20

High-service reservoir at Saint Paul. diags plans Engineer 129:218-20, 240-1 F 27-Mr 5 '20

Large reinforced concrete covered reservoir. il Pub Works 50:389-90 My 7 '21

Mill village water supply plant; development at Ware Shoals, S.C. il diags Textile World 57:3505+ My 8 '20

New reinforced concrete covered reservoir for Arkansas City, Kansas. R. E. McDonnell. il Munic Eng 60:198-200 My '21; Same. Eng & Contr 55:463 My 11 '21

New reinforced concrete water tower, reservoir and centrifugal pumping plant for the city of Albert Lea, Minn. S. von Mehren and J. H. A. Brahtz. il diags Munic Eng 60:27-8+ Ja '21

New 10,000,000 gallon flat slab roof concrete reservoir of Dayton, Ohio. Eng & Contr 52:556-8 N 12 '19

Le réservoir en béton armé de Saint-Paul (Minnesota, E.-U.) diags Génie Civil 77:377-8 N 6 '20

Repair

Calking cracks in concrete reservoirs. W. N. Jones. Am Water Works Assn J 7:411-13 My '20; Same. Eng & Contr 53:651 Je 9 '20

Placing concrete membrane lining in Herron Hill reservoir by cement gun. il diag Eng N 85:1043-5 N 25 '20

Residual affinity. *See* Chemical affinity

Resins. *See* Gums and resins; Rosin

Resistance, Electric. *See* Electric resistance

Resistance coils

Y-box resistors and their uses. H. C. Yeaton. diags Power 52:429 S 14 '20

Resistance of materials. See Strains and stresses; Strength of materials

Resistance welding. See Electric welding

Resistors. See Rheostats

Resonance

Ionization and resonance potentials of some nonmetallic elements. F. L. Mohler and P. D. Foote. diags U S Bur Stand Sci Pa 400:669-700 '20

Resonance potentials and low-voltage arcs for metals of the second group of the periodic table. F. L. Mohler, P. D. Foote and W. F. Meggers. U S Bur Stand Sci Pa 403:725-37 '20

Resorcinol

Alkali fusions; the fusion of sodium-benzene *m*-disulfonate with sodium hydroxide for the production of resorcinol. M. Phillips and H. D. Gibbs. J Ind & Eng Chem 12:857-60 S '20

Preparation of some alkyl derivatives of resorcinol and the relation of their structure to antiseptic properties. T. B. Johnson and F. W. Lane. Am Chem Soc J 43:348-60 F '21

Zur tautomerie des resorcins; abwehr gegen Hrn. W. Fuchs, J. Herzig and S. Zeisel. Deutsche Chem Gesell Ber 54:1403-7 J1 '21

Resorcinolcoumarein

Phenolcoumarein and resorcinolcoumarein. S. Krishna. Chem Soc J 119:1420-5 S '21

Respiration

Comparative value of the labor of workmen shown by respiration. J. Amar. Sci Am M 3:127 F '21

Respiration, Artificial

Methods of applying artificial respiration. Coal Age 18:758 O 7 '20

Respiration calorimeter

Improved respiration calorimeter for use in experiments with man. F. C. Langworthy and R. D. Milner. Am Soc Heat & V E J 26:supXXXIV-XXXVIII Ap '20

Respiration of plants. See Plants—Respiration

Respiratory apparatus

Atmos tubular breathing mask. G. O. Smith. il Gas Age 47:404-5 My 10 '21; Same abr. Safety Eng 41:106-7 Mr '21

British oxygen mine-rescue apparatus is said to remedy many existent faults. J. Cooper. il diags plans Coal Age 19:3-8 Ja 6 '21

Oxygen breathing apparatus. Eng & Min J 110:604 S 25 '20

Oxygen cylinder, rescue apparatus. Coal Age 19:715-16; 20:17-18 Ap '21, J1 7 '21

Two new rescue apparatus. H. Briggs. il diags Engineering 112:568-9 O 21 '21; Discussion. 112:431 S 23 '21

La vie et les voyages aux très hautes altitudes; cabines closes, à pression constante, pour ballons et avions. Dr Guglielminetti. il diags Génie Civil 76:288-92 Mr 20 '20; Same abr. (More about high flying). Sci Am M 2:70-3 J1 '20

Testing

Permeation of oxygen breathing apparatus by gases and vapors. A. C. Fieldner, S. H. Katz and S. P. Kinney. il diag U S Bur Mines Tech Pa 272:1-22 '21

Rest days

Rest day in continuous operation industry. F. C. Croxton. Monthly Labor R 10:422-31 F '20

Rest periods

Do rest periods pay? Factory 24:178 Ja. '20
Experiment with rest pauses. J. Loveday. Mech Eng 43:127-8 F '21; Same. Sci Am M 3:186 F '21

Rest periods for New York workers. Monthly Labor R 12:162-3 Ja '21

See also Fatigue

Rest rooms

Restful furniture and dainty china installed as tonic for tired nerves by the Tide water oil co. E. W. Chase. Nat Pet N 13:39 Ag 31 '21

Restaurant workers. See Restaurants—Employees

Restaurants

Builders of business; Charles J. E. Blanc. W. E. Crane. System 40:554-5 N '21

Poor ventilation kills appetites. G. C. Breidert. plans Dom Eng 90:11-12 Ja 3 '20; Same. Heat & Ven 17:47-9 Ja '20

Successful alteration for a restaurant; the Wedgewood, Boston. il plan Arch Forum 33:21-2 J1 '20

See also Hotels; Lunch rooms and cafeterias

Employees

Hours of labor of hotel and restaurant employees. D. Pope. Monthly Labor R 10:685-702 Mr '20

Hours of women in restaurants and telephone exchanges in Minnesota. Monthly Labor R 12:808 Ap '21

Restoration of buildings. See Architecture—Restoration

Restraint of trade

American hardwood manufacturers' association; open competition plan hearing held. Am Lumberman 2339:45-9; 2340:45+; 2345:56+ Mr 13-20, Ap 24 '20

Contracts restraining employees from engaging in competitive trade. T. Conyngton. Administration 2:389-91 S '21

Hardwood men ask modification of injunction pending Supreme court's decision on appeal. Am Lumberman 2346:52-3 My 1 '20

Open-price bureau and scheme to sustain price declared unlawful. Coal Age 17:710-13 Ap 8 '20

Seymour mfg. co. obtains large judgment—agreement not in restraint of trade. Chem & Met Eng 23:375-6 S 1 '20

See also Competition, Unfair; Trusts, Industrial

Resuscitation

Resuscitation from electrical shock. il N E L A Bul 7:821-2 N '20

Retail trade

Advertising shows retailers how to do 85 per cent of their business in off months. J. A. Murphy. Ptr Ink 115:3-4+ My 19 '21

After all, it is the customer who makes the price. W. R. Hotchkin. Ptr Ink 115:25-7 My 26 '21

Are your retailers selling at the new low prices? E. T. Tandy. Ptr Ink 113:57-8+ D 2 '20

Assurance of price protection prevents cancellations. Ptr Ink 112:49-50+ Ag 5 '20

Building beyond our narrow bounds. O. Mooney. il System 40:28-30+ J1 '21

Builds future business by finding and training retailers. C. M. Harrison. Ptr Ink 115:93-4+ Je 23 '21

Buyers who don't come back. C. James. Ptr Ink 116:117-18 Ag 18 '21

Cancellations cause manufacturer to sell goods direct. G. A. Nichols. Ptr Ink 114:3-4+ Ja 27 '21

Changes in retail distribution are coming. E. A. Filene. Ptr Ink 114:110+ F 10 '21

Crowding successful sales methods on the dealer. R. C. Sheeler. Ptr Ink 115:36+ Ap 7 '21

Curbing the retailer's jobbing ambitions. A. Cobb, jr. Ptr Ink 111:105-6+ Ap 29 '20

Do your dealer customers scatter their buying? A. Cobb, jr. Ptr Ink 114:81-2+ Mr 17 '21

Easy credit causes retail failures. J. E. Bullard. Ptr Ink 114:25-7 F 17 '21

For the defense; the dealer states his case. S. F. Williams. Ptr Ink 110:109-10+ Ja 29 '20

Get Susie Mulligan into the dealer's store. R. Dickinson. Ptr Ink 115:113-14 Je 9 '21

Getting the best out of the dealer organization. N. G. Shidle. Automotive Ind 45:601-3 S 29 '21

Getting the dealer to understand your line. M. Hussobee. il Ptr Ink M 3:34+ Je '21

Helping the dealer with the right kind of displays. C. B. McCuaig. Ptr Ink 111:125+ My 27 '20

Retail trade—Continued

- High cost of duplicate buying. R. L. Burdick. *Ptr Ink* 114:3-4+ *Ja* 13 '21
- How manufacturers sell new departments to the retailer. J. A. Murphy. *Ptr Ink M* 3:31-2+ *N* '21
- How national advertisers choose their retail outlets. G. A. Nichols. *Ptr Ink* 110:25-7+ *Mr* 4 '20
- How Sherwin-Williams reduces dealer mortality. A. J. Reiss. *Ptr Ink* 114:61-2+ *Mr* 17 '21
- How to reduce dealer mortality. H. L. Winn. *Ptr Ink* 113:3-4+ *D* 23 '20
- How to run a store. H. Whitehead. 296p Thomas Y. Crowell co., New York '21
- How we help our dealers sell. J. R. Ozanne; W. H. Hypes. *System* 39:392+ *Mr* '21
- Ingenious helps overcome dealer inertia. *Ptr Ink* 114:113-14+ *Ja* 13 '21
- No-profit sale to make jobs. *Ptr Ink* 117:8+ *O* 6 '21
- Of course you can sell today. W. C. Holman. *il System* 40:430-2 *O* '21
- On the trail of the last-minute shopper; a special class of stores has grown up in terminals. J. F. Cameron. *Ptr Ink M* 2:65-6 *F* '21
- Plain talk to merchants. W. M. Smith. *System* 39:216-17 *F* '21
- Remarkable trade situation—the retailer the stumbling block. *Comm & Fin Chr* 111:1890 *sec* 1 *N* 13 '20
- Replenishing retailers' stocks will help solve unemployment. J. G. Condon. *Ptr Ink* 116:77-8+ *S* 15 '21
- Retail market and its analysis. P. W. Ivey. *Administration* 1:449-57 *Ap* '21
- Retail selling course in Pittsburgh high schools. J. B. Miner. (General ser. no. 2) 54p Research bureau for retail training. Carnegie institute of technology, Pittsburgh '21
- Retail stores join to conduct community market place. *Ptr Ink* 110:148+ *F* 19 '20
- Retailer's clerk—a man to work with. B. Polard. *Ptr Ink* 116:117-18+ *Ag* 25 '21
- Selling the product as a side-line to fill in distribution gaps. G. A. Nichols. *Ptr Ink* 110:17-20 *F* 5 '20
- Should manufacturers run their own retail stores? S. C. Lambert. *Ptr Ink* 114:3-4+ *F* 3 '21
- Teaching the dealer the meaning of marketing. *Ptr Ink* 115:112+ *My* 26 '21
- Test yourself with these questions to find weak points in your business. W. A. Hershey. *Dom Eng* 91:7-8 *Ap* 3 '20
- This salesman tells what is wrong with some sales policies. L. A. Collins. *Ptr Ink* 111:141-2+ *Ap* 15 '20
- Training for store service; the vocational experiences and training of juvenile employees of retail department, dry goods and clothing stores in Boston. 143p Women's educational and industrial union, Boston. Dept. of research '20
- Training the retailer to meet the buyer's market. *Ptr Ink* 113:129-30+ *D* 9 '20
- Two-price policy that hurts the little dealer. *Ptr Ink* 110:77-8 *F* 12 '20
- When the dealer needs protection from himself; over-extension of credit by manufacturers and jobbers frequently leads to business disaster. J. E. Bullard. *Ptr Ink* 117:113-14+ *O* 20 '21
- Why so many retailers swallow the private brand argument. G. A. Nichols. *Ptr Ink* 116:17-20+ *Jl* 21 '21

See also Advertising—Dealer cooperation; Cancellation of orders; Chain stores; Delivery of goods; Dry goods; Electric shops; Exclusive agencies; Five- and ten-cent stores; Grocery trade; Marketing; Merchandizing; One-cent sales; Plumbing shops; Purchasing; Returned goods; Salesmanship; Traveling stores; United retail stores corporation

Accounting

- Retail organization and accounting control. P. I. Carthage. 349p Appleton '20

Advertising

- Another effort to teach consumers cost of doing business. *Ptr Ink* 112:85-6 *S* 9 '20

- Can the jobber sell advertising to the dealer? A. Cobb, jr. *Ptr Ink* 112:33-4+ *Ag* 26 '20
- Getting the people upstairs to buy. *Ptr Ink* 116:108+ *S* 15 '21
- Offering complete campaigns to dealers instead of cuts. C. E. Snell. *Ptr Ink* 112:149+ *Jl* 15 '20
- This plan makes folks like to trade in our town. S. Wills. *System* 39:525-7+ *Ap* '21
- What's wrong with dealer helps? F. H. Williams. *Ptr Ink* 111:155-6+ *Ap* 1 '20
- See also* Business streets—Advertising; Department stores—Advertising

Bibliography

- Knowing and selling your goods; a list of books in and compiled by the Detroit Public Library. '20 Retail Merchants Bureau, Detroit

Directories

- Directory of retailers; general stores. Ben Wiener co., New York '21

Finance

- Helping the retailer finance his instalment sales. C. M. Harrison. *Ptr Ink* 116:125-6+ *Ag* 25 '21

Private sales

- Ethical status of the private sale. *Ptr Ink* 117:72 *O* 27 '21

Retaining walls

- Construction d'un mur de quai sur fondation en béton armé, à Gand. *diags Génie Civil* 76:215 *F* 21 '20
- Design of dams and auxiliary structures of Miami conservancy district. *il diags plans Eng N* 84:1142-8 *Je* 10 '20
- Effect of practical factors on earth-pressure theory. G. Paaswell. *diag Eng N* 86:382-3 *Ap* 21 '21
- Inclined wall braced by struts to hold sliding loess. *diags plan Eng N* 86:906-7 *My* 26 '21
- Old earth-pressure theories and new test results. C. Terzaghi. *diags plan Eng N* 85:632-7 *S* 30 '20
- Overturning moment on retaining walls. A. R. Fulton. *Engineering* 109:254 *F* 20 '20; Same. *Eng & Contr* 53:377 *Mr* 31 '20
- Retaining walls; their design and construction. G. Paaswell. 275p McGraw-Hill '20
- Some features of gravity retaining walls. S. W. B. Black. *diags Can Eng* 39:259-62 *Ag* 19 '20
- Some observations on retaining walls. C. Gayler. *Can Eng* 39:151-2 *Jl* 15 '20
- Storing and handling of raw clays. T. W. Garve. *diags plans Am Cer Soc J* 3:279-85 *Ap* '20
- See also* Dams; Earth pressure; Earthwork; Embankments; Railroads—Construction; Reservoirs

Bibliography

- Retaining walls. G. Paaswell. p 257-69 McGraw-Hill '20

Failures

- Sliding Pittsburgh hillside covers eight Pennsylvania R. R. tracks; fill dumped on steep slope below Bigelow Boulevard causes failure of retaining wall. M. Knowles and M. R. Scharff. *il Eng N* 85:1058-9 *N* 25 '20

Retaining walls, Concrete

- Computing reinforcement steel in dams and retaining walls. W. C. Taylor. *diags Can Eng* 39:223-4 *Ag* 5 '20; Same. *Eng & Contr* 54:289-90 *S* 22 '20
- Concrete river wall poured inside large steel form. *il diag Eng N* 87:716-19 *N* 3 '21
- Concreting plant for wall construction. *diags plan Concrete* 16:170-1 *Ap* '20
- Curved retaining wall of the cantilever type. C. E. Parry. *il diags Concrete* 18:126-8 *Mr* '21
- Design of dams and auxiliary structures of Miami conservancy district. *il diags plans Eng N* 84:1142-8 *Je* 10 '20
- Effect of flood on flexible concrete block revetment of Miami conservancy district. *il Eng & Contr* 54:36-7 *Jl* 14 '20

Retaining walls, Concrete—Continued

- Methods of constructing flexible concrete revetment on Miami river, Ohio. *il Eng & Contr* 56:155-6 Ag 17 '21
- Portable plant builds retaining wall. *Concrete* 17:189 D '20
- Retaining wall failure predicted at Los Angeles. C. W. Cook. *il diag Eng N* 85:1217-18 D 23 '20; Discussion. N. F. Hopkins. 86:90 Ja 13 '21
- Retaining wall in deep cut displaced by slide. *diags Eng N* 84:870 Ap 29 '20
- Retaining walls for Toronto, Ont. harbor development. E. L. Cousins. *diags Eng & Contr* 55:258-9 Mr 16 '21
- Stationary concreting plant for constructing 1,036 ft. river wall at Dayton. *diags plan Eng & Contr* 53:331-2 Mr 24 '20
- Unique design of reinforced concrete wing walls. *il diags Ry Age* 68:1207-9 Ap 16 '20
- Unusual application of reinforced concrete in retaining wall. *il Eng & Contr* 55:314 Mr 30 '21
- Returned goods**
Producers begin to show fight on returned goods deal. *Ptr Ink* 114:41-2 Mr 3 '21
- Revenue law of 1918.** See War revenue law of 1918
- Revenue stamps**
Revenue stamps on interest coupons attached to promissory notes. *Comm & Fin Chr* 112:1832-3 Ap 30 '21
- Reverberatory furnaces.** See Furnaces, Metallurgical
- Reversing dampers.** See Dampers, Reversing
- Revetments.** See Retaining walls
- Revolving doors.** See Doors, Revolving
- Rezistal.**
Non-magnetic, flame-, acid- and rust-resisting steel. *Chem & Met Eng* 25:797-9 O 26 '21
- Rhamnose**
Preparation of rhamnose. C. F. Walton, jr. *Am Chem Soc J* 43:127-31 Ja '21
- Rhamnosides**
Acetobromorhamnose and its application in the synthesis of rhamnosides; abstract. E. Fischer, M. Bergmann and A. Rabe. *Chem Soc J* 120 pt 1:94-6 F '21
- Rheims cathedral.** See Reims cathedral
- Rheostats**
Adjustable laboratory rheostats. T: Spooner. *il diags Elec J* 18:57-9 F '21
- Barrel rheostat handles 1,600 amp. at 125 volts. F: H. Broome. *il diags Elec W* 77:827 Ap 9 '21
- Deterioration of nickel resistors. F. A. J. FitzGerald and G. C. Moyer. *Am Electrochem Soc Trans v* 38 (preprint 4):31-4 O '20
- Economical repairing of starting boxes. E. C. Parham. *diags Power* 50:753-4 N 25 '19
- Fresh-water rheostat handles 900 kw. at 4,000 volts. D. J. Locke. *diags Elec W* 77:1428 Je 18 '21
- How one engineer cut down expenses. M. A. Anderson. *diags Power* 54:304 Ag 23 '21
- Liquid rheostats for temporary installations. R. McKinney. *diags Elec W* 75:498-9 F 28 '20
- Liquid rheostats rebuilt to increase hoisting speed. D. C. McKeehan. *diag Elec W* 78:475 S 3 '21
- New liquid rheostats for the Norfolk & Western railway. D. C. West. *diags Elec J* 17:483-4 O '20
- Obtaining test load for steam and water-wheel-driven units in power stations with water rheostats. C. W. Leonard. *diags Power* 54:416-17 S 13 '21
- Properties of resistor materials used for heating purposes. H. O. Swoboda. *Elec W* 77:944-5 Ap 23 '21
- Resistors for use with various types of controllers. G. J. Kirkgasser and E. W. Seeger. *il Elec R* 79:125-8 J1 23 '21
- Rheostat which occupies very small space. *il Elec W* 78:28 J1 2 '21
- Ribbon type of rheostat with replaceable units. *il J Elec* 46:466 My 1 '21
- Simple grid connections to give wide range of resistance. E. C. Soares. *il diags Elec W* 76:1173-4 D 11 '20

Utilizing surplus power for feed water heating, by means of a water rheostat. *diag J Elec* 46:27-8 Ja 1 '21

Water-cooled pipe makes good rheostat for heavy load. C. R. Reid. *diag Elec W* 78:829-30 O 22 '21

Wire rheostat submerged in water for testing large generators. J. Dixon. *diags Elec W* 75:846 Ap 10 '20

See also Electric controllers; Electric resistance

Rhine river

Le régime des ports fluviaux du Rhin. *Génie Civil* 78:362 Ap 23 '21

Les résultats d'exploitation des ports fluviaux du Rhin. Lanos. *Génie Civil* 78:421-2 My 14 '21

Rhine traffic. *Marine R* 50:594-5 N '20

Swiss Rhone-Rhine navigation. A. W. Metcalfe. *map Engineer* 129:341-2 Ap 2 '20

L'utilisation des forces motrices du Rhin. R. Kœchlin. *Génie Civil* 78:282 Mr 26 '21

Rhinoceroses, Fossil

Cænopus, the ancestral rhinoceros. E: L. Troxell. *il Am J Sci* 2:41-51 J1 '21

Study of diceratherium and the diceratheres. E: L. Troxell. *il Am J Sci* 5th ser 2:197-208 O '21

Rhodamines

Manufacture of the rhodamines. R. Sansone. *diags Color Tr J* 8:84-8, 181-5 Mr, My '21

Properties and application of the rhodamines. J: MacGregor. *Color Tr J* 8:229-33 Je '21

Rhode Island

See also Roads—Rhode Island

Rhode Island hospital trust company

Rhode Island hospital trust co. *Arch & Bldg* 52:52-3, pl 51-3 My '20

Rhodesia

See also Mines and mineral resources—Rhodesia

Rhodium

See also Platinum group

Rhodochrosite

Crystal structures of some carbonates of the calcite group. R. W. G. Wyckoff. *diags Am J Sci* 50:317-60 N '20

Rhone-Rhine canal

La transformation du canal du Rhône au Rhin et sa mise au gabarit de 300 tonnes. A. Pawlowski. *il diags maps plans (supp) Génie Civil* 76:225-31 F 28 '20

Rhone-Rhine navigation project. See Waterways—Switzerland

Rhone river

French government to regulate river Rhone. T. Saville. *il map Eng N* 85:396-9 Ag 26 '20

Nouveau projet d'aménagement du Haut-Rhône par dérivation; sa comparaison avec les projets par barrages. *maps Génie Civil* 77:250-5 S 25 '20

Les problèmes techniques de l'aménagement intégral du Rhône. *Génie Civil* 77:16-18 J1 3 '20

Le projet de loi relatif à l'aménagement du Rhône. G. Tochon. *Génie Civil* 78:433-8 My 21 '21

Rhone development bill passes French parliament. *il Elec W* 78:615 S 24 '21

Rhus diversiloba

Lobinol—a dermatitant from *Rhus diversiloba* (poison oak). J. B. McNair. *Am Chem Soc J* 43:159-64 Ja '21

Rhyolite

Rhyolites of Lipari. H: S. Washington. *Am J Sci* 50:446-62 D '20

Ribbons

Expanding a business after it has stopped growing. G. D. Ward. *il Ptr Ink M* 2:31+ Ap '21

Rice, Edwin Wilbur, Jr., 1862-

Portrait. *Elec W* 76:672 O 2 '20

Rice, William E., 1833-1919

Pioneer in the manufacture of wire. *Iron Age* 104:1173-4 D 11 '19

Rice

Airplane duck patrol of the Sacramento valley. J: E. Hogg. *il Pop Mech* 35:7-12 Ja '21

Rice —Continued

- Emergency steam plant for rice irrigation. R. Van Norden. *il J Elec* 45:464-6, 525-8 N 15-D 1 '20
 Industrial alcohol from rice straw; abstracts. C: H. Bedford. *Engineer* 132:8 J1 1 '21; *Automotive Ind* 45:133 J1 21 '21
 Pumping plant for rice land. J. W. Coons. *il J Elec* 46:76-7 Ja 15 '21

. Advertising

- Nine hundred thousand dollars to advertise rice. *Ptr Ink* 113:121-2 N 18 '20
 To change name of product and preserve good-will. *Ptr Ink* 113:117-18 N 25 '20

Richards, Joseph William, 1864-1921

- Sketch. *por Chem & Met Eng* 25:730 O 19 '21

Richardson, Clifford, 1856-

- Clifford Richardson, asphalt specialist, retires. *por Eng N* 87:503-4 S 22 '21

Richardson & Gill, architects

- Notes from England with special references to the work of Richardson & Gill, architects. H. J. Birnstingl. *il diags plans Arch Forum* 32:61-4 F '20

Richmond, Virginia**Rapid transit**

- Pioneer trackless trolley installation. *il diag plan Elec Ry J* 57:1158-61 Je 25 '21

Ricketts, Louis Davidson

- Louis Davidson Ricketts, of Arizona; an interview. T. A. Rickard. *il Min & Sci P* 123:463-73 O 1 '21

Riddles

- Neuere rüttelformmaschinen. U. Lohse. *diags Stahl & Eisen* 41:1209-14, 1367-75 S 1, 29 '21

Rifles

- Kirtley iron rifle. W. R. Canton. *plans Eng & Min J* 112:180 J1 30 '21

Rifle stocks

- Conveying of rifle stocks in Germany during the seasoning process. *diags Eng & Ind Management* 5:123-4 Ja 27 '21

Rifles

- Eliminating the flash from rifles and big guns. M. Tevis. *Sci Am* 123:484 N 6 '20

- New extensible gunstock has no recoil when fired. *il Pop Mech* 36:381 S '21

- Physical properties in rolled rifle barrels. F. L. Moister. *diags Chem & Met Eng* 22:1025-6 Je 2 '20

Rig irons

- Purchasing agents start move for standardization of rig irons. *Nat Pet N* 13:33+ S 14 '21

Right of way

- Where right of way is granted without stating purpose of use, can soil beneath surface be used? *Dom Eng* 94:193 Ja 22 '21

See also Eminent domain

Rigidity

- Effect of temperature on the modulus of rigidity, and on the viscosity of solid metals. K. Iokibe and S. Sakai. *diags Philos Mag* 6th ser 42:397-418 S '21

Ring closure

- Ringschlüsse bei polycarbonsäuren. E. Philippi, J. Hanusch and A. von Wacek. *Deutsche Chem Gesell Ber* 54:895-902 My '21

Ring compounds. See Cyclic compounds**Ring tools**

- Ring tool. *diags Engineering* 112:95-6 J1 15 '21

Rings

- Making of a gem ring. F. W. Goldsmith. *Metal Ind* 19:403-4 O '21

Rio Negro

- Les irrigations de la vallée du Rio Negro (Argentine) et le barrage de Neuquén. *il diags plans Génie Civil* 78:353-4 Ap 23 '21

Ripley, Edward Payson, 1845-1920

- Sketch. *por Ry Age* 68:468-71 F 13 '20; *Ry R* 66:226-7 F 7 '20

Ripple marks

- Geology of ripple marks. J. F. Springer. *il diag Sci Am* 122:457+ Ap 24 '20

Riprapping

- Hogwire for riprapping on irrigation canal embankments. R. M. Adams. *il Eng N* 85:374-5 Ag 19 '20

- Method and cost of placing riprap. L. S. Johnson. *Eng & Contr* 56:151 Ag 17 '21

River coal. See Coal—River coal**River flow. See Stream flow****River traffic**

- Economy of water transportation. S. Cunningham, jr. *Marine Eng* 25:843-5 O '20

- Expand plans for barge service. *il Marine R* 50:441-2 Ag '20

- Haulage costs not high on Mississippi. C. M. Townsend. *Eng N* 84:766-8 Ap 15 '20

- Location of river terminals. H. M. Harding. *Marine Eng* 25:929-30+ N '20

- River transportation in the Mississippi valley. E. W. Schadek. *il Mech Eng* 42:270-2 My '20

- Water transportation of cement developed. S. F. Larrimore. *Concrete* 18:sup25-6 F '21

See also Boat lines, Government, also names of rivers, e.g. Mississippi river, Rhine river

Rivers

- Data of geochemistry. F. W. Clarke. *U S Geol S Bul* 695:59-117 '20

- Practical river and canal engineering. R. C. R. Minikin. 123p C. Griffin & co., London '20

See also Dams; Embankments; Erosion; Flood control; Floods; Hydraulic engineering; Hydraulics; Ice on rivers, lakes, etc.; River traffic; Stream flow; Water flow; Water laws and legislation; Water pollution; Water power; Water rights; Water supply; Waterways; also names of rivers, e.g. Mississippi river, St Lawrence river

Bank protection

- Bank protection and restoration: a problem in sedimentation. W. C. Curd. *il Eng & Contr* 54:459-61 N 10 '20; Same. *Ry R* 67:923-6 D 18 '20; Same cond. *Ry Age* 69:829-31 N 12 '20

- Flexible rafts protect river banks from cutting; improves type of current retards on the Missouri river. *il diags map plan Ry Age* 68:945-8 Mr 19 '20; Same cond. *Eng & Contr* 53:677-8 Je 16 '20

- Methods of constructing flexible concrete revetment on Miami river, Ohio. *il Eng & Contr* 56:155-6 Ag 17 '21

- Protection of river banks by mattresses. E. P. Girdwood. *il diags Can Eng* 39:147-9 J1 15 '20

- Protection of river banks with spur dikes. *diags Eng N* 86:909; 87:78-9, 249-50, 376 My 26, J1 14, Ag 11, S 1 '21

- River bank protection work on the Wabash Ry. *il diags plan Ry R* 67:759-60 N 20 '20; Abstract. *Eng & Contr* 54:588-9 D 15 '20

- River control by wing dams. R. W. MacIntyre. *Eng & Contr* 55:162-3 F 16 '21

- River protection work of the C. B. & Q. R. R. on the Missouri river. *il Ry R* 69:39-43 J1 9 '21

See also Riprapping

Regulation

- Benefits from regulation of stream flow in St Maurice river, Quebec. O. Lefebvre. *Eng & Contr* 54:46-7 J1 14 '20

- Conservancy and maintenance of rivers from the point of view of land drainage. C. H. J. Clayton. *Engineering* 112:130; Discussion. 120-3 J1 15 '21

- Engineering features of the St Lawrence waterway. *maps Eng N* 85:786-8 O 21 '20

- Floodgates proposed for control of Savannah river. E. C. Garvin. *map Eng N* 83:873-4 N 13 '19

- French government to regulate river Rhone. T. Saville. *il map Eng N* 85:396-9 Ag 26 '20

- Geometrical form of rivers; new light on the design of spur dikes. *diags Sci Am M* 1:446-7 My '20

- Harnessing a mad river in a reclaimed desert. J. E. Hogg. *il map Pop Mech* 36:485-91 O '21

Rivers—Regulation—Continued

- How the province of Quebec controls its water power. O. Lefebvre. Eng N 84:423-6 F 26 '20
- Hydraulic control of the Red river of the North. diags map Eng N 85:225-6 J1 29 '20
- Improvement work on River Murray in South Australia. R. C. Cutting. il diags plan Eng N 85:244-7 Ag 5 '20
- Lay concrete channel lining with large traveling form. il diags Eng N 84:1056-8 My 27 '20
- Mississippi river seeks new outlet. H. H. Dunn. il maps Pop Mech 34:831-6 D '20
- Murray river improvement between Lake Victoria and Blanchetown. il diags plan Engineer 130:171-3, 180 Ag 20 '20; Same. without table. Eng & Contr 54:302-4 S 29 '20
- Nouveau projet d'aménagement du Haut-Rhône par dérivation; sa comparaison avec les projets par barrages. maps Génie Civil 77:250-5 S 25 '20
- Practical ideas for the engineer. il Marine R 50:240-1 Ap '20
- Principles of channel improvement in Miami valley flood protection. il diags plans Eng N 85:292-8 Ag 12 '20
- Les problèmes techniques de l'aménagement intégral du Rhône. Génie Civil 77:16-18 J1 3 '20
- Le projet de loi relatif à l'aménagement du Rhone. G. Tochon. Génie Civil 78:433-8 My 21 '21
- Regulation of stream flow in delivering stored water from a stream bed reservoir. H. H. Johnson. Eng & Contr 54:570-1 D 8 '20
- River regulation in Australia. Engineering 110:380-1 S 17 '20
- Santa Ana river made to cut new outlet to the sea. il map Eng N 87:143-4 J1 28 '21
- Tile drainage a factor in the control of rivers. H. L. Frost. Eng N 85:399-400 Ag 26 '20
- See also* Barrages; Flood control; Levees; also Derwent river; Harlem river; Sacramento river; St Lawrence river; Snake river

Snag removal

- Pulling the Mississippi's teeth; what is being done by way of making our longest river navigable. G. H. Dacy. il Sci Am 125:60+ J1 23 '21

Texas

- Gazetteer of streams of Texas. G. A. Gray. U S Geol S Water-supply Pa 448:1-267 '19

Riverside, California**Mission Inn**

- Mission Inn at Riverside. D. J. Baum. il plan Am Arch 118:201-7 Ag 18 '20

Riveted joints

- Design of riveted connections to resist moment. W. M. Wilson and F. E. Richart. diags Eng & Contr 53:590-2 My 26 '20
- Detail design of riveted joints of bridge trusses. W. M. Wilson. diags Eng N 85:259-60 Ag 5 '20
- New experiments on riveted joints of ship plating. J. Montgomerie. Eng N 85:224 J1 29 '20
- New specification for net section of riveted tension members. C. R. Young. diags Can Eng 39:427 O 14 '20
- Partition of the load in riveted joints. C. Batho. Engineering 110:314 S 3 '20; Same. Eng & Contr 55:313 Mr 30 '21
- Physical qualities of riveted joints. Eng & Contr 53:744-5 Je 30 '20
- Rapid determination of true net sections of riveted tension members. C. R. Young. diags Eng & Contr 54:188-9 Ag 25 '20; Same. Can Eng 39:512-13 N 11 '20
- Stray points in structural steel design. R. Fleming. Eng N 84:1104-7 Je 3 '20
- Stresses in bolted and riveted joints. V. M. Summa. diags Mach 26:730-1 Ap '20

Riveting

- Berwick electric rivet heater. il Am Mach 52:749 Ap 1 '20; Automotive Ind 42:1063 My 6 '20; Engineering 109:730 My 28 '20

- Comparison of costs of heating rivets. il Elec Ry J 55:660 Mr 27 '20
- Electric rivet heater. il Engineering 110:408 S 24 '20
- Electric rivet heaters. diags Engineer 131:161 F 11 '21
- Electric rivet heaters for railway shops. il Ry Mech Eng 94:428 Je '20
- Electric rivet heaters in railway wagon shops. J. R. Bower. Engineer 131:412-13 Ap 15 '21
- Electrical heating of 166 rivets cost 1 mill per pound. A. S. Mill. Elec W 78:77 J1 9 '21
- Experience with gas rivet heating in the Pacific coast. L. Balliet. Eng N 87:21-2 J1 7 '21
- Four-head, type B-4 Humil electric rivet heater. il Ry Age 68:1480 My 21 '20
- Gas for rivet heating. T. King. Gas Age 45:568 Je 25 '20
- General Electric rivet heaters prove efficient. il Elec Ry J 55:595 Mr 20 '20
- Giles trip-hammer staking machine. il Mach 28:160-1 O '21
- Heat rivets electrically with small transformer. il Pop Mech 33:54 Ja '20
- Heating rivets without fire; Berwick electric rivet heater. E. Sheldon. il Am Mach 53:701-6 O 14 '20
- Portable electric rivet-heater. il diags Mach 27:1038 J1 '21
- Remca electric riveting machine. il diags Engineering 109:625-6 My 7 '20
- Riveting on to small tubes. diags Engineer 130:460 N 5 '20
- Riveting patches on cylindrical pressure shells. R. L. Hemingway and F. A. Page. plan Power 51:164-5 F 3 '20
- Rivets and spacing of rivets for oil-tight work. H. P. Frear. Engineering 110:817-19 D 17 '20; Same. Marine R 51:27-30 Ja '21; Same cond. Marine Eng 25:1008-9 D '20; Abstract. Mech Eng 43:46 Ja '21
- Taylor electric rivet heater. il Mach 27:391 D '20
- Tool engineering. A. A. Dowd and F. W. Curtis. diags Am Mach 55:468-72 S 22 '21
- See also* Riveted joints; Rivets

Rivets

- Finding rivet pitch in plate girders quickly. R. Smillie. diags Eng N 85:157 J1 22 '20
- Rivets, standards in the application of rivets as fasteners in boiler, structural and ship construction. '20 S. Severance manufacturing co., Glassport, Pa. '20
- Standard specifications for boiler rivet steel; English and French. diags U S Bur & Dom Com Industrial Standards 126:1-14 '21
- Standard specifications for rivet steel for ships; English and French. diags U S Bur For & Dom Com Industrial Standards 146:1-14 '21
- Road builders' association, American. *See* American road builders' association
- Road congress, International. *See* International road congress
- Road drags
- Road dragging in Saskatchewan. H. S. Carpenter. il Can Eng 39:119-20 J1 1 '20
- Road institute, South Carolina. *See* South Carolina road institute
- Road making machinery
- Combined road-sweeping, grouting and tar-spraying machine. il diags Engineer 132:198 Ag 19 '21
- Concrete road machinery and labor substitutes; some of the 1919 developments. H. W. Eldridge. il Munic Eng 58:33-4+ Ja '20
- Development and use of mechanical equipment in highway construction. K. H. Talbot. il Munic Eng 58:sup33+ Mr '20
- Developments in 1919 in the use of machinery for highway construction. C. S. Hill. Eng N 84:8-10 Ja 1 '20
- Developments in plant and organization for concrete road construction. C. R. Ege. Concrete 18:139-42 Mr '21
- Equipment for concrete road construction. F. M. Balsley. Concrete 18:137-9 Mr '21
- Equipment for concrete road construction. B. H. Piepmeier. il Eng & Contr 53:230-3 Mr 3 '20

Road making machinery—Continued

- Factors which will limit highway construction during the coming season. R: Hopkins. Good Roads n s 19:135-7 Mr 10 '20; Same. Munic Eng 58:118-20 Mr '20
- Fewer men, more work, better roads. J: S. Crandell. il Good Roads n s 21:237-8 My 4 '21
- Hand belting machine for pavement has propelling device. diags Eng N 87:80 Jl 14 '21
- Kinney road planer, Jones patent. il Pub Works 50:157 F 12 '21
- Machinery reduces labor force and increases output in alley paving. il Eng & Contr 54:111 Ag 4 '20
- Mechanical needs in road machinery. R. C. Marshall, jr. Good Roads n s 21:277-8 My 25 '21; Same. Mech Eng 43:388-9 Je '21; Excerpts. Pub Works 51:14 Jl 2 '21
- New machinery helps in road construction. il Concrete 17:52-3 Ag '20
- New P & H skimmer scoop makes big saving on road grading job. il Munic Eng 61:sup 22+ Ag '21
- Road building machinery and appliances. il Pub Works 49:308-36 O 2 '20
- Road machinery. A. H. Blanchard. Can Eng 38:521-2 Je 3 '20; Same. Good Roads n s 19:327-8+ Je 30 '20
- Safety design in road machinery. R. E. S. Geare. Good Roads n s 20:289 D 15 '20
- Specialized use of mechanical equipment features road job. W. F. Welsch. il Eng N 86:205-6 F 3 '21
- Use of charging bins and pebble washing plant saves money on concrete road construction. Munic Eng 58:sup33-4 F '20
- Use of labor saving equipment of municipal and county work. Munic Eng 60:235-6 Je '21
- Utilitor road maintainer. il Pub Works 50:559-60 Je 25 '21

See also Road drags; Road rollers

Exhibitions

- Twelfth National good roads show. il Good Roads n s 21:123-6+ Mr 2 '21

Road maps

- Committees on highway maps and co-ordination present reports. Eng N 85:1089-90 D 2 '20
- Maps of state highway systems for public use. M. W. Watson. Good Roads n s 19:56+ F 4 '20
- Routes to desert watering places in the Salton sea region, California. J: S. Brown. il U S Geol S Water-supply Pa 490—A:1-86 '20

Road materials

- Application of engineering geology to controlling the quality of road building aggregates. H. S. Mattimore. Good Roads n s 21:193-4+ Ap 6 '21; Same abr. Eng & Contr 56:342-3 O 5 '21
- Consistency of bituminous materials for highway work. P. Hubbard. Eng & Contr 54:16-19 Jl 7 '20
- Development and inspection of supplies of material for highway construction. A. B. Fletcher. Munic Eng 58:29-30 Ja '20; Same. Good Roads n s 19:16-17 Ja 14 '20
- Factors which will limit highway construction during the coming season. H. S. Mattimore. Good Roads n s 19:99+ F 18 '20; Same abr. Eng & Contr 53:237 Mr 3 '20
- Mechanical handling of gravel or broken stone. A. M. Jackson. il Can Eng 38:273-5 Mr 11 '20; Excerpt. Eng & Contr 53:412 Ap 7 '20
- Mineral aggregates for bituminous pavements. W. L. Caldwell. Munic Eng 57:246-50 D '19; Same cond. Eng & Contr 53:126-8 F 4 '20
- Paving materials in various counties. Pub Works 50:458-9, 505-6, 534-6 My 28, Je 11-18 '21
- Petroleum products for road construction. il Sci Am 124:311 Ap 16 '21
- Road-making materials of Nebraska. A. S. Mirick. Munic Eng 58:208-10 My '20
- Testing and laboratory control of large highway contracts. R. B. Gage. Good Roads n s 21:203-4+ Ap 13 '21

What are the advantages, disadvantages and uses of limestone in highway construction? Pub Works 50:360-1 Ap 23 '21

See also Asphalt; Coal tar; Concrete; Gravel; Road oils; Stone, Crushed; Tar

Sampling

Tentative methods for sampling of stone, slag, gravel, sand and stone block for use as highway materials. Am Soc T M Pro v 20 pt 1:789-95 '20; Same. Eng & Contr 54:116-17 Ag 4 '20

Specifications

A.S.T.M. tentative standards. Am Soc T M Pro v 20 pt 1:692-703 '20

Storage

Road materials storage plant for Bergen county, N. J. Pub Works 50:302 Ap 9 '21; Same cond. Eng & Contr 55:347 Ap 6 '21

Storage plant for road oils and bitumens maintained by street department, Worcester, Mass. J. C. Blake. il Munic Eng 59:2-4 Jl '20

Terminology

See also Asphalt—Terminology

Testing

A.S.T.M. tentative standards. Am Soc T M Pro v 20 pt 1:764-75 '20; Excerpt (Proposed tests for clay and silt in road materials.) Eng & Contr 54:21-2 Jl 7 '20

Delaware state highway testing department. Pub Works 49:575-6 D 18 '20

Oregon highway testing department. Pub Works 50:446-7 My 28 '21

Report of committee D-4 on road materials. Am Soc T M Pro v 20 pt 1:428-34; Discussion. 441-4 '20

Service the final test of quality of road stone. H. E. Breed. Munic Eng 58:51-2 F '20

Standard Deval abrasion test for rock. F. H. Jackson. il diags Am Soc T M Pro v 20 pt 2:278-90 '20; Same, without il. and diagrams. Eng & Contr 54:113-14 Ag 4 '20; Discussion. Am Soc T M Pro v 20 pt 2:291-7 '20

Tests of road-building rock in 1920. Pub Roads 4:29-32 Je '21

See also Bituminous materials—Testing; Pavements, Granite

Transportation

Difficulties experienced by the states in the matter of rail transportation. S. E. Bradt. Pub Roads 3:16-18 Ja '21; Same. Munic Eng 60:8-10 Ja '21; Same. Good Roads n s 21:131-2 Mr 2 '21; Discussion. M. W. Watson. Pub Roads 3:18-21 Ja '21; Same. Munic Eng 60:5-8 Ja '21

Shipping and storing road building materials in winter and early spring. Good Roads n s 20:310-12 D 29 '20; Same. Munic Eng 60:10-12 Ja '21; Excerpt. Eng & Contr 55:10 Ja 5 '21

Road oiling

Compressed air used to clean road surface before oiling. W. A. Welch. il Eng N 83:933-4 N 27 '19; Same. Eng & Contr 54:209 S 1 '20

Home-made road-oil heating outfit for small patching jobs. il Eng N 87:461 S 15 '21

Modernized plant to handle asphaltic oils for road use. Eng N 86:514 Mr 24 '21

Road oils and carpet coats. J. A. Duchastel. Can Eng 38:527-8 Je 3 '20

Semi-portable oil heating plant for surfacing roads. il Eng N 85:250-1 Ag 5 '20

Road oils

Characteristics of steam-distilled petroleum residuals. B. A. Anderton. Can Eng 39:411-14 O 7 '20

So-called asphalt content of road oils. B. A. Anderton and D. G. Taylor. Am Soc T M Pro v 20 pt 2:314-19 '20; Same. Eng & Contr 54:124-5 Ag 4 '20; Discussion. Am Soc T M Pro v 20 pt 2:320-3 '20; Discussion. F. P. Smith. Eng & Contr 54:337-8 O 6 '20

Testing

Simple device for testing adhesiveness of oils. il Pop Mech 36:391 S '21

Road oils—Testing—Continued

Tentative test for specific gravity of road oils, road tars, asphalt cements and soft tar pitches. diag Am Soc T M Pro v 20 pt 1:764-6 '20

Road rollers

Convertible steam roller and traction engine. il diags Engineer 131:570, 575 My 27 '21

Farm or road roller. C: A. King. il diags Pop Mech 35:763-4 My '21

Iroquois macadam roller design. il Munic Eng 58:sup38+ F '20

Rental fees for concrete road roller reduced. Eng N 87:122-3 J1 21 '21

Steam and gas-engine road rollers stage novel race. il Pop Mech 36:22-3 J1 '21

Road signs

Blazing Wisconsin ways. A. G. Vestal. il Sci Am 122:93+ Ja 24 '20

Directing the detourist. A. G. Vestal. il Sci Am 122:649+ Je 12 '20

Direction and warning signs are standardized in England. il Pub Roads 4:17-19 Ag '21

Marking and signing a state highway system. L. H. Neilsen. Eng & Contr 53:134 F 4 '20

Maryland markers explain laws and protect travelers. H. D. Williar, jr. il Pub Roads 4:20-1 Ag '21; Same abr. Eng & Contr 56:332 O 5 '21

Reinforced concrete guide posts of Wayne county highway system. E: N. Hines. Eng & Contr 55:348 Ap 6 '21

Road sign painting week for Iowa counties. diag Eng & Contr 54:217 S 1 '20

Sign boards for French highways. Eng N 84:923-4 My 6 '20

Standardized road signs in Great Britain. diag Eng & Contr 54:334 S 29 '20

Uniform highway signs. R. A. Meeker. Good Roads n s 19:160 Mr 24 '20

Wisconsin system for marking highways. J. T. Donaghey. Eng & Contr 53:634 Je 2 '20

Road surveys. See Roads—Location; Surveying—Records**Road traffic**

Automobile should be major factor in highway traffic. Automotive Ind 43:1179-80 D 9 '20

Effect of car tracks upon traffic capacity of roadways. G: W. Tillson. Munic Eng 58:69-71 F '20; Same. Eng & Contr 53:413-15 Ap 7 '20; Same. Can Eng 38:406-8 Ap 22 '20; Same. Good Roads n s 19:263-4+ My 26 '20

Future of road-transport. Lord Montagu of Beaulieu. Soc Auto Eng J 9:200 S '21

Highway motor traffic making headway in England. Automotive Ind 43:569 S 16 '20

Highway traffic committee urges advance planning. chart Eng N 86:338-40 F 24 '21

Highway traffic records covering traffic data in various parts of the United States. Eng & Contr 55:199 Mr 2 '21

Highway traffic; report of a committee of the New Jersey state association of county engineers. Pub Works 50:237-8 Mr 19 '21

Interrelationship of highway transport and back-to-the-farm movement. S. V. Norton. Good Roads n s 19:254-6+ My 19 '20

Maximum traffic service the highway tendency of 1920. Eng N 86:12-13 Ja 6 '21

Military traffic control in relation to highway traffic. M. L. Ireland. Soc Auto Eng J 6:159-60 Mr '20; Same. Good Roads n s 19:105-6 F 18 '20

Need for trained highway and transport engineers. Automotive Ind 42:974-5 Ap 22 '20

Outstanding features of report of the California highway study. il diags map Pub Roads 3:3-20 Ap '21; Excerpts. Eng & Contr 55:344-7 Ap 6 '21

Pennsylvania and Rhode Island traffic counts compared. Eng N 85:667-8 S 30 '20

Present position of mechanical road traction. C. G. Conradi. diags Engineer 128:546-8 N 28 '19

Recent traffic census in Pennsylvania. Munic Eng 59:sup18-19 O '20; Same cond. Pub Works 49:165 Ag 21 '20

Results of traffic censuses on Pennsylvania highways. Eng & Contr 55:119 F 2 '21

Rights and duties on highways. N E L A Bul 7:929-30 D '20

Scope of educational plans of highway transport committee. C. Jennings. Automotive Ind 43:828-9+ O 21 '20

Teachers interested in motor transport education plan; joint conference at Pittsburgh. Automotive Ind 43:1128-9 D 2 '20

Traffic census. A. N. Johnson. Eng & Contr 55:202-4 Mr 2 '21

Traffic census and its use in deciding road width. A. N. Johnson. Pub Roads 4:6-9+ J1 '21; Same. Eng N 86:989-91 Je 9 '21; Same. Eng & Contr 56:239-40 S 7 '21; Excerpts. Good Roads n s 21:309-10+ Je 15 '21

Traffic census map for New York. map Eng N 87:233 Ag 11 '21

Traffic counts in various states. A. N. Johnson. Good Roads n s 21:14+, 22-3, 38+, 63+ Ja 12-F 2 '21

Traffic on Iowa highways. T. R. Agg. Pub Works 48:491-2 Je 5 '20

Traffic problems of the state highway department. C: J. Bennett. Eng N 86:935-6 Je 2 '21; Same. Good Roads n s 21:299-300 Je 8 '21; Same. Eng & Contr 56:13-14 J1 6 '21

Training the personnel for highway construction and transport. R. D. Chapin. Good Roads n s 19:329-30+ Je 30 '20; Same abr. Eng & Contr 54:123 Ag 4 '20

Training the personnel for highway construction and transport. C. Jennings. Automotive Ind 42:1145-7 My 20 '20

Value and application of a traffic census. W. A. McLean. Can Eng 38:519-21 Je 3 '20; Same. Good Roads n s 20:16-17+ J1 14 '20; Excerpt. Eng & Contr 54:19 J1 7 '20; Excerpt. Eng N 85:37 J1 1 '20

Value of highway transport surveys. F. Van Z. Lane. Good Roads n s 19:59-60+ F 4 '20; Same. Can Eng 38:426-8 Ap 29 '20; Excerpts. Eng & Contr 53:130 F 4 '20; Excerpts. Munic Eng 58:sup24+ F '20

Year's traffic census on French national roads begins. Eng N 85:254-5 Ag 5 '20

See also Automobiles and roads; Highway engineering; Motor trucks and roads; Street traffic; Traffic regulations

Roadmasters. See Railroads—Roadmasters

Roadmasters' and maintenance of way association

38th annual convention, St. Louis, Sept. 21-23. Ry Age 69:531-5 S 24 '20; Ry R 67:468-9, 499-500 S 25-O 2 '20

39th annual convention, Chicago, Sept. 20-22. Ry R 69:387-90 S 24 '21; Ry Age 71:571-6 S 24 '21

Roads

Adaptation of road widths and arrangements to modern traffic requirements. J: A. Brodie. Eng & Contr 55:655-7 Je 29 '21

Basis of an economic theory of highway transportation. R. C. Barnett. Good Roads n s 18:253-4+ D 17 '19

Causes of equipment delays in highway construction. R. C. Marshall. Eng N 87:243-4 Ag 11 '21

Constructing roads for motor truck traffic. T. R. Agg. Munic Eng 58:112-15 Mr '20; Same. Good Roads n s 19:282-4 Je 2 '20

Construction methods and equipment on Lincoln highway job in Whiteside county, Illinois. il Eng & Contr 53:518-19 My 5 '20

Construction of roads and pavements. T. R. Agg. 2d ed. rev. and enl. 463p McGraw-Hill '20

Data on effect of weather on various roads. T. G. Shipman. Motor Age 37:25 Ap 22 '20

Design of modern road surfaces, with especial reference to alignment, grade, width and thickness. C: M. Upham. Munic Eng 58:12-16 Ja '20; Same abr. Eng & Contr 53:140-1 F 4 '20

Development of an economic theory of highway transportation. R. C. Barnett. diags Eng & Contr 54:201-5 S 1 '20

Economics of highway construction. J. H. Pratt. Good Roads n s 21:207-8+ Ap 13 '21

Economy and labor saving methods necessary in highway work. H. W. Perry. il Good Roads n s 19:53-6 F 4 '20

Roads—Continued

- Factors which will limit highway construction during the coming season. O. P. Chamberlain. *Good Roads* n s 19:123-6 Mr 3 '20; Same abr. *Eng & Contr* 53:471-2 Ap 21 '20
- Factors which will limit highway construction during the coming season. H. S. Mattimore. *Good Roads* n s 19:99+ F 18 '20; Same abr. *Eng & Contr* 53:237 Mr 3 '20
- Fundamentals of early highway construction, and are we neglecting them? H. G. Shirley. *Good Roads* n s 19:157-9 Mr 24 '20
- Good roads as an aid to agriculture. F. C. Biggs. *Can Eng* 38:547-8 Je 10 '20
- Handling traffic during highway construction. P. D. Sargent. *Eng & Contr* 56:326-7 O 5 '21
- Having road materials ready on the job. il diags plan *Concrete* 19:114-15 S '21
- Heavy work on a New Jersey road. il *Pub Works* 50:443-6 My 28 '21
- Highway road-construction. W. E. Williams. il diags *Soc Auto Eng J* 8:163-6 F '21; Discussion. 8:426-32 My '21
- Highways green book, 1920. 525p 1st annual ed. American automobile association, Washington, D.C. '20 [Bibliography p 482-95]
- How a road rests in its bed. S. R. Winters. il *Sci Am* 123:103 Jl 31 '20
- Importance of good roads. W. T. White. *Good Roads* n s 19:71-2 F 4 '20
- Making highways ornamental as well as useful. J. A. Hazelwood. *Eng & Contr* 53:626-7 Je 2 '20
- Making highways pay. J. W. Brooks. 15p Educational bureau, Federal highway council, Washington, D.C. '20
- Modern road construction. F. Wood. 2d ed., enl. 284p C. Griffin & co., London '20
- Overdoing the building of good roads. *Comm & Fin Chr* 112:1917-18 My 7 '21
- Paved highways for present-day traffic. A. H. Blanchard. *Munic Eng* 59:169-70+ N '20
- Planning and organizing a road job for mechanical handling of material. C. D. Curtis. *Mech Eng* 43:389-90 Je '21; Same. *Munic Eng* 61:sup26+ Jl '21; Same. *Eng & Contr* 56:117-18 Ag 3 '21; *Good Roads* n s 21:287-8+ Je 1 '21
- Relation of highways to motor truck operating cost. A. H. Blanchard. *Can Eng* 38:311-13 Mr 18 '20; Same. *Eng & Contr* 53:238-40 Mr 3 '20; Same. *Good Roads* n s 19:147-8+ Mr 17 '20
- Relative service value of different types of rural pavements. A. R. Hirst. *Good Roads* n s 20:291-2+, 305-6+; 21:2-4+ D 22 '20-Ja 5 '21; Same. *Eng & Contr* 55:110-13 F 2 '21; Same, with discussion. *Pub Roads* 3:24-32 Ja '21
- Required reforms of the road. M. Woolley. *Sci Am* 122:453 Ap 24 '20
- Researches leading to the adequate design of roads for heavy motor trucks. A. T. Goldbeck. *Good Roads* n s 21:24+, 37+ Ja 19-26 '21; Same, with discussion. *Pub Roads* 3:3-11 F '21
- Road builders' problem. A. R. Hirsh. *Concrete* 16:70 F '20
- Road building and the mechanical engineer. il *Mech Eng* 43:386-90 Je '21
- Road construction in the cypress bottoms of Arkansas. D. A. MacCrea. il chart map *Eng N* 86:196-200 F 3 '21
- Road construction plants. B. H. Piepmeier. *Good Roads* n s 21:273-4+ My 25 '21; Same. *Mech Eng* 43:386-90 Je '21; Same cond. *Eng N* 86:949-51 Je 2 '21; Same cond. *Munic Eng* 61:sup21+ Jl '21; Same cond. *Pub Works* 51:71-2 Jl 23 '21
- Roads and transport exhibition, Islington, Nov. 20-27. *Engineer* 128:532-3, 559-61 N 28-D 5 '19
- Roads for modern transport requirements. H. T. Chapman. *Can Eng* 38:508-9 My 27 '20
- Roads in warfare. *Engineering* 109:618-19 My 7 '20
- Sand dunes rolled into hard road. il *Pop Mech* 33:709-10 My '20
- Scenic mountain road blasted from cliffs. F. Kinney. il *Pop Mech* 36:722-3 N '21
- Selection and comparison of federal-aid road types. E. W. James. *Eng & Contr* 54:348-51 O 6 '20
- Shipping and storing road building materials in winter and early spring. *Good Roads* n s 20:310-12 D 29 '20; Same. *Munic Eng* 60:10-12 Ja '21
- Should road contractors buy or hire motor trucks? *Munic Eng* 60:sup12+, sup10+ My-Je '21
- Some advantages of permanent highway construction. H. S. Van Scoyoc. *Can Eng* 38:243-5 F 26 '20
- State road equipment. *Pub Works* 50:529 Je 18 '21
- Transportation and handling of road materials. A. M. Jackson. il *Can Eng* 40:277-9 Mr 10 '21
- TNT success in road work. L. E. Smith. *Can Eng* 40:311 Mr 17 '21
- Trunk highways. A. H. Blanchard. *Soc Auto Eng J* 8:64 Ja '21
- Use of tractors on road construction and maintenance work. L. A. Wilson. il *Munic Eng* 60:sup26+ Ap '21
- Variable designs for county highway systems. J. Y. McClintock. *Eng N* 84:243-4 Ja 29 '20
- What are the fundamentals of modern highway construction? W. G. Thompson. *Good Roads* n s 19:95-7 F 18 '20

See also Automobiles and roads; Causeways; Curbs; Highway administration; Highway engineering; Highway law; Highway research; Motor trucks and roads; Pavements; Road making machinery; Road materials; Road rollers; Road traffic; Roadside planting; Sidewalks; Snow removal; Street cleaning; Street railroads; Streets; Tractors and roads; also Columbia River highway, Highway and highway transport education committee, Lee highway, Lincoln highway

Bibliography

- List of references on the construction and maintenance of rural roads. H. L. Wheeler. *Mo U Sch Mines & Met Bul* 11:61-7 Je '19

Contracts

- Awarding highway contracts in the fall. *Good Roads* 61:123-6+ S 7 '21; Excerpts. *Eng & Contr* 56:228-9 S 7 '21; *Pub Works* 51:147-9 Ag 20 '21
- Concrete road building delays in Illinois analyzed. A. W. Consoer. *Eng N* 86:644-5 Ap 14 '21
- Contractors or "large" contractors for highway work? D. W. Robbins. *Eng N* 84:583-4 Mr 18 '20
- Contractors' viewpoint of highway contracts. *Eng & Contr* 53:132-4 F 4 '20
- Cooperation between engineers and contractors in the execution of highway programs. R. G. Collins. *Good Roads* n s 19:169-70+ Mr 31 '20
- Cooperation between engineers and contractors in the execution of highway programs. C. M. Upham. *Good Roads* n s 19:205-7+ Ap 21 '20; Excerpts. *Eng & Contr* 53:638 Je 2 '20
- Cost plus bid for highway construction. *Eng & Contr* 53:249-50 Mr 3 '20
- Effect of quantity changes on contractor's profits. W. P. Christie. charts *Eng & Contr* 54:543-5 D 1 '20
- Georgia's new road contract. *Pub Works* 48:534-5 Je 19 '20
- Highway departments announce policy on letting next year's contracts this fall. *Eng N* 87:623-4, 664+. 707-8 O 13-27 '21
- How lower highway building costs? R. G. Collins, jr. *Eng N* 84:703-4 Ap 8 '20; Discussion. B. H. Piepmeier. 84:1076-7 My 27 '20
- Influence of fair specifications and competent inspection on bidding prices. H. S. Mattimore. *Eng & Contr* 53:16-17 Ja 7 '20; Same. *Can Eng* 38:309-10 Mr 18 '20; Same. *Munic Eng* 58:123-5 Mr '20
- Large contractors seek reforms in highway contracting. C. S. Hill. *Eng N* 84:15-16 Ja 1 '20
- Letting grading and bridge contracts on Illinois state bond issue roads. C. M. Hathaway. diags *Munic Eng* 60:140-4 Ap '21

Roads—Contracts—Continued

- Making payments on road construction contracts. C. Coykendall. *Munic Eng* 58:100-1 Mr '20
- Modification of contracts to meet present conditions. W. R. Neel. *Good Roads n s* 20:303-4+ D 29 '20; Same. *Munic Eng* 60:sup27-8+ Ja '21; Same. *Pub Roads* 3:16-17 F '21; Same. *Eng & Contr* 55:452-3 My 4 '21; Excerpt. *Eng N* 86:224 F 3 '21; Discussion. *Pub Roads* 3:18-19 F '21
- Movement to award road contracts in fall instead of spring. S. D. Moore. *Munic Eng* 61:sup3-4 Jl '21
- Municipal contractor and frequent inconsistencies met with in specifications. W. C. Fraser. *Munic Eng* 58:120-3 Mr '20; Same. *Eng & Contr* 53:410-11 Ap 7 '20
- Needed reforms in highway work. J. Logan. *Good Roads n s* 19:82+ F 11 '20
- Percentage contracts for highway construction. *Eng & Contr* 54:10-11 Jl 7 '20
- Plan for removing risks from contract work in county road construction. J. M. Isbell. *Eng & Contr* 54:122-3 Ag 4 '20
- Plea for arbitration contract clauses. E. T. Johnson. *Eng N* 84:1076 My 27 '20
- Problems of the highway contractor. W. A. Rogers. *Good Roads n s* 21:311-12+ Je 15 '21; Same abr. *Eng & Contr* 56:113-14 Ag 3 '21
- Reducing hazards in highway contracts. H. Nunn. *Eng & Contr* 53:637 Je 2 '20
- Selling methods for highway work. J. Montgomery. map *Eng N* 84:976 My 13 '20
- Some reasons for the fall letting of road contracts. *Eng & Contr* 56:226 S 7 '21
- Specific duties of the highway engineer and contractor. W. A. Rogers. *Munic Eng* 60:187-90 My '21; Same abr. *Eng & Contr* 55:441-2 My 4 '21
- State highway engineers comment on proposal to award contracts in fall. *Munic Eng* 61:41-5 Ag '21
- Sub-contracts on road construction. D. J. Hauer. *Munic J* 48:5-6 Ja 3 '20
- Suggestions for road contractors. H. B. Drowne. *Eng & Contr* 56:114-16 Ag 3 '21
- Texas county tries lump-sum-fee road contract. il diags map *Eng N* 87:607-9 O 13 '21
- Why highway contractors lose money. M. Cunningham. *Eng & Contr* 55:218 Mr 2 '21
- Why is there no profit in building highways? R. G. Collins, jr. *Eng N* 84:122-3 Ja 15 '20

Convict labor

- Convict labor in Nebraska. G. E. Johnson. il *Good Roads n s* 20:39-40+ Jl 28 '20
- Convict labor on state highway construction in California. *Eng & Contr* 56:18-20 Jl 6 '21
- Nebraska using convict labor in building state and federal aid roads. *Eng & Contr* 53:633 Je 2 '20
- Six years' experience with convicts on California road work. *Eng N* 87:534 S 29 '21

Cost

- Average contract prices California highways, 1912 to Dec. 31, 1920. *Eng & Contr* 55:458 My 4 '21
- Average prices on Iowa road construction. *Eng & Contr* 54:549 D 1 '20
- Bidding prices on state road work. *Eng & Contr* 53:617 Je 2 '20
- Construction and maintenance of the Ashokan highways. G. G. Honness. il *Eng N* 84:656-7 Ap 1 '20
- Convict labor on state highway construction in California. *Eng & Contr* 56:18-20 Jl 6 '21
- Costs on commission-built roads. J. H. Philips. *Eng N* 85:318 Ag 12 '20
- Economics of highway improvements; analysis based on conditions in Summit county, Ohio. H. G. McGee. *Eng N* 86:810-14 My 12 '21
- Effect of quantity changes on contractor's profits. W. P. Christie. charts *Eng & Contr* 54:543-5 D 1 '20
- Highway construction costs in Arkansas. *Good Roads n s* 19:26-7 Ja 21 '20
- Highway work in Illinois. *Good Roads n s* 21:56 F 2 '21

- Method and cost of constructing gravel roads in Wilson county, Kansas. M. W. Watson. il *Munic Eng* 58:210-12 My '20
- Modern highway system of Buncombe county, North Carolina. N. Buckner. il *Munic Eng* 58:196-8 My '20
- Prevailing unit prices for road work. *Good Roads* 61:160 S 28 '21
- Road drainage structures in Giles county. T. C. McEwen. il *Pub Works* 50:345-6 Ap 23 '21
- Road grading methods and costs in Nebraska. G. E. Johnson. il *Eng N* 86:251-3 F 10 '21
- Some recent highway costs. *Pub Works* 50:252-3 Mr 26 '21
- Tar macadam roads show lowest total annual cost. *Eng N* 85:783-4 O 21 '20; Discussion. 85:1105 D 2 '20
- Wages and material costs 1915-20 on Oregon highway construction. *Eng & Contr* 55:116 F 2 '21
- Wisconsin experience with day-labor road construction. W. C. Buetow. *Eng N* 86:1070-3 Je 23 '21
- See also* Haulage—Cost; Roads—Maintenance and repair; Roads, Brick—Cost; Roads, Concrete—Cost; Roads, Earth—Cost

Cost of maintenance

See Roads—Maintenance and repair

Crossings

See also Grade crossings

Curves

- Maryland's road accident map shows great danger of speed. H. D. Williar, jr. il diags *Pub Roads* 4:15-16 S '21; Same. *Eng & Contr* 56:331 O 5 '21
- Pennsylvania practice in widening highway curves. diag *Eng N* 86:957-8 Je 2 '21
- Super-elevation and widening of curves on Minnesota state highways. J. C. Robbers. diags *Eng & Contr* 54:541-2 D 1 '20; Same cond. *Eng N* 86:220 F 3 '21
- Superelevation of curves at cross-roads. W. V. Buck. diag *Eng N* 86:858 My 19 '21
- See also* Curves (engineering)

Detours

- Detours form part of service-to-traffic policy. E. N. Hines. il *Eng N* 87:522-4 S 29 '21
- Directing the detourist. A. G. Vestal. il *Sci Am* 122:649+ Je 12 '20
- Efficient detours for highway construction. L. H. Neilsen. *Munic Eng* 58:161 Ap '20
- Great American detour. *Munic Eng* 60:175-6, 219-20 My-Je '21
- Highway detours in Illinois. map *Pub Works* 51:273-4 O 8 '21
- Iowa practice in providing detours. il *Eng & Contr* 54:8-9 Jl 7 '20
- Marking the detours. il *Sci Am* 125A:56 N '21
- Tours and detours. J. M. Bird. il *Sci Am* 125A:6-8+ N '21

Drainage

- Design of drainage structures and bridges. G. G. Wickline. *Good Roads n s* 19:231-2+ My 5 '20
- Drainage in road construction. G. R. Marston. *Can Eng* 38:308-9 Mr 18 '20
- Drainage laws as related to highways. W. G. McGeorge. *Can Eng* 40:287 Mr 10 '21
- Drainage system for road with wet clay sub-base. diag *Eng N* 85:123 Jl 15 '20
- Drainage systems for different subgrade conditions. H. D. Williar, jr. *Eng & Contr* 55:212-13 Mr 2 '21
- Heavy traffic road design places stress on drainage. diag map *Eng N* 84:284 F 5 '20
- Highway drainage. U. W. Christie. *Can Eng* 38:263-5 Mr 4 '20
- Importance of drainage in road construction. F. H. Eno. *Good Roads n s* 21:143-6+ Mr 9 '21; Same. *Eng & Contr* 55:546-9 Je 1 '21; Excerpts. *Eng N* 86:347 F 24 '21
- Method of providing drainage and reconstructing old water bound macadam. W. P. Robinson. diags *Eng & Contr* 53:359-60 Mr 31 '20

Roads—Drainage—Continued

- Need for sub-grade study evidenced in road upheavals. *il Eng N 85:310-12 Ag 12 '20*
- Open ditches excel tile drains for country roads. F. T. Danielson. *il Eng N 85:401 Ag 26 '20*
- Park engineering. R. B. Evans. *il Can Eng 38:337 Ap 1 '20*
- Paving a steep hill in High Park, Toronto. R. B. Evans. *il diags Can Eng 39:517 N 11 '20*
- Road drainage structures in Giles county. T. C. McEwen. *il Pub Works 50:345-6 Ap 23 '21*
- Road improvement and drainage; tabulation. *Pub Works 50:327-34 Ap 16 '21*
- Special highway construction through rice fields in Butte county, California. *diag Eng & Contr 55:343 Ap 6 '21*
- Subgrade drainage tests yield interesting preliminary data. I. B. Mullis. *diags Pub Roads 4:22-6 O '21; Same. Eng & Contr 56:407-9 N 2 '21*
- Unusual drainage conditions in public roads district no. 12; Nevada and Utah. E. E. Kidder and A. B. Brown. *Pub Roads 4:10-12 Jl '21; Excerpt. Eng & Contr 56:242 S 7 '21*
- Value of top soil as base for modern highways; side ditching should be avoided. D. S. Humphrey. *Eng N 84:566-7 Mr 18 '20*
- See also Soil moisture*

Estimates

- Analyses and preparation of estimates. H. J. Kuelling. *Good Roads n s 20:282+ D 15 '20; Same. Eng & Contr 55:115-16 F 2 '21; Same, with form. Pub Roads 3:32-6 Ja '21; Same. Munic Eng 60:144-7 Ap '21*
- Estimating the cost of a concrete pavement. G. B. Arthur. *Concrete 19:63-4 Ag '21*
- Need of co-operation between contractors and engineers in state highway work. A. R. Hirst. *Eng & Contr 53:416 Ap 7 '20*
- Preparation of estimates of cost of construction. W. W. Mack. *Eng & Contr 55:213-15 Mr 2 '21*
- Standard form for estimating costs of highway work. *Eng & Contr 53:511-12 My 5 '20*
- Wisconsin standardizes highway cost estimates. *Eng N 84:663-4 Ap 1 '20*

See also Roads, Concrete—Estimates

Federal aid

See Roads—Finance; Roads, Federal aid

Federal equipment

- Report of committee on use and care of federal equipment. *Pub Roads 3:23-5; Discussion. 25-6 F '21*

Finance

- Annual report of Bureau of public roads. T. H. MacDonald. *Pub Works 49:593-4 D 25 '20*
- Arkansas road program. W. B. Owen. *Good Roads n s 19:159 Mr 24 '20*
- Classification and uses of highways and the influence of federal-aid acts. T. H. MacDonald. *Eng N 83:985-8 D 11 '19; Same. Good Roads n s 19:13-15+ Ja 14 '20*
- Constructing roads for motor truck traffic. T. R. Agg. *Munic Eng 58:112-15 Mr '20; Same. Good Roads n s 19:282-4 Je 2 '20; Excerpt. Eng & Contr 53:529-30 My 5 '20*
- Criticism of the California state highways and a reply by the state highway board. *Eng & Contr 55:205-8 Mr 2 '21; Excerpt (Reply of state highway commission). Eng N 86:340-1 F 24 '21*
- Distribution of highway costs. *Good Roads 61:4+ Jl 6 '21*
- Effect of tax limits on county and municipal bonds. C. B. Masslich. *Pub Roads 4:21-2 S '21; Same abr. Eng & Contr 56:337 O 5 '21*
- Equitable distribution of cost of constructing and maintaining state highways. *Munic Eng 61:14-15 Jl '21; Same. Eng & Contr 56:105-6 Ag 3 '21*
- Facts on federal-aid road work. M. O. Eldridge. *Eng N 84:1169 Je 10 '20*
- Federal aid. A. W. Campbell. *Can Eng 38:275-6 Mr 11 '20*

- Federal aid allotted to provinces by Dominion government. *Can Eng 38:164 Ja 22 '20*
- Federal aid allowances. Published in monthly numbers of Public roads
- Federal aid for highways. E. O. Hathaway. *Can Eng 39:246 Ag 12 '20*
- Federal aid funds which must be absorbed during the fiscal year 1920 or taken up. *Munic Eng 59:48 Ag '20; Same. Concrete 17:53 Ag '20*
- Federal aid road work. T. H. MacDonald. *Pub Works 50:320-1 Ap 16 '21*
- Federal aid road work in 1919-20. *Eng & Contr 55:5-8 Ja 5 '21*
- Federal aid to states. P. St J. Wilson. *Good Roads 61:161-2+ S 28 '21*
- Federal bureau to make survey of road mileage and revenues. *Pub Roads 4:3-14 Ag '21*
- Federal participation in road construction. J. A. Whittaker. *Good Roads n s 19:313-14+ Je 23 '20*
- Federal road funds available. *Concrete 16:246 My '20; Same. Eng N 84:973 My 13 '20; Same. Eng & Contr 53:505 My 5 '20*
- Financing highway improvements. H. C. Sylvester, jr. *Eng & Contr 55:210-12 Mr 2 '21*
- Financing road construction—a banker's viewpoint. H. F. Beebe. *Eng N 86:16-17 Ja 6 '21*
- For what class of roads and what type of construction should federal aid funds be used? T. H. MacDonald. *Good Roads n s 19:199-200+ Ap 14 '20*
- Highway construction in Illinois. S. E. Bradt. *il charts map Good Roads n s 19:325-6+ Je 30 '20*
- Highway development in the United States. *Good Roads n s 21:33-6+ Ja 26 '21*
- Highway funds for 1921. *Pub Works 49:552 D 11 '20*
- Justifiable first cost of highways. J. E. Pennybacker. *Eng & Contr 55:350-2 Ap 6 '21; Same. Can Eng 40:400-2 Ap 21 '21; Same. Eng N 86:770-2 My 5 '21; Same. Good Roads n s 21:251-2+ My 11 '21*
- Last of federal aid fund apportioned. T. H. MacDonald. *Good Roads n s 20:133 S 15 '20*
- Logical plan of federal aid work in Nebraska. *Good Roads 61:34+ Jl 20 '21*
- Maintenance of completed roads; the keystone of successful road development. P. L. Atherton. *Good Roads n s 19:133-4+ Mr 10 '20*
- Minnesota approves state roads plan; Babcock amendment. *Automotive Ind 43:1042 N 18 '20*
- Motor fees as a basis for highway construction bond issues. S. E. Bradt. *Munic Eng 58:99-100 Mr '20; Same. Eng & Contr 53:250-1 Mr 3 '20; Same. Good Roads n s 19:126+ Mr 3 '20*
- Motor vehicle registrations, licenses and revenues in 1919. *Eng & Contr 54:206-7 S 1 '20*
- National highway policy. *Pub Works 48:382-3 My 1 '20*
- \$1,130,000,000 for new highway construction in 1921. *Eng & Contr 54:549 D 1 '20*
- Oppressive outlays for highways and good roads in Arkansas. *Comm & Fin Chr 112:1351-2 Ap 2 '21*
- Present status federal aid funds for road construction. *Eng & Contr 54:25 Jl 7 '20*
- Progress of road building in Michigan. F. F. Rogers. *Good Roads n s 20:134-5 S 15 '20*
- Promoting the county road bond issue. *Eng & Contr 55:534 Je 1 '21*
- Proper use of federal aid funds. N. P. Lewis. *Good Roads n s 18:220+ N 19 '19*
- Relation of motor-vehicle license to highway construction. S. E. Bradt. *Eng N 84:73-4 Ja 8 '20; Same. Eng & Contr 53:26-7 Ja 7 '20; Same. Good Roads n s 19:9+ Ja 7 '20*
- Status of federal aid, April 30. *Pub Roads 4:33-4 Je '21*
- Status of federal aid, May 31. *Pub Roads 4:22-3 Jl '21*
- Status of federal aid, June 30, 1921. *Pub Roads 4:24-5 Ag '21*
- Status of state aid to counties, and its future development. *Good Roads n s 19:195-8+, 208-14+, 219-20+ Ap 14-28 '20*

Roads—Finance —Continued

Suggestions for financing a provincial highway system. A. W. Campbell. Good Roads n s 20:30-2+ J1 21 '20; Same. Can Eng 38:557-9 Je 10 '20

Types of road receiving federal aid. T. H. McDonald. Pub Works 50:428 My 21 '21

Value of the local association in a nationwide highways movement. W. Findlay. Can Eng 38:525-7 Je 3 '20; Same. Good Roads n s 20:41-2+ J1 28 '20

Work done during 1920 and contemplated during 1921; tabulation. Pub Works 50:380-1, 398-9, 412-14, 432-4 Ap 30-My 21 '21

See also Roads—Cost

Foundations

Asphaltic concrete on old macadam. W. R. Macatee. il Good Roads n s 19:193-4 Ap 14 '20

Concrete pavement on a saturated adobe foundation. T. E. Stanton. il diag Eng N 86:217 F 3 '21

Mr Humphrey's topsoil theories criticized. G. E. Mattingly. Eng N 84:833 Ap 22 '20

Newark turnpike improvement. il Pub Works 48:459-63 My 29 '20

Pavement foundations as a factor in economic transportation. R. C. Barnett. diags Can Eng 40:323-7 Mr 24 '21

Resurfacing concrete roads. A. D. Stivers. Pub Works 49:439-40 N 6 '20

Utilization of old macadam roads. R. W. Parkhurst. Eng & Contr 55:123 F 2 '21

Value of top soil as base for modern highways; side ditching should be avoided. D. S. Humphrey. Eng N 84:566-7 Mr 18 '20

Grades

Capacity load and ruling grade in highway transportation. R. C. Barnett. diags Eng & Contr 52:637-8 D 3 '19

Grading to help nature clear the roads of snow. B. B. Hauser. il Pub Roads 4:23 Ag '21

Highway grades determined by more exact methods. A. W. Consoer. Eng N 87:514-15 S 29 '21

Locating highway grades in steep sidehill country. G. A. Tilton, jr. diag Eng N 87:455 S 15 '21

Low grade line saves pavement from flood damage. C. L. Jenken. Eng N 87:741 N 3 '21

Motor operation costs as affected by highway location and grade design. W. G. Harger. Eng N 85:104-7, 171-3, 200-2; 86:201-3 J1 15-29 '20, F 3 '21

New method for adjusting earth excavation and determining haul. J. W. Ball and C. R. Shore. diags plans Eng & Contr 52:530-3 N 5 '19; Same. Can Eng 39:297-9 S 2 '20

Road grading with land leveler and tractor. J. L. Cockrell. il Eng & Contr 54:454 N 3 '20

Road grading with tractor drawn wheel scraper outfits. W. B. Hill, jr. il Eng & Contr 55:435-6 My 4 '21; Same. Munic Eng 60:sup 24+ My '21; Same. Pub Works 50:406-8 My 14 '21

Study of the costs of grading with elevating grader and wagons. il Eng & Contr 55:53-5 Ja 19 '21

Using explosives in sloping banks to new grade on old road cut. J. N. Bohannon. il diags plan Munic Eng 60:97-9 Mr '21

Inspection

See Highway inspection

Law

See Highway law

Lighting

Highway and thoroughfare lighting. W. L. Harraden. il diag Gen Elec R 24:760-3 Ag '21

Highway lighting. H. H. Ashinger. diags Good Roads 61:168-9 S 28 '21

Highway lighting improves night traffic conditions. C. D. Wagoner. il diag Elec R 78:576-7 Ap 9 '21; Same. J Elec 46:439 My 1 '21

Highway lighting reduces hazard due to glaring headlamps. il Elec W 78:109 J1 16 '21

Illuminated highway. Sci Am 125:230 O 1 '21

Lighting highways; a new type of reflector developed especially for lighting country highways. il Pub Works 50:322 Ap 16 '21

Lighting of country roads. Elec R 78:946 Je 11 '21

Mounting units for lighting dam. il Elec W 75:371 F 14 '20

Multiple-reflector fixture brightens country roads. il Pop Mech 36:39 J1 '21

Location

Geologist's part in road building; how Wisconsin's highways are located with expert scientific advice. G. H. Dacy. il Sci Am 125:180 S 10 '21

Highway location and design. E. H. Stelle; W. G. Harger. Eng N 85:522 S 9 '20

Locating highway grades in steep sidehill country. G. A. Tilton, jr. diag Eng N 87:455 S 15 '21

Motor operation costs as affected by highway location and grade design. W. G. Harger. Eng N 85:104-7, 171-3, 200-2; 86:201-3 J1 15-29 '20, F 3 '21

Need for economic location of highways. G. F. Syme. Eng N 84:383-4 F 19 '20; Discussion. R. C. Barnett. 84:641 Mr 25 '20

Relation of the highway engineer to successful road location, construction and maintenance. T. F. Hickerson. Good Roads n s 19:145-6+ Mr 17 '20

Road location. R. T. Brown. Good Roads n s 19:179-81 Ap 7 '20; Same. Can Eng 38:463-4 My 13 '20

Storm King highway. il Pub Works 48:263-9 Ap 3 '20

Maintenance and repair

Bituminous road maintenance in Rhode Island. M. M. Cranston. il Good Roads n s 19:25-6 Ja 21 '20

Can we afford to delay road improvement? H. J. Fixmer. diags Eng & Contr 53:406-8 Ap 7 '20

Community service applied to highway construction; abstracts. W. W. McClendon. Eng N 84:1098 Je 3 '20; Eng & Contr 53:524-5 My 5 '20

Connecticut state highway maintenance and repairs. chart Pub Works 51:141-3 Ag 20 '21

Construction and maintenance of gravel roads. F. H. Colburn. il Good Roads n s 18:211-13 N 12 '19

County highway data during 1919. Pub Works 48:276-87, 449-53 Ap 3, My 22 '20

Developments in New York state highway maintenance. il Eng N 84:265-6 F 5 '20

Economies in road maintenance in Scotland. J. Lang. Eng & Contr 54:316-17 S 29 '20

Efficient methods of maintaining gravel and broken stone roads. G. C. Dillman. Munic Eng 59:38-9 J1 '20; Same. Eng & Contr 54:210-11 S 1 '20

Gang patrol system for maintenance of Lucas county, Ohio, highways. il Eng & Contr 52:540-1 N 5 '19

Geological aspects of road construction and maintenance in the Philippines. W. D. Smith. Good Roads 61:74+ Ag 10 '21

Highway maintenance by gang patrol system. diags plan Eng & Contr 53:129 F 4 '20

Highway maintenance in Essex county, N.J. Pub Works 48:403 My 8 '20

Highway maintenance in Nebraska. Pub Works 49:442 N 6 '20

Improvement and maintenance of earth, clay and sand roads. A. R. Hirst. Eng & Contr 54:6-8 J1 7 '20; Same. Can Eng 38:553-6 Je 10 '20; Same. Good Roads n s 20:105-8 S 1 '20

Lessons of patrol maintenance. J. T. Donaghey. Eng N 86:200 F 3 '21

Maintaining county highways. Pub Works 48:476-81 My 29 '20

Maintenance cost of 11-year old bituminous macadam at Portland, Me. Eng & Contr 56:246-7 S 7 '21

Roads—Maintenance and repair—Continued

Maintenance costs for Illinois highways. Eng & Contr 55:108 F 2 '21

Maintenance estimate and progress report forms in Minnesota. Eng N 86:79-80 Ja 13 '21

Maintenance of bituminous roads. G: E. Martin. il Good Roads n s 21:167-8 Mr 23 '21

Maintenance of earth roads. C. C. Albright. Good Roads n s 21:184+ Mr 30 '21

Maintenance of public highways. C. D. Pollock. Pub Works 48:269-70 Ap 3 '20

Maintenance of roads in Ontario. W. A. McLean. Can Eng 38:293-4 Mr 11 '20

Maintenance of sand-clay roads. il Pub Works 51:313-14 O 22 '21

Maintenance of stone and gravel roads. W: Watters. Can Eng 40:288 Mr 10 '21

Notes on the operation of patrol maintenance in Wisconsin. Good Roads n s 20:181 O 13 '20

Organization of a state highway maintenance department. J: N. Mackall. Good Roads n s 20:279-81+ D 15 '20; Same, with discussion. Pub Roads 3:19-23 F '21

Patrol system a success in Grant county, Washington. A. F. Morris. il Pub Roads 4:13-14+ Jl '21; Same abr. Eng & Contr 56:241 S 7 '21

Peoria county dirt road improvement association. L: A. Wilson. il Good Roads n s 20:213-14 N 3 '20

Preparing plans and making preliminary inspections for roadway improvements. E: E. Reed. Eng & Contr 55:537-8 Je 1 '21

Problems of general maintenance on all types of road pavements. G: H. Biles. Eng & Contr 55:216-18 Mr 2 '21

Problems of road maintenance. J. A. Duchastel. Can Eng 40:512; Discussion. 512-13 My 26 '21

Rebuilding gravel and macadam roads. E. A. James. Good Roads n s 21:263-4+ My 18 '21

Reconstruction of narrow roadways for motor truck traffic. il Munic Eng 57:sup28+ D '19; Same. Good Roads n s 18:219-20 N 19 '19

Le revêtement de la route moderne; le problème technique et financier de la restauration des routes françaises. G. Dumont and L. Auscher. il diag Génie Civil 77:405-8 N 20 '20

Road improvement by citizens, Mineral Wells, Texas. il plan Pub Works 48:120-1 F 21 '20

Some features of highway maintenance work in Pennsylvania. G: H. Biles. Munic Eng 59:198-9 D '20

State highway construction and maintenance in Connecticut; cost tables. Eng & Contr 53:23-4 Ja 7 '20

State highway maintenance in New York. il Pub Works 49:143-6 Ag 14 '20

Taking care of traffic during construction. C. R. Weymouth. Eng & Contr 53:630-1 Je 2 '20

See also Roads—Surface treatment; Roads, Concrete—Maintenance and repair; Roads, Macadamized—Maintenance and repair

Maps

See Road maps

Specifications

Asphalt roadway specifications. Automotive Ind 43:1083 N 25 '20

Charted summary of state concrete road specifications. A. N. Johnson. Concrete 16: 80-1 F '20

Construction and maintenance of the Ashokan highways. G: G. Honness. il diag Eng N 84: 652-7 Ap 1 '20

Delaware highway designs and specifications. diags Pub Works 50:261-3 Mr 26 '21

Gravel: a plea for common sense specifications. W. F. Purrington. Pub Works 49: 381-3 O 23 '20; Same. Eng & Contr 54:446-7 N 3 '20; Same cond. Good Roads n s 20: 191+ O 20 '20

New specifications and standard sections of Indiana highway commission for concrete roads. diags Eng & Contr 52:525, 526-7 N 5 '19

Progress on the Ideal road. Eng & Contr 56: 233 S 7 '21

Resurfacing and surface treating macadam roads. T. J. Wasser. Eng & Contr 55:448-51 My 4 '21

State highway specifications. Pub Works 50: 348-50 Ap 23 '21

Width and thickness of Illinois highway pavements. Pub Works 49:532 D 4 '20

Statistics

Federal aid allowances. Published in monthly numbers of Public roads

Federal aid expenditures and related data for fiscal year 1919; tabulation. Automotive Ind 42:370-1 Ja 29 '20

Federal bureau to make survey of road mileage and revenues. Pub Roads 4:3-14 Ag '21

Highway development in the United States. Good Roads n s 21:33-6+ Ja 26 '21

Operating statistics of large steam roads. Ry Age 70:1046-7 Ap 29 '21

Road improvement and drainage; tabulation. Pub Works 50:327-34 Ap 16 '21

Rural road and bridge expenditures. Eng N 85:1128 D 9 '20

State highway construction in 1920 and 1921. Eng & Contr 55:100-6 F 2 '21

State work in 1920 and 1921. Pub Works 50: 336-7 Ap 16 '21

Status of federal aid, April 30. Pub Roads 4:33-4 Je '21

Status of federal aid, May 31. Pub Roads 4:22-3 Jl '21

Status of federal aid, June 30, 1921. Pub Roads 4:24-5 Ag '21

Summary of forest road activities for the fiscal year ending June 30, 1919; tabulation. Automotive Ind 42:371 Ja 29 '20

Work done during 1920 and contemplated during 1921; tabulation. Pub Works 50:380-1, 398-9, 412-14, 432-4 Ap 30-My 21 '21

Subgrades

Apparatus for determining bearing power of soil under repeated loads. H. F. Clemmer. il Eng & Contr 56:227 S 7 '21; Same. Munic Eng 61:64+ Ag '21; Same. Eng N 87:446-7 S 15 '21; Same. Good Roads 61:152+ S 21 '21

Building highways to meet demands of the subgrade. F. A. Churchill. Eng N 85:505-6 S 9 '20

Bureau of public roads begins highway subgrade study. T: H. MacDonald. Eng N 84: 1072-3 My 27 '20; Same. Good Roads n s 19:305-6 Je 16 '20

Capillary moisture and its effect on highway subgrades. W. W. McLaughlin. Pub Roads 4:6-8 My '21; Same. Eng & Contr 55:536-7 Je 1 '21; Same. Eng N 86:1037-8 Je 16 '21

Concrete road construction on adobe sub base. Eng & Contr 55:457-8 My 4 '21

Considerations in design of heavy-traffic pavements. P. Hubbard. Eng N 85:1264-6 D 30 '20; Same. Can Eng 40:113-15 Ja 6 '21; Same. Good Roads n s 21:11-14 Ja 12 '21; Same. Eng & Contr 55:106-8 F 2 '21; Excerpt. Pub Works 50:93-5 Ja 29 '21; Excerpts. Soc Auto Eng J 8:480 My '21

Dry highway subgrades. Pub Works 49: 262-3 S 18 '20

Federal highway council plans intensive subgrade study. Eng N 85:781 O 21 '20

Government research in road construction. P. M. Heldt. il diags Automotive Ind 44: 902-6+ Ap 28 '21

Highway researches and their results. A. T. Goldbeck. diags Good Roads 61:5-6+, 19-21+ Jl 6-13 '21

Instrument tests subgrade for carrying road load. il Pop Mech 36:106 Jl '21

Investigations of road subgrades. A. T. Goldbeck. diags Soc Auto Eng J 8:339-46 Ap '21; Discussion. 8:426-32 My '21

Need for sub-grade study evidenced in road upheavals. il Eng N 85:310-12 Ag 12 '20

Oil insulation of subgrades used in California experiments. Eng N 86:1135 Je 30 '21

Old Hawaiian trail teaches road subgrade lesson. R. R. Raymond. Eng N 87:619 O 13 '21

On what are we building our highways? H. G. Shirley. Eng N 85:521 S 9 '20

Roads—Subgrades—Continued

- Perpetuation of our highways. H. G. Shirley. Soc Auto Eng J 7:186-7 Ag '20; Discussion. 7:462-5 N '20
- Recommended practice for concrete road construction. B. H. Wait. il diags plan Can Eng 40:433-7 My 5 '21
- Study and treatment of highway subgrade and foundations. C. M. Upham. Munic Eng 60:sup21-3 F '21; Same, with discussion. Pub Roads 3:36-40 Ja '21
- Sub-grade and its relation to road surfacing and traffic. Munic Eng 59:sup26-7 O '20
- Subgrade drainage tests yield interesting preliminary data. I. B. Mullis. diags Pub Roads 4:22-6 O '21; Same. Eng & Contr 56:407-9 N 2 '21
- Sub-grade investigation on Bates experimental road. H. F. Clemmer. diags Munic Eng 60:91-2 Mr '21; Same. Good Roads n s 21:181-2 Mr 30 '21
- Subgrade support in pavement design. C. Older. il diag Eng N 86:210-12 F 3 '21; Discussion. 86:693-4 Ap 21 '21
- Subgrades. H. G. Shirley. Good Roads n s 21:111-12+ F 23 '21; Same abr. Munic Eng 60:101-3 Mr '21
- Testing-cylinders for Illinois experimental road. H. F. Clemmer. il Eng N 86:1116 Je 30 '21
- Tests for subgrade soils. A. T. Goldbeck and F. H. Jackson. diags Pub Roads 4:15-21 Jl '21; Same. Good Roads 61:84-6+, 95-6+ Ag 17-24 '21; Same (without il). Eng & Contr 56:230-2 S 7 '21; Abstract. Eng N 86:1131 Je 30 '21
- Tests of impact on pavements by the Bureau of public roads. C. A. Hogentogler. il Pub Roads 4:3-18 O '21
- To determine how soil action affects roads. E. H. Eno. Brick & Clay Rec 58:297-8 F 22 '21
- Working on the sub-grade problem. Munic Eng 59:sup32-3 D '20

See also Soil moisture

Surface treatment

- Bituminous surface treated macadam and gravel roads of Dallas county, Texas. J. F. Witt. Eng & Contr 54:120 Ag 4 '20
- Bituminous surface treatment. M. C. Welborn. il Good Roads n s 19:287-90 Je 9 '20
- Bituminous surface treatment for heavy traffic gravel roads. Eng & Contr 54:23-4 Jl 7 '20
- Bituminous surface treatment of broken stone roads. W. W. Cox. Munic Eng 58:170-2 Ap '20
- Cover for bituminous surface treatments. J. S. Crandell. il Can Eng 40:377-8 Ap 14 '21
- Gravel roads: construction and surface treatment. P. P. Sharples. il Pub Works 49:377-81 O 23 '20; Same. Good Roads n s 20:189-90+ O 20 '20; Excerpts. Eng & Contr 54:450 N 3 '20
- Light bituminous treatment for macadam roads; with cost data. C. A. Hogentogler. diag Eng N 84:44-6 Ja 1 '20
- Park roads and private estate driveways. B. Elliott. il Good Roads n s 20:165-6 O 6 '20
- Resurfacing an old brick road. E. Stingel. Eng N 84:861 Ap 29 '20
- Resurfacing and surface treating macadam roads. T. J. Wasser. Eng & Contr 55:448-51 My 4 '21
- Road maintenance in Maine. Pub Works 49:71-2 Jl 24 '20
- Road oils and carpet coats. J. A. Duchastel. Can Eng 38:527-8 Je 3 '20; Abstract. Eng N 85:111-12 Jl 15 '20
- Road resurfacing in Sullivan county. W. A. Hardenburgh. il Pub Works 51:337-8 O 29 '21
- Surface treating streets with liquid asphalt in Walpole, Mass. E. F. Durfee. il Munic Eng 59:208+ D '20
- Surface treatment of stone and gravel macadam and concrete roads in Wisconsin. J. T. Donaghey. Munic Eng 59:134, 136 O '20
- Surface treatments on macadam and gravel. P. P. Sharples. il Munic Eng 58:115-18 Mr '20; Same abr. Eng & Contr 53:248-9 Mr 3 '20

Tar preparations in road construction. Gas Age 45:21-3 Ja 10 '20

Waterbound macadam and bituminous concrete roads rejuvenated. C. F. Puff. Eng N 84:922 My 6 '20

See also Roads, Oiled; Roads, Tarred

Surfaces

- Asphalt road constructed on macadam base, between Warnersville and Palmyra, Penn. il Eng N 84:372-3 F 19 '20
- British experiences with asphaltic macadam. H. T. Wakelam. Eng & Contr 52:763-5 D 31 '19
- County highway surfaced with city pavements. J. Logan. Eng N 84:379 F 19 '20
- Cross-sections of roads and streets. H. J. Fixmer. diag Eng N 84:588 Mr 18 '20
- Crushed stone and gravel roads. C. L. McKesson and A. F. Morris. il Pub Roads 4:3-5 My '21; Same. Eng & Contr 55:543-4 Je 1 '21; Same. Good Roads n s 21:321-2+ Je 22 '21
- Inclined planes instead of curve suggested for highway surfaces. diag Eng N 84:227 Ja 29 '20
- New experimental work begun by the Bureau of public roads. Pub Roads 4:27 O '21; Same. Eng & Contr 56:420-1 N 2 '21
- Oyster shells as road surfacing. L. G. Hall. Eng N 87:352 S 1 '21
- Plank surfacing suggested for secondary highways. G. Kershaw. diags plan Eng N 84:1052 My 27 '20
- Resurface concrete road with reinforced concrete. T. M. Keene. Pub Roads 3:29 Ap '21
- Resurfacing road without detouring or obstructing traffic. il Eng & Contr 55:4-5 Ja 5 '21
- Selecting a type of road surface. E. W. James. Pub Works 49:430-2 N 6 '20
- Sheet asphalt over old macadam. B. Aldrich. il Can Eng 39:491 N 4 '20
- Types of surfacing for light and medium traffic roads. C. L. Motl. Eng & Contr 52:650 D 3 '19

Surveying

- State road survey methods and costs in Missouri. Eng N 86:68-70 Ja 13 '21; Discussion. 86:233-4, 353 F 3, 24 '21

Testing

- Concrete test highway at Pittsburg, California. C. Geiger. il diags Pub Works 51:331-4 O 29 '21
- Government research in road construction. P. M. Heldt. il diags Automotive Ind 44:848-52, 902-6+ Ap 21-28 '21
- Illinois begins traffic endurance tests. C. Older. Eng N 87:274-6 Ag 18 '21
- Illinois experimental highway. C. C. Brown. il diag Pub Works 50:115-18, 166-8 F 5, 19 '21
- Impact tests on roads. C. C. Wiley. Munic Eng 58:75-8 F '20
- Mashing copper cylinders to test road impact. S. R. Winters. il Sci Am 122:703 Je 26 '20
- Measurement of impact. E. B. Smith. diags Good Roads 61:149-51+ S 21 '21
- New experimental work begun by the Bureau of public roads. Pub Roads 4:27 O '21; Same. Eng & Contr 56:420-1 N 2 '21
- New highway tests being made by the Bureau of public roads. A. T. Goldbeck. Good Roads n s 19:97-8+ F 18 '20; Same. Eng & Contr 53:635-6 Je 2 '20; Excerpt. Munic Eng 58:160-1 Ap '20
- Preliminary report on the Bates experimental road. C. Older and H. F. Clemmer. il diag Pub Roads 4:3-11+ S '21; Same cond. Automotive Ind 45:716-19 O 13 '21
- Present status of impact tests on road surfaces. A. T. Goldbeck. il Soc Auto Eng J 6:265-9 Ap '20; Excerpts. Eng & Contr 52:651-2 D 3 '19
- Studying the effect of impact and wear on road surfaces. il Eng N 84:723-4 Ap 8 '20
- Testing-cylinders for Illinois experimental road. H. F. Clemmer. il Eng N 86:1116 Je 30 '21

Roads—Testing —Continued

Tests of impact on pavements by the Bureau of public roads. C. A. Hogentogler. *il Pub Roads* 4:3-18 O '21
 U.S. tests show road wear and resistance. *Munic Eng* 59:121-2 O '20

Widening

Iowa methods of widening and maintaining earth roads. A. F. Fischer. *diag Eng N* 85:269-70 Ag 5 '20
 Making narrow roads wider. J. S. Crandell. *Pub Works* 50:318-19 Ap 16 '21

Width

Adaptation of road widths and arrangements to modern traffic requirements. J. A. Brodie. *Eng & Contr* 55:655-7 Je 29 '21; *Excerpt. Eng N* 85:1240 D 23 '21
 Development of an economic theory of highway transportation. R. C. Barnett. *diags Eng & Contr* 54:201-2 S 1 '20; *Discussion. H. J. Fixmer. 55:99 F 2 '21; Correction. 55:199 Mr 2 '21*
 Proper width of a permanently paved highway. M. L. Patzig. *Munic Eng* 58:66-7 F '20
 Roadway widths for different classes of streets. R. Hoffmann. *Eng & Contr* 54:435-7 N 3 '20; *Same. Good Roads n s* 20:258-60 D 1 '20; *Same. Can Eng* 39:592-3+ D 9 '20; *Same. Munic Eng* 59:199-202 D '20; *Same cond. Pub Works* 49:549-50 D 11 '20
 Traffic census and its use in deciding road width. A. N. Johnson. *Pub Roads* 4:6-9+ J1 '21; *Same. Eng N* 86:989-91 Je 9 '21; *Same. Eng & Contr* 56:239-40 S 7 '21

Alaska

Road building in Alaska. J. G. Steese. *Good Roads n s* 21:127-30+ Mr 2 '21

Argentina

Good roads campaign to be started in Argentina. *Eng N* 85:527 S 9 '20

Arizona

Building the Maricopa county concrete roads. *il diags plan Eng N* 86:1026-9 Je 16 '21
 Cost of Arizona federal aid concrete road. C. E. Learned. *il Eng & Contr* 53:124-6 F 4 '20
 Maricopa county, Arizona, undertakes 309-mile paved road system. R. Rollins. *il diags Eng N* 86:882-5 My 26 '21
 Modern highways will complete the reclamation of an Arizona desert. *il Good Roads* 61:67-70+ Ag 10 '21
 New forest road completed in Arizona. *il Good Roads* 61:1-2 J1 6 '21
 Work started in 280 mile road contract. *map Eng & Contr* 55:20 Ja 5 '21

Arkansas

Aid to Arkansas good roads halted by federal government. *Comm & Fin Chr* 112:2142-3 My 21 '21
 Arkansas road law declared invalid by Supreme court. *Eng N* 86:1052 Je 16 '21
 Highway situation in Arkansas. H. R. Carter. *il Good Roads* 61:145-8+ S 21 '21
 Oppressive outlays for highways and good roads in Arkansas. *Comm & Fin Chr* 112:1351-2 Ap 2 '21
 Road construction in the cypress bottoms of Arkansas. D. A. MacCrea. *il chart map Eng N* 86:196-200 F 3 '21
 Trend of highway development—a survey. *Eng N* 85:1099-1100 D 2 '20
 U.S. roads bureau discusses Arkansas situation. *Eng N* 86:699 Ap 21 '21

Brazil

Good roads movement in Brazil. *il Good Roads n s* 21:249-50 My 11 '21

California

California highway commission defends its policy. *Eng N* 86:268-9 F 10 '21
 Federal report on California roads. *Pub Works* 50:324-5 Ap 16 '21

Outstanding features of report of the California highway study. *il diags map Pub Roads* 3:3-20 Ap '21; *Excerpts. Eng & Contr* 55:344-7 Ap 6 '21; *Abstract. Eng N* 86:469-71 Mr 17 '21

Paving an arid, rockless district. F. Reed. *il Pub Works* 48:79-81 F 7 '20

Report constructively criticises California's road policy. *Eng N* 86:207-8 F 3 '21

Routes to desert watering places in the Salton sea region. J. S. Brown. *il maps U S Geol S Water-supply Pa* 490—A:1-86 '20

Special concrete highway built for motor trucks connecting center of Los Angeles with port district. *il diag Eng N* 87:55-6 J1 14 '21

State highways of California. 174p Automobile club of southern California, Los Angeles '21

Trend of highway development; California's practice. *Eng N* 86:59-60 Ja 13 '21

Canada

Canadian good roads association 8th annual convention, Halifax. *Can Eng* 40:471-86 My 19 '21

Canadian pike tour. W. S. Gilbreath. *Good Roads n s* 20:131-2 S 15 '20

Federal aid. A. W. Campbell. *Can Eng* 38:275-6 Mr 11 '20

Value of the local association in a nationwide highways movement. W. Findlay. *Can Eng* 38:525-7 Je 3 '20; *Same. Good Roads n s* 20:41-2+ J1 28 '20

See also Roads—Ontario

China

Road building in the Chinese republic. *il Good Roads n s* 19:299-301 Je 16 '20

Colorado

Labor organization and cost of constructing federal aid concrete pavement in Colorado. C. E. Learned. *il Eng & Contr* 53:135-6 F 4 '20

Connecticut

Combination roads in Connecticut; two examples of asphaltic concrete wearing surfaces on Portland cement concrete bases. *il Good Roads n s* 19:49-50 F 4 '20

State highway construction and maintenance in Connecticut; cost tables. *Eng & Contr* 53:23-4 Ja 7 '20; *Abstract. Munic J* 48:45-6 Ja 31 '20

State highway system of Connecticut. *Pub Works* 51:103-4 Ag 6 '21

Trend of highway development; practice in Connecticut. *Eng N* 85:1120-1 D 9 '20

Delaware

Delaware highway designs and specifications. *diags Pub Works* 50:261-3 Mr 26 '21

Delaware state highway department. *map Pub Works* 49:488-9, 513-15, 537-40 N 20-D 4 '20

Delaware state highway testing department. *Pub Works* 49:575-6 D 18 '20

Trend of highway development—a survey. *Eng N* 86:153-5 Ja 27 '21

Ecuador

New road projected in Ecuador. *Sci Am* 124:91 Ja 29 '21

England

Improvement of public highways in England. J. A. Brodie. *Ry R* 67:855-6 D 4 '20

Rural road problem in England. E. J. Stead. *Eng & Contr* 55:658-9 Je 29 '21

Florida

Fine highway built for freight traffic only. E. C. Hall. *il Pop Mech* 36:713-14 N '21

France

Notes on the French highway system. E. J. Mehren. *Eng N* 85:303-4 Ag 12 '20

Le revêtement de la route moderne; le problème technique et financier de la restauration des routes françaises. G. Dumont and L. Auscher. *il diag Génie Civil* 77:405-8 N 20 '20

Roads—France —Continued

- Road work of the A.E.F. il Good Roads n s 19:241-3 My 12 '20
 Roads in France and America. E. A. Kingsley. Good Roads n s 18:271-4 D 31 '19
 Roads of France. H: W. Durham. il Good Roads n s 19:109-14 F 25 '20
 Why the roads of France are universally good. P. K. Miller. diags Eng & Contr 56:101 Ag 3 '21
 Year's traffic census on French national roads begins. Eng N 85:254-5 Ag 5 '20

Georgia

- Road construction in Chatham county. il Pub Works 48:271-3 Ap 3 '20

Great Britain

- British roads for heavy traffic. E. J. Mehren. Eng N 85:273-5 Ag 5 '20
 Development of roads and facilities for local passenger transit. J: A. Brodie. Engineering 110:617-20 N 5 '20; Excerpts. Engineer 130:446-8 N 5 '20; Excerpt. Electrician 85:564 N 12 '20
 Necessity demands use of untried methods, says British road engineer. H. Richardson. Eng N 84:1065 My 27 '20
 Road transport. H: P. Maybury. Engineer 132:422 O 21 '21

See also Roads—England

Hawaiian Islands

- Old Hawaiian trail teaches road subgrade lesson. R. R. Raymond. Eng N 87:619 O 13 '21

Honduras

- Some highways in Honduras. E: Perry. il Good Roads n s 18:237-8+ D 3 '19

Illinois

- Asphaltic pavement construction on an Illinois highway and the Chicago boulevard link. J: B. Hittell. il Munic Eng 59:203-8 D '20
 Building the Cook county highway system. E. J. McGinty. il Good Roads n s 21:59-60 F 2 '21
 Construction and maintenance in Illinois. Pub Roads 3:39-40 Mr '21
 Contract dates and peak outputs. B. H. Piepmeier. Eng N 86:1081 Je 23 '21
 Highway construction in Illinois. S. E. Bradt. li charts map Good Roads n s 19:325-6+ Je 30 '20
 Highway construction in Illinois in 1920. Pub Works 49:199-200 Ag 28 '20
 Highway construction progress in Illinois in 1920. B. H. Piepmeier. chart Eng & Contr 55:550 Je 1 '21
 Highway cost analysis simplified by Illinois reports. I. E. Scott. Eng N 86:118-20 Ja 20 '21
 Highway work in Illinois. il Good Roads n s 20:179-80; 21:54-6 O 13 '20, F 2 '21
 Illinois begins traffic endurance test. C. Older. Eng N 87:274-6 Ag 18 '21
 Maintenance costs for Illinois highways. Eng & Contr 55:108 F 2 '21
 Road construction in Illinois during 1919. B. H. Piepmeier. Eng N 84:949-50 My 13 '20; Same. Eng & Contr 53:522-3 My 5 '20
 Trend of highway development; Illinois practice. Eng N 86:29-30 Ja 6 '21

Indiana

- Experience with surface-treated gravel, light-traffic streets in Richmond, Ind. D. B. Davis. il Munic Eng 59:202-3 D '20
 Trend of highway development; Indiana's practice. il Eng N 85:1271-2 D 30 '20

Iowa

- Construction and inspection methods employed in building the county brick pavement connecting Waterloo and Cedar Falls, Iowa. E. A. Zack and C. M. Fisher. Munic Eng 58:195-6 My '20
 Engineers teach doctrine of designed roads. Eng N 83:953-4 N 27 '19
 Marshall county, Iowa, crushes stone for primary roads. Munic Eng 61:sup26+ O '21

- Paved roads built in installments from dirt roads. Eng N 83:1008-9 D 11 '19
 Trend of highway development. Eng N 85:1029-31 N 25 '20

Japan

- Japan inaugurates road building era. il Good Roads n s 20:199-200 O 27 '20
 Paving problem in Japan. T. Takakuwa. Pub Works 48:273-4 Ap 3 '20

Kansas

- Method and cost of constructing gravel roads in Wilson county, Kansas. M. W. Watson. il Munic Eng 58:210-12 My '20
 Standard specifications for road, bridge and culvert construction. M. W. Watson, W. V. Buck and F. W. Epps. 131p Kansas State highway commission, Topeka '20
 Trend of highway development—a survey. Eng N 85:1218-19 D 23 '20

Kentucky

- Kentucky practice in construction of water bound macadam. M. D. Ross. Eng & Contr 52:543-5 N 5 '19
 State highway work in Kentucky. J. S. Boggs. il Good Roads n s 19:51-2+ F 4 '20
 Streets and roads in and around Louisville. T. R. Moss. il Good Roads n s 19:47-9 F 4 '20

Maine

- Trend of highway development; Maine's practice. Eng N 85:1177-9 D 16 '20

Maryland

- How Maryland is improving its improved roads. J. N. Mackall. il Eng & Contr 54:537-9 D 1 '20

Massachusetts

- Massachusetts' experiences in the treatment of sand or gravel roads with bituminous materials. W: D. Sohler. Eng & Contr 54:12-14 Jl 7 '20; Same. Can Eng 39:133-6 Jl 8 '20
 Reinforced concrete for Massachusetts roads. Pub Works 50:263-4 Mr 26 '21
 Trend of highway development; practice in Massachusetts. Eng N 85:1122-3 D 9 '20

Mexico

- Mexico to undertake extensive road building program. E. A. Kingsley. Good Roads 61:62-4 Ag 3 '21

Michigan

- Concrete road system of Wayne county. E: N. Hines. Good Roads n s 21:147-50 Mr 9 '21
 Progress of road building in Michigan. F. F. Rogers. Good Roads n s 20:134-5 S 15 '20
 Trend of highway development. Eng N 85:920-2 N 11 '20
 Two miles a month averaged on Michigan road. il plan Eng N 84:432-3 F 26 '20

Minnesota

- Equipment employed on road construction in Minnesota in 1920. O. L. Kipp. Munic Eng 60:sup23-4 Ap '21
 Maintenance estimate and progress report forms in Minnesota. Eng N 86:79-80 Ja 13 '21
 Minnesota creates state truck-line highway system. Eng N 85:1197 D 16 '20
 Minnesota state road contracts in 1920. Eng & Contr 53:25 Ja 7 '20
 Oiling Hennepin county roads. E. E. Terrell. il Pub Works 48:78-9 F 7 '20
 Trend of highway development—a survey. Eng N 85:977-8 N 18 '20

Missouri

- Features of highway work in Missouri. A. W. Graham. Munic Eng 58:78+ F '20
 Road problems in the Ozarks. E. G. Harris. il Mo U Sch Mines & Met Bul 11:1-31 Je '19
 State of Missouri plans 6,000-mi. highway system. Eng N 85:645 S 30 '20

Roads—Missouri —Continued

State road survey methods and costs in Missouri. Eng N 86:68-70 Ja 13 '21; Discussion. 86:233-4, 353 F 3, 24 '21

Morocco

La construction du réseau de routes au Maroc. Génie Civil 78:203-4 F 26 '21

Nebraska

Logical plan of federal aid work in Nebraska. Good Roads 61:34+ JI 20 '21

Methods and equipment employed on Nebraska gravel roads. Munic Eng 59:sup26-7+ N '20

Trend of highway development. Eng N 85:1029-31 N 25 '20

Nevada

Unusual drainage conditions in public roads district no. 12; Nevada and Utah. E. E. Kidder and A. B. Brown. Pub Roads 4:10-12 JI '21; Excerpt. Eng & Contr 56:242 S 7 '21

New Brunswick

Types of road construction in New Brunswick. B. M. Hill. Can Eng 40:507-8 My 26 '21; Abstract. Good Roads n s 21:314+ Je 15 '21

New England

New England road builders ask relief. Pub Works 50:224 Mr 12 '21

New Jersey

N.J. engineers urge road law amendments. Eng N 86:237 F 3 '21

Newark turnpike improvement. il Pub Works 48:459-63 My 29 '20

Road improvements in Burlington county. il Pub Works 49:133-5 Ag 7 '20

New York (state)

New York's \$82,000,000 highway program; Governor Miller signs Hewitt law. Good Roads n s 21:170+ Mr 23 '21

1920 program shows New York highways 67 per cent concrete. Eng N 84:290 F 5 '20

Reconstruction needed on New York state highways. Eng N 86:269-70 F 10 '21

Roads in Westchester county. C: E. Foote. il Good Roads n s 19:79-80 F 11 '20

Scenic roads in the Catskills. il Good Roads n s 20:129-30 S 15 '20

State highway construction in New York. J. H. Sturdevant. Pub Works 48:193-4, 207-9, 243-4 Mr 13-27 '20

Storm King highway. il Pub Works 48:263-9 Ap 3 '20

Storm King road. J. F. Springer. il Sci Am 124:485+ Je 18 '21

Utilizing old macadam to increase width of concrete road. il diag Eng N 84:461-3 Mr 4 '20

North Carolina

Highway and bridge work in Buncombe county. il Good Roads n s 18:245-6 D 10 '19

Modern highway system of Buncombe county. N. Buckner. il Munic Eng 53:196-8 My '20

Ohio

Report on economic highway survey of Ohio. C. J. Knisely. 115p Ohio Bur. of inspection and supervision of public offices, Columbus, O. '20

Ontario

Maintenance of roads in Ontario. W. A. McLean. Can Eng 38:293-4 Mr 11 '20

Ontario provincial highway contracts. Can Eng 40:176+ Ja 27 '21

Ontario's road-building program. F. C. Biggs. map Can Eng 38:286-8 Mr 11 '20

Review of road legislation in Ontario. K. W. McKay. Can Eng 38:304-5 Mr 18 '20

Road-building in Ontario during 1919. G: Hogarth. Can Eng 38:260-1 Mr 4 '20

Toronto-Hamilton highway entrance to Hamilton. maps Can Eng 39:211-12 Ag 5 '20

Oregon

Oregon state highway notes in the 1919-1920 report of the State highway commission. Pub Works 50:377-8 Ap 30 '21

Panama Canal Zone

Construction of asphaltic roads in the Panama Canal Zone. il Munic Eng 58:11-12 Ja '20

Pennsylvania

Pennsylvania and Rhode Island traffic counts compared. Eng N 85:667-8 S 30 '20

Pennsylvania's roads. W: McGarry. il Sci Am 125:144+ Ag 27 '21

Results of traffic censuses on Pennsylvania highways. Eng & Contr 55:119 F 2 '21

Road work speeded up by service commission car orders. Eng N 85:612 S 23 '20

Some features of highway maintenance work in Pennsylvania. G: H. Biles. Munic Eng 59:198-9 D '20

Trend of highway development; Pennsylvania's practice. Eng N 86:102-3 Ja 20 '21

Philippine Islands

Geological aspects of road construction and maintenance in the Philippines. W. D. Smith. Good Roads 61:74+ Ag 10 '21

Road building in the Philippine Islands. il Good Roads n s 20:235-7 N 17 '20

Transportation in the Philippines. J. F. Springer. il Sci Am S 88:336+ D 6 '19

Porto Rico

Roads of Porto Rico. il Good Roads n s 19:181 Ap 7 '20

Quebec

Quebec built 452 miles of good roads in 1920. J. Boulanger. Can Eng 40:119-20 Ja 13 '21

Rhode Island

Pennsylvania and Rhode Island traffic counts compared. Eng N 85:667-8 S 30 '20

Trend of highway development; practice in Rhode Island. Eng N 85:1121-2 D 9 '20

Why bituminous macadam is successful in Rhode Island. I. W. Patterson. il diags Eng N 83:976-84 D 11 '19

Saskatchewan

Development of Saskatchewan's highway system. C: W. Dill. Can Eng 38:222-5 F 19 '20

Present and future development of road work. S. J. Latta. plan Can Eng 40:131-4 Ja 13 '21

South Carolina

South Carolina highway department. Pub Works 50:335-6 Ap 16 '21

Syria

Ancient and modern road building in Syria. J. A. Patch. Good Roads n s 21:304-5 Je 8 '21

Tennessee

Types of highway pavements in Tennessee. C. H. Olmstead. Munic Eng 60:70+ F '21

Texas

Highway work in Texas. Eng N 84:192-3 Ja 22 '20

United States

American highway problem. A. R. Hirst. Eng N 83:856-60 N 13 '19; Same. Munic Eng 57:258-62 D '19; Same. Eng & Contr 53:8-11 Ja 7 '20; Same. Good Roads n s 19:1-5 Ja 7 '20

American rural highways. T. R. Agg. 138p McGraw-Hill '20

Billion for road work possible. Eng N 84:802 Ap 22 '20

County highway data during 1919. Pub Works 48:276-87, 449-53 Ap 3, My 22 '20

Roads—United States—Continued

Education for highway engineering and highway transport; report of the Conference on highway engineering and highway transport education. U S Bur Educ Bul 1920,42:1-134

Federal highway policies stated by President Harding. Eng N 86:687 Ap 21 '21

Government to make nationwide road survey. T. W. Allen. Eng N 87:138 Jl 28 '21

Highway construction in 1919 and its lessons for 1920. Eng N 84:5 Ja 1 '20

New federal-aid road bill calls for highway classification and state systems. Eng N 86:738-9 Ap 28 '21

1921 road expenditures. Automotive Ind 44:390-1 F 17 '21

Our national highway problems. T. H. MacDonald. Good Roads n s 21:97-9+ F 16 '21; Same. Eng & Contr 55:200-2 Mr 2 '21

Presidential address at annual meeting of the American road builders' association. G. P. Coleman. Good Roads n s 18:213-14 N 12 '19

Review of highway construction conditions in middle Atlantic states. S. Knopf. Eng & Contr 53:138-9 F 4 '20

Review of road building problems. P. D. Sargent. Good Roads n s 21:86+ F 9 '21

Road construction to go forward. A. Sinsheimer. Automotive Ind 42:369-70 Ja 29 '20

Road work in national forests. Good Roads n s 21:90 F 9 '21

Road work in 1919 and 1920. T. H. MacDonald. Good Roads n s 18:228-9 N 26 '19; Same. Munic Eng 57:243-4 D '19

Secretary Meredith's highway program. Automotive Ind 43:1231 D 16 '20

\$633,000,000 for highways. Am Ind 21:31 F '21

Some economic questions affecting highways. J. E. Pennybacker. Munic Eng 58:8-9 Ja '20

Some features of the highway problem. E. R. Conant. Munic Eng 57:254-5 D '19

State highway construction in 1919 and 1920. Eng & Contr 53:119-24 F 4 '20

State highway construction in 1920 and 1921. Eng & Contr 55:100-6 F 2 '21

State highway department notes. il Eng N 86:726-7 Ap 28 '21

State highway officials urge federal aid and consider traffic problems. Eng N 85:1251-2 D 23 '20

State officials confer on highway policies. Eng N 86:696 Ap 21 '21

Summary of highway construction conditions in various states. Eng & Contr 53:12-14 Ja 7 '20

Text of important resolutions adopted at the fifth annual meeting of the American association of state highway officials at Louisville. Good Roads n s 18:276-8 D 31 '19

Tours and detours. J. M. Bird. il Sci Am 125A:6-8+ N '21

See also United States—Public roads, Bureau of; also Custer battlefield hiway; Lincoln highway

Utah

Bond-issue highway program in Salt Lake county. il map Eng N 83:1015-17 D 11 '19

Venezuela

Highways through the wilderness. H. C. Plummer. il Sci Am 122:274+ Mr 13 '20

Vermont

Future highways of Vermont. T. W. Dix. Good Roads n s 18:229-30 N 26 '19

Wisconsin

Blazing Wisconsin ways. A. G. Vestal. il Sci Am 122:93+ Ja 24 '20

Inadequate organization policy causes Hirst's resignation. A. R. Hirst. Eng N 86:265-6 F 10 '21; Same. Eng & Contr 55:451-2 My 4 '21

Trend of highway development. Eng N 85:920-2 N 11 '20

Wisconsin system for marking highways. J. T. Donaghey. Eng & Contr 53:634 Je 2 '20

Wisconsin's experiences in road building. A. R. Hirst. Can Eng 38:289-93 Mr 11 '20; Excerpt. Eng & Contr 53:509-10 My 5 '20

Roads, Asphalt

Asphalt road constructed on macadam base, between Warnersville and Palmyra, Penn. il Eng N 84:372-3 F 19 '20

Asphalt roadway specifications. Automotive Ind 43:1083 N 25 '20

Asphaltic pavement construction on an Illinois highway and the Chicago boulevard link. J. B. Hittell. il Munic Eng 59:203-8 D '20

Constructing a state road in North Carolina. W. A. Hardenbergh. Pub Works 49:499-500 N 27 '20

Constructing asphalt block pavement on Bronx parkway. il Pub Works 49:543-6 D 11 '20

Construction of asphaltic roads in the Panama Canal Zone. il Munic Eng 58:11-12 Ja '20

Experiment on desert road with asphaltic pavement. Eng N 87:600 O 13 '21

New design for an asphalt road. H. J. Fixmer. diags Pub Works 48:362-4 Ap 24 '20

Two miles a month averaged on Michigan road. il plan Eng N 84:432-3 F 26 '20

See also Pavements, Asphalt

Roads, Bituminous

Advantages of bituminous macadam. A. Dryland. Engineering 112:128-9 Jl 15 '21; Same. Munic Eng 61:91-3 S '21; Discussion. Engineering 112:120 Jl 15 '21

Bituminous binder for road surfaces. il Gas Age 45:23-4 Ja 10 '20

Bituminous penetration surfaces. A. B. Manson. Can Eng 38:294-6 Mr 11 '20

Bituminous road maintenance in Rhode Island. M. M. Cranston. il Good Roads n s 19:25-6 Ja 21 '20

Bituminous roads. B. Aldrich. Can Eng 38:239-42 F 26 '20

Construction and maintenance of grade crossings on Pacific Electric. C. A. Elliott. il Elec Ry J 55:995-8 My 15 '20

English bituminous road practice. A. Dryland. Eng N 86:894-5 My 26 '21

Instructions for inspection of construction of bituminous macadam surface. D. Q. McComb. Eng & Contr 56:104-5 Ag 3 '21

Maintenance of bituminous roads. G. E. Martin. il Good Roads n s 21:167-8 Mr 23 '21

Procedure in the construction of bituminous macadam roadways. J. E. Pennybacker. il Munic Eng 58:101-3 Mr '20

Why bituminous macadam is successful in Rhode Island. I. W. Patterson. il diags Eng N 83:976-84 D 11 '19

See also Pavements, Asphalt; Pavements, Bituminous; Roads, Asphalt; Roads, Sand and oil

Cost

Concrete and bituminous pavements in New York state. Pub Works 49:263 S 18 '20; Discussion. P. Schultze. 49:412-13 O 30 '20

Roads, Bituminous concrete

Asphaltic concrete pavements. W. H. Connell. Can Eng 38:543-4+ Je 10 '20; Same. Eng & Contr 54:115-16 Ag 4 '20; Abstract. Good Roads n s 20:172+ O 6 '20

Construction and maintenance of the Ashokan highways. G. G. Honness. il diag Eng N 84:652-7 Ap 1 '20

Recent asphaltic pavement construction on Illinois state highway and Chicago boulevard link. J. B. Hittell. il Eng & Contr 54:437-9 N 3 '20

Resurfacing Richmond road, Ottawa, with asphaltic concrete. B. Aldrich. il Can Eng 39:256 Ag 19 '20

Roads, Brick

Bituminous filled brick pavement with lugless brick. C. R. Livingston. Pub Works 50:298-300 Ap 9 '21

Brick laid on one-inch base good after four years. H. H. Edwards. Eng N 84:1207-8 Je 17 '20

Roads, Brick—Continued

- Construction and inspection methods employed in building the county brick pavement connecting Waterloo and Cedar Falls, Iowa. E. A. Zack and C. M. Fisher. *Munic Eng* 58:195-6 My '20
- Design and construction of brick roads in Reno county, Kansas. M. W. Watson. *il diags Munic Eng* 59:119-21 O '20
- Methods and cost of constructing 12 miles of monolithic brick pavement. F. A. Churchill. *il Eng & Contr* 53:629-30 Je 2 '20
- Monolithic brick road built of fine aggregate. W. M. Watson. *il diag Eng N* 86:25-6 Ja 6 '21
- Paving brick manufacturers seek specification changes. *Eng N* 83:854 N 13 '19
- Resurfacing an old brick road. E: Stingel. *Eng N* 84:861 Ap 29 '20
- Some developments in brick road construction. *Pub Works* 49:12 Jl 3 '20
- Suggested economies in brick street and road construction. W. P. Blair. *Munic Eng* 57:262-4 D '19; Same. *Eng & Contr* 52:639-40 D 3 '19
- Tamping templet expedites brick road construction. F. A. Churchill. *il Eng N* 84:282-3 F 5 '20

See also Pavements, Brick

Cost

- Design and construction of brick roads in Reno county, Kansas. M. W. Watson. *il diags Munic Eng* 59:119-21 O '20
- Methods and cost of constructing 12 miles of monolithic brick pavement. F. A. Churchill. *il Eng & Contr* 53:629-30 Je 2 '20

Roads, Concrete

- All sand aggregate for concrete in middle western roads. T. L. Brockway. *Eng N* 84:573-5 Mr 18 '20; Same. *Eng & Contr* 53:408-9 Ap 7 '20
- Attitude of British toward concrete road construction. *Eng N* 86:1132 Je 30 '21
- British experiences with reinforced concrete roads. W. M. Jones. *Eng & Contr* 52:752-4 D 31 '19
- Building a concrete roadway in halves. *il Pub Works* 49:163-4 Ag 21 '20
- Building a N. J. state highway of concrete. *il Pub Works* 49:99-101 Jl 31 '20
- Building the Du Pont boulevard. *Pub Works* 50:191-2 F 26 '21
- Building the Maricopa county concrete roads. *il diags plan Eng N* 86:1026-9 Je 16 '21
- Cement concrete road. W. P. Near. *Can Eng* 38:567-70 Je 17 '20
- Chaussées en cailloutis et béton de mâchefer, système Vinzio. *il Génie Civil* 78:179 F 19 '21
- Combination roads in Connecticut; two examples of asphaltic concrete wearing surfaces on Portland cement concrete bases. *il Good Roads n s* 19:49-50 F 4 '20
- Comparison of three methods of concrete road construction. *diag Eng & Contr* 56:334-5 O 5 '21
- Compression tests of concrete from roads in Sacramento county, California. R. M. Morton. *Good Roads n s* 20:216+ N 3 '20
- Concealed joints in road slab limit surface cracks. S: H. Lea. *diag Eng N* 85:305 Ag 12 '20
- Concrete pavement on a saturated adobe foundation. T. E. Stanton. *il diag Eng N* 86:217 F 3 '21
- Concrete road building delays in Illinois analyzed. A. W. Consoer. *Eng N* 86:644-5 Ap 14 '21
- Concrete road building demands best contracting skill. W. A. Rogers. *Eng N* 86:981 Je 9 '21
- Concrete road construction. H. E. Davis. *Can Eng* 38:279-80 Mr 11 '20
- Concrete road construction, discussed by American concrete institute. *Concrete* 18:111-12 Mr '21
- Concrete road construction methods on contract no. 8 of the Du Pont highway, Delaware. G: A. Sherron. *il Eng & Contr* 53:402-4 Ap 7 '20
- Concrete-road job handled on big scale. A. P. Child. *il Pop Mech* 33:569-71 Ap '20

- Concrete road system of Wayne county. E: N. Hines. *Good Roads n s* 21:147-50 Mr 9 '21
- Concrete road uninjured by weight of ice jam. *il Eng N* 85:29-31 Jl 1 '20
- Concrete road work: special reference to available aggregates. A. N. Johnson. *Concrete* 16:179-83 Ap '20; Same. *Good Roads n s* 19:182-6 Ap 7 '20; Same. *Boston Soc C E J* 7:203-15 S '20; Same cond. *Eng & Contr* 53:514-17 My 5 '20; Discussion. *Boston Soc C E J* 7:215-22 S '20
- Concrete test highway at Pittsburg, California. C: Geiger. *il diags Pub Works* 51:331-4 O 29 '21
- Concreting the Gansvoort-Schuylerville road. *Pub Works* 51:216-17 S 17 '21
- Constructing a concrete road in Nebraska. A. S. Mirick. *Pub Works* 48:493-4 Je 5 '20; Same. *Eng & Contr* 54:110 Ag 4 '20
- Constructing 1072 ft. of 18 ft. concrete pavement in 10 hours. D. J. Bleifuss. *il Eng & Contr* 54:434-5 N 3 '20
- Construction methods and equipment used on the McMullen highway near Cumberland, Maryland. J: N. Mackall. *il Munic Eng* 60:sup25-6 F '21
- Day labor construction on Lincoln highway at Frankfort, Ill. B. H. Piepmeier. *il Munic Eng* 61:sup 23-4+ O '21
- Development of local materials aids road contractor. *il Eng N* 85:831-3 O 28 '20
- Developments in plant and organization for concrete road construction. C. R. Ege. *Concrete* 18:139-42 Mr '21
- Difficult swamp road construction. *il Pub Works* 50:49-50 Ja 15 '21
- Every week a mile of concrete road. A. P. Child. *il Sci Am* 122:391 Ap 10 '20
- Experimental reinforced concrete roads in Milwaukee county. H. J. Kuelling. *Concrete* 18:79-80 F '21
- Extensive and detailed survey of California roads. *Concrete* 19:13-14 Jl '21
- Factors which will limit highway construction during the coming season. R: Hopkins. *Good Roads n s* 19:135-7 Mr 10 '20; Same. *Munic Eng* 58:118-20 Mr '20
- Fast roadbuilding with concrete hauled four miles. *il diags plan Eng N* 84:280-1 F 5 '20
- Federal report on California roads. *Pub Works* 50:324-5 Ap 16 '21
- Getting the correct mixer gang organization. W. R. Basset. *charts diag Concrete* 16:151-4 Mr '20
- Hackettstown-Budd lake highway. *Pub Works* 51:143-4 Ag 20 '21
- Heavy traffic road design places stress on drainage. *diag map Eng N* 84:284 F 5 '20
- Houston construction co. paves 109 ft. per hour. *Munic Eng* 60:sup24+ Ap '21
- How to build more and better roads in less time; symposium. *il Concrete* 16:59-67 F '20
- Huntington-Cold Spring harbor road construction. *il Pub Works* 49:404-7 O 30 '20
- Illinois has new concrete road slab design. *diags plan Eng N* 86:504 Mr 24 '21
- Impact test on concrete to regulate coarse and fine aggregate qualities and mixes for highways; with discussion. H. S. Mattimore. *il Am Soc T M Pro v* 20 pt 2:266-77 '20
- Large stock piles and efficient working organization expedite concrete road job. *il Eng & Contr* 54:354-5 O 6 '20
- Laying 1,300 sq. yd. concrete road pavement in 9½ hours. *il Eng & Contr* 54:121 Ag 4 '20
- Long section of new Chicago-St Louis highway dedicated and opened. *Munic Eng* 60:22-3 Ja '21
- Maricopa county, Arizona, undertakes 309-mile paved road system. R. Rollins. *il diags Eng N* 86:882-5 My 26 '21
- Mile of concrete pavement a week. *Pub Works* 51:64-5 Jl 23 '21
- Modern concrete road construction; machinery and methods. G: A. Sherron. *Eng Soc W Pa* 36:519-29; Discussion. 530-8 N '20
- Modern highways will complete the reclamation of an Arizona desert. *il Good Roads* 61:67-70+ Ag 10 '21

Roads, Concrete—Continued

Mount Pleasant highway, Delaware. Pub Works 50:206 Mr 5 '21

Naugatuck valley road, Connecticut. il Pub Works 51:162-3 Ag 27 '21

New design reinforced-concrete road built in Massachusetts. W. S. Edge. il Eng N 87:193-4 Ag 4 '21

New method of making concrete roads. il diags plan Engineer 132:465-6 O 28 '21

New record made on concrete road construction near Paris, Ill. il Munic Eng 59:sup 26+ Ag '20

1920 program shows New York highways 67 per cent concrete. Eng N 84:290 F 5 '20

Novel construction methods employed on Morris-Ottawa, Illinois concrete road. J. E. Huber. il Munic Eng 59:83-5 S '20

Old concrete road widened at low cost. diag Eng N 84:848 Ap 29 '20

1,094 feet of 18-foot road in eight hours. il Concrete 17:201-3 D '20; Same cond. Eng & Contr 54:448-9 N 3 '20; Same cond. Good Roads n s 20:265-6 D 1 '20

Operation methods and cost data on concrete road construction. L. A. Wilson. il Eng & Contr 54:105-6 Ag 4 '20

Outstanding features of report of the California highway study. il diags map Pub Roads 3:3-20 Ap '21; Excerpts. Eng & Contr 55:344-7 Ap 6 '21

Paving mixer delivers 440 four-bag batches in 9½ hours. Pub Works 49:416-17 O 30 '20

Paving records broken on Illinois job. il Concrete 17:107-8 O '20

Pre-cast concrete slab pavement between Casper and Salt Creek. il Pub Works 50:319-20 Ap 16 '21

Pre-cast concrete slab pavement on Casper-Salt Creek, Wyoming, road. C. H. Bowman. il Munic Eng 60:47-9 F '21; Same. Good Roads n s 21:109-10+ F 23 '21

Proportions for concrete for highway construction. Eng & Contr 54:122 Ag 4 '20

Rapid highway work on Long Island. il Pub Works 51:287-91 O 15 '21

Recent developments in cement concrete roads. H. S. Van Scoyoc. Can Eng 40:487-8 My 19 '21

Recent developments in concrete highway construction. A. N. Johnson. Munic Eng 57:204-6 N '19; Same. Eng & Contr 52:645-7 D 3 '19

Recommended practice for concrete road construction. B. H. Wait. il diags plan Can Eng 40:433-7 My 5 '21

Reinforced concrete for Massachusetts roads. Pub Works 50:263-4 Mr 26 '21

Reinforced concrete road. il Engineer 132:126-7 Jl 29 '21

Reinforced concrete road. il Sci Am 124:353 Ap 30 '21

Reinforced concrete roads in France. diags Automotive Ind 44:1393 Je 23 '21

Reinforced concrete roads—their construction, maintenance and life. W. M. Jones. Concrete 16:82-4 F '20

Reinforcement methods for heavy duty concrete road in Los Angeles county. Eng & Contr 56:244 S 7 '21

Reinforcing concrete pavements on California highways. il Eng N 84:1255 Je 24 '20

Resurface concrete road with reinforced concrete. T. M. Keene. Pub Roads 3:29 Ap '21

Resurfacing concrete roads. A. D. Stivers. Pub Works 49:439-40 N 6 '20

Road building lesson in stucco work. T. H. Johnson. Concrete 19:151 O '21

Road construction in Chatham county, Georgia. il Pub Works 48:271-3 Ap 3 '20

Road paving with precast concrete slabs. I. F. Shellard. Eng & Contr 55:314-15 Mr 30 '21

Season's outstanding ideas in concrete road construction. diag Concrete 18:49-53, 87-90 F '21

Shelburne mountain road. Pub Works 51:168-70 Ag 27 '21

Should binding steel be used in concrete highways? W. C. Conger. Concrete 16:77-9 F '20

Some observations on concrete road construction. H. J. Kuelling. Concrete 16:68-9 F '20

Special concrete highway built for motor trucks connecting center of Los Angeles with port district. il diag Eng N 87:55-6 Jl 14 '21

State highway construction in New York. J. H. Sturdevant. Pub Works 48:207-9, 243-4 Mr 20-27 '20

Strengthen concrete paving without increasing cost. B. H. Wait. il diag Eng N 87:192-3 Ag 4 '21

Successful coordination of plant units on Wisconsin road job. il diags Munic Eng 61:sup17-18+ Ag '21

Texas county tries lump-sum-fee road contract. il diags map Eng N 87:607-9 O 13 '21

Thicker California roads. Eng N 85:678 O 7 '20

Three concrete road construction methods compared. map Eng N 87:111-13 Jl 21 '21

Twin reinforced-concrete tracks for highways suggested. J. Berg. diags Eng N 85:520-1 S 9 '20

Utilizing old macadam to increase width of concrete road. il diag Eng N 84:461-3 Mr 4 '20

Walker-Weston system of concrete road reinforcement. il diags Engineering 111:168+ F 11 '21; Same cond. Eng & Contr 55:330 Mr 30 '21

Where is our road program taking us? J. N. Mackall. Eng N 84:914 My 6 '20

See also Pavements, Concrete; Roads, Bituminous concrete

Construction equipment

Both motor trucks and industrial railway used on road job. H. E. Breed. il Eng N 86:289-91 F 17 '21

Central loading plant and haulage methods for 6 mile concrete road job. il Eng & Contr 54:440-1 N 3 '20

Central mixing and proportioning plants in National Old Trails road construction in Illinois. il Eng & Contr 54:339-42 O 6 '20

Central mixing for concrete roads. C. S. Hill. Eng N 87:636-7 O 20 '21

Central mixing plant lays 918 feet of 18-ft. concrete road in 10 hours. il Eng & Contr 54:448-9 N 3 '20

Central proportioning successful on Minnesota road. Concrete 19:125 S '21

Combination central material and mixing plants on Illinois highway work. il Eng & Contr 56:333-4 O 5 '21

Concrete hauled three miles from central mixing plant. il Eng N 87:176-8 Ag 4 '21

Concrete road contract has plant for rapid progress. il diags plan Eng N 84:28-31 Ja 1 '20

Concrete road machinery and labor substitutes; some of the 1919 developments. H. W. Eldridge. il Munic Eng 58:33-4+ Ja '20

Concrete road mix proportioned at central plant. H. T. Tuthill. il Eng N 86:595-6 Ap 7 '21

Construction equipment employed in building reinforced concrete pavement on Jefferson highway. Rice county. Minn. P. C. Brown. il Munic Eng 59:sup21-2 S '20

Construction equipment on 21-mile Joliet-Morris concrete road. il Eng & Contr 55:535 Je 1 '21

Development and use of mechanical equipment in highway construction. K. H. Talbot. il Munic Eng 58:sup33+ Mr '20; Same abr. Pub Works 48:571-2; 49:9-10 Je 26-Jl 3 '20

Effective use of machinery in concrete road construction. il Eng & Contr 52:537 N 5 '19

Efficiency in concrete road building. il Sci Am 122:521+ My 8 '20

Equipment for concrete road construction. F. M. Balsley. Concrete 18:137-9 Mr '21

Equipment for concrete road construction. B. H. Piepmeier. il Eng & Contr 53:230-3 Mr 3 '20

Hauling road materials. il Concrete 18:135-6 Mr '21

Heavy narrow-gage locomotives on concrete road work. B. H. Piepmeier. il Eng N 87:568 O 6 '21

Industrial railway in road work. Good Roads n s 19:217-18 Ap 28 '20

Roads, Concrete—Construction equipment—Cont.

- Installation for a \$700,000 concrete road contract. il diag plan Pub Works 50:144-6 F 12 '21
- Iowa road contractor prospers with good equipment. Munic Eng 60:sup26+ Mr '21
- Labor saving machinery on Minnesota road contract. G: C. Scales. il Eng & Contr 54:118-19 Ag 4 '20
- Layout and operation of a road plant at Charles City. T. W. Ingemanson. il diags Concrete 17:49-52 Ag '20
- Light railway and motor trucks both used on road job. il plans Eng N 85:802-3 O 21 '20
- List of construction equipment used on fifteen concrete road jobs in Illinois. Munic Eng 58:sup34+ Ap '20
- Machine handling of concrete road materials. il Eng & Contr 55:120 F 2 '21
- Machines speed road job. il Concrete 17:174 N '20
- Mechanical road construction; Lincoln highway between DeKalb and Geneva, Ill. Pub Works 48:224-5 Mr 20 '20
- Planning mechanical equipment for a road job. C. D. Curtis. Pub Works 51:30-1 Jl 9 '21
- Plant used on a Delaware road job. il Good Roads n s 19:275-6 Je 2 '20
- Portable frame for canvas covering for concrete road construction. il diag Eng & Contr 52:655 D 3 '19
- Proportioned aggregate hauled in ten-batch trucks. il Eng N 84:1068 My 27 '20
- Record output for central concrete mixing plant. il Pub Works 49:434-6 N 6 '20; Munic Eng 59:21-2+ N '20
- Side hill loading plant for concrete road. il Eng N 83:945 N 27 '19
- Tamping template used on brick-concrete roads. F. A. Churchill. il Concrete 16:188 Ap '20
- Use of charging bins and pebble washing plant saves money on concrete road construction. Munic Eng 58:sup33-4 F '20
- Use of equipment cuts cost on construction of a Nebraska concrete road. Munic Eng 58:40-1+ Ja '20
- Wet haulage to road excels dry haulage to mixer. il Eng N 85:356-7 Ag 19 '20
- Wide-spaced stockpiles and wet haulage successful. diags plans Eng N 84:1163-4 Je 10 '20

Cost

- Berlin turnpike. il Pub Works 51:180-1 S 3 '21
- Central loading plant and haulage methods for 6 mile concrete road job. il Eng & Contr 54:440-1 N 3 '20
- Concrete and bituminous pavements in New York state. Pub Works 49:263 S 18 '20; Discussion. P. Schultze. 49:412-13 O 30 '20
- Contractors' cost data on concrete paving. Good Roads 61:110-16+ Ag 31 '21
- Cost of Arizona federal aid concrete road. C. E. Learned. il Eng & Contr 53:124-6 F 4 '20
- Estimating the cost of a concrete pavement. G. B. Arthur. Concrete 19:63-4 Ag '21
- Hauling aggregates by motor truck on concrete construction. Concrete 16:98-9 F '20
- Labor organization and cost of constructing federal aid concrete pavement in Colorado. C. E. Learned. il Eng & Contr 53:135-6 F 4 '20
- Road paving with precast concrete slabs. I. F. Sheppard. Eng & Contr 55:314-15 Mr 30 '21
- Steel fabric in concrete road costs 1c a yard to place. H. E. Breed. il Eng N 87:139-40 Jl 28 '21

Estimates

- Contractors' cost data on concrete paving. Good Roads 61:110-16+ Ag 31 '21

Maintenance and repair

- Jacking up a road. il Sci Am 124:231 Mr 19 '21
- Precast slabs vs. monolithic concrete for repairing paved roads. Eng N 86:156 Ja 27 '21
- Special method of handling second story construction work on state highway in Los Angeles county, California. W. W. Patch. il Munic Eng 61:88-90 S '21

Specifications

- Charted summary of state concrete road specifications. A. N. Johnson. Concrete 16:80-1 F '20
- Ideal highway construction. Pub Works 51:163 Ag 27 '21
- New specifications and standard sections of Indiana highway commission for concrete roads. diags Eng & Contr 52:525, 526-7 N 5 '19
- Suggested composite specifications for concrete roadway construction. S. M. Feinberg. Munic Eng 59:52-5 Ag '20

Roads, County

- County roads constructed cheaply by day labor. S: H. Lea. Eng N 85:363 Ag 19 '20

Roads, Desert

- Experiment on desert road with asphaltic pavement. Eng N 87:600 O 13 '21

Roads, Earth

- Dirt roads treated with steam ashes and cold road oil. F. H. Sheppard and E. E. Butterfield. Eng N 87:477 S 22 '21; Discussion. O. F. Weisgerber. 87:661 O 20 '21
- Improvement and maintenance of earth, clay and sand roads. A. R. Hirst. Eng & Contr 54:6-8 Jl 7 '20; Same. Can Eng 38:553-6 Je 10 '20; Same. Good Roads n s 20:105-8 S 1 '20; Conclusions. Eng N 85:33 Jl 1 '20
- Maintenance of earth roads. C. C. Albright. Good Roads n s 21:184+ Mr 30 '21
- Peoria county dirt road improvement association. L: A. Wilson. il Good Roads n s 20:213-14 N 3 '20
- Road dragging in Saskatchewan. H. S. Carpenter. il Can Eng 39:119-20 Jl 1 '20

Cost

- Earth road maintenance costs in Nebraska. Eng N 87:76 Jl 14 '21

Roads, Experimental

- Illinois experimental highway. C: C. Brown. il diag Pub Works 50:115-18, 166-8 F 5, 19 '21
- Preliminary report on the Bates experimental road. C. Older and H. F. Clemmer. il diag Pub Roads 4:3-11+ S '21

Roads, Federal aid

- Federal aid roads under construction or completed. Automotive Ind 44:1288 Je 16 '21
- Important features of highway design. Pub Works 50:499-500 Je 11 '21
- Status of federal-aid roads. Eng N 87:27 Jl 7 '21
- Types of federal aid roads. T: H. MacDonald. Eng & Contr 54:357 O 6 '20
- Types of pavements built with federal aid. T: H. Macdonald. Good Roads n s 21:257-8 My 11 '21; Excerpts. Eng & Contr 55:553 Je 1 '21
- U.S. Bureau of public roads favors free competition between materials of construction. T. H. McDonald. Munic Eng 60:227-8 Je '21

See also Roads—Finance

Roads, Gravel

- Bituminous surface treated macadam and gravel roads of Dallas county, Texas. J. F. Witt. Eng & Contr 54:120 Ag 4 '20
- Construction and maintenance of gravel roads. F: H. Colburn. il Good Roads n s 18:211-13 N 12 '19
- Construction of crushed gravel roads in New Hampshire. F: E. Everett. Munic Eng 59:5-6 Jl '20
- Crushed stone and gravel roads. C. L. McKesson and A. F. Morris. il Pub Roads 4:3-5 My '21; Same. Eng & Contr 55:543-4 Je 1 '21; Same. Good Roads n s 21:321-2+ Je 22 '21
- Economical methods of rebuilding gravel and macadam roads. E. A. James. Can Eng 40:489-90 My 19 '21; Same. Eng & Contr 56:16 Jl 6 '21
- Experience with surface-treated gravel, light-traffic streets in Richmond, Ind. D. B. Davis. il Munic Eng 59:202-3 D '20

Roads, Gravel—Continued

Gravel roads: construction and surface treatment. P. P. Sharples. il Pub Works 49:377-81 O 23 '20; Same. Good Roads n s 20:189-90+ O 20 '20; Excerpts. Eng & Contr 54:450 N 3 '20

Gravel roads in arid country. L. Cobb. Pub Works 49:383-4 O 23 '20

Gravel roads in New Hampshire. Pub Works 50:448-9 My 28 '21

Last section of Richmond, Va.-Washington, D.C., highway improved with gravel roadway. C. S. Mullen. il Munic Eng 59:50-1 Ag '20

Method and cost of constructing gravel roads in Wilson county, Kansas. M. W. Watson. il Munic Eng 58:210-12 My '20

Methods and equipment employed on Nebraska gravel roads. Munic Eng 59:sup26-7+ N '20

Nebraska uses industrial railway in construction of gravel roads. G. E. Johnson. il Munic Eng 61:86-8 S '21

Refined tar in road construction and maintenance. P. P. Sharples. il Good Roads n s 21:261-3 My 18 '21; Same. Eng & Contr 56:343-4 O 5 '21

Road making in Edmunds county, S.D. W. L. McCafferty. Pub Works 49:73-4 Jl 24 '20

Story of one gravel road. B. E. Gray. il Pub Roads 4:3-5+ Jl '21; Same. Good Roads 61:107-9+ Ag 31 '21

Surface treatments on macadam and gravel. P. P. Sharples. il Munic Eng 58:115-18 Mr '20; Same abr. Eng & Contr 53:248-9 Mr 3 '20

Types of road construction in New Brunswick. B. M. Hill. Can Eng 40:507-8 My 26 '21; Abstract. Good Roads n s 21:314+ Je 15 '21

Winter hauling for road work in the Dakotas, Minnesota and Wisconsin. E. G. Edwards. il Eng & Contr 54:215-17 S 1 '20; Same abr. Pub Works 49:261-2 S 18 '20

Roads, Macadamized

Asphaltic concrete on old macadam. W. R. Macatee. il Good Roads n s 19:193-4 Ap 14 '20

Bituminous surface treated macadam and gravel roads of Dallas county, Texas. J. F. Witt. Eng & Contr 54:120 Ag 4 '20

Broken stone roads. G. Hogarth. Can Eng 38:529-30 Je 3 '20; Same. Eng & Contr 54:112 Ag 4 '20

Chaussées en cailloutis et béton de mâchefer; système Vinzio. il Génie Civil 78:179 F 19 '21

Economical methods of rebuilding gravel and macadam roads. E. A. James. Can Eng 40:489-90 My 19 '21; Same. Eng & Contr 56:16 Jl 6 '21

Making narrow roads wider. J. S. Crandell. Pub Work 50:318-19 Ap 16 '21

Method of constructing macadam in province of Quebec. A. Paradis. Eng & Contr 52:648-9 D 3 '19

Recommended procedure in the construction of new macadam roads. M. D. Ross. Munic Eng 57:116-18 S '19; Same. Eng & Contr 52:543-5 N 5 '19

Resurfacing and surface treating macadam roads. T. J. Wasser. Eng & Contr 55:448-51 My 4 '21

Utilization of old macadam roads. R. W. Parkhurst. Eng & Contr 55:123 F 2 '21

Maintenance and repair

How Maryland is improving its improved roads. J. N. Mackall. il Eng & Contr 54:537-9 D 1 '20

Maintenance cost of water bound macadam at Hartford, Conn. L. F. Peck. Eng & Contr 53:134 F 4 '20

Maintenance of macadam roads. L. G. Quigley. Munic Eng 58:207-8 My '20

Methods of maintaining water bound macadam at Hartford, Conn. L. F. Peck. Eng & Contr 53:404-6 Ap 7 '20

Problems of general maintenance on all types of road pavements. G. H. Biles. Eng & Contr 55:216-18 Mr 2 '21

Surface treatments on macadam and gravel. P. P. Sharples. il Munic Eng 58:115-18 Mr '20; Same abr. Eng & Contr 53:248-9 Mr 3 '20

Waterbound macadam and bituminous concrete roads rejuvenated. C. F. Puff. Eng N 84:922 My 6 '20

Roads, Military

Road work of the A.E.F. il Good Roads n s 19:241-3 My 12 '20

Wire mesh army roads in Egypt. T. M. Jasper. Eng N 85:302 Ag 12 '20

Roads, Oiled

Oiling Hennepin county roads. E. E. Terrell. il Pub Works 48:78-9 F 7 '20

Surface treating streets with liquid asphalt in Walpole, Mass. E. F. Durfee. il Munic Eng 59:208+ D '20

Roads, Plank

Plank surfacing suggested for secondary highways. G. Kershaw. diags plan Eng N 84:1052 My 27 '20

Roads, Pole

Pole and concrete track roads for logging. W. H. Chapin. Eng & Contr 54:437 N 3 '20

Roads, Sand and oil

Massachusetts' experiences in the treatment of sand or gravel roads with bituminous materials. W. D. Sohler. Eng & Contr 54:12-14 Jl 7 '20; Same. Can Eng 39:133-6 Jl 8 '20

Roads, Shell

Methods and cost of constructing and maintaining shell roads. J. M. Howe. Eng & Contr 54:208 S 1 '20

Shell roads. J. M. Wise. il Good Roads n s 20:103-4+ S 1 '20

Street work in Port Arthur, Texas. Pub Works 50:120-1 F 5 '21

Roads, State

Constructing a state road in North Carolina. W. A. Hardenbergh. Pub Works 49:499-500 N 27 '20

Construction and maintenance of the Ashokan highways. G. G. Honness. il diag Eng N 84:652-7 Ap 1 '20

Construction of state highways. A. S. Mirick. Good Roads n s 19:186+ Ap 7 '20

Criticism of the California state highways and a reply by the state highway board. Eng & Contr 55:205-8 Mr 2 '21; Excerpt (Reply of state highway commission). Eng N 86:340-1 F 24 '21

Outstanding features of report of the California highway study. il diags map Pub Roads 3:3-20 Ap '21; Excerpts. Eng & Contr 55:344-7 Ap 6 '21; Abstract. Eng N 86:469-71 Mr 17 '21

State highway construction in New York. J. H. Sturdevant. Pub Works 48:193-4, 207-9, 243-4 Mr 13-27 '20

State highway work in Kentucky. J. S. Boggs. il Good Roads n s 19:51-2+ F 4 '20

Roads, State aid

State work in 1920 and 1921. Pub Works 50:336-7 Ap 16 '21

(Status of state aid to counties, and its future development. Good Roads n s 19:195-8+, 208-10+, 219-20+ Ap 14-28 '20

See also Roads—Finance

Roads, Tarred

Bituminous binder for road surfaces. il Gas Age 45:23-4 Ja 10 '20

Refined tar in construction and maintenance. A. F. Macallum. Good Roads n s 20:18, 21-2 Jl 14 '20; Same. Can Eng 39:158-9 Jl 15 '20

Refined tar in road construction and maintenance. P. P. Sharples. il Good Roads n s 21:261-3 My 18 '21; Same. Eng & Contr 56:343-4 O 5 '21

Tar macadam roads show lowest total annual cost. Eng N 85:783-4 O 21 '20; Discussion. 85:1105 D 2 '20

Tarred macadam scores high in British road tests. Eng N 85:839-40 O 28 '20

Roadside planting

Beautifying our roadsides. C. F. Boehler. Good Roads n s 20:157-8+ S 29 '20

Roadside planting —Continued

Making American roadsides productive. Sci Am 123:127 Ag 7 '20

Robbery

See also Automobiles—Theft; Platinum—Theft; Silk theft

Robbins, Walter, 1875-

Portrait. Elec W 77:244 Ja 29 '21

Robert, Henry Martyn, 1837-

Appreciation. por Eng N 84:798-802 Ap 22 '20

Robert college

Engineering school

Robert college, engineering school. L. A. Scipio. Eng Educ 11:32-6 S '20

Robert W. Hunt medal

Establishment of the Robert W. Hunt medal. il Min & Met 163:18-20 Jl '20

Roberts, George Evan, 1857-

George E. Roberts, an apostle of common sense. J. B. Morrow. por Nation's Business 9:18-19 Ap '21

Robertson, Thomas E., 1871-

New commissioner of patents. por Sci Am 124:307 Ap 16 '21

Robey and company, limited, Lincoln

Works of Messrs. Robey and co., limited, Lincoln. il diags plan Engineering 110:65-71, 104-6, pl 9-13 Jl 16-23 '20

Robinson, William Colin, 1868-1921

Sketch. Eng N 87:297 Ag 18 '21

Robison, John Keeler, 1870-

Navy's new chief engineer. por Power 54:618 O 18 '21

Rochelle salt. *See* Potassium sodium tartrate

Rochester, New York

Industrial management council

Cooperating to educate a community's executives. H. C. Stevenson. il Factory 27: 182-7 Ag '21

Water supply

Experiences with frozen services, mains and meters during the winter of 1917-18, Rochester. B. C. Little. Am Water Works Assn J 7:78-83 Ja '20

Revenue chargeable to public uses of water in the city of Rochester. S. B. Story. Am Water Works Assn J 7:869-79 N '20; Excerpt. Eng & Contr 55:47-8 Ja 12 '21

Rock carvings. *See* Petroglyphs

Rock drills

Air pressures and drilling speeds of hammer drills. H. W. Seamon. Eng & Contr 56: 54 Jl 20 '21

Are drill-bits magnetic? Min & Sci P 122: 335 Mr 5 '21

Breakage and heat treatment of rock-drill steel. B. Tillson. Min & Met 173:38-9+ My '21; Same. Sci Am M 3:477-8 My '21; Same. Eng & Contr 55:594 Je 15 '21

Development of the rock-drill in America. C: A. Hirschberg. il diag Min & Sci P 120: 139-42 Ja 24 '20

Diamond drill as an aid to oil prospecting.

A. H. Fay. Eng & Min J 110:1133-4 D 11 '20

Electric drill will quickly cut holes in hard mine roofs. E. M. Backie. il Coal Age 17:924 My 6 '20

Getting best results from rock drill bits. W. E. Carr. Eng & Contr 54:399-400 O 20 '20; Same. Can Eng 39:578-9 D 2 '20

Great things expected of new type of air-drill. il Min & Sci P 121:787-8 N 27 '20

Handling and treatment of rock-drill steel at Copper Range mines. H. T. Mercer and A. C. Paulson. diags Min & Met 164:20-1 Ag '20; Same. Eng & Contr 54:257 S 15 '20

How to obtain best results from hammer drills; abstracts. H. R. Drullard. Eng & Contr 54:265-6 S 15 '20; Min & Met 162:28-9 Je '20; Sci Am M 1:571 Je '20; Min & Sci P 121:310-11 Ag 28 '20

Ingersoll-Rand bar-33 jackhammer. il Coal Age 17:494 Mr 11 '20

Is the piston drill passing? Eng & Min J 109:1251 Je 5 '20

Jackhammer type drills in Witwatersrand mines. E. M. Weston. diags Eng & Min J 109:395-7 F 7 '20

Manufacture and use of laboratory diamond core drills. F. H. Schloer. il diags Eng & Contr 54:347-8 O 6 '20

Manufacturing oil-well tools in Texas. F. H. Colvin. il diags Am Mach 54:932-8 Je 2 '21

Perforatrices à câbles, système Keystone. il Génie Civil 78:528-9 Je 18 '21

Piston drills for use with hollow steel. E. M. Weston. il diags Eng & Min J 109:485-6 F 21 '20

Portable diamond drill cuts 4½-in. cores from concrete pavement. il Eng N 87:198 Ag 4 '21

Power may be transmitted by wave motion. il Coal Age 18:1135-6 D 2 '20

Relation of air pressure to drilling speeds of hammer drills. H. W. Seamon. Min & Met 168:38 D '20

Review of drilling. G: J. Young. Eng & Min J 112:340-1, 379-80, 420, 461-2, 538-9 Ag 27-S 17. O 1 '21

Rock drill steels too short for use reclaimed by welding. W. T. Ober. il Elec W 77:942-3 Ap 23 '21; Same. Eng & Contr 56:150-1 Ag 17 '21; Same abr. Min & Met 174:51 Je '21

Rotary rock bits. A. G. Wolf. il diags Eng & Min J 109:404-7 F 7 '20

Shanks for hammer drill steel. il Eng & Min J 111:471 Mr 12 '21

Standardization of hose fittings for hammer rock drills. G: H. Gilman. diags Eng & Min J 109:1252-5 Je 5 '20

Stuck steel. D. E. Dunn. il diags Eng & Min J 110:903-5 N 6 '20; Same. Eng & Contr 54:492 N 17 '20

Suggestions to drill smiths on care and upkeep of rock drill steel. G: H. Gilman. Eng & Contr 56:55-6 Jl 20 '21

Underground prospecting at Joplin. F. R. Alger. il diag Min & Sci P 121:109 Jl 17 '20

See also Drilling and boring (earth and rocks); Mining machinery

Bibliography

Review of drilling. G: J. Young. Eng & Min J 112:461-2, 538-9 S 17, O 1 '21

Lubrication

Lubrication of air drills. Eng & Min J 110: 100 Jl 17 '20

North Star mine has interesting device for filling oil-cadders. K. O. Duncan. diag Min & Sci P 121:929 D 25 '20

Testing

Analysis of some drill-steel tests. F. B. Foley. Min & Met 174:43, 46-7 Je '21; Same. Sci Am M 4:187-8 Ag '21

Rock tanks

Origin of rock tanks and charcos. K. Bryan. il diags maps Am J Sci 50:188-206 S '20

Rockefeller foundation

Annual report of the Rockefeller foundation. Comm & Fin Chr 112:412-13 Ja 29 '21

Rockets

Exploring rocket; the missile that could be shot to the moon, and its true purpose. Sci Am 122:161+ F 14 '20

Method of reaching extreme altitudes; experiments with rockets and powders. R. H. Goddard. il diags Sci Am M 1:101-7 F '20; Abstract. Mech Eng 42:179-80 Mr '20

Rocket that will carry to the moon. diags Sci Am M 1:99-100 F '20

Rockets may explore ether. il Pop Mech 33: 324-7 Mr '20

That moon rocket proposition; refutation of some popular fallacies. R. H. Goddard. Sci Am 124:166 F 26 '21

Rocks

Data of geochemistry. F. W. Clarke. U S Geol S Bul 695:471-628 '20

Earth and rock pressures. H. G. Moulton. il diags Min & Met 158:(sec 13) 1-25 F '20

Graphite rocks of Sleaford Bay, South Australia. C. E. Tilley. il diags Econ Geol 16: 184-98 Ap '21

Rocks —Continued

Hawaiian petrology. S. Powers. maps Am J Sci 50:256-80 O '20

How hard is a rock? S. R. Winters. il Sci Am 123:629+ D 25 '20

Notes on crossings. H. C. Hoover. diags Min & Sci P 120:743-4 My 22 '20

Paleozoic rocks of the Canton quadrangle. G. H. Chadwick. 60p University of the state of New York, Albany '20

See also Crystallography; Geochemistry; Geology; Granite; Leucites; Limestone; Mineralogy; Shale; Stone

Analysis

Analysis of silicate and carbonate rocks. W. F. Hillebrand. diags U S Geol S Bul 700: 1-285 '19

Classification

Rock classification from the oil-driller's standpoint. A. Knapp. Min & Met 158:(sec 26) 1-6 F '20; Same. Nat Pet N 12:71-2 F 18 '20; Excerpts. Eng & Min J 109:514-16 F 21 '20

Terminology

Nomenclature of petrology. A. Holmes. 284p Thos. Murby & Co., London; Van Nostrand '20

Testing

Standard Deval abrasion test for rock. F. H. Jackson. il diags Am Soc T M Pro v 20 pt 2:278-90 '20; Same, without il. and diagrams. Eng & Contr 54:113-14 Ag 4 '20; Discussion. Am Soc T M Pro v 20 pt 2:291-7 '20

Tests of road-building rock in 1920. Pub Roads 4:29-32 Je '21

Rocks, Crystalline and metamorphic

Relations of subjacent igneous invasion to regional metamorphism. J. Barrell. Am J Sci 5th ser 1:1-19, 255-67 Ja, Mr '21

Rocks, Igneous

Chemistry of the earth's crust. H. S. Washington. diags map J Fr Inst 190:757-815 D '20

Classification of igneous rocks. L. V. Pirsson. Am J Sci 2:265-84 N '21

Data of geochemistry. F. W. Clarke. U S Geol S Bul 695:415-70 '20

Geology of the igneous rocks of Essex county, Massachusetts. C. H. Clapp. il diags maps U S Geol S Bul 704:1-132 '21

Igneous rocks; composition, texture and classification, description and occurrence. J. P. Iddings. 2d ed. rev. Wiley '20

Notes on the tertiary intrusives of the lower Pecos valley, New Mexico. D. R. Semmes. il diag map Am J Sci 50:415-30 D '20

See also Augite; Batholiths; Gneiss; Phonolite

Rocky Mountain petroleum association

Results achieved by cooperation in Wyoming oil fields. F. B. Tough. diags Nat Pet N 12:81-2+ Je 30 '20

Rocky mountains

Episodes in Rocky mountain orogeny. C. L. Dake. Am J Sci 5th ser 1:245-54 Mr '21

Canadian Rockies

Among the mountains of western Canada. L. Jeffers. il Sci Am 122:424+ Ap 17 '20

Rod mills. See Crushing machinery**Rodeos**

Rodeos north of Arctic circle; reindeer fairs in Alaska. L. W. Pedrose. il Pop Mech 34: 687-91 N '20

Rods

Extruding brass and copper rods. E. K. Hammond. il Mach 27:1-4 S '20

Seven centuries of brass making; sheet brass —extruded rods and wires. O. A. Kenyon. il Am Mach 53:1133-6 D 16 '20

Time-saving tube and rod chart. M. D. Casler. chart diag Am Mach 52:67-70 Ja 8 '20

Rods, Measuring

Making spherical-ended length rods. W. Older. il Am Mach 53:684 O 7 '20

Roentgen rays. See X rays**Roentgen tubes. See X-ray tubes****Roerich, Nicholas K.**

Nicholas K. Roerich; his art in its bearing on mural decoration in America. A. C. Bosson. il Arch Rec 50:82-92 Ag '21

Rogers, Allen, 1876-

Dr Rogers receives the Grasselli medal. por Chem & Met Eng 23:794 O 20 '20; J Ind & Eng Chem 12:1127-8 N '20

Rogers, Allen Hastings, 1871-

Mining engineers of note. por Eng & Min J 111:792 My 7 '21

Roll feeds

Simple roll feed. O. Vogetzer. il Am Mach 53:515 S 9 '20

Roller bearings

Efficient journal bearings; ball and roller bearings compared. Iron Age 107:1605-6 Je 16 '21

Facts regarding bearings. L. A. Shepard. Ry Mech Eng 95:312 My '21

Flexible roller bearings. F. S. Frambach. il Textile World 57:2505+ Ap 3 '20

Hart roller bearing featured by staggered rolls. il Ry Mech Eng 95:396-7 Je '21

Heat treating plant at Nash motor works, Kenosha, Wis.; refining and carbonizing furnaces. il diags plan Iron Age 107:895-8 Ap 7 '21

How to reduce frictional losses in conveying machinery. diags Eng & Ind Management 6:388-91 O 6 '21

Increased efficiency in the open hearth. P. C. Gunion. il Blast F & Steel Pl 8:624-5+ N '20

Maintaining continuity throughout roller bearing manufacture. J. E. Schipper. il Automotive Ind 44:912-17 Ap 28 '21

Roller-bearing wheels ease the way from face to tipple. D. B. Turner. diags Coal Age 17:925-6 My 6 '20

Roller bearings for mine cars. Coal Age 16: 545, 805, 901; 17:147-9, 445-6, 823; 18:449-50, 1095-6 S 25, N 13, D 11 '19, Ja 15, Mr 4, Ap 22, Ag 26. N 25 '20

Roller bearings on looms. il plans Textile World 60:853+ Ag 6 '21

Roller bearings on trucks supporting dirigible hangar doors. il Mach 27:63 S '20

Staggered roll construction. il Textile World 60:83 Jl 2 '21

Staggered roller bearings for railroad cars. il Pop Mech 36:421 S '21

What cars and bearings should we select? H. G. Nash. il Coal Age 17:851-2 Ap 29 '20

What is the difference between roller and ball bearings? A. Danielson. diags Am Mach 53:857-8 N 4 '20

See also Bearings; Disk bearings

Testing

Plain- vs. roller-bearing tests. A. C. Callen. Coal Age 20:459 S 22 '21

Test of large roller bearings under heavy loads. G. M. Barnes. il Am Mach 53:200-1 Jl 29 '20

Roller-chain. See Chain gear**Roller tools**

Roller tools for finishing axle journals. J. V. Hunter. il diags Am Mach 55:54-5 Jl 14 '21

Rollers, Road. See Road rollers**Rolling (metal work)**

Investigation of strains in rolling of metal. A. Musso. diags Mech Eng 41:937-8 D '19;

Same. Iron Tr R 65:1512-13 D 4 '19

Lever type guide box of the Cullen type for the bull head set of rolls on a 12-inch merchant finishing train. diags Iron Tr R 69:1014-15 O 20 '21

Logic of roll design. W. H. Melaney. diags Blast F & Steel Pl 9:99-102, 162-4, 210-11+ Ja-Mr '21

Manufacture of seamless tubes. K. Gruber. Blast F & Steel Pl 9:212, 247-52, 320-3, 442-4 Mr-My, Jl '21; Same cond. Iron Age 107: 903-5, 977-80+, 1049-52, 1114-18 Ap 7-28 '21;

Same. Génie Civil 79:225-9, 247-9 S 10-17 '21

Mechanical matcher lowers costs; aligning and doubling hot rolled sheets is performed by motor driven machine. il diags Iron Tr R 69:948-50 O 13 '21

Rolling (metal work)—Continued

- Principles of modern rolling practice. E. Cotel. diags Iron Age 108:396-9 Ag 18 '21
- Rolling of variable section steel bars. G. R. Norton. il Iron Age 107:42-4 Ja 6 '21; Same. Blast F & Steel Pl 9:104-6 Ja '21
- Stresses caused by cold-rolling. H. W. Howe and E. C. Groesbeck. diags U S Bur Stand Tech Pa 163:1-8 '20; Same. Am Soc T M Pro v 20 pt 2:31-7; Discussion. 38-43 '20
- Cost**
- Cost of rolling steel in blooming mills. G. E. Stoltz. Iron Age 108:998-9; Discussion. 999-1000 O 20 '21
- Rolling mills**
- Aluminum rolling-mill practice. R. J. Anderson and M. B. Anderson. Chem & Met Eng 22:489-91, 545-50, 599-604, 647-50, 697-702 Mr 17-Apr 14 '20
- Bethlehem's sheet and tin plate mills. diag Iron Age 105:1433-5 My 20 '20; Same cond. Iron Tr R 66:1388-9 My 13 '20
- Blooming and continuous mills at Sharon. il diags plan Blast F & Steel Pl 8:76-82 Ja '20; Iron Age 105:253-7 Ja 22 '20; Iron Tr R 66:161-4 Ja 8 '20
- Bureau of rolling-mill research. W. B. Skinkle. diags plans Eng Soc W Pa 36:295-328 Je '20; Excerpts (Design of experimental rolling mill). Blast F & Steel Pl 8:271-3, 404-7, 454-7, 516-20, 614-16 Jl-S, N '20; Same abr. Engineering 110:651-5, 685-7 N 12-19 '20; Discussion. Eng Soc W Pa 36:329-44 Je '20
- Burning pulverized coal in a sheet mill. il diags Iron Age 104:1167-72 D 11 '19
- Cisaille hydro-électrique de 1 200 tonnes. diags Génie Civil 77:53-5 Jl 17 '20
- Cold metal rolling mills. Engineering 109:307-8 Mr 5 '20
- Columbia steel company's new plant at Pittsburgh, California. il Blast F & Steel Pl 8:401-3 Jl '20
- Controlling mill screwdowns. W. C. Kennedy. diags Iron Tr R 67:853-5+ S 23 '20
- Creusot and its associated works. il diags plans Engineer 130:sup1-16 S 17 '20
- Cross country type structural rolling mill. il Blast F & Steel Pl 8:89-91 Ja '20
- Design and use of water cooled floors. W. H. Melaney. Blast F & Steel Pl 8:399-400 Jl '20
- Development of modern sheet rolling. W. H. Melaney. il Blast F & Steel Pl 8:91-3 Ja '20
- Dominion iron and steel company's new ship plate rolling mill. B. R. Shover. il Blast F & Steel Pl 9:80-4 Ja '21
- Drive is feature of sheet mill at new plant of the Superior sheet steel co., Canton, O. J. D. Knox. il diags plan Iron Tr R 68:1099-1105+ Ap 21 '21
- Economic utilization of old rails; rerolling plant of Sweet's steel co. il Eng & Contr 56:167 Ag 17 '21
- Electric blooming mill in Delaware; Penn seaboard steel corporation. plan Iron Age 106:1733 D 30 '20
- Falcon steel company operates sheet mill. il plan Blast F & Steel Pl 8:274-80 My '20
- First plate mill built in Canada; Dominion iron & steel co. il diags plan Iron Age 106:259-62 Jl 29 '20
- Gary works expanded fifty per cent during war. G. L. Lacher. il diags plans Iron Age 106:699-710 S 16 '20
- Have we too many rolling mills? J. D. Knox. Iron Tr R 68:67-70 Ja 6 '21
- Industry is mechanically fit for post-war competition. E. L. Shaner. Iron Tr R 66:38+ Ja 1 '20
- Interstate iron & steel co., South Chicago, builds bar mill for alloy steel. G. H. Manlove. il Iron Tr R 69:869-73+ O 6 '21
- Das kanten und zuführen des walzgutes an triowalzen. H. Gasch. diags Stahl & Eisen 41:87-8 Ja 20 '21
- Les laminoirs de l'aciérie de la Scullin steel company à Saint-Louis (Missouri, E.-U.). il plan Génie Civil 79:1-5 Jl 2 '21
- Largest rolling mill in the world. il diags Electrician 84:519-21, 545-8 My 7-14 '20
- Mackintosh, Hemphill 27-in. reversing universal plate mill for rolling plates from 6 in. to 40 in. in width. il Iron Age 106:265 Jl 29 '20
- Mannesmann process rolling machinery. K. Gruber. diags plan Iron Age 107:1049-52 Ap 21 '21
- Manufacture of brass sheet and coils. A. L. Scott. Metal Ind 18:113-15 Mr '20
- Manufacture of broad flanged beams with perfectly uniform flanges. A. Schriever. diags Blast F & Steel Pl 8:437-40 Ag '20
- Manufacture of merchant bars. A. E. Jupp. il Blast F & Steel Pl 8:523+ S '20
- Manufacture of seamless tubes. K. Gruber. Blast F & Steel Pl 9:212, 247-52, 320-3, 442-4 Mr-My, Jl '21; Same cond. Iron Age 107:903-5, 977-80+, 1049-52, 1114-18 Ap 7-28 '21; Same. Génie Civil 79:225-9, 247-9 S 10-17 '21
- Many plants will open in 1920. J. D. Knox. Iron Tr R 66:39-42 Ja 1 '20
- Measurement of rolling-mill reactions. W. B. Skinkle. diags Iron Age 105:121-4 Ja 8 '20; Same. Blast F & Steel Pl 8:84-8 Ja '20; Same. Mech Eng 42:11-13 Ja '20; Same cond. Engineering 109:258-9 F 20 '20; Same cond. Iron Tr R 66:157-9 Ja 8 '20
- Mill stand and its work. A. R. Surface. il Sci Am 122:359+ Ap 3 '20
- Milwaukee sheet mill has new features. G. L. Lacher. il diag plan Iron Age 107:1681-5 Je 23 '21
- Modern rolling of special beams. F. J. Denk. diags Blast F & Steel Pl 9:95-6+ Ja '21
- Modern stores system proves successful in strip mill. H. R. Simonds. Iron Tr R 66:1197-1202 Ap 22 '20
- New 18-inch continuous billet and bar mill at Portsmouth, O., works of Whitaker-Glessner co. il Iron Tr R 69:36-8 Jl 7 '21; Same. Iron Age 107:1747-9 Je 30 '21; Same. Blast F & Steel Pl 9:430-1 Jl '21
- New Interstate mill has pack cooling bed. G. L. Lacher. il Iron Age 108:859-64 O 6 '21
- New mill to roll automobile sheets. il Iron Age 106:1181-5 N 4 '20
- New plant of the West Virginia metal products corp. il Metal Ind 18:543-8 D '20
- New rolling mill for alloy steels; Pennsylvania forge co., Bridgesburg, Philadelphia. il diags plan Iron Age 106:1597-9 D 16 '20
- New sheet mill in East. E. C. Kreutzberg. il Iron Tr R 69:89-91 Jl 14 '21
- New valley plant reflects important advances in sheet mill design. E. L. Shaner. il plan Iron Tr R 66:1827-31+ Je 24 '20
- New West Virginia rolling mill. il Metal Ind 17:491-2 N '19
- Pipeless rolled products from annular blooms. C. A. Witter. diags Iron Age 105:1593-5 Je 3 '20; Same abr. Blast F & Steel Pl 8:414-16 Jl '20; Same cond. Iron Tr R 66:1604-6 Je 3 '20
- Pittsburgh co. completes French rolling mills; to be installed in plant at Homecourt. il diag plan Iron Tr R 69:480-3 Ag 25 '21
- Plate mill draft and peak load relation. J. T. Eaton. Blast F & Steel Pl 8:94-6 Ja '20
- Possibility of improved methods of rolling sheet steel. S. B. Ely. Mech Eng 43:670-1 O '21; Same. Iron Tr R 69:1076-8 O 27 '21
- Power drives for rolling mills. W. O. Rogers. il Power 51:17-20, 95-8, 171-4, 291-6, 465-8, 542-5, 622-6, 800-3, 962-6; 52:171-6, 254-6 Ja 6, 20, F 3, 24, Mr 23, Ap 6, 20, My 18, Je 15, Ag 3, 17 '20
- Present status of the theory of the rolling-mill. W. Trinks. il diags Eng Soc W Pa 36:275-94 Je '20; Abstract. Iron Age 106:969 O 14 '20; Discussion. G. H. Barbour. Iron Tr R 67:790-1 S 16 '20
- Profitable railroad reclamation project; rolling mill at the Beech Grove (Indianapolis, Ind.) shops. il Ry Mech Eng 95:185-7 Mr '21
- Les progrès récents dans le fonctionnement des laminoirs, aux états-Unis. Génie Civil 78:137-8 F 5 '21
- Rerolling discarded steel rails. J. D. Knox. il plan Iron Tr R 69:226-31 Jl 28 '21
- Rerolling rails at Sweet's steel co. S. G. Koon. il diags plan Iron Age 107:1227-32 My 12 '21

Rolling mills—Continued

- Rerolling rails in new Ohio mill. J: D. Knox. il Iron Tr R 68:1384-7 My 19 '21
- Rolled products of 99 per cent nickel. E. F. Cone. il Iron Age 105:1713-16 Je 17 '20
- Rolling bars in merchant sizes. J: D. Knox. il Iron Tr R 66:1123-7 Ap 15 '20
- Rolling mills of the Weirton steel co. C. H. Hunt. il diags Iron Age 107:693-702 Mr 17 '21
- Rolling of variable section steel bars. G. R. Norton. il Iron Age 107:42-4 Ja 6 '21; Same. Blast F & Steel Pl 9:104-6 Ja '21
- Rolling sheet brass. O. A. Kenyon. il Iron Age 105:1159-61 Ap 22 '20
- Rolls ship plates on new mill. J. Horton. il Iron Tr R 68:410-12 F 10 '21
- Shape mill rolls rim sections; Canton sheet steel co. J: D. Knox. il plans Iron Tr R 66:341-6 Ja 29 '20
- Sheet demand brings famine. Iron Tr R 66:117-18 Ja 1 '20
- Sheet rolling mills at Baltimore. il Iron Age 107:1535-8 Je 9 '21
- Some reasons why coupling boxes break. M. E. Duggan. Foundry 48:570 Jl 15 '20
- Specifications for a rolling mill. W. H. Melaney. Blast F & Steel Pl 8:608-9 N '20
- Standard rolling mill. il Am Mach 52:369 F 12 '20
- Two-high reversing universal plate mill. il plan Blast F & Steel Pl 8:74-5 Ja '20
- Western sheet mill now rolling; new installation of the Milwaukee rolling mill co. G: H. Manlove. il plan Iron Tr R 68:1715-19 Je 23 '21
- Wide flange beams by the Sack method. A: Schriever. diags Iron Age 106:448-9, 519-21 Ag 19-26 '20
- Wider sheet bars advocated. C. F. Poppleton. diags Iron Age 105:1359-63 My 13 '20; Same abr. Metal Work 94:177-9 Ag 6 '20
- World's largest plate rolling mill. C. L. Huston. il Min & Met 157:(sec 1) 7-10 Ja '20

See also Iron industry and trade; Plate-stretching machine; Rolls (iron mills); Steel industry and trade; Steel workers; Steel works

Electric equipment

- Automatic controller operates blooming-mill lift tables successfully. D. W. Blakeslee. il Elec W 77:377-8 F 12 '21
- Electrical equipment for 60-inch universal plate mill. R. B. Gerhardt. il diag plan Elec J 17:363-6 S '20
- Electromagnets in a plate cooling bed. G: F. Paul. il Iron Age 108:321-3 Ag 11 '21
- Oil circuit breaker arrangements and switching schemes for steel mills. G. P. Wilson. diags Elec J 17:402-10 S '20
- Steel plants order electrical equipment. Blast F & Steel Pl 9:172 F '21

See also Rolling mills—Power

Equipment

- American rolling mill furnaces remodeled. il Iron Age 106:1318-19 N 18 '20; Same. Iron Tr R 67:1401-3 N 18 '20
- Material handling equipment is important factor in new sheet mill. E. L. Shaner. il Iron Tr R 67:1266-70 N 4 '20
- Mill table equipment that reduces cost. J. M. Kelly. il Blast F & Steel Pl 9:262-3 Ap '21
- Rotary piercing machine for steel and copper billets. C. E. Davies. diags Engineering 112:397-9, 429-30, 495-6, 527-8 S 16-23, O 7-14 '21; Discussion. 112:612, 660-1 O 28, N 11 '21
- Rotary side-cutting shear for three-high plate mill. il (supp) Engineer 131:129-30 F 4 '21

Lubrication

- Maschinenschmierung an walzwerken. F. Linzen. il Stahl & Eisen 41:45-8 Ja 13 '21
- Steel mill lubrication problems. il Blast F & Steel Pl 9:405-6 Je '21

Power

- Adjustable-speed motor equipment for rolling mills. F. Jeffery. il diags Power 51:408-12 Mr 16 '20

- Application of adjustable speed main drives in the steel mill. G. Fox and A. J. Whitcomb. il diag plan Elec J 17:367-71 S '20
- Application of power in steel mill specially considered at 14th annual convention of Association of iron and steel electrical engineers, New York. il Elec W 76:673-6 O 2 '20; Iron Age 106:853-4 S 30 '20; Iron Tr R 67:938-9+ S 30 '20; Elec R 77:531-4 O 2 '20
- Big vertical mill engine at Cargo fleet iron company, England. il (supp) diags Engineer 131:354-5 Ap 1 '21; Same. Génie Civil 78:469-72 Je 4 '21
- Carbon steel company jobbing mill. J. F. Burt. il Blast F & Steel Pl 8:545-7 O '20
- Comparaison entre le matériel à courant continu et à courants alternatifs, pour la commande des appareils auxiliaires de laminoirs. Génie Civil 76:77-8 Ja 17 '20
- Cost of interruptions of power to steel mills. E. S. Jeffries. Elec J 17:371-2 S '20
- Cost of rolling steel in blooming mills. G. E. Stoltz. Iron Age 108:998-9; Discussion. 999-1000 O 20 '21
- Direct current compared with three-phase current for driving steel works plant. C. A. Ablett. Engineering 109:664-6; Discussion. 643-4 My 14 '20; Abstract. Engineer 129:521-2 My 21 '20
- Drive is feature of sheet mill at new plant of the Superior sheet steel co., Canton, O. J: D. Knox. il diags plan Iron Tr R 68:1099-1105+ Ap 21 '21
- Economical generation of electrical power. A. B. Clark. Power 53:354-6 Mr 1 '21
- Economics of roll trains. A. Dyckerhoff. diags Iron Tr R 68:279-82 Ja 27 '21
- Electric drive for rolling mill for lead sheets. il Engineering 109:215, 218 F 13 '20
- Electric drive of rolling mills. W. E. Taylor and C. E. Raeburn. Electrician 85:524-8 N 5 '20
- Electric drives for band mills; abstracts. A. W. Mohrman. Blast F & Steel Pl 8:394 Jl '20; Iron Tr R 67:104-5 Jl 8 '20
- Electric motors for steel plants. il Iron Age 106:195 Jl 22 '20
- Electric reversing mill considered from the standpoint of tonnage. K. A. Pauly. Gen Elec R 23:886-92 N '20; Excerpts. Blast F & Steel Pl 8:851-4 D '20
- Electric rolling mill drive equipment. J. D. Wright. diags Blast F & Steel Pl 8:245-8 Ap '20; Same. Iron Tr R 66:913-14 Mr 25 '20; Abstract. Power 51:115 Ja 20 '20
- Electrical development in steel mills. R. B. Gerhardt. Iron Age 108:1135-6 N 3 '21
- Electrical equipment for reversing mill. Blast F & Steel Pl 8:96 Ja '20
- Electrical review of steel industry for 1920. G. E. Stolz. Blast F & Steel Pl 9:4-5 Ja '21
- Electrical rolling mills at Templeborough. il (supp) diag Engineer 128:586-8 D 12 '19
- Electrically driven reversing rolling mills. W. Sykes. il Iron Age 104:1332-3 D 25 '19
- Electrically driven sheet mills. O. Needham. il diag Blast F & Steel Pl 9:90-1 Ja '21
- Electrically driven steel reversing mills. F. Jeffrey. il chart diag Power 51:1030-3 Je 29 '20
- Electrically operated wire rod rolling mill. il plan Engineer 130:250-2 S 10 '20
- Electricity in American steel works. R. Orsettich. Electrician 85:518-21 N 5 '20
- Electricity in steel industry, 1919. G. E. Stoltz. Blast F & Steel Pl 8:4-7 Ja '20
- Electricity in steel works. W: McFarlane. 109p Pitman '21
- Factors which determine the selection of motors for main roll drive. G. E. Stoltz. il diags Eng Soc W Pa 36:492-507; Discussion. 508-17 O '20
- Features of electric drive in a blooming mill. B. M. Jones. il Elec R 77:431-4 S 18 '20
- First reversing mill drive in this country. W. S. Hall. il Elec J 18:400-1 S '21
- Flexibility of output assured in Scullin mills, St Louis. G. L. Lacher. il plan Iron Age 107:829-37 Mr 31 '21

Rolling mills—Power—Continued

- 44-inch reversing blooming mill engine replaced by electric motor. B. M. Jones. *il Blast F & Steel Pl 9:164-6+ F '21*; Same. *Iron Tr R 68:491-3 F 17 '21*; Same. *Elec R 78:729-32 My 7 '21*; Same. *Power Pl Eng 25:721-4 J1 15 '21*; Excerpts. *Elec W 77:715-16 Mr 26 '21*; Excerpts. *Iron Age 107:1386-7 My 26 '21*
- Frequency problem in the steel industry. B. G. Lamme. *Am Inst E E J 40:294-300 Ap '21*; Same. *Elec R 78:603-8 Ap 16 '21*; Same. *Iron Tr R 69:92-5+ J1 14 '21*; Same abr. *Elec W 77:921-3 Ap 23 '21*; Same cond. *Power Pl Eng 25:520-1 My 15 '21*; Abstract. *Iron Age 107:1389-90 My 26 '21*
- Iron and steel men discuss development in electric main-roll drive. *Elec W 78:683-4 O 1 '21*
- Keeping steel-mill motors in service. O. Needham. *il Elec W 76:237-9 J1 31 '20*
- Large blooming mill motor drive completed for Tata iron and steel co., Jamshedpur, India. *il Blast F & Steel Pl 9:316-17 My '21*; *Iron Tr R 68:1112-13 Ap 21 '21*; *Iron Age 107:1618 Je 16 '21*
- Load conditions in steel mills. J. D. Wright and L. C. Mosley. *il plan Gen Elec R 24:487-90 Je '21*
- Motor drive for rolling mill on Pacific coast. *Elec R 79:698 N 5 '21*
- Motor driven plate mills. F. D. Egan. *il diags Elec J 18:414-19 S '21*
- Motor drives featured on rolls and runout table. *il Iron Age 108:946-7 O 13 '21*
- Motor equipment for main drive of rolling mills; tabulation. *Electrician 85:541-7 N 5 '20*
- New balanced sheet mill drive. J. Hirschmann. *il Blast F & Steel Pl 9:328-9 My '21*; Same. *Iron Tr R 68:1251-2 My 5 '21*
- Power drives for rolling mills. W. O. Rogers. *il Power 51:171-4, 291-6, 465-8, 542-5, 622-6, 800-3; 52:9-12, 90-3, 171-6 F 3, 24, Mr 23, Ap 6, 20, My 18, J1 6, 20, Ag 3 '20*
- Power-factor correction in steel mills. H. K. Sels. *diags Elec J 18:419-24 S '21*
- Power-plant equipment for steel mills. *Power 52:719 N 2 '20*
- Preparing to carry a steel-mill load; construction and rearrangement of the Peoria (Ill.) central station company. *il diags Elec W 75:480-3 F 28 '20*
- Present position of electrically-driven rolling mills. C. A. Ablett. *Electrician 85:549-50 N 5 '20*
- Proper housing and ventilating of steel-mill motors. O. Needham. *il Elec W 76:1219 D 18 '20*
- Recent developments in electric mill drive. *Blast F & Steel Pl 9:93-4 Ja '21*
- Recording meters in steel-mill equipment testing. R. N. Vining. *charts Elec R 77:886-8 D 4 '20*
- Les réglages de vitesse des moteurs asynchrones de laminoirs. *diags Génie Civil 77:538-9 D 25 '20*
- Rolling mill drives. L. Rothera. *il Electrician 85:514-17 N 5 '20*
- Sheet and tin mills. A. B. Holcomb. *Iron Age 106:1665 D 23 '20*
- Some methods of obtaining adjustable speed with electrically driven rolling mills. K. A. Pauly. *il diags Gen Elec R 24:422-32 My '21*; Same. *Eng Soc W Pa 37:158-78 Ap '21*; Abstract. *Sci Am M 4:87 J1 '21*; Discussion. *Eng Soc W Pa 37:179-88 Ap '21*
- Steam versus electric driven steel mills; discussion. *Power 51:861-3 My 25 '20*; *Iron Age 106:14-15 J1 1 '20*; *Elec W 75:37-8 Ja 3 '20*
- Substations for reversing mill motors. G. P. Wilson. *il diags plan Elec J 18:389-95 S '21*
- Users and producers discuss 40-deg. vs. 50-deg. motors for steel mill. *Elec W 76:1229 D 18 '20*
- Variable speed rolling mill drives; relative advantages of direct and alternating current. W. E. Swale. *diags Electrician 85:522-3 N 5 '20*

Rolls (iron mills)

- Care of rolls in sheet and tin mills. W. H. Melaney. *il Blast F & Steel Pl 8:223-6 Ap '20*
- Logic of roll design. W. H. Melaney. *diags Blast F & Steel Pl 9:99-102, 162-4, 210-11+, 477-8, 543-5, 583-6, 643-5 Ja-Mr, Ag-N '21*
- Overdraft in rolling mills; effect of differences in upper and lower roll diameters. *diags Iron Age 107:1608 Je 16 '21*
- Roll temperature aided by new foreplate. *il diags Iron Tr R 68:495 F 17 '21*
- Turning rolls in sheet and tin mills. W. H. Melaney. *diags Blast F & Steel Pl 8:293-5 My '20*
- Wide flange beams by the Sack method. *diags plan Iron Age 106:519-21 Ag 26 '20*

Manufacture

- Cutting crescent-shaped grooves in a large roll. C. F. George. *diags Mach 27:885 My '21*
- Device for fluting wobbler ends of rolls. M. H. Ball. *diags Am Mach 55:238 Ag 11 '21*
- How steel mill rolls are made. H. E. Diller. *il Foundry 49:595-601, 631-8 Ag 1-15 '21*; Same. *Iron Tr R 69:419-24+, 547-54 Ag 18, S 1 '21*
- Making a chilled iron special roll. *diags Foundry 48:119 F 1 '20*
- Making castings for rolling mill construction. F. Holberry. *Foundry 49:15 Ja 1 '21*

Repair

- Reclaiming worn wabblers by welding. F. E. Rogers. *il Iron Tr R 68:1450-1 My 26 '21*
- Rolls with broken wobblers repaired by the oxy-acetylene torch. *il Iron Age 106:522 Ag 26 '20*

Rolls, Rubber

- Rubber rolls. R. B. Adams. *Paper 28:16-18+ Je 29 '21*

Rolls (textile machinery)

- Campbell top roll. *il Textile World 57:2683 Ap 10 '20*
- Simplex roll calendering machine. *il Textile World 57:4027 My 29 '20*

Repair

- Covering drawing and spinning rolls. *Textile World 58:903+ Ag 7 '20*

Rolls-Royce company of America

- Production methods of Rolls-Royce plant, Springfield, Mass. *il Iron Age 107:555-9 Mr 3 '21*

Rome (city)

- New port for Rome; ancient harbors of Ostia and Porto on the Tiber. A. A. Hopkins. *il map plan Sci Am M 3:442-5 My '21*

Architecture

- Cortile of the Palazzo Peretti in Rome. H. D. Eberlein. *il diag plan Arch Rec 48:107-20 Ag '20*
- Restoration of the Palace of Venice in Rome. U. Olivieri. *il Arch Forum 35:39-44 Ag '21*
- Villa Corsini cascade. R. H. Wilcox. *il diags plan Arch Rec 49:392-7 My '21*
- Villa Madama Rome. H. D. Eberlein. *il plans Arch Rec 49:253-66, 346-57 Mr-Apr '21*

Churches

- American academy in Rome; professor Muñoz's lectures. Review by G. H. Edgell. *il Am Inst Arch J 8:151-3 Ap '20*

Röntgen rays. See X rays**Roof gardens**

- Artistic roof garden features city factory. A. P. Child. *il Pop Mech 33:214-16 F '20*

Roofing

- Aid national own your own home movement; whole-souled co-operation tin roofing and furnace heating trade. *il diags plans Sheet Metal Worker 12:397-9 J1 8 '21*
- Boom sheet metal for roofs. *il Metal Work 93:798-800 Je 18 '20*
- Evolution of the Nu-Dura-Tin idea. Z. T. Hall. *Sheet Metal Worker 12:259-60 My 13 '21*
- Getting together to push tin roofing. F. K. Chew. *il Sheet Metal Worker 11:363-5 N 26 '20*

Roofing—Continued

- Gypsum roof decks for hydroelectric buildings. C. F. Columbia. *il Munic Eng* 58:132-4 Mr '20
- How tin roofers gave industry new impetus. *il Sheet Metal Worker* 11:489-91 Ja 21 '21
- How to apply corrugated zinc roofing. *Metal Work* 94:393+ S 24 '20
- More metal roofs by joint merchandising. A. V. Hutchinson. *Metal Work* 94:206 Ag 13 '20
- One big influence for good roofing. *il Metal Work* 93:577-8 My 7 '20
- Path that leads to money in the bank; introducing sheet metal for farm protection. *il Sheet Metal Worker* 11:247-8 O 1 '20
- Preparation of tin for roofing. J. Troland. *diags Metal Work* 93:770 Je 11 '20
- Preparing rolls of tin roofing. *Metal Work* 93:521 Ap 23 '20
- Severe exactions met by the tin roof. *il Sheet Metal Worker* 12:37 F 18 '21
- Slate as a permanent roofing material. *il Am Arch* 120:322-6 O 26 '21
- Story of Nu-Dura-Tin. *Metal Work* 92:575 N 14 '19
- Terra cotta roofing tile. A. Lo Cascio. *il diags Arch Forum* 34:59-62, 97-9, 187-9 F-Mr, My '21
- Tests that prove metal roofs protect from lightning. *il Sheet Metal Worker* 12:315-18 Je 10 '21
- Tin roofing prestige from superior merit. C. H. Thomas. *il Metal Work* 92:753-4+ D 26 '19
- Zinc as applied to building construction. E. S. Gellatly. *Sheet Metal Worker* 12:74-6 Mr 4 '21
- Zinc roofing possibilities. C. H. Stewart. *Metal Work* 93:672-3 My 28 '20
- See also* Concrete tile; Gypsum, Reinforced; Shingles, Asbestos; Tar roofing board

Roofing felt. *See* Felt, Roofing

Roofs

- Arched roof construction is successful in Atlanta warehouse. *il Nat Pet N* 13:43+ O 5 '21
- Arrangement of heating pipes an important factor in decay of factory roofs. F. J. Hoxie. *il diags Am Soc Heat & V E* 25:89-97 '19; Same. *Eng N* 84:578-9 Mr 18 '20; Discussion. *Am Soc Heat & V E* 25:97-100 '19
- Concrete arched beams and open girder carry roof of Toronto theater. *diags Eng & Contr* 52:626-7 N 26 '19
- Copper, lead and galvanized work on church. *il diags plan Sheet Metal Worker* 12:355-6+ Je 24 '21
- Corrugated wire glass roofs. *il diags Bldg Age* 43:61-2 Ag '21
- Crisis in architecture. A. J. Penty. *diags plans Am Inst Arch J* 8:316-22 S '20
- Design of wooden roofed structures in accordance with actual loading. H. L. Lewis. *Eng & Contr* 52:761-3 D 31 '19
- Difficult roof reconstruction accomplished by use of a cement-gun. L. R. Talbot and G. P. Trax. *diags Eng & Contr* 55:424-6 Ap 27 '21
- Economical and efficient roof framing. W. T. McCarthy. *il diag plan Am Arch* 116:643-7 N 19 '19
- Economical temporary roofs for fire-proof buildings; double stairways for factories. *il diag plans Am Arch* 117:351-5 Mr 17 '20
- Erecting Cleveland auditorium roof with traveling falsework. H. E. Gage. *il diags plans Eng N* 85:800-1 O 21 '20
- Fitting the factory roof to the factory needs. H. G. Tregillus. *diags Factory* 25:45-6 Jl 1 '20
- Getting a zinc roof—its cost and service. *Metal Work* 92:433-4 O 10 '19
- Giving a frame roof a thatched appearance. *il diags Bldg Age* 43:38-9 Mr '21; Same. *Am Arch* 119:373-4 Mr 23 '21
- Gothic roofs. *diag Bldg Age* 43:56-7 O '21
- How to frame a gambrel roof. R. M. Van Gaasbeek. *il diags plan Bldg Age* 43:33-6+ O '21

- How to lay out a frame roof. R. M. Van Gaasbeek. *il diags plan Bldg Age* 43:24-7 F; 49-52 Mr; 43-6 My '21
- Insulating roofs on moist buildings. F. J. Hoxie. *il Textile World* 60:1937+ O 1 '21
- Interesting features in foundation and roof construction. *il diags plans Am Arch* 118:201-5 S 1 '20
- Large roofs suspended by cables to avoid columns. *diags Eng N* 87:688-9 O 27 '21
- Laying a standing seam circular copper roof. W. Neubecker. *diags Sheet Metal Worker* 12:328 Je 10 '21
- Laying copper roofing and gutters. W. Neubecker. *diags Sheet Metal Worker* 12:403-4+, 465-6, 595-6, 665-6 Jl 8, Ag 5, S 30, O 28 '21 (to be cont)
- Laying slate, asbestos and asphalt shingles. L. S. Bonbrake. *diags Bldg Age* 42:39-42 S; 63-5 O; 59-62 N; 57-60 D '20
- Long-span concrete roof arches for Chicago garage. *il diags Eng N* 86:167-9 Ja 27 '21
- New type saw-tooth construction. W. P. Parker. *diags Textile World* 57:2509 Ap 3 '20
- Now is a good time to fix up the old roof. *il Bldg Age* 43:31 S '21
- Practical course in roof framing. R. M. Van Gaasbeek. J. Drake & company, Chicago '20
- Raising the roof of a building. H. Simon. *il diags plans Bldg Age* 42:52-4 Mr '20
- Report on inspection and repair of roofs. Ry Age 67:978-9 N 14 '19
- Roof condensation. *Power* 52:343-4 Ag 31 '20
- Roof construction for a barn. *il diags Bldg Age* 42:67 D '20
- Roofing the home. *diags Bldg Age* 42:66-8 My '20
- Steel roofs required in oil tanks in Mexico. *Sheet Metal Worker* 12:596 S 30 '21
- Use of gypsum for roofing slabs. H. S. Taylor. *Can Eng* 39:305-6 S 2 '20
- Zinc roof used on foundry building. *il diags Metal Work* 92:631-3 N 28 '19
- Zinc roofing and how it should be applied. *il diags Sheet Metal Worker* 12:105-6+ Mr 18 '21

See also Arches; Architecture; Building; Car roofs; Domes; Girders; Roofing; Shingles; Shingling; Skylights; Strains and stresses; Trusses; Vaulting

Roofs, Concrete

- Concrete roof tile manufacture. D. Hel-muth. *Concrete* 18:289-91 Je '21
- Novel concrete roofing construction. *il diags Am Arch* 120:132-3 Ag 17 '21
- Waterproof roofs of concrete. R. W. Gardner. *diag Concrete* 19:66 Ag '21

Failures

- Corrosion of steel in concrete roof over dry kiln. A. H. Weber. *Eng N* 84:915 My 6 '20
- Fatal concrete roof failure in Atlantic City hotel. *Eng N* 87:294-5 Ag 18 '21; Discussion. E. Godfrey. 87:418 S 8 '21
- Flat-slab reservoir roof at Canton, O., collapses. *Eng N* 86:569 Mr 31 '21
- Small concrete roof-slab failure in seashore hotel. L. R. Ferguson. *diag Eng N* 87:271-2 Ag 18 '21; Discussion. 87:323 Ag 25 '21
- Roosevelt, Theodore, 1858-1919**
- Roosevelt and the fine arts. G. Brown. *il Am Arch* 116:711-19, 739-52 D 10-17 '19
- Roosevelt and the fine arts. L. Wood. *Am Arch* 117:715-17 Je 9 '20
- Root, A. J., company**
- Story of bees and advertising. R. Cole. *Ptr Ink* 111:3-4+ Ap 1 '20
- Root & Van Dervoort engineering company, East Moline, Illinois**
- Official statements of Dec. and Nov. 1920. *Comm & Fin Chr* 111:2517-18 D 25 '20

Roots

- Anatomical modification of roots by mechanical action. E. Bloch. *Sci Am M* 1:262 Mr '20
- Why roots grow downward; the modern statolith theory of the geotropic action of roots. H. Van Guttenberg. *diags Sci Am M* 3:311-14 Ap '21

Rope

What one should know about ropes. J: Upton. Metal Work 92:605 N 21 '19

See also Cables; Hemp, Manila; Manila rope; Wire rope

Manufacture

Manufacture of rope and twine. S. G. Williams. il Sci Am M 3:349-52 Ap '21

Messrs. Cradock's rope works. il Engineering 111:573-5, pl 26 My 13 '21

Standards

La standardisation des cordages. P. Renard. Génie Civil 78:238. Mr 12 '21

Rope, Cotton

Cotton rope for power transmission; abstract. J. M. Alison. il diag Mech Eng 42: 575-6 O '20

Rope climbing apparatus

French "Spider man" invents rope climbing apparatus. il Pop Mech 35:546-7 My '21; Sci Am 124:373 My 7 '21

Rope driving

Transmitting power with ropes. T: G. Shohan. diags Paper 27:250+ N 10 '20

Ropeways. See Cableways**Rosa, Edward Bennett, 1861-1921**

Sketch. por Am Gas J 114:469-70 My 28 '21; Am Mach 54:928g My 26 '21; Power 53:869 My 24 '21; Elec W 77:1144 My 21 '21; Am Inst E E J 40:537 Je '21

Sketch. R. S. McBride. por Gas Age 47:467-9 Je 10 '21

Rose cold

Summer sneezer; new light on hay fever, rose colds, and the like. F. P. Stockbridge. Sci Am 125:45+ J1 16 '21

Roses, Attar of. See Attar of roses**Rosin**

Hardened rosin and resin esters. A: Murray. Chem & Met Eng 25:473-5 S 7 '21

Review of prices and production of rosin. J. G. Welch. Paper 28:120-1 Ap 20 '21

Rosin and rosin sizing. E. Sutermeister. Paper 27:22-3 D 1 '20

Use of rosin in paint and varnish. M. Toch. Chem & Met Eng 21:767-8 D 24 '19

Rosita, Mexico

Rosita, Mexico, a carefully-planned city; pleasing, comfortable and hygienic. H. E. Skougorg. il plans Coal Age 19:1037-40 Je 9 '21

Rotagravure

Advertising possibilities of rotagravure. A. McClure. Ptr Ink M 2:27-8+ Ja '21

Rotagravure—its history, development and future. S. H. Horgan. Inland Ptr 67:488 J1 '21

Rotary compressors. See Compressors**Rotary converters**

British Thomas Houston company rotary converters. il Electrician 86:522-4 Ap 29 '21

Commutator brushes for synchronous converters. R. H. Newton. diags Elec J 18: 51-2 F '21; Same. Power Pl Eng 25:661-2 J1 1 '21

Commutator maintenance of synchronous converters. R. H. Newton. il diags Elec J 18: 105-6 Mr '21; Same cond. Power Pl Eng 25:757-8 Ag 1 '21

Developments in conversion apparatus for Edison systems. T. F. Barton and T. T. Hambleton. il diags Am Inst E E J 40:233-43 Mr '21; Abstract. Power 53:486-7 Mr 22 '21

Five thousand-kw. rotary converter; abstract. F. Hartig. Elec W 77:664 Mr 19 '21

Flashing of 60-cycle synchronous converters and some suggested remedies. M. W. Smith. il Am Inst E E J 39:346-58 Ap '20; Abstract. Elec Ry J 55:517-18 Mr 13 '20

Manual versus automatic starting of rotary converters. R. J. Wensley. il Power 54:553-5 O 11 '21

Phasing-out rotary converters. K. A. Reed. diags Power 52:51-3 J1 13 '20

Preventing converter flashing. T. T. Hambleton. diag Power Pl Eng 24:1097 N 15 '20

Ring fire and flash-overs. W. B. DeMuth. Power Pl Eng 25:719-20 J1 15 '21

Rotary converter made from 15-hp. direct-current motor. C. W. Goding. Elec W 75: 793 Ap 3 '20

60-cycle converting apparatus. J. L. Burnham. il diags Gen Elec R 23:392-8 My '20

Stray losses in 60-cycle synchronous booster converters; determination by input-output tests. F. T. Hague. il Elec J 18:292-6 J1 '21

Technical story of the synchronous converter. B. G. Lamme. diag Am Inst E E J 39:21-6, 59-72 Ja '20; Same cond. Elec J 17:55-60, 91-9 F-Mr '20; Abstract. Power 51:303-4 F 24 '20

Voltage regulating systems of synchronous converters. F. T. Hague. il Elec J 18:52-6 F '21

Rotating masses of fluid

Problems relating to rotating fluid in the atmosphere. G: Green. Philos Mag 6th ser 41:665-75 Ap '21

Rotation

On the period of vibration of the gravest mode of a thin rod, in the form of a truncated wedge, when in rotation about its base. L. M. Swain. diags Philos Mag 6th ser 41:259-66 F '21

La théorie des rotations en mécanique. E. Litre. diag Génie Civil 78:480-1 Je 4 '21

Rotation, Optical. See Optical rotation**Rotch traveling scholarship**

Notes of a Rotch scholar; conditions in Rome and expenses of traveling. R. M. Blackall. Am Arch 120:108-9 Ag 17 '21

Rotch traveling scholarship. il Am Arch 117: 537-41 My 5 '20

Rotor spiders

Heating rotor spiders by induction. R. W. Wieseman. il diags Gen Elec R 24:938-45 N '21

Rotors

Balancing high-speed rotors. A. Schein. il diags Am Mach 55:121-5 J1 28 '21

Balancing of turbines and propellers. J. J. King-Salter. diags Engineering 109:491-4 Ap 9 '20; Same cond. Engineer 129:381-3 Ap 9 '20; Discussion. Engineering 109:473-4 Ap 9 '20

Calculation of critical speeds. diag Engineering 112:1-2 J1 1 '21

Critical speed of a turbine spindle. R: Gardner. diag Engineering 111:99 Ja 28 '21

Giant rotors rolled over mountain roads. il Pop Mech 35:692-3 My '21

Interchangeability of squirrel-cage rotors. B. B. Ramey. Elec J 16:481-2 N '19; Same. Power Pl Eng 24:241 F 15 '20

Martin rotor balancing apparatus. il diags Engineering 110:864-5 D 31 '20; Same. Elec R (Lond) 88:101-2 Ja 28 '21; Same. Sci Am M 3:378 Ap '21; Same cond. Mech Eng 43: 271-2 Ap '21; Discussion. Engineering 111: 74-5, 195 Ja 21, F 18 '21

Method of transporting 70-ton rotors through mountainous country. W. A. S. Harmon. il Eng & Contr 54:226-7 S 8 '20

Repairing squirrel-cage rotors. A. Hervey. Elec W 77:832 Ap 9 '21

Rotor balancing machine. il diag Engineering 110:737-8 D 3 '20

65-ton rotor rolled more easily than carried. il diag Eng N 87:454 S 15 '21

Rotterdam, Netherlands

La cité-jardin Heyplaat de la Rotterdamsche Droogdok Maatschappij à Rotterdam. C. Lemaire. il plans Génie Civil 78:165-9 F 19 '21

Roundhouses

Gypsum tile as a covering for railroad buildings. C. F. Columbia. il Ry Age 69:961-2 D 3 '20

Handling cinders at enginehouses. Ry R 67: 739 N 13 '20

Improving terminals for Mallet operation; facilities for Norfolk & Western at Roanoke, Va. il diags plans Ry Age 70:1063-8 My 6 '21

Roundhouses—Continued

Modern tendencies in roundhouse design. E. M. Haas. diags W Soc E J 24:567-79; Discussion. 579-83 N '19

Modernizing engine houses by reconstruction; the Boston & Maine rebuilds old structures and installs monitor roofs to increase efficiency. il diag Ry Age 69:305-6 Ag 20 '20

New Haven builds freight yards at Cedar Hill. il diag plan Ry Age 69:179-83 Jl 30 '20

New terminal facilities for the Pere Marquette railroad. il diags plans Ry R 68:591-7 Ap 16 '21

Preparation of locomotives at terminals and shops; with discussion. L. R. Pyle. Ry Age 68:293-7 Ja 23 '20; Same. Ry Mech Eng 94:106-10 F '20; Same abr. Ry R 66:550-3 Ap 3 '20

Stark engine terminal, Pennsylvania lines West. il diags plans Ry R 66:1-11 Ja 3 '20

Union Pacific overhauls its engine terminals. il diags plan Ry Age 69:557-61 O 1 '20

Unit construction method for engine houses. il diags Ry Age 68:1663-6 Je 11 '20

Up-to-date engine terminal management. il diags plans Ry R 67:345-56 S 4 '20

West division engine terminal, M.C.R.R. il diags plans Ry R 66:709-17 My 1 '20

See also Locomotive shops; Locomotive terminals; Railroads—Shops

Equipment

Roundhouse crane. A. P. Sharp. diags Ry Mech Eng 94:160 Mr '20

Track stops for roundhouses. N. MacLeod. diags Ry Mech Eng 94:102 F '20

Lighting

Flood lights with crossed beams for engine house lighting. F. B. Freeman. il Ry Age 70:732 Mr 18 '21; Same. Ry R 68:410-11 Mr 12 '21

Roundhouses, Concrete

Engine house forallet compound locomotives. il diag Ry Age 68:1975-6 Je 25 '20

Roussin, François Zacharie, 1827-1894

L'œuvre de Roussin. C. Matignon. Chimie & Ind 3:821-7 Je '20

Routing systems

Charting routing losses. plans Factory 27:328-9 S '21

Controlling production and keeping costs in a broaching tool plant. H. R. Simonds. il Iron Tr R 66:697-702 Mr 4 '20

Controlling the flow of production. H. K. Hathaway. Ind Management 61:175-9 Mr 1 '21

Cost of handling material. C. S. Bundesman. Ind Management 60:11-12 Jl '20

Economical control and handling of patterns in a large foundry. W. D. Jones. Am Mach 51:1043-4 D 18 '19

Handling and routing large work. il Mach 27:358-64 D '20

How to find the best plant layout. H. Haynes. il Factory 24:51-3 Ja '20

Lincoln motor production plan. I. J. Beatty. Factory 24:1144-7 Ap 15 '20

Method of routing work in a gear shop. J. A. Urquhart. il Automotive Ind 43:868-72 O 28 '20

Production control through a routing department. N. G. Shidle. il Automotive Ind 43:322-5 Ag 12 '20

Routing a car through the shop. H. M. Holt. Motor Age 37:20-3 F 26 '20

Routing considered as a function of up-to-date management. H. K. Hathaway. il diags Ind Management 60:278-86, 353-61, 445-51; 61:126-34 O-D 1 '20, F 1 '21

Routing machine parts through the factory. J. A. Urquhart. il Iron Age 105:1375-9 My 13 '20; Same. Am Mach 52:1231-6 Je 10 '20

Routing 1600 parts through a typewriter plant; Royal typewriter co., Hartford, Conn. H. R. Simonds. il Iron Tr R 68:1031-6 Ap 14 '21

Routing panel. W. B. Bennett. il Am Mach 53:69-70 Jl 8 '20

Routing storage batteries through a repair shop. H. C. Heidrich. il Elec W 77:831-2 Ap 9 '21

Routing systems in the pattern shop. B. R. Hall. Foundry 49:740-2 S 15 '21

Saving in direct routing of work. H. H. Edge. Am Mach 52:410-11 F 19 '20

Scheduling and routing systems for car shops. H. Gardner. Ry Mech Eng 95:502-4 Ag '21

Scheduling and routing work in the A.E.F. shop. C. E. Lester. il Ry Mech Eng 94:97-102 F '20

See also Control boards; Machine shop management

Royal agricultural society

Royal agricultural society's trials of agricultural tractors and ploughs. Engineering 110:451, 481-2 O 1-8 '20

Royal institute of British architects library

Literature and architecture; collection in the library of the Royal institute of British architects. R. Dircks. il Am Inst Arch J 9:201-12, 233-9 Je-Jl '21

Royal society of London

Exhibition, May 11, 1921. Engineering 111:591-3 My 13 '21; Engineer 131:517 My 13 '21; Elec R (Lond) 88:640-1, 693-4 My 20-27 '21; Electrician 86:662-4 My 27 '21

Exhibition, June 15, 1921. il Engineering 111:752-4 Je 17 '21

Rubber

Absorption of light by caoutchouc. S. J. Lewis and B. D. Porritt. India Rubber W 64:496 Ap '21

Amyrin und lupeol im kautschuk von ficus vogelii. A. J. Ultee. Deutsche Chem Gesell Ber 54:784-5 Ap '21

Basic causes for stickiness in crude rubber. A. Dubosc. India Rubber W 64:897-8 S '21

Brazil's white gold. W. La Varre. il Sci Am M 3:133-6 F '21

Crude rubber and compounding ingredients. H. C. Pearson. 3-422p The India rubber publishing company, New York '20

Cultivated rubber. G. A. Orb. il Sci Am 125:166+ S 3 '21

Expansion of rubber compounds during vulcanization. C. W. Sanderson. diags J Ind & Eng Chem 12:37-40 Ja '20; Same. India Rubber W 61:292-4 F '20

Experiments in street paving with rubber. Eng & Contr 55:641 Je 29 '21

Experiments with a new cactus rubber. E. S. Long. il India Rubber W 62:709-10 Ag '20

Explosion of hard rubber dust. D. J. Price and H. R. Brown. il diags Chem & Met Eng 24:737-40 Ap 27 '21; Excerpt. Sci Am M 4:66 Jl '21; Excerpts. India Rubber W 64:805-6 Ag '21

Future rubber research. A. H. King. Chem & Met Eng 23:449-50 S 8 '20

How crude rubber is milled and marketed in Malaya. R. H. Tingley. il India Rubber W 63:406-8 Mr '21

Is hard rubber wood a dream? L. W. Parsons. il India Rubber W 62:405-6 Ap '20

Microsections cut from vulcanized rubber articles. H. A. Depew and I. R. Ruby. il J Ind & Eng Chem 12:1156-9 D '20; Same. India Rubber W 63:244-6 Ja '21

Modulus of hardness of vulcanized rubber. H. P. Gurney. il diags J Ind & Eng Chem 13:707-12 Ag '21

Permeability of rubber to gases. J. D. Edwards and S. F. Pickering. il diags U S Bur Stand Sci Pa 387:327-62 '20; Same. Chem & Met Eng 23:17-21, 71-5 Jl 7-14 '20

Plantation rubber and the testing of rubber. G. S. Whitby. 559p Longmans '20

Proceedings of rubber division, A.C.S., Chicago meeting, 1920. Chem & Met Eng 23:738-42 O 13 '20

Properties and valuation of plantation rubber. O. de Vries. India Rubber W 64:894-5 S '21

Rubber and its uses—a modern industry of wide range and usefulness. il Americas 7:22-30 My '21

Rubber armor for airplane gasoline tanks. il India Rubber W 62:726 Ag '20; Same cond. Soc Auto Eng J 7:555 D '20

Rubber—Continued

- Rubber covering is not sufficient for leak-proof tanks. *Automotive Ind* 43:704 O 7 '20
- Rubber energy. W: B. Wiegand. diags *J Ind & Eng Chem* 13:118-25 F '21; Same. *Can Chem & Met* 5:42-8 F '21; Same. *India Rubber W* 63:425-7; 64:491-4 Mr-Apr '21; Abstract. *Engineering* 111:317 Mr 18 '21
- Rubber in mine and mill; structure of power transmission belting. A. M. Oliver. *il Eng & Min J* 111:258-62 F 5 '21
- Rubber in relation to the automobile industry. *Automotive Ind* 42:214-15 Ja 15 '20
- Rubber in the manufacture of dynamite. *il India Rubber W* 63:114-15 N '20
- Rubber manufacture. H. E. Simmons. 149p Van Nostrand '21
- Rubber resins, paints and varnishes. R. S. Morrell and A. de Waele. 236p Baillière, Tindall & Cox, London '21
- Slope or type of the rubber stress-strain curve. O. De Vries. *India Rubber W* 63:171-2 D '20
- Some aspects of the stress-strain curve. W: B. Wiegand. *India Rubber W* 63:18-21 O '20; Abstract. *Chem & Met Eng* 23:740-2 O 13 '20
- Three hundred million pounds of chrysil rubber. *il India Rubber W* 61:203-4 Ja '20
- Variability in plantation rubber. O. de Vries. *India Rubber W* 65:28 O '21
- Variability of crude rubber; abstracts. J: B. Tuttle. *J Ind & Eng Chem* 13:519-22 Je '21; *India Rubber W* 64:818-19 Ag '21
- Volume increase of compounded rubber under strain. H: Green. *il diags J Ind & Eng Chem* 13:1029-31 N '21
- Volume increase of compounded rubber under strain. H. F. Schippel. *J Ind & Eng Chem* 12:33-7 Ja '20; Same. *India Rubber W* 61:208-10 Ja '20
- Waterproofing textile fabrics with rubber. F: Dannerth. *Textile World* 60:1213+, 1635 Ag 27, S 17 '21
- See also* Airship fabrics; Gutta-percha; Pará rubber trees; Tires, Automobile; Tires, Motor truck; Toron; Vulcanization; Vulcanized fiber

Aging

- Aging experiments on vulcanized plantation para rubber. B. J. Eaton and F. W. F. Day. *India Rubber W* 61:218-19 Ja '20
- Aging of certain rubber compounds. I. R. Ruby and H. A. Depew. *India Rubber W* 63:246 Ja '21
- Aging of vulcanized plantation rubber. H. P. Stevens. *India Rubber W* 63:338 F '21
- Ten years' experience with aging tests. W: C. Geer and W. W. Evans. *il diags plan India Rubber W* 64:887-92 S '21

Analysis

- Detection and determination of glue in rubber goods. S. W. Epstein and W. E. Lange. *India Rubber W* 61:216-17 Ja '20
- Determination of cellulose in rubber goods. S. W. Epstein and R. L. Moore. *U S Bur Stand Tech Pa* 154:1-16 '20; Excerpts. *India Rubber W* 62:427-8 Ap '20
- Determination of substitute in rubber. *India Rubber W* 62:654-5 Jl '20
- Determination of true free sulfur and the true coefficient of vulcanization in vulcanized rubber. W. J. Kelly. *J Ind & Eng Chem* 12:875-8 S '20; Same cond. *India Rubber W* 63:175-6 D '20
- Direct determination of India rubber by the nitrosite method. J: B. Tuttle and L: Yurrow. *diag U S Bur Stand Tech Pa* 145:1-16 '19
- Direct method for the determination of rubber hydrocarbon in raw and vulcanized rubber. W. K. Lewis and W. H. McAdams. *bibliog J Ind & Eng Chem* 12:673-6 Jl '20; Same cond. *India Rubber W* 62:727-8 Ag '20
- Discussion of the tetrabromide method for estimating rubber hydrocarbon. H. L. Fisher, H. Gray and R. Merling. *J Ind & Eng Chem* 13:1031-4 N '21

- Extraction of rubber goods. S. W. Epstein and B. L. Gonyo. *U S Bur Stand Tech Pa* 162:1-13 '20; Abstract. *India Rubber W* 62:495-6 My '20
- Joint rubber insulation committee procedure for the analysis of rubber compound. diags *Am Soc T M Pro v* 20 pt 1:749-60 '20
- New rapid method for the determination of sulphur in rubber compounds. A. M. Munro. *India Rubber W* 62:426 Ap '20
- Rapid method for the determination of sulphur in rubber mixtures. G. D. Kratz, A. H. Flower and C. Coolidge. *India Rubber W* 61:356-8 Mr '20
- Sur quelques nouveaux procédés de dosage des caoutchoucs. *Utz. Chimie & Ind* 4:381 S '20
- Symposium, the analysis of rubber. *Chem & Met Eng* 23:742 O 13 '20

Chemistry

- Acceleration of vulcanization. *India Rubber W* 62:730-2; 63:251-3 Ag '20, Ja '21
- Action of certain organic accelerators in the vulcanization of rubber. G. D. Kratz and others. *J Ind & Eng Chem* 12:317-24, 971-4; 13:67-70 Ap, O '20, Ja '21
- Action of heat and light on vulcanized rubber. J: B. Tuttle. *India Rubber W* 64:495 Ap '21
- Aging of certain rubber compounds. I. R. Ruby and H. A. Depew. *il J Ind & Eng Chem* 12:1155-6 D '20
- Caoutchouc considered as a colloid. D. F. Twiss. *India Rubber W* 63:429-30 Mr '21
- Carbons and hydrocarbons used in the rubber industry. F: Dannerth. *India Rubber W* 64:742-4 Jl '21
- Cause of rustiness in sheet rubber. *India Rubber W* 61:290 F '20
- Coal-tar products used in rubber industry. F: Dannerth. *il Color Tr J* 6:113-16 Ap '20
- Colloidal viewpoint of rubber chemistry. E. B. Spear. *India Rubber W* 62:809-10 S '20
- Colors and pigments in rubber compounds. C. Stitt. *India Rubber W* 62:425-6 Ap '20
- Effect of compounding ingredients on the physical properties of rubber. C. O. North. *India Rubber W* 63:98-102 N '20
- Estate rubber. *India Rubber W* 64:817-19 Ag '21
- Magnesium carbonate as a compounding ingredient in rubber. *India Rubber W* 65:112-13 N '21
- Meeting of the Rubber division of the American chemical society. *India Rubber W* 62:498-9; 63:7-8 My, O '20
- Meeting of the rubber division, American chemical society. *Chem & Met Eng* 24:834-7; 25:605-7 My 11, S 28 '21; *India Rubber W* 65:31-3 O '21
- Oils, fats, waxes, and resins used in the rubber industry. F: Dannerth. *India Rubber W* 64:563-6 My '21
- Pitch hydrocarbons used in the rubber industry. F: Dannerth. *India Rubber W* 64:821-4 Ag '21
- Principles of rubber compounding. H. E. Simmons. *Chem Age* 29:111-13 Mr '21
- Reactions of accelerators during vulcanization. C. W. Bedford and W. Scott. *J Ind & Eng Chem* 12:31-3; 13:125-8 Ja '20, F '21; Same cond. *India Rubber W* 61:206-7; 64:572-3 Ja '20, My '21
- Relative activity of various allotropic forms of sulphur towards caoutchouc. D. F. Twiss and F. Thomas. *India Rubber W* 64:579-80 My '21
- Report of the rubber division meeting and cellulose symposium of the A.C.S. at St Louis. *Chem & Met Eng* 22:930-2 My 19 '20
- Sols and gels of vulcanized rubber. H: P. Stevens. *diags India Rubber W* 65:117-19 N '21
- Solvents and thinners used in the rubber industry. F: Dannerth. *India Rubber W* 64:487-9 Ap '21
- Variability in plantation rubber. O. de Vries and W. Spoon. *India Rubber W* 61:289-90 F '20

See also Softening points

Rubber—Continued**Patents**

Devulcanizing rubber; patent. C. F. Willard. Chem & Met Eng 23:348 Ag 25 '20
Recent patents relating to rubber. See monthly numbers of India rubber world

Repair

Bunsen burner in rubber repair. A. C. Squires. diag India Rubber W 62:513 My '20

Terminology

Glossary of words and terms used in the rubber industry. H. C. Pearson. India Rubber W 63:235-6, 325-7, 404-5; 64:481-2, 561-2, 723-5, 882-7; 65:7-9, 93-5 Ja-My, Jl, S-N '21

Testing

Apparatus for determining viscosity of rubber. diag India Rubber W 62:497 My '20
Convenient formula for the calculation of rubber energy. J. R. Sheppard. India Rubber W 65:29 O '21
Effect of compounding ingredients on the physical properties of rubber. C. O. North. India Rubber W 63:98-102 N '20
Elasticity test for soft rubber goods. A. Schob. il India Rubber W 63:188 D '20
Future rubber research. A. H. King. Chem & Met Eng 23:449-50 S 8 '20
Methods for physical testing of vulcanized rubber goods. il diags India Rubber W 62:715-19 Ag '20
Tentative specifications for insulated wire and cable: 30-per-cent hevea rubber. Am Soc T M Pro v 20 pt 1:736-47 '20
Viscosity of rubber. A. M. Munro. il India Rubber W 63:169-70 D '20

See also Rubber—Aging

Rubber, Artificial

Les caoutchoucs factices; abstract. A. Neef. Génie Civil 78:487 Je 4 '21
Identifying artificial rubbers. C. Harries. India Rubber W 61:359 Mr '20

Rubber, Dental

Manufacture of dental rubber. A. C. Squires. diags India Rubber W 63:24-5 O '20

Rubber, Substitutes for

See also Tire fabrics

Rubber, Synthetic

Industrial applications of hydrogen; synthetic rubber. H. L. Barnitz. Sci Am M 3: 344 Ap '21
Recherches sur les dosages analytiques des caoutchoucs synthétiques. G. Hubener. Chimie & Ind 4:381 S '20

Rubber association of America

Activities. India Rubber W 61:226-7; 62:664-5 Ja, Jl '20
20th annual dinner, New York, Jan. 5. India Rubber W 61:271-6 F '20
21st annual dinner and 6th annual meeting, New York, Jan. 10. India Rubber W 63:315-21 F '21

Rubber combs. See Combs**Rubber factories**

Balancing the plant demand; the power load line. Factory 26:1293+ Je 1 '21
Industrial engineering in rubber factories. M. C. W. Tomlinson. India Rubber W 63:165-6 D '20
Seeing the short cuts. India Rubber W 61:340-1 Mr '20
Water requirements for rubber mills. W. J. Bitterlich. India Rubber W 62:791 S '20

Employees

Aniline poisoning in the rubber industry. P. A. Davis. bibliog J Ind Hygiene 3:57-61 Je '21
Benzol poisoning in rubber factories. India Rubber W 64:573-4 My '21
Descriptions of occupations; coal and water gas, paint and varnish, paper, printing trades, rubber goods. p 44-52 '19 U.S. Bureau of labor statistics, Washington, D.C.

Labor problems in the rubber industry. India Rubber W 62:413-14 Ap '20

Equipment

Application of electric power to the rubber industry. Am Inst E E J 40:35-47 Ja '21
Electric motors for driving rubber-mill machinery. W. H. Easton. il Power 52: 331-3 Ag 31 '20
Electrical equipment used in Ohio rubber plants. H. C. Stephens. Elec W 75:956-7 Ap 24 '20
Electricity in a California rubber factory. P. C. Jones. il diag J Elec 46:69-71 Ja 15 '21
Solvent recovery system. diag India Rubber W 62:584-5 Je '20

Safety devices and measures

Fire prevention in rubber spreader and churn rooms. F. J. Hoxie. India Rubber W 65:26 O '21
National safety council. India Rubber W 65:96-8 N '21
Safeguarding spreading and mixing fire hazards in rubber mills. diags plan India Rubber W 65:24-5 O '21
Safety and sanitation for rubber mills and calenders. C. B. Mitchella. il diags India Rubber W 63:90-5 N '20

See also Hexamethylenetetramine

Rubber gloves. *See* Gloves, Rubber

Rubber goods

Analysis of the preliminary summary of the manufactures of rubber goods. R. H. Tingley. India Rubber W 64:809-10 Ag '21
Artistic mold work. A. C. Squires. diags India Rubber W 62:816 S '20
Billiard accessories of rubber. il India Rubber W 62:529 Mr '20
Care of rubber articles. C. E. Bevington. Paper 27:15 Ja 26 '21
Hard rubber parts of storage batteries. il India Rubber W 63:248 Ja '21
Importance of rubber in modern railroad transportation. R. C. Busbey. diag India Rubber W 63:113-14 N '20
India rubber in the oil industry. il India Rubber W 63:77-9 N '20
Manufacture of dipped goods. J. Hadfield. il diags plan India Rubber W 64:717-21 Jl '21
Manufacture of rubberized and rubber coated fabrics. F. Dannenrth. il Color Tr J 8:23-7, 102-5 Ja, Mr '21
Rubber creations for moving pictures. il India Rubber W 62:486-7 My '20
Rubber tents in tree fumigation. il India Rubber W 64:555-6 My 1 '21
U.S. army methods of procuring and salvaging rubber articles. J. J. Cameron. il India Rubber W 61:211-13 Ja '20

See also Air brake hose; Combs; Elastic fabrics; Gloves, Rubber; Hose; Masks, Rubber; Shoes, Rubber; Toron

Rubber goods, Mechanical

Rubber aircraft parts. E. H. Wilson. Aviation 10:343 Mr 14 '21
Specifications of the Bureau of aircraft production. United States army. India Rubber W 64:577-8 My '21
War department specifications for mechanical rubber goods. India Rubber W 61:214-16; 62:649-51, 805-8; 63:264 Ja, Jl, S '20, Ja '21

Rubber heels

Backache made O'Sullivan one of the largest advertisers. Ptr Ink 110:173 Ja 8 '20
Making rubber heels for a hundred million people. C. C. Burnham. il diags India Rubber W 63:12-16 O '20
Possibilities and problems in the manufacture of rubber heels. C. C. Burnham. il diag India Rubber W 65:89-92 N '21

Rubber industry

Crude rubber—its anomalous situation. Comm & Fin Chr 111:233-4 Jl 17 '20
Crude rubber situation and outlook—importance of restricting production. Comm & Fin Chr 113:1321-2 S 24 '21
Crude rubber surplus and control of production. Chem Age 29:421-2 O '21

Rubber industry—Continued

Foreign tariffs. India Rubber W 64:932-4 S '21

Metric system applied to the rubber industry.

C. C. Stutz. India Rubber W 62:481-5 My '20

Present position of the plantation rubber industry. India Rubber W 65:17-20 O '21

Review of the year's advance in rubber. Chem & Met Eng 22:5-6 Ja 7 '20

Rubber surplus and the British plan for rubber control. Comm & Fin Chr 113:1296-8 S 24 '21

Rubber tariffs of Asia, Oceania, and Africa. India Rubber W 62:568-70 Je '20

Rubber tariffs of Europe. India Rubber W 62:415-19 Ap '20

Special library for the rubber industry. J. A. Cushman. (Faculty studies no. 1) 21p '20

Municipal university of Akron, Ill.

Spot crude rubber market during 1919. India Rubber W 61:325 F '20

See also Rubber goods; Tariff—United States—Rubber; also Goodyear tire and rubber company

Accounting

Cost accounting in the rubber industry. F. G. Kirby. India Rubber W 63:155-7, 241-2 D '20-Ja '21

Rapid rise in the cost of equipment—an important factor in rubber production cost accounting. L. W. Alwyn-Schmidt. diags India Rubber W 61:342-4 Mr '20

Exhibitions

International rubber exhibition. G. M. Naylor. India Rubber W 64:931-2 S '21

Statistics

Analysis of the preliminary summary of the manufactures of rubber goods. R. H. Tingley. India Rubber W 64:809-10 Ag '21

Review of rubber industry for year 1920—outlook for 1921. Comm & Fin Chr 112:114 Ja 8 '21

Review of the crude rubber market. See monthly numbers of the India rubber world

Rubber surplus and its relation to future tire production. R. H. Tingley. India Rubber W 63:158-61 D '20

Ten-year financial survey of the rubber industry. R. H. Tingley. India Rubber W 63:333-5 F '21

Bolivia

Bolivian rubber industry. India Rubber W 63:292-3 Ja '21

Dutch East Indies

Rubber industry in the Netherland East Indies. India Rubber W 62:767 Ag '20

Far East

Rubber trade in the Far East. India Rubber W 63:213-15 D '20

Germany

Rubber industry in Germany. India Rubber W 62:762-4 Ag '20

Great Britain

British rubber control scheme—criticisms. Comm & Fin Chr 113:803-4 Ag 20 '21

Plans for control in Great Britain of rubber output and prices—Dutch rubber control. Comm & Fin Chr 113:692-3 Ag 13 '21

Italy

Italy's rubber industry. H. C. MacLean. India Rubber W 62:534 My '20

Malay peninsula

Malayan crude rubber industry in 1919. E. N. Gunsaulus. India Rubber W 62:766 Ag '20

Progress of the Malayan rubber restriction movement. R. H. Tingley. India Rubber W 64:725-7 Jl '21

New York

New York crude rubber market during 1920. India Rubber W 63:380-2 F '21

Ohio

Rubber trade in Ohio. India Rubber W 63:44-6 O '20

Philippine Islands

Rubber (*Hevea brasiliensis*) as a Philippine agricultural investment. H. F. Cameron. il India Rubber W 62:557-60 Je '20

United States

Effect of location on prosperity of American rubber industry. L. W. Alwyn-Schmidt. India Rubber W 62:407-9 Ap '20

Exports of India rubber manufactures from the United States by countries during the calendar year 1919. India Rubber W 62:854-7 S '20

Influence of present exchange situation on competitive position of American rubber industry in foreign fields. L. W. Alwyn-Schmidt. diags India Rubber W 61:281-3 F '20

More crude rubber than we need. il Am Ind 22:15-18 O '21

Rubber jar rings

Specifications for rubber jar rings. India Rubber W 62:725 Ag '20

Rubber machinery

Embossing machines used in rubber manufacture. il diags India Rubber W 64:643-5 Je '21

Perfected calender guide. il India Rubber W 64:583 My 1 '21

Rubber machinery; an encyclopedia of machines used in rubber manufacture. H. C. Pearson. 453p The India rubber world, New York '20

Silent chain drives in rubber mills. il diag India Rubber W 65:99-100 N '21

Exhibitions

Machinery at the rubber exhibition. il diags Engineering 111:712-14 Je 10 '21

Rubber masks. See Masks, Rubber

Rubber pavements. See Pavements, Rubber

Rubber plantations

Life on a Sumatra rubber plantation. il India Rubber W 62:423-4 Ap '20

Rubber plantations in Kamerun. A. Dominikus. il India Rubber W 62:535-6 My '20

Rubber plants

Rubber plant survey of western North America. H. M. Hall and T. H. Goodspeed. il Univ of Cal Pub in Botany v 7, nos 6-8:159-278, pl 18-20 '19

See also Ocotillo

Rubber plasters. See Plasters, Rubber

Rubber rolls. See Rolls, Rubber

Rubber-set fur. See Fur making machine

Rubber sheeting

Inventing ways to use product makes sales jump. E. T. Tandy. Ptr Ink M 3:50+ S '21

Rubber shoes. See Shoes, Rubber

Rubber soles. See Soles, Rubber

Rubber stamps

Manufacture of rubber stamps. il India Rubber W 64:899-900 S '21

Rubber tires. See Tires, Automobile; Tires, Motor truck

Rubber tubes. See Tubes, Rubber

Rubber waste

New uses for old tires and tubes. il diags India Rubber W 62:410-12 Ap '20

Rubbers. See Overshoes

Rudders

Design of balanced rudders of the spade type. M. E. Denny. diags Engineering 111:370-2; Discussion. 349 Mr 25 '21

Getting away from the conventional rudder; the two-part rudder. il Sci Am 123:384 O 9 '20

Le gouvernail à changement de marche Kitchin. il diags plan Génie Civil 78:396-7 My 7 '21

Machining rudders for troopships. A. Fischer. il Am Mach 52:610-12 Mr 18 '20

Rudders—Continued

Manœuvring and reversing rudders. A. T. Wall. *diags Engineer* 129:149 F 6 '20
Spanish coasting vessel, Cilca, with Kitchen reversing rudder. *il Engineering* 111:358, 360 Mr 25 '21

Rugs

Application of gas to drying. H. M. Crawford. *il diags Am Gas Assn Commercial sec v 2:218-27 '20*
How to make rag rugs at low cost. B. L. Putnam. *il Pop Mech* 33:623-4 Ap '20

Rugs, Persian

How to identify Persian rugs. C. J. D. May. 133p G. Bell and sons, London '20

Rumania

See also Finance—Rumania; Iron industry and trade—Rumania; Petroleum—Rumania; Petroleum industry and trade—Rumania; Railroads—Rumania

Industries and resources

Transport in Roumania. *Engineering* 112:351-2 S 2 '21

Ruminants

Suppression of teeth of ruminants. M. V. Koger. *il diag Sci Am M* 3:382 Ap '21

Run-off

Calculating run-off for water power purposes with no rainfall records. E. J. Crawford. *Elec W* 76:1111-12 D 4 '20

Diagram adaptation of the rational method of storm-water drain design. H. G. McGee. *chart diag map Eng N* 83:868-72 N 13 '19

High rainfall and run-off from small areas. I. E. Houk. *Eng N* 87:480-1 S 22 '21

Losses from watersheds. *Pub Works* 51:164 Ag 27 '21

Rainfall and run-off studies. C. E. Grunsky. *map Am Soc C E Pro* 47:203-42, pl 5 S '21

Relation between the flood flow of streams and intensity of rainfall. H. P. Eddy. *Munic Eng* 60:147-50 Ap '21

Relation of run-off to rainfall. *Engineering* 112:513-14 O 7 '21

Relation of run-off to rainfall. H. Lapworth. *Engineering* 112:169; *Discussion*. 146-7 JI 22 '21; *Abstract. Engineer* 132:87 JI 22 '21

Relations between rainfall and runoff. I. E. Houk. *Pub Works* 50:472-3 Je 4 '21

Report of committee on rainfall and run-off measurements. *map N E Water Works Assn J* 35:151-83; *Discussion*. 183-6 Je '21

Results of run-off experiments with muck soil; abstracts. F. C. Elliott. *diag Eng & Contr* 55:363-5 Ap 13 '21; *Eng N* 87:157-8 JI 28 '21

Storm water run-off diagram for rational method. G. C. D. Lenth. *Eng N* 85:151-2 JI 22 '20

Runways

Coburn system of overhead runways. *il diags Eng & Ind Management* 6:338-40 S 22 '21

Reuse truck runway for delivery of concrete materials. *diags Eng N* 85:622 S 23 '20

Wooden runway solves trucking troubles on sandy subgrade. T. E. Burton. *il Eng N* 85:282-3 Ag 5 '20

Rural credit. See Agricultural credit**Rural schools**

See also School children, Transportation of

Russia

See also Railroads—Russia; United States—Foreign relations—Russia

Art

See Architecture, Domestic—Russia; Architecture, Russian; Art—Russia

Commerce

Lifting of trade restrictions with Russia. *Iron Age* 106:139+ JI 15 '20

Lifting restrictions on foreign commerce. *Iron Age* 105:1033-4 Ap 8 '20

Lifting the trade embargo on Russia. A. J. Wolfe. *Am Ind* 21:31-2 Ag '20

No resumption of commercial relations by United States with soviet Russia. *Comm & Fin Chr* 112:1358-9 Ap 2 '21

Progress toward trade with Russia. S. H. Bunnell. *Iron Age* 106:197-8 JI 22 '20

Realities and problems of the Russo-British agreement. L. Pasvolsky. *Annalist* 17:398 Ap 4 '21

Russia's gold reserve as a bait for foreign trade. *Annalist* 17:371-2 Mr 28 '21

Russia's trade debacle. *Am Ind* 22:40 O '21

Secretary Hughes to Samuel Gompers on Russian trade. *Comm & Fin Chr* 112:1703-4 Ap 23 '21

Trade with soviet Russia. H. Hoover. *Min & Sci P* 122:538 Ap 16 '21

Economic conditions

Actualities in industrial Russia described by expert. *Eng & Min J* 110:419-20 Ag 28 '20

Bolshevik ruin of metal industries. O. F. Schuette. *Iron Age* 106:525-6 Ag 26 '20

Concessions in Russia. V. Leitis. *Am Mach* 55:208b Ag 4 '21

Condition of trade in red Russia. J. H. Duckworth. *il Ptr Ink M* 3:31+ Je '21

Conditions in soviet Russia described from Berlin. *Eng & Min J* 111:237-8 Ja 29 '21

Economic problems that soviet Russia has not solved. L. Pasvolsky. *Annalist* 17:326 Mr 14 '21

Economic situation in Russia. *Am Mach* 55:288e Ag 18 '21

Food crisis in soviet Russia. L. Pasvolsky. *Annalist* 17:712; 18:105 JI 4, Ag 1 '21

Foreign situation and the machine tool industry. J. Kucera. *Mach* 28:108-9 O '21

Impressions of industrial Russia. R. R. Keely. *Mech Eng* 43:750-1+ N '21

Industrial conditions in soviet Russia. H. O. Herzog. *Am Mach* 54:255-6 F 10 '21; Same. *Eng N* 86:332-3 F 24 '21

Mr H. G. Wells and Russia. *Comm & Fin Chr* 111:1991-2 sec 1 N 20 '20

Russian collapse and its lesson at home. S. H. Bunnell. *Iron Age* 107:847+ Mr 31 '21

Russian cooperative movement. F. E. Lee. *il U S Bur For & Dom Com misc ser* 101:1-83 '20

Russian coöperative movement and its relation to capital and labor. W. G. Perkins. *il Min & Met* 158:(sec 1) 7-11 F '20

Russian copper refinery under bolshevik control. R. G. Knickerbocker. *flow sheet il Min & Sci P* 120:677-82 My 8 '20

Transportation in bolshevist Russia in 1920. G. Alexinsky. *Ry Age* 68:1966-7 Je 25 '20

Why there is no prospect of trade with Russia. M. Hussobee. *Ptr Ink* 112:149+ Ag 19 '20

Will the Soviet ship of state strand on rock of labor trouble. L. Pasvolsky. *Annalist* 17:422 Ap 11 '21

See also Labor and laboring classes—Russia; Trade unions—Russia

Industries and resources

Actualities in industrial Russia of today. *Power Pl Eng* 24:996-9 O 15 '20

Industrial management, soviet Russia's unsolved problem. L. Pasvolsky. *Annalist* 17:353 Mr 21 '21

Iron and steel resources of Russia. P. Kovaloff. *maps Iron Age* 104:1247-51 D 18 '19

Rehabilitation of the Russian mining industry. T. J. Jones. *Min & Sci P* 123:6-7 JI 2 '21

Russian coal and iron industry. V. Gudkov. *il Min & Met* 174:10-13 Je '21; Same abr. *Blast F & Steel Pl* 9:667-9 N '21

Russia's ruined metallurgical industry. E. R. Wilner. *Iron Age* 107:1297-8 My 19 '21

Soviet gold supply dwindles to nothing. *Comm & Fin Chr* 113:1100 S 10 '21

Telling the self interest story in soviet Russia. *J Elec* 46:332-3 Ap 1 '21

See also Automobile industry and trade—Russia; Coal mines and mining—Russia; Dye industry—Russia; Electric industries—Russia; Forests and forestry—Russia; Gold mines and mining—Russia; Iron industry and trade—Russia; Mines and mineral resources—Russia; Petroleum industry and trade—Russia

Russia—Continued**Intellectual life**

Scientific work in Russia outside of Petrograd and Moscow. S. Oldenburg. *Sci Am M* 3:461-2 My '21

Politics and government

Before we establish Soviets. B. L. French. *Nation's Business* 8:30+ Mr '20

Russia and the Third Internationale. *Comm & Fin Chr* 113:812-13 Ag 20 '21

Soviet Russia turning from communism to capitalism. *Comm & Fin Chr* 113:811-12 Ag 20 '21

Russian academy of science

Recent work of the Russian academy of science. S. Oldenburg. *Sci Am M* 3:561-2 Je '21

Russian architecture. See Architecture, Russian

Russian cooperative movement. See Cooperation—Russia

Russo-Polish war

French note to American government on Russo-Polish policy—secretary Colby says both countries are in accord. *Comm & Fin Chr* 111:757 Ag 21 '20

Lloyd George's address to House of Commons on Russo-Polish situation. *Comm & Fin Chr* 111:657-60 Ag 14 '20

Polish victories and peace conference. *Comm & Fin Chr* 111:829-30 Ag 28 '20

Rust. See Corrosion and anti-corrosives

Ruston and Hornsby, limited

Lincoln works of Messrs. Ruston and Hornsby, limited. *il diag* plans *Engineering* 110:4-10, 33-7, pl 1-2, 5-8 Jl 2-9 '20

Rustproofing. See Metal protection

Rutaecarpine

Evodiamine and rutaecarpine; abstract. Y. Asahina and S. Mayeda. *Chem Soc J* 120 pt 1:48-50 Ja '21

Ruthenium

See also Platinum group

Rutherford's experiments. See Nitrogen

Ruttan, Robert Fulford, 1856-

President elect, Society of chemical industry. *por Can Chem & Met* 5:235 Ag '21

Ryan, Harris Joseph, 1866-

Portrait. *Elec W* 78:202, 240 Jl 30 '21

Rye

Amylases of the cereal grains—rye. J. L. Baker and H. F. E. Hulton. *Chem Soc J* 119:805-9 Je '21

S**Saar valley**

Iron and associated industries of Lorraine, the Sarre district, Luxemburg, and Belgium. A. H. Brooks and M. F. La Croix. map (supp) *U S Geol S Bul* 703:70-80 '20

Die wirtschaftslage des Saargebietes im Jahre 1920. *Stahl & Eisen* 41:174-6 F 3 '21

Saccharic acid

Über den oxydativen abbau von schleimsäure und zuckersäure zu neuen aldehydsäuren der zuckergruppe. M. Bergmann. *Deutsche Chem Gesell Ber* 54:1362-80 Je '21; Abstract. *Chem Soc J* 120 pt 1:540-2 Ag '21

Saccharimeters

Testing of saccharimeters by means of the telescopic control tube. C. A. Browne. *il J Ind & Eng Chem* 12:792-6 Ag '20

Saccharin

Determining the degree of sweetness in artificial sweeteners. R. Pauli. *Sci Am M* 3:174 F '21

Bibliography

Reading list on saccharin. E. D. Greenman. *Special Libraries* 11:106-12 Ap '20

Saccharinic acids

C₄-saccharinic acids—the resolution of *dl*-2,3-dioxybutyric acid into the optically-active components; the derivatives of these acids. J. W. E. Glattfeld and G. E. Miller. *Am Chem Soc J* 42:2314-21 N '20

Saccharomycetes

Action of ultraviolet light on the yeast-like fungi. B. Feuer and F. W. Tanner. *bibliog diag J Ind & Eng Chem* 12:740-1 Ag '20

Action of ultraviolet rays on the saccharomycetes. B. Feuer and F. W. Tanner. *J Ind & Eng Chem* 13:265-6 Mr '21

Sacks, Cement. See Cement sacks

Sacramento river

Increased salinity in waters of the lower Sacramento river. E. H. Means. *Eng N* 85:611-12 S 23 '20

Piling up the river bottom into a dike. *il Sci Am* 123:399 O 16 '20

Sacramento river and California's capitol city. *Eng N* 85:804 O 21 '20

Safes

Floating safe sends signals if lost at sea. *il Pop Mech* 33:481-2 Ap '20

Wreck-proof safe for ocean-going mail. J. Anderson. *il Sci Am* 122:247+ Mr 6 '20

Safety at sea

Locating icebergs at sea. G. F. Lees. *il Pop Mech* 36:419-20 S '21

Modern marine problems in war and peace. C. V. Drysdale. *diag Inst E E J* 58:572-97 Jl '20; Same, without appendices. *Engineering* 110:484-6, 521-3, 552-4 O 8-22 '20; Abstract. *Electrician* 85:391-3 O 1 '20

Peril of the straight-stem ship. *Sci Am* 122:480 My 1 '20

Safety of life at sea. W. Abell. *Engineering* 110:91-3; Discussion. 85:7 Jl 16 '20; Abstract. *Engineer* 130:54-5 Jl 16 '20

Safety to life in ship operation. R. A. Barber. *Safety Eng* 41:111-13 Mr '21

War experience with merchant ships. J. J. Welch. *il Engineering* 110:37-41 Jl 9 '20; Excerpts. *Engineer* 130:34 Jl 9 '20; Excerpts. *Marine Eng* 25:813-15 O '20

See also Buoys; Fires at sea; Fog signals; Lifeboats; Lighthouses; Navigation; Pilots and pilotage

Safety bulletins

Making safety bulletins attractive. C. T. Hubbard. *Safety Eng* 41:157-8 Ap '21

Safety cars. See Street cars—Safety cars

Safety committees. See Gas companies—Safety committees

Safety congress. See National safety council

Safety council, Chicago. See Chicago, Illinois—Safety council

Safety council, National. See National safety council

Safety devices and measures

Accident prevention from five points of view. W. MacLachlan. *N E L A Bul* 8:362-3 Je '21

Accident prevention from the legal standpoint. G. H. Voigt. *N E L A Bul* 8:233-4 Ap '21

Accident prevention from the standpoint of the engineer. L. L. Elden. *N E L A Bul* 8:287-8 My '21

Accident prevention in machine building. *Eng & Ind Management* 5:743-5 Je 30 '21

Ammonia protection. *Power Pl Eng* 25:628-9 Je 15 '21

April campaign against horse play and practical jokes. *Paper* 28:11-12+ Ap 6 '21

Automotive vehicles and factories foremost in safety work. C. A. Briggs. *Automotive Ind* 43:1070+ N 25 '20

Bill payable in human life. M. W. Mix. *Nation's Business* 9:22-3 S '21

Checking up on accidents. H. P. Heyne. *Am Mach* 53:542 S 16 '20

Compact shaft and pulley guard. P. O'Shea. *il Ind Management* 58:461 D '19

Co-operating on safety. F. J. C. Dresser. *Pub Works* 48:247-8 Mr 27 '20

Education in accident prevention and health. E. G. Payne. *N E L A Bul* 8:164-6 Mr '21

Safety devices and measures—*Continued*

- Education in safety engineering as given at the Lynn General Electric engineering and apprentice school. N. M. DuChemin. Safety Eng 42:106-12 S '21
- Eject the Grundys; the constructive method of teaching safety methods. L. M. Roadifer. Elec Ry J 58:745-6 O 22 '21
- Employees' magazine and safety first. J. T. Bartlett. Am Mach 52:1358-9 Je 24 '20
- Employees rewarded for self-protection; Ryerson company organization for safety promotion. il Iron Age 106:1189-91 N 4 '20
- Engineer's part in industrial safety. C. P. Tolman. Chem & Met Eng 25:203-5 Ag 3 '21; Same. Eng & Ind Management 6:262-4 S 8 '21; Abstract. Safety Eng 41:279-80 Je '21
- Essentials of a plant safety organization. W. E. Worth. Am Gas Eng J 113:273-4 O 2 '20; Same. Am Mach 53:852-3 N 4 '20; Same. Textile World 58:3509+ N 20 '20; Same. Paper 27:14-15 Ja 19 '21
- Essentials of a safety committee. J. B. Buell. Ind Management 62:51-2 Jl '21
- Explosion hazards in industrial plants due to the use of pulverized coal. L. D. Tracey. Coal Age 19:746-9 Ap 28 '21; Abstracts. Power 53:718-19 My 3 '21; Power Pl Eng 25:578-9 Je 1 '21; Iron Age 107:1538 Je 9 '21
- Foreman and the safety factor. H. Botsford. N E L A Bul 7:694-5 O '20
- General lighting safety orders. il J Elec 44:30-2 Ja 1 '20
- Handy man about the plant is a handicap. C. A. Briggs. il Automotive Ind 43:1272-3 D 23 '20
- Hazards and safety in electricity. Elec R 78:704-5 Ap 30 '21
- How can we increase production?—accident prevention. S. J. Williams. Am Mach 53:270-2 Ag 5 '20; Same. W Soc E J 25:550-5 O '20
- How the safety game is played in the Kimberly mill. Paper 27:17+ S 22; 14-15 O 6; 22-3 O 13 '20
- How to get safe production. A. V. Reschar. Am Mach 53:522 S 9 '20
- How to interest workers in safety campaigns. A. Kroes. Paper 29:12-13 O 5 '21
- Industrial accidents and their prevention. Blast F & Steel Pl 8:390 Je '20
- Industrial safety and hygiene. See monthly numbers of Monthly labor review
- Lehigh Valley's no-accident week. L. Resnick. Elec Ry J 56:78-9 Jl 10 '20
- Man at the bench is worth ten in the hospital. J. A. Reed. il Factory 24:1141-4 Ap 15 '20
- National safety code for the protection of the heads and eyes of industrial workers. il U S Bur Stand Handbook ser 2:1-64 '21
- National safety council meets at place of birth, Milwaukee. Iron Age 106:907-10 O 7 '20
- Playing the safety game. il Factory 26:853-4 Ap 1 '21
- Practical plans to carry on safety work. Iron Age 105:1025-7 Ap 8 '20
- Practical value and importance of accident prevention in public utility companies from the viewpoint of an operator. H. E. Niesz. N E L A Bul 8:37-8 Ja '21
- Precautions in the use of chains. Engineer 130:620 D 17 '20
- Preventing the second mishap. il Ind Management 60:21-3 D 15 '20
- Principles of efficiency and the safety engineer. E. Campbell. Safety Eng 41:11-12 Ja '21
- Problems and principles of public safety. C. M. Talbert. Elec Ry J 56:773-5 O 16 '20
- Progress in accident prevention. S. J. Williams. Power 53:20-1 Ja 4 '21
- Protection of sand blasters against the dust hazard. Monthly Labor R 10:1228-31 My '20
- Radium, an essential factor in safety. Am Ind 22:32 Ag '21
- Radium as an element in the safety movement. Elec R 77:920 D 11 '20
- Railroad shop safety devices. F. A. Stanley. il Am Mach 54:184-6 F 3 '21
- Reducing accident risks. Factory 24:208+, 292+, 510+, 1052+, 1210+; 25:242+, 456+, 1068+, 1332+; 26:758+; 27:204+ Ja-F 15, Ap 1-15, Jl 15-Ag 1, O 1-15 '20, Mr 15, Ag '21
- Reducing the cost of industrial accidents. M. R. Lott. Factory 26:1080-3 My 1 '21
- Reduction of waste through accident prevention. L. A. DeBlois. il Chem & Met Eng 25:403-6 Ag 31 '21
- Relation of electric lighting to safety. A. B. Oday. il Elec R 76:764-6 My 8 '20
- Report of Education committee of the engineering section of the National safety council. W. D. Keefer. Int Marine Eng 25:734 S '20
- Ryerson slogan safety-always-everywhere. il Sheet Metal Worker 11:421-3 D 24 '20
- Safety and accident prevention. F. G. Lange. Ind Management 61:256-9 Ap 1 '21
- Safety and the manager. C. W. Price. Am Gas J 114:509-10 Je 11 '21
- Safety and welfare work in industrial plants; with discussion. H. A. Schultz. Eng Soc W Pa 35:395-426 N '19
- Safety campaign waged by steel company. il Blast F & Steel Pl 9:490-1 Ag '21
- Safety campaigns and others, put over like advertising. E. A. Hunger. Ptr Ink 113:150+ N 25 '20
- Safety education in the public schools. A. W. Whitney. Am Arch 117:297-8 Mr 3 '20
- Safety engineering. Power Pl Eng 24:807-8 Ag 15 '20
- Safety engineering reduces cost of construction. F. L. Hurlbutt. Eng N 83:864 N 13 '19
- Safety first conference, Olympia, Sept. 22. Illum Engr 13:251-2 S '20
- Safety first for the engine room. F. L. Ray. Power 51:686 Ap 27 '20
- Safety first gives results in Britain. T. Russell. Ptr Ink 114:125+ Mr 24 '21
- Safety first—last—and all the time; tenth annual congress of National safety council. Iron Age 108:871-3 O 6 '21
- Safety in the factory. E. L. M. Franklin. il Ind Management 62:159-60 S '21
- Safety in the plant begins at home. Factory 25:1736 D 1 '20
- Safety methods applied in the Ryerson steel-service plants. il Chem & Met Eng 24:351-4 F 23 '21
- Safety methods increase shop output. G. A. Hart. Foundry 48:956-7 D 1 '20
- Safety methods of the United States steel corporation. Blast F & Steel Pl 8:267, 313 Ap-My '20
- Safety organization for a large plant; description of plan in effect at the Pacific mills. C. H. Stowell. chart Textile World 58:2965 O 30 '20
- Safety preached in schools. Elec Ry J 57:60 Ja 1 '21
- Safety production—the small plant problem. C. A. Briggs. il Automotive Ind 43:720-1 O 7 '20
- Safety rules for cotton mill workers. Textile World 58:2807+ O 23 '20
- Safety work of the federal government. E. B. Rosa and C. E. Oakes. Safety Eng 42:10-14 Jl '21
- Safety work under administration of employees proves a success. il Ry R 67:948-9 D 18 '20
- Sane safety versus insane safety. Elec W 77:1049 My 7 '21
- Score-board as an accident preventive. Min & Sci P 122:314 F 26 '21
- Securing safety through competition; system of the Dodge mfg. co. Iron Age 106:1679 D 23 '20
- Selling the idea of plant safety. il Iron Tr R 69:1085-6 O 27 '21
- Showing men dangers of their employment. V. Klammer. Iron Age 105:1797-8 Je 24 '20
- Something to crow about. Factory 25:1400 N 1 '20
- Spreading safety ideas by photography. A. E. Frampton. Paper 29:9-12 O 5 '21
- States having safety statutes or codes. G. E. Sanford. Safety Eng 42:69 Ag '21
- Succeeding in safety engineering. R. F. Yates. Sci Am 123:248 S 11 '20

Safety devices and measures—Continued

Supervision as a factor in accident prevention. L. A. De Blois. N E L A Bul 7:289-91 My '20

Teaching employees not to sit or stand in dangerous places. Paper 28:18-19+ My '21

Teaching employees to have minor injuries cared for promptly. il Paper 27:11-13 Mr 16 '21

Ten safety rules for the factory. G: Swetnam. Am Mach 54:1051 Je 16 '21

Tentative draft of ladder safety code. Safety Eng 42:81-6 Ag '21

What is safe clothing for factory workers? abstract. J. J. Lamb. J Ind Hygiene 3:sup 105 S '21

What is the business of a safety department? H: Landesman. Am Mach 54:260-4 F 17 '21

What of the safety and personnel departments? H. Tipper. Automotive Ind 44:620-1 Mr 17 '21

Who won the 12 years' war on accidents? C. W. Price. Factory 24:456-8 F 15 '20

Why do I attend the Safety supervisors' school? D. D. Fennell. N E L A Bul 8:107-9 F '21

Work here and live longer. O: P. Geier. N E L A Bul 8:105-6 F '21

See also Air brakes; Boilers—Laws and regulations; Brakes; Car couplings; Electric protective apparatus; Factories—Lighting; First aid in illness and injury; Gas masks; Guard rails; Lightning arresters; Mine rescue work; Railroads—Signals; Respiratory apparatus and appliances; Safety at sea; Safety lamps; Safety valves; *also* subdivision Safety devices and measures or Safety measures under special subjects, e.g. Blast furnaces; Blasting; Boiler plants; Building; Cement plants; Coal mines and mining; Coke plants, By-product; Cranes, derricks, etc.; Dye factories; Electric engineering; Electric railroads; Elevators; Forge shops; Foundries; Garages; Gas engineering; Gas manufacture and works; Grinding machines; Hoisting; Ladders; Loading and unloading; Lumbering; Machine shops; Machinery; Mining engineering; Paper mills; Punching machinery; Railroads; Railroads—Electricification; Refrigerating plants; Rubber factories; Shipbuilding; Steam engines; Steam plants; Steam turbines; Steel works; Street railroads; Textile machinery; Textile mills; Welding; Welding. Oxyacetylene; Wrecking; *also* National safety council

Bibliography

Industrial accidents and their prevention. Safety 8:203-6 N '20

Nucleus for accident prevention library. L. Keller. Safety Eng 40:268 D '20

Standards

Making of a safety standard. C. B. Connelley. Safety Eng 41:222-3 My '21

Standardization and the safety movement. C: E. Oakes and J. A. Dickinson. Am Mach 53:9-10 Jl 1 '20

Safety engineers, American society of. *See* American society of safety engineers

Safety islands

Safety zones and parking regulations. Good Roads 61:41-2+ Jl 27 '21; Same. Munic Eng 61:7-10 Jl '21

Safety lamps

Acetylene safety lamps. Coal Age 17:24-5 Ja 1 '20

Carbide lamps in pillar robbing. Coal Age 17:419, 870-1 F 26, Ap 29 '20

Effect of wire gauze on flame. diag Coal Age 17:324-5, 604 F 12, Mr 25 '20

Gas box for observing the flame caps on safety lamps. W. S. Weeks. il Eng & Min J 111:912 My 28 '21

Height of flame cap varies with conditions of testing. J. Ashworth. Coal Age 18:236-7 Jl 29 '20

Relative safety of brass, copper, and steel gauzes in miners' flame safety-lamps. L. C. Ilsley and A. B. Hooker. il diags U S Bur Mines Tech Pa 228:1-33 '21; Excerpt. Coal Age 19:902 My 19 '21

Singing flame employed as an indicator for explosive mixtures of gases. M. Tevis. Sci Am 124:11 Ja 1 '21

Safety lamps, Electric

Celluloid in electric safety lamps. Electrician 86:327 Mr 18 '21

Miners' electric safety lamps. Electrician 87:18-19 Jl 1 '21

Safety in electric lamps. W. H. Luxton. Coal Age 20:540-1 O 6 '21

Twin-bulb cap lights with hard-rubber battery case. il Coal Age 18:1135 D 2 '20

Safety organizations. *See* Safety devices and measures

Safety pins

Helmet safety pins and the machines for making them. S. A. Hand. il diags Am Mach 52:327-9 F 12 '20

Safety valves

Frozen safety valve causes boiler explosion. il diag Power 51:175-7 F 3 '20

Safety valve formulas. C: J. Mason. Power Pl Eng 24:442-3 Ap 15 '20

Safety valve problem. diag Int Marine Eng 25:231 Mr '20

Safety valve rules. Power Pl Eng 24:300-1 Mr 1 '20

Scale formed in safety valve. P. R. Duffey. diags Power 51:270 F 17 '20

Safety zones. *See* Safety islands

Safranine process. *See* Photography

Sag

Steel transmission line towers. E. L. Gemmill. diags Elec R 76:645-51 Ap 17 '20

Tabulation of sags for stringing conductors. Elec W 75:327 F 7 '20

Saggers

National review of the sagger situation. G: Simcoe. Am Cer Soc J 4:393-406 My '21

Sagger clay preparation. F. K. Pence. Am Cer Soc J 4 pt 1:459-60 Je '21

Silicious sagger mixtures. M. R. Hornung. Am Cer Soc J 3:69-76 Ja '20

Saginaw, Michigan**Rapid transit**

Saginaw service still suspended. il Elec Ry J 58:323-5 Ag 27 '21

Suspension and receivership in Saginaw. Elec Ry J 58:296-7 Ag 20 '21

Sahara desert

Crossing the Sahara by motor lorries. E. H. Lemonon. il map Pop Mech 36:196-7 Ag '21

Sahlin, Axel Edward

Two remarkable portfolios. J. L. Frazier. il Inland Ptr 66:202-4 N '20

Sailing vessels

Electricity on sailing vessels. L: Etshokin. il diag J Elec 44:108-10 F 1 '20

Modern sailer proves economical. F: B. Jacobs. il Marine R 50:381-5, 455-9+ Jl-Ag '20

Motor clipper; a motor sailing ship that can compete with the ocean-going tramp steamer. C. O. Liljegren. il diag Sci Am 125:162+ S 3 '21

New uses for old sailing vessels. il Int Marine Eng 25:393-4 My '20

Putting the sailer on schedule. diags Marine R 50:511-13 S '20

Sailing ship's return. J: T. Rowland. il diag Sci Am 124:326+ Ap 23 '21

Vessels of the Forest lumber fleet. il Int Marine Eng 25:554-6 Jl '20

See also Barkentines; Yachts

Sails

Yacht sails and aerofoils. Sci Am 122:448 Ap 24 '20

St Francis river

St Francis river water storage. A. Duperron. il diags plan Can Eng 39:651-4; 46:107-3 D 30 '20-Ja 6 '21

St John river

Storage and power possibilities of the St John river, New Brunswick. A. Langlois. diags Can Eng 39:501-2+ N 4 '20

St John the Divine, Cathedral of

St James' chapel, Cathedral of St John the Divine. il diags Arch Forum 33:121-2, pl 58-60 O '20

St Joseph lead company

Official statement to the New York stock exchange in connection with the listing of additional stock. Comm & Fin Chr 111:1095-6 S 11 '20

St Lawrence river

Advantages of the Great Lakes-St Lawrence waterway. E. T. Perkins. Munic Eng 59:56-8 Ag '20

Canada and United States prepare St Lawrence development. Eng N 84:334-5 F 12 '20

Coming battle over St Lawrence route to the sea. Eng N 84:405 F 26 '20

Down the St Lawrence waterway. Eng N 87:155-6 J1 28 '21

Duluth to Liverpool in one bottom. R. G. Skerrett. maps Sci Am 122:670+ Je 19 '20

Engineering features of the St Lawrence waterway. maps Eng N 85:786-8 O 21 '20

5,000,000 hp. available from St Lawrence. il Elec W 77:312-14 F 5 '21

Government engineers report on St Lawrence waterway. H. G. Roby. Eng N 87:402-6 S 8 '21

Great St Lawrence. Power 51:1060 Je 29 '20

Ice diversion for St Lawrence river power co. B. F. Groat. il maps plan Can Eng 39:545-52 N 25 '20; Excerpts. Eng & Contr 55:45-6 Ja 12 '21

International joint commission; statement of its origin, purpose and relation to the St Lawrence ship-canal and power project. L. J. Burpee. Can Eng 39:601-2 D 9 '20

Joint commission to study St Lawrence schemes. Can Eng 38:211-12 F 12 '20

Linking the Great Lakes to the Atlantic. charts map Power Pl Eng 24:697-9 J1 15 '20

Nature's highway to the sea. J. H. Barnes. Nation's Business 8:30 Ap '20

New York and the proposed St Lawrence waterway. Sci Am 123:442-O 30 '20

Power development of the St Lawrence river. A. T. Vogelsang. Elec R 76:348-50 F 28 '20; Same cond. Power 51:397-8 Mr 9 '20

Proposed development of St Lawrence river to provide 5,000,000 h.p. and 30 ft. waterway. Eng & Contr 55:243 Mr 9 '21

St Lawrence canalization and power project. A. C. Lewis. Can Eng 39:496-8 N 4 '20

St Lawrence project condemned—action on water power questions called for. F. M. Williams. Comm & Fin Chr 112:332-3 Ja 22 '21

St Lawrence river project. H. C. Gardner. maps Mech Eng 42:509-12+ S '20; Same. Can Eng 39:385-8 S 30 '20; Discussion. C. W. Baker. Mech Eng 42:592 O '20; Same. Eng & Contr 54:478 N 10 '20

St Lawrence river project. H. I. Harriman. Boston Soc C E J 8:43-9 Ja '21; Abstracts. Elec W 77:114-15 Ja 8 '21; Eng & Contr 55:235 Mr 9 '21

Some engineering features of the St Lawrence canalization project. J. C. H. Lee. Can Eng 39:536-8 N 18 '20

Trade route from the world ports to the midland of North America. W. L. Saunders. Min & Met 179:11-13 N '21

Water powers worth ninety million tons of coal per annum can be developed for Canadian use between Soo and Montreal. Can Eng 39:435-6 O 14 '20

What about the St Lawrence waterway? Eng N 85:1259 D 30 '20

White coal for black. A. T. Vogelsang. Nation's Business 8:26+ Ap '20

St Louis, Missouri**Rapid transit**

St Louis plans rapid transit. plans Elec Ry J 57:70-2 Ja 8 '21

St Louis transit system. diag Pub Works 50:220-1 Mr 12 '21

St Louis transit system, present and future.

36p City plan commission, St Louis '20

Street railway and rapid transit plans for St Louis. Eng N 87:105 J1 21 '21

\$3,675,050 increase in gross shown by annual report. Elec Ry J 57:967 My 21 '21

Sewerage

Reconstruction of outlet end of Branch st, sewer, St Louis. W. W. Horner. il diag Eng N 84:1059-60 My 27 '20

St Louis sewer system. W. W. Horner. map Pub Works 49:477-9 N 20 '20

Streets

Progress of the Major street plan. H. Bartholomew. il map plan Eng N 84:954-7 My 13 '20

Wood-block paving in St Louis. J. S. Crandell. Eng N 86:376-8 Mr 3 '21

Water supply

Features of additional water works for St Louis. E. E. Wall. plan Munic Eng 60:200-3 My '21

Some economic features of pumping station operation. L. A. Day. il diags Am Water Works Assn J 7:795-810 N '20; Same cond. Eng N 85:459-62 S 2 '20; Same. Can Eng 39:243-5 Ag 12 '20; Same. Munic Eng 59:102-4+ S '20

St Louis railway exposition

Exhibition, St Louis, Oct. 25-30. Ry Age 69:794 N 5 '20; Ry R 67:703-4 N 6 '20

St Louis-San Francisco railway

Annual report for year ended Dec. 31, 1920. Ry Age 71:191-2, 228-9 J1 30 '21

Frisco secures maximum benefit for modest outlay. diags maps Ry Age 71:663-5 O 8 '21

Single track cut-off for double tracking main line on St Louis-San Francisco railway. diag plan Eng N 85:1033 N 25 '20

St Louis Southwestern railroad

Safety of the cotton belt lines is questioned. Ry Age 68:543-7 F 20 '20

Six months' operating results of the St Louis Southwestern. J. M. Herbert. Ry R 67:628-9 O 23 '20

29th annual report. map Ry Age 69:959-60, 999-1000 D 3 '20

30th annual report. map Ry Age 71:395-6, 428-9 Ag 27 '21

St Martins, Pennsylvania**Architecture**

Modern Cotswold at St Martins. H. D. Eberlein. il plans Arch Forum 33:7-16 J1 '20

St Mary river

Irrigation water divided between United States and Canada. B. E. Jones. il map Eng N 85:1277-9 D 30 '20; Same. Can Eng 40:347-9 Mr 31 '21

St Mary and Milk river dispute. Can Eng 40:137 Ja 13 '21

Water supply of St Mary and Milk rivers, 1898-1917. B. E. Jones and R. J. Burley. il map U S Geol S Water-supply Pa 491:1-590 '20

St Paul, Minnesota

St Paul city planning projects form broad scheme. maps Eng N 87:735-9 N 3 '21

Libraries

James J. Hill reference library and the St Paul public library. R. C. Sturgis. il plans Arch Rec 47:2-24 Ja '20

Railroads

First unit of St Paul union station completed. il plans Ry Age 68:1442-6 My 21 '20

Water supply

High-service reservoir at Saint Paul. diags plans Engineer 129:218-20, 240-1 F 27-Mr 5 '20

Le réservoir en béton armé de Saint-Paul. diags Génie Civil 77:377-8 N 6 '20

St Paul's cathedral, London

Engineering features of strengthening of St Paul's cathedral. Eng & Contr 54:307-8 S 29 '20

St Paul's cathedral, London—Continued

Saving St Paul's in London. M. Macartney. il Sci Am 125:113+ Ag 13 '21

St Paul's chapel, New York

St Paul's chapel. il Am Arch 118:144-144a Ag 4 '20

Salaried workers, Organization of

Organisation of the salaried classes. Electrician 86:606-7 My 20 '21; Discussion. 86:666-7, 696-7 My 27-Je 3 '21

Salaries

Mayors' salaries fixed by legislative act of Louisiana. Eng & Contr 54:37 Jl 14 '20

See also Bank officials—Salaries; Chemists—Salaries; Engineers—Salaries; Government employees—Salaries; Highway engineers—Salaries; Municipal employees—Salaries; Railroads—Officials—Salaries; Salesmen—Salaries and commissions; Wages

Salem, Massachusetts

Old Salem houses. W. H. Hunt. il Am Arch 119:507-13, 522a-f Ap 27 '21

Salem, Ohio**Water supply**

Recent typhoid fever epidemic at Salem, Ohio. Eng N 85:1244-6 D 23 '20

Salem county, New Jersey**Architecture**

Early brick houses of Salem county, New Jersey. H. D. Eberlein. il diags Am Arch 120:139-48 Ag 31 '21

Sales

Acceptance of goods after contract time. Eng & Ind Management 5:149 F 3 '21

Agreement to order as soon as a car or two has been used held valid. W. Gustin. Chem & Met Eng 22:1193 Je 30 '20

Les contestations sur les prix contractuels, notamment dans les ventes d'automobiles. Génie Civil 76:534-6 Je 12 '20

Contract to buy may not be transferred without consent of original seller. W. Gustin. Chem & Met Eng 24:355 F 23 '21

Detroit chemical work wins case. W. Gustin. Chem & Met Eng 22:803-4 Ap 28 '20

Duties and liabilities where wrong products are delivered—express and implied warranties. Chem & Met Eng 22:613 Mr 31 '20

Establishing the market value of a product—the damages to a purchaser for resale. W. Gustin. Chem & Met Eng 23:204 Ag 4 '20

Exclusive license of a patented chemical process not a sale of business in a foreign country. W. Gustin. Chem & Met Eng 22:35-6 Ja 7 '20

Fertilizer manufacturers should watch their sales contracts. W. Gustin. Chem & Met Eng 23:1129 D 8 '20

La garantie. O. J. Gérin. Chimie & Ind 5:599-602 My '21

Has plumber a right to take away fixtures not set up, when contract is broken by the owner? Dom Eng 94:143-4 Ja 15 '21

How a loosely-drawn contract caused loss to glue manufacturer. Chem & Met Eng 23:285-6 Ag 18 '20

How the courts construe contracts to supply buyers to extent of requirements. L. Childs. Ind Management 62:148 S '21

Important decision on agency contracts with dealers. E. J. Buckley. Metal Work 93:88 Ja 16 '20

Judgment for refusal to ship phosphate upheld. W. Gustin. Chem & Met Eng 22:898 My 12 '20

Keeping legal tangles out of the factory. L. Childs. Factory 26:1254+ My 15 '21

Lesson on aluminum and sales contracts. W. Gustin. Chem & Met Eng 22:419-20 Mr 3 '20

Lesson on the sales contract. Motor Age 38:46+ S 30 '20

Manufacturer and seller of tool steel warrants his product—high-speed steel not a trade name. W. Gustin. Chem & Met Eng 22:368 F 25 '20

Meaning of c.i.f. as distinguished from f.o.b.—rules governing such contracts of shipment. Chem & Met Eng 23:834 O 27 '20

Non-delivery under installment contract not justified by non-payment for past delivery. W. Gustin. Chem & Met Eng 25:31 Jl 6 '21

Oral agreements excluded when written contract is neither uncertain nor ambiguous. W. Gustin. Chem & Met Eng 23:920 N 10 '20

Oral evidence inadmissible to transform sale by description into one by sample. Chem & Met Eng 22:1163-4 Je 23 '20

Ore contracts. C. A. Grabill. Eng & Min J 108:806-13, 859-65 N 22-D 6 '19

Rescission of sales contracts. C. C. Sherlock. Mach 26:657-8 Mr '20

Sale contract held subject to rule fixing percentage of estimated output. W. Gustin. Chem & Met Eng 24:571-2 Mr 30 '21

Sales contracts and fair play. Am Mach 53:918-19 N 11 '20

Simple ruse which prevents many a deluded buyer from getting redress. Metal Work 93:804-5 Je 18 '20

Spirit behind the dealer contract. N. G. Shidle. Automotive Ind 44:1021 My 12 '21

Status of merchandise sold C. I. F. E. J. Buckley. Sheet Metal Worker 12:45 F 18 '21

Verbal promise by salesman not binding, especially when promptly repudiated. W. Gustin. Chem & Met Eng 24:692 Ap 20 '21

Warranties covering goods. W. G. Astle. Administration 2:469-72 O '21

Wastes in litigation. W. Gustin. Chem & Met Eng 25:423-7 Ag 31 '21

What are the buyers' rights? Factory 25:1754+ D 1 '20

What may be done under contract to purchase requirements. W. Gustin. Chem & Met Eng 22:453-4 Mr 10 '20

Where trade custom becomes part of contract. W. Gustin. Chem & Met Eng 23:1250 D 29 '20

Who has title to this benzyl chloride?—matters of agency and title discussed. Chem & Met Eng 22:81-2 Ja 14 '20

Yarn and cloth contracts. J. Taylor. Textile World 60:315+ Jl 9 '21

Your rights in rejecting goods. C. C. Sherlock. Iron Tr R 69:555 S 1 '21

See also Brokers; Cancellation of orders; Coal contracts; Contracts; Sales, Conditional; Shipment of goods

Sales, Conditional

Condition sale not registered—law in California. W. Gustin. Motor Age 37:42+ Ap 22 '20

Sales agencies. *See* Exclusive agencies; Mercantile agencies

Sales conventions

Dramatics in introducing new articles and plans at sales conventions. L. Mansfield. Ptr Ink 112:93-4 Ag 5 '20

How Beaver board stages a sales convention. C. B. McCuaig. Ptr Ink 112:65-6+ Jl 15 '20

Novel setting in which to hold sales conferences; Nela camp. N. G. Shidle. il Automotive Ind 43:774-5+ O 14 '20

Outdoor sales convention. J. F. Cameron il Ptr Ink M 3:35-6 S '21

Revue invades the sales convention. il Ptr Ink M 2:53-4 Ap '21

Two birds with one stone; the Autocall camp. System 39:811+ Je '21

When the advertising comes up at the salesmen's convention. F. L. Scott. Ptr Ink 117:133-4+ N 3 '21

Why our sales picked up last fall. H. G. Dechant. System 39:671-2+ My '21

Bibliography

Managing a sales convention; list of articles in Printers' ink and Printers' ink monthly during the last few years. Ptr Ink 115:162+ Ap 7 '21

Sales costs

Elimination of waste in marketing. W. R. Basset. Chem & Met Eng 25:420-2 Ag 31 '21

Modern production methods; what does it cost to sell? W. R. Basset. Am Mach 55:286-8 Ag 18 '21

Sales departments

- Contests that personalize one sales force. L. Anson. *Ptr Ink* M 3:15-16+ Je '21
- Delco directs sales organization of 4,200 with map. G. A. Nichols. *il Ptr Ink* M 2:27-8+ My '21
- Enthusing a sales force. *J Elec* 44:612-13 Je 15 '20
- Forty per cent increase in sales volume this year; how the Tide water oil sales corporation has achieved it. V. S. Hewitt. *Ptr Ink* 116:53-6 JI 28 '21
- Getting salesmen in other lines to boost for you. *Ptr Ink* 116:26-7 JI 21 '21
- How do you lay out your salesmen's territories? *Ptr Ink* 116:85-8 Ag 25 '21
- How to capitalize the contest instinct of your salesmen. S. C. Lambert. *Ptr Ink* 115:41-2+ My 19 '21
- How we budget our production before we get the orders. A. Macauley. *il Factory* 40:46-8+ JI '21
- Increasing sales, by exposing the selling organization to more business. B. Ashbrook. *Ptr Ink* 115:3-4+ Je 23 '21
- Installs telephone table for salesmen. *il Iron Tr R* 68:1325 My 12 '21
- Intensifying sales efforts while reducing selling costs; Pacific coast borax company links efforts of crews and regular salesmen with its advertising. C. P. Russell. *Ptr Ink* 116:79-80+ JI 28 '21
- Keeping the sales force up to par. C. P. Russell and S. L. Fieux. *Ptr Ink* 111:43-4+ Ap 1 '20
- Organizing salesmen to manage themselves. H. D. Whittlesey. *Ptr Ink* 111:3-4+ Ap 15 '20
- Production expert and the sales expert. F. Dannerth. *Ind Management* 62:279-80 N '21
- Rebuilding the sales force to meet new conditions. G. A. Nichols. *Ptr Ink* 117:149+ O 6 '21
- Sales budget for business. J. O. McKinsey. *Administration* 1:195-209 F '21
- Salesmen are sold to the factory workers. N. M. Clark. *Ptr Ink* M 3:20+ S '21
- Salient factors in sales control. E. H. Gardner. *Administration* 1:83-6 Ja '21
- Selling salesmen to workers; plan of S. F. Bowser and co. F. H. Williams. *Factory* 27:236+ Ag '21
- Selling the sales force to the factory workers. F. H. Williams. *Ind Management* 61:329-30 My 1 '21
- Selling the sales force to the plant employees. W. Frank. *Am Mach* 53:625 S 30 '20
- Setting a task for the salesman. *Iron Age* 107:567-8 Mr 3 '21; Same. *Eng & Ind Management* 5:378-9 Mr 31 '21
- Taking the salesman into partnership. F. L. Scott. *Ptr Ink* M 3:37-8+ JI '21

See also Sales managers; Sales promotion departments

Sales letters

- Better export sales letters. W. F. Wyman. *Ptr Ink* 115:25-8 Je 30 '21
- Business letters you can use. *Dom Eng* 96:433, 483, 513 S 3-17 '21
- Clincher to the letter. L. R. Collier. *Ptr Ink* 114:81-2 Mr 24 '21
- Getting a personal appeal in every letter. J. K. Novins. *Dom Eng* 92:635+ S 25 '20
- How better letters help the printer. C. T. Hubbard. *Inland Ptr* 68:41-2 O '21
- How to write a sales-making letter. C. P. Russell. *Ptr Ink* 115:49-50+ Je 2 '21
- How we turn old customers into salesmen. H. V. Scott. *Ptr Ink* 116:25-7+ Ag 18 '21
- How you can acquire sincerity of style. E. P. Corbett. *Ptr Ink* 111:25-7+ Ap 29 '20
- Jobber's letters to the trade act as dealer helps. T. H. Heddon. *Ptr Ink* 116:50+ Ag 25 '21
- Keeping the human touch in sales letters. R. H. Butz. *Dom Eng* 90:430-1 F 28 '20; Same. *Brick & Clay Rec* 58:992-3 Je 14 '21
- Letters that bring in business. E. H. Schulze. *Dom Eng* 93:64-5+. 303-4, 449-50; 94:134-5 O 9, N 13, D 4 '20, Ja 15, Mr 12 '21
- Making export profits by correspondence. W. F. Wyman. *Ptr Ink* 115:57-8+ My 26 '21

- Paragraph that leads the procession. E. P. Corbett. *Ptr Ink* 110:101-2+ Ja 8 '20
- Postmaster sells thrift stamps in mail campaign. *Ptr Ink* 116:33-4 JI 7 '21
- R.S.V.P.—and then what? H. Wiseman. *Ptr Ink* 114:17-19 Mr 17 '21
- Sales letter with the persuasive appeal. E. P. Corbett. *Ptr Ink* 110:161+ F 12 '20
- Some hot weather business. F. Farrington. *Am Gas Eng* J 112:368-9 My 8 '20
- Submerged personality in sales letters. E. P. Corbett. *Ptr Ink* 116:109-10+ Ag 11 '21
- This letter campaign gives personal touch to saw selling. C. M. Harrison. *Ptr Ink* 116:101-2+ Ag 18 '21
- To give direct advertising the best physical appearance. B. A. Dahlke. *Ptr Ink* 113:126-8 N 4 '20
- To regain the kicking customer's good will. *Ptr Ink* 111:41-2 Ap 1 '20
- Two letters that shot straight. R. K. Sewell. *Ptr Ink* 115:137-8 Ap 21 '21
- What makes a human-interest letter? M. Droke. *Ptr Ink* 117:158+ O 20 '21
- Why gesture in letters. S. C. Lambert. *Ptr Ink* 115:73-4+ My 26 '21
- Your answers to me. R. Dickinson. *Ptr Ink* 115:73-6 Je 30 '21

See also Follow-up systems

Sales managers

- How to keep branch managers from growing stale. H. K. Sheridan. *Ptr Ink* 116:36+ Ag 25 '21
- Putting the plugging salesman in his place. O. C. Harn. *Ptr Ink* 114:17-19 Ja 27 '21

Sales managers' association

- Growth of Sales managers' association last ten years. *Elec W* 76:485 S 4 '20

Sales policies

- How advertising has cut cost of selling clothing. C. M. Harrison. *Ptr Ink* 116:132+ S 29 '21
- How to combat own goods bonus in chain stores. G. A. Nichols. *Ptr Ink* 114:3-4+ F 24 '21
- Makes traveling warehouse of its salesmen. H. E. Agnew. *Ptr Ink* 116:137-8+ S 15 '21
- Raising the family of products. *Ptr Ink* 110:90, 92-3 Ja 1 '20
- Selling a better sales sense to employees. R. Bostick. *Ptr Ink* 116:61-2+ JI 7 '21
- Should competing brands be sold by the same organization? C. Fitch. *Ptr Ink* 112:3-4+ JI 8 '20
- Swapping accounts or more intensive development of present customers? *Ptr Ink* 117:95-6 O 6 '21

Sales promotion departments

- Advertising in new fields when the initial market grows smaller. C. P. Russell. *Ptr Ink* 111:3-4+ Ap 22 '20
- What are the duties of a sales promotion department? R. Barstow. *Ptr Ink* 112:154+ JI 15 '20
- What the sales promotion manager has to do. *Ptr Ink* 110:41-4 Mr 25 '20

Sales records

- Facts from which to chart the pulse of selling. A. R. Howell. *Ptr Ink* 110:77-8+ Ja 22 '20
- Making factory cost-finding a part of the sales record. E. S. Fassett. *Factory* 25:1569-71 N 15 '20
- Record of sales. S. P. Keator. *Mach* 26:561-2 F '20

Sales tax

- Advocacy of the commodities sales tax. R. R. Reed. *Comm & Fin Chr* 112:2270-2 My 28 '21
- Argues anew for sales tax. J. S. Bache. *Comm & Fin Chr* 111:2195-6 D 4 '20
- Bache review of U. S. Chamber of commerce on sales tax. *Comm & Fin Chr* 113:703 Ag 13 '21
- The "bubble" has burst—what next: tax on every sale or turnover of commodities. C. E. Lord. *Textile World* 59:854-5+ F 5 '21
- Canadian sales tax not fulfilling expectations. *Annalist* 17:617 Je 6 '21
- Defects in sales tax. A. A. Ballantine. *Comm & Fin Chr* 112:338-9 Ja 22 '21

Sales tax—Continued

- Fallacies of the sales tax. W. A. Staub. J Account 32:81-90 Ag '21
- Gross sales tax recommended. W: C. Cornwell. Textile World 58:2286+ O 2 '20
- Interesting discussion of the sales tax. Factory 26:886+ Ap 1 '21
- Intolerable tax situation. W: C. Cornwell. Ptr Ink 112:112+ S 23 '20
- Low salaries and the sales tax. J. S. Bache. Nation's Business 9:16 O '21
- Nominal tax on gross sales. O: H. Kahn. Comm & Fin Chr 112:438-9 Ja 29 '21
- Overtun sales tax on commodities. B. S. Orcutt. J Account 31:349-56 My '21
- Pro and con of a sales tax. W: A. Paton. Administration 2:367-72 S '21
- Sales tax. R. W. Babson. Comm & Fin Chr 112:2049 My 14 '21
- Sales tax. J. S. Bache. Comm & Fin Chr 111:760-1 Ag 21 '20
- Sales tax. R. Smoot. Nation's Business 9:12-13 S '21
- Sales tax in construction industries. Can Eng 40:368 Ap 7 '21
- Sales tax laws of Canada, France, Germany, Mexico and the Philippine Islands. 32p U.S. Library of Congress. Legislative reference division '20
- Sales tax laws of foreign countries. 2d ed., rev. and enl. 40p U.S. Library of Congress, Washington '21
- Sales tax program is opposed. Iron Tr R 68:638-9 Mr 3 '21
- Sales taxes uncollectible on urban car fares. Elec Ry J 57:902-3 My 14 '21
- Standard pharmaceuticals held free from war revenue sales tax. Oil Paint & Drug Rep 99:27 sec 1 Ap 25 '21
- Tax history is repeating itself. E. C. Boehringer. Iron Tr R 68:1583-5 Je 9 '21
- Taxation principles. R. Smoot. Iron Age 107:994 Ap 14 '21
- To level our tax inequalities. Nation's Business 9:33-5 Je '21; Same. Dom Eng 95:529-30+ Je 11 '21
- What kind of a sales tax shall we have? H. Satterlee. Ptr Ink 113:141 O 21 '20
- Why a sales tax? B. S. Orcutt. Administration 1:659-66 My '21
- Why not a sales tax? W. A. Staub. Administration 1:491-503 Ap '21
- Written and spoken views on taxation. O: H. Kahn. Annalist 17:15-16 Ja 3 '21
- Salesmanship**
- Adding saleswomanish. J. H. Collins. Ptr Ink M 3:25-6+ Je '21
- Alibi-e-tis. A. J. Newman. Ptr Ink 113:73-4+ D 2 '20
- American tobacco company ties up sales talk with advertising copy. R. Bostick. Ptr Ink 116:3-4+ Ag 25 '21
- Apply the rule of reason to the standardized sales talk! Ptr Ink 115:133-4 My 19 '21
- Art of salesmanship—what is it. A. H. French. Dom Eng 96:190 Jl 30 '21
- Big opportunity in selling today. E. T. Trigg. System 39:35-7+ Ja '21
- Business that sometimes rides on a hobby horse. C. T. Hubbard. Inland Ptr 66:326-7 D '20
- Can advertising and selling method be standardized? N. A. Davis. Ptr Ink 113:93-4+ N 18 '20
- Can advertising shoulder the whole sales responsibility?; salesmen for mulsified shampoo are really field representatives of advertising department. A. Cobb, jr. Ptr Ink 113:57-8+ O 21 '20
- Cashing in on the export salesman. W. F. Wyman. Ptr Ink 116:73-4+ Ag 4 '21
- Closing the sale with S. R. O. J. H. Collins. Ptr Ink 115:33-4+ Je 16 '21
- Co-ordination of sales and production; meeting under auspices of Taylor society. Iron Age 106:68 Jl 8 '20
- Crowding successful sales methods on the dealer. R. C. Sheeler. Ptr Ink 115:36+ Ap 7 '21
- Do your salesmen fish for minnows or tarpon? S. C. Lambert. Ptr Ink 115:69-70+ Je 9 '21
- Electrical sales engineering. Sibley J 34:135+ O '20
- Every salesman is sales manager of his own territory. R. Giles. Ptr Ink 113:53-4+ N 11 '20
- Fatty degeneration of the sales talk. J. Jordan. Ptr Ink 113:89-90+ O 21 '20
- First hand advice to salesmen in Latin America. Ptr Ink 112:125+ S 2 '20
- Follow-up graduated according to warmth of prospect. Ptr Ink 112:98+ Jl 8 '20
- Fundamentals of selling. J: Walter. Am Gas Eng J 114:113-14+ F 5 '21
- Fundamentals of successful selling. H. N. Tolles. Inland Ptr 66:483-4 Ja '21
- Good old-fashioned brand name advertising, the specific for substitution. J: A. Murphy. Ptr Ink 115:3-4+ Je 30 '21
- Handling the interrupted interview. H: Burwen. Ptr Ink 111:89-90 Ap 8 '20
- Hard nut prospect—find out why he is hard. J. H. Collins and D. Hall. Ptr Ink 115:17-18 Ap 7 '21
- Has Yankee salesmanship gone to seed? W: Maxwell. Ptr Ink M 3:28+ Jl '21
- High cost of cheap salesmanship. J. E. Bulard. Am Gas Eng J 114:117-18 F 5 '21
- How Aladdin keeps its customers sold. J. Henle. il Ptr Ink M 3:33+ S '21
- How an intensive selling campaign revived a business that was marking time. G. A. Nichols. Ptr Ink 113:17-20+ N 11 '20
- How one house quadruples and another doubles sales. E: T. Tandy. Ptr Ink 117:73-4+ O 13 '21
- How 27 executives are planning to keep up sales this summer. R. V. Williams. il System 40:48-50+ Jl '21
- How we keep our sales volume growing. L: K. Liggett. il System 39:355-9+ Mr '21
- Human side of retail selling. R. Leigh. 228p Appleton '21
- I don't suppose you want anything today. L. Anson. il System 39:819-20+ Je '21
- Ideas for the man who sells. System 39:121+ Ja '21
- Jobber's salesman's twelve commandments. Dom Eng 90:440-1 F 28 '20
- Latin American within our gates. J. H. Collins. Ptr Ink 113:17-20+ O 14 '20
- Making customers by losing sales. Ptr Ink 113:110+ O 28 '20
- Making customers like you is first essential in successful selling. F. Farrington. Am Gas Eng J 114:5-6+ Ja 1 '21
- Map goods you sell to help buyers select. Sheet Metal Worker 11:344 N 12 '20
- Marketing a product to reach many classes of trade. C. P. Russell. Ptr Ink 111:10+ My 20 '20
- Mind of the buyer. H. D. Kitson. 211p [bibliog. p. 203-6] Macmillan '21
- Modern tendencies in the salesmanship of printing. J. R. Hammond. Ptg Art 36:125-8 O '20
- Moving the sales department into the dealer's store. R. Cole. Ptr Ink 112:85-6+ Jl 8 '20
- Neglected little brother of the business family. H: Burwen. Ptr Ink 112:65-6+ S 9 '20
- New products keep sales force on the jump. A. McCutcheon. Ptr Ink 112:73-4+ Jl 15 '20
- Odd buying habits of the American customer. R. Giles. Ptr Ink 111:148+ Ap 22 '20
- One man did two men's work with help of advertising. S. C. Lambert. Ptr Ink 110:154+ Ja 8 '20
- Opening the door of the hard-to-see prospect. B. Ashbrook. Ptr Ink 115:28+ Je 2 '21
- Order freight. A. H. Deute. Ptr Ink 116:8+ Jl 14 '21
- Personal selling. W. A. Stanger. Biddle pub. co., New York '20
- Philosophy of salesmanship. D: H. Cuyler. Dom Eng 96:52-3 Jl 9 '21
- Plea for better selling methods and for front of shop practice. J. Mackay. Dom Eng 96:197-8. 243-4 Jl 30-Ag 6 '21
- Plugging raised our sales 85%. C. L. Pool. il System 40:156-8+ Ag '21
- Prospects and how to land them; selling securities. T: Howard. J Elec 46:345-6 Ap 1 '21

Salesmanship—Continued

- Province of salesmanship. C. B. Merrick. J Elec 44:324 Ap 1 '20
- Psychology necessary in selling high priced oils and greases. J. Nourse. Nat Pet N 13: 43-4 Mr 30 '21
- Putting a new brand of coffee into 1,500 grocers' stores in one week. Ptr Ink 111:34-6 Ap 8 '20
- Putting vision into sales. C. E. Albright. il System 40:17-21+ Jl '21
- Report of the committee of N.W.D.A. on commercial travelers and selling methods. Oil Paint & Drug Rep 100:11+ O 4 '21
- Retail salesmanship. N. A. Brisco. 278p Ronald press '20
- Retail salesmanship source book. N. A. Brisco. 352p Ronald press '21
- Retailer's clerk—a man to work with. B. Polard. Ptr Ink 116:117-18+ Ag 25 '21
- Sales and sales management. R. S. MacElwee. 48p La Fayette inst. '21
- Sales manual; the basic principles of salesmanship in their practical applications. J. R. Kaye. 212p Boro printing co., New York '21
- Sales picked up promptly when we junked a tradition. L. T. Apple. il System 39:657-9+ My '21
- Sales relationship on a personal basis. L. Allen. Ptr Ink 114:132+ F 17 '21
- Sales talks from magazines. J. E. Bullard. Gas Age 47:184 F 25 '21
- Salesman who creates his own opportunities. S. C. Lambert. Ptr Ink 116:73-4 S 22 '21
- Salesman who sells the whole line. R. Walsh. Ptr Ink 110:97-8+ Ja 29 '20
- Salesman who sells when business is blue. J. P. Derum. Ptr Ink 117:69-70 O 27 '21
- Salesman's kindergarten. W. Hall. 195p Knopf '21
- Salesman's quiz. B. J. Munchweiler. Dom Eng 92:224 Jl 31 '20
- Salesmanship and advertising. T. H. Russell . . . Real estate. G. W. Kirkman. 328p Lincoln institute of business, Chicago '21
- Salesmanship; the standard course of the United Y.M.C.A. schools. Association press, New York '20
- Salesmen who get the glad hand. S. C. Lambert. Ptr Ink 116:57-8+ Ag 18 '21
- Science and art of selling. J. S. Knox. 380p Knox business book co., Cleveland, O. '21
- Science of salesmanship. L. H. Drury. Dom Eng 91:248 My 8 '20
- Second-hand safes, Gutenberg and the overlooked stockholders. J. H. Collins. Ptr Ink M 2:19-20 My '21
- Selling by keeping still. M. Gross. Inland Ptr 65:596-7 Ag '20
- Selling dealer first as consumer, then as a middleman. A. Cobb, jr. Ptr Ink 112:62+ S 30 '20
- Selling homes by solving problem of where to build. E. T. Tandy. Ptr Ink 115:57-8+ Je 30 '21
- Selling instinct. J. H. Collins. Ptr Ink M 3: 15 Jl '21
- Selling machine tools. H. W. Dunbar. Mach 27:927-8 Je '21
- Selling one point at a time. R. Giles. Ptr Ink 110:65-6+ Mr 4 '20
- Selling paper—plus. B. Venable. Inland Ptr 66:771-4 Mr '21
- Selling process. N. A. Hawkins. 6th ed. 314p N. A. Hawkins, Detroit '20
- Selling profits to overcome dealer resistance. E. T. Tandy. diags Ptr Ink 114:18-20+ Ja 20 '21
- Selling small dealer first for wider distribution. R. Cole. Ptr Ink 112:17-20 S 16 '20
- Selling the big boss. H. Burwen. Ptr Ink 110:113-14+ F 5 '20
- Selling the square deal. R. Giles. Ptr Ink 110: 3-4+ Ja 29 '20
- Selling without scenery. F. L. Scott. Ptr Ink M 3:18+ O '21
- Selling your goods to the retail clerk. H. E. Miles. Ptr Ink 112:130+ Jl 1 '20
- Selling your merchandise to stay sold. R. Walsh. Ptr Ink 111:73-4+ Ap 29 '20

Shoes; merchandise information for salespeople. E. Dyer. (Elementary ser. no. 1) 61p Research bureau for retail training, Carnegie institute of technology, Pittsburgh, Pa. '20

Silent salesman that works for the manufacturer. I. W. R. McDowall. Ptr Ink 114:120+ Mr 31 '21

Squelching the sales objection. A. H. Deute. Ptr Ink 111:77-9 Ap 22 '20

Staging the interview. A. H. Deute. Ptr Ink 110:25-7 F 26 '20

Study of personality and its relation to salesmanship. A. H. Holmes. 254p Southwestern pub. co., Cincinnati '20

Study your unit of sale. R. R. Updegraff. Ptr Ink 113:3-4+ D 16 '20

Successful selling. Plumber 95:201 Ap 3 '21

System and organization as they fit commercial activities. S. L. Nicholson. Automotive Ind 42:30-1 Ja 1 '20

Talking points on stock selling. R. I. Carruthers. J Elec 46:442-3 My 1 '21

They could sell me more if—. System 39: 681-2+ My '21

This rivets the buyer's attention. E. R. Perrin. System 39:532 Ap '21

Tracking the boom town. L. Anson. il Ptr Ink M 3:37-8 S '21

Turn-down that leads to the next interview. A. H. Deute. Ptr Ink 115:49-51 Je 30 '21

Turning the dealer's objection into a sales argument. A. H. Deute. Ptr Ink 115:113-16 Ap 7 '21

Turnover is the test of dealers' whole-souled support. I. Fleming. Ptr Ink 111:84+ Je 24 '20

Units of service. Am Arch 116:587-8 N 5 '19

What a salesman should know about advertising. J. C. Aspley. Pocket ed. 119p Dartnell corporation, Chicago '21

What I have learned from competition. E. F. Cullen. il System 39:817-19+ Je '21

What real value has an introduction? L. H. Frohman. Inland Ptr 65:45-6 Ap '20

What the final consumer can tell you about your product. R. Dickinson. Ptr Ink 110: 25-7+ F 12 '20

When the salesman has dirty linen to wash. F. L. Scott. Ptr Ink 116:17-20 S 29 '21

When the salesman should not overpaint his rainbows. E. T. Tandy. Ptr Ink 115:3-4+ Je 9 '21

Who's getting those orders? J. Y. Beaty. Ptr Ink 115:103-4+ My 19 '21

Why stop at a dozen when you can as well sell a carload? O. P. Perkins. Ptr Ink 116: 3-4+ Jl 28 '21

Why that fellow didn't sell me. J. H. McCullough. System 39:537-9+ Ap '21

Why they bought. W. Brindley. Ptr Ink 115: 161-2+ Ap 14 '21

Winning over the territory that balks. R. Giles. Ptr Ink 114:17-19 F 17 '21

See also Advertising; Advertising, Soliciting of; Business; Cancellation of orders; Canvassing; Commercial travelers; Installation plan; Mail order business; Marketing; Merchandising; Package goods; Peddlers and peddling; Price guarantees; Sales letters; Sales managers; Salesmen; Salesmen, Training of; Saleswomen

Advance cards

Do your salesmen use advance cards? C. B. Larrabee. il Ptr Ink M 3:68+ Jl '21

Advance sales

Selling in advance of the season. R. M. Rhodes. Ptr Ink 116:125-6 Ag 18 '21

Combination packages

Getting the consumer to expand his buying units. W. Perry. il Ptr Ink M 3:39-40+ Ag '21

Consignment selling

See Consignment selling

Demonstration work

Finding advertising ideas in salesmen's demonstrations. A. H. Deute. Ptr Ink 110: 138+ Ja 15 '20

Salesmanship—Demonstration work—Continued

- How the National biscuit company holds its market. C. B. Larrabee. *il* *Ptr Ink M* 3:17-18+ *S* '21
- How to get your merchandise demonstrated at retail. G. A. Nichols. *Ptr Ink* 115:99-100+ *Ap* 7 '21
- Importance of demonstrating new food products. J. S. Johnson. *Ptr Ink* 114:35-6 *F* 24 '21
- Keeping the factory busy by demonstration sales. M. Hussobee. *Ptr Ink* 115:101-2 *My* 19 '21
- Sweet-Orr consumers' contest increases business fifty-two per cent; trade mark dramatized. R. Dickinson. *il* *Ptr Ink M* 2:17+ *My* '21
- Wayside demonstrations that open new accounts. M. Hastings. *Ptr Ink* 111:57-8+ *Ap* 22 '20

Guarantees

- Campaign based on money back offer gets talked about. S. C. Lambert. *Ptr Ink* 112:93-4 *S* 9 '20
- Early days of money back; tried and approved half a century ago. J. O. Powers. *Ptr Ink* 113:73-4 *O* 7 '20
- La garantie. O. J. Gérin. *Chimie & Ind* 5:599-602 *My* '21
- Giving money back with a smile. *Ptr Ink* 114:44+ *Mr* 31 '21
- Guarantee is backed with interest on refund. *Ptr Ink* 113:192 *O* 7 '20
- Sales merit of the guarantee. A. L. Townsend. *Ptr Ink* 115:122+ *My* 19 '21
- Warranties covering goods. W. G. Astle. *Administration* 2:469-72 *O* '21
- What we learned from two changes in policy. E. Freschl. *il* *System* 40:543+ *N* '21

Models

- Miniature model as a selling aid. C. P. Russell. *il* *Ptr Ink M* 2:21-2+ *F* '21

Photographs

- Photographs instead of samples. W. Brindley. *il* *Ptr Ink M* 2:28-9+ *D* '20

Samples

- Assistant salesman whose selling expense is 1½ per cent. M. Hastings, jr. *il* *Ptr Ink M* 3:25+ *N* '21
- Breaking into the market through the side door; a new breakfast food gets distribution through judicious sampling. D. Kirkland. *Ptr Ink* 113:85-6+ *D* 2 '20
- Free tobacco samples build big mail-order business. M. Hubbard. *il* *Ptr Ink M* 2:35-6 *My* '21
- Getting dealer distribution when jobbers will not buy; makers of Kampkook use advertising. C. B. Larrabee. *Ptr Ink* 116:101-2+ *Ag* 11 '21
- How can we save on samples? G. Graybill. *System* 40:564-5+ *N* '21
- Promoting a tasting campaign on a national scale; Welch grape juice co. M. Hastings, jr. *Ptr Ink* 115:25-6 *My* 5 '21
- Put a sample of your product on the buyer's desk. H. D. North. *Ptr Ink* 115:17-20 *Je* 30 '21
- Sample room selling. M. Hastings, jr. *il* *Ptr Ink M* 3:17+ *O* '21
- Samples that do away with trunks. *il* *Ptr Ink M* 3:60 *Jl* '21
- Sampling idea applied to catalogues. B. D. Peyton. *Ptr Ink M* 2:69-70 *D* '20
- Sampling in export selling. W. F. Wyman. *Ptr Ink* 112:33-6 *S* 9 '20
- Selling jobbers' salesmen by getting them to taste product. W. Brindley. *Ptr Ink M* 2:67-8 *Ja* '21
- Sells face brick new way; novel samples. *Brick & Clay Rec* 58:478-9 *Mr* 22 '21
- What to put in the salesman's sample case. R. Giles. *il* *Ptr Ink M* 2:31+ *My* '21

Study and teaching

- Electrical salesmanship by mail for retail dealers; large electric appliance manufac-

turer successfully launches Edison school of salesmanship. J. B. Mannion. *Elec R* 78:803-5 *My* 21 '21

Turning retail selling into a skilled occupation. *Monthly Labor R* 11:1013-17 *N* '20

See also Salesmen, Training of

Trial orders

- Getting a product past its suspicion stage. *Ptr Ink* 115:10+ *My* 5 '21
- Getting the order out of trial class. R. B. Lockwood. *Ptr Ink* 110:57-8+ *F* 19 '20
- How about a trial order? R. Giles. *Ptr Ink* 111:3-4+ *Je* 3 '20
- Sampling pipe fittings and tools to create demand for the dealer. D. Kirkland. *Ptr Ink* 112:120-1+ *Jl* 15 '20

Salesmen

- Adaptability the greatest factor in salesman's success. A. McClure. *Ptr Ink* 112:19-20+ *Ag* 26 '20
- As prophets, are your salesmen a loss? B. Barton. *Ptr Ink* 113:3-4+ *O* 21 '20
- Beware the super-salesman who discourages the rest of the force! A. H. Deute. *Ptr Ink* 110:142+ *Ja* 8 '20
- Chief takes a hand; mechanics as salesmen. E. H. Poggi. *System* 40:404-7+ *O* '21
- Dangers of hiring your competitor's star. A. H. Deute. *Ptr Ink* 110:121-2+ *F* 19 '20
- Executive and the too-ambitious salesman. R. Walsh. *Ptr Ink* 111:33-6 *Je* 3 '20
- Factory workers who are becoming successful salesmen. R. Dickinson. *Ptr Ink* 115:53-4+ *Ap* 7 '21
- Fitting the salesman to the territory. R. Giles. *Ptr Ink M* 2:17-18 *F* '21
- Flabby salesmen?—Oh yes—the other fellow's! W. A. Wolff. *Ptr Ink* 112:25-7 *S* 16 '20
- Getting the ideal tractor salesman is a real job. F. M. Loomis. *Motor Age* 36:26-7+ *D* 11 '19
- Helping salesmen find themselves. S. C. Lambert. *Ptr Ink* 114:53-4+ *Mr* 31 '21
- Hiring the salesman who makes good. R. Giles. *Ptr Ink* 113:3-4+ *O* 7 '20
- How personality helps salesmanship. J. M. Fitzgerald. *Dom Eng* 89:659+ *D* 27 '19
- How salesmen interpret consumer needs. *Ptr Ink* 112:113-15 *Ag* 19 '20
- How the advertising manager sold the salesman. C. Percy. *Ptr Ink* 114:73-4+ *F* 24 '21
- How, to-day, should salesmen talk advertising? S. C. Lambert. *Ptr Ink* 114:3-4+ *Mr* 3 '21
- How your salesmen can keep fit. D. M. Dunn. *Ptr Ink M* 2:29+ *Ap* '21
- "I represent." F. G. Jones. *Ptr Ink* 113:10+ *D* 2 '20
- Ideas that come away from the office. R. Walsh. *Ptr Ink* 113:49-50+ *D* 16 '20
- Interesting the salesman in his own job. W. L. Larned. *Ptr Ink* 114:53-4+ *Ja* 13 '21
- Johnson's philosophy on subterfuges and salesmen. J. R. Godfrey. *Am Mach* 53:679 *O* 7 '20
- Junior salesman as a means of reducing sales expense. H. Burwen. *Ptr Ink* 110:128+ *Ja* 15 '20
- Making the salesman credit manager. *Ptr Ink* 116:81-2+ *Ag* 11 '21
- Meeting the demand for retail sales people. G. E. Arbogast and F. E. Boyd. *J Elec* 46:512-13 *My* 15 '21
- Observations of a packing house executive on technical men as salesmen. G. H. Rasch. *Chem Age* 29:137-8 *Ap* '21
- Personal acquaintance as a factor in increasing sales. W. T. Hedges. *Ptr Ink* 111:88-9+ *My* 6 '20
- Salesman on emergency duty. W. L. Larned. *Ptr Ink* 114:77-8+ *F* 10 '21
- Salesman who gives away secrets. W. L. Larned. *Ptr Ink* 113:89-91 *D* 23 '20
- Salesman who loses his temper. W. H. Heath. *Ptr Ink* 116:129+ *S* 1 '21
- Salesman's ten cans. A. J. Newman. *Ptr Ink* 110:162+ *Mr* 25 '20

Salesmen—Continued

Salesmen don overalls in factory as producers. W. B. Swann. *Ptr Ink* 112:57-8+ S 2 '20

Sense of humor in salesmen. S. C. Lambert. *Ptr Ink* 116:93-4+ J1 28 '21

Should the cub salesman be treated rough? A. H. Deute. *Ptr Ink* 113:69-70+ N 18 '20

This firm's advertising capitalizes its unusual salesman. C. M. Harrison. *Ptr Ink* 113:73-4+ N 4 '20

Toughening flabby salesmen to sell in buyer's market. G. A. Nichols. *Ptr Ink* 112:3-4+ S 2 '20

Using greenhorns to sell a mechanical product. C. B. McCuaig. *Ptr Ink* 110:57-8+ F 5 '20

Wanted: fewer black cigars, more ideas. R. K. Sewell. *Ptr Ink* 114:25-7 F 10 '21

What are your salesmen doing between trains? F. L. Scott. *Ptr Ink* M 3:21-2 Je '21

What I have learned in 35 years of selling. E. E. Parsonage. *Ptr Ink* M 3:19-20+ N '21

When salesmen become too old to travel. *Ptr Ink* 114:33-4 Ja 6 '21

When salesmen get the blues. W. H. Heath. *Ptr Ink* 115:69-70+ My 12 '21

When salesmen regard year-round product as a seasonal seller. *Ptr Ink* 112:17-18 Ag 26 '20

When the competitor's man tries to demoralize your young salesman. R. Walsh. *Ptr Ink* 112:161+ Ag 12 '20

When the salesman fails—look for his wife. R. Cole. *Ptr Ink* 115:117-18+ Ap 28 '21

When the salesman feels sorry for himself. A. H. Deute. *Ptr Ink* 112:49-50+ J1 1 '20

Where do good salesmen come from? R. Giles. *Ptr Ink* 115:61-2+ Ap 21 '21

See also Advertising, Soliciting of; Commercial travelers; Mail order business; Peddlers and peddling; Printing trade—Salesmen; Public utilities—Salesmen

Bibliography

When salesmen and advertising are not on speaking terms. *Ptr Ink* 114:145+ Ja 13 '21

Equipment

Preparing the export salesman for the field. W. F. Wyman. *Ptr Ink* 116:25-8 J1 14 '21

Law

Salesman's rights under federal and state laws as applied to interstate commerce. 30p Hitchcock-Hill co., Chicago '20

Salaries and commissions

Basing salesmen's compensation on profits, not volume. R. Walsh. *Ptr Ink* 110:162+ Ja 15 '20

Compensation of salesmen. *Am Gas Assn Commercial sec v* 2:303-12 '20

Does a buyer's market warrant higher commission? E. N. Ferdon. *Ptr Ink* 112:81+ S 30 '20

Flat expense account for road salesmen. R. Walsh. *Ptr Ink* 112:49-50+ S 9 '20

How shall I pay my salesmen under present conditions? J. A. Murphy. *Ptr Ink* 115:3-4+ Ap 7 '21

How shall we pay our salesmen? R. E. Heilman. *il System* 40:411-13+ O '21

How we take the guess out of sales costs. H. J. Winsten. *Ptr Ink* 116:33-4+ S 1 '21

Navy's salesmen are selling surplus property at cost of 2 per cent. *Ptr Ink* 117:104+ O 13 '21

Paying salesmen to get results. R. E. Heilman. *System* 40:561-4+ N '21

Salesmen on straight commission. S. Smith. *Gas Age* 48:125-6 Ag 6 '21

Salesmen's commissions reduced as advertising starts. *Ptr Ink* 114:69-70+ F 10 '21

Should salesmen be paid commission on gross or net sales? *Ptr Ink* 117:12 O 20 '21

Straight salary for salesmen makes better customers. W. O'Neil. *Ptr Ink* 111:119-20+ Ap 8 '20

Your salesmen's future earnings. R. B. Simpson. *Ptr Ink* 110:47-8 Ja 22 '20

See also Gas companies—Salesmen

Salesmen, Routing of

Time is ripe to improve the routing of export salesmen. W. F. Wyman. *Ptr Ink* 112:61-2+ Ag 19 '20

Salesmen, Training of

Acceptable helps that were sold to jobbers' salesmen. D. MacLean. *Ptr Ink* 114:33-4+ Mr 31 '21

City's sweater manufacturers to tell about their product. *Ptr Ink* 112:81 J1 15 '20

Don't oversell the proposition to your salesmen. M. Droke. *Ptr Ink* M 2:49 Ja '21

H. L. Doherty school for securities salesmen. L. F. Fuld. *Elec W* 75:220-1 Ja 24 '20

How I develop salesmen into order getters. A. MacLachlan. *il System* 39:799-802+ Je '21

How one large firm trains its sales representatives; International harvester co. N. G. Shidle. *il Automotive Ind* 43:1228-30 D 16 '20

How Selfridge trains salesfolk. T. Russell. *Ptr Ink* 114:116+ F 17 '21

How shall the greenhorn salesman be initiated? H. Burwen. *Ptr Ink* 110:33-6 Ja 29 '20

How to rouse the indifferent retail clerk. C. P. Russell. *Ptr Ink* 114:61-2+ Ja 13 '21

How Victor educates the retailer to sell red seal records. R. Cole. *Ptr Ink* 114:3-4+ Mr 31 '21

Machine shop training for salesmen; methods used by the Norton company. J. C. Spence. *Mach* 27:645-6 Mr '21

Manufacturer's two weeks' course for new salesmen. R. Cole. *Ptr Ink* 110:25-7+ Ja 22 '20

Meet me at 9:16 A. M. A. H. Deute. *Ptr Ink* 110:89-90+ F 12 '20

Merchandise manual for shoe departments. E. Dyer. 133p [bibliog. p. 133] Research bureau for retail training, Carnegie institute of technology, Pittsburgh '21

Office engineer and his relation to the sales force. A. F. Brewer. *Ind Management* 61:108 F 1 '21

Sales education methods of the American radiator company. E. M. Wickes. *Ptr Ink* 116:101-2+ J1 21 '21

Sales school develops permanent business builders. N. G. Shidle. *Automotive Ind* 43:1174-5 D 9 '20

Salesmen's course adds to force of increased advertising. *Ptr Ink* 115:159+ Je 2 '21

School for sales and service men. W. H. Roberts. *Ind Management* 59:318 Ap '20

Selling course that cuts down factory returns. R. Cole. *Ptr Ink* 110:120+ F 5 '20

Starting the new salesman off with the best ideas about your line. R. Cole. *Ptr Ink* 116:69-70+ J1 28 '21

Student-salesmen's school conducted in Cleveland. *Elec R* 78:94 Ja 15 '21

Teaching salesmen the A B C of a business. L. Anson. *il Ptr Ink* M 3:35-6 N '21

Training men to handle a diversity of products. A. D. Joyce. *Ptr Ink* 110:3-4+ F 12 '20

Training school for foreign representatives. G. E. Quisenberry. *Automotive Ind* 43:478-9 S 2 '20

Where advertising turns unfavorable trade conditions to its advantage. A. Cobb, jr. *Ptr Ink* 114:113-14+ Mr 10 '21

See also Salesmanship—Study and teaching

Salesmen's demonstrations. *See* Salesmanship—Demonstration work

Saleswomen

Are women best sellers of products for housekeepers? *Ptr Ink* 114:35-6 Ja 6 '21

How Gossard is making better retail saleswomen. *Ptr Ink* 114:61-2 Mr 3 '21

Salicylates

Natural and synthetic compared. *Sci Am* 124:292 Ap 9 '21

Studies in synthetic drug analysis; estimation of salicylates and phenol. W. O. Emery. *J Ind & Eng Chem* 13:538-9 Je '21

Salicylic acid

Natural and synthetic compared. *Sci Am* 124:292 Ap 9 '21

Saligenin

Some derivatives of saligenin. M. C. Hart and A. D. Hirschfelder. *Am Chem Soc J* 43:1688-93 J1 '21

Salines

Data of geochemistry. F. W. Clarke. *U S Geol S Bul* 695:212-54 '20

Salmon

Irrigation ditches cause stupendous loss. L. W. Pedrose. *il Pop Mech* 36:257-8 Ag '21
Pacific salmon challenges the hydroelectric engineer. H. W. Crozier. *il J Elec* 47:107-9 Ag 1 '21; Excerpt. *Eng & Contr* 56:253 S 14 '21

Saving the sockeye. R. A. Campbell. *il Sci Am* 125:6 J1 2 '21

World's largest salmon cannery. *il J Elec* 46:553-4 Je 1 '21

Salmon industry

Salesman's ideas on marketing salmon and other things. J. J. Mack. *Ptr Ink* 117:169+ O 20 '21

Advertising

Advertising pulls salmon industry off the rocks. H. E. Agnew. *Ptr Ink* 115:106+ Je 30 '21

Salt

Cheap extraction of salt from sea-water. T. Ukeblad. *Sci Am* 122:399 Ap 10 '20

Chemical efficiency and concentration of caustic salt from Townsend cells. A. H. Hooker. *il charts Chem & Met Eng* 23: 961-8 N 17 '20

Concrete in the construction of salt plants. *il Concrete* 18:271 Je '21

Geology of the non-metallic mineral deposits other than silicates, v. 1, Salt. A. W. Grabau. McGraw-Hill '20

Heat of solution and the partial molal heat content of the constituents in aqueous solutions of sodium chloride. M. Randall and C. S. Bisson. *diags Am Chem Soc J* 42:347-67 Mr '20

Hydration as an explanation of the neutral salt effect. J. A. Wilson. *Am Chem Soc J* 42:715-20 Ap '20

Intensity of reflexion of X-rays by rocksalt. W. L. Bragg, R. W. James and C. H. Bosanquet. *diags Philos Mag* 6th ser 41: 309-37; 42:1-17 Mr, J1 '21

Making a brand of salt different through advertising. R. Cole. *Ptr Ink* 111:17-20 My 6 '20

Need of technically trained men in salt manufacture. W. L. Badger. *Chem & Met Eng* 25:442-3 Ag 31 '21

Our mineral supplies; salt, bromine, and calcium chloride. R. W. Stone. *U S Geol S Bul* 666:43-6 '19

Permian salt deposits of the South-Central United States. N. H. Darton. *diags map U S Geol S Bul* 715—M:205-23 '21

Salt, bromine, and calcium chloride in 1919. H. Insley. *diag U S Geol S Min Res of U S* 1919.pt 2:239-56 '21

Salt from the sea; little known California industry. A. L. Dahl. *il Sci Am* 124:150+ F 19 '21

Salt industry of China. H. T. Wade. *il Sci Am M* 2:237-40 N '20

Salt manufacture in Michigan. W. L. Badger. *il diags Chem & Met Eng* 24:201-7 F 2 '21

Salt wells of China. R. G. Skerrett. *il Sci Am M* 3:427-30 My '21

Solubility of ethyl ether in solutions of sodium chloride. P. C. L. Thorne. *Chem Soc J* 119: 262-8 Mr '21

Soot and its abatement by the use of salt. B. S. Murphy. *Power* 52:322-6 Ag 31 '20

Toxicity towards anthrax and staphylococcus, of solutions containing phenol and sodium chloride. J. S. Lemon. *J Phys Chem* 24:570-84 O '20

World's largest deposit of rock salt. *Eng & Min J* 111:1064 Je 25 '21

See also Salt mines and mining

Salt cake. *See* Sodium sulfate

Salt domes

Butler salt dome, Freestone county, Texas. S. Powers. *diag map Am J Sci* 49:127-42 F '20

Palangana salt dome, Duval county, Texas. D. C. Barton. *maps Econ Geol* 15:497-510 S '20

Relation of topography to the oil fields of the Texas gulf coastal region. A. G. Wolf. *Eng & Min J* 111:474-5 Mr 12 '21

Secondary intrusive origin of Gulf coastal plain salt domes. W. G. Matteson. *Min & Met* 170:37 F '21

Salt Lake, Little. *See* Little Salt Lake

Salt Lake City, Utah

Determination of atmospheric impurities. O. Monnett. *diags map Chem & Met Eng* 23: 1117-21, 1173-6 D 8-15 '20; Excerpts. *Sci Am M* 4:85-6 J1 '21

Smoke abatement study and plans at Salt Lake City. *Eng N* 86:74-5 Ja 13 '21

Rapid transit

Utah light & traction optimistic. *il map plan Elec Ry J* 58:347-51 S 3 '21

Water supply

Progress toward relief from water shortage at Salt Lake City. *il Eng N* 85:645 S 30 '20

Salt mines and mining**Louisiana**

Salt mining in Louisiana. A. G. Wolf. *il diag map plans Eng & Min J* 112:6-10 J1 2 '21

Utah

Modern machinery works Utah salt fields. G. F. Paul. *il Pop Mech* 34:742-4 N '20

Salted nuts. *See* Nuts, Salted

Salting of mines. *See* Mine salting

Salton sea

Mullet fisheries of the Salton sea. J. E. Hogg. *il map Pop Mech* 34:175-80 Ag '20

Vast stores of mineral paint pigments in Salton sea. J. E. Hogg. *il Pop Mech* 34: 399-401 S '20

Water level and weather observation station at the Salton Sea. J. E. Hogg. *Sci Am* 125:181 S 10 '21

Salton sea region, California

Routes to desert watering places in the Salton sea region. J. S. Brown. *il maps U S Geol S Water-supply Pa* 490—A:1-86 '20

Saltpeter

Determination of nitrate nitrogen in nitrates and fertilizers. H. C. Moore. *J Ind & Eng Chem* 12:669-73 J1 '20

Potassium nitrate from the Chilean nitrate industry. P. F. Holstein. *J Ind & Eng Chem* 12:290-3 Mr '20

Recovery of nitre and pitch from smoke candles. E. R. Thomas. *Sci Am M* 1:131 F '20

Saltpeter, Chile

Chilean nitrate deposits. W. L. Whitehead. *bibliog diags map Econ Geol* 15:187-224 Ap '20

Credulity and the nitrate deposits. *Min & Sci P* 122:589-90 Ap 30 '21

Economic aspects of the Chilean nitrate industry. *Chem & Met Eng* 22:1207-11 Je 30 '20

L'industrie du nitrate de soude au Chili. A. Bertrand. *il map plan Chimie & Ind* 3:3-18, 293-308 Ja, Mr '20

Mining nitrates in Chile. P. A. Raymond. *il diag Min & Sci P* 121:257-8 Ag 14 '20

New price levels in Chilean nitrate. D. F. Irvin. *Eng & Min J* 112:136-8 J1 23 '21

Nitrate industry in Chile. A. Bertrand. *il map plan Chem & Met Eng* 22:655-9; 23:339-43 Ap 7, Ag 25 '20

Recovery of nitrate from Chilean caliche. A. W. Allen. 50p C. Griffin and co., London '21

Sodium nitrate in 1919. D. F. Irvin. *Eng & Min J* 109:219-21 Ja 17 '20

Saltpeter, Chile—Continued**Analysis**

Determination of nitrate nitrogen in nitrates and fertilizers. H. C. Moore. *J Ind & Eng Chem* 12:669-73 J1 '20

Rapid and accurate method for determining nitrogen in nitrate of soda by the modified Devarda method and the use of the Davisson scrubber bulb. C. A. Butt. *J Ind & Eng Chem* 12:352-4 Ap '20

Salts

Effect of mineral salts on fresh-water fauna. *Sci Am M* 2:331-2 D '20

Equilibria in solutions containing mixtures of salts; the system water and the chlorides and sulfates of sodium and magnesium at 25°. W. C. Blasdale. *diags J Ind & Eng Chem* 12:164-7 F '20

Influence of salts on chemical equilibria in solutions. J. N. Brønsted. *Chem Soc J* 119:574-92 My '21

Properties of powders. T. M. Lowry and F. C. Hemmings. *Chem & Met Eng* 22:976 My 26 '20

Salts-refining plants at Owens and Searles lakes. L. W. Chapman. *il map Chem & Met Eng* 24:683-8 Ap 20 '21

See also Crystallization; Precipitation (chemistry); Salines; Salt; *also* names of salts and groups of salts, e.g. Calcium nitrate, Chlorides, Copper salts, Halides, Nitrates, Phosphates, Potassium sulfate, Sulfates

Salvage

British salvage work prospers. C. Maughan. *il Marine R* 50:393-6 J1 '20

Early use of compressed air for salvaging ships. W. Nash. *Sci Am* 124:227 Mr 19 '21

Electric lifting magnets for salvage operations. *Elec R (Lond)* 89:508 O 14 '21

Glass windows for the salvage pontoon. *il Sci Am* 123:547 N 27 '20

Great feat of ship salvage; Leonardo da Vinci. *il Sci Am* 124:371 My 7 '21

New marine salvage system; lifting a sunken ship by an equalized pull upon her main frames. *il Sci Am* 125A:32-3 N '21

Le renflouement du cuirassé italien Leonardo da Vinci. *il diags Génie Civil* 78:305-7 Ap 9 '21

Salvage of the dredger Silurus. *il diags plan Engineering* 111:5-8, 32-5 Ja 7-14 '21

Salvage ship by piling gravel on exposed side. *il Pop Mech* 34:568-9 O '20

Salvaging of the Italian battleship Leonardo da Vinci. *il (supp) diags plans Engineer* 131:281-3 Mr 18 '21

Saving a capsized dreadnought. *il Sci Am* 122:38 Ja 10 '20

Something different in salvaging operations; compressed air. R. G. Skerrett. *il diags Sci Am* 123:518+ N 20 '20

Something new in salvaging equipment. H. A. Mount. *il Sci Am* 125:41+ J1 16 '21

Submarine tests with the Neale electromagnet. *il Elec R (Lond)* 89:303-4 S 2 '21

Submersible electric pump for salvaging ships. *il Pop Mech* 34:537 O '20

See also Shipwrecks

Salvage (waste, etc)

Pueblo's wrecking and salvaging methods. *il Pop Mech* 36:505-6 O '21

See also Oil reclamation; Refuse, Utilization of; Scrap material; Scrap metal; Waste products

Salvage ships

Flotteurs en béton armé, système Christiani et Nielsen, pour le renflouage des navires. *il diags Génie Civil* 76:211-12 F 21 '20

Salvage motor vessel Fritiof. *il diag plans Marine Eng* 26:358-9 My '21

Salvarsan

Derivatives of sulphur in commercial salvarsan. H. King. *Chem Soc J* 119:1107-20, 1415-20 J1, S '21

Hypophosphorus acid preparation of arspenamine: (3,3'-diamino-4,4'-dihydroxy-arseno-benzene dihydrochloride). W. G. Christiansen. *Am Chem Soc J* 42:2402-5 N '20

Indirect reduction of 3-amino-4-hydroxy-phenylarsonic acid to arspenamine. W. G. Christiansen. *Am Chem Soc J* 43:370-5 F '21

606 ou salvarsan. Toussaint. *bibliog diags Chimie & Ind* 6:296-304 S '21

See also Arsenicals

Samarium

Luminescence of samarium. H. L. Howes. *Phys R* 17:60-3 Ja '21

Observations on the rare earths; the purification and atomic weight of samarium. A. W. Owens, C. W. Balke and H. C. Kremers. *Am Chem Soc J* 42:515-22 Mr '20

Samples. *See* Salesmanship—Samples

Sampling

Continuous sampling of sugar liquors. W. L. Jordan. *diags J Ind & Eng Chem* 13:640-1 J1 '21

Tentative methods for sampling of stone, slag, gravel, sand and stone block for use as highway materials. *Am Soc T M Pro v* 20 pt 1: 789-95 '20; *Same. Eng & Contr* 54:116-17 Ag 4 '20

See also Coal sampling; Ore sampling; Road materials—Sampling; Salesmanship—Samples; Water sampling

Samson tractor company

Steel shops of Samson tractor co. at Janesville, Wis. *diags plan Eng N* 86:716-18 Ap 28 '21

San Antonio, Texas

San Antonio flood. *il Pub Works* 51:318-20 O 22 '21

Architecture

San Antonio golf club. I. T. Frary. *il plans Arch Rec* 49:48-55 Ja '21

Sanatoriums

See also Tuberculosis, Hospitals and sanatoriums for

Sand

Black-sand deposits of the Island of Chiloe. F. Mella. *il map Eng & Min J* 111:497-501 Mr 19 '21

Bulking of sand noted years ago by Feret. A. E. W. King. *Eng N* 86:136 Ja 20 '21; *Discussion. G. M. Williams. 86:312 F 17 '21*

Chemical investigation of the asphalt in the tar sands of northern Alberta. V. K. Kriebel and W. F. Seyer. *diag Am Chem Soc J* 43:1337-49 Je '21

Experiments on the horizontal pressure of sand. P. M. Crosthwaite. *Engineering* 109: 253-4 F 20 '20; *Same. Eng & Contr* 53:352 Mr 31 '20; *Same. Can Eng* 38:364 Ap 8 '20

Making pig iron and steel from Pacific coast black sands. J. L. Avis, jr. *il Iron Tr R* 69:810-12 S 29 '21

Mining oil-bearing sands. A. H. Fay. *Eng & Min J* 109:1419 Je 26 '20

Oil recovery from saturated sands. *Am Gas Eng J* 112:323 Ap 24 '20

Our mineral supplies; sand and gravel. R. W. Stone. *U S Geol S Bul* 666:47-9 '19

Pig iron from black sands. J. L. Avis, jr. *Iron Age* 108:83 J1 14 '21

Plant for sand and gravel storage. G. W. McAlpin. *diag Eng N* 84:928 My 6 '20

Preliminary report on the sand and gravel deposits of Georgia. L. P. Teas. 392p Byrd ptg. co., Atlanta, Georgia '21

Recovery of gold from black sand. J. A. Davis and J. Gross. *Min & Sci P* 122: 504 Ap 9 '21; *Discussion. 122:668-9, 869-70; 123:224-5, 423-4 My 14, Je 25, Ag 13, S 24 '21*

Relations of texture and bedding to the movements of oil and water through sands. R. Van A. Mills. *il Econ Geol* 16: 124-41 Mr '21

Sand and gravel. A. Ledoux. *il diag Can Eng* 38:532-6 Je 3 '20

Sand and gravel in 1919. R. W. Stone. *U S Geol S Min Res of U S* 1919.pt 2:151-64 '21

Sand and gravel production in 1920. *Eng & Contr* 55:500 My 18 '21

Sand and gravel production of twenty-two states. G. E. Ladd. *Pub Roads* 4:12-23 My '21

Sand—Continued

- Seaside road paved with goldbearing sand. *il* Pop Mech 33:245 F '20
- Separating metallics from Pacific Coast sands. H: E. Wood. Eng & Min J 109:398-9 F 7 '20
- Smelt iron sand by mixing coal dust with it. *il* Pop Mech 35:32-3 Ja '21
- Stripping a sandpit by blasting. Munic Eng 59:187 N '20
- Surface shrinkage of rapid filter sand beds. A. Wolman and S. T. Powell. bibliog Eng N 85:210-16 J1 29 '20; Discussion. 85:438-41, 1081-3 S 2, D 2 '20
- Le tassement des sables servant de base à des constructions. Génie Civil 76:477-8 My 22 '20
- Texture of sands. Sci Am S 88:366 D 20 '19
- Volume-moisture relation in sand and a method of determining surface area based thereon. R. B. Young and W. D. Walcott. Am Soc T M Pro v 20 pt 2:137-48 '20; Same. Can Eng 38:475-8 My 20 '20; Same. Eng & Contr 54:91-4 J1 28 '20; Same. Eng N 85:82-4 J1 8 '20
- Water displacement in oil and gas sands. R. H. Johnson. Min & Met 157:(sec 7) 1-4 Ja '20; Same. Eng & Min J 109:516-17 F 21 '20; Same. Nat Pet N 12:101+ Ap 21 '20
- See also* Concrete—Aggregate; Quicksand; Sand blast; Sand drying; Sand dunes; Sand handling; Sand pumping; Sand washing; Sanders

Analysis

- Judging sands for foundry use. H: B. Hanley and H. R. Simonds. *il* Foundry 48:741-6, 772-4, 867-8+, 921-2 S 15-O 1, N 1-15 '20

Testing

- Investigates steel sand properties. R. L. Lindstrom. *il* Foundry 48:940-3 D 1 '20
- Judging sands for foundry use. H: B. Hanley and H. R. Simonds. *il* Foundry 48:741-6, 772-4, 867-8+, 921-2 S 15-O 1, N 1-15 '20
- Standardization of molding sands. C. P. Karr. *il* Iron Age 106:845-9 S 30 '20
- Tentative test for quantity of clay and silt in sand for highway construction. Am Soc T M Pro v 20 pt 1:774-5 '20; Same. Eng & Contr 54:21-2 J1 7 '20
- Test for organic impurities in sand for concrete. Eng & Contr 55:618 Je 22 '21

Sand, Foundry

- Conditioning molding sand. Foundry 48:13 Ja 1 '20
- Factors in choosing molding sands. P. G. H. Boswell. Foundry 47:851 D 1 '19
- Foundrymen fear serious sand shortage. Foundry 48:607 Ag 1 '20; Same. Iron Tr R 67:448-9 Ag 12 '20
- Investigates steel sand properties. R. L. Lindstrom. *il* Foundry 48:940-3 D 1 '20
- Judging sands for foundry use. H: B. Hanley and H. R. Simonds. *il* Foundry 48:741-6, 772-4, 867-8+, 921-2 S 15-O 1, N 1-15 '20
- Laboratory testing of sands, cores, and core binders. F. L. Wolf and A. A. Grubb. Min & Met 165:20-1 S '20
- Loam molding presents difficulties. G: Boys. *il* diag Foundry 49:776-9 O 1 '21
- Modern foundry sand handling equipment. H. L. M'Kinnon. *il* Iron Age 104:1257-9 D 18 '19
- Molding sand production in 1918. Foundry 48:661 Ag 15 '20
- Rail rates take toll on foundry sand. Foundry 49:320-1 Ap 15 '21
- Reclaiming metal parts from sand. G: H. Manlove. *il* Foundry 48:426-8 Je 1 '20
- Riddling molding sand. W: H. Parry. Metal Ind 19:153 Ap '21
- Sand plays part in poor castings. R. J. Doty. Foundry 49:95-7 F 1 '21
- Sands for brass casting. C: Vickers. Foundry 48:195 Mr 1 '20
- Standardization of molding sands. C. P. Karr. *il* Iron Age 106:845-9 S 30 '20

Sand blast

- Application of sandblast to general foundry work. H. D. Gates. *il* Am Mach 51:723-6; 52:73-6 O 16 '19, Ja 8 '20; Abstract. Iron Age 103:1135-8 My 1 '19
- Compressed-air in chipping paint and repainting steel steamers. *il* Pop Mech 34:552-3 O '20
- Efficiency of certain devices used for the protection of sand blasters against the dust hazard. C.-E. A. Winslow, L. Greenburg, and E. H. Reeves. United States Public health service, Washington, D.C. '20
- Pangborn rod cleaning sand-blast cabinet. *il* Iron Age 105:606 F 26 '20; Iron Tr R 66:642 F 26 '20; Am Mach 52:528 Mr 4 '20; Foundry 48:206 Mr 1 '20; Mach 26:681-2 Mr '20
- Pangborn rotary-table sandblasts. *il* Am Mach 53:961-2 N 18 '20; Iron Age 106:1398 N 25 '20; Metal Ind 19:40-2 Ja '21
- Protection of sand blasters against the dust hazard. Monthly Labor R 10:1228-31 My '20
- Rotary table for the sand blast. *il* Sci Am 122:46+ Ja 10 '20
- Rotary table sand blast machines. *il* Iron Age 106:1398 N 25 '20
- Sand blast devices shown at Columbus. *il* Foundry 48:928-9 N 15 '20
- Sand-blasting; types of apparatus, air pressures, dust exhausting, etc. C. W. Starker. *il* diag Mach 27:458-62 Ja '21; Abstract. Mech Eng 43:198-9 Mr '21
- Sand-blasting work before grinding. Mach 27:559 F '21
- Self-contained sand blast machine brought out by Scully, Jones & Co. *il* Iron Age 105:1737 Je 17 '20

Sand drying

- Forms used with sand drier test. Elec Ry J 55:819 Ap 17 '20
- Fuel oil storage and sand drying plant. *il* Ry R 65:836 D 6 '19
- Handling wet sand from a hopper. H. H. George. *il* Elec Ry J 55:581-4 Mr 20 '20
- Sand dried by live steam and oil heated by the same means are piped into mine. A. F. Brosky. diags Coal Age 20:56 J1 14 '21

Sand dunes

- Traveling sand dunes of Peru. G. E. McDonald. *il* Sci Am 122:365 Ap 3 '20
- When oil stops the shifting sands. *il* Sci Am 125:83 J1 30 '21

Sand handling

- Borehole delivers clean and dry sand to locomotives in shaft mine. *il* Coal Age 19:995-6 Je 2 '21
- Forms used with sand drier test. Elec Ry J 55:819 Ap 17 '20
- Handling wet sand from a hopper. H. H. George. *il* Elec Ry J 55:581-4 Mr 20 '20
- How beach sand can be most economically excavated and loaded in trucks. diags Pub Works 50:211-13 Mr 5 '21
- Modern foundry sand handling equipment. H. L. M'Kinnon. *il* Iron Age 104:1257-9 D 18 '19

See also Sand pumping

Sand pumping

- New method of sand pumping. R. H. Squire. diags Eng & Contr 55:327-8 Mr 30 '21

Sand washing

- How can a small quantity of fine sand be graded for use in a filter? *diag* Pub Works 50:244-5 Mr 19 '21
- Sandwashers for the drifting-sand rapid water filter. W: Gore. diags Eng N 84:1192-4 Je 17 '20; Same. Can Eng 38:563-6 Je 17 '20
- Water-jets and sand blast clean St Louis filters. C. M. Daily. *il* diags Eng N 84:1198-1200 Je 17 '20; Same cond. Eng & Contr 54:228-9 S 8 '20

Sanders

- Effective air sander. *il* Elec Ry J 58:16 J1 2 '21
- Fryer vacuum sander for locomotives. *diag* Ry Mech Eng 94:243-4 Ap '20
- Mechanical sanders for safety cars. H. E. Krouse. *diag* Elec Ry J 57:687 Ap 9 '21

Sanders—Continued

Practical track oiling equipment. *il Elec Ry J 57:1004 My 28 '21*
 Triplex locomotive sand trap. *diag Ry R 69: 588 O 29 '21*

San Diego, California**Rapid transit**

How the zone fare has made good at San Diego. *map Elec Ry J 56:1009-12 N 13 '20*
 Selling the zone fare idea in San Diego. *Elec Ry J 56:269-70 Ag 7 '20*

San Diego and Arizona railway

Heavy construction on San Diego and Arizona railway. *il Eng N 84:481-2 Mr 4 '20*

San Dieguito river

Big dam on the little San Diego. *J. F. Springer. il Sci Am 124:108+ F 5 '21*

Sanding machines

Blower connection for sand paper machine. *diags Metal Work 93:323-5 Mr 12 '20*
 Oliver no. 126 belt sanding machine. *il Am Mach 55:365 S 1 '21*

Sands, Musical. See Musical sands**Sandstone**

Natural sandstones and artificial abrasive wheels from a health hazard standpoint. *A. Rousseau. Am Mach 54:1001 Je 9 '21*
 Occurrence of calcareous sandstone in the recent delta of Fraser river, British Columbia, Canada. *W. A. Johnston. Am J Sci 5th ser 1:447-9 My '21*

Sandwashers. See Sand washing**Sandwich men**

Sandwich men tie up book advertisements with bookshops. *J. Henle. il Ptr Ink M 3:53 Jl '21*

San Francisco, California

New industrial development planned at San Francisco. *diag plan Eng N 84:319-20 F 12 '20*

San Francisco, the western metropolis. *F. C. Wight. Eng N 86:27-8 Ja 6 '21*

See also Building trades—San Francisco

Bridges

Bridge the bay advertising sets San Francisco by the ears. *J. M. Campbell. Ptr Ink 116: 57-8+ Jl 21 '21*

Combined tube, bridge, and mole planned to cross San Francisco Bay. *H. H. Dunn. il Pop Mech 36:521-4 O '21*

Features of San Francisco Bay bridge report. *Eng N 87:268-9 Ag 18 '21*

Plan \$40,000,000 San Francisco bridge. *H. H. Dunn. diag plan Marine R 51:434-5 O '21*

San Francisco Bay bridge project revived by new plans. *diag map Eng N 87:16-17 Jl 7 '21*

Thirteen projects submitted for San Francisco Bay bridge. *Eng N 87:739 N 3 '21*

Harbor

San Francisco as a fuel oil port. *C. W. Geiger. il Sci Am 122:183+ F 21 '20*

San Francisco as a steel exporting city. *il Iron Age 105:1381-4 My 13 '20*

Law and order committee

Trucking along the two great oceans. *F: J. Koster. Am Ind 21:19-20 Ag '20*

Parks and playgrounds

San Francisco Aquatic park to be city's playground. *il Pop Mech 35:742-3 My '21*

Railroads

See also Hetch Hetchy railroad

Rapid transit

Annual report for the year ended June 30, 1920. *Elec Ry J 57:697, 821 Ap 9, 30 '21*

California and her tractions. *E: Hungerford. il Elec Ry J 56:304-8 Ag 14 '20*

Crossing the Bay of San Francisco. *map Min & Sci P 121:510-12 O 9 '20*

San Francisco rerouting effective. *il diag Elec Ry J 58:49-50 Jl 9 '21*

San Francisco's municipal railway. *M. M. O'Shaughnessy. Elec Ry J 57:488 Mr 12 '21*
 Street railway situation in San Francisco. *M. M. O'Shaughnessy. Elec Ry J 54:896-7 N 15 '19*

Streets

San Francisco urged to begin Rincon Hill regrade. *Eng N 87:338 Ag 25 '21*

Water supply

San Francisco's failure to acquire the Spring Valley water works. *C. E. Grunsky. Munic Eng 60:157-9 Ap '21*

Spring Valley water co. purchase strongly recommended. *J. W. Smith. Eng N 86:305 F 17 '21*

See Hetch Hetchy project

San Francisco municipal railway. *See San Francisco—Rapid transit*

Sanispoons

Marketing a product to reach many classes of trade. *C. P. Russell. Ptr Ink 111:10+ My 20 '20*

Sanitary chemistry

See also Air pollution

Sanitary districts

Method of creation and powers of joint sanitary districts in Ohio. *Eng N 84:144 Ja 15 '20*

Sanitary engineering

American public health association 47th annual meeting, New Orleans; abstracts of papers. *Eng N 83:882-3 N 13 '19*

Development of sanitary engineering. *J: W. Alvord. W Soc E J 24:486-8 O '19*

Effect of installation of drainage, sewerage and water purification on community health. *Eng & Contr 52:666 D 10 '19*

Engineering aspects of public health. *J. A. Tobey. Eng N 86:668-70 Ap 21 '21*

Modern sanitary engineering. *G. Thomson. 2v. (v. 1, 2d ed.) Constable & co., London '20-'21*

Sanitary engineering in 1920. *Engineer 131: 46-7 Ja 14 '21*

Sanitation of cities. *W: L. D'Olier and staff of the Sanitation corporation. 119p De Vinne press, New York '21*

Water supply and other sanitation in Greece. *W. E. Spear. il map Eng N 86:708-15 Ap 28 '21*

Water supply and sanitary engineering in 1919. *Engineer 129:10-12 Ja 2 '20; Excerpts. Eng & Contr 53:357-9 Mr 31 '20*

See also Camp sanitation; Drainage; Dust removal; Filters and filtration; Heating; Municipal engineering; Plumbing; Public comfort stations; Refuse collection; Refuse disposal; Sanitation; Sewage disposal; Sewerage; Smoke prevention; Snow removal; Street cleaning; Trade waste; Ventilation; Water pollution; Water purification; Water supply; Water supply engineering; also Illinois—Public health, Department of

Sanitary inspection and test bureau. *See American society of sanitary engineering—Sanitary inspection and test bureau*

Sanitation

Chicago holds first health and sanitation exposition. *il Dom Eng 93:457-8 D 4 '20*

Insanitary privies a menace to rural water supplies. *F. R. King. il diags plans Dom Eng 92:534-7 S 11 '20*

More and better sanitary laws, ordinances, rules and supervision essential today. *A. Bateman. diags Dom Eng 93:554-7, 611-13 D 18-25 '20*

Next step in sanitation work; avoidance of unnecessary contact and rigid inspection of sanitary facilities. *C. B. Nash. Metal Work 94:400-2 S 24 '20; Same. Dom Eng 93:203-4 O 30 '20*

Plumbing industry at Chicago health show. *il Plumber 94:571-2 D 17 '20*

Sanitation in flooded districts. *H. F. Ferguson. Eng & Contr 55:241-2 Mr 9 '21*

Sanitation—Continued

Wisconsin reports sanitary condition of state good. Metal Work 92:580-1 N 14 '19

See also Air washing; Camp sanitation; Cremation; Disinfection and disinfectants; Drainage, House; Dust removal; Factory sanitation; Foundry sanitation; Health boards; Hygiene; Hygiene, Industrial; Malaria; Nuisances; Plumbing; Public health; Railroads—Sanitation; Refuse disposal; Sanitary engineering; Sewage disposal; Sewerage; Smoke prevention; Street cleaning; Ventilation; Water purification; Water supply; *also* subdivision Sanitary affairs under names of cities, e.g. New York (city)—Sanitary affairs

Sanitation, Rural. *See* Plumbing exhibits, Traveling

San Joaquin light and power corporation

Electrical development in the San Joaquin valley. A. G. Wishon. *il* J Elec 44:481-4 My 15 '20

Report for the year 1920. Comm & Fin Chr 112:1308-9 Mr 26 '21

San Joaquin river

Kerckhoff power development of the San Joaquin river. J. M. Buswell. *il* Power 52:926-34 D 14 '20

Plan irrigation system on San Joaquin river. Eng N 86:141 Ja 20 '21

Putting the San Joaquin to work; some details of the water-power development in California. A. L. Dahl. *il* Sci Am 123:470+ N 6 '20

Reminiscences of power development on the San Joaquin. A. G. Wishon. *il* J Elec 45:267-9, 322-4 S 15-O 1 '20

San Salvador**Rapid transit**

Motor bus successful in street railway use. D. A. Hampson. *diag* Automotive Ind 45:407-8 S 1 '21

San Sebastian, Spain

Spanish seaport a colorful old city. Am Arch 118:543-4 O 27 '20

Santa Ana river

Santa Ana river made to cut new outlet to the sea. *il* map Eng N 87:143-4 Jl 28 '21

Santa Barbara, California**Sewerage**

Riensch-Wurl sewage screening plant at Santa Barbara. O. A. Stone. *diag* plan Eng N 86:719-21 Ap 28 '21

Santa Cecilia sugar corporation

Official statement in connection with the listing of common stock without nominal or par value. Comm & Fin Chr 110:2680-2 Je 26 '20

Santa Fe railroad. *See* Atchison, Topeka and Santa Fe railroad

Sap

Osmotic concentration and electrical conductivity of the tissue fluids of ligneous and herbaceous plants. J. A. Harris, R. A. Gortner and J. V. Lawrence. J Phys Chem 25:122-46 F '21

See also Manna

Saponification

Butyl alcohol as a medium for the determination of saponification numbers. A. M. Pardee, R. L. Hasche and E. E. Reid. J Ind & Eng Chem 12:481-2 My '20

Influence of ester transposition in the determination of saponification numbers. A. M. Pardee and E. E. Reid. J Ind & Eng Chem 12:129-33 F '20

Unsaponifiable matters. *diag* J Ind & Eng Chem 12:713-16 Jl '20

Velocity of reaction in mixed solvents; the velocity of saponification of two ethyl esters in ethyl alcohol—water mixtures. A. E. Cashmore, H. McCombie and H. A. Scarborough. Chem Soc J 119:970-8 Jl '21

Saporimeter

Flavors, odors and infra-red rays; measuring degrees of taste and smell with the olfactometer and the saporimeter. G. Hamelin. *il* Sci Am M 3:519-22 Je '21

Sapphires

Queensland marketing sapphire output through Rubin brothers. *il* Eng & Min J 111:681-2 Ap 16 '21

Saratoga Springs, New York**Lighting**

Saratoga's novel lighting system. *il* Elec R 76:432-3 Mr 13 '20

Sardines

Food of the small sea herring and ammonia and amines as end products of its decomposition. F. C. Weber and J. B. Wilson. Am Chem Soc J 42:841-9 Ap '20

From fish to food. A. L. Dahl. *il* Sci Am 123:280+ S 18 '20

Sardinia

Some romanesque churches of Sardinia. A. R. Giles. *il* Am Inst Arch J 8:357-65 O '20

Sarraceniaceæ. *See* Pitcher plants

Sarre valley. *See* Saar valley

Sash weights

How to make sash weight castings. J. H. Anderson. *diags* Foundry 49:592-4 Ag 1 '21

Simple rig for molding iron sash weights. J. M. Fackler. *diags* Foundry 49:451 Je 1 '21

Sashes, Steel

Detroit steel products co. makes Fenestra steel window sash. D. F. Kennedy. Iron Age 107:22 Ja 6 '21

New steel sash enterprise at Chester, Pa. *il* *diags* Iron Age 105:1793-6 Je 24 '20

Saskatchewan

See also Roads—Saskatchewan

Satin

Analysis of a cotton-back satin. A. H. Schnell. Textile World 59:3116-17 My 7 '21

Satin white

Chemistry and manufacture of satin white. A. Cobenzl. Chem & Met Eng 24:221-2 F 2 '21

Sault St Marie canal

Traffic in 1920 through the Sault canals. Eng N 86:958 Je 2 '21

Sauveur, Albert

Albert Sauveur, honorary member of steel treaters. *por* Chem & Met Eng 25:15-16 Jl 6 '21

Savage, William, 1770-1843

Decorative printing of William Savage, 1815-1823. *il* Ptg Art 37:442-4+ Jl '21

Savery, William

Furniture of William Savery. W. A. Dyer. *il* Arch Rec 49:249-52 Mr '21

Saving

Amortizing oneself. Comm & Fin Chr 112:1210-11 Mr 26 '21

Dollar education. W: M. Lewis. Sibley J 34:105-8 Ag '20; Abstract. Engineer 130:482 N 12 '20

Double your savings; it can be done. H. A. Blodgett. 97p Harvey Blodgett co., St Paul, New York '21

Encouraging thrift. Elec Ry J 56:421 Ag 28 '20

Family budgeting—the next step in promoting employee thrift. W. L. Stoddard. Factory 27:334-6 S '21

Helping workers to save. Factory 24:226+, 662+, 1038+, 1916+; 25:62+, 418+, 972+, 1344+; 26:60+, 526+; 27:136+, 555+ Ja, Mr 1, Ap 1, Je 15-Jl 1, Ag 1, S 15, O 15 '20, Ja 1, F 15, Jl, O '21

How one community has succeeded in getting employees to save. J: F. Tinsley. Factory 25:1899-1901 D 15 '20

Incentive in advertising copy that inspires action. Ptr Ink 113:10+ N 4 '20

Industrial savings banking—the Worcester (Mass.) savings plan. J: F. Tinsley. Comm & Fin Chr 111:167-8 sec 2 N 20 '20

Interesting workers in thrift. C. S. Pearce. Factory 27:256+ Ag '21

Is saving a sin? Nation's Business 8:14-16 S '20

Making it easy for your men to save. S: Crowther. *il* Factory 24:787-90 Mr 15 '20

Saving—Continued

- Making thrift seem more worth while. F. H. Williams. *Am Mach* 53:1198-9 D 23 '20
- Mr Doherty's thrift plan. *Gas Age* 47:20 Ja 10 '21
- National thrift system for employes. *Textile World* 60:69 J1 2 '21
- New York Edison savings and loan association now a million dollar banking organization. *N E L A Bul* 8:171-3 Mr '21
- Operation of Worcester industrial savings plan. J. F. Tinsley. *Iron Age* 107:1307-8 My 19 '21
- Personal budget for 1921. *Comm & Fin Chr* 112:95-6 Ja 8 '21
- Putting a bank in your factory. *il Factory* 27:628 N '21
- Savings association as an aid to management. C. L. Walker. *il Factory* 25:1715-18 D 1 '20
- School savings plan. J. R. Stout. *Comm & Fin Chr* 111:168-9 sec 2 N 20 '20
- Solvay thrift plan for industrial employees. H. W. Jordan. *Iron Age* 105:543 F 19 '20
- Systematizing thrift among employees. F. R. Hickman. *Iron Age* 105:133-4 Ja 8 '20
- Thrift. *Am Mach* 54:127 Ja 27 '21
- Thrift and its bearing on the housing question. W. O. Platt. *Ind Management* 62:165+ S '21
- Thrift bureau as a valuable feature of savings bank work. S. Marsh. *Comm & Fin Chr* 111:165-7 sec 2 N 20 '20
- Thrift encouragement by employers. L. F. Fuld. *Ind Management* 62:15-16, 93-4, 139-40, 214-15, 287-9 J1-N '21
- Thrift or paternalism—which? C. H. Fast. *Annalist* 18:99-100 Ag 1 '21
- See also* Building and loan associations; Cost of living; Credit unions; Insurance, Industrial; Old age pensions; Savings banks

Bibliography

- Thrift. *Library Journal* 46:20-2 Ja 1 '21

Savings banks

- Combining life insurance and savings accounts. A. C. Robinson. *Comm & Fin Chr* 113:184-7 sec 2 O 29 '21
- Investment of savings bank resources. S. H. Beach. *Comm & Fin Chr* 113:189-90 sec 2 O 29 '21
- Mutual savings banks. W. E. Knox. *Comm & Fin Chr* 113:193-4 sec 2 O 29 '21
- Resources of savings banks of New York state July 1, 1921. *Comm & Fin Chr* 113:903-4 Ag 27 '21
- Savings deposits in 1920. *Comm & Fin Chr* 112:1226 Mr 26 '21
- Symposium of articles and reports at 19th annual convention of American bankers' association. *Comm & Fin Chr* 111:165-80 sec 2 N 20 '20
- Why your savings bank pays no higher interest. W. F. Wamsley. *Annalist* 17:757 J1 18 '21

See also New York Edison savings and loan association

Saw grass

- Manufacture of paper from Florida saw-grass. *Paper* 27:20 S 15 '20
- Paper pulp from saw grass. H. A. Mount. *il Pop Mech* 34:554-5 O '20

Sawdust

- Burning sawdust to reduce the fuel bill. L. R. Mills, jr. *Power* 52:190 Ag 3 '20
- Conversion of sawdust into cattle feed. E. C. Sherrard. *Chem & Met Eng* 24:160 Ja 26 '21; Same. *Sci Am M* 3:81 Ja '21
- Jobs for sawdust. S. R. Winters. *il Sci Am* 124:268 Ap 2 '21
- Market for sawdust and shavings. *il Am Lumberman* 2350:62-3 My 29 '20
- Preparation and analysis of a cattle food consisting of hydrolyzed sawdust. E. C. Sherrard and G. W. Blanco. *J Ind & Eng Chem* 13:61-5 Ja '21
- Sawdust as fuel. *il Elec R (Lond)* 89:236-8 Ag 19 '21
- Wood waste. *Power Pl Eng* 25:42-4 Ja 1 '21
- See also* Wood waste

Sawmills

- Appraisal and its benefits to the lumberman. W. F. Worcester. *Am Lumberman* 2332:53 Ja 24 '20
- Forest resources, lumber industry and lumber export trade of Finland. A. H. Oxholm. *il map U S Bur For & Dom Com* 207:64-87 '21
- Immense California white pine operation extends and modernizes manufacturing plant. *il Am Lumberman* 2325:48-9 D 6 '19
- In the modern sawmill; machines and methods. H. A. Mount. *il Sci Am* 123:548+ N 27 '20
- New type of sawmill design. J. O. Storey. *plans Am Lumberman* 2346:60 My 1 '20
- Review of repairs in the sawmill. R. C. Leibe. *diags Am Lumberman* 2324:46-7+ N 29 '19
- Sawmill refuse, powdered coal, and oil fuels. D. Corbet. *diag Am Inst E E J* 39:715-32 Ag '20; Abstracts. *Elec W* 76:183-5 J1 24 '20; *Elec Ry J* 56:1314-15 Ag 14 '20; *Mech Eng* 42:580 O '20; *Power Pl Eng* 24:934-7 O 1 '20

Accounting

- Lumber costs. E. M. Meyer. *J Account* 32:113-19 Ag '21
- Practical sawmill accounting. J. Mahony. *Am Lumberman* 2342:64; 2344:58; 2346:64; 2348:61-2; 2350:66-7; 2352:60c; 2355:70-1 Ap 3, 17, My 1, 15, 29, Je 12, J1 3 '20

Electric equipment

- Application of electrical energy in lumber mills. W. A. Scott. *il Elec R* 79:685-8 N 5 '21
- Changing a sawmill to electric drive. *il J Elec* 43:495 D 1 '19
- Electrical drives for lumber mills. J. A. Franklin. *il Power* 51:536-40 Ap 6 '20
- Electrical equipment of an Oregon lumber mill. *Elec R* 76:733-4 My 1 '20
- Electrical equipment utilized in saw mill. *il Elec R* 79:350 S 3 '21
- Electrically driven saw mills. A. E. Hall. *il Mech Eng* 43:95-7 F '21
- New power plants for saw mills. J. B. Woods. *il Power* 51:162-4 F 3 '20
- Power requirements in sawmills. *Elec W* 77:379 F 12 '21

Equipment

- Building saw mill machinery. F. H. Colvin. *il Am Mach* 53:1030-2 D 2 '20
- Saw mill equipment. R. R. Fox. *Paper* 28:20-2+ Je 22 '21
- Saw mill equipment. G. R. Hanson. *diags Paper* 27:26 N 10 '20

Saws

- Analysis of construction costs and methods. H. A. Call. *Sanitary & Heat Eng* 96:139-41+ Ag 26 '21
- Band re-sawing machine. *il Engineering* 110:16 J1 2 '20
- Band saw science or valuable inside facts. R. C. Leibe. *diags Am Lumberman* 2322:60 N 15 '19
- Cold saw moves vertically while cutting hard steel. *il Pop Mech* 36:264 Ag '21
- Crosscut saw operated by one man seated. *il Pop Mech* 36:72 J1 '21
- Device for grinding hacksaws. E. E. Henry. *il diags Am Mach* 53:955-6 N 18 '20
- Direct connection of motor to swing saw permits use of smaller size. J. Franz. *diag Elec W* 75:957-8 Ap 24 '20
- Direct motor-driven tenoner saw. *il Sci Am* 124:291 Ap 9 '21
- Hack saw blades and cutting pressure. *diags Ry Mech Eng* 94:595-6 S '20
- Hack-sawing machine of novel design. *diag Mech Eng* 43:267 Ap '21
- Horizontal log-cutting band saw. *il diags Engineering* 109:256-7 F 20 '20
- Improved vertical band saw. *il diags Engineer* 130:658-9 D 31 '20
- Making drag saws in the big timber country. F. H. Colvin. *il diag Am Mach* 55:555-6 O 6 '21
- Napier gravity feed band saw. *il Ry Mech Eng* 93:677-8 N '19

Saws—Continued

- Newton cold saw for cutting 24-in. stock. *il* Iron Age 105:668 Mr 4 '20; Iron Tr R 66:712-13 Mr 4 '20; Mach 26:682 Mr '20
- Oliver saw bench performs many operations. *il* Iron Tr R 67:1549 D 2 '20
- One-man cross-cut saw. *il* Sci Am 125:103 Ag 6 '21
- Robertson economy high-speed power saws. *il* Am Mach 54:1060 Je 16 '21
- Ryerson high speed friction saws designed for the rapid cutting of structural steel. *il* Iron Age 106:1738 D 30 '20; Iron Tr R 68:228 Ja 20 '21; Ry R 68:65-6 Ja 8 '21
- Saw filer and millwright. I. Skeels. Am Lumberman 2335:64-5; 2336:62-3; 2338:62-3; 2339:56-7; 2341:78-9; 2343:62-3; 2345:64-5; 2347:61; 2349:64-5; 2351:60-1; 2353:58-9 F 14-21, Mr 6-13, 27, Ap 10, 24, My 8, 22, Je 5, 19 '20
- Sterling saw for motor truck tires and rims. *il* Mach 26:777 Ap '20
- Swaging and side-dressing machine for band saws. *il* diags Engineering 112:186, 188 Jl 29 '21
- Swing saw. diags Eng & Min J 112:539 O 1 '21
- Two-spindle saw bench. *il* Engineering 109:46-7 Ja 9 '20
- What you can expect of hack saws. Plumber 94:507 N 19 '20; Same. Sheet Metal Worker 11:371 N 26 '20

Advertising

- Disston advertising net catches both the known and unknown user. R. Cole. Ptr Ink 112:3-4+ Jl 1 '20

Safety devices

- Band-saw guard. M. E. Duggan. diags Mach 26:767 Ap '20
- Safety device for a cutoff saw. D. C. Ashmead. diag Coal Age 17:428 Mr 4 '20

Testing

- Hack saws, their selection and use. Mech Eng 42:523-4 S '20
- Testing hacksaw blades. H. H. George. Am Mach 52:155-7 Ja 15 '20; Same abr. Elec Ry J 55:297-9 F 7 '20

Scaffolding

See also Rope climbing apparatus

Scagliola

- Specification for scagliola. Am Inst Arch J 9:311 S '21

Scales

- Automatic coal scale checks fuel consumption. *il* Pop Mech 36:590 O '21
- Automatic coal scales at Dalmarnock power station. diags Engineering 109:754-6 Je 4 '20
- Eliminating the overweight evil to save the profits. *il* Sci Am 125:43 Jl 16 '21
- Improved automatic boiler-room coal scale. *il* Power 53:514 Mr 29 '21
- Specifications and tolerances for weights and measures and weighing and measuring devices. diags U S Bur Stand Circ 61:1-44 '20
- See also* Balances; Track scales

Testing

- Truck for testing scales eliminates heavy work. *il* Pop Mech 36:361 S '21

Scallops. See Mollusks**Scam Balcke process. See Cooling water****Scandinavia**

See also Machine tool industry—Scandinavia

Commerce

- Development of Scandinavian-American trade relations. F. C. V. Schwedtman. 125p [bibliog. p. 123-5] National city bank of New York, New York '21

Industries and resources

- Economies of electric iron and steel production in Scandinavia. J. W. Richards. Chem & Met Eng 22:61-2 Ja 14 '20
- Industrial conditions in Scandinavia. G. A. Lindstedt. Mach 26:817 My '20

Scarfig machine

- Armstrong shipyard; double plate scarfig machine. diags Engineering 109:567 Ap 30 '20
- Barnes scarfig machine. *il* diags Engineer 130:162-3 Ag 13 '20
- Improved plate scarfig machine. diags Marine R 51:294 Je '21
- Portable scarfig machine. diags Engineering 110:667 N 19 '20

Scarfs

- Knitted scarfs and mufflers. W. Davis. diags Textile World 58:2801+ O 23 '20

Scarus cretensis. See Parrot fish**Schedules**

- Assigning the work that's ahead. G. F. Hamilton. Factory 24:1159-60 Ap 15 '20
- Graphic production control for the small shop. R. J. Rahn. Ind Management 61:432-6 Je '21
- How to increase shop production. E. T. Spidey. Eng & Ind Management 6:88-92 Jl 28 '21
- Lincoln motor production plan. I. J. Beatty. Factory 24:623-6 Mr 1 '20
- Locomotive repair shop scheduling system. G. Gibson. chart Ry Mech Eng 95:243-7 Ap '21
- Modern production methods. W. R. Basset. chart Am Mach 53:17-20, 63-6, 215-19 Jl 1-8, 29 '20
- Production engineering. J. S. Watts. Mach 27:64-5 S '20; Same abr. Soc Auto Eng J 9:75-6 Jl '21
- Scheduling and routing systems for car shops. H. Gardner. Ry Mech Eng 95:502-4 Ag '21
- Scheduling and routing systems for locomotive repair shops. *il* Ry R 66:968-71 Je 12 '20
- Scheduling and routing work in the A.E.F. shop. C. E. Lester. *il* Ry Mech Eng 94:97-102 F '20
- Shop scheduling vs. old-fashioned methods. Ry Mech Eng 94:289-90 My '20
- Work completion schedules. *il* Am Gas Assn Commercial sec v 2:333-53; Discussion. 353-63 '20

See also Control boards; Progress records

Scheelite

- Crystal structures of wulfenite and scheelite. R. G. Dickinson. diag plan Am Chem Soc J 42:85-93 Ja '20

Schenectady, New York**Bridges**

- Great western gateway, a highway bridge over the Mohawk river at Schenectady. J. J. Birch. *il* Good Roads 61:81-3+ Ag 17 '21

Water supply

- Pollution of public water supply by spring freshet. diags Eng & Contr 54:562-4 D 8 '20

Scherbius system. See Speed variation**Schmid, Albert, 1857-1919**

- Tribute to Albert Schmid. C. A. Terry. Elec J 17:40-1 F '20

Schneider, Charles Prosper Eugène, 1868-

- Eugène Schneider awarded the John Fritz medal for 1922. Eng & Min J 111:1037 Je 18 '21; Iron Tr R 68:1781 Je 30 '21; Min & Met 175:4-5 Jl '21

- Eugene Schneider, ironmaster of France. J. W. Harrington. Annalist 18:414 O 31 '21

Scholarships and fellowships

- Industrial research at the Mellon institute. W. Savage. *il* Chem & Met Eng 22:249-55 F 11 '20

See also American-Scandinavian foundation fellowships; Rotch traveling scholarship

School children, Transportation of

- Good roads and motor buses to solve the rural school problem. Good Roads 61:32-3+ Jl 20 '21
- Motor bus service for consolidated rural schools. Munic Eng 61:sup17-20 O '21
- Transportation and education. *il* Sci Am 122:680 Je 19 '20

School entertainments

Electricity and the school entertainment. *il*
J Elec 44:614-16 Je 15 '20

School gardens

Freedom of the seeds. H. R. Randolph. *Na-*
tion's Business 8:46+ My '20

School shop. See Machine shop practice—Study and teaching**Schoolhouses**

Better planning needed for departmental
school buildings. *Heat & Ven* 17:43 Ag
'20

Construction of schoolhouses; with bibliog-
raphies. L. A. Williams and others. *Univ*
North Carolina Rec Ext Ser 38:1-46 S '20

Efficient arrangement of schoolhouse entrance
doors. *il Am Arch* 118:389-90 S 22 '20

Grade school, Baldwin, Long Island, N.Y.;
views. *Am Arch* 120:pl 14m-n J1 6 '21

How one consulting engineer got a job; side-
lights on the business side of engineering in
designing schoolhouses for the city of New
York. E. E. Seelye. *il diags plan Eng N* 86:
940-2 Je 2 '21; Discussion. E. A. Fraser.
87:161 J1 28 '21

Neighborhood house, Marina mission, Maya-
guez, Porto Rico. *Am Arch* 120:228, 228i-j
S 28 '21

One-story schoolhouse. F. I. Cooper. *Am Arch*
117:451 Ap 7 '20

School architecture; principles and practices.
J. J. Donovan and others. 724p Macmillan
'21

Standard test for schoolhouse design and
construction. F. I. Cooper. *Am Arch* 118:9-
10, 13-14 J1 7 '20

Tower Hill school, Wilmington, Del. *il Arch*
Forum 34:45-6, pl 17-20 F '21

See also Normal schools

Bibliography

Bibliography of schoolhouse architecture. W:
C. Titcomb. *Arch Rec* 49:358-71 Ap '21

Cost

Schoolhouses in Massachusetts. W: R. Greeley.
il plans Arch Forum 33:155-60 N '20

Designs and plans

Country school materializes ideal. *il plan Pop*
Mech 33:160 Ja '20

Economy in schoolhouse planning. W. R. Mc-
Cornack. *plans Arch Forum* 32:219-22 Je
'20; Same, without plans. *Eng & Contr* 53:
718 Je 23 '20

Efficient school of economical type. G. H.
Burr. *il plans Arch Forum* 34:23-4, pl 12-
13 Ja '21

Evergreen avenue grammar school, Plainfield,
N.J.; view and plans. *Arch Forum* 32:pl 59-
60 Ap '20

Girls' school and lower school, Milton
academy, Milton, Mass.; views and plans.
Arch Forum 34:pl 85-7 Je '21

High school, Durango, Colorado; views and
plans. *Am Arch* 117:492h-l Ap 21 '20

High school, Morristown, N.J., and Moses
Bigelow school, Newark, N.J. *Am Arch* 117:
792a-h Je 23 '20

Jefferson school and Edward Smith school,
Syracuse, N. Y. *Arch Forum* 34:75, pl 29-
30 F '21

Lower school building, Principia school, St
Louis, Mo. *Arch Forum* 33:pl 61-3 O '20

Modern country school feeds puny children.
il plan Pop Mech 35:800 My '21

New school buildings, state of Delaware. J. O.
Betelle. *il plans Am Arch* 117:751-60, 763-
5, 785-8 Je 16-23 '20

Our Lady of Lourdes parochial school, Ja-
maica Plain, Mass.; views and plans. *Arch*
Forum 32:pl 61 Ap '20

Round Prairie grade school, Fort Dodge,
Iowa; view and plans. *Arch Rec* 49:170-1
F '21

Schoolhouses in Massachusetts. W: R. Greeley.
il plans Arch Forum 33:155-60 N '20

Small school building; Washington school at
South Manchester, Connecticut. *il plan Bldg*
Age 43:25 Je '21

Some economies in school construction in
Montreal. *diag plans Arch Forum* 32:209-
12, 255-7 My-Je '20

Some recent Florida schools. *il plans Arch*
Forum 35:78-84, pl 32-3 S '21

Two California schools. *il plans Arch Forum*
35:85-8, pl 34-8 S '21

Two school buildings in Syracuse, N.Y.;
Delaware school and Blodgett vocational
high school. *il plans Am Arch* 119:89, 94a-
g Ja 26 '21

Whittier school, St Joseph, Mo. *il plans Arch*
Forum 32:223-4 Je '20

Fire protection

Fire protection for schools. H. W. Forster.
Am Arch 117:264-5, 289-93, 323-6 F 25-Mr
10 '20

Fire protection of schoolhouses. J. A. Rob-
inson. *Safety Eng* 41:115-17 Mr '21

Furniture, equipment, etc.

Raising the family of products. *Ptr Ink* 110:
90, 92-3 Ja 1 '20

Heating and ventilation

Advance in air conditioning in school build-
ings. E. S. Hallett. *diag plan Am Soc Heat*
& V E J 26:1-10 Ja '20; Same cond. *Heat*
& Ven 17:25-9 F '20; Abstract. *Mech Eng*
42:244 Ap '20; Discussion. *Am Soc Heat &*
V E J 26:1-10 Ja '20

Air washing and humidification for school
buildings. P. West. *Am Soc Heat & V E* 25:
37-47; Discussion. 47-58 '19

Argument for the unit system of ventilation
as a fuel saver. H. E. Westover. *il diags*
Heat & Ven 17:40-5 S '20

Classroom ventilation. K. Meier. *Am Soc Heat*
& V E 25:265-72 '19

Comparative study of natural and mechanical
ventilation for school rooms. F. G. Legg and
W. F. Walker. *il plans Am Soc Heat & V E*
25:273-82; Discussion. 282-8 '19

Heating an Oklahoma school building. *il plan*
Dom Eng 90:622-3 Mr 27 '20

Heating and ventilating a Denver high school
diags plan Dom Eng 95:350-4, 407-10, 458-61
My 21-Je 4 '21

Heating and ventilating a two-room school.
diags plan Dom Eng 92:491-2; 93:409-10 S
4, N 27 '20

Heating and ventilating the standard school-
house. J. D. Cassell. *Am Soc Heat & V E*
25:349-54; Discussion. 355-6 '19

Heating, ventilation and temperature con-
trol in school buildings. *il diags Dom Eng*
94:78-80+, 126-9 Ja 8-15 '21

Instruction course for custodians and jani-
tors; maintaining comfort in school rooms.
E. S. Hallett. *Heat & Ven* 18:36-7 Ag '21

Mechanical equipment of the East Side high
school, Cincinnati, Ohio. C: F. Jordan. *il*
diags plans Heat & Ven 17:25-31 Mr; 35-8
Ap '20

New heating and ventilating system adopted
for Chicago schools. *il diag plans Dom Eng*
93:251-3, 300-2 N 6-13 '20

Progress report of committee on schoolhouse
standards. F. I. Cooper. *il Am Soc Heat*
& V E J 27:133-5 Mr '21

Report of committee on school house stand-
ards. *Am Soc Heat & V E* 25:233-8 '19

Report on status of school ventilation in the
United States. *Am Soc Heat & V E J* 26:
183-8; Discussion. 254-8 Mr '20

Two systems for ventilating school rooms.
W. H. Wakeman. *diags Dom Eng* 94:387-8
F 19 '21

Ventilation problem. *Dom Eng* 96:112+ J1 16
'21

Ventilation tests of schoolrooms at Minneapo-
lis. L. A. Scipio. *diag Am Soc Heat & V E J*
27:543-6 J1 '21

Lighting

Combination gas and electric lighting for a
high school. W. F. Norton. *il Am Gas Eng*
J 112:219-23 Mr 20 '20; Same. *Gas Age* 45:
278-80 Mr 25 '20

Difficulties in school lighting. F. H. Wood.
Illum Eng Soc 16:117-24; Discussion. 124-
37 no 6 '21

Good lighting in the schools. F. C. Caldwell.
Illum Eng Soc 15:321-32; Discussion. 332-6
no 5 '20

Schoolhouses—Lighting —Continued

- 1085 gas lamps installed in Providence school after thorough investigation. J. E. Bullard. *Am Gas Eng J* 114:8-9 Ja 1 '21
 Proposed school-lighting code for Wisconsin. *Elec R* 77:752-4 N 13 '20
 Schools a potential market for electrical contractor. F. Bruce. *il Elec R* 78:807-10 My 21 '21

Schools

- Greenhouse shelters unique school; Moraine Park school. P. A. Jenkins. *il Pop Mech* 33:413-14 Mr '20

See also Automobile schools; Colleges and universities; Corporation schools; Education; Engineering colleges; Evening and continuation schools; High schools; Mining schools and education; Textile schools; Trade schools

Schools, Private

See also Tower Hill school, Wilmington, Delaware

Schools and shops, Cooperation of. *See* Industrial education, Cooperative

Schoop process. *See* Metal coating

Schroeder, R. W.

- Major Schroeder's record altitude flight. *Mech Eng* 42:255-6 Ap '20; Same. *Aviation* 8:293-4 My 1 '20

Schwab, Charles M.

- Gardens of Charles M. Schwab, esq., Loretto, Pa. R. Inlay. *il plans Arch Rec* 47:386-407 My '20

Germany's offer to buy Charles M. Schwab. *Comm & Fin Chr* 112:1929-30 My 7 '21

Schweizers reagent

- Über den asymmetrischen aufbau der cellulose und über die beeinflussung der rotation von kohlehydraten durch kupferhydroxyd-ammoniak (Schweizers reagens). K. Hess and E. Messmer. *Deutsche Chem Gesell Ber* 54:834-41 Ap '21

Science

- Administration of science. L. Bairstow. *Engineering* 111:686-7 Je 3 '21
 Classification; class Q, science. 2d ed. 207p Library of Congress, Washington, D.C. '21
 Concept of nature, Tarner lectures delivered in Trinity college, November, 1919. A. N. Whitehead. 202p University press, Cambridge '20

Engineering possibilities as indicated by the progress of science; with discussion. C. F. Kettering. *Soc Auto Eng J* 7:56-61 Jl '20

Future as suggested by developments of the past seventy-five years. *Sci Am* 123:320-1 O 2 '20

Indispensability to each other of pure and applied science. H. A. Bumstead. *Am Inst E E J* 39:19-20 Ja '20

International scientific relations. F. G. Cottrell. *J Ind & Eng Chem* 12:697-700 Jl '20

New world of science; its development during the war. R. M. Yerkes. 443p *Century* '20

On certain fundamental principles of scientific inquiry. D. Wrinch and H. Jeffreys. *Philos Mag* 6th ser 42:369-90 S '21

Pure science and industrial research. J. J. Carty. *Am Inst E E J* 39:57-8 Ja '20

Science and the industries. J. J. Carty. (Reprint & Circ. Ser. 8) 16p n.d. 25c National research council, 1701 Massachusetts av, Washington, D.C.

Scientist and his definitions. *Sci Am* 122:616 Je 5 '20

See also Astronomy; Astrophysics; Bacteriology; Biological chemistry; Botany; Chemistry; Crystallography; Geology; Mathematics; Metallography; Meteorology; Microscope and microscopy; Mineralogy; Optics; Physics; Science service; Scientific research; Technology

Bibliography

- Bibliotheca chemico-mathematica; catalogue of works in many tongues on exact and applied science. 2v 868p H. Sothorn and co., London '21

Periodical bibliographies and abstracts for the scientific and technological journals of the world. R. Cobb, comp. (National Research Council Bul. v 1, no 3) p 131-54 Je '20
 National research council, 1701 Massachusetts av, Washington, D.C.

Recent scientific and technical books. D. A. Hooker. *Library J* 45:967-73 D 1 '20

Some recent and readable books in general science. M. E. Sparks, comp. 15 mim. p Univ. of Ill. Library, Urbana, Ill.

History

Readings in the history of science. P. B. M'Donald. *Eng & Contr* 55:411-12 Ap 27 '21

Seventy-five years of pure science. *Sci Am* 123:336-7 O 2 '20

Science service

Missing link between science and the public. E. E. Slosson. *Special Lib* 12:157-8 S '21

New dispensary of popular science. *Sci Am* 124:422 My 28 '21

Science for the millions. *Sci Am M* 3:462-4 My '21

Scientific American (periodical)

Diamond jubilee of the Scientific American. *il Sci Am* 123:342-3+ O 2 '20

Scientific American landmarks. *Sci Am* 125:214 S 24 '21

With typewriter and offset press; how the Scientific American was manufactured in the absence of compositors and pressmen. *il Sci Am* 121:581+ D 13 '19

Scientific apparatus and instruments

Design and construction of scientific instruments. R. S. Whipple. *diags Engineering* 111:659-62 My 27 '21; *Abstract. Electrician* 86:328-9 Mr 18 '21

Duty-free apparatus for colleges. J. W. Richards. *Chem & Met Eng* 24:52 Ja 12 '21

Royal Society soirée. *Engineering* 109:658-9 My 14 '20

Scientific instruments, compiled by the U.S. Tariff commission. *Sci Am M* 1:189 F '20

See also Astronomical instruments; Chemical apparatus; Electric apparatus and appliances; Electric instruments; Medical instruments; Meteorological instruments; Physical instruments; Surgical instruments and apparatus; Surveying instruments; Volumetric apparatus

Exhibitions

Physical and optical societies' exhibition. *il diags Engineer* 129:62-3 Ja 16 '20; *Engineering* 109:87-9 Ja 16 '20

Scientific apparatus makers, Association of. *See* Association of scientific apparatus makers

Scientific congress, Pan-Pacific. *See* Pan-Pacific scientific congress

Scientific instruments. *See* Scientific apparatus and instruments

Scientific literature

Einstein contest and the readers. *Sci Am* 124:349 Ap 30 '21

Matter of definition; divergent viewpoints as to what constitutes a popular essay. *Sci Am* 124:87+ Ja 29 '21

Science for the millions. *Sci Am M* 3:462-4 My '21

Scientific management. *See* Factory management; Industrial management; Motion study; Time study

Scientific research

Administration of science. L. Bairstow. *Engineering* 111:686-7 Je 3 '21

Art of systematic inquiry (research), its place in industry. H. E. Armstrong. *Engineering* 109:735-7 My 28 '20; *Excerpts. Eng & Contr* 53:757-8 Je 30 '20

Conquest of the impossible. H. E. Howe. *il Nation's Business* 9:20-2 Ag '21

Co-ordination of research in works and laboratories. H. R. Constantine. *Inst E E J* 57:sup134-48; *Discussion. sup148-57* '19

Scientific research—Continued

- Development of research in the United States. J. R. Angell. (Reprint & Circ. Ser. 6) 19p n.d. 25c National research council, 1701 Massachusetts av, Washington, D.C.
- Economic importance of the scientific work of the government; abstracts. E. B. Rosa. Monthly Labor R 11:44-50 Jl '20; N E L A Bul 7:786-92 N '20
- Electrical research needs strong support. V. Karapetoff. Elec W 75:603-4 Mr 13 '20
- Encouragement of scientific research. Chem & Met Eng 24:1159-60 Je 29 '21
- Funds available in 1920 in the United States of America for the encouragement of scientific research. Nat Research Council Bul 2 pt 9:1-81 Mr '21
- How aircraft will help astronomers, physicists and biologists in the study of fundamental questions. H. Woodhouse. il diags Flying 9:91-6 Mr '20
- International co-operation in science. R. F. Ruttan. Can Chem & Met 5:17-19 Ja '21
- National importance of scientific and industrial research. G. E. Hale and others. Nat Research Council Bul 1 pt 1:1-43 O '19
- Promotion of scientific research. W. Hoskins and R. Wiles. Chem & Met Eng 24: 689-91 Ap 20 '21
- Report of the committee of the Privy council for scientific and industrial research for the year 1919-1920. Engineer 130:305-6. 345-6 S 24, O 8 '20; Abstract. Mech Eng 42:696-7 D '20
- Report of the committee of the Privy council for scientific and industrial research, August 1st, 1920, to July 31st, 1921. Engineer 132:393-4, 430-1, 450 O 14-28 '21; Abstract. Elec R (Lond) 89:595-6 N 4 '21
- Report of the special committee appointed to consider the matter of the development in Canada of scientific research. (4th Sess. 13th Parliament) 28p '20 Canada Scientific research, Ottawa
- Report on industrial and scientific research. Engineering 112:606-7 O 28 '21
- Science and industry. A. W. Allen. Min & Sci P 121:161-5 Jl 31 '20
- Science and industry. W. Rosenhain. Eng & Contr 53:641-2 Je 2 '20
- Science and national progress. V. Kellogg, R. M. Yerkes and H. E. Howe. Sci Am M 1: 73-7 Ja '20
- Science coming into its own; the National research council and other research organizations. C. F. Carter. Sci Am 125:24 Jl 9 '21
- Science is required in the workshop. W. H. Cathcart. Foundry 49:160-1 F 15 '21
- Scientific and engineering work of the government. E. B. Rosa. Mech Eng 43:111-18 F '21; Excerpts. Eng & Contr 55:487-90 My 18 '21
- Scientific and industrial research. Engineering 110:445-6 O 1 '20
- Scientific research as a career. W. R. Whitney. Sibley J 35:112 Ag '21
- Scientific research in the engineering schools. A. E. Kennelly. il Elec W 75:150-1 Ja 17 '20
- Scientific research is to the public interest. A. W. Berresford. Gen Elec R 24:600 Jl '21
- Scientific survey of the Pacific formulated by the first Pan-Pacific scientific congress. Honolulu, Aug. 2-20, 1920. C. Wissler. Sci Am M 2:268-70 N '20
- Scottish centre of I.E.E.; chairman's address. W. B. Hird. Inst E E J 58:43-7 D '19
- Standardization and research. S. W. Stratton. J Ind & Eng Chem 13:727-8 Ag '21
- Succeeding in scientific research, opportunities for the young technicist. R. F. Yates. Sci Am 125:236 O 1 '21
- University and research. V. Kellogg. (Reprint & Circ. Ser. 19) 10p '21 15c National Research Council, 1701 Massachusetts Av, Washington, D.C. [Reprinted from Science, July 8, 1921]; Same. Chem Age 29:274-6 Jl '21
- See also* Aeronautic research; Canada—Advisory council for scientific and industrial research; Chemical research; Electric research; Geological research; Government

research; Industrial research; International research council; Laboratories; Metallurgical laboratories; Mining research; National research council; Textile research; United States—Standards, Bureau of

Bibliography

- Scientific research. C. J. West. (In Reprint & Circ. ser. 9) p 3-16 '20 National research council, 1701 Massachusetts av, Washington, D.C.

Scientists

- American men of science; a biographical directory. J. M. Cattell and D. R. Brimhall. 3d ed. 808p Science press, Garrison, N.Y. '21

Scleroscope

- Changes in Shore-model-C scleroscope. il Am Mach 55:742 N 3 '21
- Use of the scleroscope on light specimens of metals. F. S. Tritton. il diags Engineering 112:492-3; Discussion. 483-4 S 30 '21

Sclerotinia cinerea

- Function of vitamins in the metabolism of sclerotinia cinerea. J. J. Willaman. diags Am Chem Soc J 42:549-55 Mr '20

Scopoline

- Scopoline. J. Gadamer and F. Hammer. Chem Soc J 120 pt 1:588-90 Ag '21

Scotland

- See also* Coal mines and mining—Scotland; Electric plants (central stations)—Scotland; Hydroelectric plants—Scotland; Wages—Scotland; Water power—Scotland

Scott paper company

- Burglar-proofing a market after you have won it. Ptr Ink 110:81-2+ F 5 '20

Scottish Rite cathedral. See Masonic temples**Scows**

- Tank scows for live fish. il Sci Am 124:269 Ap 2 '21

Scranton, Pennsylvania

- Though free of legal obligation Scranton mines pay for mine-cave damages. D. C. Ashmead. il map Coal Age 19:354-8 F 24 '21
- Undermined city of Scranton and its underground fires. il Sci Am 124:309 Ap 16 '21

Scrap material

- Disposing of scrap systematically. G. Frazar. il Iron Age 108:125-6 Jl 21 '21; Same. Eng & Ind Management 6:147-8 Ag 11 '21
- How to handle scrap credits. C. B. Williams. Iron Tr R 69:31-2 Jl 7 '21; Excerpts. Administration 1:852-3 Je '21; Factory 27: 38 Jl '21
- Lincoln motor production plan. I. J. Beatty. Factory 24:1879-82 Je 15 '20
- One way to record scrap. P. A. Radee. Factory 27:526+ O '21
- Profiting from the scrap heap in the automotive factory. W. C. Hirsch. Automotive Ind 42:1270-2 Je 3 '20
- Regulating losses from scrap. H. R. Simonds. il diags Iron Tr R 69:157-61 Jl 21 '21
- Save and have; how the war on waste at the General Electric's largest plant is conducted. H. D. Winney. il Ind Management 62:216-20 O '21
- Saving steps in salvaging scrap; reclaiming spoiled material on the spot. G. O. Wharton. il Factory 25:1566-9 N 15 '20
- Scrap. N E L A Bul 7:936 D '20
- See also* Electric railroads—Scrap material; Railroads—Scrap material; Scrap metal; Waste; Waste products

Scrap metal

- Bronze foundry increases output. il diag Foundry 48:948-51 D 1 '20
- Giant junk yard; a plant that handles anything from discarded battleships and abandoned railroads to old tin cans. W. A. McGarry. il Sci Am 125:20+ Jl 9 '21
- Gross ton conversion tables. Foundry 48:360a My 1 '20
- Increasing revolving ferrous scrap fund. W. Graham. Iron Age 108:187-9 Jl 28 '21
- Less metal scrap—bigger scrap value. il Factory 26:740-1 Mr 15 '21

Scrap metal—Continued

- Methods and machines that make it useful for plants to handle their own scrap. R. G. Skerrett. *il Sci Am* 124:404-5+ My 21 '21; Same. *Brass W* 17:218-19 Ag '21
- Net and gross ton equivalents. *Foundry* 48:334a Ap 15 '20
- New scrap classification. *Iron Age* 108:478 Ag 25 '21; Same *abr. Iron Tr R* 69:500-1 Ag 25 '21
- Philadelphia scrap prices, 1900 to 1919; tabulation. *Iron Age* 105:56 Ja 1 '20
- Philadelphia scrap prices, 1901 to 1920; tabulation. *Iron Age* 107:67 Ja 6 '21
- Salvaging high speed steel scrap. S: S. Buckley. *Ry Mech Eng* 94:290 My '20
- Scrap liquidation is complete. *Iron Tr R* 68:97-8 Ja 6 '21
- Scrap prices at Chicago 1905 to 1920; tabulation. *Iron Age* 107:68 Ja 6 '21
- Scrap survives peace uncertainty. *Iron Tr R* 66:120+ Ja 1 '20
- Secondary metals. *Min & Sci P* 120:650 My 1 '20
- Shop floor buckets; new method of handling scrap. *il diag Iron Age* 105:1320 My 6 '20
- Tool salvage department. C. B. Cole. *Mach* 26:435-7 Ja '20
- Waste materials in the mining industry. G. T. Harley. *Eng & Min J* 109:1304-6 Je 12 '20

See also Electric railroads—Scrap material; Metal waste; Railroads—Scrap material

Accounting

- Accounting for the handling of scrap metals. F. A. Hamilton. *J Account* 30:354-60 N '20

Scrapers

- Use of scrapers for handling material underground. L. Eaton. *il diags Eng & Contr* 56:56-61 Jl 20 '21

Scraping machines (metal work)

- Pneumatic metal-scraping machine. *il diags Engineer* 131:160-1 F 11 '21

Screening. See Sewage disposal—Screening**Screens**

- Clay screening machine proves worth while. C. U. Hendershot. *il Brick & Clay Rec* 58:566-7 Ap 5 '21
- Clean water for the power plant. G: T. Holmes. *Sci Am* 125:113 Ag 13 '21
- Cylindrical screen takes tons of leaves from condensing water. D. McDonald. *il Elec W* 78:372-3 Ag 20 '21
- Development of a vibrating screen. B. A. Mitchell and G. B. Rosenblatt. *il diag Min & Sci P* 122:419-22 Mr 26 '21
- Fine screen specifications for activated sludge plant at Milwaukee. *Eng N* 84:511 Mr 11 '20
- Largest traveling screens installed at Cincinnati. *il Power* 54:62-4 Jl 12 '21
- Mitchell electric vibrating screen. *il diags Engineering* 111:774 Je 24 '21
- Mitchell screen. *il Chem & Met Eng* 21:644 N 12 '19
- Nested cylindrical screens solve city's water-straining problem. G: T. Holmes. *il Pop Mech* 35:682-3 My '21
- Pulp and paper screens. P. Dennett. *Paper* 28:16-17+ Je 8 '21
- Screens and screen plates. J: T. Mellor. *il diags Paper* 27:52-3 N 10 '20
- Self-cleaning screen for small canals. *il diags Eng N* 84:128 Ja 15 '20
- Traveling screens cleanse water for steam turbines. *il Pop Mech* 36:343 S '21
- World's largest water screens; intake of Cincinnati power plant. W. Painter. *il Power Pl Eng* 25:713-14 Jl 15 '21
- Wullstein gravitation screen. *il Eng & Min J* 111:451 Mr 5 '21

See also Sieves

Screw gages. See Gages**Screw machine (term)**

- Should term screw machine be used when referring to turret lathes? *il Iron Tr R* 66:1338-9 My 6 '20

Screw machines

- Changes in Cone four-spindle automatic screw machine. *il Am Mach* 54:388-9 Mr 3 '21

- Cleveland electrical speed control for automatics. *il Ry Mech Eng* 94:808-9 D '20
- Designing cut-off cams for automatic screw machines. J: A. Crabtree. *diags Mach* 26:806-7 My '20
- Electrical speed control for Cleveland automatics. *il diags Mach* 27:81-4 S '20
- Empire full-automatic screw machine. *diags Mech Eng* 43:267-8 Ap '21
- Foster line of hand screw machines. *il Am Mach* 51:953-4 N 27 '19; *Mach* 26:370-2 D '19; *Iron Age* 104:1187-9 D 11 '19; *Ry Mech Eng* 93:744-5 D '19
- Hand screw machine attachment. *il Iron Age* 108:406 Ag 18 '21
- Hand screw machine practice. *il diags Mach* 26:620-4, 742-4, 850-4 Mr-My '20
- Keeping records of automatic screw machines. S. Helweg. *diags Mach* 26:659-61 Mr '20
- Magazine feeds for automatic screw machines. *il diags Mach* 27:617-22 Mr '21
- Millholland number two friction-head screw machine. *il Am Mach* 52:310 F 5 '20
- National Acme multiple automatics. *il Mach* 26:771-4 Ap '20; *Am Mach* 52:861-2 Ap 15 '20; *Iron Age* 105:935-9 Ap 1 '20; *Ry Mech Eng* 94:415-17 Je '20
- New Britain automatic screw machine. *il Iron Age* 107:1617 Je 16 '21
- New plant of National Acme company. *il plans Iron Age* 104:1111-19 D 4 '19
- Pearson-Scott mechanical control for hand screw machines. *il Am Mach* 55:115-16 Jl 21 '21; *Iron Tr R* 69:41 Jl 7 '21
- Potter bench hand screw machine. *il Mach* 27:180-1 O '20
- Standard specifications for cold-drawn Bessemer steel automatic screw stock; English and French. U S Bur For & Dom Com Industrial Standards 152:1-8 '21
- Standard specifications for cold-drawn open-hearth automatic screw stock; English and French. U S Bur For & Dom Com Industrial Standards 153:1-8 '21

See also Forming tools; Machine tools

Screw presses. See Presses**Screw spikes. See Spikes (railroad)****Screw threads**

- Acme screw threads. A. J. Schwartz. *diags Am Mach* 53:105-6 Jl 15 '20
- Graphical determination of the relation between English and metric screw thread pitches. H. W. Bearce. *chart Am Mach* 54:519 Mr 24 '21
- Improved type of optical projection apparatus for screw thread inspection designed and built by the Bureau of standards. L. A. Fischer. *il Am Mach* 53:1158 D 16 '20
- Increasing thread diameter to allow for error in lead. *diag Mach* 27:173 O '20
- Rogers thread lead variator. *il Mach* 26:986-7 Je '20
- Screw thread production to close limits. H. E. Adt. *The Stirling press*, New York '20
- Some notes on tapping. E. A. Dixie. *charts Am Mach* 53:861-2 N 4 '20
- Special form of Acme thread. H. A. Pearson. *diag Mach* 27:30 S '20
- Tap drill sizes. E. C. Peck and T. F. Githens. *diags Am Mach* 55:194-6 Ag 4 '21
- Tap-end sizes of studs. *diags Am Mach* 52:773-5 Ap 8 '20
- Tight-fitting threads for bolts and nuts. C. B. Lord. *diags Am Mach* 53:153-7 Jl 22 '20; Same *cond. Mech Eng* 42:222-4+ Ap '20

See also Pipe threads; Thread cutting

Standards

- Allowances and tolerances for screw threads. *diag Mach* 26:1019-26 Jl '20; *Correction*. 26:1129 Ag '20
- National screw thread commission report. *Mech Eng* 42:337-45 Je '20; *Am Mach* 53:507-12, 543-6 S 9-16 '20; *Soc Auto Eng J* 7:317-20 O '20; *J Fr Inst* 191:529-30 Ap '21
- Screw-thread standardization. *Soc Auto Eng J* 9:120 Ag '21
- Some comments on the report of the National screw thread commission. E. C. Peck. *Am Mach* 54:701-2 Ap 21 '21
- Standard screw threads recommended. *diag Iron Tr R* 67:39-40 Jl 1 '20

Screw threads—Standards —Continued

- Standards for screw threads. E. C. Peck. Sci Am M 1:572-3 Je '20
Standards for screw threads. H. T. Wade. diags Sci Am M 1:149-53 F '20
Thread gage standards. J. E. Collins. il diags Mach 26:427-33 Ja '20

Terminology

- Common screw-thread terms. diag Motor Age 38:44 S 30 '20

Testing

- Gaging screw threads with a beam of light. M. M. Hunting. il Sci Am 122:215+ F 28 '20
Hartness screw thread comparator. il Mach 26:467-9 Ja '20
Herbert microscopic measuring machine. il Ry Mech Eng 94:552-3 Ag '20
Measuring screw threads by three-wire method. V. E. Ayre. diag Mach 27:281 N '20
Microscopic measuring machine for the measurement of screw thread tools, form tools, gages, etc. il Iron Age 106:190 Jl 22 '20
New form of screw gauge. il diags Engineer 128:508-10 N 21 '19
Practical comparator for screw threads. J. Hartness. il Am Mach 51:1057-9 D 18 '19
Screwdriver for verifying screw threads. il diag Iron Age 106:322 Ag 5 '20
Three-wire system for measuring standard worm threads. H. A. Pearson. diags Mach 26:1131 Ag '20

Screwdrivers, Insulated

- Screwdriver for electrician's use. W. S. Standiford. diag Power Pl Eng 24:572 Je 1 '20

Screwdriving machines

- Reynolds screwdriving machine. il Mach 27:288-9 N '20; Iron Age 106:1196 N 4 '20

Screws

- Art of measuring screws. Sci Am 121:584 D 13 '19
Charts for design of tension bolts and screws. H. M. Brayton. charts diags Am Mach 51:890-2 N 13 '19
Making screws hold in any material. il Ry Mech Eng 95:529 Ag '21
New standard list of machine screws. Automotive Ind 45:264 Ag 11 '21
Quick-release screw for jigs. J. Wood. diag Am Mach 52:1354 Je 24 '20
See also Screw machines; Screw threads; Thread cutting

Advertising

- Put a sample of your product on the buyer's desk. H. D. North. Ptr Ink 115:17-20 Je 30 '21

Testing

- Strength tests of screw fastenings of plywood. H. S. Grenoble. Aerial Age 12:535-6 Ja 31 '21; Same. Aviation 10:230 F 21 '21; Same abr. Automotive Ind 45:216 Ag 4 '21

Screws, Airplane. *See* Airplane propellers

Screws, Theory of

- General theory of blade screws. G. de Bothezat. diags U S Nat Advisory Com for Aeronautics 1918:159-260 '20

Scriber

- Unique form of scriber. W. S. Standiford. il Power Pl Eng 24:857-8 S 1 '20

Scrolls (decorative design)

- Volute in architecture and architectural decoration. R. Newcomb. il diags map III U Eng Exp Sta Bul 121:1-77 '21

Scrubbers

- Section of double coil scrubber. diag Chem & Met Eng 22:705 Ap 14 '20

Sculpture

- Architectural league of New York 36th annual exhibition. il Am Arch 119:475-83, 487, 490a-h, 491 Ap 20 '21
Civil war to be carved in granite by Gutzon Borglum near Atlanta. J. Anderson. il Sci Am 124:285+ Ap 9 '21

- Classics in clay; Tremont Temple, Boston. Mass. O. Speir. il Arch Forum 32:sup47-50 Je '20

- Mechanical aids for the sculptor; modern machine tools for carving and cutting marble. G. Van der Veer. il Sci Am S 88:288 N 15 '19
Modern quest for the archaic; the sculptural work of Edward Field Sanford, jr. J. A. Bartram. il Arch Forum 31:207-10 D '19
Notable decorative sculptures of New York buildings. F. O. Payne. il Arch Rec 47:98-117 F '20

- Pantograph reproduces statues in heroic size. Pop Mech 35:482-3 Ap '21

- Relation of sculpture to architecture. A. S. Calder. il Am Arch 118:723-32, 775-82 D 8-15 '20

- Sculpture in the garden; photographs. Arch Rec 49:423-32 My '21

See also Bas-relief; Brasses; Bronzes; Memorials; Soldiers' monuments

Sea grass. *See* Sugamo

Sea herring. *See* Sardines

Sea horses

- Fishes with prehensile tails. il Sci Am M 3:19-20 Ja '21

Sea power

- History of sea power. W. O. Stevens and A. Westcott. 458p Doran '20

See also Disarmament; Navies; Warships

Sea walls

- Extending the sea wall at Galveston. S. W. Todd. il Pop Mech 33:398-9 Mr '20

- Hell Gate power house tunnel and wharf. il diags plan Pub Works 51:213-15, 236-8 S 17-24 '21

- Preventing the undermining of a small sea wall. L. G. Hall. diag Eng N 87:684 O 27 '21

See also Breakwaters; Dikes (engineering); Docks; Harbors; Jetties; Wharves

Sea walls, Concrete

- Concrete facing placed on old masonry sea wall. il diags plan Eng N 84:996-8 My 20 '20

- Concrete sea wall poured in block sections by tremie. il diags Eng N 86:896-9 My 26 '21

- Galveston sea wall of concrete. diags Concrete 19:152-3 O '21

Sea water

- Action of sea water on cotton and other textile fibers. C. Dorée. Color Tr J 8:215-18 Je '21; Excerpts. Sci Am M 4:260 S '21

- Damage to deep wells by sea water. W. P. Mason. diags Am Water Works Assn J 8:59-71; Discussion. 71-4 Ja '21

- Measurement of sea water salinity; abstract. A. L. Thuras. Sci Am M 3:559 Je '21

- Observations on the anopheles mosquito and sea water. T. H. D. Griffiths. Eng & Contr 55:575-6 Je 8 '21

- Salt from the sea; little known California industry. A. L. Dahl. il Sci Am 124:150+ F 19 '21

- Why the sea is salt. Sci Am 125:277 O 15 '21

See also Concrete, Effect of sea water on

Seaboard air line railroad

- Farmer's mental kinks recognized in Seaboard's colonization campaign. Ptr Ink 113:64+ N 11 '20

Seafarers, International conference of. *See* International seafarers' conference

Seafarers' federation, International. *See* International seafarers' federation

Seals (animals)

- Locating seals by aircraft. J. Hamilton. Aviation 10:802 Je 27 '21; Same. Aerial Age 13:414 Jl 11 '21

- Seal hunting by air. E. C. Middleton. Aerial Age 14:80-1 O 3 '21

- Taking the census of the seals. il Sci Am M 3:16-18 Ja '21

Seals, Commercial

- Seals—the exclamation points of advertising. C. B. Larrabee. il Ptr Ink M 2:50+ Ja '21

Seaman, Joseph Sidney, 1839-1921

Sketch. por Iron Age 107:1725 Je 23 '21; Iron Tr R 68:1739-40 Je 23 '21; Foundry 49:510-11 Jl 1 '21

Seamanship. See Navigation**Seamen**

Descriptions of occupations; water transportation. 32p '18 U.S. Bureau of labor statistics, Washington, D.C.

International seamen's code. Monthly Labor R 13:436-7 Ag '21

Laws and agreements governing working conditions among American seamen. M. C. Frincke, jr., comp. Monthly Labor R 10:1075-94 My '20

Rights and duties of merchant seamen. S. B. Axtell. 123p Rights and duties of seamen pub. co., New York '20

Seaman's wages; a comparison. Am Ind 20:9-10 D '19

Standard rates of pay of officers and crews of Italian merchant marine. Monthly Labor R 10:158-73 Ja '20

Wage subsidy proposed for the merchant marine. W. Fawcett. Marine Eng 26:803-4+ N '21

Why young men should go to sea. F. B. Jacobs. il Marine R 50:276-9+ My '20

See also Merchant marine; Ships—Manning

Seamen, Training of

Designers and operators of our ships. J. Flodin. Int Marine Eng 25:7-10 Ja '20

See also Training ships

Seamen's union of America, International. See International seamen's union of America**Seaming machines**

Horizontal barrel seaming machine. il Iron Age 107:1303 My 19 '21

Niagara duplex double seamer. il Mach 27:991 Je '21

Seaplane carriers. See Airplane carriers**Seaplanes**

Air bags for the airplane that lands on water.

G. Gaulois. il Sci Am 122:489 My 1 '20

Assembling seaplanes at a naval air station.

F. B. Howe. il Pop Mech 34:896-7 D '20

Bristol seaplane. il diag Engineer 130:488 N 12 '20

Development of French naval aviation. J. J. Ide. il diags plan Aviation 7:340-5 N 15 '19

Fairey type IIID seaplane. il Aviation 11:341 S 19 '21

Flying boat service from Key West to Havana. il Sci Am 122:13 Ja 3 '20

French and Italian hydro-aeroplanes at Monaco. C. G. Grey. il Engineering 109:655-8 My 14 '20

Giant Caproni seaplane. il Sci Am 124:289 Ap 9 '21

Gliding surface of seaplane floats. A. Guidoni. diags Aviation 8:363-5 Je 1 '20

High efficiency of seaplanes. G. Pegna. Aviation 11:308 S 12 '21

L'hydravion triplan géant Caproni. il diags Génie Civil 79:39-40 Jl 9 '21

Icebound seaplane maroons crew fifteen hours. il Pop Mech 35:517 Ap '21

Lioré and Olivier commercial seaplane. Aerial Age 13:62 Mr 28 '21

Motor boat equipment for a seaplane. Automotive Ind 43:1173 D 9 '20

Ricci commercial seaplane R-I. il Aviation 8:365-6 Je 1 '20

Rules for the Monaco hydro-aeroplane competitions. April 18-May 2, 1920. Flying 9:100-1 Mr '20

Rules of the British seaplane competition. Aviation 7:266-7 O 15 '19

Seaplane tender U.S.S. Wright. Aerial Age 13:344 Je 20 '21

Seaplanes; abstracts. A. J. Riley. Engineering 112:406-7 S 16 '21; Engineer 132:313 S 23 '21

Seaplanes make 3,200-mile flight to Panama. W. H. Hunt. il map Pop Mech 35:583-4 Ap '21

Short sporting type seaplane. il Aviation 8:109 Mr 1 '20

Some Mediterranean seaplanes with a digression on airscrews. G. H. Bryan. Aviation 9:199-200 O 15 '20

Some new Italian seaplanes. il Aviation 11:281-2 S 5 '21

Sperry amphibious triplane. il Aviation 9:222-4 N 1 '20

Van Berkel seaplane. Aerial Age 13:230, 302 My 16, Je 6 '21

Vickers Viking IV amphibian. diags Aviation 10:597 My 9 '21

Vickers Viking Mark IV. Aerial Age 13:62 Mr 23 '21

Viking amphibious seaplane. il Engineering 111:486-7, 492, pl 23 Ap 22 '21

Wireless telephone transmitter for seaplanes. diags Electrician 85:133-6 Jl 30 '20

Zeppelin giant sea monoplane. il Aviation 8:28 F 1 '20

See also Airplanes, Shipboard; Flying boats

Seaports. See Ports**Searchlights**

Actinic-ray searchlights for motion pictures. il Pop Mech 36:200-1 Ag '21

Carbon arcs for searchlights. C. C. Paterson and others. diags Inst E E J 58:83-97 Ja '20; Abstracts. Illum Engr 12:335-7 D '19; Elec W 75:446 F 21 '20; Elec R 76:433 Mr 13 '20; Discussion. Inst E E J 58:97-106 Ja '20

Color and spectral composition of certain high-intensity searchlight arcs. I. G. Priest and others. il diags U S Bur Stand Tech Pa 168:1-14 '20

Distance control of searchlamps; abstract. Elec W 76:887 O 30 '20

Elevating searchlights operated at great distance. il Elec R 78:264 F 12 '21

Huge searchlight for mountain top near San Francisco. J Elec 46:461 My 1 '21

Illuminating city street with searchlights at Oakland, Cal. il Elec R 78:249 F 12 '21

Incandescent searchlights in new fireworks. P. H. Woodruff. il Pop Mech 34:192-3 Ag '20

Java's disappearing searchlight. il Sci Am 124:165 F 26 '21

Last word in searchlights. E. W. Davidson. il Sci Am 123:123+ Ag 7 '20

Merchant marine searchlights. G. E. Young. il Gen Elec R 24:203-4 F '21

Metal mirrors for searchlights. R. B. Hussey. il Metal Ind 18:227-9 My '20

Military searchlights. S. G. Hibben. il diags Eng Soc W Pa 36:81-101; Discussion. 102-8, Mr '20

Military searchlights. C. Lichtenberg. il Illum Eng Soc 15:1-15; Discussion. 16-18 no 1 '20

Mt Tamalpais to have electric beacon light. il Elec R 78:942 Je 11 '21

Recent progress in searchlight mechanisms. A. Zimmerman. Illum Engr 13:228 Ag '20

Searchlights and motion pictures. il Sci Am 122:59 Ja 17 '20

Searchlights controlled from a distance. Pop Mech 36:74 Jl '21

Searchlights in the A.E.F. D. W. Blakeslee. il diags Illum Eng Soc 15:203-17; Discussion. 217-21 no 3 '20

Some recent developments of high-current arcs, with special reference to searchlights. J. P. Yorke. diags plan Inst E E J 58:651-61 Ag '20; Abstract. Electrician 85:708-9 D 17 '20

Surveying searchlight. il Sci Am 124:453+ Je 4 '21

U.S. army searchlights. C. Lichtenberg. il diags J Fr Inst 190:509-42, 691-725 O-N '20

World's largest, most powerful searchlight. il Pop Mech 36:655 N '21

Testing

Universal photometric integrator. F. A. Benford. il diags Illum Eng Soc 15:19-27 no 1 '20

Searles, William Henry, 1837-1921

Sketch. por Eng N 87:374 S 1 '21

Searles lake

Alkalinity of Searles Lake brine. R. C. Wells. J Ind & Eng Chem 13:691-2 Ag '21

Searles lake—Continued

Salts-refining plants at Owens and Searles lakes. L. W. Chapman. il map Chem & Met Eng 24:683-8 Ap 20 '21

Sears, Roebuck & company, Philadelphia

Eastern store of Sears, Roebuck & company at Philadelphia. G. C. Nimmons. il plan Arch Rec 50:118-32 Ag '21
Philadelphia plant. il plan Am Arch 117:7-9+ Ja 7 '20

Season-cracking of brass. See Brass—Season-cracking**Seasonal products**

Advertiser shows retailers how to do 85 per cent of their business in off months. J: A. Murphy. Ptr Ink 115:3-4+ My 19 '21
Seasonability—a fact or a superstition? R. W. Johnson. Ptr Ink 116:53-4+ Jl 7 '21
Solving the problem of seasonal goods. P. M. Atkins. Administration 2:473-84 O '21

Advertising

Advertising when sales are scarce raises year's total business. G. A. Nichols. Ptr Ink 113:69-70+ N 25 '20
Another seasonal product joins year-round class. A. McClure. Ptr Ink 112:25-7 Jl 1 '20
Continuity in advertising builds prestige but seasons require special selling punch. L. B. Jones. Ptr Ink 112:97-8 Jl 29 '20
Labor unrest and the advertising man. M. K. Powers. Ptr Ink 112:101-2+ S 23 '20
Year-round advertising for athletic underwear. A. Joyce. Ptr Ink 112:150+ S 16 '20

See also Almonds—Advertising; Toys—Advertising

Seats, Car. See Car seats**Seattle, Washington**

Freight-handling equipment at the port of Seattle. G. F. Nicholson. il Eng N 84:37-9 Ja 1 '20
New distribution system for city of Seattle. J. D. Ross. Elec W 75:64-7 Ja 10 '20

Bridges

Heavy foundation work for bascule bridge at Seattle. F. A. Rapp. il diags plans Eng N 84:774-6 Ap 15 '20
Three double-leaf bascule bridges at Seattle. F. A. Rapp. il diags plan Eng N 84:718-22 Ap 8 '20

Description

Observations on a Pacific coast trip. F. C. Wight. il Eng N 85:1180-1 D 16 '20

Harbor

Ease of operation governs design of new Seattle pier. G. F. Nicholson. il diags plan Eng N 84:1101-3 Je 3 '20
Railway terminal improvements on the Seattle water front. C. W. Geiger. il map Ry R 67:75-81 Jl 17 '20
Seattle's record pier. R. Howard. Sci Am 123: 563 D 4 '20

Industries

Seattle—a prosperous clay center. E. J. Hutmaker. Brick & Clay Rec 59:430-1 S 20 '21
Seattle industrially happy. R. O. Hadley. Am Ind 21:30 D '20
Seattle's plan to give employees such fair treatment that the union is unnecessary to them has made community a strikeless city. F. R. Singleton. Am Gas Eng J 113:63-4 Jl 24 '20; Same. Eng & Contr 54: 142 Ag 11 '20

Rapid transit

Jitney battled for five years in Seattle. Elec Ry J 58:571-2 O 1 '21
Seattle municipal lines. T: F. Murphine. Elec Ry J 54:897-8 N 15 '19
Seattle municipal railway lost \$517,173. Elec Ry J 55:724 Ap 3 '20
Service at cost vs. municipal ownership—Seattle's experiment. C: M. Fassett. Elec Ry J 56:1144 D 4 '20

Seattle, Associated industries of. See Associated industries of Seattle

Seaweed. See Agar-agar; Algae; Kelp

Sebenius, John Uno

Mining engineers of note. por Eng & Min J 110:674 O 2 '20

Secretaries, Private

How to become a private secretary. J. E. McLachlan. 111p Pitman '20

Sectional construction. See Building—Standards**Sector disks. See Photometers and photometry****Securities**

Current new capital flotations of corporate, municipal and foreign government financing; summary. Comm & Fin Chr 112:1216-21 Mr 26 '21 [continued monthly]

Findings of committee named by Gov. Smith of New York to devise measures to protect investing public. Comm & Fin Chr 110:29-30 Ja 3 sec 1 '20

How much are your securities really worth?

R: H. Tingley. Annalist 17:614-15 Je 6 '21

Industrial and miscellaneous securities. Published in monthly Bank and quotation section of Commercial & financial chronicle Industrial securities. C. Coliver. 115p Doubleday '21

International dealings in securities. T: York. Administration 2:519-32 O '21

Prospects and how to land them; selling securities. T: Howard. J Elec 46:345-6 Ap 1 '21

Public relieves banks of their \$40,000,000 load of copper. Annalist 17:227-8 F 14 '21

Regulations of association of foreign security dealers governing transactions in foreign securities. Comm & Fin Chr 112:2364 Je 4 '21

Security price movements after the Civil war and now. F. W. Tracy. charts Annalist 17:401 Ap 4 '21

Stalking the wildcat stocks. H. F. Driver. Nation's Business 8:15-16 Ap '20

See also Bonds; Electric utilities—Securities; Investments; Investments, Foreign; Municipal bonds; Public utilities—Securities; Railroads—Securities; Stocks

Accounting

See Investments—Accounting

Advertising

See also New York stock exchange—Advertising rules

Law

Blue sky law. Min & Sci P 120:181-2 F 7 '20
Blue sky law; text of bill. Min & Sci P 120: 204 F 7 '20

Legal aspects of the transfer of securities. H. B. Campbell. 110p Doubleday '20

Louisiana proposes strict blue sky law. Nat Pet N 12:54+ Je 23 '20

National blue sky law may surplant regulations of competition. Nat Pet N 13:67+ Ag 10 '21

Preventing fraudulent issues of securities. Comm & Fin Chr 110:199-200 Ja 17 sec 1 '20

Protection for the promoter. S. Norman. Min & Sci P 122:673-6 My 14 '21

See also Taxation of bonds, securities, etc.

Sedgwick, William Thompson, 1855-1912

Sketch. por Eng N 86:288 F 17 '21

Sediment. See Silt**Sedimentation**

Formula for determining settling periods in basins or tanks. T. Saville. Eng N 86:647 Ap 14 '21

Settling problems. W. A. Deane. Am Electrochem Soc Trans v 37 (preprint 41):659-85; Bibliography. 686-8 Ap '20

Sedoheptose

Sedoheptose, a new sugar from sodium spectabile. F. B. La Forge. J Fr Inst 190: 431-2 S '20

See, James Waring, 1850-1920

Sketch. por Am Mach 52:380 F 19 '20

Seed separators

Round seeds and mechanical ingenuity. S. R. Winters. il Sci Am 124:149 F 19 '21

Seed trade**Advertising**

- Combination selling gives service with sales. W. Perry. *Ptr Ink M* 3:62+ Je '21
 How advertising is making a nation of backyard gardeners. W. L. Larned. *Ptr Ink* 114:96+ F 24 '21

Seeds

- Floral fireworks. *il Sci Am M* 3:120 F '21
 New French system for treating seeds may revolutionize agricultural production. *Americas* 7:32-4 Ap '21
 Seeding the world. R. P. Crawford. *il Pop Mech* 33:575-7 Ap '20
 Seeds and age. *Sci Am* 125:265 O 15 '21
 Weed seeds. *Sci Am M* 1:316 Ap '20

Moisture content

- Water and seeds; abstract. G: J. Bouyoucos and M. M. McCool. *Sci Am M* 4:82-3 JI '21

Testing

- Significance of the peroxidase reaction with reference to the viability of seeds. J. S. McHargue. *Am Chem Soc J* 42:612-15 Mr '20
 Testing seeds with a thermometer. G: J. Peirce. *Sci Am M* 1:259 Mr '20

Seepage

- Conveyance losses of water on U.S. reclamation service irrigation projects. E. A. Moritz. *Eng & Contr* 55:470-1 My 11 '21
 Hydraulic-fill dams. J. A. Holmes. *il diag Engineering* 111:181-4, 211-13 F 11-18 '21; Excerpt. *Eng & Contr* 55:143-6 F 9 '21
 Levee settlement causes seepage under pump house. *il Eng N* 86:814-15 My 12 '21

Selsmograph

- Underlying principles of seismograph design. B: Liebowitz. *diags Soc Auto Eng J* 6:17-18 Ja '20

See also Geophone

Selective assembly

- Manufacturing for selective assembly; comparison of interchangeable and selective assembly manufacturing methods. E. Buckingham. *diag Mach* 27:142-3 O '20

Selenium

- General applications of selenium. L: Ancell. *Sci Am M* 1:28-9, 157-9, 253-5 Ja-Mr '20
 New use for a rare element. *Sci Am* 123:419 O 23 '20
 On the variation of resistance of selenium with temperature. S. Datta. *Philos Mag* 6th ser 42:463-70 S '21
 Selenium and tellurium. V: Lenher. *J Ind & Eng Chem* 12:597-8 Je '20; Same. *Sci Am M* 1:552-3 Je '20; Abstract. *Chem & Met Eng* 22:1108 Je 16 '20
 Selenium aviation compass placed on tail of plane. *Pop Mech* 34:840 D '20
 Selenium in 1919. J. M. Hill. *U S Geol S Min Res of U S* 1919, pt 1:25 '20
 Vapor pressure curves of solid and liquid selenium near the melting point. L. E. Dodd. *diag Am Chem Soc J* 42:1579-94 Ag '20

Selenium acetylacetone

- Researches on residual affinity and coordination; reactions of selenium and tellurium acetylacetones. G. T. Morgan and H. D. K. Drew. *diags Chem Soc J* 119:610-25 My '21

Selenium cells

- Use of selenium cells in astronomy. L: J. Boss. *Sci Am M* 1:395 My '20

See also Amplifiers; Optophone

Selenium monochloride

- Reaction between selenium monochloride and ethylene. F. H. Heath and W. L. Semon. *J Ind & Eng Chem* 12:1100-1 N '20

Selenium oxychloride

- Dielectric constant of selenium oxychloride. J. E. Wildish. *diag Am Chem Soc J* 42:2607-9 D '20
 Manufacture and uses of selenium oxychloride; patent. *Chem & Met Eng* 25:623-4 S 28 '21
 Preparation of selenium oxychloride. V: Lenher. *Am Chem Soc J* 42:2498-2500 D '20

- Selenium oxychloride an unusual solvent. *Sci Am* 124:392 My 14 '21

- Some properties of selenium oxychloride. V: Lenher. *Am Chem Soc J* 43:29-35 Ja '21; Abstract. *Chem & Met Eng* 24:401-2 Mr 2 '21

Selenodithionates

- Researches on residual affinity and coordination; selenodithionic acid and its metallic salts. G. T. Morgan and J. D. M. Smith. *Chem Soc J* 119:1066-70 JI '21

Self inductance

- Effective inductance, effective resistance, and self-capacity of magneto windings. N. W. McLachlan. *diags Philos Mag* 6th ser 41:33-80 Ja '21
 Method of measuring the self-inductance of small loops. F. B. Pidduck. *diag Philos Mag* 6th ser 42:220-7 Ag '21

Self-luminous materials. See Radioactive substances**Selfridge, H. Gordon**

- Mr Selfridge of Oxford street; an American merchant in London. T: H. Uzzell. *Nation's Business* 8:21-2 D '20

Sellers, G. I., and sons company

- Why stop at a dozen when you can as well sell a carload? O. P. Perkins. *Ptr Ink* 116:3-4+ JI 28 '21

Selling. See Sales; Sales records; Salesmanship; Salesmen**Selling cost.** See Sales costs**Selsyn position indicators**

- Selsyn system of position indication for locks, water gates, dry docks, signaling between control room and engine room, etc. E. M. Hewlett. *il diags Gen Elec R* 24:210-18 Mr '21

Semet-Solvay company

- By-product coke oven plants of yesterday and today. J. M. Hastings, jr. *il Blast F & Steel Pl* 9:10-13 Ja '21
 Consolidation. *Comm & Fin Chr* 111:1379-82 O 2 '20

Semicarbazide

- Über die einwirkung von semicarbazid auf ungesättigte ketone. K. von Auwers. *Deutsche Chem Gesell Ber* 54:987-1000 My '21; Abstract. *Chem Soc J* 120 pt 1:466-7 Je '21

Semi-steel

- Cast iron v. semi-steel. E. Wheeler. *Eng & Ind Management* 5:234-6 F 24 '21
 Manufacture of semisteel for shells. F. E. Hall. *Min & Met* 157:(sec 15) 1-7 Ja '20; Same. *Iron Tr R* 66:414-16 F 5 '20; Same. *Foundry* 48:160-2 F 15 '20; Discussion. *Min & Met* 159:(sec 2) 16-17 Mr '20
 Properties ascribed to semisteel. *Foundry* 49:322 Ap 15 '21
 Specification for cupola semi-steel. Y. A. Dyer. *Iron Age* 107:9-10+ Ja 6 '21

Senses

- Telescope disks; abstract. G: W. Morey. *Sci Am M* 2:181 O '20

See also Color sense; Hearing; Sight; Smell

Sensitometer

- New non-intermittent sensitometer. L. A. Jones. *il diags J Fr Inst* 189:303-29 Mr '20

Separators

- Air classification of pulverized material; abstract. S. B. Kansowitz. *il diag Mech Eng* 42:581-2 O '20
 Centrifugal extractors and separators applied to the chemical industry. J. F. Broadbent. *il diag Can Chem & Met* 5:135-40 My '21
 Centrifugal separator runs at very high speeds. *Pop Mech* 35:278 F '21
 Procédé et appareil pour le classement et la séparation des corps solides par des actions combinés d'orientation, de déviation et de dérivation. R. E. Trottier. *diag Chimie & Ind* 5:165-6 F '21
See also Air separation process; Air separators; Clarifiers; Cream separators; Gas separators; Magnetic separation of ores; Oil separators; Seed separators; Tar extractor

Septic tanks

Capacities of small septic tanks. S. E. Peters. Munic J 47:309-10 N 22 '19

Design of new sewage treatment works at Fort Sheridan (Ill.) general hospital no. 28. H. R. Abbott. il Munic Eng 58:212-14+ My '20

Farm septic tank discharging into pond. diags Dom Eng 92:387-8 Ag 21 '20

How to prevent a municipal septic tank from emitting strong odors. diags Dom Eng 93:63+ O 9 '20

Layout of best septic tank. diags plans Dom Eng 92:440-1 Ag 28 '20

Reconstructed septic tanks serve as activated sludge plant. G. Graham. diags Eng & Contr 53:543 My 12 '20

Septic sewage disposal readily provided for single or small groups of houses. diag Coal Age 18:752-3 O 7 '20

Septic tank for a small home. diags Dom Eng 95:165-6 Ap 23 '21

Septic tank for wet prairie clay soil. diag Dom Eng 91:494 Je 12 '20

Septic tanks and sewage disposal field for a country residence. diags plan Dom Eng 91:295 My 15 '20

Septic tanks for unsewered districts. C. E. Keefer. Pub Works 49:388 O 23 '20

Sewage disposal from small house not connected to sewer system. J: Y. Dunlop. diags plans Dom Eng 92:170-2 Jl 24 '20

2-story septic tank residential sewage disposal plant. il Eng & Contr 54:625 D 29 '20

See also Imhoff tanks

Septic tanks, Concrete

Septic tanks a profitable specialty. il diags Concrete 19:104-5 S '21

Sequoia trees

Ancestors of the Sequoias. E: W. Berry. il maps Sci Am M 2:207-8 N '20

Serbia

See also Railroads—Serbia

Seriatim theory. *See* Punching**Sericulture.** *See* Silkworms**Serumtherapy**

Use of auto-serums in the art of healing. Sci Am M 3:399 My '21

Vaccines and serums; modern methods of preparing medicaments for killing microbes. D. McClure. il Sci Am M 3:507-11 Je '21

See also Antigens and antibodies

Servants

Plans for improvement of domestic service. Monthly Labor R 10:1186-90 My '20

Report of Canadian committee on standardization of domestic service. Monthly Labor R 12:1219-21 Je '21

Wages and hours of domestic servants in England and Bavaria. Monthly Labor R 10:434-6 F '20

See also Apprentices; Employers' liability

Law

Austrian domestic service law. Monthly Labor R 10:1497-9 Je '20

Service (In industry)

Advertising a free service nationally to establish new outlets. R. Cole. Ptr Ink 113:17-20+ N 4 '20

Building a reputation for authority by professional service to customers; Abercrombie & Fitch. C. B. Larrabee. il Ptr Ink M 3:28-30+ Ag '21

How service lifts product from non-competitive class; advertising of Portland cement association. C. M. Harrison. Ptr Ink 115:61-2+ Ap 14 '21

Is service coming back to its pre-war position in business. J: A. Murphy. Ptr Ink 116:3-4+ S 22 '21

Selling the basic material plus an idea. R. Dickinson. il Ptr Ink M 3:38-40+ O '21

Service. W. B. Macdonald. Elec R (Lond) 88:740 Je 10 '21

Service system for wood wheels organized by mail. S. C. Lambert. Ptr Ink 115:89-90 Je 2 '21

Technical service to the customer. P: F. O'Shea. Am Mach 52:31-2 Ja 1 '20

See also Automobile industry and trade—Service; Insurance, Eyeglass; Motor truck industry and trade—Service; Tractor industry and trade—Service; *also* Gillette safety razor company—Service policy

Service, Professional. *See* Professional service

Service at cost. *See* Street railroads—Franchises

Service organizations. *See* Chambers of commerce; Commercial organizations

Sesame seed

Sesame seed situation in India, China, Japan and Syria described. Oil Paint & Drug Rep 99:27 sec 1 F 14 '21

Settlement houses. *See* Community centers

Settling. *See* Sedimentation

Severn river

Britain's huge tidal-power project. P. H. Woodruff. il Pop Mech 35:344-6 Mr '21

Developing one million horsepower from tidal energy; Severn barrage. Sci Am 124:61, 67+ Ja 22 '21

Great west-sea bubble; government engineering up-to-date. Elec R (Lond) 88:68-9 Ja 21 '21

Project d'utilisation des marées dans l'estuaire de la Severn (Grande-Bretagne). diag plans Génie Civil 78:550-3 Je 25 '21

Severn barrage scheme. il Electrician 85:659-60 D 3 '20

Severn barrage scheme; discussion at Birmingham, Feb. 10-11. il Elec R (Lond) 88:254-7 F 25 '21; Engineer 131:210-11, 230-1 F 25-Mr 4 '21; Electrician 86:279-80 Mr 4 '21

Severn crossings and tidal power; abstracts. W. A. Tait. Engineering 111:298 Mr 11 '21; Electrician 86:303 Mr 11 '21

Severn tidal power development. map Eng & Contr 55:326-7 Mr 30 '21

Tidal hydro-electric scheme for the Severn. map Engineer 130:562-3 D 3 '20; Same cond. Eng N 85:1221-2 D 23 '20; Abstract. Mech Eng 43:119-21 F '21; Discussion. Engineer 130:558 D 3 '20

Utilization of the tides for the production of power. J. H. Blakey. diag plans Power Pl Eng 25:1047-8 N 1 '21

Utilisation of tidal power, with special reference to the Severn estuary. F. C. Lea. diags Engineering 112:424-6 S 16 '21; Abstract. Elec R (Lond) 89:418 S 23 '21; Abstract. Engineer 132:311 S 23 '21

Sewage, Utilization of. *See* Sewage sludge

Sewage aeration. *See* Sewage disposal—Activated sludge method

Sewage disposal

Albany sewage treatment plant. F. R. Lannigan. Pub Works 48:463-4 My 29 '20

Bridgeport sewage disposal. J. A. McElroy. il maps Pub Works 48:303-7 Ap 10 '20

City of London (Ont.) sewerage and sewage disposal. H. S. Philips. il plan Can Eng 40:297-301 Mr 17 '21

Cleveland sewage treatment plan. il Pub Works 51:177-80 S 3 '21

Construction of the Indianapolis sewage disposal system. J. A. Craven. Munic Eng 59:16-17 Jl '20

Current tendencies in sewage disposal practice. G: W. Fuller. W Soc E J 26:273-83 Ag '21

Design of Cleveland's sewage-treatment works. G: B. Gascoigne. diags plans map Eng N 85:344-9 Ag 19 '20

Design of new sewage treatment works at Fort Sheridan (Ill.) general hospital no. 28. H. R. Abbott. il Munic Eng 58:212-14+ My '20

Development of sewage purification. S. H. Adams. Can Eng 38:314-15 Mr 18 '20

Dilution requirements of sewage and sewage effluents. C. B. Hoover and C. D. McGuire. Eng N 84:755 Ap 15 '20

Disinfection of sewage. C. G. Wigley. Munic J 47:292-3 N 15 '19

Disposal of trade wastes. R. S. Weston. Pub Works 49:504-6 N 27 '20

Sewage disposal—Continued

- Disposing of the sewage. S. G. Plumb. *il Sci Am* 123:632+ D 25 '20
- Economic values in sewage and sewage sludge. R. Wells. *Eng N* 83:948-52 N 27 '19; Excerpts. *Munic J* 47:278-80 N 8 '19; Excerpt. *Eng & Contr* 52:562 N 12 '19
- English sewage treatment. T. Saville. *Pub Works* 50:24-6 Ja 8 '21; Same. *Can Eng* 40:431-2+ My 5 '21
- Fitchburg sewage treatment plant. *Pub Works* 49:399-403 O 30 '20
- General principles of sewage disposal in South Africa. A. E. Snape. *Eng & Contr* 55:304-6 Mr 30 '21
- Hospital sewage treatment plant. *diags Eng & Contr* 53:436 Ap 14 '20
- Improving sewage plant operation. C. H. Currie. *il Munic Eng* 58:61-2 F '20
- Indianola pumps water from Allegheny river wells and treats its sewage by bacteria and chlorination. A. F. Brosky. *il plans Coal Age* 20:487-90 S 29 '21
- Joint sewage disposal of Indiana lake cities. map *Eng N* 84:480 Mr 4 '20
- New institutional sewage treatment plant at West Falls, Virginia. G. L. Robinson. *diags plans Munic Eng* 58:156 Ap '20
- New sewage treatment plant of Okmulgee Okla. A. H. Kindrick. *il Pub Works* 49:473-5 N 20 '20; Same. *Eng & Contr* 54:559-60 D 8 '20
- Nine years' operation of the Baltimore sewage-works. T. C. Schaetzle. *il plan Eng N* 87:50-4, 97-101 Jl 14-21 '21
- Ocean sewage disposal in relation to bathing beaches. L. Perry. *diags Eng N* 85:640-1 S 30 '20
- Operating experiences with Imhoff sewage tanks. W. G. Kirchoffer. *diags plans Munic Eng* 58:107-10 Mr '20; Abstract. *Eng & Contr* 53:168-9 F 11 '20; Discussion. *Munic Eng* 59:88-90 S '20
- Operation of sewage treatment plants. *Pub Works* 49:104-6 Jl 31 '20
- Packingtown waste problem. L. Pearse. *W Soc E J* 25:365-73 Jl 20 '20; Abstract. *Pub Works* 49:251-3 S 18 '20
- Pennsylvania mining town, Langeloth, constructs its own sewage-disposal plant. D. J. Baker. *il diags plans Coal Age* 18:723-7 O 7 '20
- Philadelphia's sewage disposal system. J. F. McClarren. *il diags plans Concrete* 17:109-16 O '20
- Plainfield's sewage treatment plant. *il Munic J* 47:318-22 N 29 '19
- Preliminary report on the proposed uniform plumbing code for Massachusetts. *Dom Eng* 93:263+ N 6 '20
- Protection of water supplies by sewage purification. H. B. Hommon. *Am Water Works Assn J* 7:553-9 Jl '20; Same. *Munic Eng* 59:111-13+ S '20
- Removal of colloids from sewage: theory and practice. W. S. Coulter. *Eng N* 87:571-3 O 6 '21
- Required capacity of continuous thickeners. W. A. Deane. *Eng & Contr* 53:541 My 12 '20
- Rules for the operation of army sewage treatment plants. H. R. Abbott. *Eng & Contr* 53:168 F 11 '20; Same. *Munic Eng* 58:134+ Mr '20
- Salt Lake's five-year sewerage program is completed. *diags plan Eng N* 84:674-5 Ap 1 '20
- Septic tanks for unsewered districts. C. E. Keefer. *Pub Works* 49:388 O 23 '20
- Sewage disposal at Saskatchewan penitentiary. R. F. Uniacke. *il diags plans Can Eng* 39:403-7 O 7 '20; Abstract. *Eng & Contr* 54:465 N 10 '20
- Sewage disposal at Sydenham hospital, Kingston. A. Langlois. *diags plan Can Eng* 39:287-8 Ag 26 '20
- Sewage disposal for the isolated dwelling and small institution. R. B. Wiley. *Purdue Univ Eng Dept Pub v.* 4, no. 4 '20 (*Eng Exp Sta Bul* 6)
- Sewage disposal in small cities and towns. M. F. Stein. *il diags Munic Eng* 58:71-5 F '20
- Sewage disposal in South Africa. A. E. Snape. *Engineering* 110:580 O 29 '20
- Sewage disposal methods of London. *Eng & Contr* 53:762 Je 30 '20
- Sewage disposal studies at Flint, Mich. J. R. Pollock. *Eng N* 87:272-3 Ag 18 '21
- Sewage effluents for disposal with and without dilution. *Eng N* 84:1161-2 Je 10 '20
- Sewage purification problems. A. J. Martir. *Eng & Contr* 53:364-5 Mr 31 '20
- Sewage tanks—again. G. E. Hill. *diag plan Munic Eng* 60:53-5 F '21
- Sewage treatment at Allentown. H. F. Bascom. *il Pub Works* 51:269-72 O 8 '21
- Sewage treatment at English aerodromes. D. Balfour. *Pub Works* 49:197-8 Ag 28 '20
- Sewage treatment at Lexington, Ky. *il plan Pub Works* 50:249-52 Mr 26 '21
- Sewage treatment plans for the Chicago sanitary district. *Eng N* 84:873 Ap 29 '20
- Sewage treatment plant at Newton, Kansas. I. S. Siegrist. *il plan Eng N* 86:249-50 F 10 '21
- Sewage treatment plant for Calumet region of Chicago sanitary district. L. Pearse. *diags plan Eng N* 86:986-8 Je 9 '21
- Sewage-works for Lincoln, Nebraska and suburban towns. *diags plan Eng N* 86:221-2 F 3 '21
- Sewer grades and sewage disposal. A. J. Martin. *Eng N* 87:638-40 O 20 '21
- Sewerage of Daytona, Florida. *il Pub Works* 48:435-6 My 22 '20
- Sewering war-time housing developments. *diags Munic J* 48:25-8 Ja 17 '20
- Simple mechanical control for dosing sewage beds. P. Thompson. *diags plans Eng N* 84:1018-19 My 20 '20
- Some points to observe in design of sewerage systems and disposal works. T. Horton. *Munic Eng* 59:58-9 Ag '20
- Special features of Imhoff tank construction. G. B. Gascoigne. *il diags plan Munic Eng* 60:135-40 Ap '21
- Substitutes for sewers. W. A. Hardenbergh. *il diags Pub Works* 50:293-6, 358-9 Ap 9, 23 '21
- Sub-surface sewage disposal. W. A. Hardenbergh. *diags plans Pub Works* 49:553-6 D 11 '20
- Surface purification of sewage. W. D. Scouler. *Eng & Contr* 56:211-12 Ag 31 '21
- Treatment and disposal of sewage. H. B. Hommon and others. 36p *United States Public health service*. Washington '20
- Treatment of sewage from single houses and small communities. L. C. Frank. *U S Public Health Service Pub Health Bul* 101:117p '20
- Water and sewers for Maiden, N.C. W. A. Hardenbergh. *il plans Pub Works* 51:149-50 Ag 20 '21
- Water supply and other sanitation in Greece. W. E. Spear. *il map Eng N* 86:708-15 Ap 28 '21
- See also* Cesspools; Gasoline in sewers; Imhoff tanks; Plumbing; Refuse disposal; Septic tanks; Sewage flow; Sewage irrigation; Sewage pumping; Sewage sludge; Sewage tanks; Sewer cleaning; Sewer pipes; Sewerage; Sewers. Concrete; Water pollution; *also* Passaic Valley sewer

Activated sludge method

- Activated sludge. J. Haworth. *Engineering* 112:86-7 Jl 8 '21; Discussion. 112:115-17 Jl 15 '21
- Activated-sludge experiments at Worcester, Mass. R. S. Lanphear. *diags plans Eng N* 84:819-23 Ap 22 '20
- Activated sludge experiments in England. W. H. Makepeace. *Pub Works* 49:567-9 D 18 '20; Same. *Eng & Contr* 55:324 Mr 30 '21; Same, with *il*. *Can Eng* 40:172-3 Ja 27 '21
- Activated-sludge plant for the city of Milwaukee. T. C. Hatton. *plan Eng N* 84:990-6 My 20 '20
- Activated-sludge plants at Houston, Texas. *Eng N* 83:1003-4 D 11 '19
- Activated-sludge process at Sydney, Australia. *Eng N* 85:780 O 21 '20
- Activated-sludge process of sewage disposal. G. G. Nasmith. *Eng N* 86:905-6 My 26 '21

Sewage disposal—Activated sludge method

Aeration period of sludge in the activated sludge process. A. G. Husted. diag Eng N 87:610-11 O 13 '21

British experiences with the activated sludge process. H. C. H. Shenton. Eng & Contr 55:648-53 Je 29 '21

Des Plaines river activated-sludge plant. L. Pearse. diags plans Eng N 85:1134-8 D 9 '20

Development of activated sludge process at Manchester, Eng. Can Eng 38:245-7 F 26 '20; Same. Eng & Contr 53:280-2 Mr 10 '20

De-watering sludge. J: D. Watson. Engineering 112:87 Jl 8 '21; Discussion. 112:115-17 Jl 15 '21

Dorr systems of sewage and trade waste treatment. R. H. Eagles. il diags Boston Soc C E J 7:245-62 N '20; Same cond. Pub Works 50:52-6 Ja 15 '21; Excerpts. Eng & Contr 55:31-2 Ja 12 '21; Abstract, with table. Eng N 85:490-2 S 9 '20; Discussion. Boston Soc C E J 7:262-8 N '20

Final report on waste disposal of Chicago stockyards; abstracts. Eng N 86:815-17 My 12 '21; Eng & Contr 55:572-3 Je 8 '21

Intermittent aeration in activated sludge process. Eng & Contr 56:140-1 Ag 10 '21

Large scale activated sludge plant at Woodstock, Ont. W. G. Ure. diags plan Eng & Contr 56:363 O 12 '21

Large scale operation of activated sludge process of sewage disposal. E: Ardern. Can Eng 40:284-6 Mr 10 '21; Same. Eng & Contr 55:310-12 Mr 30 '21

Lights and shadows of the activated sludge process for the treatment of sewage and industrial wastes. H. P. Eddy. W Soc E J 26:259-72 Jl '21; Same. Pub Works 51:112-15, 130-3 Ag 6-13 '21; Same cond. Eng & Contr 56:259-62 S 14 '21

Milwaukee sewage-testing station: experimental data. Eng N 83:1063 D 25 '19

Milwaukee's activated sludge plant. Pub Works 48:536-8 Je 19 '20

New name for activated sludge. Pub Works 48:446-7 My 22 '20

Origin of the activated sludge process of sewage disposal. Eng & Contr 53:726 Je 30 '20

Present status of the activated sludge disposal process. E: Bartow. Can Eng 40:331-2 Mr 24 '21; Same cond. Pub Works 50:356-8 Ap 23 '21

Record forms for activated-sludge plants, Houston, Tex. Eng N 84:75 Ja 8 '20

Results of activated sludge experiments at Milwaukee. Eng & Contr 53:554 My 12 '20

Results of 1918 operations of testing station of Milwaukee sewerage commissions. il Eng & Contr 52:669-71 D 10 '19

Role of acidity in the dehydration of sewage sludge. J: A. Wilson and H: M. Heisig. J Ind & Eng Chem 13:406-10 My '21

Several years' experiments on the disposal of Worcester sewage. R. S. Lanphear. Boston Soc C E J 8:109-22 Mr '21; Excerpts. Eng & Contr 55:464-6 My 11 '21; Excerpts. Pub Works 50:421-3 My 21 '21

Test of Trent activated-sludge devices at Pasadena. R. V. Orbison. il diags plan Eng N 85:1286-8 D 30 '20

See also Trade waste

Bibliography

Activated sludge process of sewage treatment. J. E: Porter. 2d ed. 117p J. E: Porter, Rochester, N.Y. '21

Chemical treatment

Acid process tried on camp sewage. Eng N 85:405 Ag 26 '20

Laboratory and practical experiments in preliminary treatment of sewage. J. H. Edmondson. Eng & Contr 54:322-5 S 29 '20; Same abr. Can Eng 39:281-3 Ag 26 '20

Relation of chemical engineering to sewage and trade waste treatment. R. H. Eagles. il Chem & Met Eng 23:438-40 S 8 '20

Some limitations in the chemical precipitation of trade wastes. F. Bachmann. Eng & Contr 56:126-7 Ag 10 '21

Cost

Fitchburg sewage treatment plant. Pub Works 49:403 O 30 '20; Abstract. Eng & Contr 54:458 N 10 '20

Operating data of Wurl screen and Imhoff tanks. J: R. Downes. Eng & Contr 55:368-9 Ap 13 '21; Same. Pub Works 50:370-1 Ap 30 '21; Same. Munic Eng 60:212+ My '21

Sewage treatment at Lexington, Ky. il plan Pub Works 50:249-52 Mr 26 '21

Electrolytic treatment

Electrical treatment of sewage: the Landreth direct oxidation process. H: J. M. Creighton and B: Franklin. il diag J Fr Inst 188:157-87 Ag '19; Abstract. Chem & Met Eng 21:772 D 24 '19

Electrolytic sewage treatment. R. H. Craig. Eng N 85:25-6 Jl 1 '20

Idle electrolytic sewage-works in Oklahoma. J. A. Evans. il Eng N 84:135-6 Ja 15 '20

Experiments

British experiences with the activated sludge process. H. C. H. Shenton. Eng & Contr 55:648-53 Je 29 '21

Electrical treatment of sewage: the Landreth direct oxidation process. H: J. M. Creighton and B: Franklin. il diag J Fr Inst 188:157-87 Ag '19; Abstract. Chem & Met Eng 21:772 D 24 '19

Laboratory and practical experiments in preliminary treatment of sewage. J. H. Edmondson. Eng & Contr 54:322-5 S 29 '20; Same abr. Can Eng 39:281-3 Ag 26 '20

Milwaukee sewage-testing station: experimental data. Eng N 83:1063 D 25 '19

Relation of colloid chemistry to tank treatment of sewage. F. W. Mohlman. Eng & Contr 56:134-5 Ag 10 '21

Report on Richmond borough sewage tests, New York city. Eng N 85:1130-1 D 9 '20

Results of 1918 operations of testing station of Milwaukee sewerage commissions. il Eng & Contr 52:669-71 D 10 '19

Results of the Brooklyn, N.Y. sewage treatment experiments. G: T. Hammond. Eng & Contr 53:39-41 Ja 14 '20

Several years' experiments on the disposal of Worcester sewage. R. S. Lanphear. Boston Soc C E J 8:109-22 Mr '21; Excerpts. Eng & Contr 55:464-6 My 11 '21; Excerpts. Pub Works 50:421-3 My 21 '21

Sewage testing station of the Illinois state water survey division. E: Bartow. J Ind & Eng Chem 13:945-6 O '21

Sewage treatment experiments at Grand Rapids with special reference to Dorr sewage clarifier. M. P. Adams. il Munic Eng 60:60-6 F '21; Same. Eng & Contr 55:226-8 Mr 9 '21

Sewage-treatment testing station at Grand Rapids, Mich. il Eng N 86:459-61 Mr 17 '21

Filtration

Application of colloid chemistry to the filter-pressing of sewage sludge. J: A. Wilson, W: R. Copeland and H: M. Heisig. Am Water Works Assn J 8:486-96 S '21

Dosing tanks for sprinkling filters. P: Gillespie. diags Can Eng 40:403-4 Ap 21 '21; Same abr. Eng & Contr 56:41-2 Jl 13 '21

Insect life on sewage filters. W. H. Parkinson and H. D. Bell. 64p The Sanitary publishing co., ltd., London '19

Non-bacterial population of sewage trickling filters. C: R. Cox. Eng N 87:720-5 N 3 '21

Sand filters for small sewage plants. W. A. Hardenbergh. Pub Works 50:275 Ap 2 '21

Sewage filters from refuse. W. Scouller. Pub Works 48:81-2 F 7 '20; Same. Eng & Contr 53:370 Mr 31 '20

Straw filters for sewage purification. E. H. Richards and M. G: Weekes. Engineering 112:86 Jl 8 '21; Discussion. 112:114-15 Jl 15 '21

Records

Graphical records of sewage flow and chlorine dosage. Eng N 85:277 Ag 5 '20

Record forms for activated-sludge plants, Houston, Tex. Eng N 84:75 Ja 8 '20

Sewage disposal—Continued**Screening**

Operating data of Wurl screen and Imhoff tanks. J: R. Downes. Eng & Contr 55:368-9 Ap 13 '21; Same. Pub Works 50:370-1 Ap 30 '21; Same. Munic Eng 60:212+ My '21

Operating results of Dyckman street sewage-screening plant. C: E. Gregory. Eng N 84:171-2 Ja 22 '20

Riensch-Wurl sewage screening plant at Santa Barbara. O. A. Stone. diag plan Eng N 86:719-21 Ap 28 '21

Sewage disposal, Rural

Disposal of nightsoil, sewage and garbage in rural districts. Eng & Contr 52:671-2 D 10 '19

Rural plumbing, water supply and sewage disposal systems. F. R. King. diags Dom Eng 92:585-7+, 636-7+ S 18-25 '20

Safe sewage disposal for country dwellings. diags plan Bldg Age 43:29-30+ O '21

Scientific methods of sewage disposal. W: C. Tucker. diags plans Bldg Age 42:33-6 Ap '20; Same abr. Am Arch 117:529-32 Ap 28 '20

Sewage disposal on dairy farm. Metal Work 93:209-10 F 13 '20

Sewage-disposal system for the summer cottage. P. Llewellyn. diag Pop Mech 33: 942 Je '20

Simple system of sewage disposal for isolated dwellings. H. R. Crohurst. diags plans Eng & Contr 55:128-9 F 9 '21

Water supply and sewage disposal for country homes. E. J. McCaustland. diags plans Mo U Eng Exp Sta v 21 no 17:23-36 Je '20

See also Septic tanks

Sewage ejectors

Small sewage pumping stations. E. F. Leger. diags Boston Soc C E J 7:83-98 Mr '20

Sub-sewer drainage in modern plumbing work. M. W: Ehrlich. diags Dom Eng 94: 282-3 F 5 '21

Sewage farms. See Sewage irrigation**Sewage flow**

Graphical records of sewage flow and chlorine dosage. Eng N 85:277 Ag 5 '20

Sewage irrigation

Experimental sewage irrigation plant in Florida. F. E. Staebner. il diag plan Eng N 85: 848-9 O 28 '20

Utilization of municipal waste. W: F. Morse. Munic Eng 59:86-7 S '20

Sewage pumping

Air-lift removal of sludge from sewage tanks. W. G. Kirchoffer. diag Eng N 86:953 Je 2 '21

Alternative outlets for sewage pumping station. diags plan Eng N 86:65-6 Ja 13 '21

Designing improvements in Toledo sewers. Pub Works 50:544-6 Je 25 '21

Efficiency of pumps and ejectors. E. C. Bowden-Smith. 205p Van Nostrand '20

Sewage pumping plants for Chicago suburban districts. L. Pearse. il diags plans Eng N 85:872-6 N 4 '20

Small sewage pumping stations. E. F. Leger. diags Boston Soc C E J 7:83-98 Mr '20; Discussion. T. Saville. Boston Soc C E J 7:169-73 My '20; Same. Can Eng 39:174 Jl 22 '20

Sub-sewer drainage in modern plumbing work. M. W: Ehrlich. diags Dom Eng 94: 282-3 F 5 '21

Underground sewage pumping plant at Walkerville, Ont. diags Eng & Contr 52:561-2 N 12 '19

Sewage sludge

Birmingham method of dewatering sewage sludge. F. R. O'Shaughnessy. Eng & Contr 54:313-14 S 29 '20

De-watering sludge. J: D. Watson. Engineering 112:87 Jl 8 '21; Discussion. 112:115-17 Jl 15 '21

Economic values in sewage and sewage sludge. R. Wells. Eng N 83:948-52 N 27 '19; Excerpts. Munic J 47:278-80 N 8 '19; Excerpt. Eng & Contr 52:562 N 12 '19

Large scale operation of activated sludge process of sewage disposal. E: Ardern. Can Eng 40:284-6 Mr 10 '21; Same. Eng & Contr 55:310-12 Mr 30 '21

Nitrogen in sewage. G. M'Gowan. Eng & Contr 53:736-8 Je 30 '20

Power gas from sewage. J. D. Watson. diags Engineering 112:456 S 23 '21; Same cond. Mech Eng 43:740 N '21; Munic Eng 61:162-3 N '21; Abstract. Engineer 132:351 S 30 '21; Discussion. Engineering 112:431 S 23 '21

Role of acidity in the dehydration of sewage sludge. J: A. Wilson and H: M. Heisig. J Ind & Eng Chem 13:406-10 My '21

See also Imhoff tanks; Sewage disposal

Sewage sludge as fertilizer

Conservation of nitrogen with special reference to activated sludge; abstracts. G. J. Fowler. Eng & Contr 55:301-2 Mr 30 '21; Eng N 87:311 Ag 25 '21

Disposal of sludge on lands as fertilizer. J: E. Farmer. Eng & Contr 55:298 Mr 30 '21

Utilization of municipal waste. W: F. Morse. Munic Eng 59:86-7 S '20

Utilizing Imhoff sludge on land at Plainfield sewage-works. J: R. Downes. Eng N 84:859 Ap 29 '20

See also Sewage irrigation

Sewage tanks

Design of sewage digesting tank. E. P. Dewey. diag plan Eng & Contr 55:360 Ap 13 '21

Dosing tanks for sprinkling filters. P: Gillespie. diags Can Eng 40:403-4 Ap 21 '21; Same abr. Eng & Contr 56:41-2 Jl 13 '21

Enlargement of the sewage-works of Baltimore; primary sedimentation followed by separate sludge digestion. C. E: Keefer. plans Eng N 87:654-6 O 20 '21

German sewage settling tanks with separate sludge digestion. M. B. Tark. diags Eng N 87:369-70 S 1 '21

Sewage tank—again. G. E. Hill. diag plan Munic Eng 60:53-5 F '21; Discussion. 61:4-5, 50 Jl-Ag '21

Sewering war-time housing developments. diags Munic J 48:25-8 Ja 17 '20

Special adaption of Imhoff tanks for sewage treatment at Miami camps. diags plan Eng & Contr 53:657-8 Je 9 '20

See also Imhoff tanks; Septic tanks

Sewer air

No such thing as sewer gas, but sewer air is tainted. H: F. Baillet. Metal Work 93: 183+ F 6 '20

Sewer cleaning

Healey sewer cleaning machine. diag Pub Works 48:229 Mr 20 '20

Methods of cleansing choked sewer. W. B. Gray. Metal Work 93:208-9 F 13 '20

Portable elevator cleans sand catcher at San Francisco. il diag Eng N 85:493 S 9 '20

Sewer design

Computation of backwater curves in sewer design. C. D. Hill. Munic Eng 58:164-7 Ap '20

Construction of service connections to sewers. A. G. Dalzell. il diags plan Can Eng 40:411-14 Ap 28 '21

Design and principles of sewage siphons. W. Gavett. diags Eng N 85:1041-2 N 25 '20

Design of sanitary lateral sewers and house connections. M. J. Rurak and C. E. Keefer. Eng N 86:564 Mr 31 '21

Design of York township sewerage system. J. M. M. Greig. Can Eng 38:255-8 Mr 4 '20

Diagram adaptation of the rational method of storm-water drain design. H. G. McGee. chart diag map Eng N 83:868-72 N 13 '19

Grit chambers on combined sewers at Columbus, Ohio. W. J. Weaver. diags Munic Eng 58:149-50 Ap '20; Same. Can Eng 39:227 Ag 5 '20

How sewers are designed in New York city. S. D. Bleich. diags Munic Eng 60:92-7 Mr '21

Inverted siphons for sewers; final report of committee. diags Boston Soc C E J 8:231-82; Bibliography. 283-5 S '21; Abstract. Pub Works 51:340-1, 357-8 O 29-N 5 '21

Sewer design --Continued

Sewage siphon designed in spite of meager reference data. G. H. Bayles. diags plan Eng N 84:974-5 My 13 '20

Some points to observe in design of sewerage systems and disposal works. T. Horton. Munic Eng 59:58-9 Ag '20

Storm water run-off diagram for rational method. G. C. D. Lenth. Eng N 85:151-2 Jl 22 '20

Storm water sewer combined with curb and gutter. diags Eng & Contr 54:237 S 8 '20

Sewer explosions

Elimination of dangerous elements, gasoline, volatile oils, etc., from public sewer systems. A. E. Smith. Dom Eng 97:55-6 O 8 '21

Sewer failures

Old stone sewer collapses in Newark, N.J. E. S. Rankins. il Pub Works 49:503 N 27 '20

Sewer pipes

Clay sewer pipe immune from disintegration. A. G. Dalzell. Brick & Clay Rec 59:576-7 O 18 '21

Service strength of sewer pipes. diags Pub Works 50:146-8 F 12 '21; Same. Can Eng 40:461-2 My 12 '21

Sewer construction in Kokomo, Ind. il Pub Works 50:89-91 Ja 29 '21

See also Sewer cleaning; Sewers, Concrete

Advertising

Sells the idea of sewers by telling people of their need. Ptr Ink 112:113-14+ Jl 22 '20

Manufacture

Adapt machine to soil pipe molding. il Foundry 48:951-2 D 1 '20

How materials and products are handled in Los Angeles pipe plant. E. F. Bent. il plan Concrete 18:67-9 F '21

How soil pipe castings are made. P. Dwyer. il Foundry 49:43-7+ Ja 15 '21

Prices

Vitrified sewer tile prices, 1915-1921, inclusive. Eng & Contr 56:353 O 12 '21

Specifications

Los Angeles sewer pipe specifications. Pub Works 48:404-5 My 8 '20

Proposed new specifications for materials for sewer construction. Can Eng 39:636-9 D 23 '20

Report of committee C-4 on clay and cement sewer pipe. Am Soc T M Pro v 20 pt 1:263-7 '20

Tentative specifications for required safe crushing strengths of sewer pipe to carry loads from ditch filling. Am Soc T M Pro v 20 pt 1:603-4 '20

Standards

Case against standard soil pipe. A. E. Hansen. Plumber 95:68-70 F 11 '21

Sewer ring. See Manhole ring**Sewerage**

Blue river sewerage problem, Kansas City, Mo. Eng N 87:439 S 15 '21

City of London (Ont.) sewerage and sewage disposal. H. S. Philips. il plan Can Eng 40:297-301 Mr 17 '21

Cleveland's submerged sewage outfalls. G. B. Gascoigne. diags Pub Works 50:188-91 F 26 '21

Construction of service connections to sewers. A. G. Dalzell. il diags plan Can Eng 40:411-14 Ap 28 '21

Creek in Buffalo made into closed sewer. il Pop Mech 36:406-7 S '21

Curves lined accurately to templet in sewer tunnels. A. L. Sears. diags Eng N 84:737 Ap 8 '20

Design of York township sewerage system. J. M. M. Greig. Can Eng 38:255-8 Mr 4 '20

Designing improvements in Toledo sewers. Pub Works 50:519-22, 544-6 Je 18-25 '21

Drainage in Port Arthur. Pub Works 50:172-3 F 19 '21

Drainage works at Sydney and Auckland. A. Peake; W. E. Bush. Engineering 111:358 Mr 25 '21

Earth slips prove disastrous to open-cut sewers. il diags plan Eng N 83:989-91 D 11 '19

Fungoid growth in sewers. E. E. Finch. Eng & Contr 53:368 Mr 31 '20

Inverted siphons for sewers; final report of committee. diags Boston Soc C E J 8:231-82; Bibliography. 283-5 S '21; Abstract. Pub Works 51:340-1, 357-8 O 29-N 5 '21

Laying sewers in quicksand. Pub Works 48:245 Mr 27 '20

Main sewerage schemes in Australasia. Eng & Contr 56:203 Ag 31 '21

Methods and cost of excavating for small sewers in rock. D. B. Davis. diag Munic Eng 60:4-5 Ja '21

Need for comprehensive water and sewerage systems. J. F. Druar. Munic Eng 58:264-5+ Je '20; Same cond. Can Eng 39:318+ S 9 '20

New ocean outfall and screens for Los Angeles sewage. W. T. Knowlton. map Eng N 86:331-2 F 24 '21

New sewage-works for Austin, Texas. diags Eng N 83:1066 D 25 '19

Newark sewer tunnel. il diags Pub Works 48:221-3 Mr 20 '20

Non-bacterial population of sewage trickling filters. C. R. Cox. Eng N 87:720-5 N 3 '21

Running steam condensation to sewers. F. J. Perry. diags Dom Eng 91:102-3 Ap 17 '20

Runnymede and Swansea sewerage scheme. F. Barber and R. Wynne-Roberts. plan Can Eng 38:165-6 Ja 22 '20

Sewer gate with articulated units to facilitate moving. diags Eng N 85:265 Ag 5 '20

Sewer system more than a million years old; Bowling Green, Ky., uses limestone formation under surface soil as purifier. C. E. Mace. il Pop Mech 35:687-8 My '21

Sewerage and the law. J. Simpson. Munic J 47:341-3 D 6 '19

Sewerage and water improvements at Decatur, Illinois. Eng N 85:457-8 S 2 '20

Sewerage conditions in Illinois; abstracts. M. C. Sjoblom. Eng & Contr 53:262 Mr 10 '20; Munic Eng 58:151-2 Ap '20

Sewerage practice in the Emergency fleet corporation housing projects. C. P. Collins. Eng & Contr 53:156 F 11 '20

Sewering war-time housing developments. Munic J 48:9-12 Ja 3 '20

Sheeting sewer trenches. diags Pub Works 49:580-2, 597-9 D 18-25 '20

Solution of the submerged sanitary outlet. T. H. Johnson. diag plans Concrete 17:96 S '20

Steam shovel digs sewer trench in narrow space. G. C. D. Lenth. il diags Eng N 83:1064-6 D 25 '19

Studies for proposed extensions to sewer system of Decatur, Ill. W. D. P. Warren. Eng & Contr 54:133-5 Ag 11 '20

Traps and leaping weir eliminate odors from waste in sewer. diags plan Eng N 84:1051 My 27 '20

Tunneling machines successful on Detroit sewers. Eng N 84:329-31 F 12 '20

Unique method of elimination of odors from industrial wastes. H. H. Edwards. il diag Munic Eng 60:221-2 Je '21

Unique sewer construction in Kansas City, Mo. P. A. Hartung. Munic Eng 60:21-2 Ja '21

Use of steam shovel for small diameter sewers. G. M. Shepard. il Eng & Contr 52:667 D 10 '19

See also Drainage, House; Gasoline in sewers; Plumbing; Sewage disposal; Sewer cleaning; Sewer design; Sewer pipes; Sewers, Concrete; Trade waste; *also* Pas-saic Valley sewer

Contracts

Payment for sewer manholes. Pub Works 50:105 Ja 29 '21

Cost

Cost of sewer construction at Providence, R.I. Eng & Contr 55:27 Ja 12 '21

Estimating small sewer jobs. W. E. Weller. Eng N 85:1175-6 D 16 '20

Sewerage—Cost—Continued

Method of estimating sewer construction costs. G: C. D. Lenth. diag Eng N 85:22-4 J1 1 '20

Sewer assessments in Newton, Mass. Pub Works 50:187-8 F 26 '21

Unit cost of labor on construction of intercepting sewer for Essex border utilities commission. C: W. Tarr. il Can Eng 38:156-8 Ja 22 '20; Same. Eng & Contr 53:165-6 F 11 '20

See also Sewers, Concrete—Cost

Estimates

Recent bidding prices on sewer construction. Eng & Contr 54:51 J1 14 '20

Failures

See Sewer failures

Finance

Plan for meeting water-supply and sewerage costs. R. B. Morse and A. Wolman. Eng N 86:944-7 Je 2 '21

Repairing

See Sewers, Brick—Repair

Specifications

Change in proposed specifications for materials for sewer construction. Can Eng 40:462 My 12 '21

Proposed new specifications for materials for sewer construction. Can Eng 39:636-9 D 23 '20

See also Sewer pipes—Specifications

Sewers. *See Sewerage*

Sewers, Brick**Repair**

Repairing Greene ave. sewer, Brooklyn. il diags Pub Works 49:565-7 D 18 '20

Sewers, Concrete

Avenue U sewers, Brooklyn. il Pub Works 50:73-5 Ja 22 '21

Building storm water sewers in Hamilton, Ohio. R. B. McWhorter. il diags Munic Eng 58:52-6 F '20; Same. Eng & Contr 53:258-61 Mr 10 '20

Cleveland's submerged sewage outfalls. G: B. Gascoigne. diags Pub Works 50:188-91 F 26 '21

Concrete sewer standard specifications. Pub Works 48:335-7, 355-6 Ap 17-24 '20

Construction work on an outlet sewer in soft soil. diag Eng N 84:337-8 F 12 '20

How concrete is being used in Detroit's big sewer program. D. F. Jennings. il diags maps Concrete 19:130-9 O '21

Large combined outlet sewer. Eng N 84:461 Mr 4 '20

Laying reinforced concrete sewers in Bronx borough, New York. il diag Pub Works 50:403-5 My 14 '21

Life of concrete when used as carrier of domestic sewage. A. C. Shaver. il Sanitary & Heat Eng 96:189-92 S 23 '21; Same. Dom Eng 96:559-62 S 24 '21

Linden street sewer tunnel. il diags Pub Works 50:217-19, 254-6 Mr 12, 26 '21

Muddy river sewer; replacing wood stave sewer in Boston. diags Pub Works 51:95-6 J1 30 '21

Ocean avenue, Brooklyn, storm sewer. il Pub Works 50:1-4 Ja 1 '21

Philadelphia's sewage disposal system. J: F. McClarren. il diags Concrete 17:114-16 O '20

Ralph Avenue sewer, Brooklyn. il diag Pub Works 49:527-31 D 4 '20

Reconstruction of outlet end of Branch st. sewer. St. Louis. W. W. Horner. il diag Eng N 84:1059-60 My 27 '20

St. Louis sewer system. W. W. Horner. map Pub Works 49:477-9 N 20 '20

Sewer construction in Detroit, Michigan. F. F. Griswold. il Munic Eng 61:137-9 O '21

Sewer construction in Kokomo, Ind. il Pub Works 50:89-91 Ja 29 '21

Sewer construction with a dragline excavator. il Eng & Contr 54:467 N 10 '20

Cost

Labor cost of constructing monolithic concrete sewers. D. B. Davis. diags plan Eng & Contr 53:434-5 Ap 14 '20

Reconstruction of outlet end of Branch st. sewer, St. Louis. W. W. Horner. il Eng N 84:1060 My 27 '20

St. Louis sewer system. W. W. Horner. map Pub Works 49:478 N 20 '20

Sewer cost lowered by increasing concrete yardage in section. J: P. Wentworth. diags Eng N 85:148-9 J1 22 '20

Sewing machine needles

Manufacture of sewing machine needles. C. Ruiz. il diags plan Mach 26:834-6 My '20

Sewing machines

Simplified sewing machine does family darning. il Pop Mech 36:484 O '21

Sewing machines, Electric

Attaching an electric motor to a sewing machine. A. D. Robbins. il diag Pop Mech 36:318 Ag '21

Who shall retail electric sewing machines? W: B. Eastwood. il Elec R 77:115-18 J1 24 '20

Sex

Human sex ratio. C. C. Little. Sci Am M 2:176-7 O '20

Male chicks from large eggs. Sci Am 124:365 My 7 '21

Relation between weight and sex in eggs. M. Tevis. Sci Am M 1:41 Ja '20

Voluntary determination of sex; factors which determine the development of male and female animals. Dr Koehler. Sci Am M 2:322-4 D '20

See also Plants, Sex in

Sextant

Pulfrich sextant. F. J. B. Cordeiro. diag Sci Am M 1:44 Ja '20

Specifications for marine sextants. U S Bur Stand Circ 110:1-8 '21

Sextant, Air

Baker air sextant. T. Y. Baker. Aerial Age 12:374 D 13 '20

Shades and shadows

Shades and shadows. D: C. Lange. 135p Wiley '21

Shaft houses. *See Mine shaft houses***Shaft sinking**

Bucket and trolley form simple means for shaft sinking. B. G. Best. diags Eng N 86:962 Je 2 '21

Caring for the water in a wet shaft. diags Coal Age 17:1279 Je 17 '20

Development practice in the Wisconsin zinc district. E. R. Shorey. Min & Met 164:22-3 Ag '20

Illinois shaft 263 ft. deep is completed and timbered by the Johnson City coal co. in 35 days. Coal Age 17:804 Ap 22 '20

Iowa shaft sunk by a clamshell through quicksand uses preheated mine air. D. J. Baker. il Coal Age 19:217-21 F 3 '21

New concrete shaft of the Chief consolidated mining company. A. B. Parsons. il diags plan Min & Sci P 122:595-600 Ap 30 '21

Shaft-sinking medal of the Engineering and mining journal. Eng & Min J 110:343-4 Ag 21 '20

Shaft-sinking methods in the Butte district. H. Drullard. il Eng & Min J 109:705-6 Mr 20 '20

Shaft sinking through quicksand under heavy pressure by freezing process. L. Sauvester. diags Eng & Contr 56:204-7 Ag 31 '21

Sinking and concreting of Pyne and Songa shafts. J. H. Stovel. il diags Eng & Min J 111:698-701 Ap 23 '21

Sinking of the Alpha no. 2 shaft at Kimberly, Nevada. H. S. Munroe. diags plan Min & Sci P 121:871-2 D 18 '20

Sinking rig for inclined shaft. diag plan Eng & Min J 112:181 J1 30 '21

Sinking shaft through quicksand. diag Coal Age 18:906 O 28 '20

Sinking Van Dyke no. 1 shaft. E. R. Rice. il diags Eng & Min J 111:862-7 My 21 '21

Use of cofferdams in wet shafts. W: Dickinson, sr. diags Coal Age 18:293-4 Ag 5 '20

Shaft sinking—Continued

Utilizing a water supply struck in sinking a shaft. J. E. Ambrose. *Coal Age* 17:1062 My 20 '20

Water problem in shaft sinking. J. E. Harding. *il Eng & Min J* 109:263-4 Ja 24 '20

Water rings in a shaft lined with concrete. diags *Coal Age* 18:295 Ag 5 '20

World's shaft sinking record made in Tintic district, Utah. *il Eng & Min J* 112:376 S 3 '21; *Min & Sci P* 123:303-4 Ag 27 '21

See also Drilling and boring (earth and rocks); Mine shafts

Shafting

Aligning engine and generator shafts. E. Pagett. *Power* 54:34 Jl 5 '21

Aligning engine shafts. B. E. Eckard. diags *Power* 54:229-30 Ag 9 '21

Aligning engine shafts. N. G. Hardy. *Power* 53:1065-6 Je 28 '21

Aligning shafting by a steel wire. H. J. E. Reid. diags *Am Mach* 54:790-1 My 5 '21; Discussion. W. F. Schaphorst. 55:343 S 1 '21

Lining turbine and generator shafts. O. G. A. Patterson. diags *Power* 51:370-1 Mr 9 '20

Quick shaft-repair job in a textile printing works. Z. Bradshaw. diag plan *Power* 54:252 Ag 16 '21

Shaft couplings. *Textile World* 58:905 Ag 7 '20

Steam-turbine shaft glands. J. R. Baker. diags *Power* 53:881-3 My 31 '21

Strength of shafts and beams. J. S. Watts. chart diags *Am Mach* 53:909-10 N 11 '20

Theoretical consideration of bending in shafts. C. W. Good. diag *Mech Eng* 43:138-9 F '21

Transverse vibrations of beams and the whirling of shafts supported at intermediate points. E. R. Darnley. *Philos Mag* 6th ser 41:81-96 Ja '21

See also Belting; Power transmission; Pulleys

Standards

Standard sizes for shafting. *Mech Eng* 42:251 Ap '20; Same. *Mach* 26:874 My '20; Same. *Am Mach* 53:112-13 Jl 15 '20; Same abr. *Paper* 26:16-17 My 12 '20; Excerpts. *Iron Age* 105:1247 Ap 29 '20; *Foundry* 48:406 My 15 '20; *Iron Tr R* 66:1337 My 6 '20; *Power* 51:814 My 18 '20

Shafts

Experience of an erecting engineer—pressing alternator's rotor on shaft. K. A. Reed. *il Power* 50:768-70 N 25 '19

Graphical determination of shaft diameters. N. B. Hunt. *Mach* 27:1036-7 Jl '21

Milling a splined shaft. J. B. Gray. diags *Mach* 27:76 S '20

Some points on the whirling of shafts. J. Morris. *Engineer* 129:157 F 13 '20

Strength of Cardan shafts; abstract. A. Johnson. *Mech Eng* 42:524-5 S '20

Tolerances allowed in grinding splined shafts. diags *Automotive Ind* 45:525-6 S 15 '21

Torsional strength of multiple-splined shafts. C. W. Spicer. *il diags Soc Auto Eng J* 8:129-30+ F '21; Same cond. *Am Mach* 55:398-9 S 8 '21; Abstract. *Mech Eng* 43:199-200 Mr '21

Welding a hydro-electric generator shaft (thermit weld). *il diag Power* 54:61 Jl 12 '21

See also Crankshafts; Shafting

Shafts, Mine. *See* Mine shafts

Shale

Clays and shales of Virginia west of the Blue Ridge. H. Ries and R. E. Somers. 118p (Virginia. Geological survey Bul. no. 20) University of Virginia, Charlottesville '20

Possible uses for the spent shale from oil shale operations. K. Thomas. *Chem & Met Eng* 24:389-90 Mr 2 '21

Stanley shale of Oklahoma. C. W. Honess. *Am J Sci* 5th ser 1:63-80 Ja '21

Wet shale no more retards production. *il diag Brick & Clay Rec* 59:573-4 O 18 '21

See also Oil shales

Shale as fuel

Shale as fuel in Esthonia. T. Haynes. *Sci Am* M 1:141 F '20

Shale oil. *See* Oil shales

Shandaken tunnel. *See* New York (city)—Water supply

Shanghai, China

Rapid transit

Chinese city uses modern trackless trolley. *il Pop Mech* 35:645 My '21

Shanghai tramways are prosperous. *il Elec Ry J* 56:76-7 Jl 10 '20

Shanghai-Nanking railway

Shanghai-Nanking railway. *Engineer* 130:656 D 31 '20

Shapers

Adapting the shaper to planer work. *il diag Mach* 27:454-5 Ja '21

Bertschy heavy-duty shaper. *il Am Mach* 54:476-7 Mr 17 '21

Columbia shaper. *il Am Mach* 52:585-6 Mr 11 '20; *Mach* 26:680-1 Mr '20

Damerell portable shaper for drop forge work. *il Iron Age* 106:456 Ag 19 '20

Draw-cut shaper in the railroad shop. F. A. Stanley. *il Am Mach* 54:448-51 Mr 17 '21

Hanson-Whitney tool and die shaper. *il Mach* 26:669-70 Mr '20; *Ry Mech Eng* 94:421 Je '20

Hollingworth 28-in. heavy-duty shaper. *il Am Mach* 54:621-2 Ap 7 '21

Kelly crank shapers. *il Mach* 26:990-1 Je '20; *Am Mach* 52:1216 Je 3 '20

Morton heavy-duty draw-cut special railroad shaper. *il Am Mach* 54:704-5 Ap 21 '21; *Mach* 27:901 My '21; *Ry Mech Eng* 95:321-3 My '21; *Iron Age* 107:1236 My 12 '21

New feed device for use on Queen City shapers. *il Iron Age* 106:1666 D 23 '20

Pletz 9-inch shaper. *il Iron Age* 107:712 Mr 17 '21

Production shaping. *il Mach* 28:89-93, 186-90, 272-6 O-D '21

Putnam 26-in. traverse head shaper. *il Ry Mech Eng* 95:325-6 My '21; *Iron Age* 107:983 Ap 14 '21

Roughing-out bevel gears on a shaping machine. W. H. Addis. *il Am Mach* 52:341-2 F 12 '20

Shaper fixture for machining a concave surface. diags *Mach* 27:1060 Jl '21

Vertical shaping machine. *il Engineer* 132:198-9 Ag 19 '21

Whipp crank shapers. *il Mach* 26:985-6 Je '20; *Am Mach* 52:1165 My 27 '20; *Iron Age* 105:1526 My 27 '20; *Ry Mech Eng* 94:554-5 Ag '20

Whipp single-gear crank shaper. *il Iron Age* 107:1048 Ap 21 '21

See also Machine tools

Shark liver oil

Squalene: a highly unsaturated hydrocarbon in shark liver oil. M. Tsujimoto. *J Ind & Eng Chem* 12:63-72 Ja '20

Sharks

Utilization of the shark for food and leather. A. Rogers. *J Ind & Eng Chem* 12:293 Mr '20

Sharpening

Ingersoll-Rand drill-steel sharpener. *il Min & Sci P* 120:661 My 1 '20; *Eng & Contr* 53:473 Ap 21 '20; *Am Mach* 52:1064 My 13 '20; *Coal Age* 17:911-12 My 6 '20

Sharpening hobs and cutters. C. G. Olson. diags *Mach* 27:11-13 S '20

Sullivan B drill sharpener. *il Eng & Contr* 54:269-70 S 15 '20; *Min & Sci P* 121:610 O 23 '20

Sharpless, Frederick Fraley

Mining engineers of note. *por Eng & Min J* 112:418 S 10 '21

Secretary of American institute of mining and metallurgical engineers. *por Chem & Met Eng* 25:101-2 Jl 20 '21

Shaughnessy, E. H., 1882-

Col. Shaughnessy, 2nd ass't postmaster general. *Aviation* 10:530 Ap 25 '21; *por Ry Age* 70:993 Ap 22 '21

Shaving soap

Promoting the effortless shave. F. C. Kelly. *Nation's Business* 8:18-19 Ag '20

Shaving tools

Notes on the design of shaving tools. H. F. Pusep. diags Am Mach 55:624-6, 686-9 O 20-27 '21

Shavings. See Wood as fuel

Shawinigan water and power company

23d annual report of the board of directors, for the year ending Dec. 31, 1920. Comm & Fin Chr 112:1157-8 Mr 19 '21

Shear. See Deformations (mechanics)

Shearman, L. H.

House of L. H. Shearman, Lakeville, L.I., N.Y.; views and plans. Am Arch 120:152b-o, 153 Ag 31 '21

Shears

Alligator shears for general work. il Ry Mech Eng 94:550-1 Ag '20

Cisaille hydro-électrique de 1200 tonnes. diags Génie Civil 77:53-5 Jl 17 '20

Doelger & Kirsten line of automatic stop alligator shears. il Iron Age 105:540 F 19 '20

Gauge for sheet metal shears. diag Sheet Metal Worker 12:545 S 2 '21

Gray's turret rotary shear. il Am Mach 52:1115 My 20 '20; Mach 26:987-8 Je '20

High-speed guillotine shears. il diags Engineer 129:606-7 Je 11 '20

Hold-down magnet control for vertical plate shears. S. L. Guthorn. diags Elec W 76:1071-2 N 27 '20

Metal cutting tools; shear tools. A. L. DeLeeuw. diags Am Mach 55:134-40 Jl 28 '21

Niagara no. 8-H power squaring shear. il Am Mach 54:1140 Je 30 '21; Iron Age 108:9 Jl 7 '21; Mach 27:1080-1 Jl '21

Niagara no. 13-B ring and circle shear. il Am Mach 55:76 Jl 14 '21

Self-adjusting shear. diag Textile World 56:3373 D 13 '19

Shearing machines for straight and curved cuts. il diags Engineering 111:353 Mr 25 '21

Six-foot high-speed shearing machine. il diags Engineering 111:286, 287-8 Mr 11 '21; Engineer 131:270 Mr 11 '21

Southwark-Gray turret rotary shears. il Am Mach 55:531 S 29 '21; Mach 28:166 O '21; Ry Mech Eng 95:655-6 O '21

Southwark turret rotary shear. il Iron Age 105:1526 My 27 '20; Iron Tr R 66:1482 My 20 '20; Automotive Ind 42:1252 Je 3 '20

Tangent hand shearing machines for rods and sheets. il diag Engineering 109:524 Ap 16 '20

Yoder gang slitting and leveling machines. il Iron Age 105:1098 Ap 15 '20; Iron Tr R 66:1140-1 Ap 15 '20; Am Mach 52:1163-4 My 27 '20

Sheep

Government sheep ranch develops new breed. Pop Mech 35:538 Ap '21

Mountain-peak grazing. W. F. Wilcox. il Sci Am 122:108+ Ja 31 '20

Sheerboards

Large earth-fill stadium built by sheerboard method. il diags Eng N 86:326-9 F 24 '21

Sheerboards used in building hydraulic fill dam. il diag Eng N 86:291-2 F 17 '21

Sheet iron

Galvanized vs. blue sheet iron chute linings. D. C. Ashmead. Coal Age 17:348 F 19 '20

Sheet metal

Development of modern sheet rolling. W. H. Melaney. il Blast F & Steel Pl 8:91-3 Ja '20

Early history of metal presses. O. P. Hatton. Am Mach 54:19-20 Ja 6 '21

Fire prevention advantages of sheet metal. J. Bogenberger. Sheet Metal Worker 11:285+ O 15 '20

Material handling equipment is important factor in new sheet mill. E. L. Shaner. il Iron Tr R 67:1266-70 N 4 '20

Mechanical matcher lowers costs; aligning and doubling hot rolled sheets is performed by motor driven machine. il diags Iron Tr R 69:948-50 O 13 '21

New mill to roll automobile sheets. il Iron Age 106:1181-5 N 4 '20

Sheet metal for fire protection. Metal Work 94:108 Jl 23 '20

Sheet metal protections in a large plant; National conduit & cable plant at Hastings-on-Hudson, N.Y. E. H. Custer. il diags Sheet Metal Worker 12:181-2+ Ap 15 '21

Sheet metal used to protect moving picture films. il Metal Work 94:105-7 Jl 23 '20

Story of the rolling of zinc sheets. G. S. Harvey. Metal Work 94:311-12 S 3 '20

Wider sheet bars advocated. C. F. Poppleton. diags Iron Age 105:1359-63 My 13 '20; Same abr. Metal Work 94:177-9 Ag 6 '20

See also Tin plate

Specifications

Practical sheet metal specifications. M. H. Potter. Sheet Metal Worker 12:361-4 Je 24 '21

Testing

Ductility testing machines. T. Y. Olsen. il Am Soc T M Pro v 20 pt 2:398-403; Discussion. 404-7 '20

L'essai, à l'emboutissage, des tôles minces. C. Fremont. il diag Génie Civil 78:136 F 5 '21; Discussion. 78:318-19 Ap 9 '21

New method of testing galvanized coatings. A. S. Cushman. il diags Am Soc T M Pro v 20 pt 2:411-21; Discussion. 422-5 '20

Sheet metal products association, National. See National sheet metal products association

Sheet metal shops

Estimating versus shop equipment. il Metal Work 94:313-14 S 3 '20

Field of automobile work is widening. Metal Work 93:761-2 Je 11 '20

Knock the guess from estimating—make the shop pay. N. A. Lichty. Sheet Metal Worker 11:424-5 D 24 '20

Accounting

Cost keeping and overhead accounting. C. F. Warning. Sheet Metal Worker 12:191-4 Ap 15 '21

Overhead and cost systems of Illinois shops. G. Harms. Sheet Metal Worker 12:220+ Ap 29 '21

Equipment

Mounting a bench machine to save labor. il Sheet Metal Worker 12:491-2 Ag 19 '21

Sheet metal shop equipment for railroad work. J. V. Hunter. il diag Am Mach 54:683-6 Ap 21 '21

See also Sheet metal work

Layout

Shop well equipped for big output. il plan Metal Work 94:238-40 Ag 20 '20

Sheet metal trade

Automobile slump hits sheets. Iron Tr R 68:94-5 Ja 6 '21

Getting the most out of a supply inquiry; suggestions to sheet metal workers on letter writing. L. Broemel. Sheet Metal Worker 12:563-6 S 16 '21

One good way to make money—think ahead of the crowd. il Sheet Metal Worker 12:223-4 Ap 29 '21

Path that leads to money in the bank; introducing sheet metal for farm protection. il Sheet Metal Worker 11:247-8 O 1 '20

Prices of galvanized sheets from 1900 to 1920. Iron Age 107:65-6 Ja 6 '21

Push sheet metal for building purposes. il Metal Work 92:722-3 D 19 '19

Reaching out to bigger fall business. C. A. Eddy. il Sheet Metal Worker 12:493-5 Ag 19 '21

Report of trade development committee of National association of sheet metal contractors. Metal Work 93:835-6 Je 25 '20

Review of conditions in sheet metal industry. R. H. Lyon. Metal Work 93:481-2 Ap 16 '20

Sheet and tin plate trades in 1919. B. E. V. Luty. Iron Age 105:50-1 Ja 1 '20; Same. Metal Work 93:31-3 Ja 2 '20

Sheet and tin plate trades in 1920. Iron Age 107:54-5 Ja 6 '21

Sheet metal price, production and delivery. il Metal Work 93:645-6 My 21 '20

Some history of the trade in Europe. E. E. Ziedeck. Sheet Metal Worker 12:43-4 F 18 '21

Sheet metal trade—Continued

- Survey of sheet metal field for 1921. R. H. Lyon. Sheet Metal Worker 11:469-70 Ja 7 '21
- System essential in sheet metal business. N. A. Lichty. Sheet Metal Worker 12:9-10 F 4 '21
- Trade development plans furthered at Pittsburgh convention of the National association of sheet metal contractors. Sheet Metal Worker 12:372-80 Je 24 '21
- What is being done for trade development. P. F. Brandstedt. Sheet Metal Worker 12:367-9 Je 24 '21
- Will sheet metal men drive their industry? F. K. Chew. Metal Work 94:3-5 Jl 2 '20

Accounting

- Standardized cost methods for sheet metal work. A. Baruch. Sheet Metal Worker 12:669-72 O 28 '21
- Treatise on standardized cost keeping methods for the sheet metal trade. A. Baruch. Sheet Metal Worker 12:621-5 O 14 '21

Advertising

- Effective advertising by a sheet metal man. Sheet Metal Worker 11:281+ O 15 '20
- Pointers on advertising sheet metal. L. Broemel. Sheet Metal Worker 12:597-8 S 30 '21
- Service brings 'em back. il diag plan Sheet Metal Worker 11:461-2+ Ja 7 '21

Sheet metal work

- Aluminum rolling-mill practice—finishing operations. R. J. Anderson and M. B. Anderson. diags Chem & Met Eng 22:697-702 Ap 14 '20
- Blanking, forming, trimming and piercing in one operation. L. H. Anderson. il Am Mach 54:878 My 19 '21
- Carloads of sheet metal in a skyscraper. il Sheet Metal Worker 12:591-2 S 30 '21
- Converting standard machines for special uses. L. Broemel. il diag Sheet Metal Worker 12:436-7 Jl 22 '21
- Corrugated barrel and how made. L. Broemel. il diags Sheet Metal Worker 12:532-5 S 2 '21
- Difficult piece of press work. F. A. Stanley. il diags Am Mach 53:164-5 Jl 22 '20
- Directions on repairing automobile radiators. R: H. Terpening. il diags plan Sheet Metal Worker 11:253-6+, 286-7 O 1-15 '20
- Flow of metal in deep drawing. il Am Mach 54:264 F 17 '21
- Machines applied to making small tubes. L. Broemel. diags Sheet Metal Worker 12:407-9 Jl 8 '21
- Making apprentice's tool box of metal. il diags Sheet Metal Worker 11:277-9 O 15 '20
- Making auto specialties by roll process. il Sheet Metal Worker 12:11+ F 4 '21
- Making pressed metal parts becomes important industry. E. L. Shaner. il diag Iron Tr R 68:617-20 Mr 3 '21
- Making stove pipe a science. il diags Metal Work 93:387-8 Mr 26 '20
- Notable example of factory metal work at Sperry flour mill at Spokane. il Sheet Metal Worker 12:429-30 Jl 22 '21
- Pneumatic cushions in metal-drawing operations. J: Nelson. il diags Mach 26:726-9 Ap '20
- Possibility of improved methods of rolling sheet steel. S. B. Ely. Mech Eng 43:670-1 O '21; Same. Iron Tr R 69:1076-8 O 27 '21
- Producing a stamped shift lever dome. N. T. Thurston. il diags Iron Age 107:1441-4 Je 2 '21
- Providing skilled workmen for the future. S. Scrimshaw. Metal Work 93:720-3 Je 4 '20
- Relation of power presses and dies to the automobile industry. H: J. Hinde. diag Mech Eng 43:531-2 Ag '21
- Repairing damaged automobile sheet metal parts. R: H. Terpening. diags plans Sheet Metal Worker 12:255-7 My 13 '21
- Sheet bronze aquarium and stand with fountain operated by two tanks. W. H. Gruening. il diag Metal Work 94:135-8 Jl 30 '20

Sheet-metal work; a manual of practical self-instruction. W: Neubecker. 267p American technical society, Chicago '20

- Sheet metal work for automobiles. F. H. Colvin. il Am Mach 53:1165-8 D 23 '20
- Sheet metal work on washing machines. E. H. Custer. il Sheet Metal Worker 12:281-3 My 27 '21
- Theory and practice of welding sheet metal. M. H. Potter. diags Metal Work 94:339-41, 362-3, 394-6 S 10-24 '20
- Three profitable R's—repair—rebuild—replace radiators. il Sheet Metal Worker 11:455-6 Ja 7 '21
- Welding and other saving suggestions for the sheet metal shop. il Sheet Metal Worker 11:463-5 Ja 7 '21
- Wire and sheet guage tables. T: Stobbs, comp. 2d ed. Spon '20
- Working sheet aluminum. A. Eyles. diags Mach 27:1138-40 Ag '21
- See also Bar folding machine; Cornice brake machine; Dies; Exhaust heads; Pipe elbows; Plate-stretching machine; Punching; Rolling mills; Shells (metal work); Tanks; Tubes

Exhibitions

- Exhibit of standardized sheet metal equipment including benches for trade schools at Atlantic City N.E.A. convention. il Sheet Metal Worker 12:152+ Ap 1 '21

Pattern making

- Cutting out and making a twelve point star. diag Sheet Metal Worker 12:183 Ap 15 '21
- Developing a pattern for a metal wind scoop. diags Sheet Metal Worker 11:250 O 1 '20
- Developing patterns for a scalene funnel. diags plans Metal Work 92:455-6 O 17 '19
- Die sinking and metal patternmaking by automatic machine. J. F. Keller. il Mech Eng 43:584-88+ S '21
- Efficiency and beauty of the curved line; construction of a warm air furnace elbow. diags Sheet Metal Worker 12:668+ O 28 '21
- Four-piece transitional elbow pattern. diags Sheet Metal Worker 12:221-2 Ap 29 '21
- Getting patterns for auto speedster bodies. R: H. Terpening. diags Sheet Metal Worker 12:433-4+ Jl 22 '21
- Instruction course for the apprentice. I. C. Vanasdal. diags Sheet Metal Worker 12:636-40 O 14 '21
- Instructive directions on elbow making. diags Metal Work 94:204-5 Ag 13 '20
- Laying out dripping pan corners. diag Sheet Metal Worker 12:495 Ag 19 '21
- Laying out stack work made of heavy metal. diags Sheet Metal Worker 12:149-51 Ap 1 '21
- Layout for a curved rectangular twisted compound elbow. diags Metal Work 93:671-2, 719-20 My 28-Je 4 '20
- Learn pattern cutting this winter. diags Metal Work 92:573-4 N 14 '19
- Making the case for an auto radiator. R: H. Terpening. diags Sheet Metal Worker 12:405-6 Jl 8 '21
- Method of laying out transition fittings. diags plan Sheet Metal Worker 11:251 O 1 '20
- Method of obtaining helical flange pattern. W. S. Grove. diags Sheet Metal Worker 12:111 Mr 18 '21
- Octagonal compound tapering elbow pattern. diags Sheet Metal Worker 11:391-3 D 10 '20
- Pattern details for a transition elbow. diags Sheet Metal Worker 12:529+ S 2 '21
- Pattern for a flat box spiral chute. diags plan Sheet Metal Worker 11:453-4 Ja 7 '21
- Pattern for a transition piece. W. H. Gruening. diag Sheet Metal Worker 12:291+ My 27 '21
- Pattern for double offset wall stack boot. diags plan Metal Work 92:288-9, 391-3 S 5, O 3 '19
- Pattern for nose on an automobile fender. diag Sheet Metal Worker 11:339 N 12 '20
- Pattern for pipeless furnace hood. diags Sheet Metal Worker 12:263 My 13 '21
- Patterns for irregular transition piece. diags plan Sheet Metal Worker 12:7-8+ F 4 '21

Sheet metal work—Pattern making—Continued

- Patterns for spiral chute around cylinder. diags plan Metal Work 94:27-9+, 249 J1 9, Ag 20 '20; (cont. in) Sheet Metal Worker 11:375-6 N 26 '20
- Patterns for standard conical shapes. T: Newton. diags Sheet Metal Worker 12:322+ Je 10 '21
- Sheet metal drafting. E. M. Longfield. 236p McGraw-Hill '21
- Short method for solution of elbow problems. diags Sheet Metal Worker 11:370 N 26 '20
- Short method for T-joint. diag Sheet Metal Worker 11:260 O 1 '20
- Short rule for a taper joint. diags Sheet Metal Worker 12:76 Mr 4 '21
- Simple methods for laying out patterns. diags Sheet Metal Worker 11:282 O 15 '20
- Study of circular raking moldings. W: Neu-becker. diags plan Metal Work 93:16-19, 81-3, 145-6, 270-1 Ja 2, 16, 30, F 27 '20
- Three automobile pattern problems. W: Neu-becker. diag Metal Work 93:409-10, 451, 547-8+ Ap 2-9, 30 '20

Study and teaching

- Cincinnati sheet metal trades school. il Sheet Metal Worker 12:251-2 My 13 '21
- Cultivating school boy's taste for sheet metal work. L. Broemel. il Sheet Metal Worker 12:629-32+ O 14 '21
- Industrial education as affecting jobbers. L. Broemel. il Sheet Metal Worker 12:633-5 O 14 '21
- Making sheet metal mechanics in Chicago. il Sheet Metal Worker 12:435 J1 22 '21
- Sheet metal as a manual training subject. J. S. Daugherty. il Sheet Metal Worker 12:667+ O 28 '21
- Sheet metal instruction in Milwaukee. Metal Work 92:698-700 D 12 '19
- Sheet metal work, Architectural**
- Business of making portable steel buildings. il Sheet Metal Worker 11:241-4 O 1 '20
- Copper, lead and galvanized work on church. il diags plan Sheet Metal Worker 12:355-6+ Je 24 '21
- Diagram and data on using lead in architectural sheet metal work. il diags Sheet Metal Worker 12:600-2 S 30 '21
- Garage building by the sheet metal worker. il Metal Work 93:611-12 My 14 '20
- Sheet metal heater house for garage. il Sheet Metal Worker 12:77 Mr 4 '21
- Uses of hard lead in building construction. J. J. Welshofer. Sheet Metal Worker 12:41-2 F 18 '21

See also Columns, Sheet iron

Sheet mills. *See* Rolling mills

Sheet piling

- Constructing the Wanaque dam. il diag Pub Works 51:157-61 Ag 27 '21
- Crib and cofferdam work. F. W. Skinner. il diags Pub Works 51:195-8, 255-7, 281-3 S 10, O 1-8 '21
- Driving steel sheet piles without headroom for a piledriver. il diags Eng N 85:378-9 Ag 19 '20
- How can concrete sheet piles be installed? diags Pub Works 50:41-3 Ja 8 '21
- Lackawanna steel sheet piling. 171p [Bul. no. 109] Lackawanna steel co., Lackawanna '21
- Quay wall construction with reinforced concrete sheet piles. diags Eng & Contr 55:318-19 Mr 30 '21
- Sheeting sewer trenches. diags Pub Works 49:580-2, 597-9 D 18-25 '20
- Steel sheet piling. C: S. Boardman. il plan Am Arch 119:123-8 F 2 '21

Testing

- Tests of solid and laminated wood sheet-piles. il diags Eng N 84:1201-2 Je 17 '20

Sheffield Farms-Slawson Decker company

- How big milk company checks up deliveries. Ptr Ink 112:85-6 S 2 '20

Shelby, Ohio**Water supply**

- Experiences with iron in the public water supply at Shelby. P. Burgess. Am Water Works Assn J 8:193-200 My '21

Shell roads. *See* Roads, Shell

Shell shock

- Commotional factor in the ætiology of shell shock. A. Carver. Sci Am S 88:378+ D 27 '19

Shellac

- Pure gum shellac. C. H. Jones. il Chem & Met Eng 21:715-21 D 10 '19
- Rapid examination of shellac, shellac varnish, and lacquer. T. L. Crossley. J Ind & Eng Chem 12:778-81 Ag '20

Shells (metal work)

- Dies for double-flanged shell. J. Bingham. il diags Mach 26:964-6 Je '20
- Dies for hemispherical, conical and other flanged shells. J. Bingham. diags Mach 27:546-8 F '21
- Dies for producing a conical part; operations in manufacturing a difficult shell. N. T. Thurston. il diags plan Mach 27:772-5 Ap '21
- Drawing a deep shell of irregular shape; principal details of dies used. C: Ruiz. diags Mach 27:160-2 O '20
- Making a cylindrical shell with two internal flanges. E. A. Dixie. il diags Am Mach 53:569-70 S 23 '20
- Removing dents from metallic shells. F. E. Chace. Mach 28:101 O '21
- Shell forming die. J. Bingham. diags Mach 27:784 Ap '21

Shells (projectiles)

- Dynamics of shell flight. R. H. Fowler. diags Sci Am M 2:145-6 O '20
- Incendiaries in modern warfare; shell. A. B. Ray. diags J Ind & Eng Chem 13:714-16 Ag '21
- Manufacture of trinitroxyline for use as a substitute for TNT in bursting charges for high explosive shell. J: Marshall. J Ind & Eng Chem 12:248-50 Mr '20
- Modern artillery ammunition. H. M. Brayton. charts Am Mach 50:707-10; 52:95-101 Ap 10 '19, Ja 8 '20

Manufacture

- Forge plant for 75mm projectiles. T. W. Towler. il plan Blast F & Steel Pl 9:168-71 F '21
- Forging and inspecting ordnance shells. S. A. Richardson. Sibley J 33:40-3+ My '19
- Heat treatment of 155-mm. high explosive shell. W: J. Merten. il diags plan Chem & Met Eng 21:687-9 N 26 '19
- Hooker method of extrusion; extruding brass cartridge shells and seamless copper radiator tubes. G. Frazar. il Iron Age 107:453-7 F 17 '21
- Locomotive used as a shell press. diags Engineering 109:214 F 13 '20
- Shells require uniform castings. H. R. Simonds. il Iron Tr R 65:1573-8 D 11 '19

Testing

- Firing shell into a concrete tank. H. T. Wade. il diags Sci Am 122:224+ F 28 '20

Shelter holes. *See* Mine haulage

Shepard technical night school

- Does it pay to run a night school in your plant? Factory 25:1412-13 N 1 '20

Sherardizing. *See* Galvanizing

Shevlin memorial park

- Beautiful forested area to be dedicated to lumberman's memory. il Am Lumberman 2325:41 D 6 '19

Shingles

- Advantages of square pack shingles. J. S. Williams. Am Lumberman 2351:61 Je 5 '20
- How shingle staining gives individuality. il plan Bldg Age 43:22 Je '21
- Lead shingles perfect architect's scheme. il Sheet Metal Worker 11:335-6 N 12 '20
- Production of lumber, lath, and shingles in 1918. F. H. Smith and A. H. Pierson. U S Agric Bul 845:1-47 '20
- Ready reference table makes it easy to compare square and thousand shingle units and prices. Am Lumberman 2355:64 J1 3 '20
- Some phases of lumber manufacture; shingles in the making. R. S. Whiting. il Am Arch 118:28-30 J1 7 '20

Shingles—Continued

Value of spark-resistive shingles. il Safety Eng 42:67-8 Ag '21

See also Roofs; Shingling

Advertising

Revised sales unit stiffens backbone of shingle industry. W. Brindley. Ptr Ink 114: 145+ Mr 10 '21

Shingles, Asbestos**Advertising**

Manufacturer creates new market for his product when regular market flattens. R. Cole. Ptr Ink 115:17-20+ Je 23 '21

Shingling

Giving a frame roof a thatched appearance. il diags Bldg Age 43:38-9 Mr '21; Same. Am Arch 119:373-4 Mr 23 '21

Laying slate, asbestos and asphalt shingles. L. S. Bonbrake. diags Bldg Age 42:39-42 S; 63-5 O; 59-62 N; 57-60 D '20

See also Roofs; Shingles

Ship-building. See Shipbuilding**Ship loading. See Loading and unloading****Ship models**

Economical cargo ships—model experiments. A. J. C. Robertson. Marine Eng 25:990-6; Discussion. 1007 D '20

Going to sea in a tank; self-propelled models that make for better ships and less fuel consumption. R. G. Skerrett. il Sci Am 123:90+ Jl 24 '20

Models and their lining off. G. A. Bisset. il diag Marine Eng 25:931-3 N '20

Ship building in miniature; important part that models have to play. R. G. Skerrett. il Sci Am M 1:331-4 Ap '20

Ship plates. See Plates, Iron and steel**Ship propulsion**

Angular vibrations in marine propelling machinery. R. Gardner. Engineering 112:363-4 S 9 '21; Discussion. 112:661 N 11 '21

Arrangement of the propelling machinery of the new scout cruisers building for the United States navy. il diags Marine R 51: 197-8 Ap '21

Boat that pumps its way along. il Sci Am 122:639 Je 12 '20

Can duplex craft speed up transportation? R. G. Skerrett. il Sci Am 122:479+ My 1 '20

Characteristics of a marine propeller in a non-uniform stream. T. B. Abell. diags Engineer 130:291 S 24 '20

Diesel-engined auxiliary schooners; details of propelling and auxiliary machinery installed in Italian sailing vessel for auxiliary power. C. E. Spinnler. il diags plan Int Marine Eng 25:402-5 My '20

Efficiency of propulsion of full-sized ships. C. F. Holt. Engineering 110:193-6 Ag 6 '20

Geared turbine passenger steamer Antwerp. F. C. Coleman. il plans Int Marine Eng 25:625-30 Ag '20

H. M. battle cruiser Hood. il (supp) Engineering 109:397-9, 414, pl 21-4 Mr 26 '20

Horsepower of river steamer. diags Marine Eng 26:336-9 Ap '21

Internal combustion engines applied to propulsion; machinery equipment of motorship William Penn. J. F. Metten and J. C. Shaw. diags Marine Eng 26:542-5 Jl '21; Same. Marine R 51:300-4 Jl '21

Internal combustion engines in marine service; comparison with steam turbines. C. E. Lucke. J Fr Inst 192:11-45, 203-32 Jl-Ag '21

Layout, construction and installation of propulsion equipment and auxiliaries for marine drive. C. M. Rhoades. diags plans Gen Elec R 24:177-87 F '21

Merchant ship propulsion gears. A. A. Ross. il diags Gen Elec R 24:131-6 F '21

Motor ship Narragansett. il diags (supp) Engineering 109:716-19, 722 My 28 '20

Navires à "pousseurs," système Constan. F. Pavy. diags (supp) Génie Civil 76:152-4 F '20

Power and speed of steamers. A. R. Liddell. Sci Am M 1:145-7 F '20

Propelling machinery of H.M.S. Hood. il (supp) Engineer 129:313-14 Mr 26 '20

Propelling machinery of the Leviathan. E. H. B. Anderson. il diags Int Marine Eng 25:51-60 Ja '20

Propulsive efficiency of single-screw cargo ships. W. McEntee. diags Int Marine Eng 24:796-9; Discussion. 829-30 D '19

Putting the sailer on schedule. diags Marine R 50:511-13 S '20

Reduction gears for ship propulsion; abstracts. R. Warriner. diags Engineering 111: 786-9 Je 24 '21; Marine Eng 26:532-8 Jl '21

Review of motorship machinery problems. H. C. Verhey. Marine Eng 25:830-2 O '20

Selection of propelling machinery. L. B. Chapman. Marine Eng 26:691-5 S '21

Ship form, resistance, and screw propulsion, by G. S. Baker. Review. Engineer 131:572-3 My 27 '21

Single screw ship efficiency. W. McEntee. Marine R 50:210-13 Ap '20

Substitution of radial for feathering paddle wheels. diag Int Marine Eng 25:613-14 Jl '20

United States battleships of the year 1914 and later classes. E. H. B. Anderson. Int Marine Eng 25:690-2 Ag '20

Westinghouse propelling and auxiliary machinery installed in fabricated ships. P. M. Robinson. il diags plans Int Marine Eng 25: 83-100 F '20

See also Boilers, Marine; Diesel engines, Marine; Gas and oil engines, Marine; Marine engineering; Marine engines; Motor ships; Propellers; Rudders; Sailing vessels; Ship resistance; Steam turbines, Marine; Steamboats

Ship propulsion, Electric

Alternating-current generators for ship propulsion. E. H. Freiburghouse. il diag Gen Elec R 24:137-40 F '21

American freighter Fordonian to install gas-electric drive. il Marine R 51:165 Ap '21

Another Diesel electric installation. il Int Marine Eng 25:409-11 My '20

Bringing the electric drive to yachting. il Sci Am 122:188 F 21 '20

Control equipment for the propelling machinery of the U.S.S. Tennessee. M. Cornelius. il diags Elec J 18:263-70 Je '21

Control of an induction motor propelled cargo boat. R. Stearns. il diags Gen Elec R 24: 150-5 F '21

Control of the secondaries of the main propulsion motors of the U.S.S. Tennessee. W. C. Goodwin. il diag Elec J 18:278-9 Je '21

Converting the Ferris-type wooden hulls into Diesel-electric driven motorships. R. Z. Dickie. diags plans Int Marine Eng 25:166-9 Mr '20

Development of steam turbine electric drive shows notable progress. Marine Eng 26:344 Ap '21

Diesel-electric drive for double ended ferry boats and low powered cargo vessels. S. M. Robinson. Marine Eng 25:974-8 D '20

Diesel electric drive for low powered cargo vessels. W. Mulheron. Marine Eng 26:171 F '21

Diesel-electric drive for yacht Elfay. R. W. Wadman. il Int Marine Eng 25:161-5 Mr '20

Diesel electric drive in Ferris type wooden vessels. Elec R 76:190-1 Ja 31 '20

Diesel-electric equipment of the yacht Elfay. il Power 51:452 Mr 23 '20

Diesel-electric ferryboat, Poughkeepsie. C. V. S. Wyckoff. diags plan Marine Eng 26:750-1 O '21

Diesel electric propulsion. J. B. Bassett. Marine Eng 26:631-3 Ag '21

Diesel-engine electric drive for ocean-going freight ship, Fordonian. Elec W 77:614 Mr 12 '21

Diesel engine electric propulsion for merchant ships. W. H. Wild. il diags plan Gen Elec R 24:146-9 F '21

Discussion of use of electricity in marine work. Mech Eng 43:216 Mr '21

Double decked automobile ferry with a Winton Diesel electric drive. R. Z. Dickie. plans Int Marine Eng 25:556-8 Jl '20

Ship propulsion, Electric—Continued

Electric battleship; features of the U.S.S. Tennessee. *il Sci Am* 124:244 Mr 26 '21

Electric drive and the U.S.S. Tennessee. H. M. Southgate. *Elec J* 18:239-42 Je '21

Electric drive applied to cargo vessels. *il diag Power* 52:706-8 N 2 '20

Electric drive applied to trawler Mariner. *il Int Marine Eng* 25:631-5 Ag '20

Electric drive for merchantmen. *Marine R* 51:444-5 O '21

Electric propelling machinery for U.S.S. Tennessee. W. Sykes. *il Am Inst E E J* 39:52-4 Ja '20; Excerpts. *Power* 51:413 Mr 16 '20

Electric propelling machinery of future United States capital ships. *Int Marine Eng* 25:763 S '20; Same. *Power* 52:238 Ag 10 '20; Same. *Elec R* 77:486 S 25 '20

Electric propelling unit of the Eclipse. *il diags plan Marine Eng* 25:890-5 N '20; Excerpt. *Marine R* 50:582-4 N '20; Same. *Elec R* 77:807-8 N 20 '20; Same. *Power Pl Eng* 24:1134-6 D 1 '20

Electric propulsion. *Electrician* 86:371-2 Ap 1 '21

Electric propulsion applied to coast-guard cutter. C. D. Wagoner. *Elec R* 78:691-2 Ap 30 '21

Electric propulsion for our merchant marine. *il Sci Am* 123:605 D 18 '20

Electric propulsion for the merchant marine. W. Sykes. *W Soc E J* 26:211-19 Je '21; Excerpt. *Engineer* 132:236 S 2 '21

Electric propulsion of merchant ships. W. L. R. Emmett. *il diags Int Marine Eng* 24:814-17 D '19; Same. *Gen Elec R* 23:60-6 Ja '20; Discussion. *Int Marine Eng* 24:833 D '19

Electric propulsion of ships. C. Rettie. *diags Electrician* 85:257-9 S 3 '20

Electric propulsion of ships. W. E. Thau. *il diags Am Inst E E J* 40:629-39, 823-34 Ag, N '21; Same (pt. 1). *Engineering* 112:357-60 S 2 '21

Electric propulsion on the steamship Wulsty Castle. G. B. Pulham. *il diag Am Inst E E J* 39:45-51 Ja '20

Electric ship propulsion. W. L. R. Emmet. *Marine Eng* 26:44-5 Ja '21; Discussion. P. C. Day. 26:255-6 Mr '21

Electric ship propulsion discussed. *Power* 53:241 F 8 '21

Electric ship propulsion; the situation as it stands to-day. R. J. Butler. *plans Electrician* 87:126-30 Jl 29 '21

Electrically driven battleship launched. *il Elec R* 77:95-6 Jl 17 '20

Electrically driven freighter proves success. *Elec R* 79:589-90 O 15 '21

Electrically propelled battleship Tennessee. *il diags plan Elec J* 18:237-89 Je '21

Electrically propelled cargo boat Eclipse and passenger ship Cuba. E. C. Sanders. *il Gen Elec R* 24:90, 204-5 F '21

Electrically propelled freighter Biyo Maru. C. Ano. *il plan Marine Eng* 26:593-5 Ag '21

Electrically propelled passenger ship Cuba. J. A. Kelley. *il diags plans Marine Eng* 25:949-61 D '20

Failures of turbo-generators and suggestions for improvements. J. Shepherd. *Engineering* 109:97 Ja 16 '20

Features of the electric plant of the battleship Tennessee. R. L. Weber. *il diags Elec R* 76:95-7 Ja 17 '20

First electric coast guard cutter completed. *il Marine Eng* 26:825 N '21

First electric-propelled liner; the Cuba. *il Marine R* 51:13-16 Ja '21

First electrically propelled merchant ship. J. L. Murphy. *il Pop Mech* 34:711-13 N '20

First yacht, the Elfay, to be electrically propelled. *il Elec R* 76:571-2 Ap 3 '20

General arrangement of propelling machinery of the U.S.S. Tennessee. W. E. Thau. *il plan Elec J* 18:245-50 Je '21; Same. *Electrician* 87:146-8 Jl 29 '21

Induction motors for ship propulsion. A. D. Badgley. *il diag Gen Elec R* 24:143-5 F '21

Investigation of water-air radiators for cooling generators and motors. H. G. Reist and E. H. Freiburghouse. *il diags Gen Elec R* 23:91-8 F '20

Mariner; the first electrically operated trawler. J. Liston. *il diags Gen Elec R* 23:455-63 My '20

Maryland—our first 16-inch-gun battleship. *il Sci Am* 122:699+ Je 26 '20

Modern ship propulsion methods. W. H. Easton. *Power Pl Eng* 25:324-5 Mr 15 '21

Navigating ships in trains; an electrically-driven power boat that supplies current to the motor-equipped units of its convoy. R. G. Skerrett. *il Sci Am* 122:270+ Mr 13 '20

New development in the application of electricity to marine transportation; electric power generated on one vessel transmitted to another. W. T. Donnelly. *il diags plans Int Marine Eng* 25:352-9 Ap '20

New way to ventilate electric units. *il Marine R* 51:341-2 Jl '21

Oil-electric drive on shipboard. *il Engineer* 130:612, 616-17 D 17 '20

Oil-electric propulsion for vessels. *il Am Mach* 52:1242-3 Je 10 '20

Painting of the battleship New Mexico presented to the U.S. navy department by the General electric company. *Gen Elec R* 24:387-9 Ap '21; Same abr. *Elec R* 78:702 Ap 30 '21

Problem of electric drive; the advantages of the Diesel-electric system over the straight Diesel drive. *Sci Am* 124:267 Ap 2 '21

Propelling machinery of the U.S.S. Tennessee. *il Marine Eng* 26:269-73 Ap '21

Propelling motors for electric drive. *il Marine Eng* 25:822-3 O '20

Propelling motors of the U.S.S. Tennessee. H. L. Barnholdt. *il diags Elec J* 18:251-7 Je '21

Pros and cons of electric propulsion. *Electrician* 87:124-5 Jl 29 '21

Seagoing electric freight trains. A. M. Hoffmann. *il diag plan Pop Mech* 33:864-6 Je '20

Success attends trials of new electric battleship, Maryland. *Elec R* 78:776 My 14 '21

Synchronous motors for ship propulsion. E. S. Henningsen. *il Am Inst E E J* 40:369-73 My '21

Synchronous motors for ship propulsion. E. S. Henningsen. *il diag Gen Elec R* 24:141-3 F '21

Trial trip of gas-electric boat. H. R. Simonds. *diags Marine R* 50:5-6 Ja '20

Turbine reduction gears versus electric propulsion for ships. E. Berg. *diags Am Inst E E J* 40:724-9 S '21; Same cond. *Gen Elec R* 24:124-30 F '21; Abstract. *Marine Eng* 26:390 My '21

Two years' service of battleship New Mexico. *il Gen Elec R* 23:615 Jl '20

U.S. battleship Tennessee. *il Engineer* 129:538 My 21 '20

Why the General electric company advocates electric drive of ships. W. L. R. Emmet. *Gen Elec R* 24:91 F '21

Yacht has gas-electric drive. W. H. Easton. *il Marine R* 50:144-6 Mr '20

Ship propulsion, Hydraulic

Hydraulic propulsion of ships. *il diags Engineer* 131:140-2, 172-4 F 11-18 '21; Same cond. (pt. 1). *Sci Am M* 3:378-9 Ap '21; Abstracts. *Mech Eng* 43:270-1 Ap '21; *Sci Am* 124:301+ Ap 16 '21

Ship railroads

Marine railway for 5,000-ton ships at Astoria, Ore. C. O. Crisman. *il diags plan Eng N* 84:1156-8 Je 10 '20

Marine railways. C. B. Connely. *il Gen Elec R* 24:240-3 Mr '21

Ship railways: 700 B. C. to 1920 A. D. *Eng N* 85:50 Jl 8 '20

Ship resistance

Economical cargo ships—model experiments. A. J. C. Robertson. *Marine Eng* 25:990-6; Discussion. 1007 D '20

Effect of appendages in ship resistance. *diags Engineer* 132:207-8 Ag 26 '21

Influence of the depth of water on the speed of ships. *Engineer* 131:309-11, 340-2 Mr 25- Ap 1 '21

Ship form, resistance, and screw propulsion, by G. S. Baker. *Review. Engineer* 131:572-3 My 27 '21

Ship resistance—Continued

- Ship resistance and the Ramus principle. A. W. Johns. *diags Engineering* 110:395-7 S 24 '20
- Turbulent fluid motion and skin friction. T. H. Havelock. *Engineering* 109:737-8 My 28 '20

See also Ship propulsion

Ship subsidies

- Can a shipping subsidy bill pass Congress? W. L. Marvin. *Marine Eng* 26:725-6 O '21

Ship ventilation. *See* Ships—Heating and ventilation**Ship worms.** *See* Teredos**Ship yards.** *See* Shipyards**Shipboard airplanes.** *See* Airplanes, Shipboard**Shipbuilding**

- Construction and repair of ships. 76p Todd shipyards corporation, New York '21
- Les constructions navales dans le monde entier en 1919; la situation de la flotte commerciale française. E. Gouault. *Génie Civil* 76:231-3 F 28 '20
- Cubist ship. *il Marine Eng* 26:119-20 F '21
- Fairing ships during construction. W. M. Kennedy. *diags Marine Eng* 26:376-8 My '21
- Gas heating in the shipyards. M. Meredith. *Gas Age* 47:449 My 25 '21
- Handbook of practical shipbuilding, with a glossary of terms. J. D. MacBride. 2d ed., rev. and enl. 356p Van Nostrand '21
- Laying out cant frames. W: Ashe. *diag plan Marine R* 50:668-9 D '20
- Laying out cant plating. W: Ashe. *plan Marine R* 51:47-9 Ja '21
- Making castings used in ship construction. B. Shaw and J. Edgar. *diags plans Foundry* 47:388-92, 417-20, 474-8, 523-7, 540-4, 597-600, 647-50, 705-8, 738-41, 785-8, 832-5, 870-3, 902-5; 48:71-4, 88-91, 140-5 *Je* 15-D 15 '19, *Ja* 15-F 15 '20
- Methods in a shipbuilding plant. F. H. Colvin. *il Am Mach* 54:672-6 Ap 21 '21
- Mold loft suggestions. J. I. Hess. *diags Marine Eng* 26:131-4, 238-43 F-Mr '21
- Naval construction in 1919. *Engineer* 129:16-18 *Ja* 2 '20
- New method of joining ship sections. J. Nacy. *diags Int Marine Eng* 25:115-16 F '20
- Non-ferrous metals and compositions. H. H. Thayer. *Marine Eng* 26:524-32 *Jl* '21
- Our deep-sea freighters. R. G. Skerrett. *il diag Sci Am* 123:126+ *Ag* 7 '20
- Piping, valves, flanges and fittings. H. H. Thayer. *Marine Eng* 26:605-11 *Ag* '21
- Production methods in shipbuilding. W: B. Ferguson. *diag Ind Management* 59:439-43; 60:43-8, 226-32, 295-300, 409-12; 61:33-7 *Je-Jl, S-O, D* 1 '20, *Ja* 1 '21
- Relation between shipbuilding production, prices, and the freight market. M. Ballard. *Eng & Ind Management* 5:2-6 *Ja* 6 '21
- Rivets and spacing of rivets for oil-tight work. H. P. Frear. *Engineering* 110:817-19 *D* 17 '20; Same. *Marine R* 51:27-30 *Ja* '21; Same cond. *Marine Eng* 25:1008-9 *D* '20; Abstract. *Mech Eng* 43:46 *Ja* '21
- Running shaft lines in steamships under construction. T. A. Johnson. *diag Int Marine Eng* 25:378 *Ap* '20
- Sequencing material in shipbuilding. O. E. Mills. *il diag Ind Management* 58:433-8 *D* '19
- Ship joiner plans; built-in berths. *diags plans Marine Eng* 26:296-7 *Ap* '21
- Ship joiner plans; desks. *Marine Eng* 26:523 *Jl* '21
- Ship joiner plans; lockers, wardrobes and book cases. *Marine Eng* 26:368-9 *My* '21
- Ship joiner plans; transoms. *diags plans Marine Eng* 26:446 *Je* '21
- Shipbuilding economies. G. A. Bisset. *il diags Marine Eng* 25:871-9+ *N* '20
- Standard specifications for rivet steel for ships; English and French. *diags U S Bur For & Dom Com Industrial Standards* 146:1-14 '21
- Steel and iron for shipbuilding purposes. H. H. Thayer. *Marine Eng* 26:370-5 *My* '21

Study of the framing of a ship. T. B. Abell. *diags Engineering* 111:376-8; Discussion. 350-1 *Mr* 25 '21; Discussion. *Engineer* 131:343 *Ap* 1 '21

Timbers and lumber for shipbuilding purposes. H. H. Thayer. *Marine Eng* 26:703-7, 771-5, 840-3 *S-N* '21

Wage incentive plans in ship building. S. G. Rockwell. *Ind Management* 59:295-300 *Ap* '20

William Froude national tank. *Engineer* 128:618 *D* 19 '19

See also Barges; Boilers, Marine—Manufacture; Bulkheads (naval architecture); Freight ships; House boats; Launching; Load line; Marine engines; Motor boats; Motor ships; Naval architecture; Navy yards and naval stations; Propellers; Rudders; Sailing vessels; Ship models; Ship propulsion; Ship resistance; Ships; Ships—Repair; Ships, Concrete; Ships, Iron and steel; Ships, Wooden; Shipyards; Steam turbines, Marine; Steamboats; Submarine boats; Tank ships; Tonnage; Torpedo boat destroyers; Towboats; Warships

Bibliography

List of references on shipping and shipbuilding. H. H. B. Meyer. p 145-271 pa 40c '19 Library of Congress; for sale by Supt. of doc.

Costs

Bolting-up in ship construction. F. T. Warner. *Marine Eng* 25:963-4 *D* '20

Exhibitions

- Marine exhibit at Chicago, Oct. 18-23. *Marine R* 50:589 *N* '20
- Marine exhibit scores success. *il Marine R* 50:323-7 *Je* '20
- National marine week and exposition an overwhelming success. *Int Marine Eng* 25:449-51 *My* '20
- New York marine exposition stimulates interest in shipbuilding and shipping. *Marine Eng* 26:161-4 *F* '21
- Second New York marine exposition, Jan. 24-29. *il plan Marine Eng* 26:83-5 *Ja* '21
- Shipbuilding, engineering and electrical exhibition at Glasgow. *il diags Engineering* 130:504-6, 538-41 *N* 19-26 '20; *Engineering* 110:634-7, 678-81, 696-700, 729-33, 761-5, 774 *N* 12-D 10 '20
- Shipping and engineering exhibition at Olympia. *il diag Engineering* 132:262-4, 266, 290-2, 294, 316-18, 320, 339-42, 370-1, 396-8 *S* 9-O 14 '21; *Engineering* 112:374-5, 412, 414-17, 435-9, 470-4 *S* 9-30 '21; *Elec R (Lond)* 89:368-71, 420-2, 432-4 *S* 16-30 '21
- Successful American marine week is assured. *Marine Eng* 26:808-10 *N* '21

"Fabricated" ships

- Design of fabricated ships from the labour-saving point of view. M. E. Denny. *Engineering* 112:84 *Jl* 8 '21; Discussion. 112:112-14 *Jl* 15 '21
- Economy of labour on shipbuilding as effected by fabricated ships; the manufacturing problem and how it was solved. J. C. Telford. *Engineering* 112:84-5 *Jl* 8 '21; Discussion. 112:112-14 *Jl* 15 '21
- Future of the fabricated ship in the United States. *il plans Engineering* 110:464-9 *O* 8 '20
- Is the fabricated ship a success? R. G. Skerrett. *il Sci Am* 122:386+ *Ap* 10 '20
- Pre-assembly in ship construction. R. D. Gatewood. *il diags plan Am Mach* 52:1-6, 171-6 *Ja* 1, 22 '20
- Westinghouse propelling and auxiliary machinery installed in fabricated ships. P. M. Robinson. *il diags plans Int Marine Eng* 25:83-100 *F* '20

History

Marvels of the ship. E: K. Chatterton. Lippincott; Seeley, Service & co., London '21

Isherwood system

Analysis of the Isherwood system. J: Flodin. *diags Int Marine Eng* 25:128-31, 205-10 *F-Mr* '20

Shipbuilding—Isherwood system—Continued

Isherwood system of construction. Eng & Ind Management 5:41 Ja 13 '21

Progress of the Isherwood system. Marine Eng 26:130 F '21

Labor

See Shipyards—Employees

Safety devices

Accident prevention in shipbuilding. T: A. Walsh. Safety Eng 41:171-6 Ap '21

Safety hints for the shipyard. T. A. Walsh. Eng N 85:830 O 28 '20

Safety to life in ship construction. S. C. Brandenstein. Safety Eng 41:108-10 Mr '21

Shipbuilding safety orders. California Industrial accident commission, California state ptg. office, Sacramento, '21

Standards

Standard specifications for structural steel for ships; English and French. diag U S Bur For & Dom Com Industrial Standards 145: 1-16 '21

Standardization of structural shapes. diags Iron Age 106:22-4 Jl 1 '20; Same. Iron Tr R 67:43-4 Jl 1 '20; Same. Int Marine Eng 25:659-61 Ag '20

Statistics

Les constructions navales dans le monde en 1920. Génie Civil 78:258 Mr 19 '21

End of war yards cuts capacity; shipbuilding today 40 per cent under one year ago. Marine R 51:281 Je '21

Die entwicklung des welt-schiffbaues im jahre 1920. Stahl & Eisen 41:240-1 F 17 '21

Lloyd's register shipbuilding returns. Engineer 131:66 Ja 21 '21

Mercantile shipbuilding in 1920. Engineer 131: 105-6 Ja 28 '21

Merchant shipbuilding for first quarter of 1921. Engineering 111:495 Ap 22 '21

Merchant shipbuilding of the world. Engineering 109:86 Ja 16 '20

Shipbuilding in 1919. Engineer 129:119 Ja 30 '20

Shipping and shipbuilding prospects. Engineering 111:186 F 11 '21

Three months' shipbuilding returns. Engineer 131:441-2 Ap 22 '21

World is now building 7,086,766 tons. Marine R 51:279-80 Je '21

World's mercantile shipbuilding in 1920. Eng & Ind Management 5:210-12 F 17 '21

World's record in shipbuilding. Int Marine Eng 24:811-12 D '19

World's shipbuilding. Engineering 109:154-6 Ja 30 '20

World's shipbuilding. Engineering 111:102-3 Ja 28 '21

Study and teaching

Ship construction and marine transportation added to courses of study at Lehigh university. Int Marine Eng 25:14-15 Ja '20

University education in ship construction and marine transportation. L. B. Chapman. Marine Eng 25:1005-6 D '20

Supplies

McNab encyclopaedia of marine appliances, 1920. A. McNab. 206p The McNab co., Bridgeport, Conn. '20

See also Shipyards—Equipment

Welding operations

Arc welded ships. O. H. Eschholz. il diag Marine Eng 26:54-6 Ja '21

Arc welding equipment at Newport News yard. il Marine Eng 26:406 My '21

Broadening the use of welding in shipbuilding. F. B. Webster. Marine Eng 26:852-4+N '21

Development of welded ships; advantages of electric welding over riveting. W: T. Bonner. diags Sci Am M 2:246-8 N '20

Electric and oxy-acetylene welding at the Bethlehem Fore river shipyard. il Int Marine Eng 25:65-7 Ja '20

Electrically welded motorship Esab IV. O. Kjellberg. diags plans Marine Eng 26:600-2 Ag '21

Electrically-welded ship Fullagar. diags Engineering 110:25-6 Jl 2 '20

Electrically welded ships. W: T. Bonner. il diags plan Int Marine Eng 25:330-9 Ap '20

Entirely electrically welded vessel. il Marine Eng 26:277 Ap '21

Die entwicklung des elektrischen lichtbogen-schweissverfahrens in den letzten jahren. G. Schulze. diags Stahl & Eisen 41:55-6 Ja 13 '21

Graphic illustration of extensive use of oxy-acetylene in shipyards. plan Int Marine Eng 25:606-7 Jl '20

Permissible ship welding. W: T. Bonner. Int Marine Eng 25:348-50 Ap '20

Plastic arc-welding on ship work. J. O. Smith. il Am Mach 52:189-90 Ja 22 '20; Same. Int Marine Eng 25:47-8 Ja '20

Progress of welding in the shipyards. W: T. Bonner. il diags Marine Eng 26:57-65 Ja '21

Shipbuilding gives great impetus to oxy-acetylene industry. R. Copeland. il Int Marine Eng 25:346-7 Ap '20

Use of acetylene in U.S. navy yards during the war. H. G. Knox. il Engineer 129:164-6 F 13 '20; Excerpts. Int Marine Eng 24:720-7 N '19; Excerpts. Am Mach 51:661-4 O 2 '19

Welded joints and a nomenclature for welding. W: T. Bonner. diags Eng & Contr 54:95-6 Jl 28 '20

Welded motorship Fullagar. il Int Marine Eng 25:724-5+S '20

Australia

Australian federal fleet construction. il Int Marine Eng 25:12-13 Ja '20

Largest shipyard in Australia. J: O'Toole. il Int Marine Eng 25:444-8 My '20

Shipbuilding in Australia. il Int Marine Eng 25:174-5 Mr '20

Shipbuilding industry in Australia. Engineer 131:77-8 Ja 21 '21

China

Shipbuilding industry in Shanghai. Engineer 131:161-2 F 11 '21

France

French Hog Island; growth of industry during the war. C: E. Carpenter. il Am Mach 54:766-9 My 5 '21

Germany

Merchant shipbuilding in Germany. Engineer 131:46 Ja 14 '21

Shipbuilding in Germany. Engineer 130:137 Ag 6 '20

Great Britain

Britain's shipbuilding centers. J. Horton. il map Marine R 50:434-40 Ag '20

Master shipwrights of the 16th and 17th centuries. A. W. Johns. Engineering 111: 411-12, 509-10, 544-6, 603-4 Ap 8, 29-My 6, 20 '21

Merchant shipbuilding. Engineering 112:108-9, 544 Jl 15, O 14 '21

Merchant shipbuilding for the quarter ended on March 31 last. Engineering 109:552-3 Ap 23 '20

Notes on our economic position as a shipbuilding country. A. Yarrow. Engineering 109:459-60 Ap 2 '20; Same abr. Int Marine Eng 25:504-5 Je '20; Discussion. Engineer 129:342-3 Ap 2 '20; Engineering 109:437-8 Ap 2 '20

One of England's largest shipyards. il fold charts plans Marine Eng 26:105-14, 213-21 F-Mr '21

Retrospect and a prospect; to commemorate half a century of Thornycroft progress and five years of war work, 1919. Engineer 129: 624 Je 18 '20

Shipbuilding industry. Engineering 110:545-6; 111:50 O 22 '20, Ja 14 '21

Theory and design of British shipbuilding. A. L. Ayre. 162p Van Nostrand

Japan

Shipbuilding in Japan. Engineer 129:628 Je 18 '20

Shipbuilding—Continued**Pacific states**

Optimism rules in Pacific yards. R. C. Hill. il Marine R 50:53-6 F '20
 What Pacific shipyards are doing. R. C. Hill. Marine R 51:216-17 My '21

Russia

Shipbuilding prospects in Russia. N. Setchin. map Int Marine Eng 25:638-40 Ag '20

Southern states

Shipbuilding in the South. H. H. Dunn. il Marine R 50:63-4 F '20

Spain

Spain hopes for old sea power. F. Miltoun. il Marine R 51:71-3 F '21

Sweden

Swedish engineering and shipbuilding industries. Engineer 129:524-5 My 21 '20

United States

American owners plan new ships. V. G. Iden. il Marine R 51:57-60+ F '21
 American shipbuilding—present and future. Marine Eng 26:24-30 Ja '21
 America's shipbuilding industry active. Iron Age 105:78-9 Ja 1 '20
 Builders face 1920 confidently. V. G. Iden. Marine R 50:57-62 F '20
 Codification of the Ship building labor adjustment board awards, decisions, and authorizations. 341p U.S. Shipping board, Washington, D.C. '21
 Future of American shipbuilding. J. W. Powell. Marine R 50:143+ Mr '20
 Future of the fabricated ship in the United States. il plans Engineering 110:464-9 O 8 '20
 Heavy claims against the government held by shipbuilders and shipping interests. W. Fawcett. Marine Eng 26:298-300 Ap '21
 New York shipbuilding corporation. E: S. Swazey. 61p New York shipbuilding corp., New York '21
 1919 construction record of U.S. yards: complete tabulation. Marine R 50:103-19 F '20
 1919 construction record of U.S. yards, wooden ships; tabulation. Marine R 50:174-81 Mr '20
 1920 construction record of U.S. yards. Marine R 51:97-106 F '21
 Readjustment strengthens yards. Marine R 50:652-3 D '20
 Repair work to aid shipyards. il Marine R 51:215-16 My '21
 Rules for the construction and classification of wood ships. 394p American bureau of shipping, New York '21
 Ship repair facilities in the United States. il Marine Eng 26:72-81 Ja '21
 Shipbuilding in American shipyards. Marine Eng 25:846-8 O '20
 Shipbuilding outlook. G: A. Armes. J Elec 46:17-18 Ja 1 '21
 Some of the shipbuilding at New Orleans during the war. F. H. Colvin. il Am Mach 53:349-50 Ag 19 '20
 Steel ships under construction in American shipyards for private account. Int Marine Eng 25:596-7 Jl '20
 Steel tonnage under construction in American shipyards. Comm & Fin Chr 111:1338-40 O 2 '20
 Vessels built in the United States in 1919. Int Marine Eng 25:277 Ap '20
 W. A. Harriman as a ship operator. V. G. Iden. il map Marine R 51:175-81 Ap '21
 W. A. Harriman seeks and wins front rank in marine field. V. G. Iden. il diags plans Marine R 51:121-7 Mr '21
 Yards get many ship inquiries. V. G. Iden. Marine R 50:605-6 N '20

Venezuela

Shipbuilding and shipping in Venezuela. H. C. Plummer. il Marine Eng 25:852-3 O '20

Shipment of goods

Applying common sense methods to the shipping room. F. J. O'Brien. Ind Management 59:191-2 Mr '20

Cutting costs in handling, packing and shipping paper. N. P. Winchell, jr. il Paper 26:20-3+ My 19 '20

Export packing. C. C. Martin and others. 723p American exporter, Johnston export pub. co., New York, Boston '21

Getting the product on its way. Factory 24:688+, 1444+, 1554+, 1932+; 25:146+, 440+, 1482+, 1622+, 1952+; 26:208+, 506+, 1100+; 27:352+ Mr 1, My 1-15, Je 15-Jl 1, Ag 1, N 1-15, D 15 '20, Ja 15, F 15, My 1, S '21

Goods at owner's risk. Engineering 110:857 D 31 '20

How to ship empty sacks. Concrete 17:123 O '20

Mark your package. P. A. Clarke. il Ind Management 59:28-30 Ja '20

Marking shipments to expedite production. Iron Age 105:127-8 Ja 8 '20

Paper work in export trade. G. E. Snider, W. M. Maule, and R. S. MacElwee. il U S Bur For & Dom Com 85:1-152 '20

Preparing shipments for export. H. H. Miller. Iron Tr R 68:154-6 Ja 13 '21

Saving shipping time and money. A. M. Miner. il System 39:57-8+ Ja '21

Shipping by two railroads from one corner of the stock room. P: F. O'Shea. Ind Management 60:309 O '20

Speeding orders out of the shipping room door. il Factory 24:1696-9, 1882-4; 25:34-6 Je 1-Jl 1 '20

Why of F.O.B. shipping point. R. H. Watkins. Administration 2:174-6 Ag '21

See also Baling (textiles); Barrels; Containers; Delivery of goods; Freight car service; Freight handling; Packing for shipment; Priorities, Industrial; Railroads—Claims; *also* subdivision Transportation under various subjects, e.g. Coal—Transportation, Explosives—Transportation, Fruit—Transportation, Machinery—Transportation, Motor trucks—Transportation

Law

Liability for loss in shipment due to leakage. W. Gustin. Chem & Met Eng 23:1222-3 D 22 '20

Petroleum industry agrees to shipping regulation. Nat Pet N 13:59 S 21 '21

Principles of shipping and delivery of goods enunciated by court decision. W. Gustin. Chem & Met Eng 24:930 My 25 '21

What are the buyers' rights? Factory 25:1754+ D 1 '20

Where goods ordered are lost in transit or misdelivered, who shall make claim? Dom Eng 96:295-6 Ag 13 '21

Shipping

Are you a shipping man, à la Edison? Marine Eng 26:807+ N '21

Merchant shipping in 1919. il Engineer 129:14, 20-1 Ja 2 '20

Merchant shipping of the world. Engineering 112:157 Jl 22 '21

Ocean shipping: elements of practical steamship operation. R. E. Annin. 427p Century '20

Shipping in 1920. il (supp) Engineer 131:20-2 Ja 7 '21

Le tonnage mondial de la marine marchande; la reconstitution de la flotte de commerce allemande. A. Poidlouë. Génie Civil 79:191-3 Ag 27 '21

World's idle merchant tonnage now exceeds 5,000,000 tons. Americas 7:12-13 Mr '21

World's merchant shipping. Engineering 110:152-3 Jl 30 '20

See also Carriers; Coal handling; Demurrage; Free harbors; Freight handling; Harbors; Insurance, Marine; Maritime law; Merchant marine; Ports; Priorities, Industrial; Salvage; Shipbuilding; Shipment of goods; Ships; Steamboats; Terminals; Tonnage; Transportation; Waterways

Advertising

Using modern advertising to get freight for liners. S. C. Lambert. Ptr Ink 115:89-90+ Je 30 '21

Shipping—Continued

Bibliography

List of publications of the Department of commerce pertaining to the shipping industry. 27p '20 U.S. Dept. of commerce, Washington, D.C.

List of references on shipping and shipbuilding. H. H. B. Meyer. 144p pa 40c '19 Library of Congress; for sale by Supt. of doc.

Study and teaching

Training for the steamship business. R. S. MacElwee. U S Bur For & Dom Com misc ser 98:1-49 '20

Terminology

Definitions of export quotations. Am Mach 52: 311-13 F 5 '20; Same. Textile World 57: 1157-9 F 7 '20; Same abr. Am Ind 20:37-9 Ja '20; Same abr. Paper 26:10, 24-5 Ag 25 '20; Same abr. Automotive Ind 42:520-2 F 19 '20; Excerpt. Marine R 50:201-2 Ap '20

Meaning of c.i.f. as distinguished from f.o.b.—rules governing such contracts of shipment. Chem & Met Eng 23:834 O 27 '20

France

Colonies point way to French shipping. F. Miltoun. il map Marine R 50:397-9 Jl '20

France's shipping future doubtful. il Marine R 51:74-6 F '21

La situation des Compagnies de navigation françaises à Port-Saïd et dans la Méditerranée. Génie Civil 76:338-9 Ap 3 '20

See also Merchant marine—France

Germany

German shipping hard aground. H. C. Estep. il Marine R 50:311-16 Je '20

See also International mercantile marine company, New York

Great Britain

British shipping in new year. C. Maughan. il Marine R 50:65-7 F '20

British shipping suffers a slump. C. Maughan. il Marine R 51:65-9 F '21

British ships face new problems. C. Maughan. Marine R 50:448-50 Ag '20

Check slump in British shipping. C. Maughan. Marine R 51:212-14 My '21

Coal strike hurts U. K. shipping. C. Maughan. Marine R 51:358-60 Ag '21

Functions of the merchant ship. N. Hill. Engineering 110:59-60; Discussion. 53-4 Jl 9 '20; Same cond. Engineer 130:38-9 Jl 9 '20

Rate decreases trouble British. C. Maughan. Marine R 50:590-2 N '20

Japan

Truth about Japanese shipping. S. Morgan. il Marine R 50:215-17 Ap '20

United States

America is back again on the seas. J. W. Powell. Am Ind 21:7-8 S '20

American shipping. Iron Age 106:443 Ag 19 '20

Another burden for shipowners proposed; fee basis for inspection. W. Fawcett. Marine Eng 26:511-12+ Jl '21

Danger of federal control. J. L. M. Inchcape. Marine R 50:78-80 F '20

Effort to stamp out commercial bribery. W. Fawcett. Marine Eng 26:384-6 My '21

Foreign trade trinity; it's ships, fuel and communication. W. S. Benson. Nation's Business 8:15-16 Je '20

Lake commerce shows reaction. W. Livingstone. Marine R 50:167-9 Mr '20

Network of steamship trade routes now covered by Shipping board vessels; map. Marine R 50:422a Jl '20

New capital enters ship field. Marine R 50: 268-71 My '20

Past experience gives shipping a gloomy outlook. S. G. Riggs. Annalist 18:151-2 Ag 15 '21

Report of the Great Lakes protective association. Marine R 50:164-6 Mr '20

Ship mortgage bonds to solve the marine muddle. S. G. Riggs. Annalist 18:248+ S 12 '21

Shipping board forgets inspection law. Marine R 50:146-7 Mr '20

Shipping depression. V. G. Iden. Annalist 18:199 Ag 29 '21

Traffic on Great Lakes in 1919. Marine R 50: 95-7 F '20

Traffic on Great Lakes in 1920. Marine R 51: 78-9 F '21

W. A. Harriman as a ship operator. V. G. Iden. il map Marine R 51:175-81 Ap '21

What are we carrying? Marine Eng 26:451-2 Je '21

What shipowners are up against. W. A. Harriman. Nation's Business 9:23-4 Ap '21

What will Congress do? W. Fawcett. Marine Eng 25:897-9 N '20

Wins success against obstacles. W. Livingstone. Marine R 51:143-5 Mr '21

Words of wisdom on the shipping problem. Sci Am 124:402 My 21 '21

See also Boat lines, Government; Merchant marine—United States; also American bureau of shipping; American steamship owners association; American steamship owners mutual protection and indemnity association, inc.; Great Lakes protective association

Directories

Directory of American shipping. Marine R 51: 312-15 Jl '21

Venezuela

Shipbuilding and shipping in Venezuela. H. C. Plummer. il Marine Eng 25:852-3 O '20

Shipping bill. See Merchant marine—United States

Shipping board. See United States—Shipping board

Shipping boxes. See Boxes; Containers

Shipping rooms. See Shipment of goods

Shipplane. See Airplanes, Shipboard

Ships

Availability of the ex-German ships. W. P. Smith. Marine Eng 26:294-5 Ap '21

Big five; our bid for the transatlantic passenger trade. il Sci Am 125A:9-10 N '21

Efficiency of American ships. V. G. Iden. Annalist 18:415 O 31 '21

First American built ships for third-class passengers are launched. il Marine Eng 26:262 Mr '21

Light and load draft of a ship. Marine Eng 25:938-9 N '20

Liner for Alaskan service. Marine R 50:606-7 N '20

Merchant vessels. R. Riegel. 257p Appleton '21

New liners for South America. diags Marine R 51:61-2 F '21

Old ship found under a big city. il Pop Mech 36:93-4 Jl '21

Passenger accommodations on shipping board steamship Panhandle State. il Marine Eng 25:880-4 N '20

Problem of the Leviathan. Sci Am 123:516 N 20 '20

Safety of life at sea. W. Abell. Engineering 110:91-3; Discussion. 85-7 Jl 16 '20; Abstract. Engineer 130:54-5 Jl 16 '20

Ships and their construction. C. H. Peabody. Marine Eng 26:42-3 Ja '21

Ships, past and future. F. E. Kirby. Int Marine Eng 25:558 Jl '20

Transportation by sea and land; review of seventy-five years of progress. il diags Sci Am 123:327-30+ O 2 '20

See also Airplane carriers; Anchors; Barkentines; Coaling; Colliers; Fires at sea; Freight ships; Hospital ships; House boats; Ice breaking vessels; Launching; Lighters; Load line; Maritime law; Masts and rigging; Merchant marine; Motor ships; Naval architecture; Navies; Navigation; Patrol boats; Pilots and pilotage; Propellers; Refrigeration on shipboard; Repair ships; Rudders; Safety at sea; Sailing vessels; Salvage; Salvage ships; Scows; Ship

Ships—Continued

propulsion; Ship propulsion, Electric; Ship resistance; Shipbuilding; Shipping; Shipwrecks; Shipyards; Steamboats; Submarine boats; Tank ships; Torpedo boat destroyers; Towboats; Towing; Transports; Warships; Wireless telegraph—Installation on ships; Wireless telephone—Installation on ships; *also* names of ships, e.g. Aquitania; Olympic (ship)

Cargo

To compute cargo space. Marine Eng 26:211 Mr '21

See also Stowage

Classification

Classification of ships. J. F. King. Engineering 110:602-3 N 5 '20

Cleaning

Cleaning ships' bottoms without docking. il Marine Eng 26:221 Mr '21

Outfit using sand and steel grit under air pressure cleans ship exteriors and interiors. diags Marine R 50:126-7 F '20

Ship-cleaning plant. Engineering 110:768 D 10 '20

Electric equipment

All-electric equipment on American warship Tennessee. il Pop Mech 35:684-5 My '21

Annual report of the A.I.E.E. marine committee. Am Inst E E J 39:758-61 Ag '20

Control equipment for auxiliaries in the merchant marine. A. R. Sanborn. il Gen Elec R 24:156-61 F '21

Design and manufacture of electrical auxiliary machinery for ships. S. E. Glendenning. Electrician 87:131-3 Jl 29 '21

Design of dynamos and motors for marine work. J. A. Hunn. il diag Electrician 85:267-8 S 3 '20

Design of electrical installations for ships. C. H. Wordingham. Electrician 85:248-51 S 3 '20

Development of electrical installation aboard ships. F. A. Anderson. J Elec 44:111-12, 227-9 F 1, Mr 1 '20

Developments in the electrical industry during 1919. J. Liston. il Gen Elec R 23:6-11 Ja '20

Drive of auxiliary machinery on board ship. L. Miller. il Electrician 85:251-3 S 3 '20

Electric auxiliaries for merchant vessels. C. H. Giroux. il Gen Elec R 24:167-71 F '21

Electric auxiliaries on merchant ships. E. D. Dickinson. il Am Inst E E J 40:777-85 O '21

Electric deck machinery. R. H. Rogers. il Gen Elec R 24:172-6 F '21

Electric marine power topic of engineers' meeting. Elec R 78:225-6 F 5 '21

Electric motors for merchant ship auxiliaries. W. E. Thau and W. H. Easton. il Marine Eng 26:613-16 Ag '21

Electrical equipment of lighter proves efficient. W. H. Easton. il Elec R 76:144-5 Ja 24 '20

Electrical features of the new Pacific mail steamers. C. W. Geiger. il J Elec 46:343-4 Ap 1 '21

Electrical installation on American tramp steamers. T. Hallinan. il Elec R 76:202-4 Ja 31 '20

Electrical instruments for use on board ship. A. F. Harris. il diag Electrician 85:259-63 S 3 '20

Electrical repairs on ex-German ships. J. S. Jones. il diags Int Marine Eng 24:818-22 D '19

Electrical signaling method for guiding ships. R. H. Marriott. il J Elec 44:113-15 F 1 '20

Electrically operated auxiliaries on board ship. W. H. Easton. Power Pl Eng 25:280-1 Mr 1 '21

Electricity applied to ship auxiliaries. H. L. Hibbard. il diags Am Inst E E J 40:737-48 S '21; Abstract. Marine Eng 26:463-4 Je '21

Electricity on merchant ships. E. D. Dickinson. Gen Elec R 24:108-9 F '21

Electricity on sailing vessels. L. Etshokin. il diag J Elec 44:108-10 F 1 '20

Knife switches and fuses for ship installations. il Electrician 87:209-10 Ag 12 '21

Marine rules prepared by A.I.E.E. committee. Elec R 78:617-18 Ap 16 '21

Recommended practise for electrical installations on shipboard (marine rules). 89p Am. inst. of electrical engineers, New York '21

Sea-water radiators employed on electric ships. J. W. Hammond. Elec R 79:700-1 N 5 '21

Special electric instruments for electric driven ships. A. H. Mittag. il diags Gen Elec R 24:195-7 F '21; Same cond. Elec R (Lond) 88:496-7 Ap 15 '21; Abstract. Engineer 131:625-6 Je 10 '21

Switchboards for merchant ships. P. J. Whitmore. il diags Gen Elec R 24:164-6 F '21

Winch motors of the motorship William Penn. G. A. Pierce. il Marine Eng 26:831-3 N '21

See also Ship propulsion, Electric; Wireless telegraph—Installation on ships

Equipment

Economy rampant. Int Marine Eng 25:35-8 Ja '20

Encyclopaedia of marine appliances, 1920. A. McNab, comp. 206p The McNab co., Bridgeport '20

Measuring liquids in ships' tanks. il Marine Eng 25:841-3 O '20

Oil-fired cooking ranges for naval purposes. il Engineering 109:422-3 Mr 26 '20

Proposed method of placing screens on port and starboard lights. E. De Bruijn. diags Int Marine Eng 25:190-1 Mr '20

See also Boilers, Marine; Davits; Logs (ships); Ships—Electric equipment

Heating and ventilation

Are ships properly ventilated? il plan Metal Work 94:35-7 Jl 9 '20

Heating and ventilating equipment on new Pacific steamers. il Heat & Ven 18:62 Jl '21

Report of committee to co-operate with U. S. navy dept. diags Am Soc Heat & V E 25:243-9 '19

Ship ventilation. F. R. Still. il diags Am Soc Heat & V E J 26:363-76 Ap '20

Ventilating systems; a graphic method of determining the sizes of mains and ducts for mechanical ventilation. G. A. Bisset. charts diag Int Marine Eng 25:720-4 S '20

Heeling

Heeling ships. I. C. Hanscom. diags Marine Eng 25:904-7 N '20

Inspection

Government inspection of merchant vessels. J. B. Patton. Marine Eng 26:673-8 S '21

See also Steamboat inspection service

Lighting

Acetylene for ship's lighting. Marine Eng 26:587 Ag '21

Light weight engine generator sets for use on shipboard. il Elec R 79:601 O 15 '21

Lighting sets on the U.S.S. Tennessee. J. A. MacMurchy and A. O. Loomis. il Elec J 18:271-3 Je '21

Modern lighting installations on passenger steamship. il Elec R 79:396 S 10 '21

Ship lighting. R. W. Peden. il Gen Elec R 24:198-202 F '21; Same. Elec R 78:421-4 Mr 12 '21

Ship-lighting in relation to safety, comfort and efficiency. W. J. Jones. il Illum Engr 14:116-31 My '21; Same cond. Electrician 87:142-5 Jl 29 '21; Abstract. Eng & Ind Management 5:636-7 Je 2 '21; Discussion. Illum Engr 14:131-8 My '21

25-kw. emergency ship's lighting set. il diags Engineering 110:670-1 N 19 '20

Loading

See Load line

Manning

Normal manning requirements of United States shipping board vessels. Marine Eng 26:207 Mr '21

See also Supercargoes

Ships—Continued**Masts and rigging***See* Masts and rigging**Measurement**

Practical ideas for the engineer. C. H. Hermance. *il* diags *Marine R* 50:520-4 S '20

Oil burning*See* Boilers, Marine—Oil firing**Painting**

How modern ships are painted. F. B. Jacobs. *il* *Marine R* 49:571-3; 50:30-2 D '19-Ja '20
Theatre for studying camouflaged ship models. *Sci Am S* 88:348 D 13 '19

Piping

Piping, valves, flanges and fittings. H. H. Thayer. *Marine Eng* 26:605-11 Ag '21

Prices

Market price of ships. V. G. Iden. *Annalist* 18:344 O 10 '21

Repair

Acetylene torch under water saves ship. *il* *Pop Mech* 35:686 My '21
Electrical repairs on ex-German ships. J. S. Jones. *il* diags *Int Marine Eng* 24:818-22 D '19
Electricity as a factor in ship-repair work. *il* *Elec R* 78:689-91 Ap 30 '21
Extra service features help put over main business. E. T. Tandy. *Ptr Ink* 112:17-18 Ag 12 '20
Federal shipyard takes up ship repairing. *il* diags *Marine Eng* 26:834-7 N '21
Floating electric welder. R. R. Roane. *il* diags plans *Int Marine Eng* 25:488-91 Je '20
Italian battleship dry docked upside down. *il* *Int Marine Eng* 25:126-7 F '20
Operating on a ship for iron sickness. S. E. Conner. *il* *Pop Mech* 36:696 N '21
Rebuilding the steamship Comanche. *il* *Int Marine Eng* 25:764-7 S '20
Repair crushed bow. *Marine R* 51:340-1 J1 '21
Repair equation in the future of the American merchant marine. W. Fawcett. *Int Marine Eng* 25:657-9 Ag '20
Seagoing salesmen. C. P. Russell. *il* *Ptr Ink M* 3:21-2+ Ag '21
Ship repair facilities in the United States. *il* *Marine Eng* 26:72-81 Ja '21
Ship repairs with seagoing marine engineers. R. D. Gatewood. *Marine Eng* 26:126 F '21
Steamer repaired in eighteen days. *il* *Pop Mech* 33:260-1 F '20
Submerged tear in ships side repaired by use of caisson. *Eng N* 85:1131 D 9 '20

Sanitation

Incinerator and disinfector for naval service. diags *Engineering* 109:854-5 Je 25 '20

Size

Détermination des dimensions de bateaux de navigation intérieure de fort tonnage et du gabarit des voies navigables. *Génie Civil* 77:514 D 18 '20

Speed

Application du tube de Pitot à la détermination de la vitesse des navires et à l'enregistrement des espaces parcourus. Y. Delage. *diag* *Génie Civil* 77:359-60 O 30 '20
High-speed craft during the war. W. W. Marriner. diags *Engineering* 109:578-9, pl 32 Ap 30 '20
Influence of the depth of water on the speed of ships. *Engineer* 131:309-11, 340-2 Mr 25-Ap 1 '21
Motion—\$30,000,000 worth; U.S.S. Tennessee. *il* *Elec J* 18:242-4 Je '21
Rolling reduces speed at sea. *Sci Am* 124:482 Je 18 '21

Stability

Approximate stability formulae. H. Schultz. diags *Marine Eng* 26:481-3+ Je '21
Buoyancy and stability of troop transports. W. Hovgaard. *diag* *Int Marine Eng* 25:60-4, 132-7 Ja-F '20

Construction of the Lyndonia stabilizer. W. T. Manning. *il* diags *Elec J* 18:342-3 Ag '21
Effect of bilge keels and a gyro-stabiliser. W. McEntee. *il* *Engineering* 111:208-10 F 18 '21; Same cond. *Marine Eng* 25:1009-10 D '20

Electrical equipment for the Lyndonia stabilizer. T. P. Kirkpatrick and H. C. Coleman. *il* diags *Elec J* 18:344-9 Ag '21

Electrical equipment of gyro stabilizers for ships. *Sci Am M* 4:373-4 O '21

Giant gyroscopes stabilize ocean liners. G. F. Paul. *il* *Pop Mech* 36:552-6 O '21

Les gyroscopes anti-rouleurs. A. Poidlouë. diags *Génie Civil* 76:552-4 Je 19 '20

Gyroscopic stabilization for ships. diags *Mech Eng* 43:685-6 O '21

Gyroscopic stabilizer on the S. Y. Lyndonia. A. E. Schein. *il* diags *Elec J* 18:336-41 Ag '21

Large gyroscopes for stabilising ships. *il* *Engineering* 111:550, 556 My 6 '21

Non-rolling passenger liners. E. A. Sperry. *il* diags *Sci Am M* 1:232-7 Mr '20; Same cond. *Int Marine Eng* 25:43-7 Ja '20

Preventing the roll of ships; why the gyroscopic stabilizer is practical. J. F. Springer. *il* *Sci Am* 124:308+ Ap 16 '21

Stabilisation of ships by means of gyroscopes. P. R. Jackson. *il* diags *Engineering* 109:462-4 Ap 2 '20; Excerpt. *Engineer* 129:343-4 Ap 2 '20; Discussion. *Engineering* 109:439 Ap 2 '20; *Engineer* 129:344 Ap 2 '20

Stability indicator. R. T. Pierce. *diag* *Elec J* 18:280 Je '21

Stability of ships. *Sci Am* 123:464 N 6 '20

Yawing of ships. *il* *Sci Am* 123:223 S 4 '20

Yawing of ships caused by oscillation amongst waves. K. Suyehiro. *Engineering* 109:874 Je 25 '20

Standards

Standardisation of ships' details. *Engineer* 129:599 Je 11 '20

Steering gear*See* Steering gear**Strains and stresses**

Calculations for strength of ships. diags *Marine Eng* 26:414-15 My '21

Deflections of bulkheads and of ships. A. M. Robb. diags *Engineering* 111:407-10 Ap 1 '21; Excerpts. *Engineer* 131:344 Ap 1 '21; Discussion. *Engineering* 111:385 Ap 1 '21; *Engineer* 131:344 Ap 1 '21

Distribution of air pressure and wind velocity about the funnel of a vessel at sea. A. P. Thurston. diags *Engineering* 109:134-5 Ja 30 '20

Effects of holes, cracks and other discontinuities in ships' plating. E. G. Coker and A. L. Kimball. diags *Marine Eng* 25:910-14 N '20; Same. *Engineering* 109:840-2 Je 18 '20

Strainagraph and its application to concrete ships. F. R. McMillan. *il* diags *Int Marine Eng* 25:588-93 J1 '20

Stresses in ships plating due to fluid pressure. B. C. Laws. diags *Engineering* 112:368-9 S 9 '21; Same. *Eng & Ind Management* 6:350-4 S 29 '21; Excerpt. *Engineer* 132:287 S 16 '21; Discussion. *Engineering* 112:405-6, 410, 486, 540 S 16, 30, O 14 '21

Strength

Freeboard and strength of ships. J. Bruhn. *diag* *Int Marine Eng* 25:500-3 Je '20; Same. *Engineering* 109:807-8 Je 11 '20

Freeboard rules for lakes; Great Lakes subcommittee investigation. *Marine R* 50:633 D '20

See also Ships—Strains and stresses**Testing**

Single screw ship efficiency. W. McEntee. *Marine R* 50:210-13 Ap '20

Testing the hull structure of ships. F. K. Ruprecht. *Int Marine Eng* 25:519-21, 603-6, 652-6 Je-Ag '20

See also Ship models

Ships—Continued**Ventilation**

See Ships—Heating and ventilation

Weight

Method of estimating steel hull weights.
G. F. S. Mann. *Int Marine Eng* 25:651-2
Ag '20

Windows

Improved method of installing ship windows.
diag *Int Marine Eng* 25:505-6 Je '20

Ships, Concrete

Bateaux en béton armé de l'amirauté Britannique; charbonniers et bateaux pour l'amarage des ballons captifs. *il diags Génie Civil* 78:33-5 Ja 8 '21

Le cargo-boat en béton armé Cochinchine, de 2500 tonnes. C. Dantin. *il diags Génie Civil* 77:265-8 O 2 '20

Concrete ship construction in South America. B. C. Hume. *il Concrete* 16:144-5 Mr '20

Concrete ships. F. H. Colvin. *il Am Mach* 53:1090-2 D 9 '20

Concrete ships and barges. *Concrete* 18:108-9 Mr '21

Concrete tanker built of separately cast cylinders. *il diags plan Eng N* 85:388-93 Ag 26 '20

Concrete tankers built with slip forms. *il Concrete* 17:198-200 D '20

La construction des chalands de mer en béton armé. H. de Lauriston. *il diags Génie Civil* 77:145-8 Ag 21 '20

Construction of concrete ships at San Diego. E. M. Scofield. *il plan Concrete* 19:18-22 Jl '21

Experimental concrete river steamer is built in Argentina. *il Eng N* 85:31 Jl 1 '20

Government's experience in concrete shipbuilding. *Concrete* 16:148-51 Mr '20

Interior braces and stirrups added to concrete tankers. *il diags Eng N* 84:705-8 Ap 8 '20

Method of construction of concrete ships; abstract. R. J. Wig. *Int Marine Eng* 24:823-4 D '19

New concrete tanker to be tested soon in ocean service. *il Nat Pet N* 12:95+ N 3 '20

Proportioning the concrete for government ships. H. A. Davis. *Eng N* 84:813 Ap 22 '20

Reinforced concrete for ship construction. T: B. Abell. *Engineering* 111:54 Ja 14 '21; Same. *Eng & Contr* 55:638 Je 29 '21

Strainagraph and its application to concrete ships. F. R. Mc Millan. *il diags Int Marine Eng* 25:588-93 Jl '20

Successful motor-driven concrete tramp. *il Int Marine Eng* 25:113-14 F '20

What is the present status of the concrete ship?; concrete institute committee report. H. C. Turner. *Eng N* 84:463-4 Mr 4 '20; Same. *Int Marine Eng* 25:408-9 My '20; Abstract. *Sci Am M* 1:380-1 Ap '20

See also Barges, Concrete; Boats, Concrete; Tank ships, Concrete

Repair

Big hole in concrete ship bottom successfully repaired. W. R. Harper. *il Concrete* 18:221-3 My '21

Cement-gun repairs concrete ship. G. L. Smith. *Can Eng* 38:450 My 6 '20; Abstract. *Eng N* 84:1113 Je 3 '20

Repair of a reinforced concrete vessel in Denmark. *diags Concrete* 19:163-4 O '21

Ships, Iron and steel

Steel ship construction from a management viewpoint. C. Churchill. *Int Marine Eng* 24:824-6 D '19

Steel ships under construction in American shipyards for private account. *Int Marine Eng* 25:596-7 Jl '20

See also Barges, Steel

Ships, Salvage. See Salvage ships

Ships, Store. See Traveling stores

Ships, Wooden

Beach ship without harm. *il Marine R* 51:257 Je '21

Hough type wooden lumber steamer. *diags plans Int Marine Eng* 25:398-400 My '20

1919 construction record of U.S. yards; tabulation. *Marine R* 50:174-81 Mr '20

Only new vessel of her type; four-mast barkentine. *il Marine R* 50:75 F '20

Ships' lights

Proposed method of placing screens on port and starboard lights. E. De Bruijn. *diags Int Marine Eng* 25:190-1 Mr '20

See also Ships—Lighting

Shipways

800-ton electric slipway machinery at Southampton. *diags Engineering* 110:246, 255 Ag 20 '20

Shipworms. See Teredos

Shipwrecks

American destroyer hits mine in the Baltic. E. S. Land. *il Marine Eng* 26:139-40 F '21

Concrete ship Polias on rocks off Maine coast. *il Eng N* 84:483-4 Mr 4 '20

Freeboard rules for lakes; Great Lakes subcommittee investigation. *Marine R* 50:633 D '20

Late flashes on marine disasters; tabulation. *Marine R* 50:152, 601, 661; 51:186, 234-5, 265, 326-7 Mr, N-D '20, Ap-Jl '21

See also Life saving apparatus; Lifeboats; Safety at sea; Salvage

Shipyards

Armstrong shipyard. *il (supp) diags plan Engineering* 109:366-70, 434-7, 468, 469-72, 540-3, 567-9, 582, 601-3, 695-8 Mr 19, Ap 2-9, 23-My 7, 21 '20

Birkenhead works of Messrs. Cammell Laird and co., limited. *il (supp) diag plan Engineering* 109:812-19 Je 18 '20

Federal shipyard takes up ship repairing. *il diags Marine Eng* 26:834-7 N '21

From boneyard to shipyard. H. A. Crafts. *il Sci Am* 122:366+ Ap 3 '20

Graphic illustration of extensive use of oxy-acetylene in shipyards. *plan Int Marine Eng* 25:606-7 Jl '20

Japanese shipyard. *il Am Mach* 51:1049-51 D 18 '19

Largest shipyard in the world; plant of the New York shipbuilding corporation, Camden, N.J. *il plan (supp) Int Marine Eng* 25:239-59, 440-3 Ap-My '20

Most interesting job in the yard. N. Secundus. *Marine Eng* 26:761 O '21

New docking facilities at San Francisco plant of Bethlehem shipbuilding corporation. *Int Marine Eng* 25:751 S '20

New shipyard at Belfast. *il diag Engineer* 128:563-4 D 5 '19

One of England's largest shipyards. *il fold charts plans Marine Eng* 26:105-14, 212-21 F-Mr '21

Outfitting dock. R. L. Paddock. *chart Marine Eng* 25:809-11 O '20

Ship repairs and the maintenance of shipyard machinery and plant. C. W. Brett. *il Electrician* 87:182-3 Ag 5 '21

Southern shipbuilding activities. *il Int Marine Eng* 25:389-92 My '20

See also Boilers, Marine—Manufacture; Hog Island; Navy yards and naval stations; Shipbuilding

Electric equipment

Electric motors for shipyard machinery. W: Harrison. J. Goldsborough and W: H. Easton. *il Int Marine Eng* 25:469-75 Je '20

Electrical equipment of a Dundee shipyard. *il diag Electrician* 85:278-80, 328-9 S 3, 17 '20

Electricity as a factor in ship-repair work. *il Elec R* 78:689-91 Ap 30 '21

Substation at Hog Island shipbuilding yard. W: B: West. *il Elec R* 77:697-8 O 30 '20

Systematic inspection and maintenance. *il Elec W* 76:179-81 Jl 24 '20

Employees

Descriptions of occupations; shipbuilding occupation group. p 116-23 '18 U.S. Bureau of labor statistics, Washington, D.C.

Handling shipyard traffic at Sparrows Point, Md. L. H. Palmer. *il diags plan Elec Ry J* 55:930-5 My 8 '20

Shipyards—Employees—Continued

- Programs of apprenticeship and special training in representative corporations. J. V. L. Morris. *il Am Mach* 54:310-12 F 24 '21
 To train shipyard apprentices. V. G. Iden. *il Marine R* 50:203-7 Ap '20
 Training of shipyard apprentices; committee report. *Engineering* 109:311-12 Mr 5 '20; *Engineer* 129:254 Mr 5 '20

Equipment

- Equips steel shipyard in South. *il Marine R* 50:120-2 F '20
 Largest fitting-out crane in America. *il Int Marine Eng* 25:412-16 My '20
 Largest shipyard in Australia. J. O'Toole. *il Int Marine Eng* 25:444-8 My '20
 Principles of design of shipyard cranes and description of Hok crane. W. H. Hok. *diags Mech Eng* 42:353-4 Je '20; *Same. Sci Am M* 1:569 Je '20
 Relation of portable tools to building berth. M. Nicholls. *Marine Eng* 26:378-80 My '21
 Ten-thousand horsepower station for operating shipyard. J. G. Berger. *il plans Power* 52:284-9 Ag 24 '20

Lighting

- Industrial yard lighting. A. G. Humphrey and R. G. Taplin. *il J Elec* 45:61-3 Jl 15 '20

Management

- Bolting-up in ship construction. F. T. Warner. *Marine Eng* 25:963-4 D '20
 Industrial engineering applied to shipyard management. N. Howard. *il Ind Management* 59:372-6, 492-5; 60:38-42 My-Jl '20
 Production methods in shipbuilding. W. B. Ferguson. *diag Ind Management* 59:439-43; 60:43-8, 226-32, 295-300, 409-12; 61:33-7 Je-Jl, S-O, D 1 '20, Ja 1 '21
 Results obtained by applying scientific management in a French ship yard. M. Laval-lée. *Ind Management* 60:240-4, 287-9 S-O '20
 Seagoing salesmen. C. P. Russell. *il Ptr Ink M* 3:21-2+ Ag '21
 Standards for ship construction. C. Churchill. *charts Int Marine Eng* 25:198-202+ Mr '20
 Wage incentive plans in ship building. S. G. Rockwell. *Ind Management* 59:295-300 Ap '20
 Why is a progress and planning department? D. G. Stevens. *Int Marine Eng* 25:499 Je '20

See also Launching

Shirting

- Designs in cotton shirting fabrics. *il Textile World* 57:379+ Ja 17 '20
 Finishing glazed shirtings. *Color Tr J* 6:14 Ja '20

Shock

- True physiological nature of shock. *Sci Am* 125A:52 N '21

Shock absorbers

- Gilman friction band shock absorber. *diag Automotive Ind* 44:23 Ja 6 '21
 Hinsman shock absorber for rebound only. *il Automotive Ind* 43:467 S 2 '20
 New shock absorber, J.H.—AR. *il India Rubber W* 64:582 My '21
 New type of shock absorber; Watson stabilator. *diags Automotive Ind* 44:1207 Je 9 '21
 Rubber shock insulators for buses. *il diags India Rubber W* 65:115-16 N '21
 Shock absorber for intermittent gears. F. Erwin. *il Am Mach* 52:329-30 F 12 '20
 Shock absorber for refrigerator cars. *il diags Ry Mech Eng* 94:737-8 N '20; *Same cond. Ry Age* 70:340 F 4 '21
 Shock compensator for shaft drives. *il diags Automotive Ind* 44:646 Mr 24 '21
 Suspension shock absorber for automobiles. *il Sci Am M* 4:69-70 Jl '21

See also Airplanes—Shock absorbers

Shock tests

- Shock tests and their standardisation. R. A. Hadfield. *Engineering* 110:806 D 17 '20

Shocking of grain

- Model of new grain shocker operates successfully. *il Pop Mech* 36:413 S '21

Shoddy

- Answers statement of wool bureau. P. T. Cherington. *Textile World* 58:419+ Jl 17 '20
 Value of shoddy. *Textile World* 58:1559 S 4 '20

Shoe factories

- Lighting of shoe factories. A. L. Powell and J. H. Kurlander. *il plans Illum Eng Soc* 15:603-28; *Discussion*. 628-30 no 8 '20
 Output in boot and shoe factories. J. Loveday and S. H. Munro. *Eng & Ind Management* 5:70-2 Ja 20 '21
 Value of central station service in the shoe industry. A. S. Moore, R. H. Jameson and H. I. Laumann. *N E L A Bul* 8:231-2 Ap '21

Accounting

- Shoe-factory accounting. R. H. Belknap. *J Account* 32:192-201 S '21

Employees

- Agreement affecting employees of Haverhill (Mass.) shoe manufacturers association. *Monthly Labor R* 12:136-8 Ja '21
 Fatigue in the boot and shoe industry. J. Loveday and S. H. Munro. *Eng & Ind Management* 5:541-3 My 12 '21
 Hours and earnings in the boot and shoe industry. *Monthly Labor R* 11:286-93 Ag '20
 Wages and hours of labor in the boot and shoe industry: 1907 to 1918. U S Bur Labor Statistics *Bul* 260:1-135 '19
Shoe industry and trade
 Cancellations cause manufacturer to sell goods direct. G. A. Nichols. *Ptr Ink* 114:3-4+ Ja 27 '21
 Federal trade commission's report on huge profits in shoe prices. *Comm & Fin Chr* 112:2600-1 Je 18 '21
 Footwear merchandising. 215p Retail shoe salesmen's institute, Boston '20
 Foreign import duties on boots and shoes. *India Rubber W* 64:574-5 My '21
 Introduction to shoe store management. G. F. Hamilton and others. 209p Retail shoe salesmen's institute, Boston '21
 Merchandise manual for shoe departments. E. Dyer. (General ser. no. 1) 133p [bibliog. p. 133] Research bureau for retail training, Carnegie institute of technology, Pittsburgh '21
 Seasonability—a fact or a superstition? R. W. Johnson. *Ptr Ink* 116:53-4+ Jl 7 '21
 Shoemaking, by the staff editors, Retail shoe salesmen's institute, in collaboration with G. W. Baker, J. A. Barbour, P. E. Barbour and others. 226p Retail shoe salesmen's institute, Boston '20
 Shoes; merchandise information for salespeople. E. Dyer. (Elementary ser. no. 1) 61p Research bureau for retail training, Carnegie institute of technology, Pittsburgh, Pa. '20
 Stockkeeping. O. A. Day and others. 207p Retail shoe salesmen's institute, Boston '20
Accounting
 Accounting for retail shoe stores. T. J. Ahlberg. *J Account* 30:97-105 Ag '20
Advertising
 Everybody has had a fling at Douglas shoe advertising. W. L. Larned. *Ptr Ink* 113:149-50+ N 4 '20
 Footwear advertising and store displays. S. Alexander and others. 230p Retail shoe salesmen's institute, Boston '21
 Largest non-retailing shoe firm turns to consumer advertising. E. T. Tandy. *Ptr Ink* 112:41-2+ S 30 '20
 Manufacturer builds on past performance when line is broadened. *Ptr Ink* 112:49-50+ Jl 22 '20
Directories
 Shoe manufacturers in France making more than 100 pairs per day. U S Bur For & Dom Com 200:142-55 '20

Shoe industry and trade—Continued**History**

Organization of the boot and shoe industry in Massachusetts before 1875. B. E. Hazard. 293p Harvard university press, Cambridge '21

Shoes

Apparatus for measuring the relative wear of sole leathers, and the results obtained with leather from different parts of a hide. R. W. Hart and R. C. Bowker. *il chart diags U S Bur Stand Tech Pa* 147:1-10 '19
How much paper in your shoes? R. Howard. *il Sci Am* 122:677 Je 19 '20
How proper shoes make better workers. H: A. Gartner. *il Factory* 25:385 Ag 1 '20
Increased use of fabrics by shoe trade. *Textile World* 57:2273+ Mr 27 '20
Rubber sole turn shoe perfected. *il plan India Rubber W* 64:879-81 S '21
Using X-rays to determine proper fit of shoes. *il Sci Am* 124:513 Je 25 '21

See also Leather; Overshoes; Shoe factories; Shoe industry and trade

Heels

Detachable and interchangeable heels. *il Sci Am* 122:168+ F 14 '20

See also Rubber heels

Manufacture

Descriptions of occupations; boots and shoes, harness and saddlery, tanning. 70p '18 U.S. Bureau of labor statistics, Washington, D.C.
Preliminary notes on the boot and shoe industry. 32p Great Britain Industrial fatigue research board, London '20

Prices

Shoes that pinch the purse. J. W. Evans. *Nation's Business* 8:22-4 Mr '20

Repair

How to mend shoes. F. M. Rich. *il Pop Mech* 34:790-1 N '20
Shoe cafeteria. *il Sci Am* 122:43 Ja 10 '20

Shoes, Colored

When there is service as well as goods to sell. H. E. Agnew. *Ptr Ink* 114:49-50+ Ja 20 '21

Shoes, Foundry

Safe shoes reduce hot-metal burns. *il Foundry* 49:51-3 Ja 15 '21

Shoes, Rubber

Rubber shoe designing and pattern making. R. C. Kelley. *il diag India Rubber W* 63:164-5 D '20
Rubber shoe soling. B. W. Elbersen. *India Rubber W* 64:486 Ap '21

See also Soles, Rubber

Manufacture

Layout of a scientific rubber footwear factory. plans *India Rubber W* 62:560-3 Je '20
Machine for calculating fabric waste in footwear manufacture. *il India Rubber W* 61:362 Mr '20

Repair

Repairing rubber footwear. *il diags India Rubber W* 63:397-403; 64:477-80, 567-9 Mr-My '21

Shooting

See also Rifle shooting

Shooting, Military

Naval gun-fire spotters trained on miniature sea. *il Pop Mech* 36:402-3 S '21

Shop committees

Development of shop committees in America. C: M. Mills. *Iron Age* 105:1163-5, 1239-40, 1445-7 Ap 22-29, My 20 '20
Direct action versus inaction. S. Rogers. *Textile World* 57:3053-4 Ap 24 '20
Employees' representation and shop committees. *Mach* 26:786-7 Ap '20
Forms of work councils in the United States. *Textile World* 57:930-1+ F 7 '20
Functions of a work's council. *il Eng & Ind Management* 5:405-8 Ap 7 '21

Getting more out of shop conferences. *Factory* 24:1908+; 25:1121+ Je 15, O 1 '20

Industrial works councils in Germany. *Ind Management* 59:236 Mr '20

One year of shop committees. W: L. Stoddard. *Ind Management* 59:31-3 Ja '20

One year of the shop council system in Germany. *Am Mach* 54:682 Ap 21 '21

Representative shop committees in industry. L. P. Alford. *Textile World* 57:932 F 7 '20

Serious labor problems in Cleveland; practical demonstration of working of shop committees. G: Smart. *Iron Age* 106:515-17 Ag 26 '20

Shall shop committees be substituted for trade unions? P. H. Douglas. *Factory* 26:1004+ Ap 15 '21

Shop committee and the foreman. M. J. MacNamara. *Ind Management* 60:102-3 Ag '20

Shop committee development possible in unionized plant. H. Tipper. *Automotive Ind* 42:1224-5 My 27 '20

Shop committee that failed. O. F. Carpenter. *Ind Management* 61:59-62 Ja 1 '21

Shop committees and stimulated production. D. Wolf. *Iron Age* 105:1030-1 Ap 8 '20

Shop committees in Paris. A. Garniault. *Iron Age* 107:442 F 17 '21

Shop representations fully discussed at National metal trades association convention. *Iron Age* 105:1232-3 Ap 29 '20

Trade unionism versus shop committees. W: L. Stoddard. *Ind Management* 61:310 Ap 1 '21

Workmen's congress solves wage problem. *Iron Age* 105:1651-3 Je 10 '20

Works councils and shop committees in the United States. *Monthly Labor R* 10:191-4 Ja '20

See also Employees' representation in management; Industrial relations

Shop fronts. *See* Store fronts

Shop management

Graphic production control in railway shops. E. T. Spidy. *charts Ry Mech Eng* 94:227-30 Ap '20; Same. *Ry R* 66:364-8 Mr 6 '20

How the master mechanic increased production. E. F. Jones. *Ry Mech Eng* 94:386-8 Je '20

Organization, system and routine in a phonograph-motor shop. W. E. Thompson. *il chart Am Mach* 52:127-31 Ja 15 '20

See also Employment management; Factory management; Foundry management; Garages—Management; Industrial management; Machine shop management; Mechanical handling; Organization in industry; Railroads—Shops; Routing systems; Schedules; Shop committees

Shop papers. *See* Employees' magazines

Shop windows. *See* Show windows

Shopping

What an advertising man learned when he went shopping. C. J. Murray. *Ptr Ink* 110:19-20 Ja 8 '20

Shops

See also Blacksmith shops; Electric railroads—Shops; Electric shops; Locomotive shops; Machine shops; Plumbing shops; Railroads—Shops; Woodworking shops

Shore protection

Seashore and track protection on an Irish railway. *diag Eng N* 87:228-9 Ag 11 '21

See also Bulkheads; Flood control; Levees; Mattresses (hydraulic engineering); Riprapping; Rivers—Bank protection; Rivers—Regulation; Sea walls

Shoring and underpinning

Dry tamp concrete replaces wedges in underpinning. *diag Concrete* 18:84 F '21

Foundation problems in erecting Standard Oil building. R. H. Chambers. *il diags Eng N* 87:732-5 N 3 '21

Giant job of underpinning; building a subway beneath Philadelphia's city hall. W: A. McGarry. *il Sci Am* 124:124+ F 12 '21

How can a brick building with foundations on wet sand be underpinned? *Pub Works* 50:415-17 My 14 '21

Shoring and underpinning—Continued

- Raising and shoring a fireproof school house. il Am Arch 119:464-6 Ap 13 '21
- Shoring and underpinning the Central warehouse, Chicago. il diags plan Am Arch 119:592-4 My 25 '21
- Skillful underpinning checks warehouse collapse. G: F. Paul. il plan Eng N 84:945-6 My 13 '20
- Skillful underpinning prevents warehouse collapse. J. J. Rosedale. Eng & Contr 55:91-2 Ja 26 '21
- Underpinning a concrete building by jacketing columns. R. L. Bertin. il diags plan Eng N 85:1129-30 D 9 '20
- Underpinning and foundations of heavy buildings. diags Engineer 129:639-42; 130:25-7 Je 25, Jl 9 '20

See also Building; Foundations

Short circuits

- Calculating substation short circuits. R. F. Gooding. diags Elec W 75:949-51 Ap 24 '20
- Effect of lamp short on switch operation. L. W. Wyss. diags Elec W 75:326 F 7 '20
- Effects of short circuits on power house equipment. E. G. Merrick. il diags Gen Elec R 22:935-41 N '19
- Limiting substation short-circuits. R. F. Gooding. diags Elec W 75:771-3 Ap 3 '20
- New short-circuit calculating table. W. W. Lewis. il diags Gen Elec R 23:669-71 Ag '20
- Short-circuit current of induction motors and generators. R. E. Doherty and E. T. Williamson. il diags Am Inst E E J 40:1-11 Ja '21
- Short-circuit currents in networks. W. R. Woodward. il diags Elec W 75:715-18 Mr 27 '20
- Short-circuit protection for direct-current sub-stations. J. J. Linebaugh. il diags Am Inst E E J 39:274-8 Mr '20; Same cond. Elec Ry J 55:515-17 Mr 13 '20
- Short-circuit tests on a 10,000-kv-a. turbine alternator. E. S. Henningsen. il diags Gen Elec R 23:214-21 Mr '20

Short line railroad association, American. See American short line railroad association

Short line railroads. See Railroads, Short line

Shortening (cooking)

- Shortening; its definition and measurement. C. E. Davis. diags J Ind & Eng Chem 13:797-9 S '21

Shorthand

- Byrne simplified shorthand. H: E: Byrne. 9th ed. 82p Byrne publishing co., Chicago '21
- Shorthand made easy, with complete examination questions and answers. M. Dana. 184p E. J. Clode, New York '21

See also Stenographers

Shoshone river

- Regulation of stream flow in delivering stored water from a stream bed reservoir. H. H. Johnson. Eng & Contr 54:570-1 D 8 '20

Shot firing. See Blasting

Shot towers

- Shot tower in Baltimore. il plan Am Inst Arch J 9:175-6 My '21

Shoup, Paul, 1874-

- Portrait. J Elec 46:357 Ap 1 '21

Shoveling

- How to increase hand shoveling outputs. B. G. Best. Eng & Contr 56:157-9 Ag 17 '21

Shoveling machines

- Loading machines for underground use. A. M. Gow. il diags Eng & Min J 109:319-37 Ja 31 '20; Same. Sci Am M 1:357-65 Ap '20
- Mechanical coal loading as adapted to room-and-pillar work. W: Whaley. diags Coal Age 17:906-7 My 6 '20

See also Pneumatic shovels; Steam shovels

Shovels**Advertising**

- Where trade-marking the product found new markets for it. E. A. Muschamp. Ptr Ink 113:177+ N 11 '20

Shovels, Electric. See Electric shovels

Shovels, Pneumatic. See Pneumatic shovels

Show cards

- Window cards you can use. E. A. Dench. Am Gas Eng J 113:266-7 O 2 '20

Show windows

- Advertising. H. Angus. il J Elec 45:332-4 O 1 '20
- Attractive windows influence trade. Dom Eng 93:106 O 16 '20
- Dealers participate in a window trimming contest. il Elec W 79:623-6 O 22 '21
- Display whole appliance store. W: J. Matlack. il diags Gas Age 48:165-6 Ag 13 '21
- Displays and trains of thought. J. E. Bullard. Gas Age 47:22 Ja 10 '21
- Don't monopolize the window. J: M. Schlachter. Ptr Ink 111:65-6+ My 27 '20
- Fifth avenue sold to the public anew. Ptr Ink 111:20 Ap 15 '20
- Getting dealers to display merchandise packages. J: M. Schlachter. Ptr Ink 110:90+ F 5 '20
- How public utility encourages better window displays. il Elec R 79:445-6 S 17 '21
- How to get your goods shown in big store windows. il Ptr Ink 115:121-2+ Je 16 '21
- How we raised our volume 43%. W. R. Plum. il System 40:161 Ag '21
- Human interest in the window display. E. M. Wickes. il Ptr Ink M 3:44+ Ag '21
- Inducing the outside show case to earn a daily polishing. J. R. Hammond. Inland Ptr 64:687-8 Mr '20
- Louis XVI shopfront. C: O. Cornelius. il diags Arch Rec 49:62-5 Ja '21
- Making a plumbing newspaper out of the show window. H. D. Kemperton. Dom Eng 95:314 My 14 '21
- Making the theatre help with your window display. K. B. White. il Ptr Ink M 2:42 Ap '21
- National show window week February 21st to 26th, inclusive. il Dom Eng 94:346 F 12 '21
- National trade extension bureau prepares Christmas window display. il Dom Eng 89:472-4 D 6 '19
- Newspaper advertisements and window displays that sell autumn electrical necessities. W. B. Stoddard. il Elec R 77:659-61 O 23 '20
- Peoples gas co., Chicago, sell kitchen equipment line. W. B. Stoddard. il Gas Age 48:127-8 Ag 6 '21
- Prevention of frost on show windows. G. E. Sampson. il Pop Mech 33:125 Ja '20
- Psychological time for window trimming. E. A. Dench. Dom Eng 90:93 Ja 10 '20
- Psychology of the show window. Sci Am 125:200 S 17 '21
- Putting Easter spirit into show windows. E. A. Dench. Am Gas Eng J 114:124+ F 5 '21
- Show window helps to develop a half million dollar plumbing business. il Dom Eng 96:339+ Ag 20 '21
- Showroom window display; how manufacturers teach dealers best methods. C. P. Russell. il Ptr Ink M 2:79+ Ap '21
- Stage craftsmanship in the modern window display. A. L. Townsend. Ptr Ink 116:126+ S 15 '21
- Traveling your own men to install window displays for dealers. L. Mansfield. Ptr Ink 110:43-4+ Mr 4 '20
- Turning limelight on heating specialties. il Metal Work 93:724-6 Je 4 '20
- Turning show windows into weather bureaus. H. L. McCreddie. Ptr Ink 110:113-14 Ja 8 '20
- Twenty-one novel window display stunts. E. A. Dench. Am Gas Eng J 112:492-4 Je 19 '20
- Value of color in window displays. B. M. Angus. il J Elec 44:611-12 Je 15 '20
- Where British electrical show windows fail. E. A. Dench. Electrician 85:356 S 24 '20
- Window and store display. A. T. Fischer. 203p Doubleday '21
- Windows—the setting for your merchandise. E. Falkner. il Ptr Ink M 2:32-4+ My '21

Lighting

- Light as a selling agent. J. S. Dow. il Electrician 87:438-40 O 7 '21

Show windows—Lighting—Continued

- Lighting of show windows and show cases. A. L. Powell. *il diags Elec R* 76:595-602 Ap 10 '20
- New method of shop-window lighting. *il Electrician* 87:548 O 28 '21
- Report on illumination of show windows. *il N E L A Bul* 7:860-4 N '20
- Shop-window lighting. *il plan Illum Engr* 14:24 Ja '21
- Stealing the theater's lighting effects for the show room. *il Sci Am* 122:627 Je 5 '20
- Use of light as an aid to publicity; show-window and spectacular lighting. E. Stroud. *il Illum Engr* 14:63-7 Mr '21
- Window displays any desired color or two- or three-tone mixture by use of color screens. A. L. Powell. *N E L A Bul* 7:748-50 O '20

Shower baths

- How to plan a shower bath business. K. W. Zoeller. *Dom Eng* 90:72-3 Ja 10 '20

Shower baths, Street

- Getting the shower habit on the streets of New York. *il Dom Eng* 96:428-9 S 3 '21
- Municipal street bathing. *il Sanitary & Heat Eng* 96:134-5 Ag 26 '21
- New York city's first municipal street shower baths. *Dom Eng* 96:115 Jl 16 '21

Shredded wheat

- Electrically manufactured food product. *il J Elec* 45:263-5 S 15 '20

Shute, Henry Damon, 1871-

- Sketch. *por Elec W* 78:808 O 22 '21

Shutters. See Blinds**Siberia**

- See also* Copper mines and mining—Siberia

Economic conditions

- Mining opportunities in Siberia under the present régime of Zemstvo-Soviet government. I. Narodny. *Eng & Min J* 110:306-8 Ag 14 '20

Sibert, William L.

- General Sibert and the chemical warfare service. P. Wooton. *por Chem & Met Eng* 22:755 Ap 21 '20

Sibley college. See Cornell university—Sibley college**Sicily**

- See also* Copper mines and mining—Sicily

Sick leave

- Plan for sick leave with pay. M. R. Machol. *Ind Management* 60:453-4 D 1 '20

Sidewalk sheds

- Builders' arcades. *il Am Arch* 118:695-7 D 1 '20

Sidewalks

- Concrete blocks mark cross-walks. J. S. Sheehy. *il Eng N* 87:203 Ag 4 '21
- La construction des trottoirs de villes. *Génie Civil* 76:397-8 Ap 24 '20
- Methods and costs of cement tile sidewalk construction at St Paul, Minn. E. G. Briggs. *Eng & Contr* 54:343-4 O 6 '20
- See also* Pavements

Width

- Widths of roadways and sidewalks in municipalities. H. J. Fixmer. *Munic Eng* 60:177-81 My '21; Same. *Eng & Contr* 55:540-2 Je 1 '21; Same. *Good Roads* 61:15-18+ Jl 13 '21

Sidewalks, Concrete

- Drainage for sidewalks. C. McGrale. *il diags Concrete* 18:157-9 Ap '21
- Joints and slabs in concrete walks. C. McGrale. *diags Concrete* 18:266-7 Je '21
- One course concrete sidewalk construction at Seattle, Wash. O. A. Piper. *Eng & Contr* 56:341-2 O 5 '21
- One course monolithic concrete sidewalks versus two course. F. S. Besson. *il Eng & Contr* 55:445-8 My 4 '21
- One or two-course sidewalks. C. McGrale. *il Concrete* 18:219-20 My '21

- Planning tasteful walks. C. McGrale. *il Concrete* 19:11-13 Jl '21

Sieves

- Proposed U.S. standard sieve series. *diag Concrete* 16:sup58-9 Ap '20

Sight

- Artificial lighting in the rubber industry. E. L. Elliott. *il diags India Rubber W* 63:412-16 Mr '21
- Contrast sensibility of the eye. E. Karrer and E. P. T. Tyndall. *diags U S Bur Stand Sci Pa* 366:679-92 '20
- Henri Piéron on the physiological principles underlying the study of light. L. T. Troland. *bibliog Illum Eng Soc* 16:sup44-50 no 3 '21
- Optical principles of illuminating engineering. P. G. Nutting. *Illum Eng Soc* 15:529-38 no 8 '20
- Photo-electric theory of vision. J. H. J. Poole. *diags Philos Mag* 6th ser 41:347-57 Mr '21
- Quantum theory of vision. J. Joly. *Philos Mag* 6th ser 41:289-304 F '21
- See also* Blind; Color-blindness; Color sense; Eye

Signal corps. See United States—Army—Signal corps**Signals, Electric. See Electric signals****Signals, Mine. See Mine signals****Signals, Railroad. See Railroads—Signals****Signals and signaling**

- Inter-communicating and signalling for merchant vessels. H. F. Harvey, jr. *il diags Gen Elec R* 24:190-5 F '21
- Signaling by invisible rays. *il diags Elec W* 78:307-8 Ag 13 '21; Excerpts. *Elec R (Lond)* 89:327-8 S 2 '21
- Signalling by invisible rays. *Engineering* 109:797-8 Je 11 '20

- See also* Automobile signals; Electric railroads—Signals; Electric signals; Fire alarms; Fog signals; Light signals; Mine signals; Railroads—Signals; Subways—Signals; Telegraph; Wireless signals; Wireless telegraph

Signals and signaling, Submarine

- How underwater signals operate. H. R. Simonds. *Marine R* 50:100-1 F '20
- Practical ideas for the engineer. H. R. Simonds. *il diags map Marine R* 50:356-7 Je '20
- Production of sound under water by the condensation of steam. G. Stoney and T. Petrie. *il diags Engineering* 110:561-3 O 29 '20; Same. *Sci Am M* 3:71-4 Ja '21
- Sound in engineering and navigation. W. D. Kirkpatrick. *Engineer* 130:658-60 D 31 '20
- Submarine signalling. H. Barkhausen and H. Lichte. *Engineering* 110:490 O 8 '20
- Submarine signalling. H. V. Hayes. *il diags Engineer* 129:491-3 My 14 '20
- See also* Cables, Submarine

Signboards. See Billboards**Signs**

- Sign printing without a press. J. G. Allshouse. *diag Pop Mech* 33:607 Ap '20
- See also* Electric signs; Road signs; Signals and signaling; Street cars—Signs

Signs, Danger

- Danger! *il Sci Am* 122:135 F 7 '20
- New type of danger signal. *il Iron Age* 105:737 Mr 11 '20

Signs, Electric. See Electric signs**Signs, Illuminated**

- Illuminated signs. E. C. Leachman. *il plan Illum Engr* 14:68-73; Discussion. 73-81 Mr '21

Silage

- Cornstalk cutter makes silage in field. *il Pop Mech* 33:346 Mr '20
- See also* Silos

Silesia

- Germans win in Silesia plebiscite—Poles reported to have invaded Silesia. *Comm & Fin Chr* 112:1244-5 Mr 26 '21

Silesia—Continued

La sidérurgie en Haute-Silésie et la question du coke. Durnerin. Génie Civil 78:503-5 Je 11 '21

See also Iron industry and trade—Silesia; Mines and mineral resources—Silesia; Railroads—Silesia

Silica

Perchloric acid as a dehydrating agent in the determination of silica. H. H. Willard and W. E. Cake. Am Chem Soc J 42:2208-12 N '20

Reversible thermal expansion of silica. H. S. Houldsworth and J. W. Cobb. Engineering 112:576-9 O 21 '21

Silica content of the reed phragmites communis Trin. C. J. West. Paper 28:24-5 J1 20 '21

Silica in 1919. L. M. Beach. U S Geol S Min Res of U S 1919, pt 2:379-80 '21

Silica in 1920. L. M. Beach. U S Geol S Min Res of U S 1920, pt 2:151-2 '21

Silica refractories; factors affecting their quality and methods of testing the raw materials and finished ware. D. W. Ross. il diag U S Bur Stand Tech Pa 116:1-84 '19

Silica—spine of ceramic ware. Brick & Clay Rec 59:581-4 O 18 '21

See also Quartz

Silica, Fused

Commercial development of fused silica. J. F. Bottomley. Chem & Met Eng 23:224 Ag 11 '20

Commercial development of fused silica. J. Scharl and W. Savage. il Chem & Met Eng 22:593-5 Mr 31 '20

L'industrie du verre de silice. G. Flusin. il diags Chimie & Ind 5:119-35, 257-70 F-Mr '21

Le verre de silice. G. Flusin. bibliog Chimie & Ind 3:729-49 Je '20

Vitreosil now available for lamps and appliances. il Gas Age 47:351-2 Ap 25 '21

Bibliography

Bibliographie sur l'industrie du verre de silice. G. Flusin. Chimie & Ind 3:748-9; 5:270 Je '20, Mr '21

Silica brick. *See* Fire brick

Silica gel. *See* Silicic acid

Silicates

Über die einföhrung der kieselsäure in den kern komplexer verbindungen. R. Schwarz and H. Bausch. Deutsche Chem Gesell Ber 54:802-13 Ap '21

See also Augite; Kaolin; Orientite; Sodium silicates; Talc

Analysis

Analysis of silicate and carbonate rocks. W. F. Hillebrand. diags U S Geol S Bul 700:1-285 '19

New method for the determination of potassium in silicates. J. J. Morgan. J Ind & Eng Chem 13:225-7 Mr '21

Silicic acid

Adsorption by silica gel. E. B. Miller. Chem & Met Eng 23:1155-8, 1219-22, 1251-4 D 15-29 '20

Adsorption of sulfur dioxide by the gel of silicic acid. J. McGavack, jr., and W. A. Patrick. diag Am Chem Soc J 42:946-78 My '20

Adsorption of sulfur dioxide by the gel of silicic acid. J. McGavack. 37p Johns Hopkins university '20

Coagulation of clay suspensions and silicic acid. O. M. Smith. il Am Chem Soc J 42:460-72 Mr '20

Silica gel and its uses. W. A. Patrick. Chem & Met Eng 22:949-50 My 19 '20

Silicic acid. V. Lenher. Am Chem Soc J 43:391-6 Mr '21

Therapeutic value of silicic acid. Sci Am M 3:211 Mr '21

Silicoethane

Organic derivatives of silicon; *dl*-derivatives of silicoethane. F. S. Kipping. Chem Soc J 119:647-53 My '21

Silicohydrocarbons

Organic derivatives of silicon; piperidine as an analytical reagent. F. S. Kipping and J. E. Sands. Chem Soc J 119:848-50 Je '21

Organic derivatives of silicon; saturated and unsaturated silicohydrocarbons, Si₄Ph₈. F. S. Kipping and J. E. Sands. Chem Soc J 119:830-47 Je '21

Silicon

Bor- und silicium-chemie; die experimentelle erforschung leichtflüchtiger stoffe. A. Stock. il Deutsche Chem Gesell Ber 54:sup 142-58 Je '21

Chemical analysis of plain carbon steel; determination of silicon by the nitro-sulphuric and sulphuric-acid. method. Foundry 49:738a S 15 '21

Chemistry of the volatile. A. Gradenwitz. Sci Am 125A:10 N '21

Influence of silicon upon the properties of ferrosilicon. A. T. Lowzow. il diags Chem & Met Eng 24:481-4 Mr 16 '21

Investigation of silicon reviewed. T. Turner. Foundry 48:184-6 Mr 1 '20

Organic derivatives of silicon; *di*-derivatives of silicoethane. F. S. Kipping. Chem Soc J 119:647-53 My '21

Reduction by means of silicon. L. Kahlenberg and W. J. Trautmann. Am Electrochem Soc Trans v 39 (preprint 13):95-134 Ap '21

Reduction of silicon from the slag in the acid open-hearth process. B. Yaneske and G. A. Wood. Engineering 109:666-8; Discussion. 644 My 14 '20; Abstract. Engineer 129:522-3 My 21 '20; Abstract. Chem & Met Eng 23:76-7 J1 14 '20

Revision of the atomic weight of silicon; the analysis of silicon tetrachloride. G. P. Baxter, P. F. Weatherill and E. O. Holmes, jr. Am Chem Soc J 42:1194-7 Je '20

Silicon additions to steel. E. Piwowarsky. Iron Age 108:458 Ag 25 '21; Same. Blast F & Steel Pl 9:552 S '21

Silicothermy and thermisilid. R. Walter. Engineering 112:478 S 30 '21

Silicon carbide. *See* Carborundum

Silicon compounds

Some unsaturated silicon compounds. H. Kautsky. Chem Soc J 120 pt 2:505 Ag '21

See also Silicohydrocarbons

Silicon dioxide

See also Quartz

Silicon hydrides

Siliciumwasserstoffe; reaktionen mit alkali-metall. A. Stock and K. Somieski. diags Deutsche Chem Gesell Ber 54:524-31 Mr '21

Siliciumwasserstoffe; stickstoffhaltige verbindungen. A. Stock and K. Somieski. Deutsche Chem Gesell Ber 54:740-58 Ap '21

Silicon manganese

Silicomanganese furnace production record. diag plan Chem & Met Eng 21:752 D 24 '19

Silicon steel

Development of magnetic materials. T. D. Yensen. Elec J 18:93-5 Mr '21

Silicon tetrachloride

Revision of the atomic weight of silicon: the analysis of silicon tetrachloride. G. P. Baxter, P. F. Weatherill and E. O. Holmes, jr. Am Chem Soc J 42:1194-7 Je '20

Silicosis. *See* Lungs—Dust diseases

Silk

Bleaching of silk. E. Cagliostro. il diags Color Tr J 9:13-16, 68-72 J1-Ag '21

Degumming of silk. E. Cagliostro. il Color Tr J 8:138-41, 171-4, 212-15 Ap-Je '21

Feeding dyestuffs to silk worms. W. F. Edwards. Textile World 60:1111+ Ag 20 '21

Improved Canton raw silk. D. E. Douty. Textile World 59:4069+ Je 18 '21

Raw silk and some of its many uses. Textile World 58:3520 N 20 '20

Raw silk specifications and testing. W. F. Edwards. Textile World 58:4167+ D 18 '20

Silk from spiders. Sci Am M 2:157 O '20

Silk from spiders and mussels. L. Freund. Color Tr J 6:183-4 Je '20

Wild silk industry in southeastern Manchuria. Color Tr J 6:111-12 Ap '20

Silk—Continued

Worms that spin colored silk. H. H. Dunn. *il* Pop Mech 35:17-20 Ja '21

See also Crepe meteore; Dyes and dyeing—Silk; Pongee silk; Satin; Silkworms; Tussah silk

Testing

Examination of raw silk. W. F. Edwards. *Textile World* 60:1799+, 2311+ S 24, O 22 '21

Silk, Artificial

Artificial silk. *diag* Chem & Met Eng 25: 33 Jl 6 '21

Artificial silk and its manufacture. J. Foltzer. 244p Pitman '21

Artificial silk industry. Chem & Met Eng 23: 640 S 29 '20

Artificial silk industry. Engineering 110:592 O 29 '20

Artificial silk manufacture. Paper 27:28 D 1 '20

Artificial silk manufacture. L. Rutstein. *il* Chem Age 29:297-300 Ag '21

Artificial silk manufacture in France. *Textile World* 57:1385 F 14 '20

Artificial silk production in Japan. T. Watanabe. *Textile World* 57:2141 Mr 20 '20

Cellulose acetate and artificial silk. J Fr Inst 191:570-2 Ap '21

Growth of the artificial silk industry. Chem & Met Eng 22:1024 Je 2 '20

Growth of the artificial silk industry in Belgium. C. Lemaire. Paper 27:20-1 O 27 '20

New artificial silk plant; du Pont fiber-silk company erecting buildings at Tonawanda, N.Y. *il* *Textile World* 59:1288 F 12 '21

Progress in artificial silk manufacture. *Textile World* 59:878+ F 5 '21

Something about artificial silk. Sci Am M 1:516-17 Je '20

Silk machinery

Silk spinning from a mechanical standpoint. W: C. Marshall. *il* *Textile World* 59:1993+ Mr 19 '21

Silk manufacture and trade

China-Japan silk industry. Am Ind 21:39 F '21

Claims for imperfections in woven silk goods. J. Chittick. *Textile World* 59:1287-8 F 12 '21

Development of the silk industry. F. E. Ackerman. *il* Am Ind 22:28-31 S '21

Developments in the broad silk industry. C. A. Baer. *il* *Textile World* 59:1113+ F 5 '21

Extra-lustre tram. J. Chittick. *Textile World* 59:481+ Ja 22 '21

Extraction of soaps and oils from silks. H. S. Mudge. *Textile World* 60:583 Jl 23 '21

Hours and earnings in the hosiery and underwear and silk industries. Monthly Labor R 10:405-21 F '20

Output by natural and artificial light. Illum Engr 13:245-8 S '20

Output in silk weaving. J. A. Hunter. *Textile World* 59:483 Ja 22 '21

Raw silk market for the year 1920. *Textile World* 59:1035 F 5 '21

Silk association adopts new form of contract. *Textile World* 58:4277 D 25 '20

Silk industry over the worst of readjustment. R. Peugnet. *Annalist* 17:27 Ja 3 '21

Silk mill guide. 40p Pub. by Textiles, Boston '20

Silk throwing and electric drive. C. T. Guilford. *il* *diags* Elec J 18:512-15 N '21

Soaking silk preparatory to throwing. *Textile World* 59:1995+ Mr 19 '21

Theory of silk weaving. A. Wolfensberger. 2d ed., rev. and enl. 110p The American silk journal, New York '21

See also Silk, Artificial

Advertising

Cheney silks for spring, 1921. *il* Ptg Art 37: 320a-h Je '21

Institutional advertising by the historical method. *il* Ptr Ink 111:25-7 Ap 22 '20

Exhibitions

First international silk exhibition held. *il* *Textile World* 59:1275+ F 12 '21

Silk mills

Many large new silk mills. *il* *Textile World* 57:1216-17 F 7 '20

National spun silk co., New Bedford. W. H. Nye. *il* *Textile World* 59:1153+ F 5 '21

Silk mill built under difficulties; General silk importing company, at Passaic, New Jersey. *Textile World* 58:263+ Jl 10 '20

What to look for in a silk mill. J: R. Poteat. *Textile World* 60:2303+ O 22 '21

See also Silk manufacture and trade

Electric equipment

Silk-mill production aided by applying variable-speed drive to twistors. *il* Elec W 77: 886 Ap 16 '21

Lighting

See Textile mills—Lighting

Management

How counters offset low prices in silk industry. N. L. Bull. *Textile World* 60:1791 S 24 '21

Silk theft

Organizing against the silk thief. C. P. Russell. Ptr Ink 110:49-50+ Ja 15 '20

Silkworms

Feeding dyestuffs to silk worms. W. F. Edwards. *Textile World* 60:1111+ Ag 20 '21

Is sericulture an American possibility? R: H. Tingley. *il* *Textile World* 58:651+ Jl 31 '20

Worms that spin colored silk. H. H. Dunn. *il* Pop Mech 35:17-20 Ja '21

Sillimanite

Commercial synthesis of sillimanite. A. Malinowszky. *il* *diags* Chem & Met Eng 22:851-3 My 5 '20

Malinite process for the production of sillimanite refractories. A. Malinowszky. *il* Am Cer Soc J 3:40-68 Ja '20

Sil-o-cel

Effective annealing of metal products. L. R. W. Allison. *il* Iron Age 105:599-600 F 26 '20

Silos

New method of filling the silo. I. J. Mathews. *il* Sci Am 122:135+ F 7 '20

What is a silo? A. L. Dahl. *il* Sci Am 122: 280+ Mr 13 '20

See also Silage

Consult the Agricultural Index for additional material

Silos, Concrete

Building up a silo stave business in Iowa. *il* Concrete 19:36 Jl '21

Ferro-concrete silos and storage bunkers. W. N. Twelvetees. *il* Electrician 86:20-3 D 31 '20

Putting monolithic silos on the map in Alabama. L. G. McClung. *il* Concrete 15:215-17 D '19

Silo stave business expands. W. G. Kaiser. *il* Concrete 18:45-6 Ja '21

Wood forms for concrete silos. J. B. McQueen. *diags* plan Concrete 18:272-3 Je '21

Cost

Cost of stave silos. Concrete 16:280 Je '20

Silos, Pit

Why not the pit silo? *il* Sci Am 124:313 Ap 16 '21

Silt

Ditch design and prevention of silt deposit; abstracts. Q. C. Ayres. Eng & Contr 55: 142 F 9 '21; Eng N 86:647-8 Ap 14 '21

Hudson river silt. C. M. Holland; J: F. O'Rourke. Pub Works 48:375-6 My 1 '20

Silt disposal at Tacoma hydro-electric plant. L. Evans. *il* Power 51:694-7 My 4 '20

Silt problem of river reservoirs. H. F. Robinson. Eng N 84:145 Ja 15 '20

Tunneling in silt. *diags* Pub Works 48:372-4 My 1 '20

Silting. *See* Hydraulic mine filling

Silver

- Coinage of silver dollars at Denver mint. Comm & Fin Chr 112:1808-9 Ap 30 '21
- Collapse of silver. Min & Sci P 120:890-1 Je 19 '20
- Concerning silver. C: Butters. Min & Sci P 121:5-6, 185, 329-30 Jl 3, Ag 7, S 4 '20
- Decline in United States gold and silver production. Eng & Min J 110:1211 D 25 '20
- Decreased silver exports from Chihuahua to the United States. Eng & Min J 112:696 O 29 '21
- Development of the silver market. C. W. Wheelock. Eng & Min J 111:105-7 Ja 15 '21
- Electric furnaces for silver, gold and metals of low melting point. J. Herlenius. il Chem & Met Eng 25:454-7 S 7 '21
- Electric silver melting. H. A. DeFries. diag Am Electrochem Soc Trans v 40 (preprint 15):199-206 S '21; Same. Brass W 17:291-3 O '21
- Gold and silver; 1918, 1919. Eng & Min J 109:109 Ja 17 '20
- Gold and silver production and movement in 1919. Comm & Fin Chr 110:2019-23 My 15 '20
- Gold and silver production and movement in 1920. Comm & Fin Chr 113:225-9 Jl 16 '21
- International association of silver-producers. B. Stevens. Min & Sci P 122:253-4 F 19 '21
- Melting fine and sterling silver by electricity. H. A. DeFries. diag Chem & Met Eng 25:507-8 S 14 '21
- Outlook for domestic silver. Min & Sci P 122:867-8 Je 25 '21
- Outlook for silver. Eng & Min J 110:240-1 Jl 31 '20
- Position of silver. Min & Sci P 122:37 Ja 8 '21
- Price of silver. Min & Sci P 122:279 F 26 '21
- Production of gold and silver in the United States during the calendar year 1920. Min & Sci P 122:132 Ja 22 '21
- Rehabilitation of silver. C: S. Thomas. Eng & Min J 109:917-18 Ap 17 '20
- Review of the silver market for 1920. P. D. Handy. Brass W 17:53-4 F '21
- Review of the silver situation for 1919—outlook for 1920. P. D. Handy. Metal Ind 18:23-5 Ja '20
- Silver as money. H. W. Miller. Min & Sci P 122:39-41 Ja 8 '21
- Silver in 1919. S. R. Wagel. Eng & Min J 109:109-10 Ja 17 '20
- Silver in pre-historic times. Min & Sci P 122:446 Ap 2 '21
- Silver; its intimate association with the daily life of man. B: White. 144p Pitman '20
- Silver problem. R. Leon. Eng & Min J 109:260-2 Ja 24 '20
- Silver production, 1920. P. D. Handy. Eng & Min J 111:142-3 Ja 22 '21
- Status of silver. Min & Sci P 123:280-1 Ag 27 '21
- U.S. gold and silver exports and imports in 1919. Comm & Fin Chr 110:309 Ja 24 '20
- Volatilization in assaying. F: P. Dewey. Min & Met 158:(sec 31) 1-16 F '20
- Ways of the London silver market. R. P. Skinner. Min & Sci P 122:719-20 My 21 '21
- See also* Jewelry; Money; Silver metallurgy; Silver mines and mining; Silver ores; Silver plating; Silverware

Analysis

- Determination of iodic acid and silver by electrometric titration. W. S. Hendrixson. Am Chem Soc J 43:858-66 Ap '21

Pittman act

- Defect in the Pittman act. Eng & Min J 111:746 Ap 30 '21
- Duration of the Pittman act. Eng & Min J 111:45-6 Ja 8 '21
- Pittman act. C: A. Porter. Min & Sci P 122:594 Ap 30 '21
- Pittman act makes silver exports light. Eng & Min J 112:278 Ag 13 '21
- Position of silver under the Pittman act. C. F. Kelley. Min & Met 179:5-10 N '21
- Silver and the Pittman act. Min & Sci P 122:443-4 Ap 2 '21

- Silver and the Pittman act. K. Pittman. Min & Sci P 123:290-2 Ag 27 '21
- Year of Pittman act silver repurchases. Eng & Min J 111:930 My 28 '21

Silver bromate

- Notes on silver bromate. J. H. Reedy. diags Am Chem Soc J 43:1440-5 Jl '21

Silver compounds

- L'action du thiodiglycol sur les sels d'argent. C: Moureu and M. Murat. Chimie & Ind 4:593-6 N '20

Silver halides

- Crystal structure of the silver halides. R. B. Wilsey. Philos Mag 6th ser 42:262-3 Ag '21
- Size frequency distribution of particles of silver halide in photographic emulsions and its relation to sensitometric characteristics. E. P. Wightman and S. E. Sheppard. J Phys Chem 25:181-95 Mr '21

Silver iodide

- Thermodynamic investigation of reactions involving silver sulfide and silver iodide. A. A. Noyes and E. S. Freed. Am Chem Soc J 42:476-87 Mr '20

Silver metallurgy

- Application of the Cottrell process to the recovery of fume from silver refining operations. W. G. Smith and A. A. Heimrod. il diags plan Chem & Met Eng 21:360-3 S 15 '19; Same. Sci Am S 88:351+ D 13 '19
- Arizona silver mines mill. F. Borzynski. flow sheet diag Min & Sci P 122:717-18 My 21 '21
- Bunker Hill smelter. T. A. Rickard. Min & Sci P 122:42, 58 Ja 8 '21
- Cyanide plant without frills at Calico, Cal. L. A. Palmer. il Eng & Min J 109:1260-2 Je 5 '20
- Lead salts in the cyanidation of silver ores. R. W. Perry. Min & Sci P 122:221-5 F 12 '21
- Metallurgy of gold and silver. P. A. Robbins. and H: Hanson. Eng & Min J 109:194-7 Ja 17 '20
- Metallurgy of gold and silver in 1920. P. A. Robbins and H: Hanson. Eng & Min J 111:198-9 Ja 22 '21
- Modern electrical precipitation plant for silver-refinery fumes. il Min & Sci P 120:589-90 Ap 17 '20
- Recovery of silver from manganese-silver ores. J. A. Carpenter. il Eng & Min J 110:898-902 N 6 '20
- Refining and precipitation in the Tonopah district of Nevada. F. C. Ninnis and W. W. Anderson. Min & Met 172:25-6 Ap '21

See also Cyanide process

Silver mines and mining

- Trouble shooting in gold and silver mining. B. B. Beckett. diags J Elec 46:289-91 Mr 15 '21

Arizona

- Dardanelles mine at Chloride, opened rapidly. il map Eng & Min J 111:999-1000 Je 11 '21
- Tombstone, Ariz., takes a new lease on life. H. E. Scott. il Eng & Min J 112:347-8 Ag 27 '21

British Columbia

- Dolly Varden. Min & Sci P 120:627-8 My 1 '20
- Dolly Varden mine. R. Dunn. il map Eng & Min J 109:643-7 Mr 13 '20
- Story of the Dolly Varden mine. A. J. T. Taylor. il maps Min & Sci P 120:631-9 My 1 '20

California

- Kelly silver mine, at Randsburg, California. J. A. Carpenter. il Eng & Min J 108:940-3 D 27 '19
- Sagebrush silver producer. J. A. Carpenter. il Eng & Min J 112:132-5 Jl 23 '21

China

- Chinese silver mines of six hundred years ago discovered. S. S. Beath. Eng & Min J 110:873 O 30 '20

Honduras

- Rosario mines, in Honduras. il Eng & Min J 110:1163-4 D 18 '20

Silver mines and mining—*Continued*

Idaho

- Occurrence of naumannite in Idaho. E. V. Shannon. *Am J Sci* 50:390-1 N '20
 Reopening of old De Lamar mine under way. R. N. Bell. *il Eng & Min J* 110:538 S 11 '20

Massachusetts

- Prospecting for silver under way near Boston. R. C. Benedict. *Eng & Min J* 109:1182-3 My 22 '20

Mexico

- Geology of the El Tigre district. R. T. Mishler. *il diags map plan Min & Sci P* 121:583-91 O 23 '20
 Prospects for silver mining in Mexico. *Eng & Min J* 110:228-9 Jl 31 '20
 Quarry mining methods at Fresnillo, Mexico. D. B. McAllister. *il diags Eng & Min J* 111:789-91 My 7 '21

Nevada

- Cortez mine to be re-opened. *il Min & Sci P* 120:803-4 My 29 '20
 Divide silver district, Nevada. A. Knopf. *map U S Geol S Bul* 715—K:147-70 '21
 Divide silver-gold district of Nevada. G. J. Young. *il Eng & Min J* 109:62-6 Ja 10 '20
 Operating conditions at Tonopah extension mine. J. L. Dynan. *diags Min & Met* 170:26-8 F '21
 Operations of the Nevada Wonder mining company during four years of war. E. E. Carpenter. *Min & Sci P* 120:537-8 Ap 10 '20
 Silver Horn district, near Pioche, Nevada. T. H. M. Crampton. *il map Min & Sci P* 122:883-4 Je 25 '21

Ontario

- Gold and silver production of Ontario. *Min & Sci P* 121:664 N 6 '20

United States

- Gold and silver in 1918. J. P. Dunlop. *U S Geol S Min Res of U S* 1918, pt 1:727-81 '20

Silver ores

- Interesting silver deposit in Creede, Colorado. H. F. Lunt. *Min & Sci P* 122:669-70 My 14 '21
 Veins of Cobalt, Ontario. W. L. Whitehead. *il diags map Econ Geol* 15:103-35 Mr '20

Silver pentabromophenolates

- Chromo-isomeric silver salts of pentabromophenol and a theory of chromo-isomerism of solid compounds. H. J. Lucas and A. R. Kemp. *Am Chem Soc J* 43:1654-65 Jl '21

Silver perchlorate

- Distribution of a strong electrolyte between benzene and water. A. E. Hill. *Am Chem Soc J* 43:254-68 F '21

Silver plating

- Deposition of silver and cadmium. C. H. Proctor. *Metal Ind* 18:13-14 Ja '20
 Early history of electro-silver plating. R. E. Leader. *Metal Ind* 18:26-30 Ja '20
 New electric silverplating method saves half time. *Pop Mech* 36:647 N '21
 Proper method of operating a bright silver solution. *Metal Ind* 18:468 O '20

- Silver plating; a tabulation showing the time required to deposit a given thickness of silver with different values of current density. W. G. Knox. *Metal Ind* 19:25-7 Ja '21

See also Electroplating; Plating

Silver prints. *See* EngravingsSilver selenide. *See* Naumannite

Silver sulfide

- Equilibrium conditions of the reaction between silver sulfide and hydrogen. F. G. Keyes and W. A. Felsing. *diag Am Chem Soc J* 42:246-51 F '20
 Thermodynamic investigation of reactions involving silver sulfide and silver iodide. A. A. Noyes and E. S. Freed. *Am Chem Soc J* 42:476-87 Mr '20

Silvering

- Some plating and chemical problems; silvering mirrors. C. H. Proctor. *Metal Ind* 18:166 Ap '20

Silverware

- Jewelry and silverware in Chile, Bolivia, and Peru. S. W. Rosenthal. *il U S Bur For & Dom Com* 187:1-115 '19
 Jewelry and silverware in Cuba. S. W. Rosenthal. *pls U S Bur For & Dom Com* 181:1-78 '19

Advertising

- Advertises silverware for use, rather than for gift purposes. A. E. Haase. *Ptr Ink* 113:66+ O 21 '20

Silviculture. *See* Forests and forestry

Similitude, Tolman's theory of

- Entropy of gases. R. C. Tolman. *Am Chem Soc J* 42:1185-93 Je '20
 Principle of similitude and the entropy of polyatomic gases. R. C. Tolman. *Am Chem Soc J* 43:866-75 Ap '21

Simplification in industry. *See* StandardizationSimplified spelling. *See* Spelling reform

Sims, William Sowden

- Rear-Admiral William S. Sims; charges against the Navy department. *Sci Am* 122:106 Ja 31 '20
 Rear Admiral Sims publicly reprimanded. *Comm & Fin Chr* 112:2599; 113:37-8 Je 18, Jl 2 '21
 Senate naval committee reports on the Sims-Daniels controversy. *Comm & Fin Chr* 113:366-8 Jl 23 '21

Sinapin

- Synthesis of sinapin; abstract. E. Späth. *Chem Soc J* 120 pt 1:28-30 Ja '21

Sincerity

- You cannot fake sincerity. E. P. Corbett. *Ptr Ink* 111:97-8+ Ap 15 '20

Sine bar

- Adjustable sine bar. G. L. Garvin. *diag Mach* 26:561 F '20
 Making an accurate sine bar. H. F. Pusep. *diags Am Mach* 51:1073-4 D 25 '19
 Universal sine bar. W. Blakesley. *diags Mach* 26:359 D '19

Sing Sing prison

- Clinic building at the new Sing Sing prison. W. B. James. *diags plans Am Arch* 117:107-10 Ja 28 '20
 General view, Sing Sing prison and buildings; views and plans. *Am Arch* 117:34, pl 8-15 Ja 14 '20
 Heating system for the new Sing Sing prison. G. B. Nichols. *diags plans Heat & Ven* 17:27-32 N '20
 Psychiatric classification in Sing Sing prison. L. F. Pilcher. *il diags plans Am Arch* 117:97-106 Ja 28 '20

Singer sewing machine company

- Singer sewing machine co. starts newspaper advertising. *Ptr Ink* 117:17-18 O 27 '21

Single tax

Bibliography

- Social movements. S. Zimand. p. 117-20 H. W. Wilson co. '21

Sink holes. *See* Irrigation canals

Sinks

- Five years' service of a sink drain without a sewer. *diag Metal Work* 93:331-2 Mr 12 '20
 Overhauling the plumbing in an old colonial mansion; selecting the general and fish sinks. R. J. Gordon. *diags plans Dom Eng* 90:128-30+ Ja 17 '20
 Sinks for domestic purposes in Great Britain. J. Y. Dunlop. *il diags Dom Eng* 93:404-6 N 27 '20

Sintering

- Greenawalt sintering process. W. E. Greenawalt. *diags Min & Sci P* 122:81-5 Ja 15 '21
 Krom sintering system. *Iron Age* 108:794 S 29 '21; *Min & Sci P* 123:524 O 8 '21
 Mesabi sinter; details of the great concentrating plant at Babbitt, Minn. *Iron Age* 107:1309 My 19 '21

Sintering—Continued

Modern sintering plant of the Cambria steel co. H. V. Schiefer. *il* diags plan Blast F & Steel Pl 9:633-8 N '21; Same. Iron Age 108:1141-6 N 3 '21; Same. Iron Tr R 69:1139-44 N 3 '21

Sintering and desulphurizing of iron ore materials. 24p 4 pl *il* diags '19 American ore reclamation company, 71 Broadway, New York city

Sintering project; plans for Eastern Mesabi. Iron Tr R 67:595 Ag 26 '20

Siphons

Automatic control for siphon. A. Quadt. *diag* Power 51:309 F 24 '20

Design and construction of Notus canal inverted siphon. *il* diags plans Eng N 84:860-1 Ap 29 '20

Design and principles of sewage siphons. W. Gavett. *diags* Eng N 85:1041-2 N 25 '20

Inverted siphon terminates in riser on bridge pier; Anderson cottonwood irrigation district in California. *il* diags Eng N 86:562-3 Mr 31 '21; Discussion. E. H. Tashjian. 86:780 My 5 '21

Inverted siphons for sewers; final report of committee. *diags* Boston Soc C E J 8:231-82; Bibliography, 283-5 S '21; Abstract. Pub Works 51:340-1, 357-8 O 29-N 5 '21

Narrows siphon from Brooklyn to Staten Island. J. P. Hogan. *il* diags Am Water Works Assn J 7:394-400 My '20

Operation of a true siphon on a main supply pipe. W. R. Braun and C. W. Sherman. Eng & Contr 55:41-2 Ja 12 '21; Same. N E Water Works Assn J 35:36-9 Mr '21; Same cond. Eng N 85:541-2 S 16 '20; Same cond. Pub Works 50:475-6 Je 4 '21; Discussion. N E Water Works Assn J 35:39-40 Mr '21

Reconstruction of the King Hill siphon and flumes. *il* diags Eng N 84:661-3 Ap 1 '20

Sewage siphon designed in spite of meager reference data. G. H. Bayles. *diags* plan Eng N 84:974-5 My 13 '20

Siphon and its relation to heating work. T. W. Reynolds. *diags* Heat & Ven 16:29-35 D '19

True sewage siphon with water-jet ejectors on air chamber. G. E. Hill. *diags* plans Eng N 85:862 O 28 '20

Sircom petticoat company

Beating the buying slump by bold merchandising. Ptr Ink 114:25-6 Mr 3 '21

Sirens

Harmonics in the siren. Am J Sci 2:55-6 Jl '21

Rival of the steam whistle. Sci Am 123:550 N 27 '20

Sirups

Process for producing palatable sirup from sugar beets. S. F. Sherwood. J Ind & Eng Chem 13:799-801 S '21

Relative importance of some coloring matters in cane juices and sirups. F. W. Zerban. J Ind & Eng Chem 12:744-51 Ag '20

Sugar sirup from home-grown sugar beets. J. M. Ort and J. R. Withrow. J Ind & Eng Chem 12:154-6 F '20; Abstract. Sci Am M 1:285-6 Mr '20

See also Apple sirup; Sweet potato sirup

Sisal hemp

Binder twine from Florida; cultivation of sisal and henequen fibers as a source of supply. S. R. Winters. *il* Sci Am 123:379 O 9 '20

See also Twine

Sisson, Francis H.

Portrait. Marine Eng 26:653 S '21

Size of animals. See Animals, Size of**Sizing (textiles)**

Antiseptics employed in sizing materials. G. Smith. Color Tr J 8:89-90 Mr '21

Size mixing and slashing. Textile World 56:3357+ D 13 '19

Sizing huck towels. Textile World 57:3650 My 15 '20

See also Cotton sizing

Sizing of paper. See Paper sizing**Skagit river**

Seattle building large municipal hydroelectric development. C. F. Uhden. *diag* map plan Eng N 85:994-6 N 18 '20; Same. J Elec 45:567-8 D 15 '20

Skating rinks

Design and operation of ice-skating rinks. D. H. Scott. *diag* A S R E J 6:221-31; Discussion. 231-6 Ja '20

Skees. See Skis and ski running**Sketching. See Drafting room practice****Skids**

Three skid plans that save. *il* Factory 24:1164-5 Ap 15 '20

Skimming boat. See Motor boats**Skin**

Obstinate fruit stains on the skin. Sci Am 125:31 Jl 9 '21

Temperature of the human skin. F. G. Benedict, W. R. Miles and S. Johnson. Sci Am S 88:311 N 22 '19

Diseases

How to treat skin affections of employees. W. C. Allen. Ind Management 61:180-1 Mr 1 '21

Oil folliculitis. C. G. Page and L. D. Bushnell. J Ind Hygiene 3:62-74; Bibliography. 74-5 Je '21

Skin effect

Skin effect in large stranded conductors at low frequencies. W. I. Middleton and E. W. Davis. *diags* Am Inst E E J 40:757-63 S '21

See also Electric conductors; Electric resistance; Electromotive force

Skin friction

Turbulent fluid motion and skin friction. T. H. Havelock. Engineering 109:737-8 My 28 '20

Skinner, Charles Edward, 1865-

Sketch. por Elec W 78:252 Ag 6 '21

Skip stop. See Street railroads—Stops**Skis and ski running**

Advertising increases sale of skis. D. Kirkland. Ptr Ink 110:105-6 Mr 18 '20

Airplane-type ski glider. F. D. Burke. *diags* Pop Mech 33:307-10 F '20

See also Water skis

Skoda works

Turning the Skoda works from swords to plow-shares. A. J. Herschmann and C. Scheid. *il* Sci Am 123:246-7 S 11 '20

Sky

Apparent form of the sky. C. Flammarion. *il* diags Sci Am M 1:113-15 F '20

Apparent form of the sky-vault. M. Luckiesh. J Fr Inst 191:259-63 F '21

Blue sky and the optical properties of the air. L. Rayleigh. J Fr Inst 190:755-6 N '20

Skylights

Features of a new counterbalanced skylight. *il* Sheet Metal Worker 12:114-15 Mr 18 '21

Simplified layout for Puttyless skylight. *diags* Metal Work 94:267-70 Ag 27 '20

Weather-proof skylight ventilator. *il* Sci Am 124:493 Je 18 '21

Skyscraper. See High buildings**Slabs, Concrete. See Concrete slabs****Slabs, Gunitite. See Gunitite slabs****Slack adjusters. See Brake rigging****Slag**

Action of titanium in blast-furnace slags; abstract. Chem & Met Eng 25:801-2 O 26 '21

Basic open hearth process. F. L. Toy. Blast F & Steel Pl 9:157-61 F '21; Same cond. Iron Age 106:1193-5 N 4 '20; Same cond. Iron Tr R 67:1275-7 N 4 '20

Basic slag. Engineer 129:373-4 Ap 9 '20

Blast-furnace and cupola slags. J. E. Fletcher. *diags* Iron & Steel Inst J 103:105-24 no 1 '21; Same. Engineering 111:760-2 Je 17 '21; Discussion. Iron & Steel Inst J 103:125-30 no 1 '21

Slag—Continued

- Blast-furnace slag in concrete and reinforced concrete. J. E. Stead. *Iron Age* 104:1251-2 D 18 '19
- Blast furnace slag; what it is, and how it may be used as a building material. R. Gruen. *Sci Am* 125:273+ O 15 '21
- Blast roasting at Port Pirie. G. Rigg. *Chem & Met Eng* 22:518-20 Mr 17 '20
- Building Garfield slag dump. N. L. Stewart. *il Eng & Min J* 109:1109 My 15 '20
- Characteristics of foundry cokes and slags. Y. A. Dyer. *Iron Age* 108:407-9 Ag 18 '21
- Charts for computing blast-furnace performances. H. L. Fickett. *charts Eng & Min J* 110:108-9 Jl 17 '20
- Color classification of blast furnace slags. W. G. Imhoff. *Blast F & Steel Pl* 9:433-4 Jl '21
- Copper and magnetite in copper smelter slags. C. G. Maier and G. D. Van Arsdale. *il Chem & Met Eng* 22:1101-7, 1157-62 Je 16-23 '20; Discussion. R. C. Canby. 23:48 Jl 14 '20
- Copper losses in slags. F. E. Lathe. *Eng & Min J* 110:1076-80 D 4 '20; Discussion. 111:48, 257 Ja 8, F 5 '21
- Disposal of the Granby slag at Grand Forks, B. C. C. M. Campbell. *il Eng & Min J* 111:665 Ap 16 '21
- Effect of fluorspar additions on the phosphates in basic slag. F. Bainbridge. *il diags Iron & Steel Inst C S M* 10:1-40 '20
- Einfluss der basizität der Thomasschlacke auf die betriebsergebnisse des konverters. L. Blum. *Stahl & Eisen* 41:69-74 Ja 20 '21
- Eiseneinlagen in hochhofenschlackenhaltigen zementen. R. Grün. *Stahl & Eisen* 41:577-9 Ap 28 '21
- How slags affect cupola operations. J. W. Bolton. *Foundry* 49:675-82 S 1 '21
- Influence of enclosed slag on the corrosion of wrought iron. L. T. Richardson. *il Am Electrochem Soc Trans v* 37 (preprint 9):99-104 Ap '20; Excerpts. *Chem & Met Eng* 22:845-6 My 5 '20; Excerpt. *Iron Age* 105:1165-6 Ap 22 '20
- Iron Portland cement. E. H. Lewis. *Engineering* 109:626-7 My 7 '20
- Le laitier de haut fourneau employé comme matériau. P. Decamps. *Génie Civil* 78:303 Ap 2 '21
- Lead smelting practice at Port Pirie, South Australia. G. Rigg. *il Min & Sci P* 121:90-6 Jl 17 '20
- Methods of preparing blast furnace slag. *il Iron Age* 108:461-3 Ag 25 '21
- Recovery of sulfur from blast-furnace slag; details of the Diehl process. P. J. Mallmann. *diag Sci Am M* 4:292-5 O '21
- Reduction of manganiferous silicate slags. E. F. Kern. *Am Electrochem Soc Trans v* 37 (preprint 15):221-32 Ap '20
- Reduction of silicon from the slag in the acid open-hearth process. B. Yaneske and G. A. Wood. *Engineering* 109:666-8; Discussion. 644 My 14 '20
- Sampling blast furnace slags. W. M. Chagwidden. *Iron Tr R* 67:1750-1 D 23 '20
- Schwefelgewinnung aus hochhofenschlacke. L. H. Diehl. *diags Stahl & Eisen* 41:845-52 Je 23 '21
- Selecting a slag and apportioning slag losses. C. A. Grabill. *Eng & Min J* 110:569-72 S 18 '20
- Slag aggregate makes satisfactory concrete. *Eng N* 85:689 O 7 '20
- Slag as a road material in India. *Blast F & Steel Pl* 9:337, 407 My-Je '21
- Slag cement manufacture in electric furnaces. *Engineering* 112:103-4 Jl 15 '21; Same cond. *Sci Am M* 4:282 S '21
- Slag conditions in open-hearth basic steel-making practice. J. F. Wilson. *diags Engineering* 109:661-3; Discussion. 644 My 14 '20; Abstract. *Engineer* 129:522 My 21 '20; Abstract. *Chem & Met Eng* 23:76 Jl 11 '20
- Study of the composition of blast-furnace slags suitable for concrete aggregate. L. G. Carmick. *Eng & Contr* 56:82-3 Jl 27 '21
- Treating refinery slag. J. O. Enberg. *Min & Sci P* 122:670-1 My 14 '21

Ueber aufbereitung der stückschlacke für gleisbettungszwecke. H. v. Schwarze. *il diags Stahl & Eisen* 41:919-23 Jl 7 '21

See also Blast furnaces

Analysis

Dosage rapide de la somme des éléments basiques des laitiers de hauts fourneaux. A. Travers. *Chimie & Ind* 3:435-7 Ap '20

Testing

Die festigkeit von hochhofenschlacke. H. Burchartz. *Stahl & Eisen* 41:472-5 Ap 7 '21

Versuche mit hochhofenschlacke. H. Burchartz. *Stahl & Eisen* 41:193-200 F 10 '21

Slate

Slate as a permanent roofing material. *il Am Arch* 120:322-6 O 26 '21

Slate in 1919. G. F. Loughlin and A. T. Coons. *U S Geol S Min Res of U S* 1919,pt 2:369-75 '21

Slate in 1920. G. F. Loughlin and A. T. Coons. *U S Geol S Min Res of U S* 1920,pt 2:135-43 '21

Utilization of refuse slate. *Sci Am* 123:547 N 27 '20

Slaughtering and slaughter houses

Descriptions of occupations; slaughtering and meat packing. 43p '18 U.S. Bureau of labor statistics, Washington, D.C.

Wages and hours of labor in the slaughtering and meat-packing industry, 1917. *U S Bur Labor Statistics Bul* 252:1-1114 '19

Slavs

Slav temperament in architecture. L. V. Solon. *il Arch Rec* 47:371-6 Ap '20

Sleds, Motor. See Motor sleds**Sleepers (track). See Railroad ties, Concrete****Sleeping cars**

Development of Pullman traffic. *Ry Mech Eng* 94:154 Mr '20

Fire risks in sleeping cars. *Ry Age* 71:433-4 S 3 '21

How Pullman space is sold. A. R. Surface. *il Sci Am* 124:145 F 19 '21

Improvements in new Pullman sleepers. *il diags Ry Mech Eng* 94:589-92 S '20; Same. *Ry Age* 69:661-4 O 15 '20

New sleeping cars, Canadian National Rys. *il diags plan Ry R* 66:511-12 Mr 27 '20

Use of electricity in the rebuilding of Pullman cars; Richmond plant of Pullman company. F. E. Beck. *il J Elec* 46:329-30 Ap 1 '21

Sleeping porches

Porches, day and night. *il Bldg Age* 43:31-2 Je '21

Sleet

Melting sleet from high-tension lines. N. B. Higgins. *diag Elec W* 75:216 Ja 24 '20

Using calcium chloride to remove sleet from third rail. *Elec Ry J* 55:1244 Je 19 '20

Slide rule

Alclin slide rule for computing direct radiation. *Heat & Ven* 18:57-8 Ap '21

Development of time slide-rule. J. B. Conway. *chart diags Mach* 26:453-4 Ja '20

Finding decimal equivalents on the slide rule. W. H. Kellogg. *Am Mach* 53:651 S 30 '20

Pointing off when using the slide rule. B. W. Manier. *Int Marine Eng* 25:228-9 Mr '20

Slide rule; a practical manual. C. N. Pickworth. 17th ed. 132p Van Nostrand; Pitman

Slide rule; an elementary treatise. J. J. Clark. 62p McKay '21

Slide rule and logarithmic tables, including a ten-place table of logarithms. J. J. Clark. 192p F. J. Drake & co., Chicago '21

Slide rule and money calculations. J. H. Frost. *Eng & Ind Management* 5:553 My 12 '21

Slide-rule for calibrating tank gage sticks. *il diag Mach* 26:724-5 Ap '20

Slide rule for speeds, feeds and time. F. A. Parsons. *Am Mach* 55:318 Ag 25 '21

Special slide rules prove useful in valuation work. C. S. Meyer. *Eng N* 85:1174-5 D 16 '20

Slide rule—Continued

- Supplement to Frederick W. Taylor's On the art of cutting metals. C. G. Barth. Ind Management 58:369-74, 483-7; 59:49-53, 153-5, 222-6, 395-9, 483-6; 60:49-52, 218-25, 365-72 N '19-Mr, My-Jl, S, N '20
 Use of the slide rule. A. R. Cullimore. 38p Keuffel & Esser co., Chicago '20
 Vector slide-rule. A. F. Zahm. il diag J Fr Inst 191:525-8 Ap '21

Slide valves

- Machining valve packing strips. diags Ry Mech Eng 94:33-4 Ja '20

Slip arresters. See Electric locomotives—Slip arresters**Slip interference theory.** See Hardening**Slips (ceramics)**

- Effect of the method of preparation on the viscosity of a casting slip. V. S. Schory. Am Cer Soc J 3:286-95 Ap '20
 Notes on terra cotta slips with reference to the use of asbestos and chlorite mica. H. Wilson. Am Cer Soc J 3:114-33 F '20

Sloan, Matthew S.

- Sloan elected head of Edison illuminating companies. por Elec R 79:474-5 S 24 '21

Sloan, William

- Government officials who influence mining. por Eng & Min J 110:66 Jl 10 '20

Slogans

- Additional slogans registered in the clearing house. Ptr Ink 110:40 F 5 '20
 Another instalment of advertised slogans. Ptr Ink 110:128 F 26 '20
 Building a background of copy and illustration to emphasize a slogan; Afeco fence. A. H. George. Ptr Ink 115:85-6 Je 9 '21
 Can your slogan be registered? C: R. Allen. Ptr Ink 110:10+ Ja 22 '20
 Famous slogans the text of minister's sermons. Ptr Ink 110:12 Ja 15 '20
 Fifty-five selected slogans from Canada. E. A. Dench. Dom Eng 91:353 My 22 '20
 Makes slogan big enough to provide for growth. Ptr Ink 114:101-2 Ja 13 '21
 New crop of advertising ideas you can use. E. A. Dench. Am Gas Eng J 113:68+ Jl 24 '20
 Patent office stiffens practice in the registration of slogans. Ptr Ink 112:141+ Ag 12 '20
 Recent entries in the slogan clearing house. Ptr Ink 110:48 Ja 8 '20
 Secondary slogans in copy that persist. R. H. Isbell. Ptr Ink 116:134+ Ag 18 '21
 Slogans for advertising Philadelphia. Ptr Ink 112:133+ Jl 8 '20
 Superlative in advertising slogans. Ptr Ink 111:25-6 Ap 15 '20
 Use of slogans. E. A. Dench. Am Gas J 114:299-300 Ap 2 '21

Slot machines

- What half a billion pennies buy. R. L. Burdick. Ptr Ink M 2:54+ F '21

Slotting machines

- Atkins 6½in. slotting machine. il Iron Age 105:1022 Ap 8 '20; Ry Mech Eng 94:309 My '20
 Garvin no. 3 duplex slot-milling machine. C. J. Priebe. il Am Mach 53:202-3 Jl 29 '20
 Jones 20-in. slotting machine. il Mach 27:89 S '20; Iron Age 106:902 O 7 '20
 Newton portable slotting machine. il Iron Age 106:445 Ag 19 '20; Iron Tr R 67:385-6 Ag 5 '20
 Slotting machine for undercutting mica on commutators. R. H. N. Lockyer. il diags Elec W 77:1170-1 My 21 '21
 Slotting machine of milling type by the Racine tool & machine co. il Iron Tr R 67:1547 D 2 '20
 Slotting operations on production work. E: K. Hammond. il Mach 27:1117-22 Ag '21
 Valve stem slotting machine. il diag Automobile Eng 11:291 Ag '21

Sludge treatment. See Sewage disposal—Activated sludge method**Slugs**

- Queer visitor in the garden. H. M. Laing. il Sci Am 123:255+ S 11 '20

Slushing oils. See Metal coating**Smell**

- Flavors, odors and infra-red rays; measuring degrees of taste and smell with the olfactometer and the saporimeter. G. Hamelin. il Sci Am M 3:519-22 Je '21

Smelter fumes

- Application of the Cottrell process to the recovery of fume from silver refining operations. W. G. Smith and A. A. Heimrod. il diags plan Chem & Met Eng 21:360-3 S 15 '19; Same. Sci Am S 88:351+ D 13 '19
 Cottrell process in Japan. Ritaro Hirota and Kyoshi Shiga. il diag Min & Sci P 120:223-8 F 14 '20; Same abr. Eng & Min J 108:895-9 D 13 '19; Abstract. Chem & Met Eng 22:276-7 F 11 '20
 Cottrell system of dust and fume precipitation; sulphuric acid at the R. N. Cordite factory. il diags Engineering 111:94-7 Ja 28 '21
 Determination of atmospheric impurities. O. Monnett. diags map Chem & Met Eng 23:1117-21, 1173-6 D 8-15 '20; Excerpts. Sci Am M 4:85-6 Jl '21
 Final decree in the Salt Lake smoke suits. Chem & Met Eng 24:709 Ap 20 '21
 Flue type of Cottrell treater. A. B. Young. diags Min & Sci P 121:273-6 Ag 21 '20; Abstracts. Min & Met 162:31-2 Je '20; Sci Am M 1:570 Je '20
 Fumes and food. Sci Am M 1:467 My '20
 Fumes and gases from smelter; action to recover damages for injuries to growing crops and live stock. Chem & Met Eng 22:82 Ja 14 '20
 Smelter smoke in the Salt Lake Valley. Eng & Min J 109:1347 Je 19 '20
 Smoke litigation in Salt Lake Valley. E. E. Thum. il Chem & Met Eng 22:1145-50 Je 23 '20
 Swain's report on smoke in Salt Lake valley. Chem & Met Eng 24:463-5 Mr 16 '21; Excerpts. Eng & Min J 111:519-20 Mr 19 '21
 See also Flue dust

Smelter laboratories. See Metallurgical laboratories**Smelter trust.** See American smelting and refining company**Smelting**

- Census bureau's 1919 summary of smelting and refining industries. Eng & Min J 111:1090 Je 25 '21
 Complex ores in California. diag plan Min & Sci P 120:783-8 My 29 '20
 Elements of smelting-plant design. O. E. Jager. Min & Sci P 120:153-7, 195-201 Ja 31-F 7 '20
 Future of small-scale mining and smelting in Chile. W. Strache. Eng & Min J 112:97-8 Jl 16 '21
 Inverted siphon tap for matte settler. J. H. Gillis. diags Eng & Min J 112:300-1 Ag 20 '21
 Investigation on pyrolytic production of phosphoric acid. W: H. Waggaman and T: B. Turley. il Chem & Met Eng 23:1057-63 D 1 '20
 Precipitate smelting at Tonopah, Nevada. G: J. Young. il Eng & Min J 108:892-3 D 13 '19
 Primitive smelting. C. A. Grabill. il Eng & Min J 109:926-7 Ap 17 '20
 Pyritic smelting of refractory sulphides in a Knudsen furnace. E: H. Robie. il diags plan Eng & Min J 111:304-7 F 12 '21
 Queen mine-hearth roaster. J. M. Samuel. Min & Met 175:27+ Jl '21
 Smelting in Namtu, Burma. A. W. Jenks. il Eng & Min J 110:309-12 Ag 14 '20
 Smelting of cyanide precipitate. Min & Sci P 120:870 Je 12 '20
 Stack losses at Arizona copper co. J. O. Ambler. diags Chem & Met Eng 22:305-6 F 18 '20
 See also Blast furnaces; Furnaces, Metallurgical; Metallurgy; Ore treatment; Slag; Smelter fumes; Smelting works

Contracts

- A.S. & R. abrogates contracts with two Park City companies. Eng & Min J 111:919-20 My 28 '21

Smelting—Contracts—Continued

Utah mining companies resist attempt on part of A.S. & R. co. to abrogate smelter contracts. Min & Sci P 122:721-2 My 21 '21

Smelting, Electric

Economies of electric iron and steel production in Scandinavia. J. W. Richards. Chem & Met Eng 22:61-2 Ja 14 '20

Electric furnace smelting of Montana manganese ores. E. S. Bardwell. Am Electrochem Soc Trans v 38 (preprint 14):137-52 O '20; Same. Chem & Met Eng 22:681-5 Ap 14 '20; Same. Iron Age 106:973-6 O 14 '20

Electric smelting of domestic manganese ores. H. W. Gillett and C. E. Williams. U S Bur Mines Bul 173:151-86 '20

Electric smelting of iron ore. F. Hodson. Chem & Met Eng 25:881-2 N 9 '21; Same. Elec W 78:826-7 O 22 '21

Electric smelting of iron ore with coke. G. Stig. Chem & Met Eng 23:29-31 Jl 7 '20

Electric smelting of pig iron at Domnarfvet, Sweden. G. de Geer. il diag map Chem & Met Eng 24:429-33 Mr 9 '21

Possibilities of electric smelting in Far West. Elec W 75:208 Ja 24 '20

Problems in electric-furnace smelting. F. Holmgren. diags Chem & Met Eng 22:165-72 Ja 28 '20; Same. Elec W 75:196-9, 425-8 Ja 24, F 21 '20

Smelting iron ore with electricity. F. Hodson. Iron Tr R 69:101 Jl 14 '21

See also Electric furnaces; Electrometallurgy

Smelting works

Bunker Hill smelter. T. A. Rickard. il diags plan Min & Sci P 122:42-60 Ja 8 '21

Coal pulverizing plant at Nevada Consolidated copper smelter. R. E. H. Pomeroy. flow sheet il Min & Met 158:(sec 28) 1-11 F '20

Details of Anaconda's chimney. diags plan Chem & Met Eng 21:609 N 12 '19

Early methods of iron smelting. il plan Iron Tr R 66:1330-2 My 6 '20

Elements of smelting-plant design. O. E. Jager. Min & Sci P 120:153-7, 195-201 Ja 31-F 7 '20

Hidachi copper smelter of Japan. C. F. Mason. flow sheet il Eng & Min J 111:55-7 Ja 8 '21

Mining and smelting near Matehuala, Mexico. R. B. Brinsmade. il diags plans Min & Sci P 120:85-9 Ja 17 '20

Nevada consolidated copper company; the smelter. A. B. Parsons. il diags plan Min & Sci P 123:393-402 S 17 '21

Reminiscences of early years at the Great Falls smelter. C. H. Repath. flow sheet diags plans Chem & Met Eng 22:111-17 Ja 21 '20

Smelter of the Calaveras copper co. E. H. Robie. il diag Eng & Min J 111:984-7 Je 11 '21

Smelting practice in the Zimapan district, Mexico. R. B. Brinsmade. il Min & Sci P 123:433-6 S 24 '21

Some features of the Cottrell plant at the Hayden smelter. C. G. Hershey. il diags Elec J 18:304-5 Jl '21

Steel chimneys and their linings in copper smelting plants. A. G. McGregor. Min & Met 167:34 N '20; Sci Am M 2:283-4 N '20; Chem & Met Eng 24:329-30 F 23 '21; Eng & Min J 111:343 F 19 '21

United Verde smelter. L. A. Parsons. flow sheet il diag map Min & Sci P 121:547-57 O 16 '20

See also Metallurgical plants; Smelter fumes

Equipment

Car-loading grating. W. S. Evans. diags plan Min & Sci P 120:534-5 Ap 10 '20

Safety devices and measures

Accident prevention akin to good sportsmanship. J. F. Belford. Eng & Min J 108:900-2 D 13 '19

Smith, E. A. Cappelen

Medal for Chuquicamata metallurgy presented to E. A. Cappelen Smith. por Min & Met 168:25-6 D '20; Eng & Min J 110:1006 N 20 '20

Metallurgists of note. por Eng & Min J 110:1216 D 25 '20

Smith, Edgar Fahs

American chemical society's president for 1921. F. P. Venable. por J Ind & Eng Chem 13:106-7 F '21

New president of the A.C.S. por Chem & Met Eng 24:183 Ja 26 '21

Smith, Frank Whitney, 1867-

Vice-president of the N. E. L. A. por Elec W 77:580 Mr 12 '21

Smith, George Washington

Some work of George Washington Smith. W. W. Kent. il plans Arch Forum 35:45-50 Ag '21

Smith, Milton H., 1836-1921

Sketch. por Ry Age 70:515-16 Mr 4 '21

Smoke

Fog and smoke. W. D. Bancroft. Sci Am M 2:74-8 Jl '20

Legal aspects of smoke nuisances. A. L. H. Street. Power 50:690-1 N 11 '19

Some features of smoke regulation in Pittsburgh. H. B. Meller. Munic Eng 59:125-8 O '20

See also Combustion; Flues; Fuel; Mechanical draft; Smoke prevention; Soot

Smoke prevention

Atmospheric sanitation. C. S. Dale. Eng & Contr 53:513 My 5 '20

Combustion, fuels and furnaces, in relation to safety. E. P. Roberts. Blast F & Steel Pl 8:578+ O '20; Same abr. Gas Age 46:6 Jl 10 '20; Same abr. Am Gas Eng J 113:14 Jl 3 '20

Eliminating waste and nuisance in smoke, fume and gas. P. E. Landolt. bibliog il Chem & Met Eng 25:428-32 Ag 31 '21

Fuel utilization and smoke abatement in Salt Lake City. O. Monnett. il Power 52:204-7 Ag 10 '20

How a smoke cloud forms. O. Monnett. diags Power 52:290-1 Ag 24 '20

Program for smoke prevention and fuel conservation. E. V. Hill. plan Heat & Ven 18:33-5 S; 30-1 O '21

Smoke abatement. O. Monnett. Power 53:8-9 Ja 4 '21

Smoke abatement study and plans at Salt Lake City. Eng N 86:74-5 Ja 13 '21

Smoke prevention in stationary plants. N. B. Wales. Power Pl Eng 24:1052 N 1 '20

Smoke problem at Salt Lake City. G. St J. Perrott. Power Pl Eng 24:784-5 Ag 15 '20

Some features of smoke regulation in Pittsburgh. H. B. Meller. Munic Eng 59:125-8 O '20

Sulphur dioxide as a factor in the smoke problem of Salt Lake City. Heat & Ven 17:51 S '20

Utah coals and the fuel supply of Salt Lake City. O. Monnett. il Power 52:247-9 Ag 17 '20

See also Chimneys; Combustion; Electric precipitation; Firing; Mechanical draft; Smelter fumes; Stokers, Mechanical

Smoke prevention association

14th annual convention, Chicago, Oct. 5-8. Power 52:637-8 O 19 '20; Power Pl Eng 24:1052-3 N 1 '20

Smoke screens

Combustion smokes. G. A. Richter. J Ind & Eng Chem 13:343-5 Ap '21

Smokehouses

Curing meat with manufactured gas. J. P. Walsh. il Gas Age 48:203-4 Ag 20 '21

Diminishing supply of hard woods makes better market for gas in curing meats and fish. W. T. Hudson. Am Gas Eng J 113:324-6+ O 23 '20; Excerpts. Gas Age 46:446-7 N 25 '20

Use of gas in the meat-packing industries of Baltimore. il Am Gas Eng J 113:307-8 O 16 '20

Smokehouses, Portable**Advertising**

Natural advertising is the way to sell the farmer. C. M. Harrison. *Ptr Ink* 114:149-50+ Mr 17 '21

Smokeless powder

Coal handling equipment of the Old Hickory powder plant. H: J. Edsall. *il Ind Management* 59:36-41 Ja '20

Nitrocellulose from wood pulp. R. G. Woodbridge, jr. *J Ind & Eng Chem* 12:380-4 Ap '20

Smokestacks. See Chimneys

Smuggling

Outwitting the French customs. G: F. Paul. *il Sci Am* 124:225 Mr 19 '21

Snag boats. See Rivers—Snag removal

Snake river

Distribution of Snake river water during greatest drought. *il map Eng N* 85:927-31 N 11 '20

Snakes

Are harmless snakes really harmless? C. Phisalix and M. Phisalix. *Sci Am M* 3:14-15 Ja '21

Snow

Automobile for operating over snow. *il Automotive Ind* 44:704 Mr 31 '21

Farmer-scientist photographs snowflakes. *il Pop Mech* 36:543-4 O '21

Motor transport on snow. *il diags Engineering* 111:202-3, 230, 234-5 F 18-25 '21

Nitrogen and other compounds in rain and snow. J. E. Trieschmann. *Sci Am S* 88:328 N 29 '19

Photographing snowflakes. *il Sci Am* 124:253 Mr 26 '21

Snow as a fertilizer; the influence of snow upon the development of spring vegetation. M. P. Jacques. *diag Sci Am M* 3:315 Ap '21

See also Thawing

Snow fences

Snow removal from country roads. J. L. Harrison. *diags Pub Works* 50:61-2 Ja 15 '21

Snow melters

Machine for disposing of snow by melting it. *il Automotive Ind* 43:879 O 28 '20

Mechanical apparatus used in snow removal work. *Eng & Contr* 55:16-17 Ja 5 '21

Snow-melting machine used in Finland. *Ry R* 66:838 My 22 '20; Same. *Sci Am* 122:707 Je 26 '20

Snow melters, Electric

Electric snow melters stand the test of severe storms. *il diags Elec Ry J* 55:650-1 Mr 27 '20

Snow plows

Car equipped to operate power plow. *il Elec Ry J* 58:208-9 Ag 6 '21

Heavy-duty interurban snow plow. M. S. Ferguson. *il Elec Ry J* 55:338-9 F 14 '20

New York's snow-fighting tractor plows. A. Longville. *il Sci Am* 124:85 Ja 29 '21

Push plow in snow removal work. *il Eng & Contr* 56:336 O 5 '21

Rotary snowplows clear streets in Canadian cities. *il Eng N* 84:221-2 Ja 29 '20; Same. *Sci Am M* 1:252-3 Mr '20; Abstract. *Pub Works* 48:348 Ap 24 '20

Severe winter operating conditions. J: S. Dean. *il Elec J* 17:438-43 O '20; Same. *Elec Ry J* 56:710-15 O 9 '20

Snow fighting equipment. W. H. Winterrowd. *il diags Ry R* 66:973-8 Je 12 '20

Summer use for snow plows. *il Pub Works* 51:280 O 8 '21

Tractor snowplow clears winter highways. *il Pop Mech* 34:659 N '20

Snow protection. See Snow fences; Snow removal

Snow removal

Baby tractor-flusher blows snow and slush from New York streets. *il Pop Mech* 35:679 My '21

Barber-Greene snow loader has successful trial on Chicago streets. *il Munic Eng* 60:sup30+ Ja '21; *Eng N* 86:176 Ja 27 '21; *Eng*

& Contr 55:215-16 Mr 2 '21; *Pop Mech* 35:340 Mr '21; *Pub Works* 50:165-6 F 19 '21; *Eng & Ind Management* 5:588 My 19 '21

Battling with snow and ice in the streets of New York. R. Howard. *il Sci Am* 122:219+ F 28 '20

Blasting snow from road over Mount Rainier. *il Pop Mech* 36:369 S '21

Fighting New York's snow storms. *il Sci Am* 124:211 Mr 12 '21

Grading to help nature clear the roads of snow. B. B. Hauser. *il Pub Roads* 4:23 Ag '21

Handling the highway snow problem. J. L. Harrison. *Eng & Contr* 55:13-14 Ja 5 '21

How New York city will use mechanical apparatus for snow removal. *Eng & Contr* 55:24 Ja 5 '21

How traction companies remove snow. *Eng & Contr* 55:64-5 Ja 19 '21

It pays to keep the highways free from snow. W: E. Voorhees. *il Munic Eng* 61:12+ S '21

Mechanical apparatus used in snow removal work. *Eng & Contr* 55:16-17 Ja 5 '21

Mechanical equipment speeds snow removal. *il Eng N* 86:415-17 Mr 10 '21

Mechanical snow and ice removal. *il Pub Works* 48:396-7 My 8 '20

Mechanical snow removal. *il Pub Works* 50:233-4 Mr 19 '21

New conception of the snow removal problem needed. *Eng N* 84:355-6 F 19 '20

New method of snow removal; with cost tables. *il Can Eng* 38:437-8 My 6 '20

Open roads all winter; definite snow removal program in northern and eastern states. M. R. Reynolds. *il Sci Am* 124:104+ F 5 '21

Opening Snoqualmie Pass with steam shovel. L. W: Pedrose. *il Pop Mech* 36:2-3 J1 '21

Possibilities in the use of steam for melting snow. W: J. Baldwin. *diags Heat & Ven* 17:38-41 Ap '20

Removing snow from city streets. *Pub Works* 50:37-40 Ja 8 '21

Removing snow from the highways. *il Good Roads n s* 20:153-6+ S 29 '20

Removing snow in Boston. *il Elec Ry J* 55:900-1 My 1 '20

Snow costs money. *Elec Ry J* 56:1188 D 11 '20

Snow removal and drift prevention on highways. G: H. Bil. *il Eng N* 86:230-2 F 3 '21

Snow removal by machinery. *il Sci Am* 122:430 Ap 17 '20

Snow removal by steam shovel in Snoqualmie Pass, Washington. T: R. Beeman. *il Eng & Contr* 56:3-4 J1 6 '21

Snow removal from city streets a problem for engineers; A.S.M.E. discussion. *diags plan Mech Eng* 43:756-8 N '21

Snow removal from country roads. J. L. Harrison. *diags Pub Works* 50:60-3 Ja 15 '21

Snow removal in American cities. *Eng & Contr* 55:11 Ja 5 '21

Snow removal in Pennsylvania. *il Pub Works* 51:317-18 O 22 '21

Snow removal method for cities of about 200,000 population. L. F. Peck. *Eng & Contr* 53:136-7 F 4 '20

Snow removal system of Akron, O. *Eng & Contr* 55:109 F 2 '21

Snow-removal tank with possibilities. *il Elec Ry J* 55:650 Mr 27 '20

Snow removal tests. *il Pub Works* 49:427-9 N 6 '20

Solving snow problem on highways. A. H. Hinkle. *diags Eng & Contr* 52:642-4 D 3 '19

Some suggestions to prevent the winter slump. *il map Motor Age* 38:8-9 O 14 '20

Speeding up snow removal. *il Sci Am* 124:153 F 19 '21

State highway snow removal in Connecticut. *il Pub Works* 51:105 Ag 6 '21

Steam shovel in snow removal work. *il Eng & Contr* 53:254 Mr 3 '20

Street cleaning, refuse disposal and snow removal in Buffalo, N.Y. G: H. Norton. *Munic Eng* 58:21-2 Ja '20

Street snow removal problems. L. Davidson. *Eng N* 84:391 F 19 '20

Suggestion for snow disposal. C. J. Menasco. *Sci Am* 124:267 Ap 2 '21

Snow removal—Continued

Trucks clear snow in New York storm. *Automotive Ind* 44:481 F 24 '21

See also Electric railroads—Snow protection and removal; Railroads—Snow protection and removal; Snow melters; Snow plows; Snow rollers; Street railroads—Snow protection and removal

Cost

Cost of loading snow by steam shovel. J. T. Child. *Eng & Contr* 53:412 Ap 7 '20

Cost of snow removal with rotary plow. J. A. Duchastel. *Eng & Contr* 53:530 My 5 '20

Snow rollers

Efficient snow roller. D. D. Fraser. *diags plan Eng & Min J* 111:227-8 Ja 29 '21

Snow surveys

Obtaining the secrets of the unborn flood. J. C. Alter. *il Pop Mech* 33:557-8 Ap '20

Snow and water relations in Nevada. *Eng N* 85:492-3 S 9 '20

Snow survey for water power from Spokane river. *map Eng N* 86:209 F 3 '21

Snow surveying for the forecasting of stream flow. J. E. Church, jr. *il Eng N* 86:244-8, 300-4 F 10-17 '21

Snow surveys in California. *Pub Works* 51:165-6 Ag 27 '21

Surveying America's snows. J. Anderson. *il diags Sci Am* 123:594+ D 11 '20

Snowsheds. *See* Railroads—Snow protection and removal

Soap

Application of super-centrifugal force to the recovery of oil from soap stock. E. E. Ayres, jr. *Chem & Met Eng* 23:1025-6 N 24 '20

Centrifugal separation in soap manufacture. *Chem Age* 29:90 Mr '21

La chimie du savonnier et du commerce de corps gras. R. Ehlsam. 378p Dunod, Paris '21

Colloidal clay soap. F. E. Weston. *Chem & Met Eng* 22:615 Mr 31 '20

Colloidal electrolytes; soap solutions and their constitution. J. W. McBain and C. S. Salmon. *diag Am Chem Soc J* 42:426-60 Mr '20

Condition of the Belgian soap industry. *Chem & Met Eng* 23:746 O 13 '20

Hydration of the fibres of soap curd. J. W. McBain and others. *Chem Soc J* 119:1369-83 S '21

Hydration of the fibres of soap curd; sorption by sodium palmitate. M. E. Laing. *Chem Soc J* 119:1669-76 O '21

Improved centrifugal separation of oil from soap stock. A. Delafontaine. *diag Chem Age* 29:64 F '21

New soap produced by cold method with coconut oil as an ingredient. *Textile World* 57:2295 Mr 27 '20

Petroleum as a source of soap. *Sci Am M* 3:459-60 My '21

Producing soap from petroleum. K. Loeffl. *Sci Am M* 4:142 Ag '21

Scented soap from Paraguay oranges. E. Albes. *il Sci Am S* 88:382-3 D 27 '19

Separation of fixed oils from soap-water emulsions. E. E. Ayres, jr. *il Chem & Met Eng* 22:1057-62 Je 9 '20

Soap and clean hands. *Sci Am M* 2:291 D '20

Soap science; recent developments in the German industry. A. H. J. Keane. *Sci Am* 125:133+ Ag 20 '21

Soaps and proteins: their colloid chemistry in theory and practice. M. H. Fischer. 272p Wiley '21

Soaps as protective colloids for colloidal gold. T. Iredale. *Chem Soc J* 119:625-34 My '21

Sodium acetate as a hardening agent in soap-making. L. M. Liddle. *Chem Age* 29:266 Jl '21

South African trade in soap. *Chem & Met Eng* 23:1010 N 24 '20

Surface tension of certain soap solutions and their emulsifying powers. M. G. White and J. W. Marden. *J Phys Chem* 24:617-29 N '20

True nature of soap solutions; new concept destined to be of great service in investigations of colloidal electrolytes. *Sci Am M* 3:538-9 Je '21

Waste of the soap industry. J. H. Chester. *Chem & Met Eng* 25:445 Ag 31 '21

Analysis

Rapid method for the determination of sodium chloride in soap. H. C. Bennett. *J Ind & Eng Chem* 13:813 S '21

Soap analyses. *Sci Am M* 3:318 Ap '21

Soap, Liquid

Campaign seeks to introduce liquid soap in the home. R. Cole. *Ptr Ink* 110:77-8+ Ja 8 '20

Soap bubbles and films

Soap bubbles of long duration. J. Dewar. *diags J Fr Inst* 188:713-49 D '19

Soapberry tree

Soap-nut tree—a last chance. *Sci Am* 125:145 Ag 27 '21

Soapstone

Talc and soapstone in 1919. J. S. Diller. *U S Geol S Min Res of U S* 1918,pt 2:557-63 '20

Talc and soapstone in 1919. J. S. Diller. *U S Geol S Min Res of U S* 1919,pt 2:265-8 '21

Talc and soapstone in 1919. R. B. Ladoo. *Eng & Min J* 109:235-7 Ja 17 '20

Uses of talc and soapstone. R. B. Ladoo. *Chem & Met Eng* 23:235-6 Ag 11 '20

Soaring. *See* Aeronautics

Social attachés

Social attachés at foreign embassies. J. Sassenbach. *Monthly Labor R* 11:429-30 S '20

Social hygiene association, American. *See* American social hygiene association

Social problems

Major social problems. R. M. Binder. 324p Prentice-Hall, inc., New York '20

Social movements. S. Zimand. 260p H. W. Wilson co. '21

Ein soziologe zu tagesfragen der wirtschaft und der politik. O. Most. *Stahl & Eisen* 41:511-15 Ap 14 '21

Study of mentality in industry. H. W. Jordan. *Am Inst E E J* 39:666-8 Jl '20

See also Child labor; Community centers; Cost of living; Eugenics; Housing problem; Insurance, Industrial; Old age pensions; Pensions, Industrial; Public health; Social surveys; Unemployment; Woman—Employment

Bibliography

Reading list of books on social and labor problems for workers' classes. F. Anderson and R. Anderson. *Library Journal* 46:741-7 S 15 '21

Social research

Social research. H. W. Jordan. *J Ind & Eng Chem* 13:949-50 O '21

Social settlements

See also Community centers

Social work**Japan**

Social welfare in Japan. *Int Labour R* 1:312-27 Mr '21

Social workers, Training of

Social science in industry. C. U. Kerr. *Eng & Ind Management* 5:459-60 Ap 21 '21

Socialism

Debate between Prof. E. R. A. Seligman affirmative ... and Prof. Scott Nearing, negative; Subject: resolved: That capitalism has more to offer to the workers of the United States than has socialism. 46p Fine arts guild, inc., New York '21

Larger socialism. B. Benedict. 243p Macmillan '21

Life and teaching of Karl Marx. M. Beer, tr. by T. C. Partington and H. J. Stenning. 132p L. Parsons, London '21

Management and the creation of wealth; an experiment in amateur socialism which points a moral to management. H. Emerson. *Ptr Ink* 116:69-70+ Ag 18 '21

See also Gild socialism; Government ownership; Industry and state; Soviets; Syndicalism; Trade unions; Utopias

Socialism —Continued**Bibliography**

Social movements. S. Zimand. p.143-83 H. W. Wilson co. '21

Socialists

Trial of socialist assemblymen who were denied seats in New York state legislature. Comm & Fin Chr 110:428-32 Ja 31 '20

Société de chimie industrielle

First meeting of the season of the New York section, Oct. 3. Chem & Met Eng 21:533-4 O 22 '19

Société des architectes diplômés, Paris

Extracts from the annual report of the Administrative council. Am Inst Arch J 8: 156-7 Ap '20

Société des ingénieurs civils

Séance du 14 janvier 1921. Génie Civil 78: 115-16 Ja 29 '21

Societies

See also Aviation clubs; Benefit societies; Commercial associations; Engineering societies; Manufacturers' associations; Professional associations; Trade associations; Trade unions; also names of societies, e.g. American chemical society

Society for electrical development

Education of the public as conducted by the Society for electrical development. J. M. Wakeman. N E L A Bul 7:683-4 O '20

Plans for expansion outlined at annual meeting. Elec R 78:827-8 My 21 '21

Rebirth of the Society for electrical development. E. A. Whitehorne. Elec W 77: 1162-4 My 21 '21

Semi-annual meeting, New York city, Nov. 9. Elec R 77:812 N 20 '20

William L. Goodwin joins the Society for electrical development. Elec W 77:557-8 Mr 5 '21

Work of the society. il Elec R 77:562-3 O 9 '20

Society for the promotion of engineering education

Corrections to yearbook. Eng Educ 11:327-39 Mr '21

29th annual meeting, New Haven, Conn. Eng N 87:35-6 Jl 7 '21

Society of automotive engineers

Address at summer meeting. D: Beecroft. Automotive Ind 44:1091-5 My 26 '21; Same. Soc Auto Eng J 9:1-4 Jl '21

Annual meeting, New York, Jan. 11-13. Soc Auto Eng 8:75-100+, 249-54 F-Mr '21; Am Mach 54:120a-b Ja 20 '21; Automotive Ind 44:101-18 Ja 20 '21; Aviation 10:110-11 Ja 24 '21

Automotive engineers consider future of industry. Automotive Ind 42:1441-2 Je 24 '20

Committee organization of the society. Soc Auto Eng J 9:165-9 S '21

Officers of the Society. pors Soc Auto Eng J 6:147-52+ Mr '20

Offices of the Society. il plan Soc Auto Eng J 7:219-23 S '20

Place of the section in society activities. C. F. Clarkson. Soc Auto Eng J 6:177-8 Mr '20

Presidential address. J. G. Vincent. Soc Auto Eng J 7:127-30+ Ag '20

Proposed constitutional amendments. Soc Auto Eng J 6:222-5 Ap '20

Semi-annual meeting, Ottawa Beach, Mich., June 21-25. P. M. Heldt. Automotive Ind 43:1-6 Jl 1 '20

Semi-annual meeting, West Baden Springs, Ind. Automotive Ind 44:1141-61+ Je 2 '21

6th annual farm power meeting, Columbus, Ohio, Feb. 10. Soc Auto Eng J 8:277-80+ Mr '21

Summer meeting, Ottawa Beach, Mich. June 21-25. P. M. Heldt. Automotive Ind Am Mach 53:84-6 Jl 8 '20; Motor Age 38: 10-11 Jl 1 '20

Summer meeting, West Baden, Indiana, May 24. Am Mach 54:974 Je 2 '21; Soc Auto Eng J 8:517-22 Je '21

Standards committee

1920 standards committee. Soc Auto Eng J 6: 81-3 F '20

Standardization as brought about by the Society of automotive engineers. B. B. Bachman. Soc Auto Eng J 9:33-4+ Jl '21

Standardization work in 1919. diags Automotive Ind 42:227-42 Ja 15 '20

Standards committee meeting reports. Soc Auto Eng J 9:55-74 Jl '21

Unprecedented number of items before Standards committee. P. M. Heldt. diags Automotive Ind 42:314-22 Ja 22 '20

Society of beaux-arts architects

Official notification of awards, judgment of November 24th, 1919, final competition for the 12th Paris prize of the Society of beaux-arts architects with designs and plans. Am Arch 117:116g-j, 117-19 Ja 28 '20

Society of chemical industry

Establishing the Society of chemical industry in Canada. Can Chem & Met 5:236-8 Ag '21

40th annual meeting, Montreal. Chem & Met Eng 25:496-501 S 14 '21; Can Chem & Met 5:281-9 O '21; J Ind & Eng Chem 13:862-4 O '21

Society of cotton products analysts. See American oil chemists' society**Society of economic geologists**

1st meeting, Chicago, Dec. 28-30. Eng & Min J 111:65-7 Ja 8 '21

Organization. Eng & Min J 110:371-2 Ag 21 '20

Society of glass technology

4th annual general meeting, London, April 20. Engineering 111:563-4 My 6 '21

Society of industrial engineers

Fall convention, Cleveland, Oct. 29-31. Iron Age 104:1125-8 D 4 '19; Ind Management 58:478-81 D '19

Fall convention, Pittsburgh, Nov. 10-12. Iron Tr R 67:1396-7 N 18 '20; Iron Age 106:1331-5 N 18 '20; Ind Management 61:44 Ja 1 '21

Fall convention, Springfield, Mass., Oct. 5-7. Iron Tr R 69:958-9 O 13 '21; Iron Age 108: 952-4 O 13 '21; Am Mach 55:658b O 20 '21

Practical application of the principles of industrial engineering; complete report of the proceedings of the spring national convention. 302p The Frederick H. Jaenicken co., printers, Chicago '20

Program and speakers for the spring meeting, Philadelphia, Mar. 24-26. Ind Management 59:243-4 Mr '20

Relation of the industrial expert to present world conditions; subjects for the Philadelphia meeting. Ind Management 59:156-9 F '20

Scientific management and organized labor discussed at September meeting of Chicago chapter. G: D. Babcock. Ind Management 58:365-8 N '19

Semi-annual meeting, Philadelphia. Ind Management 59:501-2 Je '20

Society of industrial engineers. Ind Management 60:306-9 O '20

Spring convention, Philadelphia, March 24-26. Iron Age 105:947-9 Ap 1 '20

Spring meeting, Milwaukee, April 27-29. Iron Age 107:1181-2 My 5 '21; Iron Tr R 68: 1262-3 My 5 '21; Mech Eng 43:424 Je '21

Society of naval architects and marine engineers

27th general meeting, New York, Nov. 13-15. Int Marine Eng 24:823-33 D '19; Marine R 50:20-1 Ja '20

28th general meeting, New York city, Nov. 11. Marine Eng 25:1004 D '20; Marine R 51:25-6 Ja '21

Society of railway financial officers

14th annual meeting, Richmond, Va., Nov. 10-12. Ry Age 69:891-2 N 19 '20

Society of technical engineers

Programme. Engineering 112:481 S 30 '21

Third party in industry. Engineer 132:353 S 30 '21

Union of technical engineers. Eng & Contr 53:362-3 Mr 31 '20

Sociology

- Introduction to the science of sociology. R. E. Park and E. W. Burgess. 1040p University of Chicago press, Chicago '21
Manhood of humanity; the science and art of human engineering. A. Korzybski. 264p Dutton '21

Sockets. See Wire rope fastenings

Soda

- Common baking soda whips stubborn fires. *il Pop Mech* 36:412 S '21

Soda ash. See Sodium carbonate

Soda fountains

- Plan of fountain for the Gem fountain corporation. *Arch & Bldg* 52:pl 50 Ap '20
Plumbing for soda fountains. C. O. Langston. *diags Dom Eng* 95:507-8 Je 11 '21
Soda-fountain shop. W: P. Comstock. *il Arch & Bldg* 52:22-4, 36-7, 45-6, pl 24, pl 49-50 F-Ap '20

Soda lime

- Soda lime as an absorbent for industrial purposes. R. E. Wilson. *J Ind & Eng Chem* 12:1000-7 O '20

Sodium

- Action of sodium on phenyl acetate. W: H. Perkin, jr. *Chem Soc J* 119:1284-94 Ag '21
Le magnésium, le calcium, et le sodium; leur métallurgie, leurs applications. *Génie Civil* 79:57-9 Jl 16 '21
Production of sodium and sodium compounds in the U.S. in 1919. *Chem & Met Eng* 23:519 S 15 '20
Transference numbers of sodium and potassium in mixed chloride solutions. S. A. Braley and J. L. Hall. *Am Chem Soc J* 42:1770-6 S '20

Sodium acetate

- Sodium acetate as a hardening agent in soap-making. L. M. Liddle. *Chem Age* 29:266 Jl '21

Sodium amide

- Preparation and properties of sodium amide. J. M. McGee. *diags Am Chem Soc J* 43:586-91 Mr '21

Sodium arsenite

- Einwirkung von *tert.* natriumarsenit auf schwefelcyan-verbindungen. A. Gutmann. *Deutsche Chem Gesell Ber* 54:1410-14 Jl '21

Sodium benzene *m*-disulfonate

- Alkali fusions; the fusion of sodium-benzene *m*-disulfonate with sodium hydroxide for the production of resorcinol. M. Phillips and H. D. Gibbs. *J Ind & Eng Chem* 12:857-60 S '20

Sodium benzoate

- Toxicity towards staphylococcus of dilute phenol solutions containing sodium benzoate. K. E. Burgess. *J Phys Chem* 24:738-40 D '20

Sodium bisulfite

- Über die tautomerie der phenole; bisulfit und phloroglucin. W. Fuchs. *Deutsche Chem Gesell Ber* 54:245-9 F '21

Sodium carbonates

- Effect of the presence of sodium carbonate on the generation of hydrogen from ferrosilicon and sodium hydroxide. E. R. Weaver and B. D. Gordon. *U S Nat Advisory Com for Aeronautics* 1918:459-62 '20

- Improvements in the ammonia-soda process. J. H. MacMahon. *diag Chem Age* 29:364-6 S '21

- Salts-refining plants at Owens and Searles lakes. L. W. Chapman. *il map Chem & Met Eng* 24:683-8 Ap 20 '21

Sodium chloride. See Salt

Sodium chromate

- Existence of tetrahydrated sodium sulfate in mix-crystals with sodium chromate. T. W. Richards and W. B. Meldrum. *Am Chem Soc J* 43:1543-5 Jl '21

Sodium compounds

- Production of sodium and sodium compounds in the U.S. in 1919. *Chem & Met Eng* 23:519 S 15 '20

- Sodium compounds in 1919. R. C. Wells. *U S Geol S Min Res of U S* 1919, pt 2:47-76 '20
Sodium compounds in 1920. *Chem & Met Eng* 24:940 My 25 '21

- Sodium compounds in 1920; R. C. Wells. *U S Geol S Min Res of U S* 1920, pt 2:123-34 '21

Sodium *p*-cymene sulfonate

- Alkali fusions; the fusion of sodium *p*-cymene sulfonate with sodium hydroxide for the production of carvacrol. H. D. Gibbs and M. Phillips. *diag J Ind & Eng Chem* 12:145-9 F '20

Sodium fluoride

- Will sodium fluoride come into general use for preserving wood? G: M. Hunt. *Eng & Contr* 54:94-5 Jl 28 '20; Same. *Chem & Met Eng* 23:1123-4 D 8 '20

Sodium formate

- Factors in the conversion of sodium formate to oxalate. E. H. Leslie and C. D. Carpenter. *Chem & Met Eng* 22:1195-7 Je 30 '20

Sodium glyceroxide

- α -monosodium glyceroxide: its structure and application. A. Fairbourne and H. Toms. *Chem Soc J* 119:1035-40 Jl '21

Sodium hydrosulfite. See Sodium hyposulfite

Sodium hydroxide

- Absorption of sodium hydroxide by kaolins. R. F. Geller and D. R. Caldwell. *Am Cer Soc J* 4 pt 1:468-73 Je '21
Alkali fusions; fusion of phenylglycine-*o*-carboxylic acid for the production of indigo. M. Phillips. *J Ind & Eng Chem* 13:759-62 S '21
Alkali fusions: the fusions of sodium-benzene *m*-disulfonate with sodium hydroxide for the production of resorcinol. M. Phillips and H. D. Gibbs. *J Ind & Eng Chem* 12:857-60 S '20
Anode corrosion of lead in sodium hydroxide solutions. O. W. Brown, C. O. Henke and L. T. Smith. *J Phys Chem* 24:367-78 My '20
Caustic pot settings. F. G. Wheeler. *Chem & Met Eng* 22:372-3 F 25 '20
Causticizing soda for sulphate pulp cooking. N. E. Brokaw. *Paper* 29:12-14 O 26 '21
Chemical efficiency and concentration of caustic salt from Townsend cells. A. H. Hooker. *il charts Chem & Met Eng* 23:961-8 N 17 '20
Électrolyse des chlorures alcalins. R. Moritz. *Chimie & Ind* 5:636-41 Je '21
Generation of hydrogen by the reaction between ferrosilicon and a solution of sodium hydroxide. E. R. Weaver. *J Ind & Eng Chem* 12:232-40 Mr '20
Graphic calculation of neutralization of caustic liquors with CO₂. J. C. Dittmer. *Chem & Met Eng* 23:1179 D 15 '20
Points on buying caustic soda. C: F. Goldthwait. *Textile World* 57:641+ Ja 31 '20
Solid sodium hydroxide as an absorbent for carbon dioxide in steel analysis. G. L. Kelley and E. W. Evers. *diag J Ind & Eng Chem* 13:1052 N '21
Solubility of mercuric oxide in sodium hydroxide solutions. G. Fuseya. *Am Chem Soc J* 42:368-71 Mr '20
Testing lime for causticizing soda. *Paper* 29:14-15+ O 26 '21

Sodium hypochlorite

- Sodium hypochlorite. *Sci Am* 125:108 Ag 6 '21

Sodium hyposulfite

- Analysis of sodium hydrosulfite. M. J. Harnist. *diag Color Tr J* 9:77-9 Ag '21
Estimation of sodium hyposulfite. J. H. Smith. *Am Chem Soc J* 43:1307-8 Je '21

Sodium iodide

- Catalytic decomposition of hydrogen peroxide by sodium iodide in mixed solvents. V. L. Bohannon. *J Phys Chem* 24:677-700 D '20

Sodium lamp

- New type of sodium lamp for polarimetry. H. A. Fales and J. C. Morrell. *diag Am Chem Soc J* 43:1629-30 Jl '21

Sodium nitrate. See Saltpeter, Chile

Sodium nitrite

Sodium nitrite importation put under war trade board license. Oil Paint & Drug Rep 99:26 sec 1 Ap 25 '21

Use of paranitraniline to standardize solutions of sodium nitrite. W: H. Bell. Chem & Met Eng 22:1173 Je 23 '20

Sodium oxalate

Factors in the conversion of sodium formate to oxalate. E. H. Leslie and C. D. Carpenter. Chem & Met Eng 22:1195-7 Je 30 '20

Sodium oxalate as a standard in volumetric analysis. U S Bur Stand Circ 40:1-13 '20

Sodium palmitate

Hydration of the fibres of soap curd; sorption by sodium palmitate. M. E. Laing. Chem Soc J 119:1669-76 O '21

Sodium perborate

Electrolytic production of sodium perborate. P. C. Alsgaard. Am Electrochem Soc Trans v 40 (preprint 13):173-90 S '21

Sodium permanganate

Electrolytic preparation of sodium permanganate. C. O. Henke and O. W. Brown. J Phys Chem 24:608-16 N '20

Electrolytic production of sodium and potassium permanganates from ferromanganese. R. E. Wilson, W. G. Horsch and M. A. Youtz. J Ind & Eng Chem 13:763-9 S '21

Sodium silicates

Colloidal method for increasing the volume of adhesive water-glass. J. D. Malcolmson. J Ind & Eng Chem 12:174-6 F '20; Same. Paper 26:26-8 Mr 10 '20

Hydrolysis of the silicates of sodium. R. H. Bogue. Am Chem Soc J 42:2575-82 D '20

Relation of structure to free alkali in sodium silicate solutions. W: Stericker. diag Chem & Met Eng 25:61-2 Jl 13 '21

Silicate of soda in papermaking. J. G. Vail. Paper 29:9-11 O 26 '21; Same. Paper Trade Journal 73:32+ O 27 '21; Same. Chem & Met Eng 25:823-4 N 2 '21

Use of water glass in sizing of paper. T: Blasweiler. Paper 28:20-2 Ag 3; 20-2 Ag 17; 29:19-20 O 12 '21

Sodium sulfate

Aqueous pressure of some hydrated crystals; oxalic acid, strontium chloride and sodium sulfate. G. P. Baxter and J: E. Lansing. Am Chem Soc J 42:419-26 Mr '20

Equilibria in solutions containing mixtures of salts; the system water and the chlorides and sulfates of sodium and magnesium at 25°. W. C. Blasdale. diags J Ind & Eng Chem 12:164-7 F '20

Existence of tetrahydrated sodium sulfate in mix-crystals with sodium chromate. T. W. Richards and W. B. Meldrum. Am Chem Soc J 43:1543-5 Jl '21

Natural sodium sulphate. Chem Age 29:46 F '21

New salt cake and hydrochloric acid furnace; internally oil-fired rotary. N. A. Laury. diags Chem & Met Eng 25:834-6 N 2 '21

Removal of free acid from nitrocellulose with special reference to the use of saline leaches. S. E. Sheppard. il J Ind & Eng Chem 13:1017-24 N '21

Sodium sulfide

Action of sodium sulfide on ferric oxide. J. C. Witt. Am Chem Soc J 43:734-40 Ap '21

Emploi des polysulfures alcalins pour neutraliser certaines vapeurs toxiques. A. Desgrez, H. Guillemard and A. Labat. Chimie & Ind 5:222-3 F '21

Analysis

Analysis of sodium sulfide crystals. J. A. Wyler. Color Tr J 9:159-61 O '21

Sodium sulfite

Über die umsetzung von naphtholen und naphthylaminen mit bisulfit. P. Friedländer. Deutsche Chem Gesell Ber 54:620-4 Ap '21

Sodium trichlorophenolate

Catalytic decomposition of certain phenol silver salts; the action of iodine on the sodium

salt of trichlorophenol. W. H. Hunter and L. M. Seyfried. Am Chem Soc J 43:151-9 Ja '21

Soft drinks**Advertising**

One soft drink manufacturer finds prohibition makes his task harder. G. A. Nichols. il Ptr Ink 111:96+ My 20 '20

Softening points

Determination of the softening of plastic materials. diag India Rubber W 62:667 Jl '20

Determination of the softening point of asphaltum and other plastic substances. D. W. Twiss and E. A. Murphey. diags India Rubber W 61:359-60 Mr '20

Soil acidity

Acidity and acidimetry of soils; comparison of methods for determining lime requirements of soils with hydrogen electrode; proposed method for determination of lime requirements of soils. H. G. Knight. J Ind & Eng Chem 12:559-62 Je '20

Acidity and acidimetry of soils; studies of the Hopkins and Pettit method for determining soil acidity. H: G. Knight. diags J Ind & Eng Chem 12:340-4, 457-64 Ap-My '20

Methods for determining soil acidity. F. Sanford. Sci Am M 4:234 S '21

Soil acidity. W. H. MacIntire. Sci Am 125:279 O 15 '21

Soil analysis

Boric acid modification of the Kjeldahl method for crop and soil analysis. F. M. Scales and A. P. Harrison. J Ind & Eng Chem 12:350-2 Ap '20

Determination of nitrates in soil. A. L. Whiting, T. E. Richmond and W. R. Schoonover. J Ind & Eng Chem 12:982-4 O '20

Measuring soil toxicity, acidity, and basicity. R. H. Carr. J Ind & Eng Chem 13:931-3 O '21

Methods for determining the amount of colloidal material in soils. C: J. Moore, W: H. Fry and H. E. Middleton. J Ind & Eng Chem 13:527-30 Je '21

Rapid dry combustion method for the simultaneous determination of soil organic matter and organic carbon. J. W. Read. diags J Ind & Eng Chem 13:305-7 Ap '21

Solid phases obtained by the evaporation of certain soil extracts. M. S. Anderson and W: H. Fry. bibliog J Ind & Eng Chem 12: 663-9 Jl '20

See also Soil acidity

Soil bacteriology

Influence de l'état de division des gouttelettes microbiennes sur l'ensemencement des terrains de culture. A. Trillat. Génie Civil 78:181 F 19 '21

Soil fertility

Radioactivity and soil fertility; some important researches by Professor Gabriel Petit, of Alfort, France. Sci Am M 3:415-17 My '21

Soil moisture

Capillary moisture and its effect on highway subgrades. W. W. McLaughlin. Pub Roads 4:6-8 My '21; Same. Eng & Contr 55:536-7 Je 1 '21; Same. Eng N 86:1037-8 Je 16 '21

Capillary movement of soil moisture. W. W. McLaughlin. bibliog diags U S Agric Bul 835:1-70 '20; Abstract. Eng N 85:933 N 11 '20; Abstract. Eng & Contr 54:540-1 D 1 '20; Abstract. Sci Am 124:345+ Ap 30 '21; Discussion. Eng N 85:1203 D 16 '20

Soil pressure. See Earth pressure**Soil temperature**

Degree of temperature to which soils can be cooled without freezing. G: Buoyoucos. A S R E J 7:401-3 Mr '21; Abstract. Sci Am M 3:300 Ap '21

Soils

Agricultural geology. F: V. Emerson. 319p Wiley '20

Non-biological oxidation of elementary sulfur in quartz media. W. H. MacIntire, F. J. Gray and W. M. Shaw. J Ind & Eng Chem 13:310-13 Ap '21

Soils —Continued

- Le réveil de la terre arable. A. Lumière. Génie Civil 77:401 N 13 '20
 Soils of the Great Plains. D. B. Dowling. Can Eng 38:306-7 Mr 18 '20
 Wells and the permeability of soils. Engineering 110:856-7 D 31 '20; Same abr. Eng & Contr 55:312-13 Mr 30 '21

See also Agricultural chemistry; Agriculture; Alkali soils; Clay; Drainage; Fertilizers and manures; Foundation soils; Humus; Irrigation; Reclamation of land; Roads—Subgrades; Sand; Soil analysis; Ultraclay

Solar cooker

- Solar cooker on Mount Wilson. Chem & Met Eng 25:481 S 7 '21

Solar power

- Electric power from sunlight. P. Kirkpatrick. il Sci Am 122:677 Je 19 '20
 Power from the thermocouple and wind motors. L. G. Hall. Sci Am 123:521 N 20 '20
 Sun as a source of energy. J. A. Anderson. il diag J Elec 44:201-3 Mr 1 '20

Solar radiation

- Solar radiation and balloons. J. D. Edwards and M. B. Long. Aviation 9:487-90 D 27 '20
 Sunshine and balloon silk. S. R. Winters. il Sci Am 124:45+ Ja 15 '21
 Variability of sun's radiation. C. G. Abbot. Sci Am M 1:557 Je '20
 Weather forecasts by solar radiation observations. C. G. Abbot. Sci Am M 2:175-6 O '20

See also Earth temperature; Spectrum, Solar

Solar spectrum. *See* Spectrum, Solar**Solar system**

- Solar system in miniature devised by Birke-land. M. Tevis. il Sci Am 124:21 Ja 8 '21

Solder and soldering

- Composition of certain special cements and solders into the manufacture of which gas enters. G. C. Shadwell. Am Gas Eng J 113:121-2+ Ag 14 '20
 La fragilité au bleu dans certaines soudures d'acier. C. Fremont. il Génie Civil 78:199 F 26 '21
 Gas as an aid in manufacture of solders. G. C. Shadwell. il Am Gas Eng J 113:101-4, 111-13 Ag 7 '20
 Information on solder. T. Newton. Sheet Metal Worker 11:467-8 Ja 7 '21
 New aluminum solder successful. Aviation 9:358 N 29 '20
 Notes on soft soldering. J. F. Springer. diag Textile World 58:3201+ N 6 '20
 Practicability of soldering aluminum. A. N. Fleming. il Sheet Metal Worker 11:427+ D 24 '20
 Solder—some facts on its use and abuse. M. L. Lissberger. Sheet Metal Worker 11:311-12+, 340-1+ O 29-N 12 '20
 Soldering fluxes. A. A. Ladon. Chem & Met Eng 24:981 Je 1 '21
 Soldering iron and steel. F. H. Sweet. diags Power Pl Eng 24:1084-5 N 15 '20
 Soldering radiator tubes. diags Motor Age 37:45 Ap 29 '20
 Soldering with zinc.—S. E. Frew. Am Mach 52:970 Ap 29 '20
 Solders and soldering fluxes. E. Andrews. Am Mach 54:841-2 My 12 '21
 Tentative specifications for solder metal. Am Soc T M Pro v 20 pt 1:569-73 '20
 Use of gas in soldering includes variety of industries. G. C. Shadwell. Am Gas Eng J 113:61-2+ Jl 24 '20

See also Brazing; Welding

Soldering apparatus

- Electric-arc soldering iron. B. A. Briggs. il Power 51:545 Ap 6 '20; Same. Am Mach 52:853 Ap 15 '20
 Fillet soldering machine. il Mach 27:418 Ja '21
 Industrial applications of local heating with the pyrotip. E. A. Wagner. il Gen Elec R 24:628-31 Jl '21; Excerpts. Chem & Met Eng 25:251 Ag 10 '21

- Modern method of soldering by electrical machine. il Elec R 78:834-5 My 21 '21
 Simple can-soldering machine. O. Dorthen. diags Pop Mech 35:615 Ap '21
 Simple electric soldering machine. E. C. Soares. diag Elec W 78:225 Jl 30 '21
 Tool for soldering auto radiators. diags Metal Work 93:241 F 20 '20

Advertising

- Solderkit club develops big market among boys for soldering apparatus. F. Chapman. Ptr Ink 110:41-2+ Mr 18 '20

Soldiers**Civil employment**

- Advertising helps place inexperienced men on farms. Ptr Ink 111:115-16+ Je 17 '20
 Ex-service men in engineering works. Engineer 128:610+ D 19 '19
 Why the ex-soldier changes jobs. N. P. Williams. Ind Management 59:76-7 Ja '20

Education

See also United States—Army—Education

Soldiers, Disabled

- Here's an American debt that is unpaid. F. W. Galbraith. Nation's Business 9:76+ Je '21

Rehabilitation

- Government training ex-service men for trade. il Sheet Metal Worker 12:325-7 Je 10 '21
 Training and placement of disabled ex-service men in the United States. Monthly Labor R 10:442-7 F '20
 What machinists are doing for disabled ex-service men. J. W. Jefferis. il Am Mach 54:976 Je 2 '21

See also Orthopedic apparatus

Soldiers' and sailors' memorial hospital. *See* Penn Yan (New York), Soldiers' and sailors' memorial hospital**Soldiers' bonuses**

- Bank of America on state aid for world war veterans. Comm & Fin Chr 113:800-1 Ag 20 '21
 Bonus law of this state pronounced invalid. Comm & Fin Chr 113:996-7 S 3 '21
 Impending soldier bonus from the federal government. Comm & Fin Chr 112:2683-5 Je 25 '21
 President Harding's message to Senate on soldier bonus and tax legislation. Comm & Fin Chr 113:249-50 Jl 16 '21
 President on the soldier bonus; editorial. Comm & Fin Chr 113:220-1 Jl 16 '21
 Secretary of treasury Mellon opposes soldiers' bonus bill. Comm & Fin Chr 113:138-9 Jl 9 '21
 Soldier bonus in New York. Comm & Fin Chr 112:1803-4 Ap 30 '21
 Text of opinion in decision of New York Court of appeals holding soldier bonus law unconstitutional. Comm & Fin Chr 113:1535-9 O 8 '21

Soldiers' graves

- Argonne cemetery of the A.E.F. at Romagne-Sous-Montfaucon, France. P. H. Elwood, jr. il plans Arch Rec 47:506-10 Je '20

Soldiers' monuments

- Burial of the unknown—the Cenotaph and the Abbey. il Am Arch 118:855+ D 29 '20

Sole leather. *See* Leather**Solenoids**

- Double-acting solenoid which has strong pull. J. W. Murray. diags Elec W 76:435 Ag 28 '20
 Electric oscillations in straight wires and solenoids; abstracts. J. S. Townsend and J. H. Morrell. diags Inst E E J 59:771-5 Jl '21; Philos Mag 6th ser 42:265-78 Ag '21; Discussion. Inst E E J 59:775-9 Jl '21

Soles, Rubber

- Rubber sole turn shoe perfected. il plan India Rubber W 64:879-81 S '21
 Rubber sole up to date. il diags India Rubber W 64:799-802 Ag '21
 Will rubber soles successfully replace leather soles? C. C. Burnham. diags India Rubber W 62:792-5 S '20

Solid solutions. See Solutions, Solid

Solubility

- Beiträge zum Löslichkeitsproblem. F. Ephraim. Deutsche Chem Gesell Ber 54:379-85 Mr '21
- Compound formation and solubility in systems of the type, formic acid:metal formate. J. Kendall and H. Adler. Am Chem Soc J 43:1470-81 Jl '21
- Compound formation and solubility in systems of the type sulfuric acid: metal sulfate. J. Kendall and A. W. Davidson. Am Chem Soc J 43:979-90 My '21
- Dictionary of chemical solubilities, inorganic. A. M. Comey and D. A. Hahn (2d ed., enl. and rev.) 1141p Macmillan '21
- Equilibrium in the system ammonia: ammonium nitrate: ammonium thiocyanate. H. W. Foote and S. R. Brinkley. diags Am Chem Soc J 43:1018-31 My '21
- Equilibrium in the system ammonia: water: ammonium thiocyanate. H. W. Foote. Am Chem Soc J 43:1031-8 My '21
- Freezing-point solubility curve for sulfur and dichloro-ethyl sulfide. J. A. Wilkinson, C. Neilson and H. M. Wylde. Am Chem Soc J 42:1377-82 Jl '20
- Influence of position on the solubilities of the substituted benzoic acids. N. V. Sidgwick and E. K. Ewbank. Chem Soc J 119: 979-1001 Jl '21
- Influence of position on the solubility and volatility of the mono- and di-nitrophenols. N. V. Sidgwick and W. M. Aldous. Chem Soc J 119:1001-12 Jl '21
- Intersolubility of beta-beta dichloro-ethyl sulfide and ethyl alcohol. T. G. Thompson, J. H. Black and G. T. Sohl. Am Chem Soc J 43:877-9 Ap '21
- Polyjodide von ammoniakaten. F. Ephraim and P. Mosimann. Deutsche Chem Gesell Ber 54:385-96 Mr '21
- Prediction of solubility. J. H. Hildebrand. Chem & Met Eng 22:771 Ap '20
- Prediction of solubility in polar solutions. J. Kendall, A. W. Davidson and H. Adler. Am Chem Soc J 43:1481-1502 Jl '21
- Solubilities of acids in aqueous solutions of other acids. J. Kendall and J. C. Andrews. Am Chem Soc J 43:1545-60 Jl '21
- Solubility and volatility of the chloro- and nitro-anilines and of their acetyl derivatives. N. V. Sidgwick and H. E. Rubie. Chem Soc J 119:1013-24 Jl '21
- Solubility; critical solution temperatures of white phosphorus with various liquids. J. H. Hildebrand and T. F. Buehrer. diags Am Chem Soc J 42:2213-18 N '20
- Solubility of β,β' -dichloroethyl sulfide in petroleum hydrocarbons and its purification by extraction with these solvents. T. G. Thompson and H. Odeen. diags J Ind & Eng Chem 12:1057-62 N '20
- Solubility of boric acid frits. G. Blumenthal, jr. Am Cer Soc J 3:152-4 F '20
- Solubility of ethyl ether in solutions of sodium chloride. P. C. L. Thorne. Chem Soc J 119: 262-8 Mr '21
- Solubility of mercuric oxide in sodium hydroxide solutions. G. Fuseya. Am Chem Soc J 42:368-71 Mr '20
- Solubility of mono- and diammonium phosphate. G. H. Buchanan and G. B. Winner. diags J Ind & Eng Chem 12:448-51 My '20
- Solubility of phthalic acid in water and sodium sulfate solutions. L. McMaster, E. Bender and E. Weil. diags Am Chem Soc J 43:1205-7 My '21
- Solubility: solubility relations of naphthalene and iodine in the various solvents, including a method for evaluating solubility data. J. H. Hildebrand and C. A. Jenks. diags Am Chem Soc J 42:2180-9 N '20
- Some relations of composition to solubility of enamels in acids. H. F. Staley. Am Cer Soc J 4:703-17 S '21
- Studies on solubility; the solubility of salts in salt solutions. J. N. Brønsted. diags Am Chem Soc J 42:761-86 Ap '20
- Studies on solubility; the solubility ratios of salts in strong homoionic solvents. J. N. Brønsted. Am Chem Soc J 42:1448-54 Jl '20

Surface tensions and densities of liquid mercury, cadmium, zinc, lead, tin and bismuth. T. R. Hogness. diags Am Chem Soc J 43: 1621-8 Jl '21

Thermodynamic relation between solubility and internal pressure. J. H. Hildebrand. Am Chem Soc J 43:500-7 Mr '21

Über ammoniakate von salzen der pikrinsäure und der *p*-dichlor-benzol-sulfonsäure. F. Ephraim. Deutsche Chem Gesell Ber 54:402-6 Mr '21

Über die Löslichkeit von salzen aromatischer säuren und deren ammoniakaten. F. Ephraim. Deutsche Chem Gesell Ber 54:965-73 My '21; Abstract. Chem Soc J 120 pt 1: 508-9 Jl '21

Wismut und quecksilberjodid-verbindungen von ammoniakaten. F. Ephraim and P. Mosimann. Deutsche Chem Gesell Ber 54: 396-401 Mr '21

See also Solution (chemistry)

Soluble glass. See Sodium silicate

Solution (chemistry)

Application of ideal solution equations to dilute aqueous solutions. J. Kendall. Am Chem Soc J 43:1391-6 Jl '21

Compound formation and specific conductivity in solutions of the types acid:ester, acid:ketone and acid:acid. J. Kendall and P. M. Gross. Am Chem Soc J 43:1426-39 Jl '21

Determination of the rate of solution of atmospheric nitrogen and oxygen by water. W. E. Adeney and H. G. Becker. diags Philos Mag 6th ser 42:87-96 Jl '21

Determination of the sorption of both solvent and solute—preliminary; the system: benzene—iodine—charcoal. A. M. Bakr and J. E. King. diags Chem Soc J 119:454-60 Ap '21

Electrolytic conductivity in non-aqueous solutions; the solvation of the ions of trimethyl-para-tolyl-ammonium iodide in a number of organic solvents. H. J. M. Creighton. J Fr Inst 189:641-3 My '20

Equilibria in solutions containing mixtures of salts; the system water and the chlorides and sulfates of sodium and magnesium at 25°. W. C. Blasdale. diags J Ind & Eng Chem 12:164-7 F '20

Factors affecting the stability of addition compounds in solution and their influence upon ionization equilibria. J. Kendall and P. M. Gross. Am Chem Soc J 43:1416-26 Jl '21

Heat of solution and the partial molal heat content of the constituents in aqueous solutions of sodium chloride. M. Randall and C. S. Bisson. diags Am Chem Soc J 42:347-67 Mr '20

Heats of dilution and the specific heats of dilute solutions of nitric acid and of hydroxides and chlorides and nitrates of lithium, sodium, potassium, and cesium. T. W. Richards and A. W. Rowe. Am Chem Soc J 43:770-96 Ap '21

Influence of salts on chemical equilibria in solutions. J. N. Brønsted. Chem Soc J 119: 574-92 My '21

Lowering of the vapor pressure of water at 20° produced by dissolved potassium chloride. B. F. Lovelace, J. C. W. Frazer and V. B. Sease. Am Chem Soc J 43: 102-10 Ja '21

Solutions of metals in non-metallic solvents; the conductance of the alkali metals in liquid ammonia. C. A. Kraus. diags Am Chem Soc J 43:749-70 Ap '21

See also Boiling points; Colloids; Crystallization; Diffusion; Dilution; Heat of; Electrolysis; Electrolytes; Ions; Osmosis; Precipitation (chemistry); Solubility; Solvents

Solutions, Solid

Atomic structure of metals in solid solution. A. L. Feild. Chem & Met Eng 21:566-70 O 29 '19; Discussion. 22:100, 340, 580-1 Ja 21, F 25, Mr 31 '20

Electric resistivity of dilute metallic solid solutions; abstracts. A. L. Norbury. Engineering 110:813 D 17 '20; Elec R (Lond) 88:70-1 Ja 21 '21

Solutions, Solid—Continued

Force-field theory and electric resistivity of steel; abstracts. E. D. Campbell. *Engineering* 110:812-13 D 17 '20; *Elec R (Lond)* 88:70 Ja 21 '21

Hardness of solid solutions. W. Rosenhain. *Chem & Met Eng* 25:243-5 Ag 10 '21

Slip interference theory of the hardening of metals. Z. Jeffries and R. S. Archer. *il diags Chem & Met Eng* 24:1057-67 Je 15 '21; Discussion. 25:313-14, 509-12, 584, 641, 728-9 Ag 24, S 14, 28-O 5, 19 '21

Solid solution of oxygen in iron. J. E. Stead. *il Engineering* 111:627-8 My 20 '21; Same. *Blast F & Steel Pl* 9:359-60 Je '21

System cupric oxide, cuprous oxide, oxygen. F. H. Smyth and H. S. Roberts. *diags Am Chem Soc J* 42:2582-2607 D '20

Ternary system ammonium chloride-manganous chloride-water. F. W. J. Clendinnen and A. C. D. Rivett. *Chem Soc J* 119:1329-39 Ag '21

Solutions, Standard

Convenient formula for diluting solutions. E. J. McMillan. *Chem & Met Eng* 25:206 Ag 3 '21

Potassium chlorate as a standardizing substance for solutions of alkali. H. B. Van Valkenburgh. *Am Chem Soc J* 42:757-60 Ap '20

Solvay process company

Consolidation. *Comm & Fin Chr* 111:1379-82 O 2 '20

Solvents

Alkyl amines as solvents. H. M. Elsey. *Am Chem Soc J* 42:2080-5 O '20

Conductivity and viscosity of solutions in dimethylamine, trimethylamine, ethylamine, diethylamine, triethylamine, and propylamine. H. M. Elsey. *diags Am Chem Soc J* 42:2454-76 D '20

Effect of solvent on the ultra violet absorption spectrum of a pure substance. F. O. Rice. *Am Chem Soc J* 42:727-35 Ap '20

Influence of the solvent on the temperature-coefficient of certain reactions; a test of the radiation hypothesis. H. E. Cox. *Chem Soc J* 119:142-58 Ja '21

Recovery of volatile solvents by the Bregeat process. M. Roulleux and R. G. Dort. *flow sheet Chem & Met Eng* 24:916-21 My 25 '21; Discussion. 25:93, 181 Jl 20, Ag 3 '21

Solvents and thinners used in the rubber industry. F. Dannerth. *India Rubber W* 64:487-9 Ap '21

Solvents produced by bacteria. H. E. Hall. *Chem Age* 29:103-4 Mr '21

Use of organic solvents in the quantitative separation of metals; the separation of magnesium from sodium and potassium chlorides. S. Palkin. *Am Chem Soc J* 42:1618-21 Ag '20

Velocity of reaction in mixed solvents; the velocity of saponification of two ethyl esters in ethyl alcohol—water mixtures. A. E. Cashmore, H. McCombie and H. A. Scarborough. *Chem Soc J* 119:970-8 Jl '21

See also Solution (chemistry)

Somerset, Edward, Marquis of Worcester, 1601-1667

Marquis of Worcester and the steam engine. H. T. Wade. *il diag Sci Am M* 4:225-7 S '21

Sonic waves

Dorman sonic wave-power tools. *il Mech Eng* 42:633-4 N '20

Power transmission by fluid waves. *il Sci Am* 124:171 F 26 '21

Power transmission by sonic waves. J. Herck. *Mech Eng* 42:359-60 Je '20; Same. *Sci Am M* 1:567-8 Je '20

La transmission de l'énergie mécanique par les liquides au moyen des vibrations acoustiques (sonicité), système G. Constantinesco. *Génie Civil* 76:358-9 Ap 10 '20

La transmission de l'énergie par les vibrations de l'eau dans les conduites. C. Camichel. *Génie Civil* 77:259 S 25 '20

La transmission de l'énergie par les vibrations de liquides dans les conduites. *Génie Civil* 77:399-400 N 13 '20

Wave system (sonic waves) of power transmission. *diags Ry R* 67:791-4 N 20 '20

Wave transmission of power. *diags Am Mach* 53:1122-5 D 16 '20

Wave transmission of power; a new hydraulic power system analogous to alternating current electric power. *il Sci Am M* 2:346-8 D '20

Sonoscope

Sonoscope for ascertaining the exact positions of defects in internal-combustion engines. *diags Engineer* 131:302 Mr 18 '21

Soot

Effective heat transmission surfaces; deposits of soot and scale on boiler tubes. *il diags Power Pl Eng* 25:67-70 Ja 1 '21

Soot and its abatement by the use of salt. B. S. Murphy. *Power* 52:322-6 Ag 31 '20

See also Boiler cleaning

Soot blowers

Development of mechanical soot blowers. R. June. *diags Blast F & Steel Pl* 9:275-9, 332-6 Ap-My '21; Same cond. *Textile World* 59:2305, 3277+ Ap 2, My 14 '21

McNeill soot blower. *diags Power* 53:264 F 15 '21

Management of the power plant. R. June. *diag Textile World* 58:883+ Ag 7 '20

Monarch soot blower for vertical water-tube boilers. *il Power* 54:216 Ag 9 '21

New Diamond valv-in-head soot blower; abstracts. R. June. *il diags Blast F & Steel Pl* 9:506-10 Ag '21; *Power Pl Eng* 25:784-5 Ag 1 '21; *Textile World* 60:861+ Ag 6 '21

Practical ways to cut your coal bill; how soot blowers reduce fuel consumption. C. L. Hubbard. *il diags Factory* 24:1325-8 My 1 '20

Soot blower with an automatic steam valve. *il diags Elec R* 79:291-2 Ag 20 '21

Soot blowers on waste-heat boiler. N. L. Stewart. *diag Eng & Min J* 112:101-2 Jl 16 '21

Soot deposits in oil-fired boilers; description of tests with soot blowers. R. June. *diag Power Pl Eng* 24:1061-3 N 15 '20

Superior steam tube blower. *diags Iron Age* 106:1670 D 23 '20

Swedish superior blower. *diags Gas Age* 47:123 F 10 '21

Soot cleaners

Calculating the value of a soot cleaner. W. F. Schaphorst. *Paper* 27:18+ D 29 '20; Same. *Power Pl Eng* 25:369 Ap 1 '21

Sound

Meteorological acoustics. W. J. Humphreys. *il diags J Fr Inst* 191:581-617 My '21; Abstract. *Sci Am M* 4:75-6 Jl '21

Modern marine problems in war and peace. C. V. Drysdale. *Inst E E J* 58:587-8, 591-3 Jl '20

New method of determining the speed of sound in the water. M. Marti. *Sci Am M* 1:273 Mr '20

Production of sound under water by the condensation of steam. G. Stoney and T. Petrie. *il diags Engineering* 110:561-3 O 29 '20; Same. *Sci Am M* 3:71-4 Ja '21

Sound emitted by wires of circular section when exposed to an air-current. E. F. Relf. *diags Philos Mag* 6th ser 42:173-6 Jl '21

Sound in engineering and navigation. W. D. Kirkpatrick. *Engineer* 130:658-60 D 31 '20

Text-book of physics. J. H. Poynting and J. J. Thomson. 7th ed. 164p C. Griffin & co., London '20

Where the eye supplants the ear; how sound waves are made visible and analyzed with complete precision. M. A. Henry. *il Sci Am* 122:456+ Ap 24 '20

See also Acoustics, Architectural; Hearing; Noise; Phonetics; Phonograph; Photography; Photography of sound; Sound proofing; Sound waves; Vowels

Sound measurement

Absolute measurement of sound. A. G. Webster. *il diags Engineering* 111:763-5 Je 24 '21

Acoustical galvanometer for the measurement of small alternating currents. F. R. Watson and L. B. Ham. *diags Phys R* 18:178-84 S '21

Sound-proofing

Architectural acoustics; sound-proofing efficiency of thin metal lath and plaster partitions. diags Arch Forum 32:249-52 Je '20; Abstract. Eng & Contr 54:525-6 N 24 '20
Structural service department; sound deadening floors. S. W. Jones and L. E. Kern. Am Inst Arch J 9:26-7 Ja '21
Tests show thin solid partition best sound insulator. F. R. Watson. Eng N 86:591 Ap 7 '21

Sound ranging devices

Sound-ranging. A: Trowbridge. diags J Fr Inst 189:133-46 F '20
Sound ranging; the location of guns by sound, with special reference to the Bull-Tucker system. E: B. Stephenson. 25p (Occasional papers, Engineer school, U.S. army, no. 63) Washington, D.C. '20
See also Hydrophone; Submarine detectors

Sound transmission. *See* Amplifiers; Geophone; Stentorphone; Submarine detectors; Telephone; Wireless telephone**Sound waves**

Acoustic wave filter. G. W. Stewart. Phys R 17:382-4 Mr '21
Photographic method of finding the instantaneous velocity of spark waves. A. L. Foley. J Fr Inst 191:330 Mr '21
Sound waves in the atmosphere. E. A. Milne. diags Philos Mag 6th ser 42:96-114 Jl '21

Sounding

Rig used for sounding under piers. R. W. Beuttenmuller. diags plan Eng N 83:1075 D 25 '19
Sounding with sound; how the M-V type of hydrophone developed for U-boat detection now serves the peaceful mariner. H. A. Mount. il diags Sci Am 122:642+ Je 12 '20
Soundings through water and mud. J: C. Trautwine. diag Can Eng 39:221-2 Ag 5 '20; Same cond. Eng & Contr 54:262-3 S 15 '20
Unique rod made for canal soundings and stream measurements. diags Eng N 84:51 Ja 1 '20

South

Resources of every section of the country worthy of study. Ptr Ink 113:133-4 N 25 '20
Seeks aid of southern industries. J: E. Edgerton. Am Ind 22:12-20 O '21
See also Electric plants (central stations)
—Southern states; Gold mines and mining
—Southern states; Southwest

South Africa

Political situation in South Africa. Comm & Fin Chr 112:1073-5 Mr 19 '21
See also Electricity supply—South Africa; Railroads—South Africa

Commerce

South African markets for American hardware. R. A. Lundquist and C: S. Williams. U S Bur For & Dom Com 198:1-55 '20
South African trade in soap. Chem & Met Eng 23:1010 N 24 '20

Economic conditions

See also Wages—South Africa

Industries and resources

Engineering and industry in South Africa. Electrician 85:585 N 19 '20
South Africa—then and now. P. Lyon. Eng & Min J 109:551-2 F 28 '20
See also Automobile industry and trade
—South Africa; Electric industries—South Africa; Gold mines and mining—South Africa; Iron industry and trade—South Africa; Mines and mineral resources—South Africa; Steel industry and trade—South Africa

Sanitary affairs

Sewage disposal in South Africa. A. E. Snape. Engineering 110:580 O 29 '20

South America

Mining engineer in South America. P. T. Bruhl. il Eng & Min J 109:1408-10 Je 26 '20
See also Latin America; Railroads—South America; Telephone—South America

Bibliography

Bibliography of South America; authorities from which the exporter can obtain the viewpoint of the people with whom he has to deal. C. S. Cooper, comp. Export Trade and Exporters' Review p 5-9 Jl 10 '20
See also Latin America—Bibliography

Commerce

Competition in the South American market. Elec R (Lond) 89:38-9 Jl 8 '21
Doing business with the South Americans. J. H. Collins. Ptr Ink 113:82+ D 30 '20
Financing South American trade. Nation's Business 9:56+ Ja '21
Our awakening to the possibilities of South American trade. F. O'Malley. Americas 7:12-15 My '21
Our South American trade and its financing. F. O'Malley. il map (Foreign commerce series no. 3) 125p '20 The National City Bank of New York, N.Y.
Points that sell goods in South American copy. R. B. Lockwood. Ptr Ink 111:124+ Je 17 '20
South America and its relation to the world's present situation. Americas 7:1-5 Ja '21
Straight business in South America. J. H. Collins. 305p Appleton '20
Striking the shackles from South American trade. C. H. Claudy. Ptr Ink 110:101, 105 Ja 1 '20
Why South America needs Selfridge and Woolworth. J. H. Collins. Ptr Ink 111:152-3+ My 27 '20

Industries and resources

Electric furnaces, power plants, metallurgical development in South America. Sibley J 34:181-2+ D '20; Same. Power Pl Eng 24:1171-3 D 15 '20
Electrical construction developments in South America. Elec R 78:65-7 Ja 8 '21
Electroplating in South America. H. Greene. Metal Ind 18:81-2 F '20
Hydro-electric developments in South America. Ind Management 61:93-4 F 1 '21
See also Automobile industry and trade
—South America; Electric industries—South America; Forests and forestry—South America; Hydroelectric plants—South America; Machine tool industry—South America; Mines and mineral resources—South America

South Carolina road institute

First South Carolina road institute, University of South Carolina, Columbia, March 3-4. Good Roads n s 19:176-8 Mr 31 '20

South Dakota

See also Hydroelectric plants—South Dakota

Industries and resources

See also Mines and mineral resources—South Dakota

South pole

South pole mapping expedition. Aviation 10:16 Ja 3 '21

See also Antarctic exploration

Southeastern express company

Organization. Ry Age 69:660 O 15 '20

Southern California Edison company

Annual report to the stockholders for the year 1919. Comm & Fin Chr 110:1196-9 Mr 20 '20

Annual report to the stockholders—for the year 1920. Comm & Fin Chr 112:1638-40 Ap 16 '21

Development projects outlined in annual report. Elec R 78:747-8 My 7 '21

Power system. W. A. Scott. il Elec R 76:798-805 My 15 '20

Southern California Edison company—Continued
Transmission at 220,000 volts in California.
H. A. Barre and J. P. Jollyman. Elec W
77:21-3 Ja 1 '21

Southern gas association
Annual convention, Savannah, Ga., May 31.
J. H. Moore. il Gas Age 47:486-90 Je 10 '21
12th annual convention, Norfolk. Gas Age
46:30-5 Jl 10 '20

Southern Pacific railway
Apprenticeship system of the Southern
Pacific railway. F. A. Stanley. il Am
Mach 55:12-15 Jl 7 '21
Operations of supply trains on Southern Pa-
cific. Ry Age 68:1983-4 Je 25 '20
Report of the operations and affairs of the
Southern Pacific company and of its pro-
prietary companies for the fiscal year end-
ed December 31, 1919. map Ry Age 68:1962-
3, 1999-2004 Je 25 '20; Same abr. Comm &
Fin Chr 110:2665-70 Je 26 '20
Substation layout of Southern Pacific com-
pany in Oregon. P. Lebenbaum. il map
Elec Ry J 56:1055-7 N 20 '20
37th annual report for 1920. Comm & Fin
Chr 113:78-84 Jl 2 '21; Same. Ry Age 71:
43-9 Jl 2 '21
37th annual report, 1920; editorial. map Ry
Age 71:55-7 Jl 9 '21
Vincent derailment, Southern Pacific Ry. il
diags Ry R 66:241-4 F 14 '20

Southern pine association
Association's work for year reviewed. J. E.
Rhodes. Am Lumberman 2340:53-4 Mr 20 '20
5th annual meeting. Am Lumberman 2340:55-
61; 2341:69 Mr 20-27 '20

Southern railway
Annual report for 1920; editorial. map Ry
Age 71:812-13 O 29 '21
26th annual report. map Ry Age 69:1100-2,
1134-6 D 24 '20; Same abr. Comm & Fin
Chr 111:1574-7 O 16 '20
27th annual report for 1920. Ry Age 71:741-3
O 15 '21; Same. Comm & Fin Chr 113:
1684-6 O 15 '21

Southern Sierras power company
Interesting additions to the longest trans-
mission system. C. O. Poole. il J Elec 45:
476-8 N 15 '20

**Southern supply and machinery dealer's associ-
ation**
Annual meeting, Atlantic City, May 16-18.
Iron Age 107:1382-3, 1429-32 My 26 '21; Iron
Tr R 68:1466-7 My 26 '21

Southern textile association
Better cotton goods meeting, Charlotte, N.C.,
Sept. 16-17. Textile World 60:1771+ S 24 '21
Meeting, Greenville, S.C. Textile World 58:
2959, 2988b-89 O 30 '20
12th annual convention, Spartanburg, S.C.,
May 21-22. Textile World 57:4011-12+ My
29 '20
22d semi-annual convention, Charlotte, N.C.,
Oct. 24. Textile World 56:2516-23+ O 25 '19
25th semi-annual convention, Atlanta, Ga.,
May 13-14. Textile World 59:3407-9 My 21 '21

Southwest
Advertising for new citizens sold a terri-
tory to the old ones. Ptr Ink 113:109-10+
N 25 '20

Southwest museum, Los Angeles, California
House on the hill with front door in the val-
ley. J. L. Von Blon. il Sci Am 122:487+ My
1 '20

Southwest water works association
Southwest water works society wants oper-
ators school. Eng N 86:913 My 26 '21

Southwestern electrical and gas association
Discuss inductive interference at Galveston
meeting. Elec R 78:984-5 Je 18 '21
15th annual convention, Galveston, May 13-
15. Elec Ry J 55:1093 My 29 '20
17th annual convention, Galveston, Tex.,
May 18-21. Elec Ry J 57:1031-2 Je 4 '21

Soviets
Before we establish soviets. B. L. French.
Nation's Business 8:30+ Mr '20

Hungarian industry under the soviet system.
Monthly Labor R 10:357-9 F '20

See also Gild socialism; Socialism; Syn-
dicalism

Soy bean oil
Direct identification of soy-bean oil. C: A.
Newhall. J Ind & Eng Chem 12:1174-5 D
'20

Effect of variation in analytical constants of
linseed and soy-bean oils upon the quanti-
tative determination of linseed oil in mix-
tures of the two oils by means of the iodine
and hexabromide numbers of the fatty
acids. E: A. Tschudy. J Ind & Eng Chem
13:941-3 O '21

Fatty acids, unsaponifiable matter, and glyc-
erol in soy-bean oil. W. H. Low. diag J
Ind & Eng Chem 12:572-3 Je '20

Research in the paint industry. H: A. Gard-
ner. Sci Am 122:89 Ja 24 '20

Soy-bean oil; factors which influence its
production and composition. C. R. Fellers.
J Ind & Eng Chem 13:689-91 Ag '21

Soy beans
Chemical study of the ether extracts of soy
bean leaves. E: M. Nelson. J Ind & Eng
Chem 12:49-50 Ja '20
Food economy. Sci Am M 1:560 Je '20
Lipolytic activity of the castor and soy bean.
A. W. Barton. Am Chem Soc J 42:620-32
Mr '20

Soya oil. *See* Soy bean oil

Space
Between the infinites; an essay upon the im-
pressive magnitudes which the universe
presents. H. Maxim. Sci Am M 4:204-7 S '21
Infinitely small and infinitely great; lengths,
volumes, masses, velocities, etc., at the
limits of measurement. G: Estoppey. Sci
Am M 3:388-91 My '21
Space and time in contemporary physics,
an introduction to the theory of relativity
and gravitation. M. Schlick. 89p Oxford
'20

See also Ether (of space); Relativity

Spacing tables
Cleveland semi-automatic spacing table. il Am
Mach 54:524-5 Mr 24 '21; Iron Age 107:707
Mr 17 '21

Spain
See also Electricity supply—Spain; Rail-
roads—Spain

Commerce

Import and export schedules of Spain. U S
Bur For & Dom Com misc ser 87:1-60 '20
Selling American cars in Spain. Automotive
Ind 45:273-6 Ag 11 '21

Spanish finance and trade. A. N. Young. il
U S Bur For & Dom Com 202:1-199 '20

See also Lumber trade—Spain

Economic conditions

Industrial conditions in Spain. D. R. Casals.
Mach 27:365; 28:206-7 D '20, N '21

Industrial conditions in Spain. H: S. Moos.
Am Mach 53:788g-h O 21 '20

Retail food prices in Spain, 1914-1920. Month-
ly Labor R 11:947-50 N '20

Spain at a standstill. Am Ind 21:46 Jl '21

Spain retains most of economic gains result-
ing from the world war. il Americas 7:6-12
Mr '21

Struggle at Rio Tinto. Min & Sci P 121:326-7
S 4 '20

See also Labor and laboring classes—
Spain; Prices—Spain

Industries and resources

See also Automobile industry and trade
—Spain; Chemical industries—Spain; Elec-
tric industries—Spain; Hydroelectric plants
—Spain; Iron industry and trade—Spain;
Iron mines and mining—Spain; Iron ores
—Spain; Machine tool industry—Spain;
Mines and mineral resources—Spain; Ship-
building—Spain; Steel industry and trade
—Spain

Spain —Continued

Public works

Spanish engineers urge big public-works program. Eng N 84:58 Ja 1 '20

Spalling. See Fire brick

Spanish language

Picking up the Spanish language. J. H. Collins. Ptr Ink 112:108-9 Jl 1 '20

See also Commercial correspondence, Spanish

Spark, Electric. See Electric sparks

Spark gap

Effect of temperature and pressure on the sparking voltage. L. B. Loeb and F. B. Silsbee. diags U S Nat Advisory Com for Aeronautics 1919:115-21 '20; Same. Sci Am M 1:218-20 Mr '20; Same. Aerial Age 10:691-3 F 23 '20

Impulsive sparking voltages in small gaps. J. D. Morgan. Philos Mag 6th ser 41:462-9 Mr '21

Lightning arrester spark gaps; their relation to the problem of protecting against impulse voltages. C. T. Allcutt. il diags pt 1 Am Inst E E Pro 37:519-40 My '18; pt 2 Am Inst E E J 39:939-43 N '20

Magneto testing and the choice of a spark gap. A. P. Young. il diags Engineering 110:725-7 D 3 '20

Method of measuring heat energy of ignition sparks; Measurement of heat energy per spark of various ignition systems. diags F. B. Silsbee and others. U S Nat Advisory Com for Aeronautics 1919:163-76 '20

Spark gaps. W. Estorff. Sci Am M 1:471 My '20

Sparking voltages between spherical electrodes. A. Russell. Inst E E J 57:sup223-30 '19; Discussion. F. W. Peek, jr. Elec W 77:1427; 78:469-70 Je 18, S 3 '21

Subsidiary gap as a means for improving ignition. W. S. Gorton. U S Nat Advisory Com for Aeronautics 1919:179-90 '20

Synchronous rotary spark gap. diags Wireless Age 8:23 Ag '21

Spark plugs

B-G spark plug. il diag Flying 8:932 D '19
Causes of failure of spark plugs. F. B. Silsbee. il U S Nat Advisory Com for Aeronautics 1919:43-52 '20; Same cond. Automotive Ind 43:66-71 Jl 8 '20

Cements for spark-plug electrodes. H. F. Staley. U S Bur Stand Tech Pa 155:1-10 '20
Cements for spark-plug electrodes. H. F. Staley. U S Nat Advisory Com for Aeronautics 1919:109-11 '20

Effect of shunted resistance, or plug leakage, on the sparking performance of an electrical ignition system. G. E. Bairsto. Inst E E J 58:507-22 Je '20; Abstract. Electrician 85:683-5 D 10 '20

Ignition is discussed by the Metropolitan section S.A.E. P. M. Heldt. Automotive Ind 43:630-1 S 23 '20

Importance of spark plugs. Sci Am M 1:465 My '20

Motor transport corps spark-plug specifications. Soc Auto Eng J 6:281 My '20

Preignition and spark-plugs. S. W. Sparrow. diags Soc Auto Eng J 6:129-32 F '20; Discussion. 7:62-3 Jl '20

Properties and preparation of ceramic insulators for spark plugs. F. B. Silsbee and others. diags U S Nat Advisory Com for Aeronautics 1919:77-111 '20

Self-cleaning spark plug. diag Automotive Ind 42:1057 My 6 '20

Spark plug location important. Sci Am 124:223 Mr 19 '21

Spark-plug position. diags Soc Auto Eng J 7:395+ O '20

Spark plug sizes for 1919 and 1920 cars. Motor Age 37:47 Je 24 '20

Study of the deterioration of nickel spark-plug electrodes in service. H. S. Rawdon and A. I. Krynitzky. il U S Bur Stand Tech Pa 143:1-16 '20; Abstract. J Fr Inst 188:812-13 D '19

Temperatures in spark plugs having steel and brass shells. C. S. Cragoe. U S Nat Advisory Com for Aeronautics 1919:73-6 '20

Testing

Gas leakage in spark plugs. L. B. Loeb, L. G. Sawyer and E. L. Fonseca. diags U S Nat Advisory Com for Aeronautics 1919:53-62 '20; Excerpts. Automotive Ind 42:1297 Je 10 '20

Methods for testing spark plugs. H. C. Dickinson, F. B. Silsbee, and P. G. Agnew. diags U S Nat Advisory Com for Aeronautics 1919:63-70 '20

Recommended practice in testing spark plugs. Automotive Ind 44:384+ F 17 '21

Spark-plug tests; S. A. E. Standards report. Soc Auto Eng J 8:177-8 F '21

Spark plug tests for Motor transport corps. Automotive Ind 42:611 Mr 4 '20

Sparking potential of spark plugs. diags Automotive Ind 43:864-5 O 28 '20

Sparking. See Commutators

Spaulding dam

Making the final 15-ft. raise of the Spaulding dam; dam is now 275 ft. high—careful plans to observe shrinkage of concrete. I. C. Steele. il diags plan Eng N 85:1020-4 N 25 '20

Special libraries. See Libraries, Special

Special trains, Educational

Farm convenience special train starts on tour of five states. il Dom Eng 93:10-11+ O 2 '20

Special train educates farmer regarding modern home equipment. C. Rosemont. Dom Eng 90:574-6, 626-8 Mr 20-27 '20

Specialization

Decreasing overhead by increasing individual capacity. H. Tipper. Automotive Ind 45:532-3 S 15 '21

Law of managerial reliance upon specialists. H. P. Gillette. Eng & Contr 54:56 Jl 21 '20

Organization is death; an argument against specialization. J. B. M. Clark, jr. Ind Management 61:141-3 F 1 '21

Spare time. H. W. Jordan. J Ind & Eng Chem 13:253-4 Mr '21; Criticism. F. O. Sprague. 13:474-6 My '21

Spare time—a defense. C. Dedlow. J Ind & Eng Chem 13:1067-8 N '21

Specialisation in men and methods. Eng & Ind Management 5:468-9 Ap 21 '21

Trend of specialization. W. E. Vogelback. Eng & Contr 54:523-4 N 24 '20; Same. Sci Am 124:7 Ja 1 '21; Same. Munic Eng 60:154+ Ap '21

Species

Botanical romance. Sci Am 122:378+ Ap 3 '20

Specific gravity

Density determination of semi-hard ores. R. H. McHardy. diags Eng & Min J 110:65 Jl 10 '20

Density of aluminum from 20 to 1,000 deg. C. J. D. Edwards and T. A. Moormann. diags Chem & Met Eng 24:61-4 Ja 12 '21

Density of hydrochloric acid. J. F. King. bibliog J Phys Chem 25:115-21 F '21

Need of a new table for specific gravity and per cent of glycerol. L. W. Bosart. J Ind & Eng Chem 13:944-5 O '21

Tentative test for specific gravity of asphalts and tar pitches sufficiently solid to be handled in fragments. diag Am Soc T M Pro v 20 pt 1:767-9 '20

Tentative test for specific gravity of road oils, road tars, asphalt cements and soft tar pitches. diag Am Soc T M Pro v 20 pt 1:764-6 '20

See also Gravity

Specific heat

Determination of specific heat of super-heated ammonia. A S R E J 7:362-5 Ja '21

Determination of the specific heat of heavy mineral oils. H. S. Bailey and C. B. Edwards. J Ind & Eng Chem 12:891-4 S '20

Specific heat—Continued

- Heat of hydration and specific heat of wheat flour. F. Daniels, B. H. Kepner and P. P. Murdick. *J Ind & Eng Chem* 12:760-3 Ag '20
- Heats of dilution and the specific heats of dilute solutions of nitric acid and of hydroxides and chlorides and nitrates of lithium, sodium, potassium, and cesium. T. W. Richards and A. W. Rowe. *Am Chem Soc J* 43:770-96 Ap '21
- Indirect method of determining the specific heat of dilute solutions, with preliminary data concerning hydrochloric acid. T. W. Richards and A. W. Rowe. *diag Am Chem Soc J* 42:1621-35 Ag '20
- Molecular energy in gases. J. A. Ewing. *Engineering* 109:842-4 Je 18 '20
- Specific heat of air at room temperature and at low temperatures; abstract. K. Scheel and W. Heuse. *Mech Eng* 42:124 F '20
- Specific heat of petroleum at different temperatures. F. W. Bushong and L. L. Knight. *J Ind & Eng Chem* 12:1197-1200 D '20
- Various determinations of the specific heat of steam and their technical significance. H. Schmolke. *Mech Eng* 43:675-7 O '21
- Specification institute, American.** See American specification institute
- Specification writing**
Elements of specification writing. R. S. Kirby. 2d ed. rev. 153p Wiley '21
- Specifications**
Manufacturing specifications. *Sci Am* 122:328 Mr 27 '20
- Material specifications. E. A. Allcut. *Eng & Ind Management* 6:114-15 Ag 4 '21
- Supplying goods to specification: the importance of detailed instructions. *diags Eng & Ind Management* 5:372-3 Mr 31 '21
- See also Standards, Engineering; also subdivision Specifications under names of subjects, e.g. Bridges—Specifications, Building—Specifications, Civil engineering—Specifications, Pavements—Specifications, Roads—Specifications, Steel—Specifications
- Spectacles**
Repairing optician. J. Fray. 183p H. Frowde, Hodder & Stoughton, London '20
- See also Insurance, Eyeglass; Lenses
- Spectra.** See Spectrum
- Spectrograph**
72-in. reflecting telescope for the Dominion of Canada. *il diags Engineering* 112:269-72 Ag 19 '21
- Spectroheliograph**
Tower telescope. J. M. Le Grand. *il diag Sci Am* 122:92+ Ja 24 '20
- Spectrophotoelectric sensitivity of thalofide.** W. W. Coblenz. *U S Bur Stand Sci Pa* 380:253-8 '20
- Spectrophotometer**
Direct reading spectrophotometer for measuring the transmissivity of liquids. I. G. Priest. *Phys R* 18:127-8 Ag '21
- Measurement of color. C. E. K. Mees. *J Ind & Eng Chem* 13:729-30 Ag '21
- See also Phosphoroscope
- Spectropyrhellometer**
New spectropyrhellometer and measurements of the component radiations from the sun and from a quartz-mercury vapor lamp. W. W. Coblenz and H. Kahler. *il diag U S Bur Stand Sci Pa* 378:233-47 '20
- Spectroradiometers**
Infra-red transmission and refraction data on standard lens and prism material. W. W. Coblenz. *bibliog U S Bur Stand Sci Pa* 401:701-14 '20
- Spectroscopy.** See Spectrum; Spectrum analysis
- Spectrum**
Application of quantum theory to spectral lines. E. P. Adams. (National Research Council Bul. v 1, no 5) p 352-66 O '20 National research council. 1701 Massachusetts av, Washington, D.C.

- Aston's method of mass spectroscopy. *Sci Am* M 4:216 S '21
- Atomic theory and low-voltage arcs in caesium vapor. P. D. Foote and W. F. Meggers. *il diags U S Bur Stand Sci Pa* 386:309-26 '20; Abstract. *J Fr Inst* 190:254-6 Ag '20
- Balmer series of hydrogen, and the quantum theory of line spectra. R. T. Birge. *Phys R* 17:589-607 My '21
- Distribution of energy in the spectrum of an acetylene flame. W. W. Coblenz. *U S Bur Stand Sci Pa* 362:639-51 '20
- Effect of magnetic field on electric furnace spectra. A. S. King. *Sci Am* M 1:557-8 Je '20
- Excitation of enhanced spectra in low voltage arcs. P. D. Foote, W. F. Meggers and F. L. Mohler. *Phys R* 18:128-9 Ag '21
- Excitation of the spectra of carbon, titanium, and vanadium by thermoelectronic currents. A. G. Hemsalech. *J Fr Inst* 189:643-4 My '20
- Force, apparently due to mass, acting on an electron, and the non-identity of isotopes in spectra and other properties. W. D. Harkins and L. Aronberg. *il diag Am Chem Soc J* 42:1328-35 Jl '20
- Lines of the spectrum; their relation to modern theories of physics. P. Zeeman. *Sci Am* M 4:214-16 S '21
- Mass-spectra and atomic weights. F. W. Aston. *diags Chem Soc J* 119:677-87 My '21
- Mass spectra of chemical elements. F. W. Aston. *Philos Mag* 6th ser 42:140-4, pl 7 Jl '21
- Mass-spectra of chemical elements; abstract. F. W. Aston. *J Fr Inst* 191:56 Ja '21
- Mass spectra of the alkali metals. F. W. Aston. *diag Philos Mag* 6th ser 42:436-41, pl 15 S '21
- Obliteration of the characteristic spectra of metals by certain gases. G. E. Gibson and W. A. Noyes, jr. *Am Chem Soc J* 43:1255-61 Je '21
- Peculiarities of polarization and energy distribution by speculum gratings. L. R. Ingersoll. *Phys R* 17:493-501 Ap '21
- Resonance potentials and low-voltage arcs for metals of the second group of the periodic table. F. L. Mohler, P. D. Foote and W. F. Meggers. *il U S Bur Stand Sci Pa* 403:725-37 '20
- Spectral structure of the luminescence excited by the hydrogen flame. H. L. Howes. *Phys R* 17:469-74 Ap '21
- Spectroscopy. A. Fowler. *il Engineering* 111:205-6, 233-4, 265-6 F 18-Mr 4 '21
- Spectrum of hydrogen positive rays. L. Vegard. *diag Philos Mag* 6th ser 41:558-66; Discussion. G. P. Thomson. 566-7 Ap '21
- Talbot's bands and the colour-sequence in the spectrum. N. K. Sethi. *diags Philos Mag* 6th ser 41:211-24 F '21
- Wave-length measurements in the M series of some high-frequency spectra. J. C. Karcher. Press of the New era printing co., Lancaster, Pa. '20
- Wave lengths longer than 5500 A in the arc spectra of seven elements. C. C. Kiess and W. F. Meggers. *U S Bur Stand Sci Pa* 372:51-73 '20
- X-ray bulb with a liquid mercury anticathode, and on wave-length measurements of the L-spectrum of mercury. A. Müller. *diags Philos Mag* 6th ser 42:419-27, pl 14 S '21
- See also Infra-red rays; Light; Spectrum, Solar; Spectrum analysis; Ultra-violet rays

Absorption spectra

- Absorption spectra of the nitric esters of glycerol. E. Q. Adams. *Am Chem Soc J* 42:1321-7 Jl '20
- Determination of the constitution of coloured substances from their absorption spectra; abstract. F. Kehrmann and M. Sandoz. *Chem Soc J* 120 pt 1:276-9 Ap '21
- Effect of solvent on the ultra violet absorption spectrum of a pure substance. F. O. Rice. *Am Chem Soc J* 42:727-35 Ap '20
- Emission and absorption wave-lengths of the characteristic radiation in the L-series. D. Coster. *Phys R* 18:218-20 S '21

Spectrum—Absorption spectra—Continued

- Influence of constitution on the dispersive power of optically active substances; the absorption spectra of optically active substances. H. Rupe, A. Krethlow and K. Langbein. Chem Soc J 120 pt 2:473-4 Ag '21
- Physical significance of the least common multiple. N. Campbell and E. C. C. Baly. Philos Mag 6th ser 41:707-16 My '21
- Study of the absorption spectra of potassium ferro- and ferricyanides. F. H. Getman. J Phys Chem 25:147-59 F '21

Spectrum, Solar

- Spectrum of the green ray. A. Danjon and G. Rougier; abstract. J Fr Inst 190:896 D '20

Spectrum analysis

- Precision-measurements in the X-ray spectra; K-series the elements Cu—Na. E. Hjalmar. Philos Mag 6th ser 41:675-81 Ap '21
- Quantitative determination of potash by the spectrum. D. P. Rogers. Chem & Met Eng 25:161 J1 27 '21
- Sensibility of X-ray analysis and the absorption spectrum of radium. Am J Sci 49:79-80 Ja '20
- Spectro-chemistry of polynuclear aromatic compounds and constitution of naphthalene; abstract. K. von Auwers and A. Frühling. Chem Soc J 120 pt 2:230-2 Ap '21
- Spectrophotoelectric sensitivity of thalofide. W. W. Coblentz. U S Bur Stand Sci Pa 380:253-8 '20
- Spectroscopic examination of converter flame. W. J. Campbell. Engineer 132:137-8 Ag 5 '21; Same. Chem & Met Eng 25:618 S 28 '21
- See also* Infra-red rays; Light; Spectrum; Ultra-violet rays

Speculation

- Banks—and speculation. Comm & Fin Chr 110:295-6 Ja 24 '20
- Speculation and gambling in options, futures and stocks in Illinois. J. C. McMath. 70p G. I. Jones, Chicago '21
- See also* Investments; Panics; Securities; Stock exchange; Wall street

Speech

See also Voice

Speed

- Calculation of critical speeds. diag Engineering 121:1-2 J1 1 '21
- Critical speeds of torsional vibration. F. M. Lewis. diags Soc Auto Eng J 7:418-24; Discussion. 424-31 N '20
- Geometrical progression of speeds in machine tools. C. C. Stutz. Am Mach 52:117-18 Ja 15 '20
- Torsional vibration and critical speeds in crankshafts. J. F. Fox. il diags Soc Auto Eng J 7:413-17+; Discussion. 424-31 N '20
- See also* Airplanes—Speed; Animal locomotion; Automobiles—Speed; Ships—Speed

Speed indicators. See Accelerometer; Tachograph; Tachometer**Speed regulation. See Governors (machinery); Speed variation****Speed variation**

- Cleveland electrical speed control for automatics. il Ry Mech Eng 94:808-9 D '20
- Increasing efficiency by speed control of turbine driven pulp grinders. A. F. Meyer. il charts Paper 26:11-19 My 19 '20
- Oilgear—a variable speed and feed control system. il diags Am Mach 55:271-4 Ag 18 '21; Abstract. Mech Eng 43:682-3 O '21
- Some methods of obtaining adjustable speed with electrically driven rolling mills. K. A. Pauly. il diags Eng Soc W Pa 37:158-78 Ap '21; Same. Gen Elec R 24:422-32 My '21; Abstract. Sci Am M 4:87 J1 '21; Discussion. Eng Soc W Pa 37:179-88 Ap '21
- Speed regulation of hydraulic turbines. J. S. Carpenter. charts diags plan Power Pl Eng 25:947-50, 990-3 O 1-15 '21
- Speed regulation of the hydraulic turbine. R. D. Johnson. diags Mech Eng 43:245-6+ Ap '21

Spellerized steel piping. See Pipes, Steel**Spelling**

- Some puzzles in spelling. F. H. Teall. Inland Ptr 68:55-6 O '21

Spelling reform

- Konserning fonetiks. Eng & Min J 109:431-2 F 14 '20
- Simplified spelling. W. H. Shockley. Min & Sci P 120:40 Ja 10 '20
- Simplified spelling foisted on the Institute. Min & Met 157:(sec 1) 11-16 Ja '20

Spelter. See Zinc**Spencer, Herbert**

- Herbert Spencer and human government. F: J. E. Woodbridge. Comm & Fin Chr 110: 1921-3 My 8 '20

Sperry, Elmer Ambrose

- Portrait. Elec W 75:990 My 1 '20
- Romance of invention; Elmer Sperry—the man who harnessed the motion of the earth. C. H. Claudy. por il Sci Am 122:420+ Ap 17 '20

Sperry gyroscope company, Brooklyn, New York

- Programs of apprenticeship and special training in representative corporations; Sperry gyroscope company, Brooklyn, N.Y. il Am Mach 53:951-2 N 18 '20
- Spherical projection**
- Equal-area projection of sphere an aid to mapping. R. L. Faris. Eng N 84:1204 Je 17 '20
- Novel equal-area projection of the sphere. diag Sci Am 124:233 Mr 19 '21

Spiders

- Spiders as mechanics; their skill as weavers, miners, builders, and aeronauts. E. L. Bouvier. il Sci Am M 1:167-73 F '20
- Spiders used in medicine; ancient and modern pharmaceutical uses of the spider and the spider web. J. T. Lloyd. Sci Am M 4:33-4 J1 '21

Spiegeleisen

- Discussion of data on spiegeleisen practice. P. H. Royster. U S Bur Mines Bul 173:139-47 '20
- Ferro and spiegel gain in 1920. Iron Tr R 68:211 Ja 13 '21
- Production of ferromanganese and spiegeleisen during the first quarter of 1920. Iron Age 105:1386 My 13 '20
- Use of spiegeleisen in steel manufacture. H: D. Hibbard. Chem & Met Eng 22:209-10 F 4 '20; Excerpts. Iron Tr R 66:220 Ja 15 '20

Spike puller

- Spike puller has four-grip disk that pulls spikes without deforming them. diags Coal Age 19:802 My 5 '21

Spikes (railroad)

- Defects in screw spike installations. Eng & Contr 53:297-8 Mr 17 '20
- Is the use of screw spike justified? W. W. Wysor. Elec Ry J 55:521-2 Mr 13 '20; Same. Eng & Contr 53:462-3 Ap 21 '20
- Laboratory tests on holding power of track spikes. A. H. Beyer and W: J. Krefeld. il diags Ry Age 67:1237-9 D 26 '19; Same. Eng & Contr 52:593-5 N 19 '19; Abstract. Eng N 84:47-8 Ja 1 '20; Conclusions. Elec Ry J 54: 975 D 20 '19
- Manufacturer comments on track spikes. W. F. Schleiter. Elec Ry J 55:300 F 7 '20
- Purchasing track spikes under specifications. H. H. George. diags Elec Ry J 55:147-9 Ja 17 '20
- Sessler-grip-spike. il Ry Age 68:1111-12 Ap 2 '20
- Success of screw spikes depends largely on placing. Eng N 84:733-4 Ap 8 '20

Spillways

- Precast blocks used alternately with concrete in dam coping. D: C. Finston. il diag Eng N 87:371-2 S 1 '21
- Siphon spillway of Alpine dam of Marin water district. G. F. Stickner. il diags plan Eng & Contr 53:422-3 Ap 14 '20
- Spillways for reservoirs and canals. A. T. Mitchelson. il diags plan U S Agric Bul 831: 1-40 '20; Excerpts. Power Pl Eng 24:1168-71 D 15 '20; Conclusions. Munic Eng 59:123-4 O '20

See also Dams

Spillsbury, Edmund Gybbon, 1845-1920

- Sketch. por Min & Met 163:27-8 J1 '20; Mech Eng 42:424 J1 '20

Spinach

Mosaic disease of spinach as characterized by its nitrogen constituents. S. L. Jodidi, S. C. Moulton and K. S. Markley. *Am Chem Soc J* 42:1061-70 My '20

Spindles

Spindle drive; friction type for use on jute and flax tow frames. *diags Textile World* 59:2681 Ap 23 '21

Manufacture

Taper-turning tool for spinning machine spindles. W. B. Bennett. *il diags Mach* 27:757-9 Ap '21

Spinning

Current practices in spinning rooms. C. R. Harris. *Textile World* 57:4024+ My 29 '20

See also Carding machines; Cotton spinning; Textile fabrics; Textile industry; Yarn

Spinning machinery

Cap doffing frame for worsted mills. *il diags Textile World* 59:2439 Ap 9 '21

Covering drawing and spinning rolls. *Textile World* 58:903 Ag 7 '20

Individual motor drive for spinning and twister frames. G. Wrigley. *il Elec J* 18:501-3 N '21

New worsted roving frame with ball bearing spindles and automatic doffer. *il Textile World* 59:31 Ja 1 '21

Self-weighted top roll. *diags Textile World* 56:2925+, 3347 N 15, D 13 '19

Setting of drawing rolls. *diags Textile World* 57:381-2 Ja 17 '20

Setting spinning frame traverse motion. H. D. Martin. *diags Textile World* 57:4393 Je 12 '20

Use of ring travelers. H. D. Martin. *Textile World* 60:2177+ O 15 '21

See also Drawing frames; Textile machinery

Spiral gearing. *See* Gearing, Spiral

Spiro-compounds

Formation and stability of spiro-compounds; derivatives of cyclohexanespiro-cyclohexane and of cyclopentanespirocyclohexane. W. S. G. P. Norris and J. F. Thorpe. *Chem Soc J* 119:1199-1210 Ag '21

Formation and stability of spiro-compounds; ketones derived from open-chain and cyclic glutaric acids. G. A. R. Kon. *Chem Soc J* 119:810-30 Je '21

Formation and stability of spiro-compounds; new derivatives of cyclopropane and cyclohexanespirocyclopropane. S. F. Birch, W. H. Gough and G. A. R. Kon. *Chem Soc J* 119:1315-28 Ag '21

Spirojectors. *See* Aspirators

Spiro-pyrimidines

Spiro-pyrimidines; cyclobutane-1,5-*spiro*-pyrimidines. A. W. Dox and L. Yoder. *Am Chem J* 43:677-84 Mr '21

Spiro-pyrimidines; cyclohexane-1,5-*spiro*-pyrimidines. A. W. Dox and L. Yoder. *Am Chem Soc J* 43:1366-70 Je '21

Spittle insect. *See* Froghoppers

Spitzbergen

Norwegians in Spitsbergen. C. Rabot. *il map Sci Am M* 1:240-6 Mr '20

See also Coal mines and mining—Spitzbergen

Spitzglass, Jacob M., 1869-

Inventor of the Republic flow meter. *por Power* 53:1051-2 Je 28 '21

Splicing. *See* Knots and splices

Splines

Methods of generating the involute spline and its application. D. T. Hamilton. *diags Soc Auto Eng J* 7:149-54 Ag '20

Split Infinitive. *See* Infinitives

Spillage

Increasing the yield from rejected materials. T. F. W. Meyer. *Factory* 24:274-7 F 1 '20

Reducing spoiled work. J. Adendorff. *Am Mach* 52:918-19 Ap 22 '20

Spoiled work and its prevention. *Am Mach* 52:637 Mr 18 '20

Spokane, Washington**Description**

Observation on a Pacific coast trip. F. C. Wight. *il Eng N* 85:1132-3 D 9 '20

Rapid transit

Results of fare increase in Spokane. H. C. Bender. *Elec Ry J* 55:433-4 F 28 '20

Spokane's traction problems are being solved. *il map Elec Ry J* 56:1090-4 N 27 '20

Spokane river

Snow for water power from Spokane river. *map Eng N* 86:209 F 3 '21

Spontaneous combustion

Curious case of spontaneous combustion. *il Sci Am M* 1:148 F '20

Protection of soft coal from internal heating. F. C. Thornley. *il Ind Management* 61:112-14 F 1 '21

Shortage of coal looms a highly important factor in gas works economy. B. B. Saul. *Am Gas Eng J* 113:217-20 S 18 '20

Spontaneous combustion of coal. *Engineering* 111:173-4 F 11 '21

Spontaneous combustion of coal in silo bunkers. *il diag Power* 52:428 S 14 '20; *Elec Ry J* 56:507 S 11 '20; Discussion. R. L. Beare. *Power* 52:675 O 26 '20

Spontaneous combustion temperatures of liquid fuels. M. Tevis. *Sci Am* 123:99 Jl 31 '20

Storage of bituminous coal. O. P. Hood. *il diags Power* 52:478-80 S 21 '20; Same. *Coal Age* 18:845-8 O 21 '20; Same. *Am Soc Heat & V E J* 27:753-9 O '21; Same cond. *Elec Ry J* 56:503 S 11 '20; Same cond. *Min & Sci P* 122:131 Ja 22 '21

See also Coal storage

Spooling

Management of the spooling department. H. D. Martin. *Textile World* 58:2325 O 2 '20

Spoons

Spoon and fork blanks; defects in manufacture and their causes in English practice. J. A. Morton. *il Metal Ind* 18:272-3, 316-17 Je-Jl '20

Sporting goods

See also Duxbak

Advertising

Building a reputation for authority by professional service to customers; Abercrombie & Fitch. C. B. Larrabee. *il Ptr Ink M* 3:28-30+ Ag '21

Sports

Illumination of outdoor sports. R. E. Harrington. *il diags plans Elec R* 78:85-90 Ja 15 '21

Illumination requirements for indoor sports. J. H. Kurlander. *il diags Elec R* 79:39-43 Jl 9 '21

Scientific basis of sport. *Sci Am* 123:56 Jl 17 '20

See also Skis and ski running; Water skis

Spot welding. *See* Electric welding

Spotlights. *See* Stage lighting

Sprague, Frank Julian, 1857-

Pioneer in electrical operation of street railways. *por Elec W* 75:882 Ap 17 '20

Presentation of the Franklin medal and certificate of honorary membership to professor Charles Fabry and Mr Frank J. Sprague, and certificate of honorary membership to General John J. Pershing. *J Fr Inst* 192:369-76 S '21

Romance of invention; a pioneer of the electric motor, the trolley car, the multiple-unit-train control, the electric elevator. C. H. Claudy. *por il Sci Am* 122:88+ Ja 24 '20

Spray painting. *See* Painting, Industrial

Spraying and dusting

Late-model cotton sprayer speeds dusting operation. *il Pop Mech* 36:332 S '21

Protecting fruit by colored light. M. Tevis. *Sci Am* 125:223 S 24 '21

Spraying trees from an aeroplane. *Aerial Age* 13:586 Ag 29 '21; *Aviation* 11:288 S 5 '21

Spraying and dusting—Continued

Subduing the boll weevil. G: H. Dacy. *il Sci Am* 122:486+ My 1 '20

Spraying machinery

Rubber hose in painting, asphalt and cement coating. *il India Rubber W* 62:797-8 S '20

Spraying materials

Pickering sprays. F. C. Cook. *bibliog il diag U S Agric Bul* 866:1-47 '20

See also Insecticides

Spreader cars

Embankment filling without trestles. *il diags Ry R* 66:1093-6 Je 26 '20; Same. *Eng & Contr* 54:162-3 Ag 18 '20

Heavy spreader plow for the Oliver iron mining co. *il diag plan Ry R* 65:877-80 D 13 '19; *Ry Age* 67:1119-20 D 5 '19

Mann spreader cars for heavy work. *il Ry R* 66:188-9 Ja 31 '20

New spreader plow constructs embankments without use of trestles. *il diag Eng & Contr* 54:649-50 D 29 '20

Railway spreader car handles heavy materials. *il diag plan Eng N* 84:866-7 Ap 29 '20

Spreader car converted into ballast trimmer and shoulder former. *il diags Ry R* 69:104-5 Jl 23 '21

Spreader plows. See Spreader cars**Spring wheat crop improvement association**

Association advertises to get more spring wheat planted. *Ptr Ink* 110:141-2+ F 26 '20

Springfield, Massachusetts**Bridges**

To build large bridge across the Connecticut at Springfield. C. M. Spofford. *il map Eng N* 84:817-18 Ap 22 '20

Sewerage

Relief sewers recommended for Springfield, Mass. *Eng N* 84:1055 My 27 '20

Springfield (Massachusetts) Republican

Engineering details of newspaper publishing building. C: F. Dingman. *il plans Eng N* 85:1092-4 D 2 '20

Springs

Relining an old spring pit. W: Hutton. *diag Dom Eng* 94:443 F 26 '21

See also Hot springs

Springs (mechanism)

Chart for the design of helical wire springs. R. Brooks. *diags Engineering* 112:173-5 Jl 29 '21

Design of flat springs. J. K. Wood. *diags Am Mach* 55:46-9 Jl 14 '21

Design of helical springs. J. K. Wood. *chart diags Am Mach* 54:628-32, 780-4, 854-7 Ap 14, My 5, 19 '21

Design of springs. J. K. Wood. *diags Am Mach* 55:674-7 O 27 '21

Factors affecting the real stresses in helical springs. W. N. Thomas. *Mech Eng* 43:49 Ja '21; Same. *Sci Am M* 3:91 Ja '21

Flat spring bender. L. W. Richardson. *diag Mach* 26:659 Mr '20

Formulas for spring design. E: Jacobi. *diags Mach* 27:882-4 My '21

Helical spring design. H. R. Bowman. *Mach* 27:789-90 Ap '21

Manufacture of heavy-duty helical springs. *Mach* 27:870-1 My '21

Pointers on spring winding. G: C. Hanneman. *Mach* 26:725 Ap '20

Process for the manufacture of helical springs for heavy duty. T. D. Lynch. *il Ry Mech Eng* 94:662-3 O '20

Spring buckling press. *il diags Engineering* 112:502-3 O 7 '21

Spring making and repairs. J. W. Riley. *Ry Mech Eng* 94:604-5 S '20

Spring scragging machine. *il diags Engineering* 110:242-4 Ag 20 '20; Same *abr. Mech Eng* 42:635 N '20

Steel compression springs of circular cross section; coil spring calculation charts. T. F. Stacy. *Am Mach* 53:581-2 S 23 '20

See also Automobiles—Springs; Car springs; Locomotives—Springs; Motor cycles—Springs; Motor trucks—Springs; Tractors—Springs

Specifications

Proposed tentative specifications for chrome molybdenum alloy steel helical springs. *Ry Age* 71:358-9 Ag 20 '21; Same. *Ry Mech Eng* 95:568-9 S '21; Excerpts. *Ry R* 69:233 Ag 20 '21

Testing

Avery 15-cwt. spring testing machine. *il diags Automobile Eng* 11:247 Jl '21

Compression-spring testing machine. J. V. Hunter. *il Am Mach* 52:326 F 12 '20

Hydraulic spring-testing machine. H. A. Pearson. *diag Mach* 27:448 Ja '21

Spring testing; recent developments in the Amsler machines. *il diags Automobile Eng* 11:142-4 Ap '21

Sprinkling systems

At a word sprays thoroughly drench every square foot in anthracite breakers. D. C. Ashmead. *diags Coal Age* 18:995-8 N 11 '20

Care and maintenance of fire protection systems. C. H. Jenkins. *il Power* 52:124-7, 213-16 Jl 27, Ag 10 '20

Designing the automatic sprinkler system for hot water heating. *il diags plan Am Arch* 117:625-8 My 19 '20

Illinois mines guard their timbered shaft bottoms by fusible-plug sprinklers. D. J. Baker. *il plan Coal Age* 18:719-22 O 7 '20

Sprinkler installation for fire protection. W. D. Brown. *diags Arch Forum* 33:26-8, 73-4, 85-8, 139-42 Jl-O '20

Utilization of automatic sprinkler system for hot water heating. A. W. Moulder. *il diags plan Am Soc Heat & V E* 25:311-19; Discussion. 319-24 '19

Value of sprinkler protection and efficiency of standard check valves. C. L. Scofield. *Can Eng* 40:202 F 10 '21

See also Fire protection

Sprocket wheels

Proposed standard roller-chain sprocket; report of Standards committee of Society of automotive engineers. *diags Am Mach* 54:1052-3 Je 16 '21

Spruce

Compressed-spruce pulley. *il Power* 51:885 Je 1 '20

Effect of kiln drying on the strength of airplane woods. *diags U S Nat Advisory Com for Aeronautics* 1919:489-506 '20

Investigation of compressed spruce pulleys. G: S: Wilson. *il diag Wash U Eng Exp Sta Bul* 10:1-72 O '20; Abstract. *Mech Eng* 42:451-2 Ag '20

Investigation of the compressive strength of spruce struts of rectangular cross section and the derivation of formulas suitable for use in airplane design. J. E. Boyd. *U S Bur Stand Tech Pa* 152:1-43 '20; Abstract. *Aviation* 8:436 Jl 1 '20

Moduli of rigidity for spruce. H. Carrington. *Philos Mag* 6th ser 41:848-60 Je '21

Tannin content of Pacific coast conifers. R. H. Clark and H. I. Andrews. *J Ind & Eng Chem* 3:1026-7 N '21

Squalene

Squalene: a highly unsaturated hydrocarbon in shark liver oil. M. Tsujimoto. *J Ind & Eng Chem* 12:63-72 Ja '20

Square (instrument)

How to use the steel square. 79p McKay '21

Steel square and its uses. *diags Sheet Metal Worker* 12:439-41 Jl 22 '21

Square donut baking company

Advertising introduces the square doughnut. *il Ptr Ink* 110:8+ Ja 15 '20

Squaring devices

Accurate squaring device for planing machine. H. Senior. *Am Mach* 52:1076-7 My 20 '20

Accurate squaring device for the planing machine. E. A. Dixie. *il Am Mach* 52:946 Ap 29 '20

Squier, George Owen, 1865-

Romance of invention; General George O. Squier—the genius of wired wireless. C. H. Claudy. *por Sci Am* 122:620+ Je 5 '20

Sketch. *por Elec W* 77:976 Ap 30 '21

Stability, Chemical. See Chemical equilibrium
Stabilizers. See Airplane stability and stabilizers; Ships—Stability

Stable money league

Aims of the Stable money league. J. W. Jenks. *Comm & Fin Chr* 113:16-17 J1 2 '21
 Fisher's stable money plan results in league for action. I. Fisher. *Annalist* 17:591-2 My 30 '21

Organization meeting of Stable money league. *Comm & Fin Chr* 112:2362-3 Je 4 '21

Stabilizing the gold dollar. *Comm & Fin Chr* 112:2463-4 Je 11 '21

Stacks. See Chimneys

Stacks (hay, grain, etc.)

Field hoist pitches wheat from header to stack. *il Pop Mech* 35:325 Mr '21

Stadia

Bicycle-racing bowl has new features. *il Pop Mech* 35:801 Je '21

Building the Jersey City prize-fight stadium. *il Eng N* 86:1112-13 Je 30 '21

Chicago plans for largest athletic stadium. *il plan Pop Mech* 33:369 Mr '20

Competition for a stadium on the Lake Front, Chicago. *Am Arch* 117:205-12, 241-6, 249-51, pl 228a-f, pl 252a-e, pl 282a-g F 18-Mr 3 '20

Construction work starts on huge Seattle stadium. *il Am Arch* 117:806-7 Je 23 '20

Enormous stadium planned for Ohio school. *il Pop Mech* 35:81 Ja '21

Large earth-fill stadium built by sheerboard method. *il diags Eng N* 86:326-9 F 24 '21

Ohio stadium. *il Am Arch* 118:617 N 10 '20

Ohio stadium at Ohio state university. H. D. Smith. *il diags plans Arch Rec* 48:384-406 N '20

Pasadena stadium to be one of world's largest. J. A. Ford. *il Pop Mech* 36:696-8 N '21

Report on trip to Princeton, College of City of New York. Yale and Harvard for the purpose of inspecting the stadia at those universities. H. D. Smith. *il Am Arch* 118:94-6, 124-6, 160-4, 221-4, 260-2 J1 21-Ag 4, 18-25 '20

Shall architect or engineer predominate in stadia design. C. H. Bebb. *Am Arch* 118:333 S 8 '20

South Park board, Chicago, approves stadium design. *W Soc E J* 25:15+ Ja 20 '20

Special stadium built for Passion play. H. J. Wood. *il Pop Mech* 35:726-7 My '21

Stadium for the Olympic games; second preliminary competition for the fourteenth Paris prize of the Society of Beaux-Arts architects. *il Am Arch* 119:609-11 Je 8 '21

Washington university stadium. *il Concrete* 18:282-3 Je '21

Western university plans largest stadium. L. W. Pedrose. *il Pop Mech* 33:859-60 Je '20

Stadia measurements. See Surveying—Tables, calculations, etc.

Stadia tables

Table for obtaining differences of elevation and horizontal distances from vertical angles and stadia distances. A. A. Stiles. 141p State reclamation dept., Austin, Tex. '21

Stage design. See Theaters

Stage lighting

Artificial sky method of stage lighting. *Illum Engr* 13:233 Ag '20

Baby spot—a miniature projector with a hundred uses. *il Electrician* 87:471 O 7 '21; *Elec R (Lond)* 89:587 O 28 '21

Electricity and the school entertainment. *il J Elec* 44:614-16 Je 15 '20

Improvements claimed for theater spotlight. *il Elec R* 77:399 S 11 '20

Light and color in relation to stage effects. J. B. Fagan. *Sci Am S* 88:285 N 15 '19

Portable dimmer cases used by traveling shows. *il Elec R* 78:195 Ja 29 '21

Progress in stage lighting. *il Electrician* 87:299 S 2 '21

Recent applications of color in lighting. A. D. Curtis and J. L. Stair. *il diags Illum Eng Soc* 15:684-8; Discussion. 691-2 no 9 '20

Stage mechanism

Noise makers of the stage. *il Sci Am* 122:65+ Ja 17 '20

Realistic marine warfare on stage. H. A. Mount. *il Pop Mech* 36:43-4 J1 '21

Stunts of the stage. H. A. Mount. *il Sci Am* 124:105+ F 5 '21

Stage scenery. See Theaters—Stage setting and scenery

Stained glass

Holy Grail window in Proctor hall, Graduate college, Princeton university. C. O. Cornelius. *il Arch Rec* 46:440-6 N '19

Restoring stained glass windows. *Sci Am* 122:176 F 14 '20

Staining. See Gilding; Varnish and varnishing; Wood finishing

Stainless iron. See Iron, Stainless

Stainless steel. See Chromium nickel steel; Chromium steel; Steel, Stainless

Stains

Obstinate fruit stains on the skin. *Sci Am* 125:31 J1 9 '21

See also Blue stain; Cleaning; Ink stains

Stairways

Constructing a winding stairway. R. M. Van Gaasbeek. *diags Bldg Age* 42:37-40 Ap; 28-31 Je; 31-2 J1; 57-61 Ag; 57-61 S; 60-2 O; 40-1 N '20

English architectural decoration. A. E. Bullock. *il diags plans Arch Rec* 47:333-47, 462-76 Ap-My '20

Factory stairs and stairways. G. L. H. Arnold. *diags Am Arch* 117:129-34, 161-4 Ja 28-F 4 '20

How to make stairs that will be comfortable. *il Bldg Age* 43:55-6 J1 '21

Kahn tailoring company building, Indianapolis, Ind. *il plan Am Arch* 117:353-5 Mr 17 '20

Method for laying out rise and run of stairways. R. C. Reese. *diags Eng N* 86:805 My 12 '21

Use of linoleum as a safety stair tread. *diags Am Arch* 118:31-2 J1 7 '20

Stairways, Concrete

Concrete steps easy to build. *il diag Bldg Age* 43:62 Ap '21

Spiral stairway made of precast concrete members. *il diag Eng N* 84:919 My 6 '20

Stalactites

Rate of formation of copper sulfate stalactites. G. J. Mitchell. *Min & Met* 170:33 F '21

Stammering

Stammering scientifically considered. E. Tomkins. *Sci Am M* 2:111-13 O '20

Stamp mills

Amalgamation in stamp-mills. *Min & Sci P* 122:383-4, 592-3 Mr 19, Ap 30 '21

Amalgamation in the presence of oil. L. C. W. Graefe. *Min & Sci P* 122:593-4 Ap 30 '21

Dressing amalgamated plates with potassium amalgam. C. Flury. *il Eng & Min J* 112:578-9 O 8 '21

Present status of the stamp mill. A. J. Clark. *il Eng & Min J* 109:833-6 Ap 10 '20

Twin drum friction lifter for drop stamps. *il diags Engineering* 111:584, 588 My 13 '21; *Abstract. Mech Eng* 43:479 J1 '21

Stamping machines

Doing away with postage stamps. *il Sci Am* 125:241 O 1 '21

Stampograph

Merey stampograph. *il Mach* 26:984 Je '20

Stamps

How hand-cut steel stamps are made. S. A. Hand. *il diags Am Mach* 52:71-2 Ja 8 '20

Steam and friction stamps for hot stamping. W. H. Snow. *Engineer* 130:173-4 Ag 20 '20; *Abstract. Sci Am M* 2:186 O '20; *Abstract. Mech Eng* 42:585 O '20

Steel stamps, embossing dies, stencils. E. Sheldon. *il Am Mach* 53:789-94 O 28 '20

See also Postage stamps

Stamps, Postage. See Postage stamps

Stamps, Revenue. See Revenue stamps

Stamps, Rubber. See Rubber stamps

Standard gas and electric company

Annual report. Comm & Fin Chr 110:1876-8
My 1 '20

Standard oil company of New Jersey

Detailed statistics as to production controlled by S. O. of New Jersey. Nat Pet N 12:89-91+ Ap 21 '20

Employee representation in Standard oil. B. Kline. Ind Management 59:355-60, 496-501
My-Je '20

Industrial representation in the Standard oil co. C. J. Hicks. Min & Met 159:(sec 4) 1-3
Mr '20; Same. Chem & Met Eng 22:607-8
Mr 31 '20

New Jersey standard gives details as to properties and operations. Nat Pet N 12:25-9 Ap 7 '20

Passes steel trust in working capital. Nat Pet N 13:85 Je 3 '21

Speeches at a Standard oil meeting of employees' and companys' representatives. B. Kline. Ind Management 60:1-8 Jl '20

Standard of New Jersey celebrates 50th anniversary of its founding. Nat Pet N 12:30-2
Ja 14 '20

Worker's wage scale must depend on worker. W. C. Teagle. Nat Pet N 12:45 My 5 '20

Standard solutions. See Solutions, Standard
Standardization

Advertising as a promoter of standardization. Ptr Ink 110:141-2 Ja 1 '20

American electric railway engineering association meeting, Atlantic City, N.J.; reports on standardization and its effect on stores. Elec Ry J 56:830-3 O 16 '20

Annual meeting of the American society for testing materials. Eng N 85:12-16 Jl 1 '20

Better production by standardization; discussion at Taylor society meeting. Iron Age 106:1550-1 D 9 '20

Desirability of standardisation in the testing of welds. F. M. Farmer. il diags Engineering 111:239-42 F 25 '21; Same. Engineer 131:200-2 F 25 '21; Discussion. Engineering 111:220-2 F 25 '21; Engineer 131:199 F 25 '21

Economic production. Eng & Ind Management 6:244-5 S 1 '21

Engineering and industrial standardization. Mech Eng 42:544-5 S '20

High cost of choosing. H. Hoyt. Nation's Business 8:90+ O '20

How advertising affects standardization. R. W. Johnson. Ptr Ink 115:81-2+ Je 16 '21

How far does it pay to carry simplification? W. R. Basset. il System 40:413-15+ O '21

How simplification built profits for six concerns. J. Hartness. System 40:548-51 N '21

How simplification removed production difficulties. A. M. Maddock. il Factory 27:612-14 N '21

How standardization and advertising saved a failing business; Gilbert clock co. R. Johnson. il Ptr Ink M 3:26-8+ Jl '21

Human element as related to standardization and uniformity. H. Tipper. Automotive Ind 45:432-3 S 1 '21

Industry's fighting equipment. E. W. McCullough. Nation's Business 9:38+ Ag '21

International standardization. Elec R 78:1022 Je 25 '21; Elec W 77:1504 Je 25 '21

Is there need for further standardization in American construction activities? E. T. Trigg. Am Arch 116:827-30 D 31 '19

Reason why: we must standardise manufacture. W. J. Hiscox. Electrician 86:725 Je 10 '21

Science of standardization. R. S. Burnett. Soc Auto Eng J 7:343-5 O '20

Simplification in industry. il Factory 27:175-7 Ag '21

Simplification in industry. H. Coonley. Factory 27:317-19 S '21

Simplification in industry. G. A. Galliver. il Factory 27:463-6 O '21

Simplification in industry. A. L. Smith. il Factory 26:1391-3 Je 15 '21

Simplification in industry. L. I. Thomas. Factory 26:451-3, 715-18+ F 15, Mr 15 '21

Simplification in industry; what simplification accomplished for us. J. M. Williams. Factory 26:952-3 Ap 15 '21

Simplification in industry; why it paid us to reduce our line and make more goods. W. D. Pardoe. Factory 26:1175-7 My 15 '21

Standardization. J. A. Anglada. Soc Auto Eng J 7:211 Ag '20

Standardization and individuality. J. Younger. Automotive Ind 45:229-30 Ag 4 '21

Standardization and research. S. W. Stratton. J Ind & Eng Chem 13:727-8 Ag '21;

Same abr. Textile World 60:2443+ O 29 '21

Standardization and the safety movement. C. E. Oakes and J. A. Dickinson. Am Mach 53:9-10 Jl 1 '20

Standardization of electrical equipment and its relation to accident hazard. W. Greenwood. Blast F & Steel Pl 8:548-9 O '20

Standardization of products as a national economy. M. T. Copeland. Ind Management 61:67-8 Ja 1 '21

Standardization work in Europe; abstracts. P. G. Agnew. Am Mach 53:210-11 Jl 29 '20;

Power 52:34 Jl 6 '20

Standardized training of textile apprentices. E. Szepesi. il chart Textile World 59:865+ F 5 '21

Standardizing the made-to-order product. D. Kirkland. Ptr Ink 115:33-6 Je 30 '21

See also Chemicals—Standardization; Electric standards; Standards, Engineering; also subdivision Standards under various subjects, e.g. Alloys—Standards, Automobiles—Standards, Coke manufacture—Standards, Electric lamps—Standards, Industrial management—Standards, Metals—Standards, Pipe flanges—Standards, Screw threads—Standards, Shafting—Standards, Steam pipes—Standards

Standardization of jobs. See Jobs, Standardization of

Standardization of plumbing materials, National bureau of. See National bureau of standardization of plumbing materials

Standards, Building. See Building—Standards

Standards, Electric. See Electric standards

Standards, Engineering

American gear manufacturers' inspection standards. Mach 28:22 S '21

A.S.T.M. holds interesting meeting. Elec Ry J 56:21-2 Jl 3 '20

Automotive engineering standardization and progress. C. F. Clarkson. Soc Auto Eng J 7:356-7 O '20; Same. Aviation 9:158 O 1 '20;

Same. Am Mach 53:891-2 N 11 '20

Engineering in trade association work. W. Clay. W Soc E J 25:181-220 Mr 20 '20; Excerpts. Am Arch 117:563-8 My 5 '20

Gear makers hear much discussion of standards at semi-annual meeting of the American gear manufacturers' association. P. M. Heldt. Automotive Ind 43:901-4 N 4 '20

Group of standard specifications. Mech Eng 43:760-2 N '21

Handbook of standard details for engineers, draftsmen and students. C. H. Hughes. 312p Appleton '21

Mechanical standards for paper mills. J. Stadler. Paper 25:19-20 F 4 '20

Promotion of engineering standardization. C. C. Garrard. Inst E E J 58:59-61 D '19

Science of standardization. R. S. Burnett. Soc Auto Eng J 7:343-5 O '20

Standardization of boiler and staybolt taps. diags Ry Mech Eng 94:653-5 O '20

Standardization of the limit system in machine construction. P. M. Heldt. Automotive Ind 42:858-61 Ap 8 '20

Types of end standards. R. L. Rankin. il Iron Age 104:1331-2 D 25 '19

Visit of American engineering committee to foreign standardizing bodies. Ind Management 60:121 Ag '20

See also Automobiles—Standards; Electric standards; Gas—Standards; Lighting—Standards; Metals—Standards; Mining machinery—Standards; Pipe flanges—Standards; Railroads—Standards; Safety devices and measures—Standards; Screw threads—Standards; Steam pipes—Standards; United States—Standards, Bureau of; Weights and measures; also American engineering standards committee

Standards, Engineering —Continued**Bibliography**

British engineering standards association specifications now available. *Can Eng* 39: 128+ J1 8 '20

Standards of length

British and the American inch identical; a reply to a statement to the contrary appearing in the European edition of the American machinist. C. C. Stutz. *Am Mach* 54:800a-b My 5 '21

Why is it a yard? W. M. Butterfield. *diags Sci Am* 122:179 F 21 '20

Standards of living

Minimum quantity budget necessary to maintain a worker's family of five in health and decency. *Monthly Labor R* 10:1307-24 Je '20

Standards of living; a compilation of budgetary studies. (Bul. 7) 156p '20 U.S. Bureau of applied economics, inc., Washington, D.C.

See also Cost of living

Standpipes

Chicopee, Mass., steel standpipe subject of suit. *Eng N* 83:1053-4 D 25 '19

Cleaning and painting standpipes. C. W. Sherman. *il N E Water Works Assn J* 35:51-3; Discussion. 54-6 Mr '21

Cost of cleaning and painting steel standpipes. H. K. Barrows. *Eng & Contr* 55: 375 Ap 13 '21

Experiences with ice in standpipes. L. Metcalf. *Am Water Works Assn J* 7:579-88 J1 '20

Object of suspicion. *Eng N* 84:246-7 Ja 29 '20

Protecting iron and steel standpipes from corrosion. C. W. Sherman. *Eng N* 84:285-6 F 5 '20

See also Surge tanks; Water storage; Waterworks

Repair

Repairs to wind-indentured standpipe at Bath, Maine. C. E. Carter. *il Eng N* 87:601-2 O 13 '21

Standpipes, Concrete

Concrete standpipe for 110 ft. head at Kansas City. T. D. Samuel, jr. *il diags Eng N* 85:841-3 O 28 '20

Standpipes (gas works)

New type of Congdon standpipe. R. C. Congdon. *il Gas Age* 47:460-1 Je 10 '21; Same. *Am Gas J* 114:543-4 Je 18 '21

Stanneries. *See* Tin mines and mining

Stannic chloride. *See* Tin chlorides

Stannous chloride. *See* Tin chlorides

Staphylococcus

Toxicity towards staphylococcus of dilute phenol solutions containing sodium benzoate. K. E. Burgess. *J Phys Chem* 24:738-40 D '20

Starch

Alkyl ethers of starch. C. J. West. *Paper* 27: 16+ O 6 '20

Canadian starch and glucose industry. *Chem & Met Eng* 23:1171 D 15 '20

Distillation of cellulose and starch under reduced pressure. A. Pictet and J. Sarasin. *Paper* 28:25-8 Ap 13 '21

Fat associated with starch. T. C. Taylor and J. M. Nelson. *Am Chem Soc J* 42:1726-38 Ag '20

Manufacture of starch, glucose and by-products. R. H. Williams. *Can Chem & Met* 5:195-6 J1 '21

Plant colloids: electro-disintegration of starch solutions; abstract. M. Samec and A. Mayer. *Chem Soc J* 120 pt 1:707-8 O '21

Preparation of pure starch from rice; patent. *Chem & Met Eng* 23:1133 D 8 '20

Starch and starch-sizing in papermaking. J. Traquair. *diags Paper* 26:11-14 Mr 24 '20

Starch paste. *See* Paste

Stars

Fixed stars that are not fixed; how their motions are detected by the blink microscope. J. F. Springer. *diag Sci Am* 124:390+ My 14 '21

Limits of the universe; recent researches which have extended our concept of the star-filled heavens. S. Arrhenius. *Sci Am M* 3:4-6 Ja '21

Measuring the diameter of the stars; recent astronomical applications of professor Michelson's interferometer. H. N. Russell. *il diags Sci Am M* 3:100-4 F '21

Size of the Galaxy. H. Shapely. *il Sci Am M* 4:196-9, 339-43 S-O '21

What a study of atoms and electrons tells us of the stars. H. N. Russell. *Sci Am* 125: 12+ J1 2 '21

See also Astronomical photography; Betelgeuse

Starting devices. *See* Automobiles—Starting devices; Electric motors—Starting

State and railroads. *See* Railroads and state

State buildings

California state buildings; views. *Am Arch* 116:pl 135-41 O 15 '19

State engineers

Duties of state engineer of New York increased. *Eng N* 87:207+ Ag 4 '21

State finance

State and city section of the Commercial and financial chronicle; New England, middle and central states. *Comm & Fin Chr* 111: (sec 2) 1-168 J1 31 '20

State and city section of Commercial and financial chronicle; New England, middle and central states. *Comm & Fin Chr* 112: 3-168 sec 2 Je 25 '21

State and city section of Commercial and financial chronicle; western, Pacific and southern states and island possessions. *Comm & Fin Chr* 111:3-192 sec 2 D 25 '20

State geologists

State geological and mining officials; list. *Eng & Min J* 109:203 Ja 17 '20

State governments

Ohio state department reorganized. *Eng N* 86:776 My 5 '21

Research activities of departments of the state government of California in relation to the movement for reorganization. J. R. Douglas. *Nat Research Council Bul* 2 pt 5: 289-334 Je '21

See also Architecture, Departments of

State institutions. *See* Institutions, Public

State manufacturers' association, National conference of. *See* National conference of state manufacturers' association

State ownership. *See* Government ownership

State regulation of industry. *See* Government regulation of industry; Public utilities commissions

State rights

Conflicting sovereignties—the rule of reason. *Comm & Fin Chr* 113:340-1 J1 23 '21

State roads. *See* Roads, State

Staten Island

Buses begin on Staten Island. *map Elec Ry J* 55:430-2 F 28 '20

Electrification of Staten Island lines proposed. R. H. Nexsen. *Elec Ry J* 57:222-3 Ja 29 '21

Trolley bus operation commences on Staten Island. *il map Elec Ry J* 58:689-91 O 15 '21

Staten Island tunnel

Engineer staff for Staten Island tunnel. *Eng N* 87:37 J1 7 '21

Static electricity. *See* Electricity, Static

Statics

See also Center of gravity

Statistics

Relation of statistics to professional work and industry. H. Secrist. *W Soc E J* 26: 232-40 Je '21

Statistical record of the progress of the United States, 1800-1920 and monetary, commercial, and financial statistics of principal countries. E. Whitney. *U S Bur For & Dom Com p* 750-852 '20

Statistics—Continued

Statistics and the scientific method. H. Secrist. Administration 2:305-9 S '21

See also Commercial statistics; Financial statistics; Graphic methods; Industrial statistics; *also* subdivision Statistics under various subjects, e.g. Railroads—Statistics

Statues

See also Brasses; Bronzes

Statutes. *See* Law

Staves, Concrete. *See* Concrete staves

Staybolts

Baird pneumatic staybolt cutter and yoke type riveter. *il* Ry Mech Eng 94:419-20 Je '20

Deflections of staybolts in locomotive boilers. G. L. Fowler. *il* diags Ry Age 67:1088-94 D 5 '19; Same. Ry Mech Eng 93:701-7 D '19; Same cond. Ry R 65:949-53 D 27 '19

Electrically welded stay-bolt holes. H. Bleib-tren. diags Power 51:151-2 Ja 27 '20

Gallagher flexible staybolt. diags Power 51:430 Mr 16 '20

Standard specifications for staybolt iron; Eng-lish and French. U S Bur For & Dom Com Industrial Standards 128:1-12 '21

Stead, John E., 1851-

New president of Iron and steel institute. *por* Min & Met 163:21-2 Jl '20

Sketch. *por* Iron Tr R 66:1419 My 13 '20

Steam

Conference on present state of knowledge of properties of steam. Mech Eng 43:553+ Ag '21

Effect of air in steam on the coefficient of heat transmission. C. S. Robinson. J Ind & Eng Chem 12:644-6 Jl '20

Fighting the water hyacinth; clearing the clogged waterways of Louisiana and Florida by means of live steam. T: E. Dabney. *il* Sci Am 125:260 O 8 '21

Forced steam circulation and closed loop boiler feeding system for paper mills. diags Dom Eng 89:637-8 D 27 '19; Same. Heat & Ven 17:59-61 F '20; Same. Paper 26:24-5 Mr 17 '20; Abstract. Power 51:266 F 17 '20

Heat pump in theory and practice. F. Krauss. diags Power 53:298-300 F 22 '21

High pressure steam; a new departure in power and heating plant engineering. Sci Am 125:257 O 8 '21

Hydrogen from steam. H. L. Barnitz. diags Sci Am M 4:61-5, 143-8 Jl-Ag '21

Live steam used to fight water hyacinth. *il* Pop Mech 36:683-4 N '21

Possibilities in the use of steam for melt-ing snow. W: J. Baldwin. diags Heat & Ven 17:38-41 Ap '20

Pressure-temperature scales for low-pres-sure steam. C. H. Berry. chart Power 51: 817 My 18 '20

La production et l'utilisation de la vapeur; rapports de la Commission d'utilisation des combustibles. Génie Civil 78:252-4 Mr 19 '21

Production of sound under water by the con-densation of steam. G. Stoney and T. Petrie. *il* diags Engineering 110:561-3 O 29 '20; Same. Sci Am M 3:71-4 Ja '21

Properties of high-pressure steam; nomo-gram up to the critical point. M. J. Eich-horn. Power 53:782-3 My 17 '21

Properties of steam. Engineering 111:63-5, 93 4 Ja 21-28 '21; Abstract. Mech Eng 43:259-60 Ap '21

Properties of steam. G. A. Goodenough. Mech Eng 43:413-14 Je '21; Discussion. O. B. Goldman. 43:621-2 S '21

Properties of steam and thermodynamic theory of turbines. H. L. Callendar. 531p E. Arnold, London '20; Review. Engineer 131:353 Ap 1 '21

Steam calorimetry. G. B. Upton. Sibley J 35: 40-1+ Mr '21

Steam for extinguishing fires in turbo-gen-erators. J. J. Dougherty. *il* diags Elec J 17: 202-8 My '20

Steam use in textile processes. G: H. Perkins. Mech Eng 42:14-16 Ja '20; Same. Textile World 57:1841+ Mr 6 '20; Same. Power Pl Eng 24:376-8 Ap 1 '20

Steam waste in bleaching and dyeing. J. A. Butler. diags Textile World 59:2107+ Mr 26 '21

Supersaturated steam. Locomotive 33:111-15 O '20

Supersaturated steam. Power 51:999-1000 Je 22 '20

Turning live steam into weed destroyer. *il* Sci Am 125:261 O 8 '21

Various determinations of the specific heat of steam and their technical significance. H. Schmolke. Mech Eng 43:675-7 O '21

What the adoption of higher steam pressures will mean. F. R. Parsons. Electrician 84: 7-8 Ja 2 '20

See also Air separators; Boilers; Condens-ers (steam); Evaporators; Exhaust steam; Gas retorts—Steaming; Steam engines; Steam flow; Steam heating; Steam pipes; Steam turbines; Superheated steam; Ther-modynamics

Tables, calculations, etc.

Calculations relating to high pressure and high temperature steam with interheating for power generation. W. M. Selvey. Inst E E J 58:31-42 D '19

Convenient tables for steam flow in pipes. V. F. Davis. Power 54:144-5 Jl 26 '21

Economies obtainable by reducing resist-ances in steam piping. O. Denecke. diags Mech Eng 43:735-8 N '21

Entropy of steam; nomogram. M. J. Eich-horn. Power 53:966-7 Je 14 '21

Estimating steam consumption of bleeder turbines. J. Gershberg. diags Power 54:556-7 O 11 '21; Discussion. 54:694-5, 737 N 1-8 '21

Factor of evaporation—approximate formula for use with saturated and superheated steam. W: F. Ryan. Power 53:790 My 17 '21

Handy steam velocity and steam flow ta-bles. V. F. Davis. Marine Eng 26:522 Jl '21

Specific volume of dry steam; nomogram. M. J. Eichhorn. Power 53:1006-7 Je 21 '21

Start toward a new steam table. Power 54:42 Jl 5 '21

Steam alignment diagram. D. H. Thomson. diags Engineering 109:301-5 Mr 5 '20; Ab-stract. Power 51:1045-6 Je 29 '20

Steam formulas. R. C. H. Heck. diags Mech Eng 42:669-70 D '20

Steam pipe sizes. A. Cotton. charts Power 53: 832-6 My 24 '21

Superpower-station steam pressure. J: A. Stevens. Power 53:193 F 1 '21; Discussion. 53:442, 519-20 Mr 15, 29 '21

Tables of physical properties of various re-frigerants and steam. F. E. Matthews. A S R E J 7:414-17 Mr '21; Same. Power 53: 116, 477 Ja 18, Mr 22 '21

Total heat of steam; nomogram. M. J. Eich-horn. Power 54:936-7 Je 7 '21

See also Steam flow; Steam heating—Tables, calculations, etc.; Steam plants—Tables, calculations, etc.

Steam, Exhaust. *See* Exhaust steam

Steam, Natural

Drilling for pure power. W. Bishop. *il* Na-tion's Business 9:14-15 O '21

Steam from the earth. diags Power 51:889 Je 1 '20

Steam from the earth. L. Luiggi. *il* Power 51: 70 Ja 13 '20

Steam, Superheated. *See* Superheated steam

Steam automobiles. *See* Automobiles, Steam

Steam boilers. *See* Boilers

Steam cars. *See* Motor cars (railroad)—Steam

Steam drip

Drip wastes. diags Power Pl Eng 25:76-8 Ja 1 '21

Steam engineering

Bailey's handbook of universal questions and answers for stationary, marine & Diesel engineers & firemen. A. R. Bailey. 4th ed. 251p A. R. Bailey, Seattle, Wash. '21

Steam engineering —Continued

Manual of steam engineering. W. H. Wake-
man. 411p New York belting & packing
company '20

See also Boiler plants; Evaporators; Loco-
motives; Marine engineering; Power;
Steam engines; Steam plants; Steam tur-
bines; Steamboats; Superheated steam

Steam engineers

Knoxville industrial co-operative plan. W. R.
Woolrich. Power 51:475-6 Mr 23 '20

Steam engineers, American order of. *See*
American order of steam engineers

Steam engines

Application of the uniflow engine to steam-
ships. F. W. Dean. Engineer 132:38 J1
8 '21

Bailey's handbook of universal questions and
answers for stationary, marine & Diesel
engineers & firemen. A. R. Bailey. 251p A.
R. Bailey, Seattle, Wash., Box 822

Big vertical mill engine at Cargo fleet
iron company, England. *il* (supp) diags
Engineer 131:354-5 Ap 1 '21; Same. Génie
Civil 78:469-72 Je 4 '21

Compact auxiliary engine. *diag* Power Pl
Eng 25:590 Je 1 '21

Comparison of the reciprocating engine and
the steam turbine. *diags* Locomotive 33:234-
41 O '21

Compound locomobile with superheater. *il*
diags Engineering 109:766-8 Je 4 '20

Dream engine. C. Hurst. *diags* Power 54:
249-50 Ag 16 '21

Economics of roll trains. A. Dyckerhoff. *diags*
Iron Tr R 68:279-82 Ja 27 '21

Engine-house management and steam en-
gine inefficiency; with discussion. H.
Dunell. Engineering 112:68-9 J1 8 '21

Experimental engine at University college,
Cardiff. *il* *diags* Engineering 109:612-13, 616
My 7 '20

500 horse-power combined engine and boil-
er. *il* *diag* (supp) Engineer 132:88, 94 J1 22
'21

Harrisburg dual-clearance engine. *diags*
Power 51:513-14 Mr 30 '20

Higher steam pressures. Sci Am M 1:246-7
Mr '20

Limitations of efficiency in a steam engine.
D. M. Taylor. *diags* Power 52:424-6 S 14
'20

Michell crankless steam engine. *il* *diags* Engi-
neering 111:290-1 Mr 11 '21; Abstract. Mech
Eng 43:338-9 My '21; Abstract. Sci Am M
3:474 My '21

Mine fan is driven by a uniflow engine. *il* Coal
Age 19:907-8 My 19 '21

New uniflow engine design. *diags* Power
53:1042-3 Je 28 '21; Discussion. 54:194 Ag
2 '21

Old beam engine. *il* Engineer 129:571 Je 4
'20

Power drives for rolling mills. W. O. Rogers.
il Power 51:622-6, 800-3 Ap 20, My 18 '20

Reciprocating engines and steam turbines.
134p The Travelers indemnity company,
Hartford, Conn. '20

Selecting power plant machinery for paper-
mills. W. F. Schaphorst. *il* Paper Trade
Journal 73:48+ O 27 '21

Single-cylinder rolling mill engine is capable
of 8000 hp. maximum in driving a three-high
mill. *il* Iron Age 107:1372 My 26 '21

Steam engine. B. V. Nordberg. Power 53:14
Ja 4 '21

Steam-engine operation and maintenance—
knocks due to connecting rods and pistons.
H. Hamkens. *diags* Power 52:94-5 J1 20 '20

Steam-engine operation and maintenance—
loose crankpins and loose cranks. H. Ham-
kens. *diags* Power 51:805-7 My 18 '20

Steam-engine operation and maintenance—
loose flywheels. H. Hamkens. *diags* Power
52:21-2 J1 6 '20

Steam-engine operation and maintenance;
piston-rod packing. H. Hamkens. *diags*
Power 52:621 O 19 '20

Steam-engine operation and maintenance—
why valve gears get out of order. H. Ham-
kens. *diags* Power 52:208 Ag 10 '20

Steam engines. L. V. Ludy. American tech-
nical society, Chicago '20

Steam engines for refrigerating plants. W.
H. Motz. *il* Power 53:916-19 Je 7 '21

Steam motors for aircraft. Aviation 9:88 S
1 '20

Steam pipe size and valve setting. *il* *diags*
Power Pl Eng 24:854-5 S 1 '20

Steam versus electric driven steel mills.
Power 51:861-3 My 25 '20; Abstract. Iron
Age 106:14-15 J1 1 '20

Straight-flow high-lift poppet-valve steam
engine. J. Stumpf. *diags* Mech Eng 43:541-
2 Ag '21

Suggestion for changing clearance of uniflow
engine. W. G. Miller. *diag* Power Pl Eng
25:1067-8 N 1 '21

Twin tandem compound reversing engine.
W. W. McBane. *il* *diags* Blast F & Steel
Pl 8:358-60 Je '20

Two English engines; uniflow and locomobile
types. *diags* Power Pl Eng 24:1031-3 N 1
'20

200 horse-power uniflow steam engine. *il* *diags*
Engineer 132:222-4 Ag 26 '21

Unaflow engine. W. C. Brown. Power 53:14-15
Ja 4 '21

Uniflow engine. *diags* Power 51:263-4 F 17 '20

Uniflow engine. Ry Age 69:685 O 22 '20

Uniflow engine as a prime mover. *il* *diags*
Blast F & Steel Pl 8:360-2 Je '20

Uniflow steam engine. F. B. Perry. *diags*
Engineering 110:162-4 J1 30 '20; Same. Blast
F & Steel Pl 8:605-8 N '20; Abstract. Engi-
neering 130:104-5 J1 30 '20; Discussion. Engi-
neering 110:126 J1 30 '20; Engineer 130:105-
6, 515 J1 30, N 19 '20

Uniflow steam engine. H. Pilling. *il* *diags*
Engineer 129:454-6, 480-1 Ap 30-My 7 '20

Valves for steam and gas engines. C. Hurst.
diag Engineer 130:152 Ag 13 '20

What is the efficiency of a steam engine?
D. M. Taylor. *diags* Power 52:178-80 Ag
3 '20; Discussion. A. G. Christie. 52:437-8
S 14 '20

What the adoption of higher steam pressures
will mean. F. R. Parsons. Electrician 84:7-8
Ja 2 '20

Works of Messrs. Robey and co., limited, of
Lincoln; uniflow engine; Robey compound
super-heater engine. *il* *diags* Engineering
110:104-5, pl 13 J1 23 '20

See also Blowers; Boilers; Condensers
(steam); Exhaust steam; Flywheels; Gover-
nors (machinery); Injectors; Locomotives;
Marine engines; Motor trucks, Steam; Safe-
ty valves; Steam; Steam plants; Steam
shovels; Steam turbines; Steamboats; Still
engine; Superheated steam; Tractors, Steam

Control

Remote control starting device for steam
engines or steam turbines. F. L. Weissner.
diags Am Gas Assn Technical sec v 2:222-4
'20

Failures

Engine wrecked by excessive water. R.
Downie. Locomotive 33:179 Ap '21

Excessive water as the cause of engine break-
age. *diags* Locomotive 33:134-41 Ja '21

Mysterious engine accident. *il* Locomotive 33:
66-8 J1 '20

Recent engine breakdown at Raymondville,
N.Y. *il* Locomotive 33:195-6 J1 '21

Foundations

See Machinery—Foundations

History

In the light of history. W. D. Forbes. Power
53:639-40 Ap 19 '21

Links in the history of engineering. R. Jen-
kins. Engineer 127:471; 129:162-4, 519-20 My
16 '19, F 13, My 21 '20

Marquis of Worcester and the steam en-
gine. H. T. Wade. *il* *diag* Sci Am M 4:
225-7 S '21

Reminiscences of an engineer. W. D. Forbes.
Power 52:225-6, 462-3 Ag 10, S 21 '20

Laws and regulations

A.S.M.E. test code on reciprocating steam
engines. Power 53:118-22 Ja 18 '21

Steam engines —Continued

Lubrication

- How much lubricant does an engine need? W. F. Schaphorst. chart Am Gas Eng J 112:344+ My 1 '20; Same. Power Pl Eng 24:470 My 1 '20
- Lubricating an engine under varying load conditions. R. M. Orr. Power 51:478 Mr 23 '20
- Lubrication of steam-engine bearings. W. F. Osborne. diags Power 51:215-17 F 10 '20
- Steam-cylinder lubrication. W. F. Osborne. Power 51:140-3 Ja 27 '20
- Steam-engine operation and maintenance. H. Hamkens. diags Power 52:258-60, 329-30 Ag 17, 31 '20
- Viscosity of engine oils. O. W. Franke. Power Pl Eng 25:847-8 S 1 '21

Repair

- Fitting crank-rod brasses. T: W. Airey. diags Power 51:1015-16 Je 22 '20
- Overhauling and aligning the engine. T: W. Airey. diags Power 51:764-8 My 11 '20

Safety devices and measures

- Reducing hazards in the engine room. diags Power Pl Eng 25:164-6 F 1 '21
- Rules for the safe operation of steam engines and turbines. E. E. Clock. Power 51:732 My 4 '20
- Safety first for the engine room. F: L. Ray. Power 51:686 Ap 27 '20
- Safety in the engine room. il Power Pl Eng 24:573-5 Je 1 '20

Testing

- A. S. M. E. test code on reciprocating steam engines. diag Mech Eng 43:32-6 Ja '21
- Further tests of uniflow pumping engine. D. A. Decrow. Can Eng 39:396-7 S 30 '20; Same. Eng & Contr 54:377-8 O 13 '20
- Gas-steam unit shows 72.4 per cent thermal efficiency at Ford works. L. D. Royer. il diags Power 51:532-5 Ap 6 '20
- Tests on uniflow steam engines. F. Schuber. Engineer 130:478 N 12 '20

Steam engines, Portable

- Economical portable engine. il diags Engineer 131:505-6, 507 My 13 '21
- Portable steam engine. diags Engineering 111: 8-9 Ja 7 '21

Steam fitters

- Wage reduction movement in the steam fitting trade. Heat & Ven 18:46-7 Ag '21

Steam fitting. See Piping (power plants); Steam pipes

Steam flow

- Chart facilitates steam-flow calculations. Elec W 76:76 Jl 10 '20
- Chart for determining flow of steam in pipes. E. Owen. chart Power Pl Eng 25:269 Mr 1 '21
- Charts for graphical determination of pipe sizes and velocity of flow of steam. H. M. Brayton. Power 51:662-6, 762-3 Ap 27, My 11 '20
- Convenient tables for steam flow in pipes. V. F. Davis. Power 54:144-5 Jl 26 '21; Excerpt. Marine Eng 26:522 Jl '21
- Determining steam flow by pressure drop. V. F. Davis. chart Power Pl Eng 25:854-5 S 1 '21
- Effect of fittings on flow of fluids through pipe lines. D. E. Foster. Mech Eng 42:616-18 N '20; Same. Power Pl Eng 24:1115-18 D 1 '20; Same cond. Eng & Contr 54:564-5 D 8 '20; Same cond. Power 52:1032-3 D 28 '20; Excerpt. Chem & Met Eng 23:1172 D 15 '20
- Flow of steam. Dom Eng 94:284-6 F 5 '21
- Flow of steam in pipes. charts Heat & Ven 18:64-7 Mr '21
- Measuring flow of fluids. J. M. Spitzglass. diags Power 51:503-7 Mr 30 '20
- Permissible steam velocities in gravity steam heating systems. Dom Eng 93:114 O 16 '20
- Pressure-flow experiments on steam nozzles. A. L. Mellanby and W. Kerr. diags Engineering 111:269-74 Mr 4 '21; Abstract. Mech Eng 43:327-30 My '21
- Rate of steam flow to regulate boiler. il diag chart Blast F & Steel Pl 8:208-10 Mr '20

- Steam action in simple nozzle forms. A. L. Mellanby. diags Engineering 110:310-14 S 3 '20

- Steam flow measurements from a boiler. C. T. Mitchell. Power 54:318 Ag 30 '21

See also Steam heating—Tables, calculations, etc.; Steam meters

Steam generators. See Boilers

Steam hammers

- Cost of air vs. steam for operating hammers. G. H. Richey. Ry Mech Eng 95:450 Jl '21
- Power from exhaust steam drives turbo-generators at Western drop forge co. plant. il diags Power Pl Eng 25:303-7 Mr 15 '21
- Short histories of famous firms; Nasmyth, Wilson and co., limited. il diags Engineer 129:287-9 Mr 19 '20

Testing

- Fuel economy of a drop forge plant. N. A. Craigie and C. H. L. Thompson. diags Iron Age 107:1521-5 Je 9 '21

Steam-heat hose. See Hose

Steam heaters

- Heating with pipeless furnaces. C: L. Hubbard. il diags Factory 25:1050-2 O 1 '20
- Testing a closed heater. R. W. Riordan. diag Power 52:180 Ag 3 '20

See also Steam water heaters

Steam heating

- Advantages and disadvantages of steam and water heating. R. V. Stureman. Heat & Ven 17:39-40 Jl '20
- Advantages of vapor heating. C: V. Haynes. Dom Eng 92:219-20 Jl 31 '20
- Boiler in another building. C. E. Oldacre. diag Metal Work 93:552-3 Ap 30 '20
- Capacities of reducing valves for steam heating systems. J. A. Donnelly. Am Soc Heat & V E 25:357-8; Discussion. 359-64 '19
- Changing a gravity steam heating system into a vapor-vacuum or vacuum heating system. diags Dom Eng 94:550-1 Mr 12 '21
- Closed loop heating system has interesting features. diag Dom Eng 92:6-7 Jl 3 '20
- Conservation of hot drips and their value as compared with exhaust steam. diags Heat & Ven 17:53-6 S '20
- Criticism wanted on steam heating system in church. diags Dom Eng 93:113-14 O 16 '20
- Development of Farnsworth closed-loop boiler-feeding system for process work. G: S. Barker. Heat & Ven 17:64-5 S '20
- Economical heating with live steam. W. A. Darter. Power 53:1063 Je 28 '21
- Elements of success in central station heating. H. C. Kimbrough. Heat & Ven 18:37-8 Ja '21
- Eliminating a separate drip from a pocket in a steam main by draining through a pipe coil. diag Heat & Ven 17:45 N '20
- Eliminating steam leaks. H. A. Jahnke. diags Power Pl Eng 25:381-2 Ap 1 '21; Discussion. W. H. Wakeman. 25:481 My 1 '21
- Eliminating water hammer in heating systems. C: L. Hubbard. diags Power Pl Eng 24:972-4 O 15 '20
- Elimination of noise from heating and ventilating systems. C: L. Hubbard. diags Dom Eng 89:625-8 D 27 '19
- Elimination of noises in heating and ventilating systems. diags Heat & Ven 17:27-31 My; 34-7 Je; 34-7 Jl; 33-5 Ag '20
- Exhaust steam heating. R. A. Cultra. diag Power Pl Eng 25:389-90 Ap 1 '21; Discussion. 25:532, 772-3 My 15, Ag 1 '21
- Farnsworth heating system. diag Power 51: 1048 Je 29 '20
- Fractional distribution in two pipe gravity steam-heating systems. A. A. Adler and J. A. Donnelly. charts diags Am Soc Heat & V E J 27:437-52 My '21; Discussion. 27: 600-4, 749-52 Jl, O '21
- Functions of the orifice in steam and water heating. S. H. Woodbridge. chart diags Heat & Ven 17:29-32 D '20; 18:30-3 Ja '21; Correction. 18:49 Mr '21
- Garage heating apparatus. diags Dom Eng 90: 330-2+ F 14 '20

Steam heating—Continued

- Handling condensation. C: L. Hubbard. diags Power Pl Eng 24:414-17, 462-5 Ap 15-My 1 '20
- Heating a fifteen-room dwelling. C: L. Hubbard. plans Dom Eng 96:145-7 Jl 23 '21
- Heating an Oklahoma school building. il plan Dom Eng 90:622-3 Mr 27 '20
- Heating and ventilating. C. W. Kimball. diags Arch Forum 32:117-18 Mr '20
- Heating and ventilating a cottage hospital. C: L. Hubbard. diags plan Dom Eng 92:167-9+, 221-3, 377-9+, 485-8+, 589-91; 93:68-9 Jl 24-31, Ag 21, S 4, 18, O 9 '20
- Heating and ventilating industrial buildings. C: L. Hubbard. il diags plans Am Arch 118:547-52 O 27 '20
- Heating equipment for the low-cost house. C: L. Hubbard. il diag plans Bldg Age 42:56-9 O; 52-3 N '20
- Heating guidance for residence work. diags Metal Work 94:174-6, 277-9+ Ag 6, 27 '20
- Heating system for a modern cathedral. C: L. Hubbard. il diags plans Heat & Ven 17:27-33 Ap; 35-8 My '20
- Heating system of East Camp, naval operating base, Hampton Roads, Va. il Heat & Ven 17:34-6 F '20
- Heating system vacuum. D. N. Crosthwait, jr. Power 50:614-15 O 21 '19
- Heating systems for garages. diags Dom Eng 96:98-100 Jl 16 '21
- How to heat several buildings and oil tanks by a gravity steam heating system. diags Dom Eng 95:62-3+ Ap 9 '21
- Improving a heating system. R. L. Campbell. diag Power Pl Eng 25:433-4 Ap 15 '21
- Improving the circulation of steam heating plants. C: L. Hubbard. diags Power Pl Eng 24:1023-5 N 1 '20
- Instruction course for custodians and janitors. E. S. Hallett. plan Heat & Ven 18:38-9 Mr; 38-40 Ap; 36-7 My '21
- Kinks for steam fitters. diags Dom Eng 94:334-6 F 12 '21
- Low pressure steam heating system that does not work right. diags Dom Eng 91:104-5, 195-6 Ap 17, My 1 '20
- Making an old heating system efficient. diag plan Heat & Ven 17:36-7 F '20
- Method of heating railroad passenger stations. diags Heat & Ven 18:41-2 Ag '21
- Modern house heating systems. il diags Dom Eng 90:479-80 Mr 6 '20
- Modern practice in vapor heating. H. L. Alt. diags Heat & Ven 15:17-21 My; 46-50 Je; 44-7 Ag; 56-9 S; 59-60 O; 44-6 N '18; 16:48-52 Ja; 54-6 F; 51-2 Mr; 46-8 Ap; 54 My; 51-3 Je; 59-60 Jl; 59-61 Ag; 58-9 S; 45-7 O; 49-51 N; 47-9 D '19; 17:52-5 Ja; 44-7 F; 46-9 Ap; 45-7 My; 50-2 Je; 50-2 Jl; 49-50 Ag; 56-9 S '20
- New heating system for paper mills. diags Power Pl Eng 24:200-1 F 1 '20
- Notes on several temporary heating repair jobs. W. W. Wakeman. diags Dom Eng 95:155-6 Ap 23 '21
- Novel device for heating with steam. A. H. Deike. diags Metal Work 93:351-2 Mr 19 '20
- One-pipe fractional vapor-vacuum system. diags Sanitary & Heat Eng 96:79-80 Jl 29 '21
- One pipe steam system. H. N. Dix, jr. diags Plumber 95:137-9+ Mr 11 '21
- Pipe connections to receiver and feed pump. R. A. Cultra. diags Power 53:361 Mr 1 '21
- Piping layout for heating system whereby condensation is returned directly into boiler. Textile World 57:3511 My 8 '20
- Preventing water hammer. W. H. Wakeman. diags Dom Eng 96:55-6 Jl 9 '21
- Re-modeling a heating system. H. R. Innis. diag Am Soc Heat & V E 25:305-9; Discussion. 309-10 '19
- Returning the water to the boiler. L. M. Emmett. diags Dom Eng 96:474-6+, 514-17; 97:47-9, 93-4, 193-5 S 10-17, O 8-15, 29 '21
- Revising old steam heating systems. il diags Power Pl Eng 24:686-7 Jl 15 '20
- Running vacuum heating system condensing. R. A. Cultra. diags Power 53:237-8 F 8 '21; Discussion. 53:399, 595 Mr 8, Ap 12 '21

- Savings effected in heating a Cleveland office building; operation of the Guardian building during the winters of 1919-1920 and 1920-1921. L. J. Pauley. Heat & Ven 18:29-32 S '21
- Solution of a heating problem of the National headquarters of the American Red cross in Washington, D.C. J. P. Lawyer. Power 51:682 Ap 27 '20
- Some information about steam heating and hot air heating. diags Dom Eng 92:62-3 Jl 10 '20
- Standard method of pipe connections for maximum economy. diags Heat & Ven 17:41-3 O '20
- Steam heating; a manual of practical data. 337 l. Warren Webster & co., Camden, N.J. '21
- Steam heats house in exposed location. il plan Metal Work 92:582-3 N 14 '19
- Steam regenerators in mine plants save one-third the coal. W. H. Schacht. diags Power 52:836-8 N 23 '20; Excerpts. Min & Met 164:32-3 Ag '20
- Successful combination direct and indirect heating system. il plans Metal Work 94:210-13 Ag 31 '20
- Two steam radiators that get filled with water. diags Dom Eng 96:292-3 Ag 13 '21
- Unsatisfactory heating systems. H. A. Jahnke. diags Power Pl Eng 25:524-7 My 15 '21
- Unsteady water line in steam heating boiler. plan Dom Eng 94:139-40 Ja 15 '21
- Vapor heating. il diags Heat & Ven 17:66-9 Mr; 64 Ap; 62-3 My; 66-7 Je; 64-5 Jl '20
- Vapor heating; the Hutchison system. diags Heat & Ven 18:64-5 S '21
- Vapor heating; the Ideal system. il diags Heat & Ven 18:66-7 O '21
- Vapor heating; the Imico system. il diags Heat & Ven 18:68-9 O '21
- Vapor heating; the Mouat system. il diags Heat & Ven 18:66-7 Ja '21
- Vento heater connections. diags Heat & Ven 16:52-4 D '19
- Water-line troubles in steam boilers. diags Heat & Ven 18:46-9 Mr '21
- Why steam is favored as a heating medium. J: D. Small. Heat & Ven 18:40-1 Ap '21
- See also* Heating; Heating from central stations; Hot water heating; Radiators; Steam flow; Steam heaters; Steam pipe coverings; Steam pipes

Air venting devices

- Air in the piping and radiators of a heating system. A. C. Willard. diag Heat & Ven 18:47-8 F '21

Cost

- Power, light and heat in large buildings; economy of purchased electric power in conjunction with low pressure steam. J. A. McHollan. diag Arch Forum 35:141-4 O '21

Tables, calculations, etc.

- Flow of steam. Dom Eng 94:284-6 F 5 '21
- Functions of the orifice in steam and water heating. S. H. Woodbridge. charts diags plan Heat & Ven 18:30-3 Ja '21
- How heating and ventilation is taught at Purdue university. R. W. Noland. diags Heat & Ven 18:34-6 Ag '21
- Key for computing boiler sizes for direct radiation. Dom Eng 94:76-7 Ja 8 '21; Same. Heat & Ven 18:48-9 F '21
- Pipe sizes for one-pipe steam and two-pipe gravity up-feed water heating systems. diags Heat & Ven 18:42-5 Ag '21
- Pipe sizes for steam mains and returns. E. A. May. Plumber 95:308-9+ My 20 '21
- Pound of steam. L. M. Emmett. Dom Eng 93:614-15 D 25 '20
- Radiation calculation charts. D. N. Crosthwait, jr. plan Heat & Ven 18:27-9 O '21
- Relative efficiency of different forms of heating coils. diags Heat & Ven 18:44-6 My '21
- Standards for computing radiation and boiler sizes. Dom Eng 93:605 D 25 '20
- Steam pipe sizes for two-pipe heating. M. W. Ehrlich. Dom Eng 93:108-10 O 16 '20
- Steam hose.** See Hose

Steam jets

Exact data on the running of steam boiler plants; the amount of steam used by steam jets. D. Brownlie. pl 3 (supp) Engineering 109:71-4 Ja 16 '20

Removing boiler and stack soot with a steam jet. G. S. Hamilton. diags plan Elec R 76:1027-8 Je 19 '20

Steam consumption of steam jets. Power Pl Eng 24:802-3 Ag 15 '20

Steam meters

Fuel economy by the adoption of scientific management in steam generation and utilization. D. Brownlie. il diags Eng & Ind Management 6:516-18+, 549 N 3-10 '21

Measuring steam. A. R. Surface. Sci Am 123:37+ Jl 10 '20

Meters for measuring steam. Sci Am 122:124 Ja 31 '20

Operation of condensation meters. F. A. Tucker. Heat & Ven 16:26-8 D '19

Standard connections for condensation meters. diags Heat & Ven 18:45-7 O '21

Steam flow measurements. il diags Power Pl Eng 24:80-2 Ja 1 '20

Steam-plant metering practice. R. E. Dillon. il charts Elec W 76:630-2 S 25 '20

See also Steam flow

Steam motor trucks. *See* Motor trucks, Steam

Steam pipe coverings

Conservation of heat in power and heating systems; 85 per cent magnesia insulation. E. R. Weidlein. flow sheet il Chem & Met Eng 24:295-300 F 16 '21; Same. Heat & Ven 18:30-4 F; 32-4 Mr '21; Abstract. Mech Eng 43:262 Ap '21

Heat insulation; selection and installation of heat insulating materials with diagram for finding the correct thickness. Power Pl Eng 24:514-16 My 15 '20

Insulating train steam pipes. W. N. Allman. Ry Mech Eng 93:711-12 D '19

Losses from long superheat steam pipes determined by means of curves. T. G. Estep. Blast F & Steel Pl 8:259-61+ Ap '20

Steam pipe covering and emissivity of heat. Eng & Ind Management 6:115 Ag 4 '21

Stopping losses in a small plant. A. W. Drew. il chart Power 54:419-20 S 13 '21

Tests on slag wool for steam pipe covering. Engineer 129:73 Ja 16 '20; Same. Power 51:280 F 17 '20

Why cover the pipes? H. A. Jahnke. Power Pl Eng 25:629 Je 15 '21

Steam pipes

Branch connections for heating systems. E. J. Lomasney. diags Dom Eng 94:436-40 F 26 '21

Capacity of steam pipe with superheated steam. F. C. DeWeese. Power 52:30 Jl 6 '20

Charts for graphical determination of pipe sizes and velocity of flow of steam. H. M. Brayton. Power 51:662-6, 762-3 Ap 27, My 11 '20

Considerations in steam heating main design. F. A. Tucker. Heat & Ven 17:42-3 Ja '20

Construction and operation of a high-pressure underground steam main. L. T. Merwin and O. LeFever. il diag Power 50:736-9 N 25 '19

Deflection of steam pipes; derivation of formulas and chart for rapid calculation. H. M. Brayton. Power Pl Eng 24:128-9 Ja 15 '20

Determination of expansion in steam pipes. W. F. Schaphorst. chart Elec R 78:233-4 F 5 '21

Expansion joints on steam heating piping. diags plans Dom Eng 91:186-8 My 1 '20

Explosion of a cast-iron steam pipe. Engineering 112:102-3 Jl 15 '21

Flow of steam in pipes. charts Heat & Ven 18:64-7 Mr '21

Interior piping errors that have caused trouble. L. Howell. diags Heat & Ven 17:25-9 Ja '20

Kinks for steam fitters. diags Dom Eng 94:334-6; 97:153-4 F 12, O 22 '21

Long distance high-pressure steam line. il diags maps Power Pl Eng 25:157-9 F 1 '21

Method of installing underground steam lines in Wisconsin. J. C. White. diags plans Elec R 75:879-80 N 22 '19; Same. Eng & Contr 52:619 N 26 '19

Notes on piping. W. W. Edson. Eng & Ind Management 5:631 Je 2 '21

Practical suggestions for steam fitters. W. H. Wakeman. diags Dom Eng 94:491-2+ Mr 5 '21

Proper arrangement of drip pipes. W. H. Wakeman. diags Dom Eng 95:619-20 Je 25 '21

Protection and insulation of underground steam mains. diags plans Heat & Ven 17:41-2 F '20

Report of committee on steam and return main sizes. Am Soc Heat & V E J 27:35-7 Ja '21; Discussion. 27:184-95 Mr '21

Steam pipe sizes. A. Cotton. charts Power 53:832-6 My 24 '21

Steam pipe sizes for two-pipe heating. M. W. Ehrlich. Dom Eng 93:108-10 O 16 '20

Twelve-inch high pressure underground steam main. il Power 51:925-6 Je 8 '20

Two pipe clamps; how leaks on heating main were stopped simply and inexpensively. W. H. Wakeman. diags Dom Eng 95:509-10 Je 11 '21

Underground steam lines in Dayton. il Power 53:974-5 Je 14 '21

Unusual break in a ten-inch steam main. diags Power 51:738 My 4 '20

Unusual installation of high-pressure underground steam main. H. C. Kimbrough. il Heat & Ven 17:43-5 Jl '20

What it pays to know about radiator piping. M. W. Ehrlich. diags Dom Eng 93:451-3 D 4 '20

See also Heating from central stations; Pipe fittings; Pipe flanges; Pipe hangers; Piping (power plants); Steam flow; Steam heating; Steam pipe coverings; Steam traps

Repair

Notes on several temporary heating repair jobs. W. W. Wakeman. diags Dom Eng 95:155-6 Ap 23 '21

Standards

Questionnaire on standard sizes of steam and return mains. Am Soc Heat & V E J 26:supI-V Ap; Discussion. 26:521-4 Jl '20

Steam plants

Air draft required for fuel oil. R. Sibley and C. H. Delany. J Elec 45:378-9 O 15 '20

Australian steam station with a rating of 125,000 kw. Elec W 77:415 F 19 '21

Automatic oil-burning plant in California sugar refinery. C. C. Brown. il Power 52:528-33 O 5 '20

Baltimore's improved central plant. il diags plans Power Pl Eng 24:363-7 Ap 1 '20

Building 280,000-kw. plant in New York city. diag Elec W 77:140 Ja 15 '21

Changing from coal to oil. R. Sibley and C. H. Delany. il diag J Elec 44:175-7 F 15 '20

Chile exploration company's Tocopilla power plant. P. H. Thomas. il Power 51:492-5 Mr 30 '20

Cincinnati plant of National lead co. il diag plan Power Pl Eng 24:265-7 Mr 1 '20

Combined power and heating plant for a large dairy farm. C. L. Hubbard. diags Dom Eng 92:336-7+ Ag 14 '20

Cutting power costs at an anthracite mine by utilizing exhaust steam. D. C. Ashmead. il diags plans Coal Age 17:983-6 My 13 '20

Dalmarnock power station. il diags Engineering 111:635-9, 650, 703-7, 736-8, 748, 767-71, pl 34-6, 41-2 My 27, Je 10-24 '21; Abstract. Power 54:392-3 S 6 '21; Discussion. A. Landry. 54:496-7 S 27 '21

Delaware power station—the Philadelphia electric company. il diags map plan Power 53:806-17 My 24 '21

Depreciated steam plant. C. J. Miller. Power 53:191 F 1 '21

Design of a superpower station; steam turbine generating station of 245,000-kw., 300,000-kv-a. capacity, 66,000-volt distribution. H. Goodwin, jr. and A. R. Smith. diags plans Gen Elec R 23:399-418 My '20; Abstract. Mech Eng 42:456-8 Ag '20

Steam plants—Continued

- Design of railway stationery plants; excerpts from report of Committee on railroad stationery power plants. Power 51:192-3, 313-14 F 3, 24 '20
- Economic considerations in design of power plants for steel mills. T. E. Keating. Blast F & Steel Pl 8:570-4 O '20; Same cond. Power 52:634-6 O 19 '20; Discussion. Blast F & Steel Pl 8:669-70+ D '20
- Economic utilization of heat and power in the paper mill. W. Adamson. Paper 27:262+ N 10; 14-15 N 24; 19-20+ D 1 '20
- Economies in a modern steam power plant. E. A. Rogers. il J Elec 44:508-11 My 15 '20
- Economies in operation of small power plants. E. S. Hight. il Elec R 79:573-6 O 15 '21
- Economies in the engine room. J. Frith. Electrician 85:565-6 N 12 '20
- Efficient operation of oil burning steam plants. C. H. Delany. Power Pl Eng 25:551-4 Je 1 '21; Same. Mech Eng 43:603-5 S '21; Discussion. Power Pl Eng 25:554-6 Je 1 '21
- Electric drive for station auxiliaries. E. E. George. Elec W 75:1365-6 Je 12 '20
- Eliminating waste to reduce power-plant costs. P. R. Duffey. Power 52:827 N 23 '20
- Emergency steam plant for rice irrigation. R. Van Norden. il J Elec 45:525-8 D 1 '20
- Experiences in power plant operation. F. L. Ray. Elec Ry J 56:130-1 Jl 17 '20
- Features of new Commonwealth Edison station. il Elec W 77:1419-20 Je 18 '21
- Features of new steam power plant at the Erie works of the General electric company. A. R. Smith. il diags plan Gen Elec R 22:907-13 N '19
- Features of plant constructed for war purposes. il diags plan Power Pl Eng 24:681-5 Jl 15 '20
- Fuel economy outside the boiler room. R. L. Tullis. Power 52:165-6 Ag 3 '20
- Fuel oil in steam plants. E. H. Colegrove. Power 52:194-5 Ag 3 '20
- Fuel-oil installation. H. A. Wilcox. il diags plans Power Pl Eng 24:501-6, 527-31 My 15 '20
- Future steam power plant development. B. Bannister. Blast F & Steel Pl 8:71-2 Ja '20
- Gas-steam unit shows 72.4 per cent thermal efficiency at Ford works. L. D. Royer. il diags Power 51:532-5 Ap 6 '20
- Generating plant at the mouth of coal mine; new Springdale plant of the West Penn power company. G. G. Bell. il diags Elec W 76:625-9, 733-5 S 25, O 9 '20
- Generating power with exhaust from mill engines. il diags Power Pl Eng 25:641-6 Jl 1 '21
- Get the power plant into line. E. H. Scofield. Elec Ry J 56:71-2 Jl 10 '20
- Heat-balance study of Colfax power station. W. P. Gavit. diags Power 53:824-7 My 24 '21
- Hershey chocolate company's new power plant. il diag Power 54:124-31 Jl 26 '21
- High economy in small steam plants. E. H. Tenny. il Elec W 76:616-19 S 25 '20
- High pressure steam in small power plants. C. L. Hubbard. il diags Sanitary & Heat Eng 96:105-7, 136-8+, 199-201, 251-3+ Ag 12, 26, S 23, O 21 '21
- High-speed direct-current generator and turbo-blower power plant of the International nickel company of Canada, ltd. H. W. Spooner and F. A. Annett. il diags Power 52:768-75 N 16 '20
- How to effect economies in steam generating stations. S. M. Flinn. Eng & Contr 53:50-1 Ja 14 '20
- Improving power-plant operation. J. C. Moran. Power 52:138-9 Jl 27 '20
- McKeesport tin plate company operates modern steam power plant. il diag Blast F & Steel Pl 8:64-8 Ja '20
- Midway gas-burning steam-power plant. L. J. Moore. il Power 53:934-5 Je 7 '21
- Modern power plant with steam auxiliaries. C. D. Zimmerman. Elec R 77:451-2 S 18 '20
- Modern steam power station design. F. S. Clark. il diag plans J Fr Inst 192:413-52 O '21
- Modernizing the railway power plant. R. A. Holme. Ry Mech Eng 94:797-8 D '20
- Natural gas burning steam plant; Midway steam plant of the San Joaquin light & power corporation. il diag J Elec 46:339-40 Ap 1 '21
- New Buick plant, Flint, Mich. il diags plans Power Pl Eng 25:835-45 S 1 '21
- New plant of the Continental motors corporation. il diags plans Power Pl Eng 25:789-96 Ag 15 '21
- New power plant of Central products co. T. Wilson. il diags Power 53:728-33 My 10 '21
- New power plant of Monsanto chemical works. il diags plan Power 53:768-73 My 17 '21
- New power plant of National tube co. J. W. Marshall. il Blast F & Steel Pl 8:466-9 Ag '20
- Nickel Plate power plant at Conneaut, Ohio. J. S. Morris. il diags Ry Mech Eng 94:537-9 Ag '20
- Power drives for rolling mills. W. O. Rogers. il Power 51:542-5 Ap 6 '20
- Power for a state institution; the Elgin state hospital. il diags plan Power Pl Eng 24:921-6 O 1 '20
- Power for candy making; the plant of the Robt. A. Johnston co., Milwaukee. il diags Power Pl Eng 25:743-7 Ag 1 '21
- Power for the Toledo machine and tool co.; successful conversion of heating plant into generating plant. il diag plans Power Pl Eng 25:595-9 Je 15 '21
- Power plant. il diags Paper 27:108-13 N 10 '20
- Power plant built in Germany during the war. il Power 51:252-3 F 17 '20
- Power plant economies. S. Waggoner. Elec Ry J 56:127 Jl 17 '20
- Power-plant evolution. C. F. Hirshfeld. Mech Eng 43:575-8 S '21; Same. Elec R 79:509-15 O 1 '21
- Power plant for General electric company Erie works. il diags plans Power Pl Eng 24:1015-20 N 1 '20
- Power plant troubles. H. A. Jahnke. diags Power Pl Eng 24:288-91; 25:573-5 Mr 1 '20, Je 1 '21
- Power plants for canneries. C. W. Geiger. il Power Pl Eng 25:508-10 My 15 '21
- Power problem in a copper refinery. L. Addicks. Chem & Met Eng 23:275-8 Ag 18 '20
- Power station design in relation to thermal efficiency. I. V. Robinson. Engineer 129:655-6 Je 25 '20; Abstracts. Electrician 85:34-6 Jl 2 '20; Power 52:195 Ag 3 '20; Discussion. Electrician 85:36-7 Jl 2 '20
- Power station of the Duquesne light company. J. M. Graves. il diags plan Elec J 18:193-210 My '21
- Practices and tendencies in steam generating plants. il Elec W 77:1311-14 Je 4 '21
- Progress in prime mover design and practice; N.E.L.A. committee report; summaries. Elec R 78:912-14 Je 4 '21; Elec Ry J 57:1122-4 Je 18 '21
- Records for study of needed improvements. Power Pl Eng 24:44-6 Ja 1 '20
- Report of committee on prime movers of the National electric light association; abstract. Mech Eng 42:459-63 Ag '20
- Returning condensate directly to the boiler. G. S. Barker. il Paper 27:26+ S 22 '20
- Review of steam power plant improvement. F. E. Kling. Blast F & Steel Pl 8:68-70 Ja '20
- Riverside station, Northern States power co., enlarged by 50,000 kilowatts. il diags plan Power 53:50-7 Ja 11 '21
- Salient features of large gas-fired generating station. R. C. Denny. il diag Power 52:884-6 D 7 '20
- Seward plant of Penn public service corporation; mine-mouth power plant ties into system supplying industries in Johnstown district. il diags map Power Pl Eng 25:937-47 O 1 '21
- Simple methods of economical operation. C. H. McClintock. il Elec W 77:1481-4 Je 25 '21
- Some Milwaukee plants of interest. il Power 52:374-7 S 7 '20

Steam plants—Continued

- Steam economy in drying on, and driving of paper machines. R. W. Leeper. Paper 28:9-11+ My 11 '21
- Steam-electric generation in far West. W. F. Durand and C. H. Delany. il map Elec W 75:1123-7 Mr 15 '20
- Steam-plant metering practice. R. E. Dillon. il charts Elec W 76:630-2 S 25 '20
- Steam power plants for pumping stations. P. J. Kiefer. Munic Eng 58:227-8 My '20
- Steam power station design. F. S. Clark. Power 53:828-31 My 24 '21
- Steam stations for hydraulic relay service. E. B. Powell. Power Pl Eng 25:310-15 Mr 15 '21; Same. Mech Eng 43:650-2+ O '21; Excerpts. Power 53:482-5 Mr 22 '21
- Steam wastes due to leaks, drips, radiation, etc. expressed in terms of dollars and cents. diags Power Pl Eng 25:71-2 Ja 1 '21
- Successful pulverized coal installation of the Milwaukee electric railway & light co. I. L. Kentish-Rankin. il diag plan Power Pl Eng 24:313-21 Mr 15 '20
- Suggestions for fuel saving in steam generating stations. Eng & Contr 53:162-3 F 11 '20
- Superheated steam in textile power plants. P. W. Foster, jr. il Textile World 58:3851+ D 4 '20
- Superpower-station steam pressure. J. A. Stevens. Power 53:193 F 1 '21; Discussion. 53:442, 519-20 Mr 15, 29 '21
- Ten-thousand horsepower station for operating shipyard. J. G. Berger. il plans Power 52:284-9 Ag 24 '20
- Tendencies in the development of steam generating plants. diags Power Pl Eng 25:706-12 Jl 15 '21
- Three power-plant leaks that waste coal. G. H. Smith. Power 51:627 Ap 20 '20
- Three years operation at Windsor. E. H. McFarland. il diag Gen Elec R 24:572-8 Je '21
- Unit idea in power station design. L. R. Lee. diag Elec Ry J 57:73-6 Ja 8 '21
- United alkali company's power station. plan Engineer 130:55-6 Jl 16 '20
- United alkali co.'s power station. il diags plan Elec R (Lond) 88:704-7, 761-3 Je 3-10 '21
- Using waste heat from open-hearth furnaces. B. H. Greene. diags plans Iron Tr R 66:1065-8 Ap 8 '20
- Utilization of back pressure in British power plants. C. H. S. Tupholme. diags Power Pl Eng 25:851-3 S 1 '21
- Waste prevention in the electrical industry. E. V. Chambers. il Electrician 86:619-22 My 20 '21
- Waterford lake power plant of the Dominion coal co. F. H. Kneeland. il Coal Age 17:354-5 F 19 '20
- Where electricity is a by-product; power plant of J. H. Williams & co. il plan Power Pl Eng 24:871-5 S 15 '20
- Woodshop waste runs power plant. il diags plan Power Pl Eng 24:821-7 S 1 '20

See also Boiler plants; Boilers; Electric plants; Exhaust steam; Feed water heaters; Feed water heating; Hydroelectric plants—Auxiliary plants; Piping (power plants); Power plants; Steam; Steam drip; Steam engineering; Steam engines; Steam turbines

Accounting

- Accounting for steam production and distribution. A. R. Smith. diag Power 54:630-3 O 25 '21; Same. Gen Elec R 24:957-63 N '21
- Allocation of boiler-house working costs in reducing steam-engine plants. T. E. Houghton. Elec R (Lond) 89:304-5 S 2 '21

Costs

- Analyzing maintenance costs; connection between the cost of steam and electric equipment maintenance. Elec W 76:613-16, 739 S 25, O 9 '20
- Effect of load factor on station costs. P. Junkersfeld. Elec W 77:85-8 Ja 8 '21; Same. Power 53:24-7 Ja 4 '21; Same cond. Mech Eng 43:108-10 F '21

Equipment

- Acme power plant at Toledo. il diags plan Power 54:434-42 S 20 '21
- New Ford power plant at River Rouge. T. Wilson. il diags plans Power 54:349-53 S 6 '21
- Selection of steam plant meters. J. W. Andree. il Elec W 76:1014-17 N 20 '20
- Steam plant apparatus. R. L. Greene. Am Gas Assn Technical sec v 2:224-30 '20

Layout

- Steam electric power-plant layouts. B. W. Dennis. Power 51:104 Ja 20 '20
- Tendencies in the design of power stations. P. Junkersfeld. il Elec W 77:5-7 Ja 1 '21

Maintenance

- Maintenance problems and solutions. E. A. Quinn and R. C. Denny. il Elec W 76:1211-14 D 18 '20

Records

- Graphic method of keeping continuous power-plant records. R. H. Parsons. Elec R 76:311-14 F 21 '20
- Reports, records and meters. W. W. Edson. Power 54:250 Ag 16 '21

Safety devices and measures

- Safety in the engine room. il Power Pl Eng 24:573-5 Je 1 '20

Tables, calculations, etc.

- Analysis of operating records. charts Power Pl Eng 24:55-62 Ja 1 '20
- Calculations relating to high pressure and high temperature steam with interheating for power generation. W. M. Selvey. Inst E E J 58:31-42 D '19
- Comparison of power flow. L. A. Doggett. diag Power 52:617 O 19 '20
- Essential statistics for general comparison of steam power plant performance. W. S. Gorsuch. Am Inst E E J 39:132-4 F '20; Same. Elec R 76:305-7 F 21 '20; Abstracts. Mech Eng 42:179 Mr '20; Elec Ry J 55:468 Mr 6 '20
- Exact data on the running of steam boiler plants. D. Brownlie. pl 3 (supp) Engineering 109:71-4 Ja 16 '20

Testing

- Continuous testing of the power-house plant. A. S. Trollip. Power 52:894-6 D 7 '20
- Data and results of steam power plant test. Elec W 75:439 F 21 '20
- Obtaining test load for steam- and water-wheel-driven power stations with water rheostats. C. W. Leonard diags Power 54:416-17 S 13 '21
- Planning forms for tests; with analyses. Power Pl Eng 24:20-33, 50-5 Ja 1 '20
- Steam power plant tests. H. L. Doolittle. J Elec 45:81-3, 130-2, 182-3 Jl 15-Ag 15 '20

Water supply

- Condenser-water intake used in shallow stream. diag Elec R 79:443-4 S 17 '21
- Novel condenser pump house at Kenova, W. Va. designed to be flood proof. il diags plans Elec Ry J 58:387-91 S 10 '21
- Steam plants, Portable. *See* Dynamobile
- Steam power plants. *See* Steam plants
- Steam regenerators. *See* Exhaust steam
- Steam shovels
- Bucyrus revolving steam shovel. il Ry R 66:537-8 Mr 27 '20; Ry Age 68:1368 My 7 '20
- Changing stone quarry from hand to steam shovel methods. I. Warner. Munic Eng 61:sup 24, 26, 28-9 S '21
- Coal-loading shovel with jaws that close horizontally will build packwalls. diags plan Coal Age 20:639 O 20 '21
- Cost of loading snow by steam shovel. J. T. Child. Eng & Contr 53:412 Ap 7 '20
- Les excavateurs mécaniques; leurs perfectionnements récents et la pratique actuelle de leur emploi. il diags Génie Civil 78:185-90 F 26 '21
- Excavating a mountain of rock. il Pub Works 48:215-16 Mr 20 '20

Steam shovels—Continued

- Increasing iron-ore production on the Mesabi range. R. S. Botsford. *il Eng & Min* J 109:1072-3 My 8 '20
- Iron mining in the Lake Superior district. J. C. Metcalf. *il diag Min & Met* 178:37-8 O '21; Same. *Eng & Contr* 56:377 O 19 '21
- Mucking with steam shovels speeds up tunnel driving. *il Eng N* 84:314-15 F 12 '20
- Nevada consolidated copper company; steam-shovel mining. A. B. Parsons. *il diags map Min & Sci P* 122:525-34 Ap 16 '21; Excerpts. *Eng & Contr* 55:501-3 My 18 '21
- Opening Snoqualmie Pass with steam shovel. L. W. Pedrose. *il Pop Mech* 36:2-3 JI '21
- Problems to be considered in changing a quarry from hand to steam shovel methods. I. Warner. *Concrete* 19:sup3-6 JI '21
- Rubber tired steam shovel attached to motor truck. *il Eng & Contr* 56:290 S 21 '21
- Snow removal by steam shovel in Snoqualmie Pass, Washington. T. R. Beeman. *il Eng & Contr* 56:3-4 JI 6 '21
- Steam navy on caterpillar tracks. *il diags plan Engineer* 129:120-1 Ja 30 '20
- Steam shovel digs for dragline in hard, stiff material. *il Eng N* 87:743 N 3 '21
- Steam shovel digs sewer trench in narrow space. G. C. D. Lenth. *il diags Eng N* 83:1064-6 D 25 '19
- Steam shovel has rendered operable many properties not hitherto worked. F. H. King. *il Coal Age* 17:937-8 My 6 '20
- Steam shovel mining. R. Marsh, jr. 258p McGraw-Hill '20
- Steam-shovel operations at the United Verde mine. L. A. Parsons. *il diag Min & Sci P* 122:447-8, 453-5 Ap 2 '21
- Steam shovels. *il Pub Works* 49:320-2 O 2 '20
- Time studies for a power shovel. D. J. Hauer. *Eng & Contr* 54:168-70 Ag 18 '20
- Using the steam shovel in road and street work. *il Munic Eng* 58:sup36+ My '20

Lighting

- Locomotive headlight turbines used for operating floodlights on steam shovels. *il Eng & Contr* 55:587 Je 15 '21

Safety measures

- Precautions for preventing accidents in steam shovel operations. F. C. Gallus. *Eng & Contr* 56:165 Ag 17 '21

Transportation

- Method of loading steam shovel on flat car. *diag Eng & Contr* 54:400 O 20 '20
- Moving a steam shovel across country with motor truck. *Eng & Contr* 54:405 O 20 '20

Steam tractors. See Tractors, Steam

Steam traps

- Application of return traps to heating systems. L. M. Reed. *Power Pl Eng* 25:728-9 JI 15 '21
- Ellis tilting steam trap. *il Power* 52:143 JI 27 '20; *Power Pl Eng* 24:1054-5 N 1 '20
- High pressure steam in small power plants. C. L. Hubbard. *il diags Sanitary & Heat Eng* 96:105-7 Ag 12 '21
- Increasing trap expansion movement. O. Janzen. *diag Power* 51:600 Ap 13 '20
- Installing the proper trap. O. B. Critchlow. *Power* 53:678 Ap 26 '21
- Misplaced expansion trap responsible for valve failure. A. J. Dixon. *diag Power* 53:754 My 10 '21
- New idea for a steam trap. *diags Heat & Ven* 17:60 Je '20
- Redmond tilting steam trap. *il diag Power* 53:352-3 Mr 1 '21
- Returning condensation from institutional buildings covering a large area. *Heat & Ven* 17:52-3 Je '20
- Running steam condensation to sewers. F. J. Perry. *diags Dom Eng* 91:102-3 Ap 17 '20
- Standard method of pipe connections for maximum economy. *diags Heat & Ven* 17:41-3 O '20
- Steam trap on wheels travels with expansion of the steam pipe it drains. *diags Heat & Ven* 18:59-60 JI '21

Steam traps—types, principles of operation, selection, installation, troubles, remedies. L. A. H. Merrihew. *diags Power* 54:378-81 S 6 '21

Tilting trap troubles. H. A. Jahnke. *diags Power Pl Eng* 25:180-2 F 1 '21

Using a U-tube for a trap. C. Brown. *diags Power Pl Eng* 25:730 JI 15 '21

Vacuum trap used for turbine drainage. *il diag Marine Eng* 26:843-4 N '21

Welldeck steam trap. *diag Engineering* 112:345 S 2 '21

Wilmon vacuum trap used afloat and ashore. *il diag Marine R* 51:520-1 N '21; Same. *Power Pl Eng* 25:1172-3 D 1 '21; Same abr. *Elec Ry J* 58:906-7 N 19 '21

Wright-Austin marine steam trap. *il Marine R* 50:248 Ap '20

See also Steam pipes

Steam trucks. See Motor trucks, Steam

Steam turbines

Balancing steam turbines. O. G. A. Pettersson. *diags Power* 51:562 Ap 6 '20

Chart shows turbines to use for different loads on plant. S. N. Clark. *Elec W* 76:127-8 JI 17 '20

Comparison of the reciprocating engine and the steam turbine. *diags Locomotive* 33:234-41 O '21

Correcting turbine balance. J. C. Wheeler. *diag Power Pl Eng* 24:606-8 Je 15 '20

Critical speed of a turbine spindle. R. Gardner. *diag Engineering* 111:99 Ja 28 '21

Curtis turbine for mechanical drive. *il Power Pl Eng* 25:346-7 Mr 15 '21

Data of new Interborough turbine. H. B. Reynolds. *il diags Elec Ry J* 57:945-6 My 21 '21

Development of the steam turbine. R. June. *Blast F & Steel Pl* 9:61-4, 224-6 Ja, Mr '21; Same (pt. 2). *Textile World* 59:1711+ Mr 5 '21

Dual drive units. I. S. Forde. *il Elec J* 18:48-50 F '21

Early steam turbine. *diags Power* 54:573-4 O 11 '21

Economy characteristics of the steam turbine. A. C. Flory. *Elec R* 76:724-6 My 1 '20

Employment of nozzles instead of cylinders or wheels in turbines; abstract. R. Mollier. *Mech Eng* 42:123 F '20

English electric impulse turbine. *il diag Elec R (Lond)* 88:529-31 Ap 22 '21

Estimating steam consumption of bleeder turbines. J. Gershberg. *diag Power* 54:556-7 O 11 '21; Discussion. 54:694-5, 737 N 1-8 '21

German turbine of 75,000 horsepower. *il Power* 52:33 JI 6 '20

Germany building large steam turbines. *il Power* 53:110 Ja 18 '21

Heat balance with house turbine. *il plan Power* 54:382-3 S 6 '21

Jennings steam-turbine-driven return-line heating pump. *il Chem & Met Eng* 25:337 Ag 24 '21; Same cond. *Power* 54:6 JI 5 '21

Large steam turbines. *diags Engineering* 109:269-71 F 27 '20

Large steam turbines. W. L. R. Emmet; J. F. Johnson. *Am Inst E E J* 39:310-11 Mr '20

Limits of speed and capacity of steam turbines; abstracts of papers presented at November meeting of the American institute of electrical engineers. *diags Power* 50:676-9 O 28 '19; *Elec Ry J* 54:923-5 N 15 '19; *Mech Eng* 42:62-3 Ja '20; *Sci Am M* 1:80-2 Ja '20; *Elec W* 74:1056-9 D 13 '19; Discussion. *Power* 50:720-3 N 11 '19

Mammoth steam unit and its work at Providence, Rhode Island. *il Sci Am* 123:271 S 18 '20

Management of the power plant. G. H. Perkins. *Textile World* 59:206+ Ja 8 '21

Menace of vibration. E. V. Amy. *Sci Am M* 1:337-8 Ap '20

Multi-stage impulse turbine. W. T. Batcheller. *il J Elec* 44:323-4 Ap 1 '20

New geared turbine set. *diags Power* 53:187 F 1 '21

New small type turbine for steel plants. R. M. Rush. *il Blast F & Steel Pl* 8:357-8 Je '20

Steam turbines—Continued

- New steam turbine for mechanical service. *il* Power 52:1022 D 28 '20
- New turbine installation of Pacific gas & electric co. C: W. Geiger. *il* plan Power Pl Eng 24:217-25 F 15 '20
- Non-condensing turbine operation on heating load. R. D. DeWolf. Power 54:220-1 Ag 9 '21; Discussion. 54:778-9 N 15 '21
- Operation and adjustment of turbine machinery. E. H. Thompson. diags Power 52:2-4, 85-7, 181-3, 224-5, 297-8, 389-90, 469-70, 539-41, 616-17, 698-700, 784-6, 863-4, 898-9 J1 6, 20, Ag 3-10, 24, S 7, 21, O 5, 19, N 2, 16, 30-D 7 '20
- Optimistic view of turbine development. R: H. Rice. Elec W 75:893 Ap 17 '20
- Periodic attention to small turbines will prevent shutdown. J: M. May. Elec W 77:207 Ja 22 '21
- Power drives for rolling mills. W. O. Rogers. *il* Power 51:542-5 Ap 6 '20
- Power station design in relation to thermal efficiency. I. V. Robinson. Engineer 129: 655-6 Je 25 '20; Abstracts. Electrician 85: 34-6 J1 2 '20; Power 52:195 Ag 3 '20; Elec R 77:738 N 6 '20; Discussion. Electrician 85:36-7 J1 2 '20
- Pressure distribution in steam turbines. G. Stoney. Engineering 111:250-2 Mr 4 '21; Abstract. Power 53:719-20 My 3 '21; Discussion. C. A. Schellers. Engineering 111:563 My 6 '21
- Prime movers committee report on steam turbines. Power 51:898-9 Je 1 '20
- Progress in prime mover design and practice; N.E.L.A. committee report; summaries. Elec R 78:912-14 Je 4 '21; Elec Ry J 57:1122-4 Je 18 '21
- Properties of steam. Engineering 111:63-5, 93-4 Ja 21-28 '21; Abstract. Mech Eng 43:259-60 Ap '21
- Properties of steam and thermodynamic theory of turbines. H. L. Callendar. 531p E. Arnold, London '20; Review. Engineer 131:353 Ap 1 '21
- Reciprocating engines and steam turbines. 134p The Travelers indemnity company, Hartford, Conn. '20
- Romance of invention. Sci Am 123:182+ Ag 21 '20
- 79 per cent of steam prime movers are turbines. Elec W 77:152 Ja 15 '21
- Single-stage turbo-blower operating normally at 22,000 r. p. m. *il* Power 52:327-8 Ag 31 '20
- Sir Charles Parsons; life and work of the man responsible for the successful development of the steam turbine. E. C. Smith. *il* Power 54:517-20 O 4 '21
- 60,000-kw. turbine generator installed at the new Cheswick station of the Duquesne company. *il* Elec Ry J 55:1064 My 22 '20
- Small steam turbines. W. J. A. London. *il* diags Eng Soc W Pa 36:539-63; Discussion. 564-73 N '20
- Some recent developments in large steam turbine practice. K. Baumann. diags Inst E E J 59:565-623 Je '21; Same. Engineering 111:435-9, 449-53, 501-4, 532-5, 567-71, 597-600, 630-2 Ap 8-My 20 '21; Abstracts. Electrician 86:454-7 Ap 15 '21; Elec R (Lond) 88:472-5, 531-4 Ap 15-22 '21; Engineer 131: 399-400 Ap 15 '21; Power 53:907 My 31 '21; Power Pl Eng 25:607-11 Je 15 '21; Discussion. Inst E E J 59:623-63 Je '21; Electrician 86:459-61, 659-62 Ap 15, My 27 '21; Elec R (Lond) 88:475-7, 794-5, 831 Ap 15, Je 17-24 '21; Engineer 131:400 Ap 15 '21
- Speed and power of Curtis steam turbine. E. Berg. diag Blast F & Steel Pl 8:163-5 F '20
- Starting a steam turbine. W. Aspril. Power 53:144-5 Ja 25 '21; Discussion. A. D. Palmer. 53:557-8 Ap 5 '21
- Steam turbine. W. T. Batcheller. *il* J Elec 44: 220-1, 269-70; 45:20-1, 84-5 Mr 1-15, J1 1-15 '20
- Steam turbine. E. H. Sniffen. Power 51:82 Ja 13 '20
- Steam-turbine economy characteristics. A. C. Flory. Power 51:740-2 My 4 '20
- Steam-turbine shaft glands. J: R. Baker. diags Power 53:881-3 My 31 '21

- Steam turbines. A. G. Christie. Power 53:9-10 Ja 4 '21
- Steam turbines. G: J. Meyers. 246p The United States naval institute, Annapolis '20
- Steam turbines for maximum loads. A. Loschge. diag Mech Eng 43:607-8 S '21
- Steam turbines for mechanical drive. I. S. Forde. *il* Elec J 17:136-9 Ap '20
- Steam turbines suitable for mechanical drive. *il* Elec R 78:77-8 Ja 8 '21
- Study of a steam turbine for airplanes. L. Acampora. Aviation 9:261-2 N 8 '20
- Tandem-compound steam-turbine unit, Fisk street station. F. A. Hatch. *il* diag Power Pl Eng 24:507-9 My 15 '20
- Tendencies in the development of steam generating plants. diags Power Pl Eng 25:706-7 J1 15 '21
- Troubles with large turbines are being overcome. W. L. Abbott. Elec W 77:19-20 Ja 1 '21
- Turbine efficiency calculations; use of heat-entropy diagram. P. F. Christopher. Power Pl Eng 25:1039-42 N 1 '21
- Turbine installed in record time. G. K. Saurwein. *il* Power 51:372-3 Mr 9 '20
- Turbine operation for the average plant. W. A. Darter. Power Pl Eng 25:458-9 My 1 '21
- Les turbines à vapeur de faible puissance. J. Boudet. Génie Civil 78:362 Ap 23 '21
- Utilisation of exhaust steam in turbines. M. Deacon. diags Engineering 112:165-6; Discussion. 141 J1 22 '21; Abstracts. Electrician 87:49 J1 8 '21; Engineer 132:85-6 J1 22 '21; Elec R (Lond) 89:228-9 Ag 12 '21
- Ventilating system which prevents condensation in turbine room. S. Crocker. diag Elec W 76:339 Ag 14 '20
- Westinghouse turbine makes world's record. *il* Sibley J 34:180 D '20
- Willans line. A. Jude. Engineer 129:545-7 My 28 '20; Abstract. Power 52:312 Ag 24 '20
- See also* Locomotives, Steam turbine

Control

- Low-pressure steam control device. J. W. Smith. diag Mech Eng 42:694-5 D '20; Same. Sci Am M 2:374 D '20
- Les régulateurs et les soupapes des turbines Curtis de petite puissance. diags Génie Civil 77:278-9 O 2 '20
- Les régulateurs et soupapes de vapeur des turbines Terry. diags Génie Civil 77:34-6 J1 10 '20
- Ridgway mixed-pressure turbine governor. *il* diags Power 54:106-8 J1 19 '21
- Steam-turbine governors—governors of 75- to 3,000-kw. Curtis turbines. C: H. Bromley. *il* diags Power 51:414-19 Mr 16 '20; Abstract. Génie Civil 77:113-14 Ag 7 '20
- Steam-turbine governors—governors of small Westinghouse turbines. *il* diags Power 51: 135-7 Ja 27 '20
- Steam-turbine governors; shaft governors of small Curtis turbines. *il* diags Power 51:328-9 Mr 2 '20
- Steam-turbine governors—shaft governors of Terry turbines. *il* diags Power 51:254-6 F 17 '20
- Steam-turbine governors—small shaft governors. *il* diags Power 51:21-3 Ja 6 '20

Cost of operation

- Steam-turbine and Diesel operating costs. Power 52:787 N 16 '20

Design

- Recent advances in steam turbine design. G. Stoney. *il* diags Electrician 86:774-80 Je 24 '21
- Recent improvements in steam turbine design. *il* diags Engineer 131:482-4, 534, 535-6, 562-3, 592-3, 596, 640-2 My 6, 20-Je 3, 17 '21

Failures

- Details of the Waterbury turbine explosion. *il* Power 51:633-5 Ap 20 '20
- Explosion of a large steam turbine at Connecticut light & power company, Waterbury. *il* diag Locomotive 33:2-5 Ja '20

Steam turbines—Continued

Gearing

- High-speed turbine gears; abstracts. G. Stoney. Engineer 128:534 N 28 '19; Mech Eng 42:61-2 Ja '20; Power 51:116-17 Ja 20 '20; Blast F & Steel Pl 8:168-70 F '20
Reduction-gear applications. I. Short. il Power 54:258-9 Ag 16 '21

See also Steam turbines, Marine—Gearing

Lubrication

- Causes of trouble in steam-turbine lubrication and the remedy. L. E. Strothman. il diag Power 52:244-6 Ag 17 '20
Electrical device for checking the oil temperature of medium-sized turbo-generators. G: J. Duckett. chart diags Electrician 85:76-7 Jl 16 '20
Le graissage des turbines à vapeur. Roux. Génie Civil 78:41-2 Ja 8 '21
How oil should be filtered for horizontal steam turbines. C. Wood. Elec W 78:74 Jl 9 '21
Keeping steam turbine lubricating oil in good condition. C: H. Bromley. chart il diags Gen Elec R 24:414-21 My '21; Abstract. Elec Ry J 57:813 Ap 30 '21; Engineer 132:490-1 N 4 '21
Lubrication of prime movers. C: H. Bromley. Power 54:657-8 O 25 '21
Lubrication of steam turbine bearings. H. V. Schoepflin. diag Elec J 17:90 Mr '20; Same. Power Pl Eng 24:1069-70 N 15 '20
Lubrication of steam turbines. Gen Elec R 24:651-5 Jl '21
Lubrication of steam turbines. W: F. Parish. Power 53:784-7 My 17 '21
Operation and adjustment of turbine machinery. E. H. Thompson. Power 52:698-700, 784-6, 863-4, 898-9 N 2, 16, 30-D 7 '20
Steam-turbine lubrication. W. F. Osborne. Power 51:322-4 Mr 2 '20
Turbine bearings and their lubrication. il diags Power Pl Eng 24:644-7 Jl 1 '20
Turbine lubricating and oiling systems. il Power Pl Eng 24:744-5 Ag 1 '20

See also Steam turbines, Marine—Lubrication

Manufacture

- Large cores for turbine castings. il Iron Age 108:202-3 Jl 28 '21
Stainless steel for turbines. il Electrician 87:540-1 O 28 '21; Elec R (Lond) 89:560-2 O 28 '21; Engineer 132:447-50 O 28 '21; Engineering 112:592-4 O 28 '21
Untersuchung von schaufelmaterial für dampfturbinen. P. Bardenheuer. Stahl & Eisen 41:204 F 10 '21

Safety devices and measures

- Rules for the safe operation of steam engines and turbines. E. E. Clock. Power 51:732 My 4 '20
Safety precautions in the operation of large turbines. il diag Power 54:354-7 S 6 '21

Specifications

- British standard specifications for steam turbines for electrical plant. 10p British engineering standards association, London '20

Testing

- Economy falls 11 per cent when vacuum drops two inches. T: Hall. Elec W 75:845 Ap 10 '20
Efficiency tests of a 30,000-kw. steam turbine. H. B. Reynolds. Mech Eng 43:450-4+ Jl '21; Excerpts. Power 53:867-8 My 24 '21; Discussion. Mech Eng 43:463-4 Jl '21
169,000 kw. of turbines tested at one time. il Power Pl Eng 25:882 S 1 '21
Test of 1,500-kilowatt Ljungström steam turbine. H. R. Sankey. Engineering 110:345-6 S 10 '20
Tests on 30,000-kw. steam turbines. Elec W 78:729 O 8 '21
Turbines aggregating 164,000 kw. tested at one time. il Elec R 79:444 S 17 '21

Steam turbines, Marine

- Design of main exhaust pipes for turbines. C. Hankins. il diags Int Marine Eng 25:583-6 Jl '20
Development of the Rateau geared turbine for marine work. A. V. Jarratt. il plan Electrician 85:253-7 S 3 '20
Emergency governor and gear for marine turbine. diags Engineering 110:344-5 S 10 '20
Geared marine turbines. C. R. Waller. Marine Eng 26:467 Je '21
Geared turbines for torpedo boat destroyers. il diags Int Marine Eng 25:479-80 Je '20
Geared turbines with double reduction gear. diags Engineering 110:211-12, 214, pl 23-4 Ag 13 '20; Abstract. Mech Eng 42:577-9 O '20
General electric marine geared turbine. C. H. Peabody. il diags fold pl Marine Eng 26:141-6 F '21
Internal combustion engines in marine service; comparison with steam turbines. C: E: Lucke. J Fr Inst 192:11-45, 203-32 Jl-Ag '21
Internal combustion turbine and steam turbines. Engineering 111:361-2 Mr 25 '21
Limits of steam conditions in marine engineering. Engineer 131:480 My 6 '21
Main turbines and turbine speed control for the U.S.S. Tennessee. W. B. Flanders. il diag Elec J 18:281-4 Je '21
Marine turbine power plant; with notes on boilers, oil burning, refrigerating machinery, etc. C. C. Levin. 101p Press of Thomson & co., New York '20
Monel-metal blades in destroyer turbines. W. F. Rice. il diag Power 51:908-11 Je 8 '20
Motive power of the new 35-knot scout cruiser. il diags plan Sci Am 124:113 F 5 '21
New developments in high vacuum apparatus. G. L. E. Kothny. diags Engineering 109:28-31 Ja 2 '20; Same. Int Marine Eng 25:364-71 Ap '20
New machinery for Atlantic refining tankers. il Marine Eng 26:597-9 Ag '21
Le paquebot Paris de la compagnie générale transatlantique. C: Dantin. il diags plans Génie Civil 79:207-12, pl 3 S 3 '21
Some reminiscences of early days of turbine development. C: A. Parsons. J Fr Inst 190:111-13 Jl '20
Troopships completed at Hog Island. il Int Marine Eng 25:737-40 S '20
Turbine work at the Puget Sound navy yard. il Am Mach 54:1044-5 Je 16 '21
Twin-screw turbine S. S. Mendoza. Engineering 111:193-4, 256-8, 260, pl 8-9, 11 F 18, Mr 4 '21
Westinghouse geared turbines installed on new Swedish battleships. il diag Int Marine Eng 25:743-4 S '20
Westinghouse marine turbine governor. il diags Power 50:766-7 N 25 '19; Génie Civil 77:98-9 Jl 31 '20

See also Ship propulsion; Steamboats

Failures

- Low-pressure turbine blading failures in destroyers. D. F. Ducey. il diags Engineering 112:615-19, 647-50 O 28-N 4 '21; Abstract. Engineer 132:355 S 30 '21

Gearing

- Alignment meter for turbine gearing. diags Engineer 129:559 My 28 '20; Same cond. (Appareil Vickers-Eccles, pour la vérification de l'alignement des arbres de machines ou de transmissions). Génie Civil 77:419 N 20 '20
Comparison of electric with geared turbine drive in merchant vessels. P. C. Day. Marine Eng 26:255-6 Mr '21
Developments in turbine propulsion. R. J. Walker. Engineer 129:607-9 Je 11 '20; Same cond. Electrician 85:276-8 S 3 '20
Double-reduction gearing of the three-case type for steamships. Engineering 112:376, 378 S 9 '21

Steam turbines—Gearing —Continued

- Experience and practice in mechanical reduction gears in warships. H. B. Tostevin. *il diags plans Engineering* 109:472-3, 474-80, 482 Ap 9 '20; Same *abr. Int Marine Eng* 25:745-51, 826-9 S-O '20; Same *cond. Engineer* 129:368-9, 405-7 Ap 9-16 '20
- How floating frame gears work. W. H. Easton. *il Marine R* 50:38-9 Ja '20
- Marine steam-turbine gearing. J. H. Gibson. *Eng & Ind Management* 5:601-3, 624-5 My 26-Je 2 '21
- Mechanical gears, of double reduction, for merchant ships. R. J. Walker and S. S. Cook. *diag Engineer* 131:327-8 Mr 25 '21; Same. *Engineering* 111:369-70 Mr 25 '21; Same. *Marine Eng* 26:394-7 My '21; Discussion. *Engineer* 131:314 Mr 25 '21; *Engineering* 111:347-8 Mr 25 '21; *Marine Eng* 26:566 Jl '21
- Mechanical reduction gears on warships and merchant ships. J. H. Macalpine. *Engineering* 111:609-11, 640-2 My 20-27 '21; Appendix. J. H. Macalpine. 112:179-80 Jl 29 '21; Discussion. 112:311, 659-60 Ag 26, N 11 '21
- Notes in connection with experience with marine turbine reduction gears. R. J. Walker and S. S. Cook. *Engineering* 112:167-8; Discussion. 142-3 Jl 22 '21
- Plea for proper setting of double-reduction marine gears. S. K. French. *Mech Eng* 43:209 Mr '21
- Reduction gearing on steamships. *diags Engineering* 109:599-601 My 7 '20
- Reduction gears for ship propulsion; abstracts. R. Warriner. *diags Engineering* 111:786-9 Je 24 '21; *Marine Eng* 26:532-8 Jl '21
- Turbine reduction gears versus electric propulsion for ships. E. Berg. *diags Am Inst E E J* 40:724-9 S '21; Same *cond. Gen Elec R* 24:124-30 F '21
- Turbo-reduction gears in practice. H. C. Dinger. *Int Marine Eng* 25:577-82 Jl '20

Lubrication

- Lubrication problem on shipboard. P. M. Robinson. *il diags Marine Eng* 26:458-62 Je '21
- Standard lubricating oil systems for geared turbines; abstracts. J. E. Schmeltzer and B. G. Fernald. *Power* 51:194-5 F 3 '20; *Int Marine Eng* 25:508-10 Je '20
- Turbine lubrication. *Gen Elec R* 24:788-93 S '21

Steam valves. See Valves

Steam water heaters

- Problem in laundry water heater. *diags Heat & Ven* 17:48-50 F; 51-3 Ap; 54-6 Jl '20

Steamboat inspection service

- Another burden for shipowners proposed; fee basis for inspection. W. Fawcett. *Marine Eng* 26:511-12+ Jl '21

Steamboat lines

See also United States mail steamship company

Advertising

- Scuttle the merchant marine—or advertise. S. C. Lambert. *Ptr Ink* 114:61-2+ F 17 '21
- Shipping board to put big push behind U.S. mail line. E. T. Tandy. *il Ptr Ink* 115:101-4+ Je 2 '21
- Steamboats**
- American liners for North Atlantic to have third class accommodations. *plans Marine R* 51:298-9 Jl '21
- American passenger liner George Washington. G. C. Cook. *il diags plans Marine Eng* 26:505-10+ Jl '21
- American passenger liner Wenatchee. *il Marine Eng* 26:438-9 Je '21
- American S. S. Courageous and Invincible. *Engineer* 130:296 S 24 '20
- Big American liner George Washington returns to service. V. G. Iden. *il Marine R* 51:351-7 Ag '21
- Cargo motorships vs. steamships. C. E. Lucke. *Int Marine Eng* 25:759-63, 837-41 S-O '20

- Clan line steamer Clan Mactaggart. *il Engineering* 111:108 Ja 28 '21
- Costs and running charges of Atlantic liners. *Engineering* 110:241 Ag 20 '20
- Cunard liner Samaria. *Engineer* 130:566 D 3 '20
- Cunard liner Tyrrhenia. *Engineer* 129:657 Je 25 '20
- Cunard liner Tyrrhenia. *il Int Marine Eng* 25:645-6 Ag '20
- Cunarder Samaria. *il Marine Eng* 26:115-17 F '21
- Distribution of the world's four greatest liners. *Sci Am* 124:202 Mr 12 '21
- Early transatlantic steamers. F. B. C. Bradley. *il Int Marine Eng* 25:114-15 F '20
- L'emploi du mazout comme combustible industriel. C. Dantin. *diags Génie Civil* 79:265-8, 288-91 S 24-O 1 '21
- England's latest type of ocean liner, the Scythia. *il diags plans Marine Eng* 26:819-24 N '21
- Famous ships—the George Washington. C. E. Oliver. *il Int Marine Eng* 25:644-5 Ag '20
- Ferris type wooden hull proves efficient lumber carrier. J. J. Muir. *diags plans Marine Eng* 26:124-6 F '21
- 502-foot passenger and cargo vessels. *il diags plans Int Marine Eng* 25:265-9 Ap '20
- French transatlantic liner Paris. *il Engineering* 112:96-7, 106, 181-2, 246-8, 250, 254, pl 6, 8, 10 Jl 15, 29, Ag 12 '21
- Fruit steamer of modern design, the Ormes. *plans Marine R* 50:536-8 O '20
- Fruit steamers Hibueras and Nicarao. C. Feldman. *il diags plans Marine Eng* 25:799-803+ O '20
- Geared turbine passenger steamer Antwerp. F. C. Coleman. *il plans Int Marine Eng* 25:625-30 Ag '20
- Geared turbine propelling equipment of the new Shawmut ships. *il Marine Eng* 26:363-4 My '21
- Great liners now use oil fuel. *il Marine R* 50:488-93 S '20
- Hudson river steamboat Mary Powell. T. J. Smith. *il plan Int Marine Eng* 25:405-7 My '20
- Italian geared turbine passenger liner Esperia. *il Engineering* 111:524, 529-30 Ap 29 '21
- Italian liner Giulio Cesare. *il Engineering* 111:323-4, 326 Mr 18 '21
- Joining a new steamer. *Int Marine Eng* 25:148-9 F '20
- Little journeys of an editor; repairing steamboats. E. Sheldon. *il Am Mach* 54:53-9 Ja 13 '21
- Minnekahda, a ship of democracy. *il Marine Eng* 26:520-2 Jl '21
- Munson builds passenger ship. *diag Marine R* 51:436-7 O '21
- New American passenger steamers. *il diags plans Int Marine Eng* 25:260-4 Ap '20
- New French passenger and mail liner Paris. *il Marine Eng* 26:669-72 S '21
- New liner for Cunard, the Samaria. *il Marine R* 51:209-10 My '21
- New U.S. line to Europe; the Panhandle state. *Marine R* 50:593 N '20
- Oil firing in the Atlantic service. *Sci Am* 123:100 Jl 31 '20
- P. and O. liner Naldera. *il diag Engineering* 110:278-9, 282, 453, pl 26, 58 Ag 27, O 1 '20
- P. and O. liner Naldera. *il diags plans Marine Eng* 26:195-206 Mr '21
- Pacific steam navigation co.'s liner Oropesa. *il Marine R* 50:594 N '20
- Packet comes back. H. H. Dunn. *il Pop Mech* 36:385-8 S '21
- Le paquebot Paris de la compagnie générale transatlantique. C. Dantin. *il diag Génie Civil* 79:73-80, 181-7, 207-12, pl 1, 3 Jl 23, Ag 27-S 3 '21
- Passenger and cargo steamer Oropesa. *il diags plans Marine Eng* 26:351-7 My '21
- Passenger and cargo steamship Hawkeye State. *il diags plans Marine Eng* 26:185-94+ Mr '21
- Passenger and cargo vessel San Lorenzo. *il Marine Eng* 26:430-3 Je '21
- Passenger and freight steamship Aeolus. *diag plans Marine Eng* 26:118-19 F '21

Steamboats—Continued

- Passenger liner Giulio Cesare. il diags plans Marine Eng 26:425-30 Je '21
- Passenger steamer for the Newcastle-Ber-gen route. Int Marine Eng 25:553-4 Jl '20
- Passenger steamship Mount Clay. J. A. Kelley. il diags plans Marine Eng 26:22-3, 82 Ja '21
- Power and speed of steamers. A. R. Liddell. Sci Am M 1:145-7 F '20
- Propelling machinery of the Leviathan. E. H. B. Anderson. il diags Int Marine Eng 25: 51-60 Ja '20
- R.M.S. Arundel castle. il diags Engineer 131: 510-11, 514 My 13 '21
- Rebuilding the steamship Comanche. il Int Marine Eng 25:764-7 S '20
- Rebuilt Harriman liner De Kalb. J. A. Kel-ley. diag plans Marine R 51:181-3 Ap '21
- 6,300-ton deadweight freighter. diags plans Marine Eng 25:885-90 N '20
- Southampton-built cargo steamship. il En-gineer 130:534, 542 N 26 '20
- Status of ship data. C. H. Peabody. Ma-rine Eng 25:797-9 O '20
- Steamer Asbury Park in service on the Pacific coast. H. L. Des Anges. il Int Marine Eng 25:713 S '20
- Steamship Aeolus re-conditioned. H. G. Cros-by. il Marine Eng 26:1-11 Ja '21
- T.S.S. Curraghmore. il diags plans (supp) Engineer 129:186, 252 F '20, Mr 5 '20
- Third-class carrier Vedic. il diags plans Marine Eng 26:290-4 Ap '21
- Transportation by sea and land; review of seventy-five years of progress. il diags Sci Am 123:327-30+ O 2 '20
- Twin-screw channel steamer Bruges for the G. E. railway service. il Engineering 110: 452 O 1 '20
- Twin-screw coastwise passenger steamer. diags plans Int Marine Eng 25:396-8 My '20
- Twin-screw turbine S. S. Mendoza. il En-gineering 111:136-7, 193-4, 256-8, 260, pl 8-9, 11 F 4, 18, Mr 4 '21
- White Star liner Majestic. il Marine Eng 26:734-8 O '21
- Wine steamers Nelly Lasry and Sidney Lasry. il diags plans Marine Eng 26:360-3 My '21
- Yangtse shallow-draft steamer Anning. il diag plans Sci Am 124:461+ Je 11 '21
- Zeeland steamship company's cross-channel steamer Prinses Juliana. il Engineer 130: 174 Ag 20 '20
- See also Boilers, Marine; Freight ships; Marine engines; Ship propulsion; Shipbuild-ing; Shipping; Ships; Steam turbines, Ma-rine; Steamboat inspection service; Steam-boat lines; Towboats; Warships*

Cost of operation

- Airships and steamships. Engineer 131:621-2 Je 10 '21
- Superheated steam and operating costs. H. B. Oatley. Int Marine Eng 25:138-40 F '20

Lighting**See Ships—Lighting****Oil burning****See Boilers, Marine—Oil firing**

Steamer trunks. *See* Trunks

Steamers. *See* Steamboats

Steamships. *See* Steamboats

Stearic acids

- Uniform composition of commercial stearic acids, and its explanation. B. H. Nicolet. J Ind & Eng Chem 12:677-9 Jl '20

Stearns, Frederick Pike, 1851-1919

- Appreciation. A. Hazen. por Eng N 83:904 N 13 '19

Sketch. Eng N 83:907 N 13 '19

Stearns, Irving Ariel, 1845-1920

- Sketch. por Coal Age 18:897-8 O 28 '20

Sketch. R. V. Norris. por Min & Met 167:25-6 N '20

Steel

- A B C of iron and steel. A. O. Backert. 4th ed. 408p Penton pub. co. '21

Application in rolling of effects of carbon, phosphorus, and manganese on mechanical properties of steel. W: R. Webster. Min &

- Met 171:49-50 Mr '21; Same. Sci Am M 3: 381 Ap '21; Same. Iron Age 107:982 Ap 14 '21

Artificial seasoning of steels. H. J. French. Chem & Met Eng 25:155-8 Jl 27 '21; Am Mach 55:768-71 N 10 '21

Carbon steel studies; thermal and physical changes and relation between grain size and hardeners. Eng & Ind Management 5:83 Ja 20 '21

Cold rolled strip steel; uses. Iron Age 107:1446 Je 2 '21

Contemporary foreign opinion on sulphur and phosphorus in steels. H: S. Rawdon. Chem & Met Eng 22:609-11 Mr 31 '20; Same. Iron Tr R 66:1069-71 Ap 8 '20

Damascene steel. N. T. Belaiew. il Engineer-ing 112:395 S 9 '21; Same. Blast F & Steel Pl 9:621-2 O '21

Defects arising in steel during fabrication. A. B. Wilson. il Chem & Met Eng 23: 1209-13 D 22 '20

Defects in steel originating in the ingot. A. B. Wilson. il Chem & Met Eng 23:1161-6 D 15 '20

La dissolution retardée et la précipitation prématurée du carbure de fer dans les aciers et l'influence de l'état initial sur ces phénomènes. A. Portevin and P. C. Venard. diags Génie Civil 78:556 Je 25 '21

Effect of arsenic in steel. P. E. McKinney. Chem & Met Eng 23:294 Ag 18 '20; Same. Iron Age 106:725 S 16 '20; Same, without table. Sci Am 124:47 Ja 15 '21

Effect of the rate of cooling on the magnetic and other properties of an annealed eutec-toid carbon steel. C. Nusbaum and W. L. Cheney. il U S Bur Stand Sci Pa 408:65-78 '21

Electric-arc welding of steel: the proper-ties of the arc-fused metal. H: S. Raw-don. il diag Mech Eng 42:567-71 O '20

Electrometric method for detecting segrega-tion of dissolved impurities in steel. E. G. Mahin and R. E. Brewer. il diag J Ind & Eng Chem 12:1095-8 N '20

Embrittling effect of pickling upon carbon steel. C. J. Morrison. il Iron Age 108:334-5 Ag 11 '21

Fatigue of metals. P. Kreuzpointner. Eng & Min J 112:216-17 Ag 6 '21

Fehlstellen in legiertem stahl. E. H. Schulz. Stahl & Eisen 41:160-3 F 3 '21

Force-field theory and electric resistivity of steel; abstracts. E. D. Campbell. Engineer-ing 110:812-13 D 17 '20; Elec R (Lond) 88: 70 Ja 21 '21

La fragilité au bleu dans certaines soudures d'acier. C: Fremont. il Génie Civil 78:199 F 26 '21

Internal service-strains in steel. J. E. How-ard. Chem & Met Eng 25:275-8 Ag 17 '21; Abstract. Engineering 111:693 Je 3 '21; Same. Eng & Ind Management 6:157-8 Ag 11 '21

Magnetic reluctivity relationship as related to certain structures of a eutectoid-carbon steel. C. Nusbaum, W. L. Cheney and H. Scott. U S Bur Stand Sci Pa 404:739-57 '20

Metallic oxides soluble in steel. Chem & Met Eng 23:761-2 O 20 '20

Method for identifying steel stock. Soc Auto Eng J 7:555 D '20

More flakes. H. Styri. il Chem & Met Eng 24:468 Mr 16 '21

New discussion on the physics of steel. W: R. Webster. Blast F & Steel Pl 9:555-63 S '21

Physical changes in iron and steel below the thermal critical range. Z. Jeffries. Min & Met 158:(sec 20) 1-17 F '20; Same. Blast F & Steel Pl 8:238-45 Ap '20; Same cond. Iron Age 105:620-1 F 26 '20; Discussion. Chem & Met Eng 22:395-6 Mr 3 '20

Physico-chemical properties of steel. C: A. Edwards. 2d ed., rev. 281p C. Griffen & co., London '20

Production and uses of cold-drawn steel. C. E. Bregenzer. Iron Age 108:135-6 Jl 21 '21

Properties of a non-magnetic, flame, acid, and rust resisting steel. C. M. Johnson. Am Mach 53:853-4 N 4 '20

Properties of steel. D. R. Long. Power 53: 149-50 Ja 25 '21

Steel —Continued

- Relations between gases and steel. H. M. Ryder. *il diags Elec J* 17:161-5 Ap '20
- Similarity of the magnetic change in cementite and ferrite. H. G. Movius and H. Scott. *Chem & Met Eng* 22:1069-70 Je 9 '20
- Soldering iron and steel. F. H. Sweet. *diags Power Pl Eng* 24:1084-5 N 15 '20
- Steel for valves of combustion motors. G. Gabriel. *Iron Age* 106:1249-51, 1465-9 N 11, D 2 '20
- Steel foundry makes sugar mill machinery. J. J. Zimmerman. *il diags Blast F & Steel Pl* 9:536-40 S '21
- Steel from the standpoint of marine engineering. W. H. Hatfield. *Engineering* 111:262 Mr 4 '21
- Steel that resists the oxy-acetylene torch. *il Sci Am* 121:562 D 6 '19
- Steel wire and wire-drawing. E. A. Atkins. *il Engineering* 109:749-52 Je 4 '20
- Steels for permanent magnets. *Electrician* 86:327 Mr 18 '21
- Steels recommended by the gear manufacturers' association. *Mach* 28:134 O '21
- Studies in the corrosive action of chlorine-treated water; the effects of steel on the equilibrium: $\text{Cl}_2 + \text{H}_2\text{O} \rightleftharpoons \text{HCl} + \text{HClO}$, and of products of the equilibrium on steel. G. L. Clark and R. B. Iseley. *J Ind & Eng Chem* 12:1116-22 N '20
- Surface of liquid steel. C. Johns. *Engineering* 112:619 O 28 '21
- Temperature coefficient of the modulus of longitudinal elasticity of steel. H. M. Dadourian. *Philos Mag* 6th ser 42:442-8 S '21
- Temperature of steel exposed to sun. H. G. Cornthwaite. *Eng N* 85:803 O 21 '20
- True stresses in rectangular steel bars. N. B. Hunt. *Mach* 27:77-8 S '20
- Valve failures and valve steels. L. Aitchison. *Automotive Ind* 41:1264-8 D 25 '19; *Excerpts. Engineer* 128:641-2 D 26 '19
- Working of steel. F. H. Colvin and K. A. Juthe. 244p McGraw-Hill '21
- See also* Annealing; Bessemer process; Bridges, Iron and steel; Cars, Steel; Case hardening; Chromium nickel steel; Chromium steel; Concrete, Reinforced; Corrosion and anti-corrosives; Electrolytic corrosion; Foundry practice; Freight cars, Steel; Iron; Manganese steel; Metallography; Metals; Molybdenum steel; Nickel steel; Open hearth process; Rails; Rolls (iron mills); Semi-steel; Silicon steel; Springs (mechanism); Steel, Heat treatment of; Steel, Structural; Steel alloys; Steel castings; Steel construction; Steel industry and trade; Steel ingots; Steel metallurgy; Steel works; Tool steel; Tungsten steel; Uranium steel; Vanadium steel

Analysis

- Analysis of high-speed steel. H. O. Ward. *Chem & Met Eng* 23:28 Jl 7 '20
- Analysis of special steels; use of electro-metric titration methods. C. O. Bannister. *il diags Electrician* 85:535-8 N 5 '20
- Chemical analysis of plain carbon steel. *Foundry* 49:476a, 530a, 568a, 610a, 642a, 696a, 738a Je 15-S 15 '21
- Chemical analysis of steel-works' materials. F. Ibbotson. 296p Longmans '20
- Comparison of different methods of estimating sulphur in steel. T. E. Rooney. *Iron & Steel Inst J* 103:339-53 no 1 '21
- Desoxydationsvorgänge im Thomasverfahren. O. von Keil. *Stahl & Eisen* 41:605-11 My 5 '21
- Determination of cobalt and nickel in cobalt steels. G. E. F. Lundell and J. I. Hoffman. *J Ind & Eng Chem* 13:540-3 Je '21
- Determination of sulphur and chromium in steel. L. A. Goldenberg. *Chem & Met Eng* 21:628 N 12 '19
- Determination of zirconium in steel. G. E. F. Lundell and H. B. Knowles. *J Ind & Eng Chem* 12:562-7 Je '20
- Determining gases in steel and the deoxidation of steel. J. R. Cain. *Min & Met* 152:1309-22 Ag '19; *Discussion. 155:3027-32; 156:3119-21; 157:(sec 12) 77-81 N '19-Ja '20*

- Electrolytic resistance method for determining carbon in steel. J. R. Cain and L. C. Maxwell. *il diags U S Bur Stand Tech Pa* 141:1-21 '19
- Equilibrium conditions in the system carbon, iron oxide, and hydrogen in relation to the Ledebur method for determining oxygen in steel. J. R. Cain and L. Adler. *diag U S Bur Stand Sci Pa* 350:353-66 '19
- Methods of the chemists of the United States steel corporation for the sampling and analysis of alloy steels. 2d ed. 81p Stevenson & co., Pittsburgh '21
- Oxygen content by the Ledebur method of acid Bessemer steels deoxidised in various ways. J. R. Cain and E. Pettijohn. *il diag U S Bur Stand Sci Pa* 346:259-70 '19
- Rapid methods for the chemical analysis of special steels, steel-making alloys, their ores and graphites. C. M. Johnson. 3d ed., rev. and enl. 552p Wiley '20
- Rapid qualitative method for nickel in steel. M. B. Danheiser. *Chem & Met Eng* 23:770 O 20 '20
- Simplified carbon combustion train. W. W. Boone. *diag Chem & Met Eng* 24:1068 Je 15 '21
- Solid sodium hydroxide as an absorbent for carbon dioxide in steel analysis. G. L. Kelley and E. W. Evers. *diag J Ind & Eng Chem* 13:1052 N '21
- Study of the Goutal method for determining carbon monoxide and carbon dioxide in steels. J. R. Cain and E. Pettijohn. *U S Bur Stand Tech Pa* 126:1-8 '19

Bibliography

- Effect of nitrogen on steel; a résumé of the important literature. G. F. Comstock and W. E. Ruder. *il Chem & Met Eng* 22:399-405 Mr 3 '20
- Metallurgical theories conflict; complete bibliography shows that investigators attribute various effects to sulphur and phosphorus in steel and cast iron. *Foundry* 48:467-8+ Je 15 '20
- More important metallurgical papers appearing in Science reports. Imperial Tohoku university. *Chem & Met Eng* 24:574-5 Mr 30 '21
- Review of iron and steel literature for 1919. E. H. McClelland. *Blast F & Steel Pl* 8:8-10 Ja '20
- Review of iron and steel literature, 1920. E. H. McClelland. *Blast F & Steel Pl* 9:6-8 Ja '21

Bluing

See Steel, Bluing of

Case hardening

See Case hardening

Copper content

- Copper-steel as a rust-resisting metal. *Can Eng* 39:300 S 2 '20
- Influence of copper on some physical properties of iron and steel. E. A. Richardson and L. T. Richardson. *Chem & Met Eng* 24:565-7 Mr 30 '21
- Review of the development of copper steel. D. M. Buck. *Iron Age* 106:1109-10 O 28 '20; *Excerpts. with bibliog. Blast F & Steel Pl* 8:593 N '20; *Abstract. Chem & Met Eng* 23:824 O 27 '20; *Discussion. J. S. Unger. Iron Tr R* 67:1546-7 D 2 '20
- Rostversuche mit kupferhaltigen eisenblechen. O. Bauer. *diags Stahl & Eisen* 41:37-45, 76-83 Ja 13-20 '21; *Abstracts (Rusting of steel containing copper). Engineering* 111:213 F 18 '21; *Eng & Contr* 55:329 Mr 30 '21; *Ry Mech Eng* 95:291 My '21
- Rusting of steel containing copper. D. M. Buck. *Ry Mech Eng* 95:538 S '21
- Some advantages claimed for copper-alloy steel. R. V. Bingay. *Elec W* 78:425 Ag 27 '21

Corrosion

See Corrosion and anti-corrosives

Cost

See Steel metallurgy—Costs; Steel sheets—Cost

Steel —Continued

Failures

Ein beitrage zur frage des holzfaserbruches im stahl. J. Hanny. Stahl & Eisen 41:1298-1300 S 15 '21

Causes of cracks in case-hardened objects. Iron Age 108:399-400 Ag 18 '21

Failure of metals under internal and prolonged stress; discussion at the Institution of mechanical engineers. Iron Age 107:1095-7 Ap 28 '21

Relationship between transverse rail fissures, flakes and defects in fusion welds. S. W. Miller. Chem & Met Eng 21:729-33 D 10 '19

History

Chronology of iron and steel. S. L. Goodale, comp. 294p Pittsburgh iron & steel foundries co., Pittsburgh '20

Metallography

Characteristics of the forged milling cutter. W. G. Calkins. il Am Mach 55:424-7 S 15 '21

Constituents found in tungsten and molybdenum steels. A. M. Portevin. il Engineering 112:372-3 S 9 '21

Cracks in ingots. F. Giolitti. il diag Chem & Met Eng 23:149-53 J1 28 '20

Critical ranges of some commercial nickel steels. H. Scott. diags U S Bur Stand Sci Pa 376:1-214 '20; Same. Min & Met 158:(sec 16) 1-17 F '20

Crystallography of alpha and beta iron. F. Giolitti. il Chem & Met Eng 22:585-9 Mr 31 '20

Defects arising in steel during fabrication. A. B. Wilson. il Chem & Met Eng 23:1209-13 D 22 '20

Detecting defects in metals with the X-ray. W. E. Ruder. Iron Age 105:1027-8 Ap 8 '20

Differential crystallization in a cast-steel runner. F. B. Foley. il Am Inst Min Bul 151:1117-21 J1 '19; Same. Iron Tr R 65:30 J1 3 '19; Same. Iron Age 104:1273-4 D 18 '19; Discussion. Am Inst Min Bul 154:2934-5 O '19

Distribution of phosphorus between Ac₁ and Ac₂. J. H. Whiteley. il Chem & Met Eng 23:986-7 N 17 '20

Effect of initial temperature upon the physical properties of steel; abstracts. J. J. Andrews and others. il diags Engineering 109:681-4 My 21 '20; Iron Age 105:1667 Je 10 '20; Discussion. Engineering 109:678 My 21 '20

Experimental investigation of the mechanical properties of steels at high temperatures. E. L. Dupuy. il diags Engineering 112:391-4, 427-8 S 9-16 '21; Abstracts. Engineer 132:257-8 S 9 '21; Mech Eng 43:681 O '21; Discussion. Engineering 112:384 S 9 '21

Inclusions and ferrite crystallization in steel; solubility of inclusions. E. G. Mahin and E. H. Hartwig. il J Ind & Eng Chem 12:1090-5 N '20

Inter-crystalline cracking of mild steel in salt solutions. J. A. Jones. il diag Engineering 111:469-70 Ap 15 '21

Intercrystalline fracture in mild steel. W. Rosenhain and D. Hanson. il diag Engineering 110:421-2 S 24 '20; Excerpt, with discussion. Engineer 130:306-7 S 24 '20; Abstract. Chem & Met Eng 23:1228 D 22 '20

Inter-crystalline fracture in steel. D. Hanson. il Engineering 111:467-9 Ap 15 '21

Internal service-strains in steel. J. E. Howard. Chem & Met Eng 25:275-8 Ag 17 '21; Abstract. Engineering 111:693 Je 3 '21

Kraftwirkungsfiguren in flusseisen, dargestellt durch ein neues aetzverfahren. A. Fry. Stahl & Eisen 41:1093-7, pl 5-6 Ag 11 '21; Abstract. (Strain figures in etched steel). Engineering 112:809-11 D 16 '21

Macroscopic examination of iron and steel. Chem & Met Eng 25:334-5 Ag 24 '21

Metallographic features revealed by the deep etching of steel. H. S. Rawdon and S. Epstein. il U S Bur Stand Tech Pa 156:1-24 '20; Same abr. Sci Am M 2:54-8 J1 '20

Metallographical study on galvanised steel. Y. Taji. il diag Engineering 109:327-9 Mr 5 '20

Metallography and heat treating of steels. W. J. Merten. il Blast F & Steel Pl 9:114-18 Ja '21

Metallography of arc-fused steel. H. S. Rawdon, E. C. Groesbeck and L. Jordan. il Chem & Met Eng 23:777-84 O 20 '20

Metallography of the oxy-acetylene weld as affected by enameling. E. P. Poste. il Am Cer Soc J 4:546-57 J1 '21

Microscopic metallography of steel. Blast F & Steel Pl 8:506-8 S '20

Microstructure of chromium steels. il Chem & Met Eng 24:703-6 Ap 20 '21

Microstructure of iron and mild steel at high temperatures. H. S. Rawdon and H. Scott. il U S Bur Stand Sci Pa 356:519-29 '20; Same. Min & Met 158:(sec 18) 1-20 F '20; Same. Chem & Met Eng 22:787-91 Ap 28 '20; Excerpts. Iron Tr R 66:911-12 Mr 25 '20

Nature of the defects revealed by the deep etching of transversely fissured rails. H. S. Rawdon. il Chem & Met Eng 22:505-8 Mr 17 '20

Ein neues aetzmittel für chrom- und wolframstähle. K. Daevs. il Stahl & Eisen 41:1262-4 S 8 '21

Nitrogen in carburized steels. W. E. Ruder and G. R. Brophy. il Chem & Met Eng 25:867-71 N 9 '21

Photographing etched sections at low magnifications. J. H. G. Monypenny. il diags Chem & Met Eng 22:882-3 My 12 '20

Physical changes in iron and steel below the thermal critical range. Z. Jeffries. Chem & Met Eng 22:395-6 Mr 3 '20

Presence of internal fractures in steel rails and their relation to the behaviour of the material under service stresses. H. S. Rawdon. il Engineering 111:470-1 Ap 15 '21

Problems in metallography. W. Campbell. Iron Age 108:941-2 O 13 '21

Proposed new ingot mold of steel. R. C. Woodward. diags Iron Age 107:262-3 Ja 27 '21

Relationship between dendritic structure and ferrite mesh. F. Giolitti. il Chem & Met Eng 22:921-9 My 19 '20

Roentgen spectrographic investigations of iron and steel. A. Westgren. il diags Iron & Steel Inst J 103:303-25 no 1 '21; Same. Engineering 111:727-8, 757-9 Je 10-17 '21; Discussion. Iron & Steel Inst J 103:326-37 no 1 '21; Engineering 111:609 My 20 '21; Engineer 131:537-8 My 20 '21

Some deep-etching experiments on new steel rails. G. F. Comstock. il Chem & Met Eng 23:1081-2 D 1 '20

Special applications of metal-radiography. H. S. Rawdon. il Blast F & Steel Pl 8:144-6+ F '20

Structure of tungsten steels. il Chem & Met Eng 24:745-8 Ap 27 '21

Studies of the macrostructure of cast steel. F. G. Allison and M. M. Rock. il diags Chem & Met Eng 23:383-9 S 1 '20

Study of the relation between the Brinell hardness and the grain size of annealed carbon steels. H. S. Rawdon and E. Jimeno-Gil. il U S Bur Stand Sci Pa 397:557-93 '20

Ueber ein metallographisches kennzeichen für die ermittlung der vorangegangenen glühbehandlung von weichem flusseisen. P. Oberhoffer. il Stahl & Eisen 41:1215-17 S 1 '21

Uranium steels. H. S. Foote. il Chem & Met Eng 25:789-92 O 26 '21

Use of ammonium persulphate for revealing the macrostructure of iron and steel. H. S. Rawdon. il U S Bur Stand Sci Pa 402:715-23 '20; Same. Iron Age 106:965-8 O 14 '20

Use of the microscope and the heat treatment of steel. A. Sauveur. il diags Blast F & Steel Pl 8:373-8 Je '20; Same abr. Iron Age 105:1586-9 Je 3 '20; Same. Iron Tr R 66:1611-14 Je 3 '20; Discussion. G. K. Burgess. Iron Age 105:1717-20 Je 17 '20; Iron Tr R 66:1758-60 Je 17 '20

Using the microscope to detect causes of failure of steel castings. O. A. Knight. il Blast F & Steel Pl 8:281-3 My '20

Steel —Continued

Nitrogen content

- Effect of nitrogen on steel. O. A. Knight and H. B. Northrup. *il Chem & Met Eng* 23:1107-11 D 8 '20
- Effect of nitrogen on steel; a résumé of the important literature. G. F. Comstock and W. E. Ruder. *il Chem & Met Eng* 22:399-405 Mr 3 '20
- Nitrogen in steel, and the erosion of guns. H. E. Wheeler. *Min & Met* 160:32 Ap '20
- Occurrence of nitrogen in steel. A. A. Blue. *il diags Iron Age* 108:1-5 J1 7 '21

Prices

- Answer to comptroller Williams's criticism of steel prices. E. H. Gary. *Comm & Fin Chr* 112:899-901 Mr 5 '21
- Average monthly iron and steel prices in 1920; tabulation. *Iron Tr R* 68:78 Ja 6 '21
- Average monthly prices of leading iron and steel products, 1908-1919; tabulation. *Iron Tr R* 66:128 Ja 1 '20
- Basing point case; Minnesota legislature adopts resolutions and others will do so. *Iron Age* 107:689 Mr 17 '21
- Basing point controversy is submitted to the Federal trade commission. *Iron Age* 104:1197-1200 D 11 '19
- British iron and steel prices since the war. *Iron Age* 105:1806-7 Je 24 '20
- Complaint issued in basing point case. L. W. Moffett. *Iron Age* 107:1175-9 My 5 '21
- Complaint of Federal trade commission on basing of steel prices. E. H. Gary. *Comm & Fin Chr* 112:1932 My 7 '21
- Comptroller of the currency Williams declares steel prices excessive and unjustifiable. *Comm & Fin Chr* 112:898-9 Mr 5 '21
- Demand exceeds bar production. *Iron Tr R* 68:87-8 Ja 6 '21
- European iron and steel in 1920. H. C. Estep. *Iron Tr R* 67:1204-10 O 28 '20; Abstract. *Iron Age* 106:1114-16 O 28 '20
- European iron and steel prices in 1920; tabulation. *Iron Tr R* 68:100 Ja 6 '21
- Exhibits presented in Pittsburgh basing case. *Iron Age* 106:1409-10 N 25 '20
- Federal trade commission issues complaint against U.S. steel corporation in matter of basic steel price. *Comm & Fin Chr* 112:1931-2 My 7 '21
- Fluctuations in iron and steel prices for twenty-five years; charts. *Iron Tr R* 66:88a Ja 1 '20
- Grading iron in Great Britain. J. Horton. *Iron Tr R* 66:843-5 Mr 18 '20
- High price of steel. R. W. Babson. *il Ind Management* 61:383-5 Je '21
- High price of steel—a rejoinder. T. J. Foster. *Ind Management* 62:89-90 Ag '21
- How steel prices have been liquidated. S. G. Koon. *Iron Age* 108:752-3 S 22 '21
- Iron and steel prices for twenty-one years, 1899-1919, chart (supp) *Iron Age* 105:52-3 Ja 1 '20
- Iron and steel prices for twenty-one years, 1900-1920; with supplement. *Iron Age* 107:56-7 Ja 6 '21
- John Skelton Williams's reply to Judge Gary's defense of steel prices. *Comm & Fin Chr* 112:1350-1 Ap 2 '21
- Passing of Pittsburgh basing plan. *Iron Age* 106:1547-9 D 9 '20; *Iron Tr R* 67:1593-4 D 9 '20
- Pig iron, finished material and scrap, Chicago, 1902-1919; tabulation. *Iron Age* 105:47 Ja 1 '20
- Pittsburgh base inquiry. *Iron Tr R* 68:1233-6 My 5 '21
- Pittsburgh basing for steel is upheld. *Iron Age* 106:266-70 J1 29 '20
- Reduction in prices by United States steel corporation. *Comm & Fin Chr* 112:1578-9 Ap 16 '21
- Rehearing of the Pittsburgh basing case. *Iron Age* 106:1340-2 N 18 '20
- Semifinished covers wide range; average monthly prices, 1916-1920. *Iron Tr R* 68:84-5 Ja 6 '21
- Steel and iron prices in Belgium. *Iron Age* 107:783-4 Mr 24 '21

- Steel corporation contests basing point complaint. *Iron Tr R* 68:1579-81 Je 9 '21
- Steel price and wage reductions. *Comm & Fin Chr* 113:147-8 J1 9 '21
- Steel price comparisons. *Eng & Contr* 55:522 My 25 '21
- Steel prices and railway purchasing power. *Ry R* 69:20-2 J1 2 '21
- United States steel corporation answer to Federal trade commission a smoke screen. *Iron Age* 107:1625-6 Je 16 '21
- United States steel corporation's answer to complaint in Pittsburgh plus case. *Iron Age* 107:1551-4 Je 9 '21
- See also Steel, Structural—Prices*

Specifications

- A.S.T.M. tentative standards. *Am Soc T M Pro v* 20 pt 1:487-521 '20
- Annual meeting of American society for testing materials is marked by important work on specifications. *Iron Tr R* 68:1804 Je 30 '21
- Changes in steel specifications authorized. *Iron Tr R* 67:21-2 J1 1 '20
- French specifications for carbon steels. *Iron Age* 107:1373-4 My 26 '21
- Proposed revised specifications for steel products; abstract of report made by committee at the twenty-fourth annual meeting of the American society for testing materials. *Blast F & Steel Pl* 9:498-505 Ag '21
- Recommendations of the committee on steel. *Iron Age* 106:17-18 J1 1 '20
- Report of committee A-1 on steel. *Am Soc T M Pro v* 20 pt 1:113-42 '20
- Reports of the principal iron and steel committees at the American society for testing materials meeting. *Iron Age* 107:1758-60 Je 30 '21
- Standard specifications; English and French. *U S Bur For & Dom Com Industrial Standards nos* 102, 105, 106, 116, 119, 123, 141, 142, 143 '21
- Steel specifications. F. A. Weymouth. *Ry R* 66:421-3 Mr 13 '20; Same. *Ry Age* 68:1197-8 Ap 16 '20; Same cond. *Eng & Contr* 53:580-1 My 19 '20
- Tentative specifications for boiler and fire-box steel for stationary service. *diag Am Soc T M Pro v* 20 pt 1:497-501 '20
- Universal steel classification code. H. C. Knerr and A. L. Collins. *Iron Age* 108:515-17 S 1 '21
- See also Steel, Automobile—Specifications; Steel, Structural—Specifications*

Sulfur and phosphorus content

- Coal affects sulphur content in steel. C. H. Gale. *Iron Tr R* 67:1066-7 O 14 '20
- Distribution of phosphorus between Ac_1 and Ac_2 . J. H. Whiteley. *il Chem & Met Eng* 23:986-7 N 17 '20
- Investigation of phosphorus and sulphur in steel; abstracts. *Am Mach* 52:479-80 F 26 '20; *Chem & Met Eng* 22:297-8 F 18 '20; *Eng N* 84:291 F 5 '20; *Foundry* 48:162+ F 15 '20; *Iron Age* 105:397-8 F 5 '20; *Iron Tr R* 66:495-6 F 12 '20
- Metallurgical theories conflict; complete bibliography shows that investigators attribute various effects to sulphur and phosphorus in steel and cast iron. *Foundry* 48:467-8+ Je 15 '20
- Phosphorus and sulphur requirements in steel. *Ry Age* 68:1969 Je 25 '20
- Plea for less rigid sulphur limits. A. E. White. *Foundry* 47:691-2 O 1 '19; Same. *Iron Age* 105:478 F 12 '20; Excerpt. *Iron Tr R* 65:986 O 9 '19; Discussion. *Iron Age* 105:478-9 F 12 '20
- Preliminary program of tests adopted by the joint committee on investigation of phosphorus and sulfur in steel. *Am Soc T M Pro v* 20 pt 1:139-42 '20
- Sulphur content in rivet steel studied. *Iron Tr R* 67:32-3 J1 1 '20

Testing

- Alloy made from nickeliferous ore imparts odd properties to steel. *Iron Tr R* 68:974-5 Ap 7 '21; Abstract. *Mech Eng* 43:390 Je '21

Steel—Testing—Continued

- Aluminum additions and sulphur segregation. M. C. Smith. diags Iron Age 105:1426-7 My 20 '20; Discussion. G. F. Comstock. 105:1784 Je 24 '20
- American company investigates uranium alloy steel. E. Polushkin. il Iron Tr R 68:413-17 F 10 '21
- American society for testing materials meeting, Asbury Park. Chem & Met Eng 24:1145-6 Je 29 '21
- Anomalies encountered in a study of immersion tests of iron and steel. A. S. Cushman and G. W. Coggeshall. il Am Electrochem Soc Trans v 39 (preprint 22):249-67 Ap '21
- Bericht über die tätigkeit des materialprüfungsamtes Berlin-Lichterfelde im jahre 1919 (20). Stahl & Eisen 41:765-7 Je 2 '21
- Broader use of Johnson's formula for repeated stresses. J. B. Kommers. diag Eng N 83:942-4 N 27 '19
- Charts for testing steel and steel wire. H. M. Brayton. Iron Age 105:20-2 Ja 1 '20
- Comparative test upon high-speed steels. A. J. Langhammer. Chem & Met Eng 22:829-32, 889-92, 939-42, 969-75 My 5-26 '20; Same. Am Mach 52:979-82, 1140-3, 1227-30, 1292-7 My 6, 27, Je 10-17 '20; Discussion. F. A. Hurst. 53:888 N 11 '20
- Comparative tests of steels at high temperatures. R. S. MacPherran. diag Chem & Met Eng 24:1153-5 Je 29 '21
- Contemporary foreign opinion on sulphur and phosphorus in steels. H. S. Rawdon. Chem & Met Eng 22:609-11 Mr 31 '20; Same. Iron Tr R 66:1069-71 Ap 8 '20
- Durkee defectoscope. il Am Mach 53:1110-11 D 9 '20
- Effect of pickling on alloy steels. H. L. Hess. il Iron Age 105:593-4 F 26 '20
- Effect of time and low temperature on physical properties of medium-carbon steel. G. A. Reinhardt and H. L. Cutler. Min & Met 151:1091-8 Jl '19; Same cond. Iron Tr R 65:164-6 Jl 17 '19; Abstract. Mech Eng 41:766 S '19; Discussion. Min & Met 154:2935-7; 156:3139-43; 157:(sec 12) 83-4 O, D '19-Ja '20
- Der einfluss verschiedener vorbehandlung auf gefüge und eigenschaften kohlenstoffarmen flusseisens. O. Bauer. Stahl & Eisen 41:88 Ja 20 '21
- Einiges aus der werkstätte des edelstahlwerk-ers; schmiedeversuche mit chromnickel-konstruktionsstahl. E. Kothny. diags Stahl & Eisen 41:213-23 F 17 '21
- Elastic development of steel. S. Cornell. Chem & Met Eng 22:677-80 Ap 14 '20
- Elastic properties of steel after overstrain; abstract. R. H. Greaves. Chem & Met Eng 25:667-8 O 5 '21
- Elongation and gauge length in tensile tests. J. H. G. Monypenny. Engineer 132:220-1 Ag 26 '21
- Embrittling effects of cleaning and pickling upon carbon steels. S. C. Langdon and M. A. Grossman. diag Am Electrochem Soc Trans v 37 (preprint 20):305-38 Ap '20
- Les essais au choc des barreaux entaillés. A. Cornu-Thénard. Génie Civil 78:46 Ja 8 '21
- Fatigue of metals under repeated stresses. H. F. Moore and J. B. Kommers. il diags Blast F & Steel Pl 8:368-72 Je '20; Same cond. Iron Age 105:1595-8 Je 3 '20; Excerpts. Soc Auto Eng J 8:417-18 My '21; Abstract. Iron Tr R 66:1615-16 Je 3 '20
- Fatigue of steel. H. F. Moore. Iron Age 107:1687 Je 23 '21
- Hardness formulas. E. J. Janitzky. Iron Tr R 69:1079-81 O 27 '21
- Heat treating improves castings. M. M. Rock. Iron Tr R 69:677-9 S 15 '21; Same. Foundry 49:797-9 O 15 '21
- Impact strength of carbon steel. Chem & Met Eng 25:163 Jl 27 '21
- Impurities in steel. Engineer 130:205-6 Ag 27 '20; Discussion. 130:375-6, 528 O 15, N 26 '20
- Influence of the width of the specimen upon the results of tensile tests of mild steel and rolled copper. T. H. Beare and W. Gordon. Engineering 112:389-91 S 9 '21; Excerpts. Engineer 132:238 S 16 '21
- Investigation of phosphorus and sulphur in steel; abstracts. Am Mach 52:479-80 F 26 '20; Chem & Met Eng 22:297-8 F 18 '20; Eng N 84:291 F 5 '20; Foundry 48:162+ F 15 '20; Iron Age 105:397-8 F 5 '20; Iron Tr R 66:495-6 F 12 '20
- Location of flaws in rifle-barrel steel by magnetic analysis. R. L. Sanford and W. B. Kouwenhoven. il diags Am Mach 52:892-5 Ap 22 '20
- Machine for testing the shock strength of hardened steel. diag Engineer 132:150-1 Ag 5 '21
- Magnetic analysis of steel; new method of locating defects without subjecting the piece to a destructive test. C. W. Burrows. il Sci Am M 2:341-4 D '20
- Magnetic and mechanical testing of iron. diags Engineering 109:136-8 Ja 30 '20
- Mechanical properties of forgings and turbine steel. W. H. Hatfield and H. M. Duncan. Iron Age 105:1166 Ap 22 '20
- Microscopic examination of iron and steel. Chem & Met Eng 25:471-2 S 7 '21
- Most suitable steels for automobile parts. W. H. Hatfield. Automobile Eng 11:153-6; Discussion. 156-8 Ap '21
- New discussion on the physics of steel. W. R. Webster. Blast F & Steel Pl 9:555-63 S '21
- New England forge plant owes success to laboratory. H. R. Simonds. il Iron Tr R 67:96-103 Jl 8 '20
- New magnetic tester finds defects in steel. il Pop Mech 35:664-5 My '21
- New magnetic testing apparatus of steel; the defectoscope. il Iron Age 106:1125-8 O 28 '20
- Nitrogen in steel, and the erosion of guns. H. E. Wheeler. Min & Met 160:32 Ap '20
- Notched-bar impact tests; abstracts. T. E. Stanton and others. Engineering 110:735 D 3 '20; Eng & Contr 56:223-4 Ag 31 '21
- Occurrence of nitrogen in steel. A. A. Blue. il diags Iron Age 108:1-5 Jl 7 '21
- Physical properties of arc-fused steel. H. S. Rawdon, E. C. Groesbeck and L. Jordan. il diags Chem & Met Eng 23:677-84 O 6 '20
- Preliminary program of tests adopted by the joint committee on investigation of phosphorus and sulfur in steel. Am Soc T M Pro v 20 pt 1:139-42 '20
- Properties of heat-treated steels. Engineer 130:510-11 N 19 '20
- Reactions in certain steels at 930°C. E. D. Campbell and B. A. Soule. Blast F & Steel Pl 8:603-4 N '20
- Relation between the elastic strengths of steel in tension, compression, and shear. F. B. Seely and W. J. Putnam. il diags Ill U Eng Exp Sta Bul 115:1-42 '19; Abstract. Can Eng 39:465-8 O 28 '20
- Report of A.S.T.M. sub-committee III on inspection of the Fort Sheridan, Pittsburgh and Annapolis tests. il Am Soc T M Pro v 20 pt 1:148-226 '20
- Results of a series of tests of water-quenched free-cutting steel. C. P. Miller. il diags Am Mach 52:87-8 Ja 8 '20
- Rostversuche mit kupferhaltigen eisenblechen. O. Bauer. diags Stahl & Eisen 41:37-45, 76-83 Ja 13-20 '21; Abstracts. Engineering 111:213 F 18 '21; Eng & Contr 55:329 Mr 30 '21; Ry Mech Eng 95:291 My '21
- Selecting high speed steel for tools. H. Trap-hagen. Iron Tr R 69:162 Jl 21 '21
- Shock tests and their standardization. R. A. Hadfield. Engineering 110:806 D 17 '20
- Some notes on the report of the Steel research committee. J. H. S. Dickenson. Engineer 130:486-7, 513-14 N 12-19; Discussion. 500-1 N 19 '20
- Standardized tool steel testing. Iron Age 107:465, 720 F 17, Mr 17 '21
- Steel castings of high strength and toughness. F. Giolitti. il diags Chem & Met Eng 24:113-18, 161-5 Ja 19-26 '21
- Strength of steel at high temperatures; abstract. G. P. McNiff. Chem & Met Eng 22:660 Ap 7 '20
- Study impact tests on cast steel. F. C. Langenberg. il Foundry 49:512-14+ Jl 1 '21; Same. Iron Tr R 69:1145-7+ N 3 '21

Steel—Testing—Continued

Study stresses in cold rolling. H: M. Howe and E. C. Groesbeck. diags Iron Tr R 66: 1824-5 Je 24 '20; Same. Metal Ind 18:353-4 Ag '20

Subcommittee on manufacture begins a second group of steel tests. Iron Tr R 68: 976-7 Ap 7 '21

Sulphur content in rivet steel studied. Iron Tr R 67:32-3 Jl 1 '20

Tests of centrifugally cast steel. G: K. Burgess. il diags U S Bur Stand Tech Pa 192: 1-22 '21; Same [with omitted tables and il]. Iron Age 107:764-6 Mr 24 '21; Same. Iron Tr R 68:1443-7 My 26 '21; Abstract. Mech Eng 43:334, 476 My, Jl '21

Tests of materials. Engineering 109:452-3 Ap 2 '20

Tests on tempering certain grades of steel. C. T. Hewitt. Iron Age 106:639-40 S 9 '20

Three types of alloy sheet steel. H. C. Kneer. il Iron Age 108:594-6, 655-8, 725-8 S 8-22 '21

Woody structures of fractures of transverse test-pieces taken from certain special steels. J. J. Cohade. diags Chem & Met Eng 22: 259-64 F 11 '20

See also Boiler plates—Testing; Brinell hardness test; Microcharacter; Tool steel—Testing

Transportation

First reductions in iron and steel rates. Iron Age 108:411-12 Ag 18 '21

Trucks win place in steel traffic as railroads fail. M. L. Feiser. il Iron Tr R 67:1127-9 O 21 '20

Weight

Estimating the weight of bar steel; H. Levine. Mach 28:190 N '21

Steel, Automobile

Essentials of high-grade steel manufacture. W. R. Shimer. il Soc Auto Eng J 6:387-93 Je '20

Heat treatment of automobile steels. R. R. Abbott. diags Iron Age 106:1110-12 O 28 '20; Same cond. Iron Tr R 67:1202-3 O 28 '20; Abstract. Chem & Met Eng 23:824 O 27 '20

Molybdenum steel in the motor car; reducing weight in high-power cars by the use of new steel alloys. il Sci Am 125:62-3 Jl 23 '21

Most suitable steels for automobile parts. W. H. Hatfield. Automobile Eng 11:153-6; Discussion. 156-8 Ap '21

New mill to roll automobile sheets. il Iron Age 106:1181-5 N 4 '20

Relative value of aluminum and steel as body panel material. E. J. Bartlett. Automotive Ind 45:173-4 Jl 28 '21

Some applications of alloy steels in the automotive industry. H. J. French. il Mech Eng 42:501-5+ S '20

Some notes on the report of the Steel research committee. J. H. S. Dickenson. Engineer 130:486-7, 513-14 N 12-19 '20; Abstract. Chem & Met Eng 23:1268-9 D 29 '20; Discussion. Engineer 130:500-1 N 19 '20; Automobile Eng 11:34-6 Ja '21

Specifying steel for automobiles. L. Aitchison. Iron Tr R 66:775-8 Mr 11 '20

Steel chart for engine manufacture. Automotive Ind 44:128 Ja 20 '21

Steels for automobile parts; abstracts. W. H. Hatfield. Sci Am M 2:59-61 Jl '20; Soc Auto Eng J 7:327-8 O '20; Automotive Ind 43:760-3 O 14 '20; Mach 27:357 D '20

Welds and welding—a study of the autogenous processes. W. Rosenhain. Automotive Ind 43:709-11 O 7 '20

Specifications

Standard specifications for automobile carbon and alloy steels; English and French. diags U S Bur For & Dom Com Industrial Standards 151:1-20 '21

Steel, Bluing of

Bluing and browning steel articles. S. Cornell. Chem & Met Eng 24:301-3 F 16 '21

Electric furnace gives excellent results in bluing metal. H. W. Derry. Elec W 78:779 O 15 '21

Steel, Enameled. See Enamel and enameling

Steel, Hardening of

Air-cooler for hardening high-speed steel. diags Mach 26:1174 Ag '20

Carburizing and casehardening; tempering. S. P. Rockwell. il diag Mach 26:628-9; Table. 631 Mr '20

Constitution of chromium:tungsten steels. il Chem & Met Eng 24:791-3 My 4 '21

Cooling oil for quenching tanks. S. E. Derby. diags Iron Tr R 69:674-6 S 15 '21; Abstract. Iron Age 108:668 S 15 '21

Electrically hardened dies have longer life than gas-hardened ones. G. H. Gibson. Elec W 75:1270-1 My 29 '20

Hardening of high speed steel. A. H. D'Arcambal. Ry Mech Eng 94:665-6 O '20

Hardening of screw gauges. W. J. Lineham. diags Engineering 109:593-7 Ap 30 '20; Same. Am Mach 53:547-51, 604a-d S 16-23 '20; Abstract. Sci Am M 2:160 O '20; Discussion. Engineering 109:575-7 Ap 30 '20; Engineer 129:443-4 Ap 30 '20

Hardening steel in gas fired furnaces. W. A. Ehlers. il Sci Am 123:450+ O 30 '20

Hardening steel without distortion. F. H. Colvin. il diags Am Mach 52:489-92 Mr 4 '20

Hardness and grain-size in carbon steels and heat treatment of nickel steels. Iron Age 105:1316 My 6 '20

Hardness formulas. E. J. Janitzky. Iron Tr R 69:1079-81 O 27 '21

Preventing distortion in hardening tools. diags Mach 27:56-8 S '20

Prevention of hardening cracks and the effect of controlling recalcence in a tool steel. S. N. Brayshaw. il diags Iron & Steel Inst J 103:131-216; Discussion. 217-49 no 1 '21

Properties of iron-chromium-carbon steels. C. A. Edwards, H. Sutton and G. Oishi. il diags Engineering 109:692-4; Discussion. 676-8 My 21 '20

Relations between the Brinell hardness and the grain size of annealed carbon steels; abstract. H: S. Rawdon and E. J. Gil. Iron Age 106:1481 D 2 '20

Slip interference theory of the hardening of metals. Z. Jeffries and R. S. Archer. il diags Chem & Met Eng 24:1057-67 Je 15 '21; Discussion. 25:509-12, 584, 729 S 14, 28, O 19 '21

Temperature ranges in hardening steel. C. T. Hewitt. Iron Age 106:67-8 Jl 8 '20

Tests on tempering certain grades of steel. C. T. Hewitt. Iron Age 106:639-40 S 9 '20

Das wesen des härtungsvorgangs; fortschritte der forschung in den letzten jahren. H. Schottky. diags Stahl & Eisen 41:1110-15 Ag 11 '21

See also Carburizing compound mixer; Case hardening; Steel, Heat treatment of

Cost

Electric furnace costs better oil-heating figures for hardening tools. Elec W 78:276 Ag 6 '21

Hardening shop costs. S. P. Rockwell. Mach 26:1047-8 Jl '20

Steel, Heat treatment of

Alloy-steel development. J. W. Marshall. Am Mach 52:817-18 Ap 15 '20

Amco automatic conveyor furnace. diags Iron Age 106:642-3 S 9 '20

American society for steel treating 3d annual convention, Indianapolis. Iron Age 108:807-10 S 29 '21; Ry Mech Eng 95:645-7 O '21

Appareil industriel d'analyse thermique des aciers. diags Génie Civil 77:464-5 D 4 '20

Automatic heat-treating furnaces. G. L. Lacher. il diag Iron Age 107:1754-5 Je 30 '21

Avoid temperature shocks in heat-treatment. Chem & Met Eng 25:14 Jl 6 '21

Breakage and heat treatment of rock drill steel. A. E. Perkins. Iron Age 108:7-8 Jl 7 '21; Abstract. Min & Met 176:36 Ag '21; Summary. Eng & Contr 56:282 S 21 '21

Breakage and heat treatment of rock-drill steel. B: Tillson. Min & Met 173:38-9+ My '21; Same. Sci Am M 3:477-8 My '21; Same. Eng & Contr 55:594 Je 15 '21

Steel, Heat treatment of—*Continued*

- Carburizing, hardening and tempering high-carbon alloy steels in 130 minutes. R. L. Gilman. *Am Mach* 53:649 S 30 '20
- Cause of quenching cracks. K. Honda, T. Matsushita and S. Idei. *diags Iron & Steel Inst J* 103:251-6 no 1 '21; Same. *Engineering* 111:595-7 My 13 '21; Summary. *Engineer* 131:537 My 20 '21; Discussion. *Iron & Steel Inst J* 103:267-9 no 1 '21; *Engineering* 111:579-80 My 13 '21; *Engineer* 131:537 My 20 '21
- Characteristic curves of the heat treatment of steels. A. M. Portevin and P. Chevenard. *Engineering* 112:551-3 O 14 '21; Excerpts. *Ry Mech Eng* 95:775-6 D '21; Discussion. *Engineering* 112:384 S 9 '21
- Constructing a heat treating department. L. C. Dunn. *il diag plan Blast F & Steel Pl* 9:152-7 F '21
- Critical heat treatment of cold-worked mild steel. A. Pomp. *Engineering* 110:672 N 19 '20
- Critical points in steel heat treatment. A. W. F. Green. *il Iron Age* 106:645-8 S 9 '20; Excerpts. *Soc Auto Eng J* 7:432 N '20
- Cure of flakes by proper heat treatment. C. S. Crouse. *il diags Chem & Met Eng* 23:329-32 Ag 25 '20
- Design and making of drop-forging dies. *Mach* 28:123-4 O '21
- Determining the quenching points in the heat treatment of steel by means of the critical temperature chart. *diag Int Marine Eng* 25:718-19 S '20
- Dimensional limitation of successive heat-treatments of carbon steel. W. P. Wood. *il Chem & Met Eng* 24:345-6 F 23 '21
- Distribution of phosphorus between Ac_1 and Ac_2 . J. H. Whiteley. *il Chem & Met Eng* 23:986-7 N 17 '20
- Drill steel sharpening; structure of the carbon steel in the various stages of heat treatment. C. M. Haight. *diags Iron Age* 108:8-9 Jl 7 '21; Same. *Min & Met* 176:33+ Ag '21
- Effect of heat treatment on mechanical properties of a carbon-molybdenum and a chromium-molybdenum steel. *Eng & Contr* 56:318 S 28 '21
- Effect of heat-treatment on steel castings and drop forgings. A. A. Blue. *il Am Mach* 55:413-18 S 15 '21
- Effect of initial temperature upon the physical properties of steel; abstracts. J. J. Andrews and others. *il diags Engineering* 109:681-4 My 21 '20; *Iron Age* 105:1667 Je 10 '20; Discussion. *Engineering* 109:678 My 21 '20
- Effect of overheating high carbon steel. L. W. Wild. *Blast F & Steel Pl* 9:541-2 S '21
- Einfluss der ausgangstemperatur bei der wärmebehandlung von stahl auf seine physikalischen eigenschaften. J. H. Andrew and others. *diags Stahl & Eisen* 41:452-5 Mr 31 '21
- Einfluss der wärmebehandlung auf den elektrischen widerstand. C. A. Edwards and A. L. Norbury. *Stahl & Eisen* 41:89-92 Ja 20 '21
- Elastic development of steel. S. Cornell. *Chem & Met Eng* 22:677-80 Ap 14 '20
- Electric furnace for spring tempering. *il Automotive Ind* 43:1019 N 18 '20
- Electric furnace heat treatment. E. F. Collins. *Iron Age* 108:266-7; Discussion. H. F. Wood. 267-8 Ag 4 '21
- Electric furnace installation for heat treatment of ball bearing races. *il plan Blast F & Steel Pl* 8:115-17 Ja '20
- Electric furnaces and heat treatment. E. F. Cone. *il Iron Age* 108:643-8 S 15 '21
- Electric heat treating of forgings. *il Elec W* 75:67-8 Ja 10 '20
- Electrically treated light wall tubing. H. P. MacDonald. *il diags Iron Age* 105:249-51 Ja 22 '20
- Electro-magnetic heat treatment of carbon steel. L. W. Wild. *diags Electrician* 85:562-3 N 12 '20
- Equipment for heat treating displayed at annual convention of the American society for steel treating, Sept. 19-24. *il Iron Tr R* 69:801-2+ S 29 '21
- Experimental investigation of the mechanical properties of steels at high temperatures. E. L. Dupuy. *il diags Engineering* 112:391-4, 427-8 S 9-16 '21; Abstract. *Engineer* 132:257-8 S 9 '21; Discussion. *Engineering* 112:384 S 9 '21
- 1st general meeting of American society for steel treating, Philadelphia. *Chem & Met Eng* 23:565-8, 635-6 S 22-29 '20; *Iron Age* 106:781-7 S 23 '20
- Fits, tolerances and heat treatments applied in production. C. T. Bates. *il Automotive Ind* 44:1314-26 Je 16 '21
- Forging and tempering cold chisels. J. F. Springer. *Gas Age* 48:181-2 Ag 20 '21
- Fuels, burners and quenching mediums for heat-treatment. S. P. Rockwell. *il diags Mach* 26:837-40 My '20
- Furnaces used in heat-treating steel. S. P. Rockwell. *il diags Mach* 26:749-53 Ap '20
- Future fuel for the treatment of steel. H. O. Loebell. *Ry Mech Eng* 94:666-7 O '20
- Gas and steel; some facts and figures on the heat treatment of high and low carbon steel. W. A. Ehlers. *il Sci Am* 122:136+ F 7 '20
- Hardening hammer die blocks. R. B. Kerr. *Ry Mech Eng* 95:252-3 Ap '21; Same. *Am Mach* 54:652-3 Ap 14 '21
- Hardness and grain-size in carbon steels and heat treatment of nickel steels. *Iron Age* 105:1316 My 6 '20
- Hardness variations in heat-treated steel. C. R. Hayward. *Chem & Met Eng* 25:695-6 O 12 '21
- Heat treated steel castings of chrome-molybdenum steel. *Iron Age* 107:1052 Ap 21 '21
- Heat treating automobile drive shafts. *il Iron Age* 106:636-7 S 9 '20
- Heat treating improves castings. M. M. Rock. *Iron Tr R* 69:677-9 S 15 '21; Same. *Foundry* 49:797-9 O 15 '21
- Heat treating metals with gas. J. F. Springer. *il Gas Age* 46:198-202 S 10 '20
- Heat treating methods improved in 1919. B. F. Weston. *Blast F & Steel Pl* 8:113-14 Ja '20
- Heat treating plant at Nash motor works, Kenosha, Wis.; refining and carbonizing furnaces. *il diags plan Iron Age* 107:895-8 Ap 7 '21
- Heat treating problem solved by applied mechanics. E. P. Stenger. *diag Iron Age* 106:637-8 S 9 '20
- Heat treating springs electrically. *il Iron Tr R* 67:714-15 S 9 '20
- Heat treating steel castings receives attention at American foundrymen's association convention. *Iron Tr R* 67:1059-60 O 14 '20; *Chem & Met Eng* 23:766 O 20 '20
- Heat treating steel electrically. E. F. Collins. *il diag Iron Tr R* 66:780-3 Mr 11 '20
- Heat treating steel electrically. E. F. Collins. *il diag Iron Tr R* 67:990-4 O 7 '20; Same. *Foundry* 48:826-30 O 15 '20
- Heat treating steel in railway shops. H. Otto. *il Ry Mech Eng* 95:47-8 Ja '21
- Heat treating steel uniformly. C. D. Barnhart. *Iron Tr R* 66:1539-41 My 27 '20; Same. *Blast F & Steel Pl* 8:299-302 My '20
- Heat treating steel with gas. *Gas Age* 45:376+ Ap 26 '20
- Heat treatment by electricity for wire drawing. *il Elec R* 76:947-8 Je 5 '20
- Heat treatment improves castings. F. Grotts. *il Foundry* 48:859-60 N 1 '20; Same. *Iron Tr R* 67:1346-8 N 11 '20
- Heat-treatment of a high-chromium steel. H. J. French and Y. Yamauchi. *il Soc Auto Eng J* 7:103-9 Jl '20; Same, without tables. *Chem & Met Eng* 23:13-16 Jl 7 '20
- Heat treatment of automobile steels. R. R. Abbott. *diags Iron Age* 106:1110-12 O 28 '20; Same cond. *Iron Tr R* 67:1202-3 O 28 '20
- Heat treatment of forming tools for wheel lathes. F. D. Kenney. *il diags Ry Mech Eng* 94:800-1 D '20
- Heat treatment of gears a dependable operation; discussion of the hump process with table of operating costs. *Iron Age* 106:314-15 Ag 5 '20

Steel, Heat treatment of—Continued

- Heat-treatment of heavy forgings. L. H. Fry and P. E. McKinney. *Chem & Met Eng* 24: 968 Je 1 '21
- Heat-treatment of high-speed steel cutting tools of intricate design. A. J. Langhammer. *il Chem & Met Eng* 25:30 Jl 6 '21
- Heat-treatment of ordnance. *Chem & Met Eng* 25:644-5 O 5 '21
- Heat treatment of rock-drill steel; abstracts. G: H. Gilman. *Min & Met* 174:35, 38-9+ Je '21; *Eng & Contr* 56:55-6 Jl 20 '21
- Heat treatment of screw stock. A. A. Blue. *il Blast F & Steel Pl* 9:553-5 S '21
- Heat treatment of soft and medium steels. F. Giolitti. 374p McGraw-Hill '21; Review. *Chem & Met Eng* 25:845-6 N 2 '21
- Heat treatment of steel castings. A. N. Conarro. *il Foundry* 48:596-8 Ag 1 '20
- Heat-treatment of steel forgings. S. A. Richardson. *il diags Sibley J* 35:64-70 Ap '21
- Heat treatment of steel in the tool room. M. H. Williams. *il diags Ry Mech Eng* 94: 39-47 Ja '20
- Heat treatment of steels; with discussion. *il Ry Mech Eng* 94:655-7 O '20
- Heat-treatment of Thor tool parts. J. V. Hunter. *il Am Mach* 54:991-6 Je 9 '21
- Heat treatment studies. *Sci Am M* 4:369-70 O '21
- High temperature electric heat-treating furnace. G: H. Holden. *il diags Sci Am M* 1: 440-4 My '20
- Hump method for heat treating steel. *il diags plan Blast F & Steel Pl* 8:181-5 Mr '20; Same cond. *Elec R* 76:437-40 Mr 13 '20; Same cond. *Automotive Ind* 42:812-15 Ap 1 '20; Abstracts. *Iron Tr R* 66:630-1 F 26 '20; *Mach* 26:673-4 Mr '20; *Iron Age* 105:754-5 Mr 11 '20; *Ry Mech Eng* 94:297-8 My '20
- Influence of mass in heat-treatment. E. J. Janitzky. *Chem & Met Eng* 25:783-4 O 26 '21
- Metallic resistor electric furnaces for heat treating operations. E. F. Collins. *il chart diags Gen Elec R* 23:433-41 My '20
- Metallography and heat treating of steels. W: J. Merten. *il Blast F & Steel Pl* 9:114-18 Ja '21
- Method of measuring the magnetic hardness of ferrous metals and its utility for carrying out research work on thermal treatment. L. A. Wild. *diag Electrician* 84:320-2 Mr 19 '20
- Methods used in heat treating steel. *diag Ry Mech Eng* 94:236-8 Ap '20
- Microstructure of iron and mild steel at high temperatures. H: S. Rawdon and H. Scott. *il U S Bur Stand Sci Pa* 356:519-29 '20; Same. *Min & Met* 158:(sec 18) 1-20 F '20; Same. *Chem & Met Eng* 22:787-91 Ap 28 '20; Excerpts. *Iron Tr R* 66:911-12 Mr 25 '20
- Modern tool room heat treating plant. *Ry Mech Eng* 94:389-91 Je '20
- New heat treating plant for motor parts. C. A. Armstrong. *il plan Blast F & Steel Pl* 9:665-7 N '21
- Oxidation of carbon tool steel on heating in air. H. Scott. *il Chem & Met Eng* 25: 72-4 Jl 13 '21
- Points on the tempering of tools. G. G. Shadwell. *Am Gas Eng J* 112:183-4+ Mr 6 '20
- Prevention of hardening cracks and the effect of controlling recalescence in a tool steel. S. N. Brayshaw. *il diags Iron & Steel Inst J* 103:131-216; Discussion. 217-49 no 1 '21; Abstract. *Iron Age* 107:1400-1 My 26 '21
- Process for the manufacture of helical springs for heavy duty. T. D. Lynch. *il Ry Mech Eng* 94:662-3 O '20
- Properties of heat-treated steels. *Engineer* 130:510-11 N 19 '20
- Reactions in certain steels at 930°C. E. D. Campbell and B. A. Soule. *Blast F & Steel Pl* 8:603-4 N '20
- Relation of heat-treatment to cold-work in hypo-eutectoid and eutectoid steels. A. T. Adam. *bibliog il Iron & Steel Inst C S M* 10:65-128 '20
- Relation of the high-temperature treatment of high-speed steel to secondary hardening and red hardness. H. Scott. *il U S Bur Stand Sci Pa* 395:521-36 '20; Summary. *Am Mach* 54:40c Ja 6 '21
- Relationship between dendritic structure and ferrite mesh. F. Giolitti. *il Chem & Met Eng* 22:921-9 My 19 '20
- Sale of gas furnaces for heat-treating steel and forging. J: B. Redd. *Am Gas J* 115: 364-5 O 22 '21
- Scientific tool hardening. *Ry Mech Eng* 94: 189-90 Ap '20
- Selective heat treatment of spring steel. E. P. Stenger. *Iron Age* 106:1-3 Jl 1 '20
- Some commercial heat treatments for alloy steels. A. H. Miller. *il Mech Eng* 42:506-8 S '20; Same. *Chem & Met Eng* 23:113-16 Jl 21 '20; Same. *Am Mach* 53:519-22 S 9 '20
- Steel castings of high strength and toughness. F. Giolitti. *il diags Chem & Met Eng* 24: 113-18, 161-5 Ja 19-26 '21
- Study impact tests on cast steel. F. C. Langenberg. *il Foundry* 49:512-14+ Jl 1 '21; Same. *Iron Tr R* 69:1145-7+ N 3 '21
- Surface changes of carbon steels heated in vacuo. E. H. Hemingway and G: R. Enslinger. *Min & Met* 164:24 Ag '20
- Tests of centrifugally cast steel. G: K. Burgess. *diags Iron Age* 107:764-6 Mr 24 '21; Same. *Iron Tr R* 68:1443-7 My 26 '21
- Theory and practice in the drill sharpening shop. J. A. Noyes and F. M. Lee. *il diags Eng & Contr* 55:387-9 Ap 20 '21
- Thermal and physical changes accompanying the heating of hardened carbon steels. H. Scott and H. G. Movius. *il U S Bur Stand Sci Pa* 396:537-56 '20; Abstracts. *Iron Age* 106:1481 D 2 '20; *Eng & Ind Management* 5:83 Ja 20 '21
- Ueber ein metallographisches kennzeichen für die ermittlung der vorangegangenen glühbehandlung von weichem flusseisen. P. Oberhoffer. *il Stahl & Eisen* 41:1215-17 S 1 '21
- Uniform heat treatment of steel. H. C. Loudonbeck. *Ry Mech Eng* 95:309-10 My '21
- Use of salt baths in heat-treating. A. E. Bellis. *Am Mach* 55:164 Jl 28 '21
- Use of the microscope and the heat treatment of steel. A. Sauveur. *il diags Blast F & Steel Pl* 8:373-8 Je '20; Same abr. *Iron Age* 105:1586-9 Je 3 '20; Same. *Iron Tr R* 66:1611-14 Je 3 '20; Discussion. G: K. Burgess. *Iron Age* 105:1717-20 Je 17 '20; *Iron Tr R* 66:1758-60 Je 17 '20
- Value of gas for steel treating. F. F. Cauley. *il diag Am Gas Assn Commercial sec v* 2:165-78 '20
- Value of gas for steel treating. F. F. Cauley. *il Gas Age* 46:372-3 N 10 '20
- See also Annealing; Steel, Bluing of; Tempering pots

Exhibitions

Steel treaters display equipment at Philadelphia. *il Iron Tr R* 67:860-3 S 23 '20; *Iron Age* 106:633-5 S 9 '20

Steel, Pressed

Application of mild and alloy steels to high-tension suspension lines. L. R. O'Neill. *Am Inst E E J* 39:637-40 Jl '20

Steel, Stainless

Die hochlegierten chromnickelstähle als nichtrostende stähle. *il Stahl & Eisen* 41: 830-3 Je 16 '21

New stainless and flame resisting steel. *Sci Am* 124:134 F 12 '21

See also Chromium nickel steel; Chromium steel

Steel, Structural

Aircraft and automobile materials of construction. v. 1, Ferrous materials. A. W. Judge. 739p 275 il Pitman '20

Belgian standard specification for structural steelwork. *Eng N* 86:71-2 Ja 13 '21; Discussion. R. Fleming. 86:478 Mr 17 '21

Blaw-Knox plant now completed. D. C. Groves. *il plan Blast F & Steel Pl* 9:86-8 Ja '21

Steel, Structural—Continued

British standard rolled steel sections for structural purposes. Engineering 110:523 O 15 '20

Chart study of fabricated steel prospects. Iron Age 107:308-9 F 3 '21

L'emploi économique des alliages d'acier pour la construction des ponts. J. A. L. Waddell. Génie Civil 77:74-7 JI 24 '20

Fabricating steel in Isle of Cuba. J. P. Risque. il Iron Tr R 66:145-7 Ja 8 '20

Freezing action of water distorts steel column and base. C. P. Bohland. il Eng N 86:935 Je 2 '21

Impurities in steel. Engineer 130:205-6 Ag '27 '20; Discussion. 130:375-6, 528 O 15, N 26 '20

Molybdenum as an alloying element in structural steels. G. W. Sargent. il Am Soc T M Pro v 20 pt 2:5-28; Discussion. 29-30 Je 30 '20

Railway car materials—steel. N. Litchfield. Elec Ry J 55:803-6, 1247-50; 56:115-18 Ap 17. Je 19, JI 17 '20

Revision of weights for sections of minimum web thickness of American standard beams and channels. Am Mach 53:481 S 2 '20; Same. Eng & Contr 54:198 Ag 25 '20; Same. Iron Age 106:466 Ag 19 '20; Same. Automotive Ind 43:483 S 2 '20

Standardization of structural shapes. diags Iron Age 106:22-4 JI 1 '20; Same. Iron Tr R 67:43-4 JI 1 '20; Same. Int Marine Eng 25:659-61 Ag '20

Steel and iron for shipbuilding purposes. H. H. Thayer. Marine Eng 26:370-5 My '21

Structural steel and fires. Sci Am 122:363 Ap 3 '20

Uranium as a structural steel alloy. H. S. Foote. Ry Mech Eng 94:695-6 N '20

See also Bridges, Iron and steel; Cars, Steel; Concrete, Reinforced; Molybdenum steel; Painting, Structural; Ships, Iron and steel; Steel, Automobile; Steel construction; Steel reinforcing bars

Prices

Cement and structural shapes compared for 21 years. Eng N 86:487 Mr 17 '21

Diagram and table showing prices of structural shapes. D. H. Maury. Eng & Contr 56:350 O 12 '21

Specifications

Standard specifications for structural steel for buildings; English and French. diags U S Bur For & Dom Com Industrial Standards 109:1-18 '21

Standard specifications for structural steel for locomotives; English and French. diag U S Bur For & Dom Com Industrial Standards 110:1-16 '21

Standard specifications for structural steel for ships; English and French. diag U S Bur For & Dom Com Industrial Standards 145:1-16 '21

Steel alloys

Alloy made from nickeliferous ore imparts odd properties to steel. Iron Tr R 68:974-5 Ap 7 '21; Abstract. Mech Eng 43:390 Je '21

American company investigates uranium alloy steel. E. Polushkin. il Iron Tr R 68:413-17 F 10 '21

Coefficient of expansion of alloy steels. J. A. Mathews. Min & Met 158:(sec 8) 1-4 F '20; Same. Iron Tr R 66:563-4+ F 19 '20; Same. Blast F & Steel Pl 8:185-7 Mr '20

Field for heat treated locomotive forgings. J. C. Marsh and C. B. Beck. Ry Mech Eng 94:663-5 O '20

High-temperature-resisting alloys for carbonizing; abstract. A. Bense. Mech Eng 43:612 S '21

K. S. magnet steel. K. Honda and S. Saitô. il Electrician 85:706-8 D 17 '20

Molybdenum and molybdenum steel. A. H. Hunter. Blast F & Steel Pl 9:356-8, 426-9 Je-JI '21; Same abr. Iron Age 107:1469, 1511-12 Je 2 '21; Same cond. Iron Tr R 68:1523-5+ Je 2 '21

Molybdenum in commercial alloy steel. Iron Age 105:407-9 F 5 '20; Abstract. Mech Eng 42:172 Mr '20

New discovery on action of alloying metals. il Pop Mech 36:234 Ag '21

New steel alloy for permanent magnets. Sci Am M 3:156 F '21

Non-magnetic, flame-, acid- and rust-resisting steel. Chem & Met Eng 25:797-9 O 26 '21

Purifying steel ingots with alloys of titanium. Sci Am M 3:109 F '21

Shop handbook on alloy steels. G. Van Dyke. 95p J. T. Ryerson & son, Chicago, St Louis '21

Some advantages claimed for copper-alloy steel. R. V. Bingay. Elec W 78:425 Ag 27 '21

Some applications of alloy steels in the automotive industry. H. J. French. il Mech Eng 42:501-5+ S '20

Steel for die blocks. Automotive Ind 43:269 Ag 5 '20

Three types of alloy sheet steel. H. C. Kneer. il Iron Age 108:594-6, 655-8, 725-8 S 8-22 '21

Uranium as a structural steel alloy. H. S. Foote. Ry Mech Eng 94:695-6 N '20

See also Chrobaltic alloy; Chromium nickel steel; Chromium steel; Cobalt steel; Manganese steel; Molybdenum steel; Nickel steel; Silicon steel; Tool steel; Tungsten steel; Uranium steel; Vanadium steel

Patents

Churchward patents held not invention—prior art and history of vanadium alloys. W. Gustin. Chem & Met Eng 25:159-60 JI 27 '21

Steel balls. *See* Balls, Steel

Steel barges. *See* Barges, Steel

Steel bars

Standard specifications for quenched high-carbon steel splice bars; English and French. diag U S Bur For & Dom Com Industrial Standards 141:1-14 '21

True stresses in rectangular steel bars. N. B. Hunt. Mach 27:77-8 S '20

Steel bars, Reinforcing. *See* Steel reinforcing bars

Steel belting. *See* Belting

Steel cars. *See* Cars, Steel; Freight cars, Steel

Steel castings

American foundrymen hold two sessions on steel. Iron Age 106:989-92 O 14 '20

Analysis does not tell the story. H. Traphagan. Foundry 48:880-1 N 1 '20

Anneal steel with pulverized coal. C. H. Gale. Foundry 49:29 Ja 1 '21

Annealing steel castings with fuel oil. R. R. Hillman. Iron Age 107:247-9 Ja 27 '21

Attaining steel casting quality. G. F. Preston. diags Foundry 48:561-3 JI 15 '20

Casting steel motor frames for our electric-drive battleships. il Sci Am 124:69 Ja 22 '21

Castings from the electric furnace. R. C. Gosrow. Foundry 47:858-62 D 1 '19; Same. Iron Tr R 65:1706-10 D 25 '19

Characteristics of electric steel castings. Elec W 75:63 Ja 10 '20

Chart aids salesmen in setting prices. Foundry 49:62-3 Ja 15 '21; Same. Iron Tr R 68:282 Ja 27 '21

Checking troubles in steel castings. R. B. Farquhar, jr. il diags Foundry 49:475-83 Je 15 '21

Cleaning and dressing castings. F. W. Wilson. diags Engineering 111:725-7 Je 10 '21

Coal affects sulphur content in steel. C. H. Gale. Iron Tr R 67:1066-7 O 14 '20

Combines steel and alloys casting; Mark steel foundry, Wengern, Germany. H. Hermanns. diags plan Foundry 49:154-7 F 15 '21

Detroit steel casting company plant. H. M. Lane. il Blast F & Steel Pl 9:522-4 S '21

Electricity shop's sole heat source; steel foundry utilizes current for annealing castings and baking molds and cores as well as for melting. H. E. Diller. il Foundry 49:87-91 F 1 '21

Steel castings—Continued

L'emploi de l'acier moulé dans les chaudières à vapeur. Génie Civil 76:217-18 F 21 '20

Fittings and flanges of cast steel. E. F. Cone. il Iron Age 105:393-5 F 5 '20

Heat treating steel castings receives attention at American foundrymen's association convention. Iron Tr R 67:1059-60 O 14 '20; Chem & Met Eng 23:766 O 20 '20

Heat treatment improves castings. F. Grotts. il Foundry 48:559-60 N 1 '20; Same. Iron Tr R 67:1346-8 N 11 '20

Heat treatment of steel castings. A. N. Conarro. il Foundry 48:596-8 Ag 1 '20

Heavy steel casting poured at navy yard. il Foundry 49:288-9 Ap 1 '21

Large casting poured from electric furnace. il Foundry 48:1007 D 15 '20

Light steel castings. R. J. Dunderdale. Engineering 110:167-8 Ag 6 '20; Abstract. Sci Am M 2:185-6 O '20; Abstract. Mech Eng 42:579-80 O '20

Making castings used in ship construction. B. Shaw and J. Edgar. diags plans Foundry 47:388-92, 417-20, 474-8, 523-7, 540-4, 597-600, 647-50, 705-8, 738-41, 785-8, 832-5, 870-3, 902-5; 48:71-4, 88-91, 140-5 Je 15-D 15 '19, Ja 15-F 15 '20

Making government castings at Erie. P. Dwyer. il Foundry 47:895-901 D 15 '19

Melting changes bring lower costs. il Foundry 48:253-8 Ap 1 '20

Plea for less rigid sulphur limits. A. E. White. Foundry 47:691-2 O 1 '19; Same. Iron Age 105:478 F 12 '20; Excerpt. Iron Tr R 65:986 O 9 '19; Discussion. Iron Age 105:478-9 F 12 '20

Practical notes on the design and treatment of steel castings. G. F. Preston. diags Engineering 109:768-70 Je 4 '20; Same. Chem & Met Eng 23:529-32 S 15 '20

Quality secured from converter process. H. F. McFarlin. Foundry 49:218 Mr 15 '21; Same. Iron Tr R 68:1113 Ap 21 '21

Recommended practice for annealing carbon-steel castings. Foundry 48:948a D 1 '20

Side-blow converter foundry. G. P. Fisher. il diags Blast F & Steel Pl 9:98-9 Ja '21

Small steel castings. Engineer 132:140 Ag 5 '21; Same. Chem & Met Eng 25:755-6 O 19 '21

Special steel casting made in Philadelphia navy yard. il Iron Age 106:1132 O 28 '20

Steel castings. J. H. Hall. Mech Eng 42:432-4 Ag '20; Same cond. Iron Tr R 66:1617-18 Je 3 '20; Discussion. Mech Eng 42:440 Ag '20

Steel castings and the automotive industry. Automotive Ind 44:1167-8 Je 2 '21

Steel castings made in green sand. W. H. Roesner. il diags Foundry 49:552-4 Jl 15 '21

Steel castings of high strength and toughness. F. Giolitti. il diags Chem & Met Eng 24:113-18, 161-5 Ja 19-26 '21

Steel foundry cleaning problems. A. W. Gregg. Foundry 48:944-5 D 1 '20; Same. Iron Age 107:203-4 Ja 20 '21

Steel foundry starts operations; Vulcan iron works, Wilkes-Barre, Pa. il diags Foundry 48:187-91, 221-6 Mr 1-15 '20

Studies of the macrostructure of cast steel. F. G. Allison and M. M. Rock. il diags Chem & Met Eng 23:383-9 S 1 '20

Using the microscope to detect causes of failure of steel castings. O. A. Knight. il Blast F & Steel Pl 8:281-3 My '20

See also Chains, Anchor; Semi-steel; Steel ingots

Cost

Why castings cost more. T. Devlin. Foundry 48:116 F 1 '20

Specifications

Proposed tentative specifications for carbon steel castings. Ry Age 71:357-8 Ag 20 '21; Same. Ry Mech Eng 95:567-8 S '21; Excerpts. Ry R 69:232 Ag 20 '21

Steel castings specifications. E. R. Young. Foundry 49:152-3 F 15 '21; Discussion. 49:271 Ap '21

Standards

Steel casting standards outlined. H. A. Neel. Foundry 48:227-8 Mr 15 '20

Testing

Testing castings by hydraulic pressure. E. J. Bachman. diag Pop Mech 36:135-6 Jl '21

Tests of centrifugally cast steel. G. K. Burgess. il diags U S Bur Stand Tech Pa 192:1-22 '21; Same [with omitted tables and il]. Iron Age 107:764-6 Mr 24 '21; Same. Iron Tr R 68:1443-7 My 26 '21; Abstract. Mech Eng 43:334, 476 My, Jl '21

Steel chimneys. See Chimneys, Iron and steel

Steel construction

Cape May hangar for dirigible built from two small ones. il diags Eng N 87:698-700 O 27 '21

Common errors in detailing steelwork for buildings. E. Godfrey. diags Eng N 83:730-3 O 16 '19; Discussion. 83:961-2; 84:99-101, 194-5 N 27 '19, Ja 8, 22 '20

Design and erection features of steel transit sheds at Halifax ocean terminals. J. Robertson. il diag Eng & Contr 53:495-6 Ap 28 '20

Diagram for effect of flange holes in beams and channels. H. Kercher. Eng N 86:799-800 My 12 '21

Dissecting a twenty-nine-year-old steel-skeleton building. F. J. T. Stewart. Safety Eng 41:57-8 F '21

Eaton's Winnipeg mail order building. il Can Eng 39:315-16 S 9 '20

Economy in steel design. Am Arch 120:167-8, 208-10 Ag 31, S 14 '21

Electric arc welding applied to structural steel framing. il diag Am Arch 117:707-11 Je 2 '20

Electric welding of structural steel. O. A. Kenyon. il diags Iron Age 105:1740-2 Je 17 '20

Electrically-welded steel frame building. diags plans Engineering 111:55-6 Ja 14 '21; Same. Eng & Contr 55:306-7 Mr 30 '21

Electrically welded steel structure erected in New York. R. V. Ficker. il Iron Tr R 66:1270-2 Ap 29 '20; Same abr. Eng & Contr 53:498 Ap 28 '20

Electrically-welded structural steelwork. diags Engineering 111:323 Mr 18 '21; Same. Eng & Contr 56:197 Ag 31 '21

Erecting Cleveland auditorium roof with traveling falsework. H. E. Gage. il diags plans Eng N 85:800-1 O 21 '20

Erection of steel buildings: methods, tools and equipment. J. Robertson. Can Eng 39:571 D 2 '20

Error of approximate method in design of eccentric rivet connections. W. R. Davis. diags Eng N 84:342 F 12 '20

Extension of tall steel building involves unique operations. il diag plan Eng N 87:152-4 Jl 28 '21

Inspection of construction in concrete and steel. E. E. Seelye. Am Arch 120:163-7 Ag 31 '21

Instructions to foremen for prevention of accidents in steel erection. Eng & Contr 55:518-21 My 25 '21

Is steel-frame construction capable of architectural treatment? H. Lawson; C. H. Moore. Arch Rec 49:375-6 Ap '21

Light weight structural steel. il Am Arch 120:245-8 S 28 '21

Navy dirigible hangar at Lakehurst a huge structure. diags plans Eng N 84:892-7 My 6 '20

Nissen steel buildings. il Iron Age 107:1611 Je 16 '21

Pre-fabricated steel buildings for railway service. L. W. Allison. il Ry R 66:487-9 Mr 20 '20

Proposed investigations in structural engineering. W. M. Wilson. W Soc E J 26:289-96 Ag '21; Same. Eng & Contr 55:512-14 My 25 '21

Reducing the cost of steel-frame buildings. R. Fleming. W Soc E J 26:220-9 Je '21; Same. Eng & Contr 56:83-6 Jl 27 '21; Discussion. W Soc E J 26:230-1 Je '21

Steel construction—Continued

- Some unsettled points in structural design. R. Fleming. Eng N 86:336-8 F 24 '21
- Special structural design for newspaper building. Eng N 87:412 S 8 '21
- Steel construction. C: L. Shedd. il diags Arch Forum 34:129-32, 183-6, 207-11 Ap-Je '21
- Steel design for buildings. C: L. Shedd. Arch Forum 35:25-8, 59-62, 99-102, 145-6 Jl-O '21
- Steel erection precautions. Pub Works 51:201-2 S 10 '21; Same. Eng & Contr 56:394-5 O 26 '21
- Steel foundations for 30,000-kilowatt horizontal turbo-generators at Detroit Edison co. J. R. James. il diags plan Power 52:646-9 O 26 '20
- Steel framing for public hall in Cleveland. diags plan Eng N 84:414-15 F 26 '20
- Steel shops of Samson tractor co. at Janesville, Wis. diags plan Eng N 86:716-18 Ap 28 '21
- Stray points in structural steel design. R. Fleming. diags Eng N 84:1040-2, 1104-7 My 27-Je 3 '20
- Stresses in steelwork. S. Bylander. Eng & Contr 55:659-60 Je 29 '21
- Structural features of Chicago federal reserve bank. diags plans Eng N 87:180-2 Ag 4 '21
- Structural features of the Cunard building, N.Y. S. O. Miller. il Arch Forum 35:17-20 Jl '21
- Structural steel top story on concrete building. diags Eng N 87:229 Ag 11 '21
- Structural steelwork from British and American viewpoints. H. R. White. Eng N 85:1198-9 D 16 '20
- Trainshed roof of steel arches instead of columns. il diags plan Eng N 85:350-2 Ag 19 '20
- Welded joint in structural-steel work. R. Howard. il Sci Am 122:567+ My 22 '20
- Welding structural steel work. H. B. Payne. il diag Elec W 75:1421-2 Je 19 '20
- Wind stresses in mill building bents. F. E. Richart and W. M. Wilson. diags Eng & Contr 53:477-9 Ap 28 '20
- See also* Barges, Steel; Bridges, Iron and steel; Cars, Steel; Chimneys, Iron and steel; Columns, Steel; Concrete, Reinforced; Concrete construction; Corrosion and anti-corrosives; Elevated railroads; Girders; Graphic statics; Sashes, Steel; Ships, Iron and steel; Steel, Structural; Steel houses; Strains and stresses; Strength of materials; Towers, Steel
- Steel containers.** *See* Containers, Steel
- Steel cutting**
- Energy necessary to shear steel at high temperatures. G. D. Newton. il diags Mo Univ Bul Eng Exp Ser 20:1-16 '20
- See also* Ellipsograph
- Steel forgings**
- Alloy steel and heat treatment in the production of special forgings. il Blast F & Steel Pl 8:106-8 Ja '20
- Beitrag zur frage der warmformgebung schwerer blöcke aus schnellarbeitsstahl. W. Oertel. il diags Stahl & Eisen 41:1413-16 O 6 '21
- Billets for drop forgers. H. Bréarley. Engineer 130:308-9 S 24 '20
- Defects in drop-forgings. Engineering 110:185-6 Ag 6 '20
- Drop forgings in automobile construction. Automotive Ind 44:124 Ja 20 '21
- Electric heat treating of forgings. il Elec W 75:67-8 Ja 10 '20
- Forging of high-speed steels. A. H. Kingsbury. Iron Age 105:328-9 Ja 29 '20
- Heat-treatment of steel forgings. S. A. Richardson. il diags Sibley J 35:64-70 Ap '21
- Making forged high-speed twist drills. J. V. Hunter. il Am Mach 52:719-22 Ap 1 '20
- Mechanical manipulator for heavy forgings. il diags Engineering 112:151, 154 Jl 22 '21
- New England forge plant owes success to laboratory. H. R. Simonds. il Iron Tr R 67:96-103 Jl 8 '20

- Notes on inspection of steel forgings. 18p U.S. Bureau of engineering, Washington '21
- Production of heavy truck banjo-type rear axle forgings. H. Chase. il diags Automotive Ind 45:619-21 S 29 '21
- Splitting steel in forging. il Iron Age 106:1256 N 11 '20
- Standard specifications for quenched and tempered alloy-steel axles, shafts, and other forgings for locomotives and cars; English and French. diag U S Bur For & Dom Com Industrial Standards 116:1-24 '21
- Ueber querschnitts-abmessungen von stahlblöcken für schmiedestücke. F. Pacher. Stahl & Eisen 41:913-19 Jl 7 '21
- War plant of Erie forge & steel co. S. G. Koon. il Iron Age 107:1595-1603 Je 16 '21
- Wonders in steel forging. A. R. Surface. il Sci Am 123:10 Jl 3 '20

Steel freight cars. *See* Freight cars, Steel

Steel houses

- Fire, storm, and rat-proof all-metal house. il Pop Mech 36:366 S '21
- Small house of steel construction. il Eng & Contr 56:192 Ag 24 '21

Steel industry and trade

- Business waits on adjustments. E. H. Gary. Iron Tr R 68:1512-13 Je 2 '21; Same. Iron Age 107:1456-8 Je 2 '21
- Cause of industrial depressions. G: H. Hull. il Ind Management 61:386-91; Editorial comment. 392-5 Je '21
- Economy features in a modern iron and steel warehouse. H. A. Knight. il plan Iron Age 107:497-502 F 24 '21
- European iron and steel in 1920. H. C. Estep. Iron Tr R 67:1204-10 O 28 '20; Abstract. Iron Age 106:1114-16 O 28 '20
- Exporting iron and steel. V. G. Iden. il Iron Tr R 66:987-91, 1257-61, 1474-7+; 67:236-40, 1411-15, 1675-8; 68:698-703, 1657-61; 69:619-23 Ap 1, 20, My 20, Jl 22, N 18, D 16 '20, Mr 10, Je 16, S 8 '21
- High price of steel. R. W. Babson. il Ind Management 61:383-5 Je '21
- Influence of the war on accident rates in the iron and steel industry, 1914-1919. L. W. Chaney. charts Monthly Labor R 10:1457-63 Je '20
- International iron and steel trade. Engineer 130:384-5 O 15 '20
- Iron and steel industry—a barometer of the world's industrial progress. il Americas 7:22-30 Mr '21
- Motor car factor overestimated. J: W. Hill. il Iron Tr R 68:45-9 Ja 6 '21
- Plea for crucible steel industry. J: A. Mathews. Iron Age 107:197-8 Ja 20 '21
- Problems now confronting the steel men. G: M. Verity. Ind Management 62:91 Ag '21
- Steel tank work installed in France; review of conditions in Europe. R. A. McKean. Iron Age 108:1079-80 O 27 '21
- World wasting too much steel. R. Hadfield. Iron Tr R 69:369-70 Ag 11 '21
- See also* Iron industry and trade; Rolling mills; Steel—Prices; Steel, Structural; Steel works; *also* Amalgamated association of iron, steel and tin workers; United States steel corporation

Tables and ready-reckoners

- Price conversion tables. 69p Carnegie steel co., Pittsburgh '20

Australia

- Infant steel industry of Australia. C. F. Poppleton. plan Iron Age 105:7-11 Ja 1 '20
- See also* Steel works—Australia

Belgium

- Belgian steel output is recovering steadily. Iron Tr R 68:958 Ap 7 '21
- Belgium's splendid recovery. F. Miltoun. Iron Tr R 68:108+ Ja 6 '21
- Conditions in Belgium parallel French. Iron Tr R 69:879-80 O 6 '21
- Status of Belgian metallurgical industries. C. E. Herring. Blast F & Steel Pl 8:215 Mr '20

See also Steel works—Belgium

Steel industry and trade—Continued

Canada

Iron and steel statistics for Canada for 1919.
Iron Age 106:518 Ag 26 '20

Czechoslovakia

Czechia holds key to iron and steel situation
in Central Europe. B. Schapira. *il* Iron Tr
R 68:962-9+ Ap 7 '21

Troubled year in Central Europe. B. Schapira.
Iron Tr R 68:118+ Ja 6 '21

See also Steel works—Czechoslovakia

France

Conditions in the French iron and steel
industry. *Am Mach* 55:40d Jl 7 '21

Evolution in French iron and steel. J. F.
Shadgen. Iron Age 107:1623-4+ Je 16 '21

France is steadily reorganizing. F. Miltoun.
Iron Tr R 68:106+ Ja 6 '21

France's iron and steel future. F. Miltoun.
il Iron Tr R 67:780-6+ S 16 '20

Frankreichs roheisen- und stahlerzeugung im
jahre 1920. *Stahl & Eisen* 41:803-4 Je 9 '21

Frankreichs roheisen- und stahlerzeugung
im 1. halbjahre 1920. *Stahl & Eisen* 41:21
Ja 6 '21

French control Skoda works. F. Miltoun. *il*
Iron Tr R 67:589-90 Ag 26 '20

French iron and steel drops. F. Miltoun.
Iron Tr R 69:877-9 O 6 '21

French steel industry. *Engineer* 131:435-6 Ap
22 '21

French steel industry gaining. E. L. Ives.
Iron Tr R 66:1472-3 My 20 '20

French steel interests combine. F. Miltoun.
Iron Tr R 68:1322 My 12 '21

Iron and steel trades during the war. M. S.
Birkett. Iron Age 105:1097 Ap 15 '20

Operation of Lorraine plants, France's step
to leadership. F. Miltoun. *il* Iron Tr R 68:
54-7 Ja 6 '21

See also Steel works—France

Germany

Brikett- und koks- sowie eisen- und stahl-
erzeugung des deutschen reiches im jahre
1917. *Stahl & Eisen* 41:94-5 Ja 20 '21

Capacity of Germany's steel industry. A. J.
Wolfe. *Am Ind* 21:31-4 O '20

End of the German steel trust. *Eng & Min*
J 111:638-9 Ap 9 '21

German foundries face big tasks. H. C. Es-
tep. *il* chart diag map *Foundry* 48:295-300
Ap 15 '20

German iron and steel in reconstruction. H.
C. Estep. *il* Iron Tr R 69:25-30 Jl 7 '21

German production cost soaring. Iron Tr R
69:360-2 Ag 11 '21

German steel and iron in 1920. H. C. Estep.
map Iron Tr R 66:1059-63, 1131-9 Ap 8-15
'20

Germany trying to settle down. Iron Tr R 68:
114+ Ja 6 '21

Germany's export outlook in steel. Iron Age
106:151+ Jl 15 '20

Germany's steel trade cautious. Iron Tr R
67:1476-8 N 25 '20

Integration of the German iron industry. J. F.
Shadgen. Iron Age 107:1320-3 My 19 '21

Die italienische und die deutsche eisenin-
dustrie. C. Klein. *Stahl & Eisen* 41:1264-7
S 8 '21

Year's progress in German iron and steel.
Iron Age 107:80-2 Ja 6 '21

Great Britain

Britain's exports show big gain. H. C. Es-
tep. Iron Tr R 68:625-7 Mr 3 '21

British industry in transition. J. Horton.
Iron Tr R 68:103-5 Ja 6 '21

British industry in uphill battle. J. Horton.
il Iron Tr R 66:17-20 Ja 1 '20

British iron and steel centers. J. Horton.
maps Iron Tr R 68:1246-50, 1388-90+, 1590-
2+, 1720-2; 69:163-6, 433-5, 556-8 My 5, 19,
Je 9, 23, Jl 21, Ag 18, S 1 '21

British iron and steel in 1919. Iron Age 105:
63-5 Ja 1 '20

British iron and steel in 1920. Iron Age 107:
77-8 Ja 6 '21

British 1920 steel exports. Iron Age 107:378
F 10 '21

Conditions in the iron and steel industry.
Engineer 131:675-6 Je 24 '21

Effect of coal strike on British iron and
steel trade. W. J. Page. *Am Mach* 54:1064e
Je 16 '21

High-speed steel manufacture in Sheffield;
present practice, costs, prices and raw
material sources. P. M. Tyler. Iron Age
107:371-4 F 10 '21; Discussion. F. Hodson.
107:721-2 Mr 17 '21

International iron and steel trade. *Engineer*
130:384-5 O 15 '20

Iron and steel trades during the war. M. S.
Birkett. Iron Age 105:1095-6 Ap 15 '20

Iron, steel, coal and engineering. *Engineer*
129:2-4, 29-31 Ja 2-9 '20

Iron, steel, coal and engineering trades in
1920. *Engineer* 131:2-5, 31-4 Ja 7-14 '21

Some factors in the British steel situation.
A. I. Findley. Iron Age 104:1098-1100 N 27
'19

See also Steel works—Great Britain

India

India's steel industry expanding. C: P. Perin.
Iron Tr R 67:1273-4 N 4 '20

Iron and steel industry in India. C: P. Perrin.
Eng & Ind Management 5:104 Ja 27 '21

See also Steel works—India

Italy

Italian steel industry expands. *il* Iron Tr R
66:1404-5 My 13 '20

Italian steel industry seriously handicapped.
Iron Age 105:1015-16 Ap 8 '20

Italian steel trade depressed but hopeful.
Iron Age 107:932-3 Ap 7 '21

Italy grapples with the labor problem. Iron
Tr R 68:110+ Ja 6 '21

Japan

Eisen und stahl in Japan. F. Runkel.
Stahl & Eisen 41:874-6 Je 23 '21

Iron and steel manufacture in Japan. J. F.
Springer. *il* *Sci Am S* 88:368-9+ D 20 '19

Japan is chief buyer of steel. Iron Tr R 66:
1336-7 My 6 '20

Japanese development in iron and steel. Iron
Age 106:1045-7 O 21 '20

War upbuilds Japan in steel. J. A. Rabbitt.
il map Iron Tr R 66:21-4 Ja 1 '20

Lorraine

Why France buys German steel. G. de Wen-
del. Iron Tr R 68:350-1 F 3 '21

Luxemburg

Erzeugung der eisen- und stahlwerke Lux-
emburgs im jahre 1917. *Stahl & Eisen* 41:
95-6 Ja 20 '21

Poland

Polish steel industry reviving. W: J. Kelly.
Iron Tr R 67:1743-5 D 23 '20

Russia

Iron and steel resources of Russia. P.
Kovaloff. maps Iron Age 104:1247-51 D 18
'19

Russian coal and iron industry. V. Gudkov.
il *Min & Met* 174:10-13 Je '21; Same abr.
Blast F & Steel Pl 9:667-9 N '21

South Africa

South African iron and steel. *Engineering*
110:478-80 O 8 '20

South Africa's steel industry active. Iron Tr
R 67:1475 N 25 '20

Steel plants of Africa. Iron Age 106:1270 N 11
'20

Spain

Spain, world steel battleground. H. C. Es-
tep. Iron Tr R 68:489-90 F 17 '21

War lowered Spain's ore output. Iron Tr R
67:174-5 Jl 15 '20

Ukraine

Das Donetzbecken unter bolschewistischer
regierung. M. Ullrich. *Stahl & Eisen* 41:
279-80 F 24 '21; Translation. Blast F &
Steel Pl 9:314-16 My '21

Steel industry and trade—*Continued*

United States

Can steel exports be kept up? V. G. Iden. *il Iron Tr R* 68:50-3 Ja 6 '21

Cheerless outlook for steel industry. F. K. Sprague. *Annalist* 17:662 Je 20 '21

Chicago's relation to the future American steel industry. G. de Geer. *Chem & Met Eng* 25:325-8 Ag 24 '21

Detailed statistics of rolled iron and steel produced in the United States in 1920. *Iron Age* 107:1776-8 Je 30 '21

Expansion prospects as seen by Washington. L. W. Moffett. *Iron Age* 108:743-4 S 22 '21

Export trade's relation to steel. E. A. S. Clarke. *map Iron Tr R* 67:856-8 S 23 '20

Exports and imports of steel for 1919 decrease. *Iron Age* 105:480-1 F 12 '20

Exports below one-fourth those of May, 1920. *Iron Age* 107:1706-7 Je 23 '21

Factors in the production of iron and steel on the Pacific coast. C. E. Williams. *map Min & Sci P* 123:94-6 Jl 16 '21; Discussion. N. Thompson. 123:113-14 Jl 23 '21

Fluctuations in iron and steel prices for twenty-six years. *Iron Tr R* 68:88a Ja 6 '21

From Pittsburgh to Palestine. V. G. Iden. *il Iron Tr R* 66:60-4 Ja 1 '20

High production rate for steel in 1920. *Iron Age* 107:1703-4 Je 23 '21

Iron and steel in 1919. *Eng & Min J* 109:126 Ja 17 '20

Iron and steel plants in the Mahoning valley approach normal output. *Iron Age* 105:957 Ap 1 '20

Iron ore, pig iron and steel in 1918. E. F. Burchard. *U S Geol S Min Res of U S* 1918, pt 1:527-84 '20

Iron ore, pig iron and steel in 1919. E. F. Burchard. *U S Geol S Min Res of U S* 1919, pt 1:649-52 '21

Large iron and steel exports last year. *Iron Age* 107:392-3 F 10 '21

Large steel output under handicaps; 1920 in iron and steel. *Iron Age* 107:1-3+ Ja 6 '21

Lowest iron and steel exports in 12 years. *Iron Age* 108:824-5 S 29 '21

Many plants will open in 1920. J. D. Knox. *Iron Tr R* 66:39-42 Ja 1 '20

1919 steel output falls heavily. *Iron Tr R* 67:1078-9 O 14 '20

1920 steel production is heavy. *Iron Tr R* 68:1710-11 Je 23 '21

Pittsburgh iron and steel markets. B. E. V. Luty. *Eng & Min J* 109:127-8 Ja 17 '20

Production of all kinds of finished rolled iron and steel, gross tons, 1905-1920. *Iron Age* 108:1009 O 20 '21

Production of iron and steel. *Iron Age* 106:925+, 985-7 O 7-14 '20

Question of American competition. *Engineer* 129:249-50 Mr 5 '20

Record of fabricated steel awards in the United States by months 1913-1919. *Iron Tr R* 66:56a Ja 1 '20

Record of fabricated steel awards in the United States by months 1913-1920. *Iron Tr R* 68:56a Ja 6 '21

Reply to John Skelton Williams. E. H. Gary. *Iron Age* 107:629-32 Mr 10 '21; Same cond. *Iron Tr R* 68:716-17 Mr 10 '21

Republic iron and steel company. 434p Republic iron and steel company, Youngstown, O. '20

San Francisco as a steel exporting city. *il Iron Age* 105:1381-4 My 13 '20

Slight decrease in iron and steel exports. *Iron Age* 105:968-9 Ap 1 '20

Slight decrease in tonnage of steel exports. *Iron Age* 107:144-5 Ja 13 '21

Steel exports again decline. *Iron Tr R* 66:977 Ap 1 '20

Steel exports fall 164,385 tons. *Iron Tr R* 68:1189 Ap 28 '21

Steel exports to principal foreign consumers; tabulation. *Iron Tr R* 67:1400; 68:1054 N 18 '20, Ap 14 '21

Steel industry experiences strenuous year. B. E. V. Luty. *Blast F & Steel Pl* 8:2-4 Ja '20

Steel industry experiences turbulent year in 1920. B. E. V. Luty. *Blast F & Steel Pl* 9:2-4 Ja '21

Steel industry's growth. *Chem & Met Eng* 22:7-8 Ja 7 '20

Steel production in 1919. *Comm & Fin Chr* 111:1529 O 16 '20

Steel production in 1920. *Comm & Fin Chr* 113:147 Jl 9 '21

Steel shrinkage is unparalleled. J. W. Hill. *Iron Tr R* 69:297-300 Ag 4 '21

Steel works and rolling mills; census bureau's summary concerning the industry, 1919 and 1914. *Iron Age* 108:74-5 Jl 14 '21

Structural steel market in 1920. *Iron Tr R* 68:92-3 Ja 6 '21

Structural work forges ahead. *Iron Tr R* 66:115-16 Ja 1 '20

Troubled year in the steel trade. *Iron Age* 105:1-3, 43-4 Ja 1 '20

United States exports, 1914-1919. *Iron Age* 105:1228 Ap 29 '20

War steel fills uses of peace. G. H. Manlove. *il Iron Tr R* 66:85-8 Ja 1 '20

Warehousing in Pacific states. D. C. Partridge. *il Iron Tr R* 69:1070-4 O 27 '21

What the outlook is for iron and steel. J. A. Topping. *Iron Age* 105:1307-8 My 6 '20; Same cond. *Iron Tr R* 66:1321-2 My 6 '20

See also Steel works—United States; *also* Lackawanna steel company; Midvale steel and ordnance company; Superior steel corporation; United States steel corporation

Steel ingots

Better steel ingots with less waste. A. R. Surface. *il Sci Am* 123:83 Jl 24 '20

British shop casts big ingot mold. *il Foundry* 49:565-6 Jl 15 '21

Characteristics of steel ingots. E. Gathmann. *diags Iron Tr R* 67:586-8 Ag 26 '20; Abstract. *Min & Met* 164:29-31 Ag '20

Cracks in ingots. F. Giolitti. *il diag Chem & Met Eng* 23:149-53 Jl 28 '20

Crucible co. 119-ton ingot. *il Iron Age* 105:139 Ja 8 '20

Defects in steel originating in the ingot. A. B. Wilson. *il Chem & Met Eng* 23:1161-6 D 15 '20

Direct metal ingot mould manufacture. *il Blast F & Steel Pl* 8:104+ Ja '20

Drill steel from hollow ingots. P. A. E. Armstrong. *il Chem & Met Eng* 24:960-4 Je 1 '21; Abstract. *Min & Met* 175:34-5 Jl '21; Abstract. *Iron Age* 108:596-8 S 8 '21

Giant ingot-mold casting in the making. A. R. Surface. *il Sci Am* 123:519+ N 20 '20

Hair-line cracks on ingot steel not breach of warranty against serious surface defects. W. Gustin. *Chem & Met Eng* 23:1030-1 N 24 '20

Influence d'une augmentation notable de la teneur en manganèse des fontes de lingotières d'aciérie. M. Grosclaude. *diag Génie Civil* 77:198-9 S 4 '20; Abstract. *Chem & Met Eng* 23:891 N 3 '20

Ingot molds and rejected steel ingots. E. Gathmann. *il Iron Age* 105:1304-5 My 6 '20

Leaves from a steel melter's notebook. H. D. Hibbard. *Iron Age* 108:1065-7 O 27 '21

Manufacture of ingots for locomotive tires and rolled wheels. L. H. Fry. *il Iron Age* 105:1507-9 My 27 '20

Modern method of steel billet grinding. R. H. Cannon. *il Blast F & Steel Pl* 9:640-2 N '21

Pipeless rolled products from annular blooms. C. A. Witter. *diags Iron Age* 105:1593-5 Je 3 '20; Same abr. *Blast F & Steel Pl* 8:414-16 Jl '20; Same cond. *Iron Tr R* 66:1604-6 Je 3 '20

Proposed new ingot mold of steel. R. C. Woodward. *diags Iron Age* 107:262-3 Ja 27 '21

Rail depends upon ingot. *Elec Ry J* 56:554-5 S 18 '20

Reservoir required to pour large mold. *il Foundry* 48:877-8 N 1 '20

Segregation in bars for steel tubing. H. D. Newell. *il Chem & Met Eng* 23:745-6 O 13 '20

Sound ingots and rails as a matter of course. R. S. Hadfield. *il Chem & Met Eng* 25:772-3 O 26 '21

Steel ingots—Continued

- Steel ingot production in the United States. Iron Age 106:130 JI 15 '20; Iron Tr R 66:1749 Je 17 '20
- Steel ingots of small cross section. J: G. Webb. diags Iron Age 105:1497-8 My 27 '20; Same. Iron Tr R 67:232-3 JI 22 '20
- Steel rails from sink-head and ordinary rail ingots. G: K. Burgess. il diags U S Bur Stand Tech Pa 178:1-61 '21; Excerpts. Chem & Met Eng 23:921-5, 969-75, 1017-22 N 10-24 '20; Abstract. Iron Tr R 67:114-16 JI 8 '20; Abstract. Ry Age 70:333-4 F 4 '21; Abstract. Eng & Contr 56:159 Ag 17 '21
- Trend of production of steel ingots and castings; table. Iron Tr R 69:296 Ag 4 '21
- Ueber lunkerbildung und seigerungserscheinungen in silizierten stahlblöcken. A. Brünninghaus and F. Heinrich. il diags Stahl & Eisen 41:497-510 Ap 14 '21
- Ueber querschnitts-abmessungen von stahlblöcken für schmiedestücke. F. Pacher. Stahl & Eisen 41:913-19 JI 7 '21
- Welding of steel in relation to the occurrence of pipe, blowholes, and segregates in ingots. H. Brearley. il Iron & Steel Inst J 103:27-43 no 1 '21; Same. Blast F & Steel Pl 9:361-7 Je '21; Same, without tables. Engineering 111:551-4 My 6 '21; Same, without tables. Iron Tr R 69:289-92 Ag 4 '21; Excerpts. Engineer 131:506, 508 My 13 '21; Excerpt. Iron Age 107:1397-8 My 26 '21; Discussion. Iron & Steel Inst J 103:44-62 no 1 '21; Engineering 111:577-8 My 13 '21; Engineer 131:519-20 My 13 '21; Iron Age 107:1398-9 My 26 '21
- See also Steel castings; Steel metallurgy; Steel works
- Steel metallurgy**
- Another direct process for steel making. H. Lang. Iron Age 107:1237-8 My 12 '21
- Balanced reactions in steel manufacture. A. McCance. Chem & Met Eng 22:634-8 Ap 7 '20
- Cause of quenching cracks. K. Honda, T. Matsushita and S. Idei. diags Iron & Steel Inst J 103:251-6 no 1 '21; Same. Engineering 111:595-7 My 13 '21; Summary. Engineer 131:537 My 20 '21; Discussion. Iron & Steel Inst J 103:267-9 no 1 '21; Engineering 111:579-80 My 13 '21; Engineer 131:537 My 20 '21
- Comparison of three processes of steel making. E. von Schlegell. Iron Age 107:565-6 Mr 3 '21
- La consommation de charbon dans la grosse métallurgie; le bilan thermique d'une aciérie Thomas produisant 300 000 tonnes par an. Génie Civil 77:499-503 D 18 '20
- Control of temperature in the acid Bessemer blow. H: D. Hibbard. Blast F & Steel Pl 9:287-90 My '21
- Development of iron ore into iron and steel; chart. S. C. Dickerhoff, jr. Blast F & Steel Pl 9:318-19 My '21
- Development of the steel industry during the war in Germany. H. Hermanns. il diags Blast F & Steel Pl 9:31-5, 146-50, 202-5 Ja-Mr '21
- Electric, open-hearth and Bessemer steel temperatures. F. E. Bash. Min & Met 153:1739-50 S '19; Discussion. 157:(sec 12) 76 Ja '20
- Electric versus converter steel. J: H. Hall and G. R. Hanks. Foundry 48:115-16 F 1 '20
- L'emploi d'alliages de titane pour la purification des lingots d'acier. Génie Civil 77:116-17 Ag 7 '20
- L'emploi des fours oscillants pour la fabrication de l'acier. il diag plan Génie Civil 76:545-8 Je 19 '20
- Die entphosphorung des Ilseder Thomasroheisens im konverter und im Martinofen. A. Jung. Stahl & Eisen 41:687-92 My 19 '21
- Essentials of high-grade steel manufacture. W. R. Shimer. il Soc Auto Eng J 6:387-93 Je '20
- Experience melting high-nickel steel. L. J. Barton. Foundry 49:654-5 Ag 15 '21
- Frenchman claims to make steel in five hours. Pop Mech 36:264 Ag '21
- Fuel rules foreign steelmaking. il diags Iron Tr R 65:1505-8 D 4 '19
- Gases obtained in molten steel. H: D. Hibbard. Blast F & Steel Pl 9:51-3, 139-40, 193-5+ Ja-Mr '21
- Government armor plate factory; naval ordnance plant, South Charleston, W. Va., compared with 1897 project. S. G. Koon. il plans Iron Age 107:1365-71 My 26 '21
- Iron and steel discussed at the A.I.M.E. Chem & Met Eng 22:391-6 Mr 3 '20
- Leaves from a steel melter's notebook. H: D. Hibbard. Iron Age 108:1065-7 O 27 '21
- Making, shaping and treating of steel. J. M. Camp and C. B. Francis. 2d ed. 614p Carnegie steel co., Pittsburgh '20
- Making steel direct from ore; Basset's process. Iron Tr R 68:1375-6 My 19 '21; Same. Foundry 49:689-90 S 1 '21
- Making steel in four hours. Factory 26:780+ Mr 15 '21
- Manufacture of semisteel for shells. F. E. Hall. Min & Met 157:(sec 15) 1-7 Ja '20; Same. Foundry 48:160-2 F 15 '20; Same. Iron Tr R 66:414-16 F 5 '20; Discussion. Min & Met 159:(sec 2) 16-17 Mr '20
- Measuring the temperature of molten steel. F. W. Brooke. J Elec 44:115-17 F 1 '20; Same. Foundry 48:197-8 Mr 1 '20
- Metallurgical progress in steel industry. Blast F & Steel Pl 8:56-8 Ja '20
- Method of deoxidizing high-nickel steel. C. B. Callomon. Foundry 49:590-1 Ag 1 '21
- Neuzeitliche verfahren zur stahlerzeugung. F: Thomas. Stahl & Eisen 41:185-93, 223-7 F 10-17 '21
- New deoxidizers for steel manufacture. J. R. Cain. Chem & Met Eng 23:879-82 N 3 '20
- Power drives for rolling mills. W. O. Rogers. il Power 51:17-20, 95-8 Ja 6, 20 '20
- Railway car materials—steel. M. Litchfield. Elec Ry J 55:803-6 Ap 17 '20
- Reversion of phosphorus to basic steel in the ladle. H: D. Hibbard. Blast F & Steel Pl 8:642-3 D '20
- Silicon additions to steel. E. Piwowarsky. Iron Age 108:458 Ag 25 '21; Same. Blast F & Steel Pl 9:552 S '21
- Smelting ore by direct process. L. Wicken-den. diag plan Iron Tr R 69:363-8 Ag 11 '21
- Spectroscopic examination of converter flame. W. J. Campbell. Engineer 132:137-8 Ag 5 '21; Same. Chem & Met Eng 25:618 S 28 '21
- Steel direct from ore by Moffat process. W. F. Sutherland. diags plan Iron Age 107:1450-2 Je 2 '21
- Steel direct from the ore. Sci Am 125A:44 N '21
- Steel direct from the ore; recent attempts at producing steel without the intervention of the blast furnace. E. F. Cone. diags Sci Am M 4:67-8 JI '21
- Steel refining; patent. W: R. Walker. Chem & Met Eng 22:89 Ja 14 '20
- Steel wizards, past and present. A. Sauveur. Chem & Met Eng 23:633-5 S 29 '20
- Swedish steelworks modernized. D. Part-ridge. il Iron Tr R 69:946-7 O 13 '21
- Ueber den zusammenhang zwischen physikalischer und chemischer beschaffenheit des Thomasroheisens. O: Holz. Stahl & Eisen 41:1285-93; Discussion. 1293-7 S 15 '21
- Use of spiegeleisen in steel manufacture. H: D. Hibbard. Chem & Met Eng 22:209-10 F 4 '20; Excerpts. Iron Tr R 66:220 Ja 15 '20
- Will exploit new Basset steelmaking process. F. Miltoun. Iron Tr R 67:1335 N 11 '20
- Woody structures of fractures of transverse test-pieces taken from certain special steels. J. J. Cohade. diags Chem & Met Eng 22:259-64 F 11 '20
- Year in iron and steel metallurgy. L: B. Lindemuth. Iron Age 105:61-2 Ja 1 '20
- See also Annealing; Bessemer process; Iron metallurgy; Molybdenum steel; Open hearth process; Rolling mills; Semi-steel; Steel, Heat treatment of; Steel castings; Steel ingots; Steel works

Steel metallurgy—Continued

Costs

- Comparing costs of steel making. E. H. Ballard. Foundry 48:697-8 S 1 '20; Same cond. Blast F & Steel Pl 8:62 Ja '20
- Comparisons of melting costs by Ohio steel castings company. il Foundry 49:315-18 Ap 15 '21; Same. Iron Tr R 69:167-70 Jl 21 '21
- Proposed duplex process for making steel. G. L. Fisk. diags Iron Age 105:38-41 Ja 1 '20

Duplex process

- Acid Bessemer duplex process. J. W. Haulman. Blast F & Steel Pl 9:658-60 N '21
- Acid Bessemer process. R. S. McCaffery. Chem & Met Eng 23:103-4 Jl 21 '20; Same. Iron Tr R 67:234-5 Jl 22 '20; Same. Blast F & Steel Pl 8:497-8 S '20; Excerpts. Min & Met 163:36 Jl '20
- Duplex steel process makes open-hearth metal rapidly. Pop Mech 35:672 My '21
- Proposed duplex process for making steel. G. L. Fisk. diags Iron Age 105:38-41 Ja 1 '20

Electrometallurgy

- Annual report of the A.I.E.E. iron and steel industry committee. diag Am Inst E E J 39:752-6 Ag '20
- Determining heat in electric steel. A. M. Kuhlmann and A. D. Spillman. Iron Tr R 67:1546 D 2 '20
- Determining iron loss of sheet samples. T. Spooner. il diags Elec W 77:91-3 Ja 8 '21
- Developing hydroelectric steelmaking. il Iron Tr R 66:151-2 Ja 8 '20
- Developments in electric iron and steel furnaces. J. Bibby. diags Inst E E J 57:sup231-46 '19; Excerpts. Engineer 127:513-15 My 23 '19; Abstracts. Elec W 74:84, 712-13 Jl 12, S 27 '19; Iron Age 105:329-30 Ja 29 '20
- Develops new duplexing process. H. E. Diller. il Iron Tr R 66:1324-7 My 6 '20
- Electric furnace and electric steel; data collected by the electric furnace association relative to the quality of electric furnace products—statistics on electric steel production. Blast F & Steel Pl 8:135-7 F '20
- Electric furnace for high-speed steel; the Newkirk type. il Iron Age 107:691-2 Mr 17 '21
- Electric furnace operating experiences. L. J. Barton. diags Iron Age 108:581-4 S 8 '21
- Electric furnace progress in 1921. E. T. Moore. Iron Age 108:723-4 S 22 '21
- Electric furnace tool steel qualities. W. J. Green and S. S. Green. Iron Age 108:669-71 S 15 '21
- Electric furnaces for making steel. A. Stansfield. diag Blast F & Steel Pl 9:189-93, 263-6, 324-7, 381-5, 424-5, 488-9, 550-2 Mr-S '21
- Electric steel production. Am Mach 52:998 My 6 '20
- Electric steel refined in the ladle. diags Foundry 47:850 D 1 '19
- Electric steels. C. G. Carlisle. Engineering 110:456-7 O 1 '20; Same cond. with discussion. Engineer 130:336-7 O 1 '20; Abstract. Iron Age 106:931 O 7 '20; Discussion. R. J. Weitlaner. Blast F & Steel Pl 9:209 Mr '21
- Fortschritte in der elektrostahlindustrie. B. Neumann. il diags Stahl & Eisen 41:83-7, 116-22 Ja 20-27 '21
- Foundry applies electricity to many operations. H. R. Simonds. il diags Foundry 48:301-3 Ap 15 '20
- French development of electric steel by hydroelectric power. Elec R 76:141 Ja 24 '20
- Furnace theory and practice disagree. J. Young. Foundry 49:365 My 1 '21
- High-frequency induction steel-furnace. E. F. Northrup. il diag Chem & Met Eng 24:309-11 F 16 '21; Excerpt. Elec R (Lond) 89:305 S 2 '21
- Large electric steel-melting furnaces. V. Stobie. diags Inst E E J 57:sup268-76 '19; Excerpts. Sci Am M 1:66-8 Ja '20
- Making electric steel in Australia. Foundry 48:103 F 1 '20

- Manufacture of high speed steel in the electric furnace. R. C. McKenna. Am Electrochem Soc Trans v 37 (preprint 31):417-23 Ap '20
- Melting steel in a non-ferrous electric furnace. Iron Age 108:472 Ag 25 '21
- Position of the electric furnace in iron and steel metallurgy. L. B. Lindemuth. Am Electrochem Soc Trans v 37 (preprint 39):611-27 Ap '20
- Present position and prospects of electric steel in Great Britain. W. S. Gifford. il Electrician 85:528-9 N 5 '20
- Producing acid steel electrically. J. W. Galvin and C. N. Ring. Iron Tr R 67:1130-2 O 21 '20; Same. Foundry 49:72-4 Ja 15 '21
- Regulation of electric steel arc furnaces using movable electrodes. W. G. Mylius. il diags Am Electrochem Soc Trans v 39 (preprint 20):213-25 Ap '21
- Status of the electric steel industry. E. F. Cone. Iron Age 105:75-7+ Ja 1 '20
- Status of the electric steel industry, 1920. E. F. Cone. Iron Age 107:69-71 Ja 6 '21
- Year, 1920, in iron and steel metallurgy. L. B. Lindemuth. Iron Age 107:76-7 Ja 6 '21

Study and teaching

- Outline of a practical course in steelmaking. P. S. Young. Blast F & Steel Pl 9:626, 674 O-N '21
- Steel pipes. See Pipes, Steel
- Steel plates. See Plates, Iron and steel
- Steel poles. See Poles, Steel
- Steel rails. See Rails
- Steel reinforcing bars
- Available sizes of reinforcing bars. Am Arch 117:630 My 19 '20
- Standard specifications for billet-steel concrete-reinforcement bars; English and French. U S Bur For & Dom Com Industrial Standards 147:1-14 '21
- Standard specifications for rail-steel concrete-reinforcement bars; English and French. U S Bur For & Dom Com Industrial Standards 148:1-10 '21
- Prices
- Diagram and table showing prices of reinforcing bars. D. H. Maury. Eng & Contr 56:351 O 12 '21
- Steel research committee
- Some notes on the report of the Steel research committee. J. H. S. Dickenson. Engineer 130:486-7, 513-14 N 12-19 '20; Discussion. 500-1 N 19 '20
- Steel sashes. See Sashes, Steel
- Steel sheets
- Cost
- Are iron and steel prices out of line? cost of manufacturing sheets in 1914 and 1921. Iron Age 108:865-6 O 6 '21
- Steel smoke stacks. See Chimneys, Iron and steel
- Steel square. See Square (instrument)
- Steel stoves. See Stoves, Steel
- Steel strike, 1919-1920
- Great steel strike and its lessons. W. Z. Foster. 265p B. W. Huebsch, inc., New York '20; Review. Min & Sci P 121:370-2 S 11 '20
- Interchurch report on steel strike. Iron Age 106:271, 291-3 Jl 29 '20; Iron Tr R 67:296-7 Jl 29 '20; Comm & Fin Chr 111:548-9 Ag 7 '20
- Judge Gary's position on labor indorsed. Iron Age 104:1132-4 D 4 '19
- Men and steel. M. H. Vorse. 185p Boni and Liveright, New York '20
- President Welborn reviews the steel strike. Iron Age 105:351-3 Ja 29 '20
- Report on the steel strike of 1919, by the Commission of inquiry, the Interchurch world movement. 277p Harcourt, Brace and Howe, New York '20
- Steel tanks. See Tanks, Steel
- Steel tires. See Tires, Steel
- Steel treating, American society for. See American society for steel treating

Steel treating research society. See American society for steel treating

Steel tubes. See Tubes, Steel

Steel wheels. See Wheels, Steel

Steel wool

Advertising

Fear of competition cured by advertising. H. E. Agnew. *Ptr Ink* 112:146+ Ag 5 '20

Steel workers

Eight hour shift in British steel plants. W. Williams. *Iron Age* 107:635-8 Mr 10 '21

Fatigue and efficiency in an iron and steel works. H. M. Vernon. *il Eng & Ind Management* 5:226-9, 287-90, 320-3, 384-5, 461-2, 519-22 F 24, Mr 10-17, 31, Ap 21, My 5 '21

Fatigue in rolling mills. *Iron Age* 107:520 F 24 '21

Humanizing labor in the steel plant. P. Stremmel. *Iron Tr R* 65:1641+ D 18 '19

Steel labor less than half employed. *Iron Age* 108:459 Ag 25 '21

Three-shift system in steel industry; abstracts. H. B. Drury. *Ind Management* 61:63-7 Ja 1 '21; *Am Mach* 53:1182-3 D 23 '20; *Iron Age* 106:1531-8 D 9 '20; *Iron Tr R* 67:1599-1600 D 9 '20; *Monthly Labor R* 12:113-16 Ja '21

Wages in steel mills compared. *Iron Tr R* 67:1353 N 11 '20

Steel works

Art of masonry in a steel plant. R. Smith. *Blast F & Steel Pl* 9:182 F '21

British view of American steel making. R. P. Smith. *Iron Age* 108:589-91 S 8 '21

La consommation de charbon dans la grosse métallurgie; le bilan thermique d'une aciérie Thomas produisant 300 000 tonnes par an. *Génie Civil* 77:499-503 D 18 '20

Les économies de combustible dans l'industrie sidérurgique. *diag Génie Civil* 76:533-4 Je 12 '20

Fuel requirements of steel mills analyzed. F. E. Leahy. *Iron Age* 108:811-13 S 29 '21

Making ore pile part of automobile plant. F. L. Prentiss. *il map Iron Age* 105:1295-1302 My 6 '20

Preventing fire at steel plants. W. F. Mulhall. *il Iron Tr R* 67:655-7 S 2 '20

Tableau d'organisation d'une aciérie. J. Carlioz. *Chimie & Ind* 3:251-2 F '20

See also Foundries; Rolling mills; Skoda works; Steel workers

Accounting

Accounting for electric alloy and tool steel. G. H. Porter. *J Account* 32:1-15 Jl '21

Handling plant appropriations. J. J. Zimmerman. *Iron Tr R* 66:634-7 F 26 '20

Electric equipment

Electrically heated soaking pits in the steel industry. T. F. Baily. *diags Chem & Met Eng* 21:624-7 N 12 '19

Electricity in American steel works. R. Orsettich. *Electrician* 85:518-21 N 5 '20

Electricity in steel works. W. McFarlane. 109p Pitman '21

Employees

See Steel workers

Equipment

Mechanical handling of steel mill material. C. F. Poppleton. *il diag Blast F & Steel Pl* 9:291-8 My '21

Routing of material feature of plant; Youngstown pressed steel co. introduces tunnels under new shops. F. L. Prentiss. *il Iron Age* 107:1741-5 Je 30 '21

Power

Direct current compared with three-phase current for driving steel works plant. C. A. Ablett. *Engineering* 109:664-6 My 14 '20; Abstracts. *Electrician* 84:549 My 14 '20; *Power Pl Eng* 24:704-5 Jl 15 '20; Discussion. *Engineering* 109:643-4 My 14 '20

Electrically driven steel reversing mills. F. Jeffrey. *il chart diag Power* 51:1030-3 Je 29 '20

Modern steel works power plant. W. N. Flanagan. *Blast F & Steel Pl* 9:350-6, 445-6, 510-14 Je-Ag '21; Same cond. *Iron Tr R* 68:1526-31 Je 2 '21; Same cond. *Iron Age* 107:1555-7; Discussion. 1557-9 Je 9 '21

Motor distribution and consumption in steel plant requiring 117,852 hp. R. B. Gerhardt. *Elec W* 76:130 Jl 17 '20

Recent developments in steel works power plants. W. N. Flanagan. *Blast F & Steel Pl* 9:56-9 Ja '21

Some economic considerations in design of power plants for steel mills. T. E. Keating. *Blast F & Steel Pl* 8:570-4 O '20; Same cond. *Power* 52:634-6 O 19 '20; Discussion. *Blast F & Steel Pl* 8:669-70+ D '20

Steel mill power-factor and the central station. A. K. Bushman and A. L. Lemon. *il diag Gen Elec R* 24:483-6 Je '21

Steel plant power generation from waste heat and coal. *Blast F & Steel Pl* 8:690-2+ D '20

Use of central station power in mines and steel plants. K. A. Pauly. *Gen Elec R* 24:479-83 Je '21

Using waste heat from open-hearth furnaces. B. H. Greene. *diags plans Iron Tr R* 66:1065-8 Ap 8 '20; Abstract. *Mech Eng* 42:358-9 Je '20

See also Rolling mills—Power

Safety devices and measures

Explosion hazard in steel mills from partly consumed coal dust. *Chem & Met Eng* 22:422-3 Mr 3 '20

Reducing electrical hazards in mills. W. Greenwood. *Iron Tr R* 69:875-6+ O 6 '21

Safety practice in the steel industry. *Blast F & Steel Pl* 8:219 Mr '20

Argentina

New steel plant in Argentina. H. Wright. *il Iron Age* 105:411-12 F 5 '20

Australia

Australia independent steel nation due to natural resources and modern mills. *il plan Blast F & Steel Pl* 8:138-41 F '20

Belgium

Restoring Belgium steel plants. G. Neve. *il Blast F & Steel Pl* 9:130-1 F '21

Brazil

Electric steel plant in Brazil. *Iron Tr R* 67:1613 D 9 '20

Itabira iron ore co. will build steel mill in Brazil. *Iron Tr R* 67:164 Jl 15 '20

California

Modern bar mill at Pittsburg, California. *il diag Iron Age* 105:1779-82 Je 24 '20; *Iron Tr R* 67:29-32 Jl 1 '20

Chile

Green wood in the blast furnace. F. Prudhomme. *Iron Age* 107:121-2 Ja 13 '21

Czechoslovakia

Czechia holds key to iron and steel situation in Central Europe. B. Schapira. *il Iron Tr R* 68:962-9+ Ap 7 '21

Steel works of Czecho-Slovakia. *il Am Mach* 54:826-8 My 12 '21

Views in the Kladno works of the Poldi steel works, Czechoslovakia. *il Iron Age* 107:26-8 Ja 6 '21

England

Abbey works, Lincoln. *il (supp) plan Engineer* 129:422-4 Ap 23 '20

Baldwins, ltd., adds new plant. J. Horton. *il Iron Tr R* 67:1133-8 O 21 '20

British plant conserves fuel; Skinningrove iron co., ltd., Saltburn, England. J. Horton. *il Iron Tr R* 67:450-2 Ag 12 '20

Electrification of the works and collieries of the Ebbw Vale steel, iron and coal company, limited. W. Dixon. *diags plans Engineering* 110:419-21 S 24 '20; Same. *Engineer* 130:299-300 S 24 '20

New Darnall works of Davy brothers, limited. *il plan Engineer* 131:662, 670 Je 24 '21

Steel works—England—Continued

Works of Messrs. Edgar Allen and co., limited, Sheffield. il plan Engineering 112:272-4, 304-7, 335-8, pl 11-13 Ag 19-S 2 '21

France

Creusot and its associated works. il diags plans Engineer 130:supl-16 S 17 '20

Devastation of France. il Engineering 111:670-4, pl 37-40 Je 3 '21

French modernize in rebuilding L. Guillet. Iron Tr R 69:1152-4 N 3 '21

Machinery at the steel works of the Société Normande de métallurgie, Caen, France. il diags (supp) Engineering 109:180, 182, 284, 293-4 F 6, 27 '20

Messrs. Schneider and co.'s new steel works, Breuil. Engineering 110:631-4, 642 N 12 '20; Abstract. Min & Met 169:33-5 Ja '21

New equipment installed in French works; Société Normande de métallurgie, Caen, France. il diags Blast F & Steel Pl 8:227-31 Ap '20

La nouvelle aciérie du Breuil, près du Creusot (Saône-et-Loire). il diags plan Génie Civil 77:285-91, pl 5 O 9 '20

Position of the metallurgical industries of northern and eastern France. L. Guillet. Iron Age 108:796-800 S 29 '21

Germany

German steel and iron in 1920. H. C. Estep. il diag plan Iron Tr R 66:1263-7 Ap 29 '20

Zum fünfzigjährigen bestehen des eisen- und stahlwerks Hoesch. il Stahl & Eisen 41:1401-5 O 6 '21

Great Britain

British iron and steel centers. J. Horton. il maps Iron Tr R 68:1246-50, 1388-90+, 1590-2+, 1720-2 My 5, 19, Je 9, 23 '21

See also Steel works—England; Steel works—Scotland

India

Iron and steel industry in India. C. P. Perin. Iron Age 106:1119-22 O 28 '20

Indiana

Gary works expanded fifty per cent during war. G. L. Lacher. il diags plans Iron Age 106:699-710 S 16 '20

New Bessemer plant in Indiana. diag plan Iron Age 105:741-2 Mr 11 '20

Sheet mill of Chapman Price steel co. in Indiana. E. F. Ross. il plan Iron Tr R 68:1651-6 Je 16 '21

Lorraine

Fuel practice in occupied German territory. W. J. Jones, R. C. Harding and P. S. J. Cooper. Iron Age 104:1066-7 N 27 '19

Lorraine steel works in French hands. J. F. Butler. Iron Age 105:1023-4+ Ap 8 '20

Zum fünfzigjährigen bestehen der Thyssenwerke. F. Dahl. il diags map Stahl & Eisen 41:429-43, pl 2-4 Mr 31 '21; Abstract. Génie Civil 78:393-6, 467, pl 3 My 7, 28 '21

Maryland

Electricity in a large modern steel plant. R. B. Gerhardt. Blast F & Steel Pl 8:295-8, 458-61 My, Ag '20; Abstracts. Power 51:445 Mr 16 '20; Iron Age 105:1657-60 Je 10 '20

Mexico

Enlarges Mexican steel plant. il Iron Tr R 67:165-8 Jl 15 '20

Mexican plant undergoes rehabilitation; Monterrey iron & steel co. il Iron Age 106:1723-6 D 30 '20

Michigan

L'usine sidérurgique de la Ford motor co, à Detroit (Michigan, E.-U.). il plan Génie Civil 76:505-8 Je 5 '20

Missouri

Flexibility of output assured in Scullin mills. St Louis. G. L. Lacher. il plan Iron Age 107:829-37 Mr 31 '21

Scullin steel company's new mills at St Louis. F. B. Menner. Blast F & Steel Pl 9:260-1 Ap '21

Ohio

Electric alloy steel company, Youngstown, completes improvements. D. N. Watkins. plan Blast F & Steel Pl 9:492-4 Ag '21

Steel plant operated with waste heat; new works of Electric steel and forge co., Cleveland. il diags plan Iron Age 106:765-9 S 23 '20

Pennsylvania

Blaw-Knox plant now completed. D. C. Groves. il plan Blast F & Steel Pl 9:86-8 Ja '21

Braeburn steel co., increases capacity for making and rolling high grade steels. A. M. Staehle. il charts plan Blast F & Steel Pl 8:38-45 Ja '20

Scotland

Tragedy in triumph of Scotch works; David Colville & sons. J. Horton. il Iron Tr R 69:1012-14 O 20 '21

United States

Electricity in American steel works. R. Orsettich. Electrician 85:518-21 N 5 '20

New iron and steel works construction in 1920. Iron Age 107:106-12 Ja 6 '21

West Virginia

New steel plant of the Weirton steel co. C. H. Hunt. il diags plan Iron Age 107:619-27, 693-702 Mr 10-17 '21; Same cond. Blast F & Steel Pl 9: [232 ff] Mr '21; Same cond. Iron Tr R 68:685-91 Mr 10 '21

La nouvelle aciérie de Weirton (West Virginia, États-Unis). C. Dantin. il diags plans Génie Civil 78:325-31 Ap 16 '21

See also United States naval ordnance plant. South Charleston, W. Va.

Wisconsin

Steel shops of Samson tractor co. at Janesville, Wis. diags plan Eng N 86:716-18 Ap 28 '21

Steering gear

Combined screw and spring quadrant steering gear for combination ore vessels. diag plan Marine Eng 26:685-6 S '21

Pneumatic ship-steering system has advantages. il diags Pop Mech 35:568 Ap '21

Steering gear for big freighters. diags Marine R 51:382 Ag '21

Steffen lime process. See Beets and beet sugar

Stelnhardt, Joseph H.

Builders of business. E. M. Wickes. por System 40:44-5+ Jl '21

Steinmetz, Charles Proteus

Portrait. Elec W 75:476 F 28 '20

Stellite

How to use stellite. G. L. Kronfeld. diags Am Mach 52:293-5 F 5 '20

Reflecting power of monel metal, stellite, and zinc. W. W. Coblentz. U S Bur Stand Sci Pa 379:249-52 '20

Stellite. E. Haynes. Am Electrochem Soc Trans v 37 (preprint 26):377-81 Ap '20; Same. Metal Ind 18:357-8 Ag '20; Same. Brass W 17:8-9 Ja '21

Stellite, a new gage material. H. L. Van Keuren. Am Mach 52:1045-7 My 13 '20

Stellite and stainless steel. E. Haynes. Eng Soc W Pa 35:467-74 Ja '20; Same abr. Am Mach 53:171-2 Jl 22 '20; Same cond. Soc Auto Eng J 7:349-51 O '20; Excerpts. Iron Age 105:1723-4 Je 17 '20; Discussion. Eng Soc W Pa 35:475-82 Ja '20

Stenches. See Odors**Stencils and stencilling**

Steel stamps, embossing dies, stencils. E. Sheldon. il Am Mach 53:789-94 O 28 '20

Stenographers

Getting the office work done. W. Clark. il Ind Management 60:116-21 Ag '20

Standardization of stenographic work. R. B. Newton. Administration 1:725-35 Je '21

Stenography. See Shorthand

Stentorphone

Automatic stentorphone deposes human voice.
il Pop Mech 35:678 My '21

Stereochemistry

Influence of steric factors on intramolecular condensation. J. Kenner and E. Witham. Chem Soc J 119:1452-61 S '21

Molekularer brechungskoeffizient, sein additives verhalten und seine verwendbarkeit zur konstitutionsbestimmung; die zahlenmässigen zusammenhänge in der reihe der polymethylen-verbindungen. F. Eisenlohr. Deutsche Chem Gesell Ber 54:299-320 F '21

Stereochemical studies; stereochemistry of dichlorosuccinic acid. B. Holmberg. Chem Soc J 120 pt 1:539-40 Ag '21

See also Atoms; Cyclic compounds; Isomerism; Langmuir postulates; Molecular rearrangements; Polarization (light)

Stereoisomerism. *See* Isomerism**Stereopticon.** *See* Lantern projection**Stereoscope**

Two-man stereoscope. il Sci Am 124:174 F 26 '21

Stereoscopic views

Stereoscopic pictures with a kodak. W. S. Hutchinson. il Min & Met 170:20-2 F '21

Stereotype

Gas and the composition and treatment of alloys and eutectics. G. C. Shadwell. Am Gas Eng J 113:187-8 S 4 '20

Stereotyping outfit for the small newspaper shop. H. W. Smith. diags Pop Mech 33: 930-1 Je '20

Sterility in animals

Sterility in animals and plants. D. F. Jones. il Sci Am M 2:117-19 O '20

Sterility in plants

Sterility in animals and plants. D. F. Jones. il Sci Am M 2:117-19 O '20

Sterilization

Technique de stérilisation. E. Gérard. 3d ed., rev. and augm. 284p Vigot freres, Paris '21

Sterlingbush calcite cave. *See* Calcite**Stethoscope**

Improved light stethoscope reduces resonance. il Pop Mech 35:684 My '21

Stetson, John B., company

Important change in Stetson advertising policy. R. Cole. Ptr Ink 112:10+ S 23 '20

Stevens, Edwin A., 1795-1868

John Stevens, Robert L. Stevens, and Edwin A. Stevens nominated to the Hall of Fame. Stevens Ind 38:20-4 Ja '21

Stevens, George W., 1851-1920

Sketch. por Ry Age 69:800 N 5 '20

Stevens, John, 1749-1838

John Stevens, Robert L. Stevens, and Edwin A. Stevens nominated to the Hall of Fame. Stevens Ind 38:8-16 Ja '21

Stevens, John A.

Authority on boilers and power-plant design. por Power 52:23-4 J1 6 '20

Stevens, Robert Livingston, 1787-1856

John Stevens, Robert L. Stevens, and Edwin A. Stevens nominated to the Hall of Fame. Stevens Ind 38:17-20 Ja '21

Still engine

Comparative tests of Still and Diesel engines. Automotive Ind 43:329 Ag 12 '20

Comparative trials of Still and Sulzer engines. W: Denny. diags Engineer 130:90 J1 23 '20; Same. Engineering 110:98-100 J1 16 '20; Same. Marine Eng 25:832-4 O '20; Abstract. Power 52:640-1 O 19 '20; Discussion. Engineer 130:90-1 J1 23 '20; Engineering 110:101-2 J1 23 '20

Still engine. F. E. D. Acland. diag Soc Auto Eng J 6:428-36 Je '20

Still oil engine for marine propulsion. il Engineering 112:344-5 S 2 '21

Stills. *See* Distillation apparatus**Stillwell, Lewis Buckley, 1863-**

Portrait. Elec W 77:524 Mr 5 '21

Stinkhorn

Dead men's fingers; one of the most interesting groups of our less common fungous growths. W: A. Murrill. il Sci Am 125:94+ Ag 6 '21

Stock dividends

Confusion in high places. J Account 29:359-62 My '20

Decision of the United States Supreme court in the case Eisner vs. Macomber. J Account 29:367-85 My '20

Stock exchange

American and foreign stock exchange practice, stock and bond trading, and the business corporation laws of all nations. W: J. Greenwood. 1048p Financial books co., New York '21

Bankers' gazette. Published in weekly numbers of Commercial and financial chronicle. Quotations for all the more important securities listed on any stock exchange in the United States. Published in monthly Bank and quotation section of Commercial and financial chronicle

Scientific stock speculation. C: H. Dow. The Magazine of Wall street, New York city '20

See also Bonds; Brokers; Foreign exchange; Investments; Panics; Speculation; Stocks; Wall Street; *also* Chicago stock exchange; New York curb market; New York stock exchange

Stock rooms. *See* Stores systems**Stock yards**

Reinforced concrete cattle shed of Bourbon stock yards, Louisville, Ky. G: A. Brink. il Eng & Contr 56:179-80 Ag 24 '21

See also Chicago, Illinois—Stock yards

Stockholders. *See* Corporation law**Stocks**

Dividends. Published in weekly numbers of Commercial and financial chronicle

Eight years of stock market averages by weeks; tabulation. Annalist 17:42-3 Ja 3 '21

Industrial stocks and bonds. Comm & Fin Chr Railway and industrial section 110:140-244 My 29 '20 [Issued semi-annually, May and November]

Keeping out the wildcat stock. H. A. Davidson. Nation's Business 8:76+ S '20

No par value stock. T: Conyngton. Administration 1:87-94 Ja '21

Stock prices now and at the armistice and before the war. Comm & Fin Chr 111:1903 sec 1 N 13 '20

Stock with no par value. S. Walton and H. A. Finney. J Account 28:385-99 N '19

What is the matter with Wall Street? F. K. Sprague. Annalist 17:683-4 Je 27 '21

See also Bonds; Corporations; Employees as stockholders; Investments; Securities; Stock exchange; *also* New York stock exchange

Stokers, Mechanical

Automatic regulation for underfeed stokers. D. C. Hess. Power 52:439-40 S 14 '20

Automatic stokers; with discussion. A. W. Bennis. Engineering 112:91-2 J1 15 '21

Burning more coal to increase boiler capacity. T: Wilson. diags Power 53:924-7 Je 7 '21

Capacity and efficiency limitations of stokers using Mid-West coals. J: E. Wilson. Mech Eng 43:536-7+ Ag '21; Abstract. Power 53: 912 My 31 '21

Chain-grate stoker operation. W. M. McNiell. Power 52:810-11 N 23 '20

Changed stoker lineshaft. A. M. Stiles. diags Power 51:781 My 11 '20

Changing a hand-fired to a stoker-fired plant; Utica steam and Mohawk Valley cotton mills. C: T. Main. il plans Power 53:954-7 Je 14 '21

Coal crusher installed as part of automatic stoker. diags Elec R 79:443 S 17 '21

Developing the chain-grate stoker. H. F. Gauss. diags Power 51:144-6 Ja 27 '20

Development and application of the underfeed stoker. E: Rahm, jr. il diags Eng Soc W Pa 37:21-52; Discussion. 53-68 F '21

Stokers, Mechanical—Continued

- Development of the Pluto stoker for the utilization of low-grade fuels. O: Nerger. diags Mech Eng 42:632-3 N '20
- Draft resistance of underfeed stokers. A. Cotton. Power 53:874-5 My 31 '21
- Economical operation of locomotive stokers. diags plan Ry R 65:869-71 D 13 '19
- Economy of stokers and turbo generators. il Blast F & Steel Pl 8:252-5 Ap '20
- Fire without firemen. H. A. Mount. il Sci Am 123:202+ Ag 28 '20
- Fuel oil versus mechanical stokers. F. H. Daniels. Power 51:684-6 Ap 27 '20; Same cond. Iron Age 105:203-4 Ja 15 '20
- How to operate and maintain stokers on locomotives. C. M. Abell. Ry R 68:454-5 Mr 19 '21
- Illinois forced-draft chain-grate stoker. diags plan Power 50:660-1 O 28 '19
- Improving boiler room practice. R. June. il Textile World 59:3821+ Je 4 '21; Same, with table. Blast F & Steel Pl 9:386-8 Je '21
- Limitations of mechanical stokers utilizing Mid-West coals; abstracts. E: H. Tenney. Power 54:156-7 Jl 26 '21; Power Pl Eng 25:674-5 Jl 1 '21; Mech Eng 43:535-6 Ag '21
- McKenzie forced-draft chain-grate stoker. diags Power 52:860-1 N 30 '20
- Mechanical stoker and fuel economy in locomotives. F. P. Roesch. Ry Mech Eng 94:697-8 N '20
- Mechanical stokers. R. S. Riley. Power 53:11-13 Ja 4 '21
- Mechanical stokers aboard ship. C: H. Bromley. diags plans Power 51:86-9 Ja 20 '20; Abstract. Mech Eng 42:175-6 Mr '20; Abstract. Sci Am M 1:276-7 Mr '20
- Mechanical stokers and their operation. diags Power 52:391-5 S 7 '20
- Mechanical stokers for locomotives. W. A. Benson. Ry R 67:199-203 Ag 7 '20; Abstract. Génie Civil 78:422 My 14 '21
- Mechanical stokers reduce cost of generating power. Elec R 76:744 My 1 '20
- Middlewestern coal in underfeed stoker. T. N. Wynne. Elec W 75:495-6 F 28 '20
- New type underfeed stoker. il Power Pl Eng 25:934-6 S 15 '21
- Operating economy of stoker fired locomotives. D. F. Crawford. Ry Age 68:701-4 Mr 5 '20; Same. Ry Mech Eng 94:127-30 Mr '20
- Operation and maintenance of mechanical stokers. Ry R 67:455-7 S 25 '20; Same cond. Ry Mech Eng 94:623-5 O '20
- Operation of chain-grate stokers. F. J. Welch. Power 53:306 F 22 '21
- Performance of mechanical stokers. D: Brownlie. Engineering 109:426-8, 495-8 Mr 26, Ap 9 '20; Abstract, with discussion. Engineer 129:316-17, 379-81; 130:422 Mr 26, Ap 9, O 29 '20; Abstract. Blast F & Steel Pl 8:303-7 My '20
- Pulverized coal versus stoker firing. F. P. Coffin. Power 54:52-4 Jl 12 '21; Abstract. Mech Eng 43:612-13 S '21
- Reagan automatic stoker. il diags Power 50:759-60 N 25 '19
- Recording of ash-pit loss from chain-grate stokers; abstracts. E. G. Bailey. chart diags Elec R 78:967-72 Je 18 '21; Mech Eng 43:381-5 Je '21; Power 54:118 Jl 19 '21; Power Pl Eng 25:650-2 Jl 1 '21
- Remodeling stokers and furnaces adds to capacity. T. A. Marsh. diags Elec W 77:196-7 Ja 22 '21
- Report of committee on mechanical stokers. Ry Age 68:1633-8 Je 10 '20; Ry R 66:966-7 Je 12 '20
- Small maintenance charge with mechanical stokers. diags Elec R 79:101-2 Jl 16 '21
- Stoker for burning eastern coals; abstracts. L. R. Stowe. il diag Mech Eng 42:279-82 My '20; Coal Age 17:1195-9 Je 10 '20; Power Pl Eng 24:792-4 Ag 15 '20
- Stowe forced-draft stoker. il Power 52:624-6 O 19 '20
- Two new Detroit underfeed stokers. il Power 54:418-19 S 13 '21
- Ultimate boiler capacity limited by stoker conditions. J. Harrington. il Elec R 78:451-3 Mr 19 '21

- United traveling-grate stoker. il diags Power 53:670-1 Ap 26 '21
- Use of auxiliary air jets with underfeed stokers. il Power 54:174-5 Ag 2 '21
- Use of mechanical stokers in generating plants. Elec W 78:223 Jl 30 '21

Advertising

- Sales argument in story form. Ptr Ink 115:101-4 Je 23 '21

Stone, Charles Augustus, 1867-

- Portrait. Elec W 77:132 Ja 15 '21

Stone

- Service the final test of quality of road stone. H. E. Breed. Munic Eng 58:51-2 F '20
- Stone in 1918. G. F. Loughlin and A. T. Coons. map U S Geol S Min Res of U S 1918,pt 2:1189-1313 '20
- Stone in 1919. G. F. Loughlin and A. T. Coons. U S Geol S Min Res of U S 1919,pt 2:419-55 '21

See also Blasting; Building stone; Concrete stone; Granite; Limestone; Marble; Masonry; Pavements, Stone; Pulpstones; Quarries and quarrying; Road materials; Rocks; Sandstone

Stone, Artificial

- Manufacture of building stone out of cinder or slag. K. Bunte. Sci Am M 1:231 Mr '20
- New process for plating artificial stone with metal. Sci Am M 1:112 F '20

See also Concrete stone

Stone, Crushed

- Commercial sizes of broken stone and broken slag for highway construction. Eng & Contr 54:5 Jl 7 '20
- Marshall county, Iowa, crushes stone for primary roads. Munic Eng 61:sup26+ O '21
- Modern rock crushing and storage system. D. C. Findlay. il diags plans Concrete 19:sup17-23 Ag '21

Stone cutting

- Mechanical aids for the sculptor; modern machine tools for carving and cutting marble. G. Van der Veer. il Sci Am S 88:288 N 15 '19

Stonehenge

- Recent light on Stonehenge. Sci Am 124:423 My 28 '21
- Reconstructing Stonehenge; work of preservation that may solve the origin of Britain's most mysterious ruin. H. J. Shepstone. il Sci Am 123:308+ S 25 '20
- Stonehenge guarded against further collapse. il Pop Mech 33:847-8 Je '20
- Stonehenge ruins restored with concrete. il diags plan Concrete 19:124 S '21

Stones, Precious. See Precious stones**Stoneware**

- Chemical stoneware manufacture. C. H. Jones. il Chem & Met Eng 25:289-94 Ag 17 '21
- Note on the effects of firing temperatures on the strength of fire-clay and stoneware bodies. H. G. Schurecht. Am Cer Soc J 4:366-74 My '21
- Properties of some stoneware clays. H. G. Schurecht. il diags U S Bur Mines Tech Pa 233:1-38 '20
- Standardization of chemical stoneware; abstract. H. Nielsen. Am Cer Soc J 3:174-5 F '20

See also Glazes; Pottery

Advertising

- Advertising that keeps rival industries from encroaching on one another. Ptr Ink 111:80+ My 20 '20

Stop boxes

- Stops and stop waste boxes. diags Metal Work 93:50-1 Ja 9 '20

Stop watch. See Watches**Stoping methods. See Mining engineering****Stoppers. See Foundry ladles—Stoppers****Storage**

- Jig and fixture storage. il Am Mach 54:1005 Je 9 '21

Storage—Continued

Storing and handling of raw clays. T. W. Garve. diags plans Am Cer Soc J 3:266-85 Ap '20

See also Bins, Concrete; Coal storage; Cold storage; Explosives—Storage; Freight houses; Oil storage; Pattern storage; Road materials—Storage; Stores systems; Warehouses; Water storage

Storage batteries

A. B. C. of storage battery management. E. C. McKinnon. 95p Electrical press limited, London '20
Action of electrolyte and elements in a storage battery. L. W. Webb. diags Power 53:736-7 My 10 '21
Arrangement for quickly filling alkaline storage batteries. F. A. Reibert. diag Elec W 77:1489 Je 25 '21
Automobile battery care and repair. H. P. Manly. 335p F. J. Drake & co., Chicago '20
Battery floating voltage should be 2.12 to 2.14 per cell. Elec W 75:680-1 Mr 20 '20
Battery service manual. D. D. Blanchard. 170p U. P. C. book co. '20
Calculating battery sizes for locomotives. J. H. Tracy. il Elec W 77:1417-19 Je 18 '21
Care of storage batteries. J. Brooke. Power Pl Eng 24:941-2 O 1 '20
Drying storage battery plates. il Chem & Met Eng 24:267 F 9 '21
Effect of temperature and specific gravity on storage-battery operation. L. W. Webb. Power 53:836 My 24 '21
Estimation of nitrates and nitrites in battery acid. L. B. Sefton. U S Bur Stand Tech Pa 149:1-10 '20
Features in storage-battery operation. L. W. Webb. diags Power 53:1013 Je 21 '21
Filler for storage batteries indicates when proper level is reached. A. Sheinaus. diag Elec W 77:774 Ap 2 '21
Hard rubber parts of storage batteries. il India Rubber W 63:248 Ja '21
How to open a storage-battery cell. J. H. Henderson. il Elec W 77:1257-8 My 28 '21
Important to maintain motor truck efficiency. Metal Work 94:246-7 Ag 20 '20
Manufacture and care of automobile storage batteries. J. T. Burt-Gerrans. il diags Can Chem & Met 5:257-60 S '21
New high capacity storage battery. C. W. Hazelett. il Am Electrochem Soc Trans v 39 (preprint 12):89-94 Ap '21
New non-liquid storage battery of durable construction. Automotive Ind 43:157 Jl 22 '20
Operation and care of vehicle-type batteries. il diags plan U S Bur Stand Circ 92:1-94 '20; Excerpts. Power 52:276-7 Ag 17 '20
Placing a storage battery in and out of commission. L. W. Webb. Power 54:142-3 Jl 26 '21
Pointers on maintenance and use of Edison batteries. A. Pace. Elec W 76:641-2 S 25 '20
Rating of storage batteries. Soc Auto Eng J 9:70-1; Discussion. 71-2 Jl '21
Reactions of the lead accumulator. D. A. MacInnes, L. Adler and D. B. Joubert. diag Am Electrochem Soc Trans v 37 (preprint 27):383-90 Ap '20
Romance of invention. C. H. Claudy. Sci Am 124:230+ Mr 19 '21
Scrap value of old storage batteries. M. Melia. Elec W 77:888 Ap 16 '21
Size of central station storage battery. L. Etshokin. diags J Elec 44:226-7 Mr 1 '20
Specifications for starting and lighting storage batteries for military automobile and truck service. India Rubber W 63:327-8 F '21
Storage batteries. C. J. Hawkes. 157p The Wm. Hood Dunwoody industrial institute, Minneapolis '20
Storage batteries for emergency service. C. J. Welcke. il diags Power 51:715-18 My 4 '20
Storage batteries for use with farm lighting plants. il Elec R 79:675 O 29 '21
Storage batteries simplified. 115p American automobile digest, Cincinnati '20

Storage battery development on the Pacific slope. India Rubber W 62:668 Jl '20
Storage battery equipment important design problem. D. D. Blanchard. Automotive Ind 44:1281-3 Je 16 '21
Storage battery for sewer work. il diag Eng N 85:249-50 Ag 5 '20
Storage battery in relation to power supply schemes. A. S. Barnard. Electrician 85:13-14 Jl 2 '20
Storage battery manual. L. C. Dunn. 391p United States naval institute, Annapolis '20
Storage-battery practice in central-station service. J. L. Woodbridge. diags Elec R 77:674-8 O 30 '20
Utilizing energy accumulators in connection with hydraulic power stations; abstract. D. Riccia. Elec W 77:610-11 Mr 12 '21
Voltage variations in operation of storage batteries. L. W. Webb. diags Power 54:48-9 Jl 12 '21
What a plumber should know about electricity. G. W. Hill. Dom Eng 90:629-30+; 91:387-8 Mr 27, My 29 '20

See also Electric batteries

Charging

Amusing incident in the charging of storage-battery locomotives. A. Palmros. Coal Age 17:1208-9 Je 10 '20
Automatic battery-charging equipment for locomotives. il Coal Age 17:591 Mr 25 '20; Same. Iron Tr R 66:1002 Ap 1 '20
Battery charging boards for electric trucks. il Elec R 79:106 Jl 16 '21
Battery charging for industrial trucks and tractors. C. A. Rohr. il Gen Elec R 24:322-4 Ap '21
Battery protecting device. diag Automotive Ind 43:716 O 7 '20
Booster saves energy in charging storage batteries. L. R. West. diag Elec W 77:264 Ja 29 '21
Central station opportunity. R. W. Goddard. diags J Elec 45:129-30 Ag 1 '20
Cutler-Hammer automatic charging section for electric trucks. il Elec R 76:587 Ap 3 '20
Economical method of charging storage batteries. il diags Elec R 78:503-4 Mr 26 '21
Electric vehicle charging equipments. E. Austin. il diag Automobile Eng 11:22-4 Ja '21
Electric vehicle progress at Birmingham; a new battery-charging station. il Elec R (Lond) 88:804-5 Je 24 '21
Electrolytic rectifier for charging storage batteries. T. W. Benson. diags Pop Mech 33:459 Mr '20
New device for charging automobile batteries. il Elec R 79:636 O 22 '21
Overcharging battery 100 per cent reduces life 15 per cent. P. L. Rittenhouse. Elec W 75:788 Ap 3 '20
Problem course in electricity. H. H. Bliss. diags J Elec 46:520-2 My 15 '21
Recharging storage batteries. H. Cunningham. Coal Age 17:874 Ap 29 '20
Simple improvement in truck-battery charging saves \$36 a year. C. Auty. diag Elec W 77:1053-4 My 7 '21
Small rectifier for charging storage batteries. A. A. Kluge. diags Wireless Age 7:24-5 F '20
Storage-battery maintenance systems for good operation. A. Pace. Elec W 76:932-3 N 6 '20
Telephone battery charging with tungar rectifiers. Elec R 79:485-6 S 24 '21

Cleaning

Storage-battery cell cover remover. il Coal Age 17:494 Mr 11 '20

Manufacture

Economical forming of storage batteries. il diags Automotive Ind 44:1211-12 Je 9 '21
Hand work important factor of storage battery manufacture. J. E. Schipper. il Automotive Ind 45:18-20 Jl 7 '21
Porous metals for storage battery plates. Sci Am M 4:311 O '21
Punching storage-battery insulating sheets. C. O. Herb. il diags Mach 28:8-10 S '21

Storage batteries—Manufacture—Continued

Rubber and wood parts hold up battery production. Elec W 75:1028 My 1 '20
 Uses of wood in lead accumulators. T. E. Green. Elec R (Lond) 88:304-5 Mr 11 '21
 Works of the Chloride electrical storage co.; developments in secondary battery manufacture. il Electrician 84:220-2 F 27 '20

Repair

New cell connector speeds storage-battery repairs. il Pop Mech 35:916 Je '21
 Routing storage batteries through a repair shop. H. C. Heidrich. il Elec W 77:831-2 Ap 9 '21
 Small accumulator defects and their remedies. Elec R (Lond) 88:471 Ap 15 '21

Standards

Storage batteries; S. A. E. Standards report. diags Soc Auto Eng J 8:175-7 F '21

Terminology

Operation and care of vehicle-type batteries; glossary. U S Bur Stand Circ 92:82-94 '20

Testing

Cadmium electrode for storage-battery testing. H. D. Holler and J. M. Braham. U S Bur Stand Tech Pa 146:1-15 '19
 Checking condition of motive-power storage batteries. R. W. Ritter. Elec W 78:25-6 Jl 2 '21
 Instantaneous current and voltage values in a battery. G. W. Vinal and C. L. Snyder. Soc Auto Eng J 8:319-27+ Ap '21
 Locating battery troubles with high-rate discharge test. R. W. Ritter. Elec W 77:998-9 Ap 30 '21
 Shimmying the storage battery. il Sci Am 124:514 Je 25 '21
 Testing storage batteries. L. W. Webb. diag Power 54:452-4 S 20 '21
 Tests of storage batteries used on mine locomotives. il Pop Mech 36:7 Jl '21

Storage battery cars. See Motor cars (railroad)—Storage battery

Storage battery jars

Machines for making battery jars—Willard's machine and process; Boyer's machine. diags India Rubber W 63:258-9 Ja '21
 Manufacture of battery jars. diags India Rubber W 62:721-3 Ag '20

Standards

Electric vehicle storage battery jars; S. A. E. Standards report. Soc Auto Eng J 8:174-5 F '21

Storage battery locomotives. See Electric locomotives, Storage battery

Storage-battery trucks. See Electric trucks

Store buildings

Fyfe store building, Detroit, Mich.; views and plans. Arch Forum 32:pl 90-2 Je '20
 Group of stores at Southern Pines, N.C. il plans Arch Forum 34:227 Je '21
 Health in mercantile establishments; common sanitary defects in stores. A. B. Emmons. J Ind Hygiene 3:29-36 My '21
 Innovations in small store design. il plans Arch Forum 34:135-8, pl 58-9 Ap '21
 Small store and apartment groups. il plan Arch Forum 35:65-6, pl 28-30 Ag '21
 Small suburban store building at Southboro, Mass. il plan Arch Forum 32:177 Ap '20
 Store building for Pennell, Gibbs & Quiring co., Boston, Mass.; views and plan. Am Arch 119:389, 391, 393 Mr 30 '21
 Two-story store and office building at Englewood, New Jersey. il diags plans Bldg Age 42:22-4 Ja '20
 When the chain store gets on the avenue. E: T. Tandy. il Ptr Ink M 2:27-8+ F '21
 Windows—the setting for your merchandise. E. Falkner. il Ptr Ink M 2:32-4+ My '21

See also Department stores; Store fronts

Heating and ventilation

Multiple occupancy heating. H. E. Branch. il Gas Age 45:145-8 F 10 '20

Lighting

Central station methods for securing high lighting standards in old stores. O. R. Hogue, J. J. Kirk and E. D. Tillson. il diags plans Illum Eng Soc 15:704-8 no 9 '20; Same. Elec R 77:912-14 D 11 '20; Discussion. Illum Eng Soc 15:715-22 no 9 '20
 Department store illumination. J. Daniels. Illum Eng Soc 15:709-15 no 9 '20; Same. Elec R 78:251-3 F 12 '21; Discussion. Illum Eng Soc 15:715-22 no 9 '20
 Interesting store lighting installations at Rochester, N.Y. F. C. Taylor. il diags plans N E L A Bul 7:284-6 My '20
 Light can be used for selling goods in very much the same manner as type is used for selling goods. J. E. Bullard. Am Gas Eng J 112:61-2 Ja 24 '20

See also Show windows—Lighting

Store fixtures

Store equipment in period design; the Welch-Wilmarth lines. 29p Grand Rapids, Mich. '21

Store fronts

How to construct a store front. il diag Bldg Age 43:29 Je '21
 Newer Fifth avenue retail shop fronts. J: T. Boyd, jr. il Arch Rec 49:458-87 Je '21

Store papers. See House organs

Storehouses

Unique institutional building; the elevator storehouse, Blackwells Island, New York city. B: W. Levitan. il diags plans Am Arch 117:415-23 Mr 31 '20

Stores (retail trade)

See also Company stores; Cooperative stores; Department stores; Electric shops (retail trade); Retail trade; Show windows; Store buildings; also Sears, Roebuck & company, Philadelphia

Location

How chain stores tell which locations are most profitable. E. M. Wickes. il Ptr Ink M 3:29-30+ Jl '21

Stores, Traveling. See Traveling stores

Stores systems

Accurate methods in keeping stock records. F. J. Huntley. Automotive Ind 44:125-8 Ja 20 '21
 Accurate stock records maintain plant efficiency. Automotive Ind 43:172-4 Jl 22 '20
 Basic principles of stores organization. L. F. Boffey. Administration 1:11-18 Ja '21
 Cadillac stock-room methods. il Mach 26:501-2 F '20
 Caring for the stock. il J Elec 43:503-5 D 1 '19
 Checking mistakes in stock records. R. Stott. Foundry 48:49-50+ Ja 15 '20
 Combination bonus and production control. C. E. Woods. chart Administration 1:243-5 F '21
 Continuous stores keeping cuts investment. il plan Iron Age 108:253-4 Ag 4 '21
 Elements of inventory control. C. E. Woods. charts Administration 2:181-214 Ag '21
 Eliminating excess stock. P: F. O'Shea. Ind Management 61:207 Mr 1 '21
 Following stock with a piece of gingham. Factory 25:698 S 1 '20
 Following up the delivery of raw material. G. H. Eveland. Factory 24:273 F 1 '20
 Getting along with less maintenance material. P. M. Atkins. Factory 26:1406-8 Je 15 '21
 Handling stock to cut production delays. W. Lyon. Factory 25:1419-21 N 1 '20
 How a plant in Finland handles a purchasing problem. S. Setälä. Factory 25:1215 O 15 '20
 How do you regulate materials? H: H. Farquhar. il Am Mach 53:101-4, 151-2 Jl 15-22 '20
 How our sales records tell us what to buy. E. C. Peck. Factory 26:1297-9 Je 1 '21
 How stockroom methods eliminated machine delays. H. C. Hall. Factory 26:1065 My 1 '21
 How to arrange and keep repair parts stock systematically. Motor Age 37:20 Ap 1 '20

Stores systems—Continued

- How to increase the rate of turnover in merchandise. J Elec 47:351-2 N 1 '21
- How to obtain monthly material inventories. P. M. Atkins. Factory 26:587-90 Mr 1 '21
- How to save stock in the forge shop. E. T. Lanham. il chart Am Mach 51:1009-10 D 11 '19
- How to systematize the stock room. W. A. Fink. il diags Dom Eng 92:374-6+; 93:351-2+, 553; 94:340-1 Ag 21, N 20, D 18 '20, F 12 '21
- How we house and control 300,000 patterns. H. M. Latham. il Factory 24:1161-4 Ap 15 '20
- How we make storekeeping pay. J. A. Mac-Crea. il Factory 26:340-1 F 1 '21
- Improving warehouse efficiency; horizontal storage of iron and steel products. K. H. Lansing. il diags Iron Tr R 68:1108-10 Ap 21 '21
- Inventories in stores keeping. H. B. Twyford. Iron Age 105:813-14 Mr 18 '20
- Keeping a perpetual stock inventory. A. S. Keast. Foundry 47:919 D 15 '19
- Keeping repair parts stock. il chart Motor Age 37:19-21 Mr 11 '20
- Lincoln motor production plan. I. J. Beatty. Factory 25:38-41 Jl 1 '20
- Making it easy to trace materials. L. E. Dodd. il diags Factory 27:330-2 S '21
- Material control for the small industrial plant. H. C. Haskell. Ind Management 62:271-3 N '21
- Mechanical department stores accounting. T. Kennedy. Elec Ry J 56:717-20 O 9 '20
- Modern production methods; accounting for supplies. W. R. Basset. Am Mach 54:398-402 Mr 10 '21
- Modern production methods; need for systematic stock keeping. W. R. Basset. il Am Mach 52:1003-8 My 6 '20
- Modern purchasing methods for pulp and paper mills. N. P. Winchell, jr. Paper 26:14-15 Jl 14; 19-21+ Jl 28 '20
- Modern stores system proves successful in strip mill. H. R. Simonds. Iron Tr R 66:1197-1202 Ap 22 '20
- Ninety minutes from order to shipment. il Factory 26:1310-11 Je 1 '21
- One man receives and issues stock. P. F. O'Shea. Am Mach 54:1036 Je 16 '21
- Organizing modern stores department system simple, with few form cards. M. H. Potter. Iron Tr R 65:1586-8 D 11 '19
- Pegs that keep track of stock. il Factory 25:555 Ag 15 '20
- Plugging leaks in the stock room. W. G. Asple. Textile World 58:663+ Jl 31 '20
- Purchasing and storeroom accounting. L. H. Werner. Am Gas Assn Accounting sec v 2:100-28; Discussion. 128-34 '20
- Reason why: tool store is a necessity. W. J. Hiscox. Electrician 86:665 My 27 '21
- Receiving and delivering shop stores. H. B. Twyford. Iron Age 105:469-71 F 12 '20
- Rules and systems; keeping tools and supplies in order for immediate use. E. Matzan. Power Pl Eng 24:1140-1 D 1 '20
- Six ways to simplify stockroom routine. V. C. Kreuter. il Factory 27:192-4 Ag '21
- Special steps in stores control. S. C. Folks. Administration 1:625-33 My '21
- Spot-light on materials in process. G. P. Extrom. Factory 25:699-701 S 1 '20
- Standard stock sheets for storekeepers. Ry Age 67:1074 N 28 '19
- Stockroom records and practice. il Elec Ry J 54:861-2 N 8 '19
- Storehouses for chemical plants. F. D. Hartford. diag plan Ind Management 59:196-8 Mr '20
- Storeroom equipment and its use. H. B. Twyford. il Iron Age 105:597-9 F 26 '20
- Stores accounting as a means to stock regulation. R. A. Weston. charts Elec Ry J 56:779-83 O 16 '20
- Stores engineering. M. T. Montgomery. il chart Eng Soc W Pa 36:641-73 Ja '21; Excerpt. Blast F & Steel Pl 9:106-9 Ja '21; Excerpts. Iron Age 108:194-6 Jl 28 '21; Discussion. Eng Soc W Pa 36:674-82 Ja '21
- Substantial and convenient tool storage rack. il diags plan Am Mach 55:560-2 O 6 '21
- Tool system that speeds production. W. J. Burger. Factory 26:458-60 F 15 '21
- Trends in management; wanted—reducing exercises for overweight inventories. Factory 25:1719 D 1 '20
- Wall map that keeps track of stock. il Factory 24:633 Mr 1 '20
- Worth while considerations in stock record keeping. F. E. Merriam. il Ind Management 62:199-205 O '21
- See also* Pattern storage; Railroads—Stores systems
- Storm detectors**
- Wireless storm detector for the central station. H. T. Wade. il diags Sci Am M 1:18-21 Ja '20
- Storm King highway**
- Storm King highway. il Pub Works 48:263-9 Ap 3 '20
- Storm King road. J. F. Springer. il Sci Am 124:485+ Je 18 '21
- Storms**
- Tidal storm at Corpus Christi and its effect on engineering structures. T. Bartlett. il map Eng N 83:848-52 N 13 '19
- See also* Cyclones; Meteorology; Rain and rainfall; Snow; Thunderstorms; Tornadoes
- Stoughton, Bradley**
- Bradley Stoughton; an appreciation. H. V. Winchell. Min & Met 174:7-8 Je '21
- Bradley Stoughton resigns secretaryship of the Institute. por Min & Met 174:6-7 Je '21; Coal Age 19:1047 Je 9 '21
- Stove pipes**
- Making stove pipe a science. il diags Metal Work 93:387-8 Mr 26 '20
- Stove rings**
- Die for curling stove rings J. Bingham. diags Mach 27:375-6 D '20
- Stove trade**
- Prosperous year for stove trade and bright outlook. L. W. Van Cleave. Metal Work 93:674-6 My 28 '20
- You can sell many stoves; people still need them. Metal Work 94:317-18 S 3 '20
- Stove trimmings**
- Die for curling right-angle stove trimmings. J. Bingham. diag Mach 27:440 Ja '21
- Stoves**
- Coal range is gas and coke producer. il Pop Mech 33:2 Ja '20
- Combination range for cooking by electricity and coal. il Elec R 79:635-6 O 22 '21
- Good furnace and good range make the home. il diags plans Metal Work 93:41-4 Ja 9 '20
- Protecting stove tops from rust. diags Foundry 48:104-7 F 1 '20
- Tests to determine the efficiency of coal stoves. J. R. Allen and F. B. Rowley. diags Am Soc Heat & V E J 26:119-26 Ja '20; Discussion. 26:249-50 Mr '20
- See also* Electric stoves; Gas stoves; Oil stoves
- Stoves, Briquet.** *See* Briquet stoves
- Stoves, Electric.** *See* Electric stoves
- Stoves, Steel**
- Corrosion of steel ranges. O. W. Storey. Am Electrochem Soc Trans v 39 (preprint 3): 13-21 Ap '21
- Stoves, Thermix.** *See* Heaters, Catalytic
- Stowage**
- Stowage of ship cargoes. T. R. Taylor. bibliog diags U S Bur For & Dom Com misc ser 92:1-350 '20
- Straightedges**
- Accuracy of straightedges of cast iron. M. H. Ball. diag Am Mach 53:732-3 O 14 '20
- Care of cast-iron straightedges. E. A. Dixie. il diags Am Mach 52:1341-2 Je 24 '20
- Level and straightedge tool for ditching and grading. diags Pop Mech 34:295-6 Ag '20
- Straightening machines**
- Combined straightening press, arbor press and truing-up machine. il Iron Age 106:397 Ag 12 '20

Straightening machines—Continued

Metalwood crankshaft-straightening presses. J. V. Hunter. *il diags Am Mach* 53:256-8 Ag 5 '20

Straightening machines for round stock and stampings. *il Iron Age* 107:126 Ja 13 '21

Strain gages

New torsion strain meter. E. H. Lamb. *il diags Engineering* 111:279-80 Mr 11 '21

Strain gauges and methods of using them in Niagara arch revision. C. E. Fowler. *il diag Eng & Contr* 54:275-7 S 22 '20

See also Strainagraph

Strainagraph

Strainagraph and its application to concrete ships. F. R. Mc Millan. *il diags Int Marine Eng* 25:588-93 Jl '20

Strainers

Good water-line strainer. J. R. Webb. *il Power* 51:560 Ap 6 '20

Straining of circulating water. *diags Engineering* 109:679 My 21 '20

See also Screens

Strains and stresses

Airplane stress analysis. A. F. Zahm and L. H. Crook. *diags U S Nat Advisory Com for Aeronautics* 1919:797-870 '20

Analysis of combined wall and interior column footings. N. E. Helff. *diag plan Can Eng* 39:203-4 Jl 29 '20

Broader use of Johnson's formula for repeated stresses. J. B. Kommers. *diag Eng N* 83:942-4 N 27 '19

Calcul des hourdis rectangulaires supportant des charges excentrées. P. Caufourier. *diags Génie Civil* 79:345-8 O 22 '21

Le calcul des portiques continus. Benabeng. *Génie Civil* 79:167-71, 187-91, 203-7 Ag 20-S 3 '21

Calcul des poutres à treillis double avec membrures parallèles et montants verticaux sur les appuis seulement. L. Légens. *diags Génie Civil* 79:326-8 O 15 '21

Calcul des poutres à treillis double avec montants verticaux sur les appuis seulement. B. de Fontviolant. *diags Génie Civil* 78:29-33 Ja 8 '21

Calculation of stresses in a rectangular plate. H. W. Sibert. *Mech Eng* 42:249-50 Ap '20

Calculation of stresses in winding-drum flanges. J. S. Watts. *diag Am Mach* 53:1130-1 D 16 '20

Calculation of stresses in wood trusses. M. S. Farwell. *diags Arch Forum* 34:133-4 Ap '21

Call for a practical view in structural teaching. E. Godfrey. *diags Eng N* 84:948-9 My 13 '20

Case of initial tension. R. Fleming. *diags Eng & Contr* 53:320-4 Mr 24 '20

Chart for determining safe loads of round steel columns. J. S. Watts. *chart Mach* 26:761-2 Ap '20

Circular arch under normal loads. W. Cain. *Am Soc C E Pro* 47:285-300 O '21

Combined stresses. V. M. Summa. *diags Mach* 26:463-4 Ja '20

Combined stresses on reinforced concrete sections. E. Montgomery. *diags Can Eng* 40:331 Mr 24 '21

Comparison of theories of elongation and of shear stress. H. Bonte. *diags Mech Eng* 43:193-4 Mr '21

Contact pressures and stresses. E. G. Coker, K. C. Chakko and M. S. Ahmed. *diags Engineering* 111:373-6, 387-9, 439-40, 471-3 Mr 25-Apr 15 '21; Same cond. *Engineer* 131:328-30 Mr 25 '21; Discussion. *Engineering* 111:364-5 Mr 25 '21; *Engineer* 131:325, 463-4 Mr 25, Ap 29 '21

Contraction in long buildings. O. H. Mengerling and E. V. Meyer. *diags Concrete* 17:60-2 Ag '20

Cross-relations of strengths of metals in tension, compression, torsion and transverse loading. G. B. Upton. *Sibley J* 35:129-33 S '21

Dangerous stresses from falling loads on floors. J. W. Ledoux. *Eng N* 84:873. Ap 29 '20

Design of riveted connections to resist moment. W. M. Wilson and F. E. Richart. *diags Eng & Contr* 53:590-2 My 26 '20

Design of simple reinforced concrete structural members. H. W. Barker. *diags Concrete* 18:285-7 Je '21

Determination of fiber stress caused by force fits. S. R. Cummings. *diags Mech Eng* 42:533-4 S '20

Determinations of the stress-deformation relations for concretes under repeated and continuous loadings. G. M. Williams. *il Am Soc T M Pro v* 20 pt 2:233-49 '20; Same cond. *Eng & Contr* 54:190-2 Ag 25 '20; Summary. *Eng N* 85:81 Jl 8 '20; Discussion. *Am Soc T M Pro v* 20 pt 2:250-65 '20

Determining stresses by polarized light. G. W. Hall and A. L. Kimball, jr. *il diag Sci Am M* 3:49-53 Ja '21

Diagrams for reactions and bending moments of beams. R. Burnham. *Eng N* 83:956-7 N 27 '19

Eccentric loading in rigid frames. F. E. Richart. *diags Eng N* 84:331-2 F 12 '20

Effect of repeated reversals of stress on double-reinforced concrete beams. W. A. Slater, G. A. Smith and H. P. Mueller. *il diags U S Bur Stand Tech Pa* 182:1-51 '21

Effects of holes, cracks and other discontinuities in ships' plating. E. G. Coker and A. L. Kimball. *diags Marine Eng* 25:910-14 N '20; Same. *Engineering* 109:840-2 Je 18 '20

Effects of scratches in materials. E. G. Coker. *Engineering* 112:81-2 Jl 8 '21; Same. *Eng & Ind Management* 6:145 Ag 11 '21; Abstract. *Engineer* 132:60 Jl 15 '21

Les efforts dus à la dilatation dans les conduites forcées des usines hydro-électriques. E. Baticle. *diags Génie Civil* 78:82-4 Ja 22 '21

Empirical formula for curved bars and some notes on design. E. H. Wood. *diags Sibley J* 35:30-1 F '21

Engineering relations of shock and fatigue. W. Rosenhain. *Automotive Ind* 42:1293-6 Je 10 '20

Das entstehen von spannungen bei der wärmebehandlung. W. Tafel. *diags Stahl & Eisen* 41:1321-8 S 22 '21

Failure of metals through the action of internal stress irregularities with special reference to tool steels. J. N. Greenwood. *il Engineering* 111:535-7 Ap 29 '21

Failure of metals under internal and prolonged stress. *Engineer* 131:371-2, 396-8, 427-8 Ap 8-22 '21; *Engineering* 111:429-32, 443-5 Ap 8-15 '21; *Elec R (Lond)* 88:793-4 Je 17 '21; *Mech Eng* 43:398-400 Je '21; Discussion. 43:476-8 Jl '21

Failure of metals under internal and prolonged stress. W. Rosenhain. *Engineer* 131:477-9, 523-4 My 6-13 '21; Same (pt. 1). *Eng & Contr* 55:642-4 Je 29 '21

Fatigue in metals under repeated stress. H. F. Moore. *il diag W Soc E J* 24:331-6; Discussion. 336-40 Je '19

Fatigue of metals under repeated stresses. H. F. Moore and J. B. Kommers. *il diags Blast F & Steel Pl* 8:368-72 Je '20; Same cond. *Iron Age* 105:1595-8 Je 3 '20; Excerpts. *Soc Auto Eng J* 8:417-18 My '21; Abstract. *Iron Tr R* 66:1615-16 Je 3 '20

Fereday-Palmer stress recorder. *il diags Engineering* 109:138-9 Ja 30 '20

Fuselage stress analysis. E. P. Warner and R. G. Miller. *diags U S Nat Advisory Com for Aeronautics* 1919:715-25 '20; Same. *Aerial Age* 11:119-22 Ap 5 '20

Graphical and mechanical analyses of frames. F. E. Richart and W. M. Wilson. *diags Eng & Contr* 53:700-2 Je 23 '20

Impact stresses. *Engineering* 112:189-90 Jl 29 '21

Influence of the modulus ratio on reinforced concrete stresses. W. C. Popplewell. *diags Engineer* 128:628-31 D 26 '19

Influence of various factors on the rise of longitudinal internal stresses due to rapid cooling of steel cylinders; abstract. M. Portevin. *diags Mech Eng* 42:118-19 F '20

Internal service-strains in steel. J. E. Howard. *Chem & Met Eng* 25:275-8 Ag 17 '21; Excerpts. *Engineering* 111:693 Je 3 '21; Same. *Eng & Ind Management* 6:157-8 Ag 11 '21

Strains and stresses—Continued

- Internal stresses in brass tubes. R. H. N. Vaudrey and W. E. Ballard. *il Engineering* 111:421; Discussion. 430-2 Ap 8 '21
- Internal stresses in relation to microstructure. J. C. W. Humfrey. *il diags Engineering* 111:419-20; Discussion. 430-2 Ap 8 '21
- Investigation of strains in rolling of metal. A. Musso. *diags Mech Eng* 41:937-8 D '19; Same. *Iron Tr R* 65:1512-13 D 4 '19
- Kraftwirkungsfiguren in flusseisen, dargestellt durch ein neues aetzverfahren. A. Fry. *Stahl & Eisen* 41:1093-7, pl 5-6 Ag 11 '21; Abstract (Strain figures in etched steel). *Engineering* 122:809-11 D 16 '21
- Latticing of compression members. R. Fleming. *diags Eng & Contr* 56:173-7 Ag 24 '21
- Loading test of 18-ft. circular concrete grain bin. P. J. Hansen. *diags Eng N* 84:316-17 F 12 '20
- Mechanism of failure of metals from internal stress. W. H. Hatfield. *Engineering* 111:435; Discussion. 430-2 Ap 8 '21
- Method of calculating the strength of slabs. A. Ingerslev. *diags Engineering* 112:209-11, 245-6 Ag 5-12 '21
- Moments in columns and girders of building frames due to vertical loads. W. M. Wilson and F. E. Richart. *diag Eng & Contr* 53:93-4 Ja 28 '20
- Moments in external columns of a building. W. M. Wilson and F. E. Richart. *diags Eng & Contr* 53:205-6 F 25 '20
- Navy dirigible hangar at Lakehurst a huge structure. *diags plans Eng N* 84:892-7 My 6 '20
- Neuere forschungen über kerbwirkung, insbesondere auf optischem wege. E. Heyn. *diags Stahl & Eisen* 41:541-6, 611-17 Ap 21, My 5 '21
- New design data for cement slabs. *il Am Arch* 119:287-91 Mr 9 '21
- New specification for net section of riveted tension members. C. R. Young. *diags Can Eng* 39:427 O 14 '20
- Non-ferrous metal failures under stress. *Iron Age* 107:1233-4 My 12 '21
- Overhead line considered as a mechanical structure; calculating mechanical stresses in transmission lines. A. Still. *il diags Elec R* 77:589-95 O 16 '20
- Photo-elastic and strain measurements of the effects of circular holes on the distribution of stress in tension members. E. G. Coker, K. C. Chakko and Y. Satake. *il diags Engineering* 109:259-64, 298 F 20-27 '20
- Photoelasticity for engineers. E. G. Coker. *il diags Gen Elec R* 23:870-7, 966-73; 24: 82-8, 222-6, 455-66 N '20-Ja, Mr, My '21
- Prevention of season cracking in brass by the removal of internal stress. H. Moore and S. Beckinsale. *diag Engineering* 111: 665-6 My 27 '21
- Primary stress-determination in space frames. R. V. Southwell. *diags Engineering* 109:165-8 F 6 '20; Same. *Eng & Contr* 53: 371-5 Mr 31 '20
- Proposed investigations in structural engineering. W. M. Wilson. *W Soc E J* 26:289-96 Ag '21; Same. *Eng & Contr* 55:512-14 My 25 '21
- Provisional working stresses for steel columns. C. R. Young. *Can Eng* 38:169-70 Ja 29 '20
- Rapid determination of true net sections of riveted tension members. C. R. Young. *diags Eng & Contr* 54:188-9 Ag 25 '20; Same. *Can Eng* 39:512-13 N 11 '20
- Reduction of girder and column live loads. C. R. Young. *diags Can Eng* 39:565-9 D 2 '20; Same. *Eng & Contr* 54:610-13 D 22 '20
- Reinforced concrete design standards. C. A. P. Turner. *il diags Concrete* 17:152-5 N '20; Discussion. E. Godfrey. 17:205-6 D '20
- Reinforced concrete sawtooth slab design. J. W. Pearl. *diag Concrete* 17:163-4 N '20
- Reinforcement for diagonal tension in reinforced concrete beams. E. Godfrey. *diags Concrete* 17:15-20 Jl '20; Discussion. 17: 116-19 O '20
- Reinforcing steel I-beams for bending. *diags Can Eng* 39:225-6 Ag 5 '20
- Relation between deflections and stresses in arch dams. F. A. Noetzli. *diags Am Soc C E Pro* 47:261-84 O '21
- Relation between static and dynamic stresses in girder spans for smooth rolling loads. F. W. Gardiner. *diags Eng & Contr* 54: 605-8 D 22 '20
- Reliability of materials and mechanism of fractures. C. De Fremenville. *il diags Mech Eng* 42:207-12 Ap '20; Same. *Chem & Met Eng* 22:983-7 My 26 '20
- Le renversement des efforts dans les barres de treillis des tabliers métalliques à travées solidaires. A. Talon. *Génie Civil* 78:257-8 Mr 19 '21
- Repeated-stress safety factors quickly determined. J. B. Kommers. *Eng N* 85:393-4 Ag 26 '20
- Resistance of ductile materials to combined stresses in two or three directions perpendicular to one another. H. M. Westergaard. *il diags J Fr Inst* 189:627-40 My '20
- Safe loads and deflections for gunite slabs. *il Can Eng* 39:525-9 N 18 '20
- Scientific study of railway track under load; second progress report. *Ry Age* 68:670-3, 775-9 Mr 5-12 '20; *Eng N* 84:406-13 F 26 '20; *Eng & Contr* 53:289-96 Mr 17 '20; *Elec Ry J* 55:704-6 Ap 3 '20
- Season-cracking of brass and other copper alloys. H. Moore, S. Beckinsale and C. E. Mallinson. *il Engineering* 112:262-4, 297-9, 327-30 Ag 12-26 '21; Abstracts. *Chem & Met Eng* 24:976-80 Je 1 '21; *Engineer* 131: 264 Mr 11 '21; *Iron Age* 107:913 Ap 7 '21; *Metal Ind* 19:155 Ap '21; Discussion. *Engineering* 111:300-1 Mr 11 '21; *Engineer* 131: 264 Mr 11 '21; *Iron Age* 107:913-14 Ap 7 '21
- Shearing stresses in timber trestle stringer. *Eng N* 87:119, 419 Jl 21, S 8 '21
- Simple stress diagram for rolling loads. N. G. Kapp. *diags Engineering* 109:35 Ja 9 '20
- Strain-energy function and the elastic limit. B. P. Haigh. *il diags Engineering* 109: 158-60 Ja 30 '20
- Stray points in structural steel design. R. Fleming. *diags Eng N* 84:1040-2, 1104-7 My 27-Je 3 '20
- Strength and suitability of engineering materials. C. F. Jenkin. *Engineering* 110:290-2 Ag 27 '20; Same cond. *Engineer* 130:200-1 Ag 27 '20; Excerpt. *Eng & Contr* 54:305-7 S 29 '20; Abstract. *Electrician* 85:299-300 Ag 27 '20
- Strength of bolts in timber. H. J. Finebaum. *diags Eng & Contr* 56:77-8 Jl 27 '21
- Strength of Cardan shafts; abstract. A. Johnson. *Mech Eng* 42:524-5 S '20
- Strength of the reinforced thin-plate beam, held at its ends, and subject to a uniformly distributed load—special case. B. C. Laws. *diags Philos Mag* 6th ser 42:281-7 Ag '21
- Stress determination by means of the Coker photo-elastic method. A. L. Kimball, jr. *il diags Gen Elec R* 24:73-81 Ja '21
- Stress distribution in engineering materials. *il diags Engineering* 109:25-6, 64-5 Ja 2-9 '20
- Stresses caused by cold-rolling. H. M. Howe and E. C. Groesbeck. *diags U S Bur Stand Tech Pa* 163:1-8 '20; Same. *Am Soc T M Pro v* 20 pt 2:31-7; Discussion. 38-43 '20
- Stresses in anchor chains. *Engineer* 129:48-9 Ja 9 '20
- Stresses in bolted and riveted joints. V. M. Summa. *diags Mach* 26:730-1 Ap '20
- Stresses in brackets and their bolts. V. M. Summa. *diags Mach* 27:239-41 N '20
- Stresses in flat plates. *diag Can Eng* 40:443-4 My 5 '21
- Stresses in horizontal pipes on rigid saddles. T. B. Parker. *Eng N* 87:306-9 Ag 25 '21
- Stresses in portals and similar structures. T. C. Broom. *diags Engineer* 130:368-9, 393-4, 417-18 O 15-29 '20
- Stresses in ships plating due to fluid pressure. B. C. Laws. *diags Engineering* 112:368-9 S 9 '21; Same. *Eng & Ind Management* 6:350-4

Strains and stresses—Continued

- S 29 '21; Excerpt. Engineer 132:287 S 16 '21; Discussion. Engineering 112:405-6, 410, 486, 540 S 16, 30, O 14 '21
- Stresses in stack guys. diags Marine Eng 26: 709-10 S '21
- Stresses in steelwork. S. Bylander. Eng & Contr 55:659-60 Je 29 '21
- Study of stresses in eyebar heads in chain bridges. J. Beke. diags Eng N 87:234-8 Ag 11 '21; Discussion. J. M. Paris. 87:621 O 13 '21
- Tension tests of materials. E. G. Coker. il diags Engineering 111:1-4, pl 1 Ja 7 '21
- Torsion on rectangular cross-sections. C. R. Young. diags Can Eng 40:315-18 Mr 24 '21; Excerpts. Eng & Contr 55:415-16 Ap 27 '21
- True stresses in rectangular steel bars. N. B. Hunt. Mach 27:77-8 S '20
- Two dimensional stresses in rectangular plates. C. E. Inglis. Engineering 112:523-4 O 7 '21
- Wind bracing in the steel frames of office buildings. W. M. Wilson and F. E. Richart. diags Eng & Contr 53:314-16 Mr 24 '20
- Wind stresses in mill building bents. F. E. Richart and W. M. Wilson. diags Eng & Contr 53:477-9 Ap 28 '20
- See also* Bridge design; Bridges—Load; Building; Columns; Deformations (mechanics); Earth pressure; Earthquakes and building; Elastic limit; Elasticity; Fatigue in metals; Flexure; Girders; Graphic statics; Load (mechanics); Rails—Stresses; Riveting; Roofs; Ships—Strains and stresses; Strain gages; Strength of materials; Torque; Torsion; Trusses; Wind pressure
- Strasbourg, France**
- Le port de Strasbourg; son développement et son avenir. Génie Civil 78:238-9 Mr 12 '21

Public works

- L'organisation municipale de la ville de Strasbourg. A. Antoine. Génie Civil 77: 453-6 D 4 '20
- Stratford-on-Avon**
- New aluminum works in Shakespeare's birth-place. Metal Ind 18:83-4 F '20
- Straus, S. W., and company**
- Banking house of S. W. Straus & co. Arch & Bldg 53:65, pl 125-31 Ag '21
- Creating a new investment center in New York. il plans Am Arch 120:637-43, pl 650a-h, 663 Je 22 '21

Straw

- Analysis of straw pulp. E. Heuser and T. Blasweiler. Paper 28:22+ J1 13 '21
- Fuel gas made from straw interests government. Pop Mech 34:658 N '20
- Plant that makes gas from straw on farms. il Pop Mech 36:410-11 S '21
- Producer gas from harvest waste. S. R. Winters. il Sci Am 123:523 N 20 '20
- Production of gas by the destructive distillation of straw. H. E. Roethe. il Power 52: 853-4 N 30 '20
- See also* Dyes and dyeing—Straw

Straw board. *See* Paper board

Stray currents

- Electrolysis of concrete. il diags Eng & Contr 52:611-12 N 26 '19; Same. Can Eng 38:199-200 F 5 '20
- Leakage resistance of street railway roadbeds and its relation to electrolysis of underground structures. E. R. Shepard. il diags U S Bur Stand Tech Pa 127:1-39 '19
- Measurement of earth currents. B. McCollum. il diags Elec Ry J 58:809-13 N 5 '21
- Nature of earth-current, and a new method of measuring the resistance of the ground. S. Sano. diags Sibley J 33:86-9+ S '19
- See also* Eddy currents

Stream flow

- Centralized stream-flow records would be helpful. B. E. White. Elec W 76:1073 N 27 '20
- Comparison of stream flow at two separate stations. H. W. Dennis. Eng & Contr 55: 563-4 Je 8 '21

Differential method for drawing stream rating curves. C. C. Jacob. Eng N 85:666 S 30 '20

Early measurements of rainfall and stream flow. Eng N 86:379 Mr 3 '21

Estimating river-flow from rainfall records. J. E. E. Craster. Engineering 109:4-5 Ja 2 '20; Same cond. Eng & Contr 53:367-8 Mr 31 '20

L'étude de l'écoulement en déversoir à l'aide de la chronophotographie. il diag Génie Civil 77:18-19 J1 3 '20

Improved weir for gaging in open channels. C. Herschel. il diags Mech Eng 42:83-8+ F '20; Same. Eng & Contr 53:265-8 Mr 10 '20; Same cond. Eng N 84:710-12 Ap 8 '20

Maximum flow of streams in the state of New York. E. H. Sargent. Eng N 85:879 N 4 '20

Measurement of the discharge of the Nile through the sluices of the Assuan dam. M. MacDonald and H. E. Hurst. Engineering 111:499-500 Ap 22 '21; Same. Engineer 131:542 My 20 '21; Same. Eng & Contr 55:646-7 Je 29 '21

Measuring river flow for hydro-electric plant operation. R. D. De Wolf. charts Power 52:361-3 S 7 '20; Same cond. Eng & Contr 55:32-3 Ja 12 '21

Photographing the stream lines in flowing water; abstract. Elec W 76:1225 D 18 '20

Rainfall and stream flow. N. L. Devendorf. Power 54:86-7 J1 19 '21

La régularisation des débits des rivières du Massif Central par l'installation de barrages-réservoirs; abstract. P. Morin. Génie Civil 78:447 My 21 '21

Snow surveying for the forecasting of stream flow. J. E. Church, jr. il Eng N 86:244-8, 300-4 F 10-17 '21

Study of stream flow: a comparison between the flow as observed at two separate points on the Kern river, California; abstract. H. W. Dennis. Am Soc C E Pro 47:39-40 Ap '21

Sur les formes géométriques des cours d'eau. P. Dupont. diags Génie Civil 76:13-14 Ja 3 '20

Telephone as a water-flow gage. A. G. Vestal. il Sci Am 122:303+ Mr 20 '20

Time units in flow-duration curves. M. R. Stackpole. Eng N 87:250 Ag 11 '21

Water-flow characteristics of rivers; abstract. Elec W 76:1179 D 11 '20

See also Water flow

Stream measurement

Automatic recording apparatus for stream discharge. G. H. Moore. diags Eng N 85: 1124-5 D 9 '20; Discussion. 86:521-2, 779-80 Mr 24, My 5 '21

Car for current-meter gaging stations. G. H. Ellis. diags Eng N 84:80 Ja 8 '20

Development and use of the long distance water-stage recorder. R. C. Rice. il diag Eng & Contr 53:647-8 Je 9 '20

Stream gauging methods and uses. Pub Works 48:168-9 Mr 6 '20

See also Current meters; Stream flow; Water flow

Stream pollution. *See* Water pollution

Street accidents

Notice of time of injury from defect in street. J. Simpson. Pub Works 48:468-70 My 29 '20

Problems and principles of public safety. C. M. Talbert. Elec Ry J 56:773-5 O 16 '20

Street lighting and traffic accidents. W. Harrison. charts Elec R 75:605-6 O 11 '19; Same (without charts). Sci Am S 88:307 N 22 '19; Same cond. Illum Engr 12:286 O '19

See also Automobile accidents; Street railroads—Accidents

Street car conductors. *See* Street railroads—Employees

Street car lighting. *See* Car lighting

Street car trailers. *See* Street cars—Trailers

Street cars

Adapting cars to transportation requirements. il Elec Ry J 57:994-6 My 28 '21

Street cars—Continued

Canadian railway club considers tramway operation. D. E. Blair. Elec Ry J 57:403-4 F 26 '21

Car as a transportation salesman. N. Litchfield. il plans Elec Ry J 58:491-8 S 24 '21

Car development in Boston. Elec Ry J 57:689 Ap 9 '21

Car equipped to operate power plow. il Elec Ry J 58:208-9 Ag 6 '21

Car operation from the motorman's standpoint. J. Johnson. Elec Ry J 57:413 F 26 '21

Center-entrance cars in Germany. il Elec Ry J 56:1153 D 4 '20

Construction of semi-steel, front-entrance side-exit cars. M. O'Brien. il Elec J 18:468-9 O '21

Converting old summer trailers into closed cars. il diag Elec Ry J 55:1266 Je 19 '20

Cutting energy costs in Seattle. S. E. Goodwin. Elec Ry J 56:1233-5 D 18 '20

Economies in car operation. F. R. Phillips. Elec Ry J 54:1039-42; Discussion. 1042-6 D 27 '19

Electrification at Edinburgh; gasoline motor buses and electric railway cars replace cable operation. R. S. Pilcher. il Elec Ry J 58:12-14 Jl 2 '21

Getting the utmost of the cars. Elec Ry J 56:1283-6 D 25 '20

Is the non-electric street railway car a serious possibility? F. C. Cusani. Elec Ry J 55:893-5 My 1 '20

Italian car design experience; "all standee" car is unpopular. il diag Elec Ry J 54:909-10 N 15 '19

Latest type of double-deck car. il Elec Ry J 56:862 O 23 '20

Little Rock joins in rebuilding cars. il diag plan Elec Ry J 57:1133-4 Je 18 '21

Maintenance practice of the Anglo-Argentine tramway. R. F. Apeseche. il chart map Elec Ry J 55:554-8 Mr 20 '20

Milwaukee's three-truck, two-man train declared successful. S. B. Way. il diags plans Elec Ry J 57:131-5 Ja 15 '21

Modifying open cars for prepayment service. il diags Elec Ry J 56:545-8 S 18 '20

New cars for San Francisco. il diags plan Elec Ry J 57:1174-5 Je 25 '21

New cars in Atlanta. il Elec Ry J 55:584 Mr 20 '20

New motor and trail cars for St. Louis. il diag plan Elec Ry J 56:551-2 S 18 '20

New motor cars and trailers for Geneva. il plan Elec Ry J 57:270 F 5 '21

New type car tried at Seattle. il Elec Ry J 56:1064 N 20 '20

Open cars changed to snow sweepers. il diags Elec Ry J 57:495-7 Mr 12 '21; Abstract. Génie Civil 78:535 Je 18 '21

Operating costs of various types of city cars. J. C. Thirlwall. il Gen Elec R 23:326-30 Ap '20

Petrol-driven tramcars for India. F. C. Coleman. il Ry R 66:202-3 F 7 '20

Portable instruction board to instruct motormen in operating circuits. il diag Elec Ry J 57:1176 Je 25 '21

Rebuilt cars relieve shortage. il Elec Ry J 57:398-9 F 26 '21

Relation of the equipment man to the sale of transportation. J. S. McWhirter. il Elec Ry J 58:489-91 S 24 '21

Sample car tried in Milwaukee. il Elec Ry J 55:954 My 8 '20

Sample car tried in San Francisco. il plan Elec Ry J 57:229 Ja 29 '21

Shop methods used in building cars. il Elec Ry J 54:920-1 N 15 '19

Standard types of city cars. W. H. Heulings, jr. Elec J 18:447-8 O '21

See also Car painting; Car seats; Electric railroads—Rolling stock; Street railroads

Inspection**See Car inspection****Lighting****See Car lighting****Lubrication**

Lubrication of electric railway equipment. Elec Ry J 56:1058-9 N 20 '20

Lubrication of rolling stock. L. W. W. Morrow. diags Elec Ry J 58:674-80 O 15 '21

Records

Master mechanic proves his worth; statistics of pull-ins and car defects tell graphic story of the efficiency of the master mechanic. Elec Ry J 57:1041 Je 4 '21

Repair

Cleaning trucks for overhaul. H. S. Day. il diag Elec Ry J 57:551-2 Mr 19 '21

Electric welding as a factor in reclamation of street cars. J. S. Dean. Elec J 18:483 O '21

How the equipment man can aid in reducing costs. P. V. C. See. il Elec Ry J 58:684-6 O 15 '21

Inspection and overhauling of city and inter-urban cars. W. W. Cook. Elec J 16:519-23 D '19

Kinks from the Des Moines shops. C. R. McMahon. diags Elec Ry J 56:374-5 Ag 21 '20

Maintenance practice of the Anglo-Argentine tramway. R. F. Apeseche. il Elec Ry J 55:978-82 My 15 '20

Remodels single-truck cars. il Elec Ry J 58:101 Jl 16 '21

Safety cars

Accidents lessened by safety cars. W. H. Burke. Elec Ry J 56:457-9 S 4 '20

Adaptability of the safety car to Canadian severe winter conditions. H. E. Weyman. Elec Ry J 57:266 F 5 '21

American electric railway transportation and traffic association 11th annual convention, Atlantic City, N.J.; report of the committee on safety car operation. C. W. Kellogg. Elec Ry J 56:816-18 O 16 '20

A.I.E.E. and W.S.E. discuss safety cars. Elec Ry J 57:173 Ja 22 '21

Australian railway experiences. P. J. Pringle. Elec Ry J 56:965 N 6 '20

Baltimore wants separate entrances and exits with one-man cars. L. H. Palmer. Elec Ry J 57:1005 My 28 '21

Baltimore's new type safety cars. L. H. Palmer. il plan Elec Ry J 58:400-1 S 10 '21

Battery cars changed to safety cars. R. H. Parsons. il Elec Ry J 56:311-14 Ag 14 '20

Changes in Kansas City safety-car design. diag plan Elec Ry J 54:998 D 20 '19

Connecticut company remodels cars for one-man operation. il Elec Ry J 57:956-7 My 21 '21

Development of the safety car. W. H. Burke. Elec Ry J 57:1129-31 Je 18 '21

Experience with the one-man car. C. D. Smith. Elec Ry J 58:20-1 Jl 2 '21

First of new safety cars arrive in Kansas City. il Elec Ry J 55:532 Mr 13 '20

Foot control of safety cars as exemplified by the Third avenue safety cars in New York. B. O. Austin. il diags Elec J 17:488-90 O '20

Grand Rapids safeties doing well. Elec Ry J 56:912 O 30 '20

Installing safety car control and air brake equipment. J. C. McCune. il Elec Ry J 55:1240-4 Je 19 '20

Madison design of one-man car. D. Montgomery. Elec Ry J 57:679 Ap 9 '21

Maintenance of air brake and safety car control equipment. J. C. McCune. il diags plan Elec Ry J 56:537-43 S 18 '20

Massachusetts commission restricts one-man car operation at railroad grade crossings. Elec Ry J 57:617 Mr 26 '21

Mechanical sanders for safety cars. H. E. Krouse. diag Elec Ry J 57:687 Ap 9 '21

More open cars converted for one-man operation. il Elec Ry J 57:1167-8 Je 25 '21

New safety car, the Osgood-Bradley. produced en masse. diags Elec Ry J 55:983-6 My 15 '20

New standard type of safety car suggested. W. T. Thorn. plan Elec Ry J 56:549-50 S 18 '20

No reason to change standard Birney safety car design. W. H. Heulings, jr. Elec Ry J 57:850 My 7 '21

Street cars—Safety cars—Continued

North Shore line adopts safety cars. il diag Elec Ry J 55:762-3 Ap 10 '20
 Number of one-man cars increases 15-fold. Elec Ry J 55:1105-7 My 29 '20
 One-man car approved by Milwaukee safety commission. Elec Ry J 58:570-1 O 1 '21
 One-man car in its present relation to operating and maintenance costs. W. G. Gove. Elec Ry J 57:1128-9 Je 18 '21
 One-man car operation discussed at 24th quarterly meeting of New York electric railway association. Elec Ry J 57:641-3 Ap 2 '21
 One-man car operation discussion at 39th annual meeting of New York electric railway association. Elec Ry J 57:1125-6 Je 18 '21
 One-man cars attacked in Massachusetts, Connecticut and Iowa. Elec Ry J 57:565 Mr 19 '21
 One-man cars for interurban service; the Cincinnati, Milford & Blanchester traction company. C. T. Dehore. il Elec Ry J 57:982-4 My 28 '21
 One-man cars in Australia. Elec Ry J 55:1206 Je 12 '20
 One-man cars made from open type. il Elec Ry J 57:361-4 F 19 '21
 One-man cars proposed for New York city. Elec Ry J 55:870-1 Ap 24 '20
 One-man cars saved Tampa. Elec Ry J 58:338 Ag 27 '21
 One-man operation attacked. Elec Ry J 58:299 Ag 20 '21
 One-man operation saves \$110,000 in Davenport, Iowa il Elec Ry J 58:727-8 O 22 '21
 One-man rear-exit cars. il diag Elec Ry J 57:940 My 21 '21
 One-man street cars equipped with safety panels. il Elec R 76:651-2 Ap 17 '20
 One-man trolley that runs on short headway. il Sci Am 122:335+ Mr 27 '20
 1,376 safety car equipments ordered during first quarter. Elec Ry J 55:782-3 Ap 10 '20
 Possibilities of street car operation. E. M. Walker. Elec Ry J 55:692-3 Ap 3 '20
 Progress of the one-man safety car. H. L. Brown. Elec Ry J 57:177-9 Ja 22 '21
 Real service in a city of 30,000. C. T. Dehore. il Elec Ry J 57:179 Ja 22 '21
 Rebuilding a safety car. E. M. Walker. il Elec Ry J 56:1140 D 4 '20
 Report of the committee on safety car operation of the A.E.R.A. Elec Ry J 58:619-20; Discussion. 620-1 O 8 '21
 Results of safety car operation. J. C. Thirlwall. il Elec Ry J 56:642-6 O 2 '20
 Results of safety car operation in Waukegan, Ill. H. A. Johnson. Elec Ry J 57:174-5 Ja 22 '21
 Safety car. W. D. Bearce. il diag plan Gen Elec R 23:597-605 Jl '20
 Safety car a successful merchandiser. N. H. Callard, jr. il plan Elec Ry J 55:203-5 Ja 24 '20
 Safety car design and application; discussion at Iowa electric railway association. Elec Ry J 55:1098-9 My 29 '20
 Safety car from the mechanical man's point of view. D. Newhall. Elec Ry J 55:294-5 F 7 '20
 Safety car next door to the North Pole; experience at Levis, Que. H. E. Weyman. il diag map Elec Ry J 55:699-703 Ap 3 '20
 Safety car operating results. C. L. Doub. il Elec J 18:477-80 O '21
 Safety car operation. H: S. Day and J. M. Dapron. il Elec Ry J 56:350-2 Ag 21 '20
 Safety cars built by Texas railway. il Elec Ry J 58:693 O 15 '21
 Safety cars discussed at New England street railway club. Elec Ry J 56:1193-5 D 11 '20
 Safety cars in Birmingham. Elec Ry J 55:905-6 My 1 '20
 Safety cars in Trenton. Elec Ry J 56:264 Ag 7 '20
 Safety cars make good in Oakland. Elec Ry J 58:314 Ag 27 '21
 Safety devices of the safety car. J. C. McCune. il diag Elec Ry J 55:788-93 Ap 17 '20; Excerpt. Sci Am M 2:88-9 Jl '20

Safety devices on Bay State cars. W. C. Bolt. Elec Ry J 57:1175 Je 25 '21
 Safety panels for safety cars. il diag J Elec 45:246 S 1 '20
 Selling the safety car in Madison. il plan Elec Ry J 57:489-91 Mr 12 '21
 Side window curtains for safety cars. Elec Ry J 56:1062-3 N 20 '20
 Some safety car objections answered. G. F. Wells. Elec Ry J 54:983-5 D 20 '19
 Some thoughts from a utility leader of the South. H. L. Brown. Elec Ry J 55:41-2 Ja 3 '20
 Suggestion for new dimensions of safety car. J. K. Mann. Elec Ry J 56:978 N 6 '20
 Tendencies in safety car design. Elec Ry J 57:369-70 F 19 '21
 Trend of safety car construction. il diags Elec Ry J 57:127-30 Ja 15 '21
 Why alter the standard safety-car design? J. C. Thirlwall. Elec Ry J 57:735-7 Ap 16 '21; Discussion. 57:820, 961, 1047, 1092-3; 58:96 Ap 30, My 21, Je 4-11, Jl 16 '21
 Why not the one-man car? B. W. Arnold; R. M. Howard. Elec Ry J 57:646-7 Ap 2 '21
 Why the safety car has succeeded. McCune. Elec Ry J 57:265 F 5 '21
 Why the safety cars were installed in Terre Haute. E. M. Walker. Elec Ry J 56:1193; Discussion. 1193-4 D 11 '20
See also Car lighting; Car painting

Signs

Car signs and motorman's adjustable mirror used in Richmond. il Elec Ry J 55:1002 My 15 '20

Trailers

Chicago's first trail car under way. il Elec Ry J 55:830 Ap 17 '20
 Chicago's trial trailer completed. il diags plans Elec Ry J 56:110-14 Jl 17 '20
 Control trailers used in Washington. il diag Elec Ry J 58:433-4 S 17 '21
 New motor cars and trailers for Geneva. il plan Elec Ry J 57:270 F 5 '21
 One-way versus two-way trailers. Elec Ry J 55:1155-6 Je 5 '20
 Train operation in New Jersey. il diags plan Elec Ry J 57:319-21 F 12 '21

Street cleaning

Advantages and disadvantages of municipal street cleaning. E. B. Morden, J. W. Follin and J. H. Neeson. Eng N 85:357-8 Ag 19 '20
 City cleaning at Philadelphia. Eng N 85:291 Ag 12 '20
 Cleaning New York streets. Pub Works 48:395-6 My 8 '20
 Contract work vs. municipal forces in street cleaning. Eng & Contr 54:346-7 O 6 '20
 Street cleaning and related work in Philadelphia. J. W. Follin. Eng N 86:166 Ja 27 '21
 Street cleaning by municipal forces. Pub Works 49:127-9 Ag 7 '20
 Street cleaning in Cincinnati. Pub Works 50:504 Je 11 '21
 Street cleaning, refuse disposal and snow removal in Buffalo, N.Y. G: H. Norton. Munic Eng 58:21-2 Ja '20; Same. Can Eng 38:177 Ja 29 '20; Excerpt. Eng & Contr 53:25 Ja 7 '20
See also Cleaning of cities; Refuse collection; Snow removal; *also* International association of street cleaning officials

Cost

Comparative costs of street cleaning ash and garbage collection and disposal in 16 cities. Eng & Contr 55:142 F 9 '21
 Cost of street cleaning at Cincinnati, O. Eng & Contr 55:540 Je 1 '21
 Cost of street cleaning at St Paul, Minn. M. N. Goss. Eng & Contr 54:355 O 6 '20
 Electric vacuum street sweeper. diag Pub Works 51:156 Ag 20 '21
 Revenue changeable to public uses of water in the city of Rochester. S. B. Story. Am Water Works Assn J 7:872-3 N '20; Same. Eng & Contr 55:47-8 Ja 12 '21
 Street cleaning in St Paul. Pub Works 50:11-12 Ja 1 '21

Street cleaning—Cost—Continued

Street work in Fitchburg, Mass. Pub Works 49:475-6 N 20 '20

Street cleaning apparatus

Machine for filling snow sweeper brushes. il Elec Ry J 56:87-8 J1 10 '20

Street cleaning apparatus, Electric

Electric vacuum street sweeper. diag Pub Works 51:156 Ag 20 '21

Street cleaning apparatus, Motor

Auto vacuum cleaners keep city gutters clear of mud. il Pop Mech 35:399-400 Mr '21

Multiple-unit sweeper cleans streets. il Pop Mech 36:401 S '21

New York buys motor trucks by the hundred. Pub Works 49:240-1 S 11 '20

Some observations and facts concerning motor sweepers. J: T. Child. Pub Works 50:159-62 F 19 '21

Records

Forms for motor sweeper cost keeping. J: T. Child. Pub Works 48:417-19 My 15 '20

Street cleaning officials, International association of. See International association of street cleaning officials**Street decoration**

Notes from London. il plan Am Arch 116:491-502 O 15 '19

Street lighting

Allumeur-extincteur automatique de becs de gaz, système Bernard et Barbé. diags plan Génie Civil 78:254-6 Mr 19 '21

Alternating-current series street lighting circuits. H. E. Butler. il diags Gen Elec R 24:763-9 Ag '21

Architectural aspects of street lighting. J. W. Gosling. il diag Gen Elec R 24:701-15 Ag '21

Automatic cutout for incandescent street lighting. il Elec R 78:594 Ap 9 '21

Automatic protection of street lighting circuit. J. H. Robertson. diag Elec R 79:29 J1 2 '21

Characteristics of different street lighting systems. C: P. Steinmetz. Elec W 75:678 Mr 20 '20

Citizens appointed custodians of street lights. W. M. Hamilton. Elec W 77:1060 My 7 '21

Conduit return underground series system. N. B. Hinson. il J Elec 46:67-8 Ja 15 '21; Same cond. Elec W 77:206 Ja 22 '21

Constant-potential series systems for street lighting. C: P. Steinmetz. Am Inst E E J 39:245-8 Mr '20; Same. Elec R 76:105-8 Ja 17 '20

Cost of improved street lighting not the deciding factor. W. D. Jennings. il Elec W 78:869-71 O 29 '21

Developments in street lighting units (electric). A. D. Cameron and C. A. B. Halvorson. Illum Eng Soc 15:163-8; Discussion. 168-74 no 3 '20

Economy of efficient street illumination in cities. C. D. Salfield. Elec R 79:387 S 10 '21

Electrical system for a small town. C. A. Rosse. plan Power Pl Eng 24:1038 N 1 '20

Electrically operated switchgear for street-lighting control in Germany. Elec W 76:520 S 11 '20

Enclosed carbon arc lamps vs. novalux Mazda units. H. E. Butler. il diags Gen Elec R 23:534-49 Je '20

Evolution in street lighting. E. Thomson. Gen Elec R 24:686-8 Ag '21

Good street lighting a municipal necessity. E. A. Anderson. il Gen Elec R 24:755-9 Ag '21

Highway and thoroughfare lighting. W. L. Harraden. il diag Gen Elec R 24:760-3 Ag '21

Historical sketch of street lighting. P. S. Millar. bibliog il Illum Eng Soc 15:185-202 no 3 '20; Excerpt (Development of electric lamps). Elec R 76:770-1 My 8 '20

How to secure a better street lighting system at a reduced expense. F. Koester. il charts Munic Eng 58:201-4 My '20

Illuminating city street with searchlights at Oakland, Cal. il Elec R 78:249 F 12 '21

Intensive or super white-way lighting. W. D. Ryan. il diags Gen Elec R 24:692-700 Ag '21

Intensive street lighting. W. D'A. Ryan. il diags plan Gen Elec R 23:362-73 My '20

Luminous arc lamp. R. B. Hussey. il Gen Elec R 24:729-33 Ag '21

Magazine film cutout; the safety valve of the a-c. series street-lighting system. H. E. Butler. il Gen Elec R 24:752-4 Ag '21

Maintenance of street lighting. H: Nixon. Illum Eng Soc 15:308-13 no 5 '20

Mazda lamps for street lighting. G. H. Stickney. diags Gen Elec R 24:734-9 Ag '21

Multiple systems of distribution for street lighting. W. Harrison. il diags plan Am Inst E E J 39:7-12 Ja '20; Same cond. Elec R 76:102-5 Ja 17 '20; Same cond. Electrician 85:324-6 S 17 '20

New complete lighting system for Kansas City. Elec R 79:597 O 15 '21

New intensive street lighting. W. D'A. Ryan. il J Elec 44:151-2 F 15 '20

Present tendency in street lighting. Eng & Contr 54:452 N 3 '20

Principles of street lighting. L: Bell. Gen Elec R 24:689-91 Ag '21

Problems in ornamental street lighting. L. A. S. Wood. Elec R 77:241-2 Ag 14 '20; Same. Elec W 76:324-5 Ag 14 '20

Putting the street lamps into niches. il Sci Am 123:379 O 9 '20

Recent developments in gas street lighting. F. V. Westermaier. il Illum Eng Soc 15:175-82; Discussion. 182-4 no 3 '20

Regulation of street series lamps in practice on Milwaukee's system. F. A. Vaughn. il diag W Soc E J 25:374-403 J1 20 '20; Same cond. Elec R 77:236-9 Ag 14 '20

Relation between street lighting and crime. W. Harrison. Elec W 78:728 O 8 '21

Report of the Illuminating engineering society committee on progress. Illum Eng Soc 15:448-54 no 7 '20

Saratoga's variable lighting system. il Pub Works 48:180 Mr 6 '20; Elec R 76:432-3 Mr 13 '20

Series lighting transformers. T. Whyte. il diags Gen Elec R 24:744-51 Ag '21

Series system of street lighting distribution. W. P. Hurley. il diags Am Inst E E J 39:1-6 Ja '20; Same cond. Elec R 76:100-2 Ja 17 '20; Same cond. Electrician 85:326-7 S 17 '20

Street-lamp burn-outs prevented by relay scheme. J. H. Robertson. diag Elec W 77:995-6 Ap 30 '21

Street lighting and its effect on property values. C. H. Shepherd. il map Elec R 78:759-64 My 14 '21

Street lighting and traffic accidents. W. Harrison. charts Elec R 75:605-6 O 11 '19; Same (without charts). Sci Am S 88:307 N 22 '19; Same cond. Illum Engr 12:286 O '19

Street-lighting arc lamps changed over to incandescent type. M. H. Hummel. Elec W 78:222-3, 373 J1 30, Ag 20 '21

Street lighting discussed by A. I. E. E. at Chicago. Elec R 76:117-18 Ja 17 '20

Street lighting distribution systems. E. B. Meyer. il diags Gen Elec R 24:724-8 Ag '21

Street lighting improvements in London. il Electrician 85:478 O 22 '20

Street lighting schedules for 1921. Elec W 77:supp Ja 1 '21

Street lighting with low mounted units; Ken-sico dam roadway; with discussion. C. A. B. Halvorson and A. B. Oday. il diags plans Illum Eng Soc 15:153-62 no 3 '20

Street lighting with ornamental posts in Pasadena. il Elec R 77:916 D 11 '20

Trend of modern practice in street lighting. W. E. Underwood. charts il Elec R 76:980-3 Je 12 '20

Trend of practice in ornamental street lighting. A. J. Sweet. il Elec W 77:1246-8 My 28 '21

Types of circuits employed in street lighting. C. H. Shepherd. il diags plans Elec R 79:388-91 S 10 '21

Street lighting —Continued

Bibliography

List of selected references on street lighting, 1915-1921. W. F. Jacob and A. A. Slobod. Gen Elec R 24:770-7 Ag '21

Contracts

Street illumination tests and specifications for contracts. G. H. Stickney. Gen Elec R 24:722-3 Ag '21

Cost

Analysis of street-lighting costs. Elec W 76: 637 S 25 '20

Finance

Methods of financing street lighting. L. Friedmann. Gen Elec R 24:716-17 Ag '21
Street lighting expenditures. A. F. Dickerson. il map charts Gen Elec R 24:718-21 Ag '21

Street lighting fixtures

Glassware and posts for street-lighting service. C. H. Shepherd. il Elec R 79:51-5 JI 9 '21

Ornamental lighting for Cleveland parks. C. G. Beckwith. il diags Elec W 78:157-9 JI 23 '21; Same. Elec R 79:540-2 O 8 '21

Ornamental street lighting. L. A. S. Wood. il diag Elec J 17:195-7 My '20

Publicity to prevent breakage of street lamp globes. il Elec W 78:278 Ag 6 '21

Single light compared with cluster units for street lighting. S. L. E. Rose and H. E. Butler. il charts diags Gen Elec R 22:1044-55 D '19

Street lighting glassware. S. L. E. Rose. diags Gen Elec R 24:740-3 Ag '21

Topical lamp post. H. C. Kegley. il Sci Am 122:425+ Ap 17 '20

Street names

Street names. Eng & Contr 55:431-2 My 4 '21

Street openings

Old air drill cuts pavements for Los Angeles water-works. C. W. Geiger. il Eng N 85: 1083 D 2 '20

Repair of street openings. W. E. Rosengarten. il Good Roads n s 19:35-7, 44-5 Ja 28 '20

Street railroads

Bus, the trackless trolley or the trolley car for light traction—which? L. M. Aspinwall. Elec J 17:443-5 O '20

New rapid transit line in Cleveland. il maps Elec Ry J 56:204-8 JI 31 '20

Problem of mass transportation. E. Dana. Elec J 18:434-5 O '21

Rapid transit development at Berlin. E. C. Zehme. il chart maps Elec Ry J 56:17-20 JI 3 '20

Specifications of a successful street railway. W. S. Rugg. Elec J 17:430 O '20

Transit representatives hold conference at Cleveland to discuss various topics connected with transportation. Elec Ry J 57: 261-2 F 5 '21

Trolley car and the city man. E. Hungerford. il Elec Ry J 55:842-8 Ap 24 '20

Utah light & traction optimistic. il map plan Elec Ry J 58:347-51 S 3 '21

See also Electric railroads; Elevated railroads; Street cars; Subways; also names of cities, subhead Rapid transit; also International tramway and light railway association

Accidents

Accident record shows improvement. Elec Ry J 58:244 Ag 13 '21

See also Electric railroads—Accidents

Accounting

Adaptation of routine accounting results to particular uses. H. C. Hopson. Elec Ry J 58:705-7 O 15 '21

Construction accounting for street railways. R. H. Stevenson. Eng & Contr 56:284-5 S 21 '21

Service-at-cost accounting in Cleveland. H. J. Davies. Elec Ry J 56:765-9 O 16 '20

Utilizing figures to keep down costs. Elec Ry J 57:523-4 Mr 19 '21

Advertising

Brief-message car cards prove effective. Elec Ry J 56:81-2 JI 10 '20

Competition and co-operation. W. S. Rodgers. Elec Ry J 58:63-4 JI 9 '21

Improvements in transportation methods capitalized. il Elec Ry J 56:1295 D 25 '20

Merchandising transportation. W. H. Boyce. Elec Ry J 58:166-7 JI 30 '21

Next step in publicity work; suggestions on the proposed use of movies. Elec Ry J 56: 604-6, 726, 886, 933-4, 971, 1022-3, 1155-7 S 25, O 9, 23-N 13. D 4 '20

Railways find real publicity pays; demonstrations on National electric railway day catch public eye. il Elec Ry J 57:951-3 My 21 '21

Report of the committee on merchandising transportation of the American electric railway transportation and traffic association. Elec Ry J 58:644-5; Discussion. 645-7 O 8 '21

Sales work of electric railways. H. L. Brown. il Elec Ry J 58:61-3 JI 9 '21

Selling transportation at pageant. il Elec Ry J 58:360-1 S 3 '21

Trend in advertising the electric railway. E. E. Soules. Elec Ry J 58:748 O 22 '21

Claims

Importance of claim department statistics. J. H. Handlon. Elec Ry J 58:656-7 O 8 '21

No good comes from publicity in litigated cases. W. H. Moore. Elec Ry J 58:792 O 29 '21

Practical ideals for the claims department. H. K. Bennett. Elec Ry J 55:891 My 1 '20

Relation of the claim department to other departments. H. J. Connell. Elec Ry J 58: 525-7 S 24 '21

Cost

Keeping down the high cost of work. C. H. Clark. Elec Ry J 55:392-3 F 21 '20

Cost of operation

Bus and car costs compared. H. L. Andrews. Elec Ry J 58:769-71; Discussion. C. W. Stocks. 771-2 O 29 '21

Bus transportation field. C. W. Stocks. Elec Ry J 58:517-22 S 24 '21

Municipal tramways association 19th annual conference, Cardiff; operating costs; power expenses. A. L. C. Fell. Electrician 85:396-7 O 1 '20

Urban transportation field analyzed. J. C. Thirlwall. Elec Ry J 58:546-50 O 1 '21

Crossings

Bonded intersections recommended by Bureau of standards. Elec Ry J 58:391-3 S 10 '21

Convenient surface for crossings. il Elec Ry J 56:326 Ag 14 '20

Economical sectional pavement for crossings. A. Swartz. il diags Elec Ry J 56:1292-3 D 25 '20

Maintaining brick crossings. il diag Elec Ry J 58:16 JI 2 '21

Method of repairing brick paved crossing in street railway. diag Eng & Contr 56:369 O 19 '21

Curves and turnouts

Anent standard track spirals. W. T. Rossell; E. M. T. Ryder. Elec Ry J 55:658 Mr 27 '20

Present status of standard track spirals. plan Elec Ry J 55:335-8 F 14 '20

Employees

Descriptions of occupations; street railways. 23p '18 U.S. Bureau of labor statistics, Washington, D.C.

Don't hate your customers. P. S. Arkwright. Elec Ry J 57:771-3 Ap 23 '21

Educating apprentice track foremen. W. L. Whitlock. Elec Ry J 55:380 F 21 '20; Same. Eng & Contr 53:467-8 Ap 21 '20

Electric railway and welfare work. J. H. Alexander. il Elec J 18:453-7 O '21

Electric railway policy. G. Weston. W Soc E J 24:21-42 Ja 5 '20; Abstract. Elec Ry J 54:529-30 S 13 '19

Encouraging thrift. Elec Ry J 56:421 Ag 28 '20

Street railroads—Employees—*Continued*

- Essentials of a labor contract. E. Gruhl. Elec Ry J 55:96-101; Discussion. R. I. Todd. 92-4 Ja 10 '20
- Examination questions for trainmen. Elec Ry J 56:1294 D. 25 '20
- Five-cent fare as it affects the electric railway employees. A. A. Green. Elec Ry J 58:732 O 22 '21
- Four months' labor battle; railway at Albany refuses to compromise strike issue. Elec Ry J 57:1050 Je 4 '21
- Labor conditions on French railways and tramways. Monthly Labor R 10:895-7 Ap '20
- Merchandising transportation. W. H. Boyce. il Elec Ry J 57:1033-6, 1162-3 Je 4, 25 '21
- Methods of hiring and training men. H. S. Day. Elec J 17:447-51 O '20
- Picking men for jobs in the transportation department. H. H. Norris. Elec Ry J 58:607-8 O 8 '21
- Practical personnel work. W. H. Boyce. Elec Ry J 58:19-20 Jl 2 '21
- Relationship between management and men—a traffic factor. J. P. Barnes. Elec Ry J 58:480-3 S 24 '21
- Reorganizing after a strike. Elec Ry J 57:683-4 Ap 9 '21
- Report of the committee on personnel and training of transportation employees of the American electric railway transportation and traffic association. Elec Ry J 58:653-4 O 8 '21
- Study in human nature; reasons for labor turnover. Elec Ry J 58:731 O 22 '21
- Union wage rates per hour of street railway motormen and conductors on December 31, 1920. Monthly Labor R 12:982-8 My '21
- Wage reduction conference suggested by Detroit United railway. Elec Ry J 56:1300 D 25 '20
- Women street car conductors and ticket agents. U S Women's Bur Bul 11:1-90 '21
- See also Electric railroads—Employees; Street railroads—Wages; also Amalgamated association of street & railway employees of America

Equipment and supplies

- Hose bridges carried in trailer. A. Hughes, jr. il Elec Ry J 58:241-2 Ag 13 '21
- Outdoor machines save money in Cleveland. il Elec Ry J 56:582-4 S 25 '20
- Stores service has unrealized possibilities. M. T. Montgomery. charts Elec Ry J 56:62-4 Jl 10 '20
- See also Electric motors, Railway; Electric railroads—Equipment and supplies; Street cars

Fare collecting

- Accident reduction versus excessive concentration upon fare collection. Elec Ry J 57:689 Ap 9 '21
- Adjustable change carrier. il Elec Ry J 58:448 S 17 '21
- American electric railway transportation and traffic association 1920 annual convention, Atlantic City, N.J., report on collection and registration of fares. Elec Ry J 56:813-15 O 16 '20
- Fare box that makes change. il Elec Ry J 58:401-2 S 10 '21
- Handling increased fares mechanically. il Elec Ry J 55:892-3 My 1 '20
- Mobile has unique fare collection. Elec Ry J 56:885 O 23 '20
- New ticket for zone system. Elec Ry J 55:480 Mr 6 '20
- Positive interurban fare collection. il Elec Ry J 57:215-16 Ja 29 '21
- Street collection in Newark. Elec Ry J 56:1308 D 25 '20
- Street collection successful. il Elec Ry J 56:1293 D 25 '20
- Universal change maker. Elec Ry J 57:88 Ja 8 '21

See also Street railroad—Tickets

Fares

- Adjusting fare to length of ride plan Elec Ry J 57:670-6 Ap 9 '21

- Average street railway fare increased only 48% since 1913. A. S. Richey. Eng & Contr 55:267 Mr 16 '21
- Berlin's eight-ride punch ticket. il Elec Ry J 58:143 Jl 23 '21
- Boston Elevated trustees report on fares. Elec Ry J 57:782 Ap 23 '21
- Bright spot in the industry in Charleston. Elec Ry J 55:108-10 Ja 10 '20
- Cash from casuals, tickets from regulars. Elec Ry J 57:626 Ap 2 '21
- Decision against original cost theory. Elec Ry J 56:1122-3 N 27 '20
- Detroit back to five cents but charges one cent for transfer. Elec Ry J 58:32 Jl 2 '21
- Eight-cent fare made permanent on Chicago surface lines. Elec Ry J 56:1034-5 N 13 '20
- Eight-cent Jersey fare. Elec Ry J 58:717 O 15 '21
- Electric railway must not become anti-social. Elec Ry J 55:1269 Je 19 '20
- Fare changes and conductors' morale. Elec Ry J 57:1024 Je 4 '21
- Fare increases in New York. H. C. Clark. Elec Ry J 55:32-5 Ja 3 '20
- Fares and short-haul traffic. E. A. Roberts. diags Elec Ry J 57:896-7 My 14 '21; Excerpt. Eng & Contr 55:585 Je 15 '21; Correction. Elec Ry J 57:955 My 21 '21
- Fares increased in Milwaukee. Elec Ry J 54:891-5 N 15 '19
- Fares lower in Wisconsin than average in United States. Elec Ry J 57:199 Ja 22 '21
- Five and ten-cent Boston fares. E. Dana. il map Elec Ry J 58:47-8 Jl 9 '21
- Five-cent fare as it affects the electric railway employee. A. A. Green. Elec Ry J 58:732 O 22 '21
- Five-cent fare fast disappearing. Elec Ry J 56:99-100 Jl 10 '20
- Five cents flat or failure; Philadelphia Rapid transit appeals for relief. Elec Ry J 56:738 O 9 '20
- Future of the electric railway. E. G. Lewis. Elec Ry J 56:65-6 Jl 10 '20
- How do fares affect traffic? diag Elec Ry J 55:292 F 7 '20
- How the zone has made good at San Diego. map Elec Ry J 56:1009-12 N 13 '20
- Impairing and repairing street railway rates. W. H. Burke. Eng & Contr 56:160-2 Ag 17 '21; Abstract. Elec Ry J 58:94 Jl 16 '21
- Indianapolis and the 5-cent fare. E. T. Lewis. Elec Ry J 56:1143-4 D 4 '20
- More fares cut by Eastern Massachusetts company. Elec Ry J 57:1057 Je 4 '21
- Nine-cent fare in Davenport. Elec Ry J 56:521 S 11 '20
- Novel base for incentive. H. Barker. Elec Ry J 57:406 F 26 '21
- Our national fare experiment. L. S. Storrs. diags maps Elec Ry J 57:10-19 Ja 1 '21
- Philadelphia conditions analyzed. W. S. Twining. Elec Ry J 54:999-1002 D 20 '19
- Present value theory rejected; Galveston value fixed at \$1,500,000. Elec Ry J 57:571 Mr 19 '21
- Problem of the fare. A. S. Ashfield. Elec Ry J 58:312-14 Ag 27 '21
- Reduced fare in Cleveland. map Elec Ry J 58:130-1 Jl 23 '21
- Results of fare increase in Spokane. H. C. Bender. Elec Ry J 55:433-4 F 28 '20
- Round table conference on the electric railway problem. Elec Ry J 56:1014-16 N 13 '20
- San Antonio has an inbound-outbound zone. Elec Ry J 55:101-2 Ja 10 '20
- Selling rides in a city of 6,000; interesting experiment in selling twenty-five tickets for \$1 at Nelson, British Columbia. il Elec Ry J 57:895-6 My 14 '21
- Selling the zone fare idea in San Diego. Elec Ry J 56:269-70 Ag 7 '20
- Service at cost in Boston. J. F. Jackson. Elec Ry J 56:1141-4 D 4 '20
- Service at cost in Memphis. Elec Ry J 55:712-14 Ap 3 '20
- Sidelights on some fare situations; Toledo, Cleveland, Buffalo, Rochester, Syracuse and Utica. Elec Ry J 55:471-2 Mr 6 '20
- Six-cent fare in Cleveland. Elec Ry J 56:1035-6 N 13 '20
- Six cents in Los Angeles. Elec Ry J 57:1103 Je 11 '21

Street railroads—Fares—Continued

- Street railway rate tariff. W. H. Sawyer. Elec Ry J 57:677-9 Ap 9 '21
 Supreme court decides cities cannot enforce confiscatory transit fares. Comm & Fin Chr 112:1700-2 Ap 23 '21
 Ten-cent fare denied in Utica. Elec Ry J 58:535-6 S 24 '21
 Ten-cent fare in Connecticut. Elec Ry J 56:945 O 30 '20
 Ten-cent fare upheld in Pittsburgh. Elec Ry J 55:672 Mr 27 '20
 Unlimited-ride, transferable weekly pass at Racine, Wis. Elec Ry J 55:43-6 Ja 3 '20
 Weekly \$1 pass in Wisconsin. W. Jackson. Elec Ry J 58:203-5 Ag 6 '21
 Why do car fares differ? W. C. Culkins. Elec Ry J 55:710-11 Ap 3 '20
 Zone fare works well in San Diego. Elec Ry J 57:875-6 My 7 '21
 Zone fares successful in Holyoke. il Elec Ry J 55:749-54 Ap 10 '20
 Zones suggested for Los Angeles. Elec Ry J 58:756 O 22 '21
See also Electric railroads—Fares; Street railroads—Transfers

Finance

- Are street railways a real public utility? G. E. Tripp. Elec Ry J 55:25-9 Ja 3 '20
 Basis of financial recuperation. F. E. Frothingham. Elec Ry J 58:584-6 O 8 '21
 Big reduction in Interborough rapid transit company, New York, deficit. Elec Ry J 56:615-16 S 25 '20
 Budget plan in Cincinnati. W. C. Culkins. Elec Ry J 57:48-9 Ja 1 '21
 Buffalo reorganization details made public. Elec Ry J 56:383 Ag 21 '20
 Chicago surface lines' net increased. Elec Ry J 55:1073-4 My 22 '20
 Cincinnati director reports. chart Elec Ry J 56:454-6 S 4 '20
 Cleveland railway arbitration findings. Elec Ry J 55:71-2 Ja 3 '20
 Considerations affecting the market for street railway securities. H. M. Addinsell. Elec Ry J 58:592-4 O 8 '21
 Danger of disintegration removed. Elec Ry J 55:217-18 Ja 24 '20
 Depreciation reserve fund. W. Fish. Elec Ry J 55:239-47 Ja 31 '20
 Depreciation—some lessons from 5-cent fare history. J. R. Bibbins. Elec Ry J 55:90-1 Ja 10 '20
 Depreciation, with special reference to service-at-cost agreements. B. W. Warren. Elec Ry J 55:88-90 Ja 10 '20
 Extending benefits assessments to street railways. Eng N 85:594 S 23 '20
 Future of street railway financing. J. K. Newman. Elec Ry J 58:582-4 O 8 '21
 Glasgow has first deficit. Elec Ry J 56:516-17 S 11 '20
 Incentive for good management. T. Fitzgerald. Elec Ry J 55:1000-1 My 15 '20
 Investor and the electric railway. Elec Ry J 55:17-18 Ja 3 '20
 Kansas City railways receivership and its causes. Elec Ry J 56:734-6 O 9 '20
 Lessee and lessor at odds in Philadelphia. Elec Ry J 56:384 Ag 21 '20
 Manufacturer pays for trolley extension. Elec Ry J 57:1168 Je 25 '21
 Master's report condemns management contract in case of Columbus railway, power & light co. Elec Ry J 58:714-15 O 15 '21
 Milwaukee income increases. Elec Ry J 55:773 Ap 10 '20
 Municipal tramways association 19th annual conference, Cardiff; repairs and depreciation in relation to capital and revenue. J. Dalrymple; R. L. Horsfield. Electrician 85:397-8 O 1 '20
 New track and how it was financed in Gary. il diag Elec Ry J 58:321-3 Ag 27 '21
 One-man cars proposed for New York city. Elec Ry J 55:870-1 Ap 24 '20
 Philadelphia conditions analyzed. W. S. Twining. Elec Ry J 54:999-1002 D 20 '19
 Philadelphia director of transit reports. W. S. Twining. Elec Ry J 56:23-5 Jl 3 '20

- Philadelphia fares analyzed. chart Elec Ry J 55:812 Ap 17 '20
 Receiver appointed for Kansas City railways. Elec Ry J 56:567 S 18 '20
 Relief for the street railways. Nation's Business 8:34+ D '20
 Simplification of corporate structures. C. B. Cooke, jr. chart Elec Ry J 54:858-61 N 8 '19
 Street railways as an investment. R. W. Babson and O. W. Hill. Elec Ry J 58:601-2 O 8 '21
 Taxation for railway construction. L. B. Wehle. Elec Ry J 58:552-3 O 1 '21
 \$3,675,050 increase in gross shown by annual report. Elec Ry J 57:967 My 21 '21
 Twelve large companies compared. Elec Ry J 57:1053 Je 4 '21

See also Electric railroads—Finance; Public utilities—Finance; Street railroads—Accounting; Street railroads—Cost of operation; Street railroads—Fares; *also* Boston Elevated railway

Franchises

- Best plan for operating street railways. C. W. Culkins. Elec J 17:432-3 O '20
 British Columbia company seeks new franchise. Elec Ry J 58:217 Ag 6 '21
 City council of Dubuque, Ia. will consider new franchise. Elec Ry J 58:661 O 8 '21
 Cleveland's Tayler grant—after ten years of trial. E. Hungerford. il map Elec Ry J 55:1292-6 Je 26 '20
 Depreciation, with special reference to service-at-cost agreements. B. W. Warren. Elec Ry J 55:88-90 Ja 10 '20
 Des Moines franchise presented. Elec Ry J 58:709 O 15 '21
 Features of the new Paris franchise. Elec Ry J 57:847-9 My 7 '21
 Findlay service-at-cost grant upheld. Elec Ry J 57:1006 My 28 '21
 Franchise developments in 1919. Elec Ry J 55:23-4 Ja 3 '20
 Franchise modifications suggested in Cincinnati. Elec Ry J 58:67 Jl 9 '21
 Franchise revision advanced in Cincinnati. Elec Ry J 57:1139-40 Je 18 '21
 Graduated return to induce economy; proposed service-at-cost franchise for Akron lines. Elec Ry J 56:1072-3, 1120 N 20-27 '20
 Montreal service-at-cost plan. J. E. Hutcherson. Elec Ry J 57:264 F 5 '21
 Municipality's viewpoint in electric transportation. W. C. Culkins. Elec Ry J 55:10-13 Ja 3 '20
 New Akron franchise rejected. Elec Ry J 57:416 F 26 '21
 New franchise grant presented at Fresno, Cal. Elec Ry J 58:215 Ag 6 '21
 New franchise in effect; provisions of service-at-cost grant at Findlay, O. Elec Ry J 57:824 Ap 30 '21
 Norfolk debates franchise. Elec Ry J 58:215 Ag 6 '21
 Novel base for incentive; proposal to have it vary in service-at-cost franchises as fares vary from an established ratio of fares to money rates or commodity values. Elec Ry J 57:406 F 26 '21
 Ottumwa (Iowa) case unusual. Elec Ry J 57:1185 Je 25 '21
 Outlook for service-at-cost franchises. L. R. Nash. Elec Ry J 57:23-30 Ja 1 '21
 Public officials on service at cost; addresses at National municipal league in Indianapolis. Elec Ry J 56:1141-4 D 4 '20
 Rochester accepts new agreement. Elec Ry J 56:231-3 Jl 31 '20
 Service-at-cost accounting in Cleveland. H. J. Davies. Elec Ry J 56:765-9 O 16 '20
 Service-at-cost agitation renewed in Dallas. Elec Ry J 57:1051-2 Je 4 '21
 Service-at-cost contract franchise and state regulation. E. Dana. Elec Ry J 58:587-9; Discussion. 589-90 O 8 '21
 Service-at-cost franchises in effect in America. H. C. Clark. (N.Y. Legislative doc. 96) 157p J. B. Lyon co., printers, Albany '20
 Service-at-cost means co-operation. W. D. Mahon. Elec Ry J 57:317-18 F 12 '21

Street railroads—Franchises—Continued

- Service-at-cost recommended for Milwaukee. Elec Ry J 58:253-4 Ag 13 '21
 Service-at-cost results in Montreal. Elec Ry J 57:775 Ap 23 '21
 Sliding scale franchise at Duluth. Elec Ry J 57:609 Mr 26 '21

Bibliography

- Service-at-cost bibliography. M. P. Billingsley. Aera 8:494-501 N '19

Freight

- Teuton trolleys handle freight. H. Neumann. Elec Ry J 55:1062 My 22 '20
See also Electric railroads—Freight

Law

- Police power reserved to cities. Elec Ry J 54:1052 D 27 '19

Loops

- Universal loop for 118 cars an hour in Kansas City. il plan Elec Ry J 58:725-6 O 22 '21

Management

- Better transportation for Camden. il Elec Ry J 57:434-7 Mr 5 '21
 Canadian railway club considers tramway operation. D. E. Blair. Elec Ry J 57:403-4 F 26 '21
 Changes in Brooklyn rapid transit personnel. chart Elec Ry J 55:128-9 Ja 10 '20
 Economies in the transportation department. E. I. Anderson. Elec Ry J 56:592-3 S 25 '20
 Getting the utmost of the cars. Elec Ry J 56:1283-6 D 25 '20
 Going after business at the depot. W. M. White. Elec Ry J 56:225-6 Jl 31 '20
 Greater operating efficiency enables better merchandising of the service. F. G. Buffe. il Elec Ry J 58:475-80 S 24 '21
 How a street railway counts its receipts. A. P. Child. il Pop Mech 34:676-7 N '20
 Iowa electric railway association 16th annual convention, Omaha. Elec Ry J 55:1098-1100 My 29 '20
 Kansas City operation analyzed. diags Elec Ry J 56:702-5 O 9 '20
 Maintenance practice of the Anglo-Argentine tramway. R. F. Apeseche. il chart map Elec Ry J 55:554-8, 978-82 Mr 20, My 15 '20
 Making transportation serve—and sell. C. E. Morgan. il map Elec Ry J 58:499-504 S 24 '21
 Merchandising transportation. W. H. Boyce. Elec Ry J 56:83-4; 57:1033-6, 1162-3; 58:131-2, 353-5 Jl 10 '20, Je 4, 25, Jl 23, S 3 '21
 Merchandising transportation. F. G. Buffe. Elec Ry J 55:1251-4 Je 19 '20
 Philip J. Kealy of Kansas City—and his job. E: Hungerford. il map Elec Ry J 55:884-8 My 1 '20
 Report of the committee on merchandising transportation of the American electric railway transportation and traffic association. Elec Ry J 58:644-5; Discussion. 645-7 O 8 '21
 Saving transportation costs. H. F. Fritch. Elec Ry J 55:1311 Je 26 '20
 Service versus fares. J. W. Welsh. Elec J 17:435-6 O '20
 Shop and park notes from Spokane. il Elec Ry J 56:861-2 O 23 '20
 Staff organization of Winnipeg electric railway. chart Elec Ry J 56:969 N 6 '20
 Surface transportation in congested districts. J. A. Beeler. il diags Elec Ry J 56:652-6 O 2 '20
 Survival of the fitter at Terre Haute, Ind. il Elec Ry J 56:412-14 Ag 28 '20
 Utilizing figures to keep down costs. Elec Ry J 57:523-4 Mr 19 '21
 Waiting for a miracle to happen. E: A. West. Elec Ry J 56:67-71 Jl 10 '20
 Wanted—a transportation sales manager. W: L. Goodwin. il Elec Ry J 58:466-74 S 24 '21
See also Street railroads—Employees; Street railroads—Public relations

Motor bus auxiliaries

- Analysis of bus operation. Elec Ry J 58:777 O 29 '21

- Auxiliary motor bus lines to Akron railway. il Elec Ry J 58:565 O 1 '21
 Bus or retrack; a study on the place of the motor bus. W. Jackson. Elec Ry J 58:315-18 Ag 27 '21
 Bus route for Pennsylvania. il Elec Ry J 58:318 Ag 27 '21
 Bus transportation field. C. W. Stocks. Elec Ry J 58:517-22 S 24 '21
 Connecticut company to run buses. Elec Ry J 57:1179 Je 25 '21
 Electric railways operating motor buses. Elec Ry J 58:319 Ag 27 '21
 Motor bus versus trolley car in passenger and freight transportation. L. D. Miller; R. F. Fulton. Elec Ry J 56:1114 N 27 '20
See also Electric railroads—Motor bus auxiliaries

Municipal ownership

- Detroit muddles along. E: Hungerford. il maps Elec Ry J 56:162-7 Jl 24 '20
 Municipal ownership proposed for New York railways. Elec W 78:743 O 8 '21
 Municipal ownership urged. Elec Ry J 57:611 Mr 26 '21
 People's ownership plan declared feasible in Chicago. Elec Ry J 57:150-1 Ja 15 '21
 Public ownership league of America conference, Chicago. Elec Ry J 54:895 N 15 '19
 Wilcox issues statement. Elec Ry J 56:460 S 4 '20
See also Street railroads, Municipal

Platforms

- Baltimore tries loading platforms. il Elec Ry J 57:845-6 My 7 '21
 Permanent loading platforms in Washington. il diag plan Elec Ry J 57:85-6 Ja 8 '21

Public relations

- Electric railway and the community. D. N. Casey. Elec Ry J 58:18-19 Jl 2 '21
 How one railway eliminated jitneys. Elec Ry J 55:230-3 Ja 31 '20
 Interest of the manufacturer in the electric railway industry. E. F. Wickwire. Elec Ry J 58:599-600 O 8 '21
 Job of a public relations representative. F. A. Cummings. Elec Ry J 56:975-6 N 6 '20
 Measuring service to the public; riding public is interested in three things: car frequency, speed and fare. C. H. D. Dahl. Elec Ry J 58:239-40 Ag 13 '21
 Public has a moral obligation. R: T. Higgins. Elec Ry J 56:58-60 Jl 10 '20
 Public opinion and utility problems. J. H. Wilkerson. Elec Ry J 57:309-12 F 12 '21
 Publicity and public relations. A. W. McLimont. Elec Ry J 57:267-8 F 5 '21
 Relation of the electric railway to the community. A. W. Thompson. Elec J 18:443-5 O '21
 Some thoughts from a utility leader of the South. H. L. Brown. Elec Ry J 55:39-42 Ja 3 '20
 Toledo walked while cars rested in Michigan. il Elec Ry J 54:970-5 D 20 '19
See also Jitney buses

Purchasing

- What the railway company requires and what it should buy. G: E. Pellissier. Elec Ry J 58:784-5 O 29 '21

Records

- Card record for employees. Elec Ry J 55:342-3 F 14 '20
 Making transportation serve—and sell. C. E. Morgan. il map Elec Ry J 58:499-504 S 24 '21
 New car-mileage report system. Elec Ry J 56:935 O 30 '20

Regulation

- Service-at-cost contract franchise and state regulation. E: Dana. Elec Ry J 58:587-9; Discussion. 589-90 O 8 '21
 Whole city walks to work, Dubuque, Iowa. Elec Ry J 55:824 Ap 17 '20

Rolling stock

- See also* Street cars

Street railroads—Continued

Routing

- Mr Beeler studies traffic in Paterson. Elec Ry J 57:454-5 Mr 5 '21
 Rerouting in Akron saves \$60,000. map Elec Ry J 56:309-10 Ag 14 '20
 Rerouting plan to save \$620,000; sections of Beeler report on Kansas City railways. maps Elec Ry J 56:957-61 N 6 '20
 St Louis transit system. diag Pub Works 50: 220-1 Mr 12 '21
 San Francisco rerouting effective. il diag Elec Ry J 58:49-50 Jl 9 '21

See also Street railroads—Loops

Safety devices and measures

- Accident reduction versus excessive concentration upon fare collection. Elec Ry J 57: 689 Ap 9 '21
 Accomplishments of a safety bureau. J. G. Jeffery. Elec Ry J 57:996 My 28 '21
 Chicago elevated railways organize for safety. chart Elec Ry J 55:340-1 F 14 '20
 Make your safety drive continuous. B. I. Budd. Elec Ry J 58:605-6 O 8 '21
 Report of the committee on safety work of the American electric railway transportation and traffic association. Elec Ry J 58: 648-9 O 8 '21
 Safeguarding against intangible accident hazards. L. M. Roadifer. Elec Ry J 55: 1256-7 Je 19 '20
 Safety devices of the safety car. J. C. McCune. il diag Elec Ry J 55:788-93 Ap 17 '20
 Symposium on automobile hazards at annual convention of American electric railway claims association. R. Stickle and others. Elec Ry J 56:913-21 O 30 '20
 Unique safety exhibit by United railways of St Louis. il Elec Ry J 56:1306 D 25 '20

Schedules

- American electric railway transportation and traffic association 11th annual convention, Atlantic City, N.J.; report of the committee on economics of schedules. A. Jackson. Elec Ry J 56:818-20 O 16 '20
 Increasing schedule speed on city railways. V. B. Phillips. il Elec Ry J 56:657-61 O 2 '20
 Report of the committee on economics of schedules of the American electric railway transportation and traffic association. Elec Ry J 58:649-50; Discussion. 650-1 O 8 '21
 Revised schedules bring gain; the International railway of Buffalo. Elec Ry J 55:478-80 Mr 6 '20
 Scientific arrangement of schedules. E. Dana. il charts Elec Ry J 56:647-51 O 2 '20

Securities

- Considerations affecting the market for street railway securities. H. M. Addinsell. Elec Ry J 58:592-4 O 8 '21

See also Electric railroads—Securities

Shelters

- New railroad shelter in Milwaukee. il Elec Ry J 57:508 Mr 12 '21

Shops

See Electric railroads—Shops

Signals

See Electric railroads—Signals

Snow protection and removal

- B.R.T. digs out with a steam shovel. il Elec Ry J 55:390-1 F 21 '20
 Does it pay to prepare for winter operation? J. S. Dean. il Elec Ry J 56:1226-9 D 18 '20
 Maintenance account no. 12—removal of snow, ice and sand. R. C. Cram. il Elec Ry J 55:634-6 Mr 27 '20
 New York lines fight snow and ice. il Elec Ry J 55:389-90 F 21 '20
 Open cars changed to snow sweepers. il diags Elec Ry J 57:495-7 Mr 12 '21; Abstract. Génie Civil 78:535 Je 18 '21
 Rail cleaner for street car lines. il Sci Am 122:95 Ja 24 '20

- Severe winter operating conditions. J. S. Dean. il Elec J 17:438-43 O '20; Same. Elec Ry J 56:710-15 O 9 '20
 Snow-handling practice East and West. il Elec Ry J 55:637-9 Mr 27 '20
 Special design sweeper proves efficient. il Elec Ry J 56:1252 D 18 '20

Special work

See Street railroads—Track

Stations

- New terminal at Milwaukee opened. il plan Elec Ry J 56:595-8 S 25 '20

Stops

- Skip stop for trains only, mixed in with single-car units. Elec Ry J 55:906 My 1 '20
 Skip-stop still used. Elec Ry J 56:1288 D 25 '20
 Spacing of car stops. il Elec Ry J 55:330 F 14 '20

Switches, frogs, etc.

- Broken manganese frogs repaired without interrupting traffic. diag Elec Ry J 57:929-30 My 21 '21
 Broken switch casting reclaimed by electric arc welding. A. McGregor. il Elec Ry J 57: 139-40 Ja 15 '21
 Building frogs in Atlanta by the thermit process. il diags Elec Ry J 58:15 Jl 2 '21
 Combined signal and switch installation. diag Elec Ry J 57:728 Ap 16 '21
 Preventing splitting of switches. il diags Elec Ry J 56:1201 D 11 '20
 Repairing box of manganese-insert frog. il Elec Ry J 57:561-2 Mr 19 '21
 Switchman's station supported on reinforced concrete pole. il Elec Ry J 56:554 S 18 '20
 Using lever throw-type track switches for safety. C. A. Elliott. il diags Elec Ry J 54:987-8 D 20 '19

Taxation

- Discussion on taxation. Elec Ry J 57:1126-7 Je 18 '21

Terminals

- Rapid transit for Cleveland. H. M. Brinckerhoff. il map Elec Ry J 55:856-8 Ap 24 '20; Same. Eng N 84:803-5 Ap 22 '20
 Subsurface loop terminals versus rapid transit. J. P. Fox. plan Eng & Contr 53:74 Ja 21 '20

See also Street railroads—Stations

Tickets

- Has the paper ticket become obsolete? Elec Ry J 56:746-7 O 16 '20
 New ticket for zone system. Elec Ry J 55: 480 Mr 6 '20

Track

- Asphalt paving laid without granite blocks alongside rails. C. A. Elliott. il diags Elec Ry J 55:158-9 Ja 17 '20
 Auto truck for track repairs. W. L. Whitlock. Elec Ry J 56:134-5 Jl 17 '20; Same cond. Eng & Contr 54:250 S 15 '20
 Beam type track weak in the tie between rails and short on bearing area. A. E. Harvey. Elec Ry J 55:658-9 Mr 27 '20
 Co-efficients for calculating the weight of special work. W. Kahn. Eng & Contr 56: 281 S 21 '21
 Concrete paving repair by novel method. R. C. Mills. il Elec Ry J 57:545-6 Mr 19 '21
 Concrete stringer tieless track construction. il diags Elec Ry J 55:609-11 Mr 20 '20; Same cond. Eng & Contr 53:569 My 19 '20; Discussion. W. L. Wilson. 55:763-4 Ap 10 '20
 Concrete stringer track good if many conditions could be met. E. A. West. Elec Ry J 55:714 Ap 3 '20
 Creosoted rail pavement for long life under traffic proposed. E. A. Smith. diags Eng N 85:1152 D 9 '20
 Economical sectional pavement for crossings. A. Swartz. il diags Elec Ry J 56:1292-3 D 25 '20

Street railroads—Track—*Continued*

- Estimating labor hour requirements for three types of street railway track construction. D. B. Davis. diags Munic Eng 58:239-46 Je '20
- Greasing and cleaning tracks. il diags Elec Ry J 58:140 Jl 23 '21
- How cities of New York state defeated efforts of street railway companies to escape cost of car track paving. W: P. Capes. Munic Eng 59:44-8 Ag '20
- How some of the principal railways in the United States construct their track. Elec Ry J 58:730 O 22 '21
- Hydraulic jack tears up street-car tracks. il Pop Mech 35:374 Mr '21
- Keeping down the high cost of work. C: H. Clark. Elec Ry J 55:392-3 F 21 '20
- Labor cost of relaying track in 1914 and 1920. Eng & Contr 56:375 O 19 '21
- Large special trackwork renewal, Washington, D.C. E. P. Goucher. il diag Elec Ry J 57:712-14 Ap 16 '21
- Low-first-cost low-maintenance-cost track. il Elec Ry J 55:559-60 Mr 20 '20
- Maintenance of paving by street railway companies. A. Swartz. il diag Eng N 86:1118-20 Je 30 '21
- Maintenance of way for street railways. W. R. Dunham. il Elec Ry J 55:103-7 Ja 10 '20
- Method of constructing concrete paving for street railway at Birmingham, Ala. diag Eng & Contr 55:542 Je 1 '21
- Mile of paved track a day in Detroit. il diags maps Elec Ry J 58:121-9 Jl 23 '21
- Modern methods accelerate car-track laying. il Pop Mech 34:539 O '20
- New track and how it was financed in Gary. il diag Elec Ry J 58:321-3 Ag 27 '21
- New track construction of Detroit municipal railway. diags Eng & Contr 56:293 S 21 '21
- New type street car track at Gary, Ind. Eng & Contr 56:289 S 21 '21
- Price changes in street railway special work. W: Kahn. Eng & Contr 56:287 S 21 '21
- Proposed specifications for street railway pavements and track construction. Eng & Contr 56:412 N 2 '21; Same abr. Elec Ry J 58:830-1 N 5 '21
- Protecting pavements on car track streets. H. A. Nunlist. il Munic Eng 61:100-2 S '21
- Reducing pavement maintenance on car tracks. P. J. O'Neill. diags plan Eng & Contr 55:497 My 18 '21
- Rehabilitating track in Massachusetts. il diags Elec Ry J 57:809-10 Ap 30 '21
- Relaying downtown track in St Louis. il Elec Ry J 56:599-601 S 25 '20
- Removing track with a small force of laborers. A. G. Drury. Elec Ry J 54:906 N 15 '19
- Renewing railway crossings and special work. C. A. Elliott. diags Elec Ry J 55:370-2 F 21 '20
- Report of the committee on way matters of the American electric railway engineering association. Elec Ry J 58:634-5 O 8 '21
- Resilient track laid in Wausau. il Elec Ry J 57:723 Ap 16 '21
- Solid chrome nickel steel special trackwork. il diags Elec Ry J 55:799-801 Ap 17 '20; Abstract. Eng & Contr 53:580 My 19 '20
- Street car tracks paved with grouted concrete. il diags Eng N 87:532-4 S 29 '21
- Street railway paving primarily a tax. W. Jackson. Eng N 85:956 N 11 '20
- Street railway permanent track construction. C. C. Sutherland. il diags Can Eng 38:393-400 Ap 22 '20; Excerpt. Elec Ry J 56:463-6 S 4 '20
- Successful tracklaying in freezing weather. il Pop Mech 36:586 O '21
- Track construction during severe weather. il Elec Ry J 57:688 Ap 9 '21
- Track construction from the paving maintenance standpoint. il diags Elec Ry J 55:569-71 Mr 20 '20
- Track construction in Poughkeepsie. A. J. Stratton. il Elec Ry J 57:344-7 F 19 '21
- Track department as a factor in the sale of transportation. W: R. Dunham, jr. il Elec Ry J 58:484-8 S 24 '21
- Track labor costs. P. N. Wilson. il Elec Ry J 58:438-9 S 17 '21
- Track maintenance and construction kinks. R. J. Smith. Elec Ry J 58:527-8 S 24 '21, Same. Eng & Contr 56:374 O 19 '21
- Track swings simplified. W. T. Rossell. diag Elec Ry J 55:643 Mr 27 '20
- Tracks rebuilt on old ties in Memphis, Tenn. il Elec Ry J 58:97 Jl 16 '21
- Tramway track maintenance; abstracts with discussion. R. B. Holt. Elec R (Lond) 89:131-3 Jl 22 '21; Electrician 87:103-5 Jl 22 '21
- Ursachen der rüffelbildung auf strassenbahnschienen. P. Oberhoffer. Stahl & Eisen 41:1137-41 Ag 18 '21
- Use of pneumatic tools in track construction. T: W. Bulpin. Elec Ry J 55:391 F 21 '20
- Why street railways should bear share of pavement cost. Eng N 85:795-6 O 21 '20
- See also* Electric railroads—Track; Rails; Street railroads—Curves and turnouts; Street railroads—Loops; Street railroads—Switches, frogs, etc.

Traffic

- Analyzing Kansas City traffic. Elec Ry J 56:317-19 Ag 14 '20
- Commission studies Newark traffic. diags Elec Ry J 57:394-6 F 26 '21
- Effect of car tracks upon traffic capacity of roadways. G: W. Tillson. Munic Eng 58:69-71 F '20; Same. Eng & Contr 53:413-15 Ap 7 '20; Same. Can Eng 38:406-8 Ap 22 '20; Same. Good Roads n s 19:263-4+ My 26 '20
- Functions of rapid transit lines in cities. H: M. Brinckerhoff. il charts Elec Ry J 56:630-6 O 2 '20; Same. Eng N 85:1235-9 D 23 '20
- Kansas City studies congested lines. diags Elec Ry J 55:331-4 F 14 '20
- Making it easier to get home. il Factory 25:1883 D 15 '20
- Problem of street congestion. T: Fitzgerald. Elec J 18:457-62 O '21
- Speeding Kansas City's traffic. chart diags Elec Ry J 55:707-9 Ap 3 '20
- Statistics on Montreal traffic. J. R. Bibbins. Elec Ry J 55:200-1 Ja 24 '20
- Surface transportation in congested districts. J: A. Beeler. il diags Elec Ry J 56:652-6 O 2 '20
- Traffic analysis of New York surface lines. Elec Ry J 58:824 N 5 '21
- Traffic and housing in large cities. A. Ertel. diags Elec Ry J 58:199-201 Ag 6 '21
- See also* Street railroads—Loops

Trains

- Brooklyn adopts surface car trains. il Elec Ry J 55:464-7 Mr 6 '20
- Tendency in train operation. G. M. Woods. il Elec Ry J 58:395-7 S 10 '21
- Three-car trains satisfactory in Boston. E: Dana. il diag Elec Ry J 55:195-6 Ja 24 '20
- Train operation in Kansas City. Elec Ry J 57:813-14 Ap 30 '21
- Train operation in New Jersey. il diags plan Elec Ry J 57:319-21 F 12 '21
- Two-car trains in Washington. il diag Elec Ry J 57:168-70 Ja 22 '21

Transfers

- Foot punched transfer. il Elec Ry J 56:723 O 9 '20
- New Montreal transfer. Elec Ry J 56:1200 D 11 '20

Valuation

- Appraisal of Memphis street railway. Elec Ry J 55:120-1 Ja 10 '20
- New York railways valuation reported. map Elec Ry J 55:901-2 My 1 '20
- Omissions in inventories. L. F. Van Hagan. Elec Ry J 57:891-2 My 14 '21
- Public service railway offers valuation argument. Elec Ry J 58:95-6 Jl 16 '21
- Report of the committee on valuation of the A.E.R.A. Elec Ry J 58:618 O 8 '21
- Washington, D.C., valuations reviewed. A. E. Knowlton. Elec Ry J 55:469-70 Mr 6 '20
- Working capital in street railway valuation. D. F. Wilcox. 24p American academy of political and social science, Philadelphia '20

Street railroads—Valuation—Continued

Working capital in valuations. D. F. Wilcox. Elec Ry J 57:141-2 Ja 15 '21

Wages

Chaotic conditions in Dayton. Elec Ry J 58:450-1 S 17 '21
\$1,400,000 additional for Bay State men. Elec Ry J 54:562-3 S 18 '20
Premium wage plan in Milwaukee car shops. J. H. Lucas. Elec Ry J 57:528-32 Mr 19 '21
Wage increase disallowed in Omaha. Elec Ry J 56:428-9 Ag 28 '20
Wages increased in Cincinnati. Elec Ry J 56:378-9 Ag 21 '20

Argentina

Railway operation in Buenos Aires. Elec Ry J 56:275-6 Ag 7 '20

Australia

Australian railway experiences. P. J. Pringle. Elec Ry J 56:965 N 6 '20
Western Australian government tramways and electricity supply. Elec R (Lond) 88:92-3 Ja 21 '21

Austria

Deficit for Vienna municipal railways. Elec Ry J 56:892 O 23 '20
Plight of Vienna's railways. Elec Ry J 57:1037-8 Je 4 '21

Canada

Canadian railway men meet at Ottawa. Elec Ry J 57:263-70 F 5 '21
Safety car next door to the North Pole; experience at Levis, Que. H. E. Weyman. il diag map Elec Ry J 55:699-703 Ap 3 '20

Connecticut

Relief program enacted. Elec Ry J 57:1141 Je 18 '21

England

Impressions of the English melting pot. W. T. Robson. Elec Ry J 55:252-3 Ja 31 '20
Motor bus in urban transportation; comparisons between bus and tramway service in London and United States. G. J. Shave and F. C. Pick. Elec Ry J 56:789-94 O 16 '20

Germany

German conditions desperate. Elec Ry J 57:412 F 26 '21
German conditions not favorable. Elec Ry J 58:358 S 3 '21
Situation, from an economic viewpoint, of German tramways. Elec Ry J 56:963-5 N 6 '20

Great Britain

Municipal tramways association 19th annual convention, Cardiff. Electrician 85:374-5, 396-9 S 24-O 1 '20; Elec Ry J 56:1149-50 D 4 '20
Operation of tramways and bus undertakings under statutory powers as affected by the Roads act, 1920; abstracts with discussion. J. B. Hamilton. Elec R (Lond) 89:482-5 O 7 '21; Electrician 87:487-9 O 14 '21
Recent happenings in Great Britain. Elec Ry J 57:50 Ja 1 '21
Some phases of tramway developments in the past and the outlook; abstracts with discussion. J. M. McElroy. Electrician 87:486-7 O 14 '21; Elec R (Lond) 89:513-15 O 14 '21

Italy

American methods in Italy. M. Mandelli. Elec Ry J 55:291 F 7 '20

Massachusetts

Reports on abandoned lines. Elec Ry J 57:694 Ap 9 '21

New Jersey

Train operation in New Jersey. il diag plan Elec Ry J 57:319-21 F 12 '21

Ontario

Thirty years of municipal operation in Port Arthur, Ont. il map Elec Ry J 57:478-80 Mr 12 '21

United States

Outlook for the electric railway industry. H. A. Blair. Elec J 18:440-2 O '21
Outlook for the next five years. P. J. Kealy. Elec J 18:435-7 O '21

Problems of the street railways. J. H. Pardee. Elec J 18:432-4 O '21
Referendum of Chamber of commerce of United States on problems of street railways. Comm & Fin Chr 111:2111 sec 1 N 27 '20

Traction industry today and four years ago. E. Gruhl. Elec Ry J 58:595-9 O 8 '21

Street railroads, Municipal

Another municipal line opened in Detroit. Elec Ry J 58:795 O 29 '21

California and her tractions. E. Hungerford. il Elec Ry J 56:304-8 Ag 14 '20

Ceremonies attend municipal construction of Detroit's new lines started when mayor drives first spike. Elec Ry J 56:473 S 4 '20

City buys lines in Berlin. E. C. Zehme. Elec Ry J 56:263 Ag 7 '20

Municipal ownership approved in Detroit. Elec Ry J 55:767 Ap 10 '20

San Francisco's municipal railway. M. M. O'Shaughnessy. Elec Ry J 57:488 Mr 12 '21

Seattle municipal lines. T. F. Murphine. Elec Ry J 54:897-8 N 15 '19

Staten Island Midland railway claims profit. Elec Ry J 58:147 Jl 23 '21

Street railway situation in San Francisco. M. M. O'Shaughnessy. Elec Ry J 54:896-7 N 15 '19

Thirty years of municipal operation in Port Arthur, Ont. il map Elec Ry J 57:478-80 Mr 12 '21

Unprofitable city-owned street car systems of San Francisco and Seattle. Eng & Contr 53:560-1 My 19 '20

See also San Francisco—Rapid transit

Street railway motors. See Electric motors, Railway

Street shower baths. See Shower baths, Street

Street traffic

Building zones and street classification. Pub Works 48:447-8 My 22 '20

Diagram for analyzing city traffic used by city planning board. G. H. Herrold. plan Eng N 87:33 Jl 7 '21

Effect of car tracks upon traffic capacity of roadways. G. W. Tillson. Munic Eng 58:69-71 F '20; Same. Eng & Contr 53:413-15 Ap 7 '20; Same. Can Eng 38:406-8 Ap 22 '20; Same. Good Roads n s 19:263-4+ My 26 '20

Metropolitan road and rail transit. H. H. Gordon. Engineer 128:537-8 N 28 '19

Paris to try Yankee traffic methods. Motor Age 37:49 Ap 1 '20

Problem of automotive traffic in the cities. E. P. Goodrich. il Automotive Ind 43:724-7+ O 7 '20

Problem of street congestion. T. Fitzgerald. Elec J 18:457-62 O '21

Traffic congestion on city streets forcing more careful planning of street and boulevard systems. C. H. Cheney. il Munic Eng 60:222-6 Je '21

Transportation and the city plan. N. P. Lewis. Can Eng 39:509-11 N 11 '20; Same abr. Eng & Contr 54:547-8 D 1 '20

What automobile traffic means to Pittsburgh. C. K. McGunnege and M. T. Montgomery. Elec Ry J 58:21 Jl 2 '21

See also Automobile laws and regulations; Bridge traffic; Moving platforms; Road traffic; Street railroads—Traffic; Traffic regulations

Streets

Appearance of streets. F. N. Evans. Eng & Contr 53:526-7 My 5 '20

Cross-sections of roads and streets. H. J. Fixmer. diag Eng N 84:588 Mr 18 '20

Features of South Water street, Chicago, improvement. Elec Ry J 56:280-1 Ag 7 '20

Improving gravel streets in Grand Rapids, Michigan. Munic Eng 61:15-17 Jl '21

Streets—Continued

Necessary steps in comprehensive street development program. J. W. Routh. *Munic Eng* 59:12-14 J1 '20; Same. *Eng & Contr* 54:219-20 S 1 '20

Ownership of highways and streets. C. C. Sherlock. *Chem & Met Eng* 24:266 F 9 '21

Some municipal improvement policies of Albany, New York. F. R. Lanagan. *il Munic Eng* 59:128-9 O '20

Tables for computing irregular street intersections. R. D. Gladding. *diag Eng N* 87: 518-19 S 29 '21

Thoroughfare plan and program for Cleveland, Ohio. R. H. Whitten. *diags plans Eng N* 86: 382-6 Mr 3 '21

Urban automobile problem. E. P. Goodrich. *Eng N* 84:1043 My 27 '20

Urban congestion—a study of its causes and suggestions for its eradication. J. I. Bright. *Am Arch* 119:581-3 My 25 '21

See also City planning; Curbs; Grading (earthwork); Gutters; Highway law; Pavements; Roads; Sidewalks; Snow removal; Street cleaning; Street lighting; Street names; Street openings; Street traffic; Subways (streets); Traffic regulations; *also* subdivision Streets under names of cities, e.g. London—Streets, New York (city)—Streets

Advertising

See Business streets—Advertising

Double-decking

Chicago double deck street for congested district. *diags plans Eng N* 85:173-5 J1 22 '20

Double-decking a cure for street congestion. *Sci Am* 123:172 Ag 21 '20

See also Expressways

Grades

Computing parabolic curves for street grades. W. W. Kane. *diags Pub Works* 50:373-4 Ap 30 '21

Maintenance and repair

Cost of maintenance and repair of oiled and gravel streets at Los Angeles. *Eng & Contr* 55:23-4 Ja 5 '21

How to maintain streets in the average city. H. H. Edwards. *Munic Eng* 60:110-14 Mr '21; Same *abr. Eng & Contr* 55:443-4 My 4 '21

Widening

Cross-city thoroughfare to relieve Detroit traffic problem. *plans Eng N* 84:1116-17 Je 3 '20

Plan for widening and arcading parts of Euclid avenue, Cleveland. *diags Eng N* 86: 715 Ap 28 '21

Progress of the Major street plan in St Louis. H. Bartholomew. *il map plan Eng N* 84:954-7 My 13 '20

Width

Roadway widths for different classes of streets. R. Hoffman. *Eng & Contr* 54:435-7 N 3 '20; Same. *Good Roads n s* 20:258-60 D 1 '20; Same. *Can Eng* 39:592-3+ D 9 '20; Same. *Munic Eng* 59:199-202 D '20; Same *cond. Pub Works* 49:549-50 D 11 '20

Rules for the establishment of street widths and their subdivisions. B. A. Haldeman. *Eng & Contr* 52:536 N 5 '19

Widths of roadways and sidewalks in municipalities. H. J. Fixmer. *Munic Eng* 60:177-81 My '21; Same. *Eng & Contr* 55:540-2 Je 1 '21; Same. *Good Roads* 61:15-18+ J1 13 '21

Strength of materials

Aircraft and automobile materials of construction. A. W. Judge. 2v 739p; 594p Pitman '21

Calculating the strength of unsymmetrical sections. G. S. Chiles and R. G. Kelley. *diags Mach* 27:345-8 D '20

Determining stresses by polarized light. G. W. Hall and A. L. Kimball, jr. *il diag Sci Am M* 3:49-53 Ja '21

Development of metal construction in aircraft. J. S. Nicholson. *il diags Engineering* 109:357-62, 375-8, 408-12 Mr 12-26 '20

Duralumin. E. Unger and E. Schmidt. *diags Aerial Age* 11:772-4 Ag 16 '20; Same. *Aviation* 9:49-52 Ag 15 '20; Same. *Am Mach* 53: 803-6 O 28 '20; Same. *Soc Auto Eng J* 7: 359-62 O '20; Same, without tables. *Mach* 27:337 D '20

Effect of temperature on some of the properties of materials. F. C. Lea. *il diags Engineering* 110:293-8 Ag 27 '20

Metal-wood product of promise. *Sci Am* 124: 436 My 28 '21

Photo elasticity for engineers. E. G. Coker. *il diags Gen Elec R* 23:870-7, 966-73; 24: 82-8, 222-6, 455-66 N '20-Ja, Mr, My '21

Physical properties of materials; strengths and related properties of metals and certain other engineering materials. *U S Bur Stand Circ* 101:1-52 '21

Recoverance. R. G. Guthrie. *Chem & Met Eng* 23:671-2 O 6 '20

Reliability of materials and mechanism of fractures. C. De Fremerville. *il diags Mech Eng* 42:207-12 Ap '20; Same. *Chem & Met Eng* 22:983-7 My 26 '20

Resistance of ductile materials to combined stresses in two or three directions perpendicular to one another. H. M. Westergaard. *il diags J Fr Inst* 189:627-40 My '20

Strength and other properties of wire rope. J. H. Griffith and J. G. Bragg. *il diags U S Bur Stand Tech Pa* 121:1-80 '19

Strength and suitability of engineering materials. C. F. Jenkin. *Engineering* 110: 290-2 Ag 27 '20; Same *cond. Engineer* 130: 200-1 Ag 27 '20; *Excerpt. Eng & Contr* 54: 305-7 S 29 '20; *Abstract. Electrician* 85: 229-30 Ag 27 '20

Strength of shafts and beams. J. S. Watts. *chart diags Am Mach* 53:909-10 N 11 '20

Strength of thick hollow cylinders. W. W. Gaylord. *Mech Eng* 42:250 Ap '20

Stress determination by means of the Coker photo-elastic method. A. L. Kimball, jr. *il diags Gen Elec R* 24:73-81 Ja '21

Tensile test in the aluminum factory. W. A. Gibson. *diags Automotive Ind* 41:1176-9 D 11 '19

See also Building materials; Deformations (mechanics); Elastic limit; Elasticity; Flexure; Graphic statics; Metals—Testing; Plywood—Testing; Steel—Testing; Strains and stresses; Testing; Trusses; Wood—Testing

Stresses. *See* Strains and stresses

Strike insurance. *See* Insurance, Strike

Strikes

Amalgamated association of iron, steel, and tin workers defeated in East. *Iron Tr R* 67:1692-3 D 16 '20

British coal strike. R. E. Thayer. *Ry Age* 69:1109-16 D 24 '20

British mine workers declare nation-wide strike. *Coal Age* 18:868-9 O 21 '20

British moulders resume work after disastrous strike. C. H. Northcott. *Automotive Ind* 42:443-4 F 12 '20

California strike is grave menace to whole industry. A. R. Hinton. *Nat Pet N* 13:29+ O 5 '21

Churches plan inquiry into affairs of the Denver tramway. *Elec Ry J* 56:888 O 23 '20

Cincinnati strike situation. *Am Mach* 53:243-4 J1 29 '20

Compromise ends British coal strike. *Iron Tr R* 67:1535 D 2 '20

Continued freight congestion because of strikes. *Ry Age* 68:1309-11 Ap 30 '20

Cost of a railway strike in France. L. G. Lauck. *Ry Age* 69:620 O 8 '20

Cost of strikes. E. L. Whitney. *Monthly Labor R* 11:593-600 S '20

Employees uphold the open shop; Cincinnati labor situation. A. J. Hain. *il Iron Tr R* 67: 1071-6 O 14 '20

Establishment of an emergency strike-breaking corps in Germany. *Monthly Labor R* 10:1059-61 Ap '20

Features of railroad, coal and steel strikes. C. A. Dickhaut. *Iron Age* 105:1455-6 My 20 '20

Four months' labor battle; railway at Albany refuses to compromise strike issue. *Elec Ry J* 57:1050 Je 4 '21

Strikes—Continued

- Freedom for interstate commerce. M. E. Lewis. *Am Ind* 20:14-16 JI '20
- French railway strike. *il Ry Age* 68:958 Mr 19 '20
- Getting the jump on strikes; Kansas court of industrial relations. C. M. Reed. *Nation's Business* 8:20-1 S '20
- Government acts to end the railway strikes. *il Ry R* 66:631-4 Ap 17 '20
- Great issue involved in Great Britain coal strike. *Iron Tr R* 68:1098 Ap 21 '21
- High cost of strikes. M. Olds. 286p Putnam '21
- How we found a cure for strikes. B. P. Disque. *Eng & Contr* 52:600-2 N 19 '19
- Injunction against strike to secure unionization. *Monthly Labor R* 11:574-7 S '20
- Labor provisions of the railroad bill in conference. *Ry R* 66:61-3 Ja 10 '20
- Labor situation in 1919. *Eng & Min J* 109:242 Ja 17 '20
- Labor statistics give definite industrial facts. *diags Automotive Ind* 42:259-67 Ja 15 '20
- Labor statistics indicate recent industrial trends. N. G. Shidle. *Automotive Ind* 44:415-21 F 17 '21
- Last stand of the open shop; United mine workers of America have precipitated a strike. R. W. Hinds. *il Coal Age* 18:1037-40 N 18 '20
- Law and the labor unions. K. M. Spence. *Ind Management* 59:433-8 Je '20
- Law in regard to strikes. C. C. Sherlock. *Am Mach* 53:1087-9, 1141-4 D 9-16 '20
- Long continued disturbance of traffic by strikes. *il Ry Age* 68:1265-7 Ap 23 '20
- Loyalty to open shops is tested; issue involved in Cleveland patternmakers strike. *Iron Tr R* 67:436-40 Ag 12 '20
- May day strikes in England and France. R. E. Thayer. *Ry Age* 68:1537 My 28 '20
- Meaning of the British coal strike. H. Tipper. *Automotive Ind* 44:1072-3 My 19 '21
- Outlaw strike not an unmixed evil—its collapse. *Comm & Fin Chr* 110:1687-8 Ap 24 '20
- Outlaw yardmen's strike collapses. *Ry Age* 69:481 S 17 '20
- Peculiar nature of the shipping strike. *Comm & Fin Chr* 112:2025-6 My 14 '21
- Railroad strike hits motor car production. L. G. Sullivan. *il Motor Age* 37:23-4 Ap 22 '20
- Recent strike on the French railways. F. Jaques. *il Ry Age* 68:1355-9 My 7 '20
- Responsibility of Congress in industrial strife. C. S. Thomas. *Am Ind* 20:19-22 Ja '20
- Six months' strike in Alabama: United mine workers of America failed in their efforts to dominate the coal industry. *Coal Age* 19:631-2 Ap 7 '21
- Speaking of anti-strike laws. R. Yarnell. *il Nation's Business* 8:16-17 Mr '20
- Status of employees on strike. *Monthly Labor R* 13:672-4 S '21; Same cond. *Elec Ry J* 58:868 N 12 '21
- Strike at Tonopah. *Min & Sci P* 123:281-2 Ag 27 '21
- Strike moves condemned in church report. *Elec Ry J* 58:793 O 29 '21
- Strike of Chicago switchmen spreads to other points. *Ry R* 66:620-1 Ap 10 '20
- Strike of marine workers. *Comm & Fin Chr* 112:2038-40 My 14 '21
- Strike on the Brooklyn rapid transit—Judge Mayer refuses to grant closed shop. *Comm & Fin Chr* 111:953-4 S 4 '20
- Strikers in San Joaquin valley attempting nationalization. D. S. Ewing. *Eng & Min J* 112:701 O 29 '21
- Strikers seek to force U.S. intervention in California oil fields. *Nat Pet N* 13:17+ S 21 '21
- Strikes and continued freight congestion. *Ry Age* 68:1397-8 My 14 '20
- Strikes and lockouts. See monthly numbers of *Monthly labor review*
- Strikes and lockouts decreasing. *Iron Tr R* 69:175 JI 21 '21
- Strikes and lockouts in the United States, 1916, 1917, 1918, and 1919. E. L. Whitney, comp. *Monthly Labor R* 10:1505-24 Je '20

Strikes and lockouts in the United States, 1916 to 1920. *Monthly Labor R* 12:1278-97 Je '21

Strikes and storms conspire to cripple traffic. *Ry Age* 68:1145 Ap 9 '20

Strikes as old as pyramids. *Am Arch* 116:549-51 O 29 '19

Strikes—how to avoid them; an interview with John Hays Hammond. W. L. Stoddard. *Ind Management* 61:77-84 F 1 '21

Strikes of Italian government employees. A. Maylander, comp. *Monthly Labor R* 10:1278-89 My '20

Strikes that must be fought to a finish. *Ry Age* 68:1180-1 Ap 16 '20

Struggle at Rio Tinto. *Min & Sci P* 121:326-7 S 4 '20

Switchmen's strike continues with signs of early collapse. *il Ry R* 66:685-7 Ap 24 '20

Text of Blanton anti-strike bill. *Ry R* 69:588 O 29 '21

Toledo strike has been settled. *Elec Ry J* 55:767-8 Ap 10 '20

Transportation tied up by unauthorized strikes. *il Ry Age* 68:1183-90 Ap 16 '20

Two closed-shop fights and strikes against industrial relations court outstanding features of 1920. R. D. Hall. *Coal Age* 19:323-4 F 17 '21

Unauthorized strike on C.I. & W.R.R. *Ry R* 69:173-7 Ag 6 '21

Use of force makes strikes unlawful. *Am Ind* 20:17-19 JI '20

War-time strikes and their adjustment. A. M. Bing. 329p Dutton '21

What led up to the unauthorized railroad strike? H. Tipper. *Automotive Ind* 42:924-5 Ap 15 '20

White collar union at work; how the public in Denmark broke the big strike of longshoremen. J. O'Hara. *Nation's Business* 8:78+ N '20

See also Arbitration, Industrial; Boycott; Cigar makers' union; Industrial relations; Labor and laboring classes; Picketing; Railroads—Wage dispute, 1921; Syndicalism; Trade unions; also names of strikes, e.g. Coal strike, 1919; Printers' strike, New York, 1919; Steel strike, 1919

Bibliography

- List of references on the right to strike. M. B. Ladd. *Special Libraries* 10:255-68 D '19
- Stringed instruments
- Correcting faults in stringed instruments. H. Greene. *diags Pop Mech* 34:311-13 Ag '20
- Strip mills. See Rolling mills
- Stromer, Ulman
- Ulman Stromer—first chronicler of paper making. D. Hunter. *il Paper* 28:12-14 My 4 '21
- Strong, James Remsen, 1861-
- Sketch. por *Elec W* 78:858 O 29 '21
- Strontium
- Strontium. *Min & Sci P* 120:838 Je 5 '20
- Strontium in 1918. G. W. Stose. *U S Geol S Min Res of U S* 1918,pt 2:541-4 '20
- Strontium in 1919. G. W. Stose. *U. S. Geol S Min Res of U S* 1919,pt 2:95-8 '20
- Strontium in 1920. G. W. Stose. *U S Geol S Min Res of U S* 1920,pt 2:93-5 '21
- Strontium chloride
- Aqueous pressure of some hydrated crystals; oxalic acid, strontium chloride and sodium sulfate. G. P. Baxter and J. E. Lansing. *Am Chem Soc J* 42:419-26 Mr '20
- Structural drawing
- Structural drafting. F. O. Dufour. 115p American technical society, Chicago '21
- Structural engineers' association of Illinois
- Code of practice and schedule of fees for structural engineers. *Eng & Contr* 54:603-5 D 22 '20; Same. *W Soc E J* 26:68-71 Mr '21; Excerpt. *Eng N* 86:379-80 Mr 3 '21
- What the Structural engineers' association of Illinois has accomplished. J. G. Gianer. *Eng & Contr* 54:189-90 Ag 25 '20
- Structural steel. See Steel, Structural

Structures, Theory of

Advantages of the slope deflection method of analyzing statically-indeterminate structures. M. Grodsky. diags Eng & Contr 52:720-3 D 24 '19

Indeterminate structures. G. Paaswell. diags Eng & Contr 52:348-9 S 24 '19; Discussion. 52:607, 715-16 N 26, D 24 '19

See also Building; Graphic statics; Strains and stresses; Strength of materials

Stucco

Back-plastered stucco house construction. il plans Concrete 18:274-8 Je '21

Block and stucco bungalows at Riverside, Ill. il diags Concrete 16:24, 47-8 Ja '20

Cold-proof house in Saskatoon. R. Patton. il diags plans Concrete 16:8-11 Ja '20

How to build stucco houses. W. Clay. il diags plans Bldg Age 43:37-9 Je '21

Imitating building-rock in stucco. H. Lindquist. il Eng & Contr 54:82-4 Jl 28 '20

Log cabins of 1860 in a 1920 dress. il Concrete 16:272 Je '20

Magnesite stucco. il Bldg Age 43:52-4 N '21

Misuse of materials. T. B. Shertzer. Concrete 17:189-90 D '20

More plans for back-plastered stucco houses. Concrete 18:239-42 My '21

New developments in surface treated concrete and stucco. J. C. Pearson and J. J. Earley. il Concrete 16:110-14 Mr '20; Same. Am Arch 117:386-92 Mr 24 '20; Same, without il. Can Eng 38:468-9 My 13 '20; Same

abr. Eng & Contr 53:317-18 Mr 24 '20; Excerpts. Bldg Age 42:35-7 Jl '20

Old church stuccoed has effect of marble. il Pop Mech 33:239 F '20

Porous concrete as a stucco base. il diag plans Bldg Age 43:43+ Jl '21

Prize designs for stucco houses. il diags plans Concrete 18:182-5 Ap '21

Shrinkage of Portland cement mortars and its importance in stucco construction. J. C. Pearson. Eng & Contr 55:187-90 F 23 '21

Standard recommended practice for Portland cement stucco. of the American concrete institute. diags Concrete 16:134-40 Mr '20; Excerpts. Am Inst Arch J 9:147-51 Ap '21

Stucco house; illustrating the proper use of metal lath on balloon framing as a base for exterior plastering. il diags plans Bldg Age 42:28-33 My '20

Stucco on hollow tile. il diags plan Bldg Age 42:20-5 F '20

Stucco over old stone wall. J. B. Orr; R. B. Lammens. Concrete 17:8 Jl '20

Studies on cracking of stucco. Eng N 86:348 F 24 '21

Successful building in stucco. il Am Arch 116:515-16, 615-21, 767-74; 117:89-93, 593-600, 711-14; 118:61-4 O 15, N 12, D 17 '19, Ja 21, My 12, Je 2. Jl 14 '20

Waterproofing cement stucco. il Bldg Age 42:52+ Ap '20

Cost

Costs on back-plastered house in Idaho. il diag Concrete 19:126 S '21

Terminology

Tentative definitions of terms relating to the gypsum industry. Am Soc T M Pro v 20 pt 1:664-7, 673-4 '20

Testing

Results of additional distortion tests on various types of wall construction. J. C. Peebles. il diag Am Arch 118:413-15 S 29 '20; Same. Concrete 17:187 D '20; Excerpt. Eng N 86:20 Ja 6 '21

Studebaker corporation

Automobile manufacturing plant of the Studebaker corporation at South Bend, Indiana. il Arch & Bldg 52:95-8, pl 125-38 N '20

Common sense attack on turnover. J. R. Adams. il Ind Management 62:298-302 N '21

Why Studebaker is selling all the cars it can make. A. R. Erskine. Ptr Ink 116:25-7+ Ag 11 '21

Studios

Artistic studios in the city and in the country town. il plans Bldg Age 43:60-1 Jl '21

Studs. See Bolts and nuts

Stump removal. See Clearing of land

Stutz motor car company

Developments growing out of suspension of dealings in Stutz motor car co. Comm & Fin Chr 110:1482-3, 1588-92, 1703-4 Ap 10-24 '20

Settlement of controversy growing out of suspension of dealings in Stutz motor car co. Comm & Fin Chr 110:1804-5 My 1 '20

Style, Literary

What books should an advertising man read? Ptr Ink 115:157-8 Ap 21 '21

Style manuals. See Printing, Practical—Style manuals

Styphnic acid

Zur kenntnis des 2.4.6-trinitro-resorcins (styphninsäure). H. Einbeck and L. Jablonski. Deutsche Chem Gesell Ber 54:1084-9 My '21

Styrene

Styrol aus äthyl-benzol. J. v. Braun and K. Moldänke. Deutsche Chem Gesell Ber 54:618-19 Ap '21

Subdivision of shpls. See Naval architecture—Subdivision

Subject headings

Indexing and filing. C. E. Curran. Paper 28:17-19 Jl 20; 17-18 Jl 27 '21

Submarine boats

Aircraft vs. submarines. L. H. Strain. il Flying 10:202-6+ Jl '21

Battleship guns on submarines. il Sci Am 123:575 D 4 '20

Bombing a U-boat. il Sci Am 125:27 Jl 9 '21

Diesel engine of the German submarine U-117; with discussion. H. C. Gibson. il Soc Auto Eng J 7:15-18 Jl '20

Disaster to one of our latest submarines; how an air valve, left open, caused S-5 to plunge to the bottom. il diag Sci Am 123:298+ S 25 '20

Facts about German submarine construction. Engineer 128:584-5 D 12 '19

Features of German warship construction. E. T. D'Eyncourt. Engineering 111:318-21 Mr 18 '21; Same, without tables. Engineer 131:297-8 Mr 18 '21; Discussion. Engineering 111:329-31 Mr 18 '21; Engineer 131:287-8 Mr 18 '21

Fleet submarines for the United States navy. il Sci Am 124:11 Ja 1 '21

German submarine cruisers. il Int Marine Eng 25:225 Mr '20

German submarine minelayers. Engineer 129:415-16 Ap 23 '20

German submarines. A. W. Johns. diags Engineering 109:428-32 Mr 26 '20

H. M. submarine L 33. il Engineer 129:139 F 6 '20

Naval aircraft sink submarine U-117. il Aviation 10:813 Je 27 '21

Naval bombing tests. il Flying 10:199-201 Jl '21

New S-type submarines embody war experience. il Pop Mech 36:244-5 Ag '21

Reducing trade routes with submarine freighters. R. G. Skerrett. il Sci Am 123:150+ Ag 14 '20

Revival of our oldest navy yard. il Sci Am 122:39+ Ja 10 '20

Small submarine designed for scientific research. Sci Am 124:201 Mr 12 '21

Les sous-marins anglais pendant la guerre et la lutte contre les sous-marins allemands. A. Poidloué. il diags map plan Génie Civil 76:85-9 Ja 24 '20

Strength of submarine vessels. W. R. G. Whiting. diags Engineering 111:662-4 My 27 '21

Submarine in trouble; the L-1. il Sci Am 124:271 Ap 2 '21

Submarine S-48 launched at Bridgeport. il Marine Eng 26:273 Ap '21

Submarines in general—German submarines in particular: abstract. E. S. Land. Int Marine Eng 24:827-9 D '19

Submarine boats—Continued

Thrilling exploit rescues crew from submarine's strange mishap. *il Pop Mech* 34:646-7 N '20

See also Diesel engines, Submarine

Equipment

Les progrès de la télégraphie et de la téléphonie sans fil à bord des sous-marins. J. Quinet. *diags Génie Civil* 77:398-9 N 13 '20

Wire loop on submarine ends radio troubles. *il Pop Mech* 33:223 F '20

Heating and ventilation

Submarines and submarine air conditioning. *diag Am Soc Heat & V E* 25:249-64 '19

Repair

Spanish cradle ship for submarine repairs. *il Pop Mech* 35:225 F '21

Testing

Floating dock for testing submarines. *diags Engineering* 111:242-4 F 25 '21

Floating dry dock for testing submarines. von Klitzing. *diags Marine Eng* 26:440-1 Je '21; Abstract (Le dock flottant de la marine allemande, pour l'épreuve des sous-marins à la pression hydraulique). *Génie Civil* 78:44 Ja 8 '21

Submarine cables. See Cables, Submarine

Submarine detectors

Modern marine problems in war and peace. C. V. Drysdale. *diags Inst E E J* 58:574-9 JI '20; Same, without appendices. *Engineering* 110:484-6, 521-3, 552-4 O 8-22 '20; Abstract. *Electrician* 85:391-3 O 1 '20

Submarine acoustics. F. L. Hopwood. *il diags Sci Am S* 88:289 N 15 '19

Submarine detection in an alternating magnetic field. J. B. Whitehead and L. O. Gron-dahl. *diags Am Inst E E J* 39:223-34, 381-95 Mr-Apr '20

Tracking submarines by radio. S. W. Beach. *il map Pop Mech* 33:527-8 Ap '20

Submarine engines. See Diesel engines, Submarine; Submarine boats

Submarine fishing. See Fishing, Submarine

Submarine signals. See Signals and signaling, Submarine

Submarine telegraph. See Cables, Submarine

Submarine warfare

Aircraft v. submarines. L. H. Strain. *Aeronautical J* 25:193-204 Ap '21; Same. *Flying* 10:202-6+ JI '21

Model experiments in connection with submarine warfare. G. S. Baker. *il diags Engineering* 109:770-3 Je 4 '20

War experience with merchant ships. J. J. Welch. *il Engineering* 110:37-41 JI 9 '20; Excerpts. *Engineer* 130:34 JI 9 '20; Excerpts. *Marine Eng* 25:813-15 O '20

See also Mines, Submarine; Submarine boats; Submarine detectors

Sub-press. See Punching machinery

Subsidence (earth movements)

Construction of waterworks on land subject to subsidence. F. C. Cook and R. C. Moon. *plans Eng & Contr* 56:221-3 Ag 31 '21

See also Embankments; Mine subsidences

Substations, Electric. See Electric substations

Substitutes

Battle for substitutes. W. Haynes. *Nation's Business* 8:11-12 O '20

German war substitutes. A. Belter. *Sci Am M* 2:333-6 D '20

Substitution (chemistry)

Cumulative effect of the chlorine atom and the methyl and sulphonyl chloride groups on substitution in the benzene nucleus. W. Davies. *Chem Soc J* 119:853-87 Je '21

Das am ring-kohlenstoff gebundene halogen und sein ersatz durch andere substituenten; die darstellung von arsin- und sulfonsäuren. K. W. Rosenmund. *Deutsche Chem Gesell Ber* 54:438-40 Mr '21

Über benzopolymethylen-verbindungen; über bromhaltige alicyclische substituitionsprodukte des tetrahydro-naphthalins (tetralins)

und über Δ^1 -dihydro-naphthalin (Δ^1 -dialin). J. v. Braun and G. Kirschbaum. *Deutsche Chem Gesell Ber* 54:597-618 Ap '21

Suburban railroads. See Electric railroads; Interurban railroads; Suburban traffic; also names of suburban railroads, e.g. Long Island railroad

Suburban traffic

Handling suburban traffic at congested centers. C. F. Harding. *il map plan Elec Ry J* 56:662-74 O 2 '20

Relieving London's congestion. *il Elec Ry J* 56:675-9 O 2 '20

Subway cars. See Cars, Subway

Subway stations

Leaking subway station successfully grouted. M. H. Freeman. *diags plan Eng N* 85:314-18 Ag 12 '20

Rapid transit station design. O. A. Nilsson. *diags Elec Ry J* 56:966-8 N 6 '20; Excerpts. *Eng N* 85:824-9, 894-9 O 28-N 4 '20; Discussion. H. B. Seaman. 85:1152 D 9 '20

Equipment

Telephone announcers tried in Boston subway. *Elec Ry J* 58:27 JI 2 '21

Subways

Le chemin de fer métropolitain de Paris; ligne de la Porte de Saint-Cloud au Trocadero et prolongement de cette ligne jusqu'à l'Opéra. L. Biette. *il diags plan Génie Civil* 78:245-51, 267-71, pl 2 Mr 19-26 '21

Cincinnati builds belt-line rapid-transit railway. F. L. Raschig. *il diags map Eng N* 87:264-7 Ag 18 '21

Deep-level rapid transit. *Sci Am* 125:142 Ag 27 '21

Giant job of underpinning; building a subway beneath Philadelphia's city hall. W. A. McGarry. *il Sci Am* 124:124+ F 12 '21

Le métropolitain "Alphonse-XIII" de Madrid. J. E. Ribera. *il diags plans Génie Civil* 76:251-4 Mr 6 '20

Le métropolitain de Paris; prolongement de la ligne no 7, du Palais-Royal à l'Hôtel de Ville, par les quais. L. Biette. *diags plans Génie Civil* 78:3-10 Ja 1 '21

Negligible vibration effects from subway traffic. *Eng N* 87:60-1 JI 14 '21

New rapid transit railway for Sydney, Australia. *map Eng N* 85:56-8 JI 8 '20

La nouvelle convention entre la ville de Paris et la Compagnie du chemin de fer métropolitain. *plan Génie Civil* 78:369-74 Ap 30 '21

Operating London's underground railways. W. Jackson. *il diags map Elec Ry J* 55:276-83 F 7 '20

Paris subways. E. J. Mehren. *diags Eng N* 85:471-2 S 2 '20

Paris underground railways. *Elec R (Lond)* 89:18 JI 1 '21

Subways for city transportation; relative advantages of subways and elevated railways. R. Ridgway. *Elec Ry J* 58:833-4 N 5 '21

Suggested improvements in waterproofing railroad structures. J. Ross. *Eng & Contr* 52:701-2 D 17 '19

Timbered and roof-shield tunneling in deep loose-ground subway section. W. C. Briggs. *il diags Eng N* 87:676-81 O 27 '21; Discussion. 87:867 N 24 '21

Tunneling through soft ground. R. W. Jones. *diags Eng & Min J* 111:625-6 Ap 9 '21; Same. *Eng & Contr* 55:583 Je 15 '21

The "Underground" of London. E. J. Mehren. *Eng N* 85:180 JI 22 '20

Underpinning and foundations of heavy buildings. *diags plan Engineer* 130:25-7 JI 9 '20

See also Cars, Subway; Hedwaygraph; New York (city)—Subways; Subway stations

Employees

Underground railway training school. *il Elec R (Lond)* 88:601 My 6 '21

Fare collecting

Interborough rapid transit company tests fare collection and registration device at Ninety-sixth street-Lexington Avenue subway station. *Elec Ry J* 55:989 My.15 '20

Subways—Continued

Lighting

Subway lighting for new Cleveland bridge. W. Harrison and E. A. Anderson. *il Elec W* 74:513-15 S 6 '19; Abstract. *Illum Engr* 12:292-3, 338-9 O, D '19

Management

Operating London's underground railways. W. Jackson. *il diags map Elec Ry J* 55:276-83 F 7 '20

Repair

Leaking subway station successfully grouted. M. H. Freeman. *diags plan Eng N* 85:314-18 Ag 12 '20
Maintenance of way work on London underground railways. A. R. Cooper. *il diags Eng & Contr* 53:348-9 Mr 31 '20

Signals

Silent guide automatic route indicator. *il diags Engineer* 129:408-9 Ap 16 '20

Ventilation

Cooling the subway. J. E. Starr. *Heat & Ven* 17:36-7 O '20

Subways (streets)

Footway undercrossing for busy Chicago street. *diags plan Eng N* 85:798-800 O 21 '20

Success

Ce qu'un jeune homme doit faire pour réussir dans la vie. C. W. Schwab. *Chimie & Ind* 4:105-12 Jl '20
Luck and chance in success and failure. R. T. Ely. *Administration* 1:577-84 My '21
Magic ladder to success. N. Hill. *Textile World* 57:3272+ My 1 '20
My 64 years in business. A. B. Farquhar. *il System* 38:232-5, 411-13, 626-8, 836-8, 1050-2; 39:29-32+, 200-2+, 385-7+, 521-4+, 663-6+ Ag '20-My '21
One-quart pail; brain capacity determines profits and success. J. C. Greenberg. *Dom Eng* 94:548-9 Mr 12 '21
Printer of Prague. L. G. Herbert. *Inland Ptr* 65:461-3 Jl '20
Straight talk on success in life. C. M. Schwab. *Eng N* 84:681-4 Ap 1 '20
Thoroughness the mark of genius. O. B. Copper. *Inland Ptr* 67:45-6 Ap '21
When taking a chance is good business. I. T. Bush. *il System* 39:21-5+ Ja '21
See also Business management; Efficiency, Industrial; Executive ability; Saving

Succinimide

Vergleichende darstellung von derivaten des isatins, phthalimids, succinimids und o-hydrazino-benzoesäure-anhydrids. G. Heller and P. Jacobsohn. *Deutsche Chem Gesell Ber* 54:1107-17 My '21

Succinyldiacetic ester

Succinyldiacetic ester; abstract. R. Willstätter and A. Pfannenstiel. *Chem Soc J* 120 pt 1: 91-3 F '21

Sucrose. See Sugar

Suction rolls. See Paper making machinery

Suenson, Edouard, 1842-1921

Sketch. *por Elec R (Lond)* 89:445-6 S 30 '21

Sugamo

Sea grass to cheapen cotton in Japan. K. Hoshino. *Color Tr J* 7:42 Ag '20

Sugar

Activity of water in sucrose solutions. W. E. Garner and I. Masson. *Philos Mag* 6th ser 41:484-6 Mr '21
Deterioration of Cuban raw sugars in storage. N. Kopeloff and H. Z. E. Perkins. *J Ind & Eng Chem* 12:555-8 Je '20
Division of sugar chemistry. *Chem & Met Eng* 25:551 S 21 '21
Effect of concentration on the deteriorative activity of mold spores in sugar. N. Kopeloff, S. Byall and L. Kopeloff. *J Ind & Eng Chem* 12:256-7 Mr '20
Effect of varying the amount of inoculum and concentration on the deterioration of sugar by molds. N. Kopeloff. *J Ind & Eng Chem* 12:455-7 My '20

Examination of sugar crystals by projection. G. P. Meade. *J Ind & Eng Chem* 13:712 Ag '21

Hess-Ives tint-photometer and its use with raw sugars. G. P. Meade and J. B. Harris. *J Ind & Eng Chem* 12:686-8 Jl '20

Industrial and agricultural chemistry in the British West Indies, with some account of the work of Sir Francis Watts, imperial commissioner of agriculture. C. A. Browne. *il J Ind & Eng Chem* 13:78-83 Ja '21

New technical method for the estimation of the saccharogenic power of diastatic preparations. K. Oshima. *J Ind & Eng Chem* 12: 991-3 O '20

Prevention of sugar deterioration by the use of superheated steam in centrifugals. N. Kopeloff. *diag J Ind & Eng Chem* 12:860-2 S '20

Section of sugar chemistry and technology. A.C.S. Chem & Met Eng 24:880 My 18 '21

Sugar from pumpkins and palms. J. W. Bishop. *Nation's Business* 8:49 S '20

What is cane sugar? W. A. Murrill. *il Sci Am* 122:399 Ap 10 '20

See also Beets and beet sugar; Maple sugar; Sirups

Analysis

Conditions affecting the quantitative determination of reducing sugars by Fehling solution. F. A. Quisumbing and A. W. Thomas. *Am Chem Soc J* 43:1503-26 Jl '21

Determination of moisture in beet-sugar factory products. V. L. Aikin. *J Ind & Eng Chem* 12:979-81 O '20

Determination of reducing sugars in lead-preserved cane juices. J. B. Harris. *J Ind & Eng Chem* 13:925-6 O '21

Double-polarization method for estimation of sucrose and the evaluation of the clerget divisor. R. F. Jackson and C. L. Gillis. *U S Bur Stand Sci Pa* 375:125-94 '20

Methods of analysis and laboratory control of the Great Western sugar company. 259p The Great Western sugar company, Denver '20

Notes on double polarization methods for the determination of sucrose and a suggested new method. G. W. Rolfe and L. F. Hoyt. *J Ind & Eng Chem* 12:250-3 Mr '20
Revision of the optical method for analyzing mixtures of sucrose and raffinose. C. A. Browne and C. A. Gamble. *J Ind & Eng Chem* 13:793-7 S '21

Manufacture and refining

Bone-black and decolorizing carbons. W. D. Horne. *J Ind & Eng Chem* 12:1015-17 O '20

Changes in the polarizing constants of sugars during refining. A. F. Blake. *J Ind & Eng Chem* 12:1104-7 N '20

Crystallized sugar manufactured from corn. S. R. Winters. *il Pop Mech* 35:965-7 Je '21

Descriptions of occupations; cane-sugar refining, flour milling. p 9-12 '18 U.S. Bureau of labor statistics, Washington, D.C.

Effect of some decolorizing carbons upon the color and colloids of cane juice. J. F. Brewster and W. G. Raines, jr. *J Ind & Eng Chem* 13:921-3 O '21

Effect of varying hydrogen-ion concentration upon the decolorization of cane juice with carbon. J. F. Brewster and W. G. Raines, jr. *J Ind & Eng Chem* 13:1043-4 N '21

Handling sugar refinery wastes. *Eng N* 87: 178 Ag 4 '21

Improvements to be realized in the cane sugar industry. C. E. Coates. *Chem & Met Eng* 25:438 Ag 31 '21

Manufacture of sugar from the cane and beet. T. H. P. Heriot. 426p Longmans '20

Recent advances in defecation; two new clarifiers. *J Ind & Eng Chem* 12:1179-80 D '20

Refining raw sugars without bone-black. C. E. Coates. *J Ind & Eng Chem* 13:147-53 F '21

Relative importance of some coloring matters in cane juices and sirups. F. W. Zerban. *J Ind & Eng Chem* 12:744-51 Ag '20

Sugar—Manufacture and refining—Continued
 Something about sugar refining. G. M. Rolph.
 il Chem Age 29:319-23 Ag '21
 Sugar and alcohol from the nipa palm. Sci
 Am M 1:310 Ap '20
See also Beets and beet sugar

By-products

Chemical problems of the beet sugar indus-
 try. H. W. Dahlberg. il Chem & Met Eng
 23:421-4 S 8 '20

Prices

Prices of sugar in New York. Monthly La-
 bor R 11:933-6 N '20

Testing

Dry substance in molasses, sirups and juices
 by the Spencer electric oven. G. P. Meade.
 J Ind & Eng Chem 13:924-5 O '21
 Electric oven for rapid moisture tests. G. L.
 Spencer. J Ind & Eng Chem 13:70-2 Ja '21
 Sugar beet. *See* Beets and beet sugar
 Sugar cane

See also Bagasse

Sugar equalization board. *See* United States—
 Sugar equalization board

Sugar factories

Building a Korean beet sugar factory. il
 Am Mach 54:690-2 Ap 21 '21
 New sugar plant at Mt Pleasant, Mich. Chem
 & Met Eng 23:895 N 3 '20

See also Sugar—Manufacture; Sugar ma-
 chinery

Sugar industry and trade

Selling the basic material plus an idea. R.
 Dickinson. il Ptr Ink M 3:39-40+ O '21
 World's 1920-21 sugar-crop estimates. Chem
 & Met Eng 23:1214 D 22 '20
 World's sugar crop estimates. Chem & Met
 Eng 22:312 F 18 '20

See also Sugar—Prices; United States—
 Sugar equalization board; *also* Amalga-
 mated sugar company; Central Aguirre
 sugar company; Panta Alegre sugar com-
 pany; Santa Cecilia sugar corporation

Accounting

Classification of expenditures and receipts,
 the Great western sugar company, effective
 March 1, 1921. 147p Press room & bindery
 co., Denver, Colo. '21

Advertising

Big advertising keeps American sugar abreast
 of the fruit crop. R. Dickinson. Ptr Ink
 116:61-4+ J1 14 '21

Statistics

Manual of sugar companies, 1921. 30p Farr
 & co., New York '21
 Sugar consumption in United States makes
 new high record. Annalist 17:689 Je 27 '21

Brazil

Sugar industry in Brazil. Chem & Met Eng
 23:887 N 3 '20

Cuba

Cuba cane sugar corporation; official state-
 ment to New York stock exchange. Comm
 & Fin Chr 110:1884-6 My 1 '20

France

La situation des industries du sucre et de
 l'alcool dans les régions dévastées. M. Pellet.
 Génie Civil 78:40-1 Ja 8 '21

Sugar industry of France since the war.
 T. H. Murphy. il J Ind & Eng Chem 12:
 1124-6 N '20

Sugar situation in France; abstract. P. Not-
 tin. Chem & Met Eng 23:537-8 S 15 '20

Germany

Conditions of the German sugar industry at
 close of 1920. Chem & Met Eng 24:350 F
 23 '21

United States

Government control of the sugar industry
 in the United States. J. Bernhardt. 272p
 Macmillan '20

Preliminary reports of 1919 census of manu-
 factures—sugar and glass. Chem & Met
 Eng 24:1017 Je 8 '21

Report of the Federal trade commission on
 sugar supply and prices. 205p U.S. Federal
 trade commission, Washington, D.C. '20

Sugar machinery

Opportunities for American sugar machinery
 in India. Am Mach 54:711 Ap 21 '21

Manufacture

Construction and repair of sugar machinery.
 F. A. Stanley. il diags Am Mach 54:677-
 82 Ap 21 '21

Steel foundry makes sugar mill machinery.
 J. J. Zimmerman. il diags Blast F & Steel
 Pl 9:536-40, 653-7 S, N '21

Sugar refining. *See* Sugar—Manufacture and
 refining

Sugars

American progress in the bacteriological
 sugars. E. H. Eitel. il J Ind & Eng Chem
 12:1202-5 D '20

Neues aus der zuckerchemie. H. Kiliani.
 Deutsche Chem Gesell Ber 54:456-72 Mr '21

Optical rotation of mixtures of sucrose, glucose
 and fructose. W. C. Vosburgh. Am Chem
 Soc J 43:219-32 F '21

Rare sugars. Sci Am M 2:368 D '20

Rare sugars; their purity and tests. C. Pfan-
 stiehl and R. S. Black. J Ind & Eng Chem
 13:685-7 Ag '21

Standardization of rare sugars. H. T. Graber.
 J Ind & Eng Chem 13:687-8 Ag '21

Über den oxydativen abbau von schleimsäure
 und zuckersäure zu neuen aldehydsäuren der
 zuckergruppe. M. Bergmann. Deutsche
 Chem Gesell Ber 54:1362-80 Je '21; Abstract.
 Chem Soc J 120 pt 1:540-2 Ag '21

Über die synthese von fettsäure-derivaten der
 zuckerarten. K. Hess and E. Messmer.
 Deutsche Chem Gesell Ber 54:499-523 Mr '21

Über die ungesättigten reduktionsprodukte der
 zuckerarten und ihre umwandlungen. M.
 Bergmann and H. Schotte. Deutsche Chem
 Gesell Ber 54:440-55 Mr '21

Über die ungesättigten reduktionsprodukte
 der zuckerarten und ihre umwandlungen:
 neue anhydrozucker; synthese einer gluco-
 sido-mannose; struktur der cellobiose. M.
 Bergmann and H. Schotte. Deutsche Chem
 Gesell Ber 54:1564-74 J1 '21; Abstract. Chem
 Soc J 120 pt 1:648-9 S '21

See also Fructose; Glucose; Mannose;
 Melezitose; Raffinose; Rhamnose; Sedohep-
 tose; Sugar—Analysis

Suggestion systems

Builder of big men and big business—sug-
 gestion. Sanitary & Heat Eng 96:102 Ag
 12 '21

Capitalize your employee's suggestion. J. D.
 Nelson. Plumber 95:331+ Je 3 '21

Keeping alive suggestion systems. Factory
 24:146+, 350+, 1064+, 1462+; 25:620+,
 752+; 26:626+, 1218+; 27:126+, 420+ Ja-F
 1, Ap 1, My 1, Ag 15-S 1 '20, Mr 1, My 15,
 J1, S '21

7,000 brain workers out of 7,000 employees.
 C. W. Hamilton. il Factory 24:265-7 F 1 '20
 Suggestion system. Mach 27:572 F '21

Why some suggestion systems fail. G. Mc-
 Williams. Ind Management 62:55-6 J1 '21

Sulfate of ammonia. *See* Ammonium sulfate

Sulfates

Compound formation and solubility in systems
 of the type sulfuric acid: metal sulfate. J.
 Kendall and A. W. Davidson. Am Chem Soc
 J 43:979-90 My '21

Contrasting effects of chlorides and sulfates
 on the hydrogen ion concentration of acid
 solutions. A. W. Thomas and M. E. Bald-
 win. Am Chem Soc J 41:1981-90 D '19

Formation of addition compounds between
 100% sulfuric acid and the neutral sulfates
 of the alkali metals. J. Kendall and M. L.
 Landon. Am Chem Soc J 42:2131-42 N '20

Sulfates—Continued

Primary (hypogene) sulphate minerals in ore deposits. B. S. Butler. *diag Econ Geol* 14: 581-609 D '19

Sulfides

Isomorphic relations of the sulphosalts of lead and copper. W: F. Foshag. *Am J Sci* 5th ser 1:444-6 My '21

Research on pseudo-bases; dialkylaminomethyl alkyl ethers and sulphides. C: M. McLeod and G. M. Robinson. *Chem Soc J* 119: 1470-6 S '21

Some Canadian occurrences of pyritic deposits in metamorphic rocks. G: Hanson. *il map plan Econ Geol* 15:574-609 N '20

Les sulfures phosphorescents et leurs applications. A. A. Guntz. *il Chimie & Ind* 4:597-611 N '20

Traitements d'un sulfure en vue de le transformer par grillage. L. Guillet. *Génie Civil* 78:127-9 F 5 '21

Volumetric determination of sulfide by oxidation to sulfate. H. H. Willard and W. E. Cake. *Am Chem Soc J* 43:1610-14 J1 '21

See also Pyrites

Sulfite cellulose. See Cellulose

Sulfite liquor

Adhesives from waste sulphite lyes. S. Halen. *Paper Trade Journal* 73:30 Ag 25 '21

Fuel from sulphite liquor. G: Barsky and R. H. McKee. *Paper* 26:110+ Ap 21 '20

Fusel oil from sulphite alcohol. R. Sieber. *Paper* 27:21+ D 1 '20

Manufacture of ethyl alcohol from sulphite liquor. N. Clementson. *Can Chem & Met* 5: 160 Je '21

New methods of utilizing sulphite waste liquors. *Paper* 26:19+ Ag 11 '20

Reclaiming of acid. O. L. Berger. *Paper* 27: 22-3 D 22 '20

Science of sulfite acid manufacture. R. Schwarz and H. Muller-Clemm. *Paper* 29:9-14 S 21 '21

Sulphite liquor makes briquet binder and cheap fuel. *Coal Age* 17:1102 My 27 '20

Uses for sulphite waste liquors—papierfabrikant. *Paper* 27:33 Mr 9 '21

Utilization of cellulose waste liquors. L: E. Andes. *Paper Trade Journal* 73:42+ S 1; 40+ S 8; 30+ S 15 '21

Various methods of utilizing sulphite waste liquors. R. H. McKee. *Paper* 26:21-3+ J1 21 '20

See also Sulfurous acid

Analysis

Analysis of sulphite cooking liquors. A. Chambovet. *Paper* 27:16-19 F 23 '21

Analysis of sulphur burner gases and sulphite acid. A. Sander. *diag Paper* 27:21-3 D 29 '20

Calcium analysis in fresh sulphite liquors by Feld-Sander's method. R. Sieber. *Paper* 28: 19-22 Mr 23 '21

Determination of methyl alcohol in sulfite liquor. C. J. West. *Paper* 27:28 S 22 '20

Titration of sulphite liquors. R. Sieber. *Paper* 28:24-7 Ap 6 '21

Bibliography

Short bibliography of sulphite alcohol. C. J. West. *Paper* 25:19-20+ D 3 '19 (Reprinted by Arthur D. Little, Inc., Cambridge, Mass.)

Sulfite process. See Paper making

Sulfite pulps. See Wood pulp

Sulfo-cyanates. See Thiocyanates

Sulfodipropionic acid

Über a sulfo-dipropionsäure. J. M. Lovén and R. Ahlberg. *Deutsche Chem Gesell Ber* 54: 227-9 F '21

Sulfonation

Sulphonation of toluene with chloro-sulphonic acid. L. Harding. *Chem Soc J* 119:1261-6 Ag '21

Use of catalysis in the sulfonation of aromatic compounds. J. A. Ambler and W: J. Cotton. *J Ind & Eng Chem* 12:968-9 O '20

Sulfonic acids

Arylsulphonylnaphthylenediamines and their sulphonic acids. G. T. Morgan and W: R. Grist. *Chem Soc J* 119:602-10 My '21

Das am ring-kohlenstoff gebundene halogen und sein ersatz durch andere substituenten; die darstellung von arsin- und sulfonsäuren. K. W. Rosenmund. *Deutsche Chem Gesell Ber* 54:438-40 Mr '21

Replacement of sulfonic groups by nitro groups by means of nitrous gases. R. L. Datta and P. S. Varma. *Am Chem Soc J* 41:2039-48 D '19

Über die löslichkeit von salzen aromatischer säuren und deren ammoniakaten. F. Ephraim. *Deutsche Chem Gesell Ber* 54: 965-73 My '21; *Abstract. Chem Soc J* 120 pt 1:508-9 J1 '21

See also Naphthalene sulfonic acids

Sulfonium compounds

Molecular conductivity of some sulphonium compounds in acetone. P. C. Rây and K. Kumar. *Chem Soc J* 119:1643-4 O '21

Sulfonyl chlorides

Cumulative effect of the chlorine atom and the methyl and sulphonyl chloride groups on substitution in the benzene nucleus. W: Davies. *Chem Soc J* 119:853-87 Je '21

Sulfur

Action of the chlorides of sulphur on substituted ethylenes; the action of propylene on sulphur monochloride and the synthesis of $\beta\beta'$ -dichlorodi-n-propyl sulphide. S: Coffey. *Chem Soc J* 119:94-8 Ja '21

Activated carbon converts H_2S into S; a new method for the production of sulphur and for the purification of coal-gas. A. Engelhardt. *Gas Age* 48:275-9 S 10 '21

Beiträge zum valenzproblem des schwefels; über aryl-schwefelrhodanide. H. Lecher and K. Simon. *Deutsche Chem Gesell Ber* 54: 632-8 Ap '21

Calculation of unit smelting costs and values. C. A. Grabill. *Eng & Min J* 110:615-20 S 25 '20

Chromogenetic properties of sulphur and certain other elements. O. C. M. Davis and F: W. Rixon. *Philos Mag* 6th ser 42:259-62 Ag '21

Coal sulphur and its conversion in the gas retort. A. R. Powell. *Am Gas Assn Technical sec v* 2:244-54; Discussion. 254-5 '20

Comparison of different methods of estimating sulphur in steel. T. E. Rooney. *Iron & Steel Inst J* 103:339-53 no 1 '21

Contemporary foreign opinion on sulphur and phosphorus in steels. H: S. Rawdon. *Chem & Met Eng* 22:609-11 Mr 31 '20; Same. *Iron Tr R* 66:1069-71 Ap 8 '20

Derivatives of sulphur in commercial salvarsan. H. King. *Chem Soc J* 119:1415-20 S '21

Desulfurizing action of hydrogen on coke. A. R. Powell. *J Ind & Eng Chem* 12:1077-81 N '20

Distribution of the forms of sulfur in the coal bed. H. F. Yancey and T: Fraser. *J Ind & Eng Chem* 13:35-7 Ja '20

Drying native-sulphur samples. A. G. Wolf. *Eng & Min J* 109:880 Ap 10 '20

Effect of sulfur in coal used in ceramic industries. C. W. Parmelee. *Am Inst Min Bul* 153:1845-50 S '19; Same. *Coal Age* 17:12-14 Ja 1 '20

Effects of sulphur in coal. A. D. Bailey. *Power* 53:429-30 Mr 15 '21

Evolution of desulphurization methods used by modern refiners. A. D. Smith. *Nat Pet* N 12:89+ D 8 '20

Experiments towards ridding Halifax gas of unusual amount of sulphur. E. R. Hamilton. *Am Gas Eng J* 113:202+ S 11 '20

Freezing-point solubility curve for sulfur and dichloro-ethyl sulfide. J. A. Wilkinson, C. Neilson and H. M. Wylde. *Am Chem Soc J* 42:1377-82 J1 '20

Gulf coast sulphur industry. A. G. Wolf. *il Eng & Min J* 112:606-8 O 15 '21

Gulf sulphur region. A. G. White. *Eng & Min J* 110:255 Ag 7 '20

Italian sulphur production declining. H: L. Geissel. *Eng & Min J* 112:138 J1 23 '21

Sulfur—Continued

- Italy's sulphur production. Eng & Min J 110:462 S 4 '20
- Non-biological oxidation of elementary sulfur in quartz media. W. H. MacIntire, F. J. Gray and W. M. Shaw. J Ind & Eng Chem 13:310-13 Ap '21
- Occurrence and origin of finely disseminated sulfur compounds in coal. R. Thiessen. il Min & Met 153:sup2431-44 S '19; Same. Coal Age 16:668-73 O 23 '19; Discussion. Min & Met 157:(sec 12) 40-4 Ja '20
- Oil shale industry in Scotland and England. V. C. Alderson. Am Gas Eng J 113:259 O 2 '20
- Our mineral supplies; sulphur. P. S. Smith. U S Geol S Bul 666:19-22 '19
- Phosphorus and sulphur in steel. Iron Age 105:397-8 F 5 '20; Abstract. Eng N 84:291 F 5 '20; Abstract. Chem & Met Eng 22:297-8 F 18 '20
- Plea for less rigid sulphur limits. A. E. White. Foundry 47:691-2 O 1 '19; Same. Iron Age 105:478 F 12 '20; Excerpt. Iron Tr R 65:986 O 9 '19; Discussion. Iron Age 105:478-9 F 12 '20
- Precipitation of sulfur from crude mustard gas by means of ammonia. W. A. Felsing and S. B. Arenson. J Ind & Eng Chem 12:1065-7 N '20
- Preparation of sulphur and sulphuric acid from sulphates of the alkaline earths; abstract. E. H. Riesenfeld. Chem Soc J 120 pt 2:40-2 Ja '21
- Process and apparatus for extracting sulphur; patent. Chem & Met Eng 22:137 Ja 21 '20
- Recent advances in the American sulphur industry; with special reference to recent operations in Texas. R. F. Bacon and H. S. Davis. il chart Chem & Met Eng 24:65-72 Ja 12 '21; Same, without table. Chem Age 29:24-9 Ja '21
- Recovery of potash alum and sulphur at Tonopah. L. Duncan. flow sheet il Chem & Met Eng 24:529-30 Mr 23 '21
- Recovery of sulfur from blast-furnace slag; details of the Diehl process. P. J. Mallmann. diag Sci Am M 4:292-5 O '21
- Relative activity of various allotropic forms of sulphur towards caoutchouc. D. F. Twiss and F. Thomas. India Rubber W 64:579-80 My '21
- Removal of sulphur compound. E. C. Brenner. Am Gas J 114:339-40+ Ap 16 '21; Same. Gas Age 47:315-18 Ap 25 '21
- Removing sulphur by oil. M. Meredith. Gas Age 47:199 Mr 10 '21
- Schwefelgewinnung aus hochofenschlacke. L. H. Diehl. diags Stahl & Eisen 41:845-52 Je 23 '21
- Smelting sulphur and arsenic ores in China. R. Slessor. diags Eng & Min J 112:695-6 O 29 '21
- Some developed mineral resources and chemical industries of the Southern states. A. M. Fairlie. il Chem & Met Eng 22:310-12 F 18 '20
- Some factors affecting the sulfur content of coke and gas in the carbonization of coal; with discussion. A. R. Powell. J Ind & Eng Chem 13:33-5 Ja '21
- Studies in Colorado shale oils. A. J. Franks. Chem & Met Eng 25:49-53 Jl 13 '21; Discussion. 25:452-3 S 7 '21
- Study of the forms in which sulphur occurs in coal. A. R. Powell and S. W. Parr. diag Ill U Eng Exp Sta Bul 111:1-62 '19
- Sulphur. Sci Am M 2:336 D '20
- Sulphur and pyrites in 1920. A. E. Wells. Eng & Min J 111:160-1 Ja 22 '21
- Sulphur as a fertilizer. R. H. Moulton. il Pop Mech 33:94-5 Ja '20
- Sulphur distrib'n in carbonization. U. O. Hutton and C. C. Thomas. diag Gas Age 47:88-94 F 10 '21
- Sulphur in coal and coke. A. R. Powell. Eng Soc W Pa 36:611-25 D '20; Excerpt. Iron Age 107:906 Ap 7 '21; Discussion. Eng Soc W Pa 36:626-40 D '20
- Sulphur in malleable cast iron. L. C. Crome. Chem & Met Eng 25:247-8 Ag 10 '21
- Sulphur in petroleum oils. C. E. Waters. U S Bur Stand Tech Pa 177:1-26 '20

- Sulphur in Texas. M. D. Davis. Paper 28:21+ My 25 '21
- Sulphur in the coking process. S. W. Parr. Min & Met 153:1807-9 S '19; Discussion. 157:(sec 12) 64-8 Ja '20
- Sulphur industry of Sicily. Min & Sci P 123:431 S 24 '21
- Sulphur industry of today. H. S. Davis. il Can Chem & Met 5:295-7 O '21
- Sulphur mining in Sicily. Engineer 130:50-1 Jl 16 '20
- Sulphur, pyrites, and sulphuric acid in 1919. A. E. Wells. Eng & Min J 109:222-3 Ja 17 '20
- Sulphur removal by oil washing. E. R. Hamilton. Am Gas J 115:182-3+ Ag 27 '21; Same. Gas Age 48:248-50 S 3 '21
- Taking sulfur out of coke with hydrogen. Sci Am 125:148 Ag 27 '21
- Untersuchungen über die Baumannsche schwefelprobe und beiträge zur kenntnis des verhaltens von phosphor im eisen. P. Oberhoffer and A. Knipping. il Stahl & Eisen 41:253-8 F 24 '21
- Das verhalten des schwefels in der Thomasbirne. E. Herzog. Stahl & Eisen 41:781-8; Discussion. 788-9 Je 9 '21

Analysis

- Analysis of sulphur burner gases and sulphite acid. A. Sander. diag Paper 27:17-18+ D 8 '20
- Analysis of sulphur forms in coal. A. R. Powell. chart U S Bur Mines Tech Pa 254:1-19 '21; Same. Am Gas J 114:447-9, 454-8 My 21 '21; Same abr. J Ind & Eng Chem 12:887-90 S '20
- Detection of arsenic in sulfur. H. S. Davis and M. D. Davis. J Ind & Eng Chem 12:479-80 My '20
- Determination of minute quantities of oil in sulfur. L. S. Bushnell and H. S. Clark. il J Ind & Eng Chem 12:485 My '20
- Determination of sulphur and chromium in steel. L. A. Goldenberg. Chem & Met Eng 21:628 N 12 '19
- Determination of sulphur by the oxidation method and by the evolution-titration method. Foundry 49:696a S 1 '21
- Determination of true free sulfur and the true coefficient of vulcanization in vulcanized rubber. W. J. Kelly. J Ind & Eng Chem 12:875-8 S '20; Same cond. India Rubber W 63:175-6 D '20
- Estimation of sulphur by the lamp method. F. Esling. il Inst Pet Tech J 7:83-94; Discussion. 94-6 Ap '21
- Lamp method for estimating sulphur in benzene. J. S. Jackson and A. W. Richardson. diags Inst Pet Tech J 7:26-7; Discussion. 27-34 Ja '21
- New method for the determination of sulfur in oils. C. E. Waters. J Ind & Eng Chem 12:482-5 My '20
- Rapid method for the determination of sulfur in petroleum oils. A. W. Christie and C. S. Bisson. J Ind & Eng Chem 12:171-2 F '20
- Rapid method for the determination of sulphur in rubber mixtures. G. D. Kratz, A. H. Flower and C. Coolidge. India Rubber W 61:356-8 Mr '20
- Report of A.S.T.M. sub-committee on sulfur determination. Am Soc T M Pro v 20 pt 1:407-14 '20

Bibliography

- Metallurgical theories conflict; complete bibliography shows that investigators attribute various effects to sulphur and phosphorus in steel and cast iron. Foundry 48:467-8+ Je 15 '20

Prices

- Prices fixed on Sicilian sulphur. Chem & Met Eng 23:187 Ag 4 '20

Sulfur burners

- Feeding device for sulphur burners. diag Chem & Met Eng 24:752 Ap 27 '21
- Sulphur burners. J. T. Morton. il diag Paper 27:41 N 10 '20

Sulfur chlorides

- Action of the chlorides of sulphur on substituted ethylenes; the action of propylene on sulphur monochloride and the synthesis of $\beta\beta'$ -dichlorodi-n-propyl sulphide. S: Coffey. Chem Soc J 119:94-8 Ja '21
- Interaction of ethylene and sulphur monochloride. F: G: Mann, W: J. Pope and R: H: Vernon. Chem Soc J 119:634-46 My '21
- Interaction of sulphur monochloride and organic acid amides. K. G. Naik. Chem Soc J 119:1166-70 Jl '21
- Interaction of sulphur monochloride and substituted ethylenes. W: J. Pope and J. L. B. Smith. Chem Soc J 119:396-400 Ap '21
- Mechanism of the reaction between ethylene and sulfur chloride. J. B. Conant, E. B. Hartshorn and G. O. Richardson. Am Chem Soc J 42:585-95 Mr '20
- Method for determining the sulfur monochloride content of mustard gas- S_2Cl_2 mixtures. W. A. Felsing, S. B. Arenson and F. J. Kopp. J Ind & Eng Chem 12:1054-6 N '20
- Pressures produced by the action of sulfur monochloride upon β, β' -dichloroethyl sulfide. T: G. Thompson and F. J. Kopp. J Ind & Eng Chem 12:1056-7 N '20

Sulfur compounds

- Action of the Grignard reagent on certain organo-sulphur compounds. H. Hepworth and H: W. Clapham. Chem Soc J 119:1188-98 Jl '21

Sulfur dioxide

- Adsorption of sulfur dioxide by the gel of silicic acid. J: McGavack. 37p Johns Hopkins university '20
- Adsorption of sulfur dioxide by the gel of silicic acid. J: McGavack, jr., and W. A. Patrick. diag Am Chem Soc J 42:946-78 My '20
- Liquid sulphur dioxide in oil extraction. R. H. McKee. Chem Age 29:425-6 O '21
- Production of sulphur dioxide; patent. Chem & Met Eng 23:347 Ag 25 '20
- Smoke litigation in Salt Lake Valley. E. E. Thum. il Chem & Met Eng 22:1145-50 Je 23 '20
- Smoke problem at Salt Lake City. G. St J: Perrott. Power Pl Eng 24:784-5 Ag 15 '20
- Sulphur dioxide as a factor in the smoke problem of Salt Lake City. Heat & Ven 17: 51 S '20
- Use of sulphur dioxide as a reducing agent in the electrolysis of copper solutions; patent. Chem & Met Eng 23:988 N 17 '20
- What liquefied sulphur dioxide is. G. C. Howard. Paper 25:26+ F 18 '20

Sulfur dyes

- Application of sulphur dyes. E. Cagliostro. il diags Color Tr J 6:120-4, 148-53, 163-8; 7: 18-23, 143-6, 171-4 Ap-Jl, N-D '20

Sulfur monochloride. See Sulfur chlorides**Sulfur paper**

- Nature and properties of sulphur paper. il Paper 26:17-18 Ag 25 '20

Sulfur-terpene compounds

See also Toron

Sulfur trioxide

- Determination of sulfate in sulfonated oils. E. J. Kern. J Ind & Eng Chem 12:785 Ag '20
- Vanadium catalyst for oxidation of sulphur dioxide. Chem & Met Eng 24:752 Ap 27 '21

Sulfuric acid

- Action of sulfuric acid on dicyandiamide. T. L. Davis. diag Am Chem Soc J 43:669-72 Mr '21
- American sulphuric acid practice. P. De Wolf and E. L. Larison: 270p McGraw-Hill '21
- Les appareils de concentration Gaillard et la précipitation électrique des fumées. M. Kaltenbach. il diags Chimie & Ind 5:143-9 F '21
- Armour fertilizer works. C. H. Jones. il diag plan Chem & Met Eng 24:333-7 F 23 '21
- Chemical data on coal pyrite. H. F. Yancey. il Chem & Met Eng 22:105-9 Ja 21 '20

- Compound formation and solubility in systems of the type sulfuric acid: metal sulfate. J. Kendall and A. W. Davidson. Am Chem Soc J 43:979-90 My '21

Cottrell electrical precipitator installation at plant of the American acid co., Medford, Mass. W. J. Kee and F. H. Viets. il diag plan Chem Age 29:71-4 F '21

Cottrell system of dust and fume precipitation: sulphuric acid at the R. N. Cordite factory. il diags Engineering 111:94-7 Ja 28 '21

L'épuration électrique des fumées et des gaz dans le service des poudres pendant la guerre. A. Delasalle. il diags Chimie & Ind 4:291-316 S '20

La fabrication de l'acide sulfurique par le procédé des chambres. M. Kaltenbach. il diags Chimie & Ind 3:407-21 Ap '20

Freezing points of mixtures of sulfuric and nitric acids. W. C. Holmes. J Ind & Eng Chem 12:781-3 Ag '20

History of sulphuric acid production in Canada. J. Bowman and A. Nieghorn. Can Chem & Met 5:14-16 Ja '21

Humidity control by means of sulfuric acid solutions, with critical compilation of vapor pressure data. R. E. Wilson. diag J Ind & Eng Chem 13:326-31 Ap '21

Improvement in contact process of sulphuric acid manufacture. H: F. Merriam. Chem Age 29:403-4 O '21

Manufacture of acid. R: L. Trildon. il diags Paper 27:37-9 N 10 '20

Manufacture of sulphuric acid in the United States. A. E. Wells and D. E. Fogg. il chart diags plans U S Bur Mines Bul 184:1-216 '20

Notiz über verbindungen der schwefelsäure mit dem chlorid und anhydrid der benzoessäure. M. Bergmann and F. Radt. Deutsche Chem Gesell Ber 54:1652-5 Jl '21

Preparation of sulphur and sulphuric acid from sulphates of the alkaline earths; abstract. E. H. Riesenfeld. Chem Soc J 120 pt 2:40-2 Ja '21

Production of sulphuric acid and acid phosphate at Trenton, Ont. il Can Chem & Met 5:220-3 Ag '21

Reagent chemicals; proposed specification for sulfuric, nitric, and hydrochloric acids, and for ammonium hydroxide. W. D. Collins. J Ind & Eng Chem 13:735-7 Ag '21

Recent developments in the sulfuric-acid industry. A. M. Fairlie. Chem & Met Eng 25:861-5 N 9 '21

Recovery of sulphuric and nitric acids from acids used in the manufacture of explosives. 56p Great Britain Department of scientific and industrial research, London '20

Recovery of waste nitrating acids. C. Marx. diags Chem Age 29:251-5 Jl '21

Sulphur, pyrites, and sulphuric acid in 1919. A. E. Wells. Eng & Min J 109:222-3 Ja 17 '20

Sulfuric acid concentrator and vacuum pump. O. Maass. diag Am Chem Soc J 42:2571-4 D '20

Sulphuric acid during the war. Chem & Met Eng 25:481 S 7 '21

Tower packing efficiencies. E. L. Jorgensen. diags Chem & Met Eng 24:741-2 Ap 27 '21

Über das gleichgewicht: fluorwasserstoff—schwefelsäure—fluorsulfonsäure. W. Traube and E. Reubke. Deutsche Chem Gesell Ber 54:1618-26 Jl '21

Water-cooled acid chambers adopted in England. A. M. Fairlie. il diags plan Chem & Met Eng 24:786-9 My 4 '21

Analysis

- Rapid method for quantitative determination of arsenic in commercial sulfuric acid. A. A. Kohr. J Ind & Eng Chem 12:580-1 Je '20

Transportation

- Sulphuric acid tank cars of 70 tons capacity. il diags plan Ry Age 70:203-5 Ja 14 '21; Same. Ry Mech Eng 95:94-6 F '21

Sulfurous acid

- Future of acid making. H. O. L. Berger. il diags Paper 26:10-13+ Je 30 '20

- Sulgrave institution**
Sulgrave manor, the home of the Washingtons. Am Arch 118:369-70 S 22 '20
- Sulzer engine**
Comparative trials of Still and Sulzer engines. W: Denny. diags Engineer 130:90 J1 23 '20; Same. Engineering 110:98-100 J1 16 '20; Same. Marine Eng 25:832-4 O '20; Abstract. Power 52:640-1 O 19 '20; Discussion. Engineer 130:90-1 J1 23 '20; Engineering 110:101-2 J1 23 '20
- Sumac**
Italian Sumac production. Chem & Met Eng 24:604 Ap 6 '21
- Summer resort hotels**
Summer resort hotels need services of plumbing contractors. il Dom Eng 96:416-17 S 3 '21
- Sun**
Exploding wires may yield the secret of the sun. Pop Mech 35:642 My '21
New observations on the variability of the sun. C. G. Abbot. Sci Am M 3:486 Je '21
Sun as a source of energy. J. A. Anderson. il diag J Elec 44:201-3 Mr 1 '20
See also Eclipses, Solar; Solar power; Solar radiation; Spectroheliograph; Spectrum, Solar; Sunlight
- Sun-baths**
Revolving sun-baths. il Sci Am 125:170 S 3 '21
- Sun power.** See Solar power
- Sun worship**
Sun worship among the American Aborigines. W. P. True. il Sci Am M 4:329-31 O '21
- Sunday school rooms**
Subdividing large rooms for small meetings. E. J. G. Phillips. diags Bldg Age 43:52-4 Ag '21
- Sunflowers**
Dwarf sunflower has many leaves and white seeds. il Pop Mech 35:732 My '21
- Sunken gardens**
Grounds about the house; concrete sunken garden. A. Marple. il Bldg Age 43:23-4 Je '21
- Sunlight**
Sunlight engineering; its relation to housing and town planning. H. L. Seymour. Sci Am M 2:106-8 O '20
- Sunny, Bernard Edward, 1856-**
Portrait. Elec W 77:808 Ap 9 '21
- Sunset**
Green rays at sunset. C.-E. Guillaume. diag Sci Am M 2:102-3 O '20
- Supercargoes**
Are supercargoes a necessity? V. G. Iden. Marine R 50:7-10 Ja '20
- Superchargers.** See Airplane engines—Superchargers; Automobile engines—Supercharging
- Super-destroyer.** See Torpedo boat destroyers
- Superheated steam**
Boiler steam pressures and superheat. R. M. Ostermann. Elec W 76:21 J1 3 '20
Calculations relating to high pressure and high temperature steam with interheating for power generation. W. M. Selvey. Inst E E J 58:31-42 D '19
Capacity of steam pipe with superheated steam. F. C. DeWeese. Power 52:30 J1 6 '20
Drying by electrically-superheated steam. J. Karrer. Engineering 110:821-2 D 17 '20
Fallacy of superheating exhaust steam. W. F. Schaphorst. Power Pl Eng 24:1165 D 15 '20; Same. Paper 28:21 Mr 30 '21
Industrial uses of superheated steam. A. Bradley. diags Am Soc Heat & V E 25:365-81; Discussion. 381-4 '19
Losses from long superheat steam pipes determined by means of curves. T. G. Estep. Blast F & Steel Pl 8:259-61+ Ap '20
Management of the power plant; effecting economies by the use of superheated steam. R. June. Textile World 57:1197+ F 7 '20
New Hammermill plant employs superheated steam for prime mover operation and manufacturing processes. il diags plans Power Pl Eng 25:201-4 F 15 '21
- Prevention of sugar deterioration by the use of superheated steam in centrifugals. N: Kopeloff. diag J Ind & Eng Chem 12:860-2 S '20
Radiation losses and the advantage of using superheated steam. Power Pl Eng 25:74-6 Ja 1 '21
Some economic features of pumping station operation. L. A. Day. il diags Am Water Works Assn J 7:795-810 N '20; Same cond. Eng N 85:459-62 S 2 '20; Same. Can Eng 39:243-5 Ag 12 '20; Same. Munic Eng 59:102-4+ S '20
Specific heat and superheated steam; nomogram. M. J. Eichhorn. Power 53:892 My 31 '21
Superheated steam a factor in power plant economy. R. A. Holme. diags Elec R 79:423-6 S 17 '21
Superheated steam and operating costs. H. B. Oatley. Int Marine Eng 25:138-40 F '20
Superheated steam in textile power plants. P. W. Foster, jr. il Textile World 58:3851+ D 4 '20
Superheated steam in the pulp and paper mill. R. H. Wyld. il Paper 27:123-4+ N 10 '20
Superheated steam on steamships. J. L. Haynes. Marine Eng 26:640 Ag '21
Superheated steam on steamships. C. H. Peabody. il diags Marine Eng 26:539-41 J1 '21
Superheated steam—why not? R. A. Hanning. Power 51:33 Ja 6 '20
Superheaters and the utilization of superheated steam. D. D. Pendleton and C. A. Brandt. il diags Eng Soc W Pa 36:25-46 F '20; Same cond. Blast F & Steel Pl 8:350-3 Je '20; Discussion. Eng Soc W Pa 36:47-79 F '20
Super heating. H: Fowler. Engineering 112:89-90 J1 15 '21
Superheating steam cuts operating costs. Marine R 51:383 Ag '21
Superheating with reciprocating engines. A. Raymond. Power 51:895-6 Je 1 '20
Use of superheated steam in power-plant operation. il Elec R 78:139-42 Ja 22 '21
Use of superheated steam in power plants. Power Pl Eng 24:694-6 J1 15 '20
Value of superheated steam in sulphite process. R. H. Wyld. Paper 26:12 My 12 '20
- Superheaters**
Compound locomobile with superheater. il diags Engineering 109:766-8 Je 4 '20
Foster double-stage superheater; abstract. diags plan Mech Eng 43:333-4 My '21
Handling superheaters during the starting-up period. F. C. Torrance. Power 50:613 O 21 '19
Locomotive superheater company, 30 Church St., N.Y. Bulletins.
Nickel Plate power plant at Conneaut, Ohio. J. S. Morris. il diags Ry Mech Eng 94:537-9 Ag '20
Steam superheaters in merchant ships. H. B. Oatley. il Gen Elec R 24:121-3 F '21
Steam superheaters: their design, construction, application and use. il diags Mech Eng 43:663-9 O '21
Steam velocities and pressure drop in superheaters. H. B. Oatley. il Marine Eng 25:824-5 O '20
Sugden uptake-type of superheater for Scotch marine boilers. diags plan Engineering 111:37-40 Ja 14 '21
Superheated steam on steamships. C. H. Peabody. il diags Marine Eng 26:539-41 J1 '21
Superheater equipment. J. R. Le Vally. diags Eng Soc W Pa 37:142-8 Ap '21
Superheater for Scotch boilers. il diags Engineer 129:256 Mr 5 '20
Superheaters and superheat. A. D. Pratt. Power 53:562-3 Ap 5 '21; Discussion. 53:910 My 31 '21
Superheaters and the utilization of superheated steam. D. D. Pendleton and C. A. Brandt. il diags Eng Soc W Pa 36:25-46 F '20; Same cond. Blast F & Steel Pl 8:350-3 Je '20; Discussion. Eng Soc W Pa 36:47-79 F '20

Superheaters—Continued

Where steam makes butter; separately fired superheaters and record system are special features of American cocoanut butter co. plant. il diags Power Pl Eng 24:729-32 Ag 1 '20

Where the superheat went. A. L. Pollard. diag Power 54:269-70 Ag 16 '21

See also Locomotives—Superheaters; Superheated steam

Manufacture

Manufacture of flue tube superheaters. il Engineer 131:438-40 Ap 22 '21

Superior, Lake

Regulation of level of Lake Superior. L. C. Sabin. il diags plan Can Eng 39:451-6 O 21 '20

Superior steel corporation

Report for the fourth fiscal year ended December 31, 1920. Comm & Fin Chr 112:1641 Ap 16 '21

Super-power stations. See Electric plants—Interconnection; Electric plants (central stations)

Super-power survey

Analysis of industrial power in the Super-power Zone. H. Goodwin, jr. diags Power 54:584-8 O 18 '21

Grouping our power plants. R. G. Skerrett. map Sci Am 125A:30-1 N '21

Hydro-electric development, as affected by the recent water-power legislation and the North Atlantic super-power survey. Power 52:221-2 Ag 10 '20

Legal and financial aspects of superpower plan. map Elec W 77:1153-6 My 21 '21; Abstract. Power 53:868-9 My 24 '21

Meeting of the superpower committee. Elec Ry J 57:955 My 21 '21

Money for superpower. Nation's Business 9: 58 My '21

Morrow disavows opposition to super-power survey: sinister motive denied by Dr G. O. Smith. Coal Age 19:371 F 24 '21

Mouth-of-mine plants found impracticable for superpower project. Elec W 77:1063 My 7 '21

Organization and plans of super-power committee. chart Power 52:303-4 Ag 24 '20; Elec W 76:447 Ag 28 '20

Power and fuel used by machine shops and foundries in Superpower Zone. H. Goodwin, jr. Am Mach 55:664-5 O 27 '21

Power equipment of industries in superpower zone. Elec W 78:227 Jl 30 '21; Same. Chem & Met Eng 25:470 S 7 '21; Same. Iron Age 108:68 Jl 14 '21

Power in big packages. S. G. Roberts. map Sci Am 124:86+ Ja 29 '21

Progress report on the superpower survey. Ry Age 70:727-8 Mr 18 '21; Same. Elec W 77:539-40 Mr 5 '21; Same abr. Chem & Met Eng 24:445-6 Mr 9 '21; Same abr. Power 53:395-6 Mr 8 '21; Same abr. Elec R (Lond) 88:405-6 Ap 1 '21; Excerpts. N E L A Bul 8:189-90 Ap '21; Excerpt. Eng & Contr 55:396 Ap 20 '21

Super-power districts; abstracts. W. B. West. map Power Pl Eng 24:1162-3 D 15 '20; Ind Management 60:416-17 D 1 '20

Superpower plans outlined. Elec Ry J 57:452 Mr 5 '21

Super-power survey. W: S. Murray. Elec Ry J 56:776-9 O 16 '20; Mech Eng 42:642-3 N '20; Eng & Contr 54:596 D 15 '20; Elec W 77:27-8 Ja 1 '21; Power 53:2-3 Ja 4 '21; N E L A Bul 8:80-2 F '21; Textile World 59: 1715+ Mr 5 '21

Super-power survey committee of Northwest organization meeting in Portland, April 20. J Elec 46:459 My 1 '21

Superpower survey shows advantages of system including electrification; report of W. S. Murray and others for Geological survey. maps Elec Ry J 58:818-23 N 5 '21; Ry Age 71:881-5 N 5 '21; Ry Mech Eng 95:739-43 D '21

To link all power in one. J. W. Bishop. map Nation's Business 8:20-1 O '20

Superpower systems

Discussion on the super power system for the Northeast Atlantic seaboard; symposium. Am Inst E E J 39:766-77 Ag '20; Abstracts. Elec Ry J 55:435-8 F 28 '20; Elec W 75:486-9 F 28 '20

Proposed super-power zone. map Ry Age 63: 645 F 27 '20

See also Electric plants—Interconnection
Super-power transmission. See Electric plants—Interconnection

Supersaturated steam

Supersaturated steam. diag Locomotive 33: 111-15 O '20

Supersaturated steam. Power 51:999-1000 Je 22 '20

Superstation. See Electric plants—Interconnection; Electric plants (central stations)

Supply and demand

Economics of production. D. A. McCabe. Am Mach 55:289-91, 332, 419-20, 455-6, 497-8 Ag 25-S 1, 15-29 '21

Why it does not work. Sci Am 122:384 Ap 10 '20

Surety insurance. See Insurance, Surety and fidelity

Suretyship and guaranty

Cases on the law of suretyship, selected and annotated. C. De Witt, ed. 726p Bobbs '20

Surface combustion

Firing steam boilers without flame. W: A. Bone and P. St G. Kirke. il diags Sci Am M 1:248-51 Mr '20

Principles of gas combustion. O. L. Kowalke. il diags W Soc E J 25:113-22 F 20 '20; Abstract. Chem & Met Eng 22:320-1 F 18 '20; Discussion. W Soc E J 25:122-3 F 20 '20

Surface combustion. A. E. Blake. il diags Eng Soc W Pa 36:145-68; Discussion. 175-204 Ap '20

Zur entwicklung der oberflächenverbrennung. O: Essich. il diags Stahl & Eisen 41:228-32 F 17 '21

Bibliography

Surface combustion. A. E. Blake. Eng Soc W Pa 36:169-74 Ap '20

Surface creepage. See Dielectrics

Surface energy

Effects of acids and bases on the surface energy relations of β,β -dichloroethylsulfide (mustard gas). W: D. Harkins and D. T. Ewing. Am Chem Soc J 41:1977-80 D '19

Orientation of molecules in surfaces; cohesion, adhesion, tensile strength, tensile energy, negative surface energy, interfacial tension, and molecular attraction. W: D. Harkins and Y. C. Cheng. Am Chem Soc J 43:35-53 Ja '21

Orientation of molecules in surfaces, surface energy, adsorption, and surface catalysis; the adhesional work between organic liquids and water. W: D. Harkins, G: L. Clark and L. E. Roberts. Am Chem Soc J 42:700-12 Ap '20

Surface energies in flotation. F: G. Moses. Eng & Min J 111:7-11 Ja 1 '21

Surface-energy and adsorption in flotation. A. W. Fahrenwald. il diags Min & Sci P 123: 227-34 Ag 13 '21; Abstract. Chem & Met Eng 25:295 Ag 17 '21

Surface energy, latent heat, and compressibility. D. L. Hammick. Philos Mag 6th ser 41:22-32 Ja '21; Discussion. H. Chatley. 42:183-4 Jl '21

Surface energy of mercury and the energy relations at the interface between mercury and other liquids. W: D. Harkins and W. W. Ewing. diags Am Chem Soc J 42:2539-47 D '20

Surface tension

Capillarity and surface tension. A. Ferguson and P. E. Dowson. Elec R (Lond) 88: 431 Ap 1 '21

Coalescence of liquid spheres—molecular diameters. W. Taylor. Philos Mag 6th ser 41:877-89 Je '21

Surface tension—*Continued*

- Critical study of the capillary rise method of determining surface tension, with data for water, benzene, toluene, chloroform, carbon tetrachloride, ether and dimethyl aniline. T. W. Richards and E. K. Carver. *il diags Am Chem Soc J* 43:827-47 Ap '21
- Determination of surface tension from the rise in capillary tubes. S. Sugden. *diags Chem Soc J* 119:1483-92 S '21
- Dynamics of capillary flow; abstract. E. W. Washburn. *Chem & Met Eng* 24:314 F 16 '21
- Effect of absorbed gases on the surface tension of water. S. S. Bhatnagar. *diags J Phys Chem* 24:716-35 D '20
- Effect of surface tension on crystalline form. C. H. Desch. *diags Chem & Met Eng* 21:773-6 D 24 '19
- Mechanism of the surface phenomena of flotation. I. Langmuir. *Min & Sci P* 121:913-17 D 25 '20
- New method of determining surface tension. *Min & Sci P* 123:124 J1 23 '21; Discussion. R. B. Elder. 123:226 Ag 13 '21
- Notes on the angle of contact. C. H. Bosanquet and H. Hartley. *Philos Mag* 6th ser 42:456-62 S '21
- Relation between interfacial and surface tension in sundry organic solvents in contact with aqueous solutions. W. C. Reynolds. *diag Chem Soc J* 119:466-76 Ap '21
- Surface energy of mercury. W. D. Harkins and W. W. Ewing. *diags Am Chem Soc J* 42:2539-47 D '20
- Surface tensimeter for small quantities of liquids. C. C. Kiplinger. *diag Am Chem Soc J* 42:472-6 Mr '20
- Surface tension and conductivity at extreme temperatures. F. M. Jaeger. *Engineering* 110:437 O 1 '20
- Surface tension and molecular attraction: on the adhesional work between mercury and organic liquids. W. D. Harkins and E. H. Grafton. *Am Chem Soc J* 42:2534-8 D '20
- Surface tension of certain soap solutions and their emulsifying powers. M. G. White and J. W. Marden. *J Phys Chem* 24:617-29 N '20
- Surface tensions and densities of liquid mercury, cadmium, zinc, lead, tin and bismuth. T. R. Hogness. *diags Am Chem Soc J* 43:1621-8 J1 '21
- Surface tensions of salts of the fatty acids and their mixtures. E. E. Walker. *Chem Soc J* 119:1521-37 O '21
- Testing the surface tension of liquids. *il Sci Am* 125:14 J1 2 '21
- See also Capillarity*
- Surge arresters.** *See Lightning arresters*
- Surge tanks**
- Application of the law of kinematic similitude to the surge-chamber problem. W. F. Durand. *diags Mech Eng* 43:643-9 O '21
- Horizontal diaphragm increases surge tank capacity. *diag Eng N* 86:67 Ja 13 '21; Same. *Can Eng* 40:145 Ja 20 '21
- Surgery**
- Old Peruvian surgery. *il Sci Am* 125:151 Ag 27 '21
- See also Foreign bodies; Grafting (surgery)*
- Surgical instruments and apparatus**
- Beef-bone screws for surgical use. G. G. Little. *Am Mach* 53:1220 D 30 '20
- Surgical use of beef-bone screws. M. C. Henderson. *il diags Sci Am M* 2:12-14 J1 '20
- See also Medical instruments and apparatus*
- Surplus**
- Classification of surplus. C. B. Couchman. *J Account* 32:265-78 O '21
- Survey markers**
- Boundary monuments. E. Deville. *Can Eng* 38:266-7 Mr 4 '20
- Concrete monuments mark Miami district property. C. S. Bennett. *il diags Eng N* 86:806-7 My 12 '21
- Surveying**
- Activities of Dominion land surveyors. E. Deville. *Can Eng* 40:453 My 12 '21

Barometric method of geologic surveying for petroleum mapping. F. H. Lahee. *diags Econ Geol* 15:150-69 Mr '20

City surveying for title examination. E. P. Clark. 90p Title guarantee & trust co., Brooklyn '21

Easy surveying for the builder. R. P. Smith. *diags Bldg Age* 43:29-30 J1 '21

Few useful dodges in surveying. H. L. Thackwell. *diags Eng N* 85:1164-6 D 16 '20;

Excerpts. *Eng & Min J* 111:390-1 F 26 '21; Discussion. *Eng N* 86:313, 653-4 F 17, Ap 14 '21

Field manual. A. L. Higgins. 938p Pitman '20

Field mapping for the oil geologist. C. A. Warner. 145p Wiley '21

Pegging the lines on the map. A. H. Ulm. *Nation's Business* 8:34+ Mr '20

Simplified method of plotting transit and stadia traverses. H. N. Bradstreet. *Eng N* 87:160 J1 28 '21; Discussion. 87:292, 742 Ag 18, N 3 '21

Some notes on field methods in running land lines. F. E. Brackett. *Eng N* 87:519-20 S 29 '21

Stadia survey for irrigation project. *Eng N* 85:784 O 21 '20

Stadia system for traverse work. J. A. McDonald. *Eng N* 87:512-13 S 29 '21

Surveying. W. N. Thomas. 536p E. Arnold, London '20

Text-book on surveying and leveling. H. S. Threlfall. 663p C. Griffin & co., London '20

See also Earthwork—Tables, calculations, etc.; Hydrographic surveying; Leveling; Meridian; Mine surveying; Photographic surveying; Railroad surveying; Roads—Surveying; Survey markers; Surveyors' chains; Surveys; Topographical surveying

Cost

Cost of state road surveys in Missouri. C. A. Shockley. *Eng N* 86:353 F 24 '21

Method and cost of making stadia survey of 10,000 acre drainage district. C. E. DeLeuw. *Munic Eng* 59:4-5 J1 '20

State road survey methods and costs in Missouri. *Eng N* 86:68-70 Ja 13 '21; Discussion. 86:233-4 F 3 '21

Records

Graph records progress of road-survey parties. R. T. Brown. *Eng N* 84:333-4 F 12 '20

Graphical records for progress in highway surveys. J. E. Fontaine. *Eng N* 85:78 J1 8 '20

Study and teaching

New method of teaching surveying. H. H. Armsby. *Eng Educ* 11:54-8 O '20

Relative importance of topics in surveying instruction. W. H. Rayner. *Eng Educ* 12:57-85 O '21

Teaching of surveying. C. T. Johnston. *Eng Educ* 11:257-70 Ja '21

Tables, calculations, etc.

Cross-sectioning with stadia arc. F. W. Medaugh. *diag Eng N* 85:1272 D 30 '20

Diagrams for reduction of stadia measurements. *diag Can Eng* 39:264 Ag 19 '20

Practical method of applying stadia constants. W. J. Nuebling. *Eng N* 85:157-8 J1 22 '20

Reduction table for the stadia arc. W. S. Dix. *diags Eng N* 86:78-9 Ja 13 '21

Surveying, Aerial

Aerial photographic mapping developed for municipal and other engineering services. *il maps Eng N* 87:596-9 O 13 '21; Discussion. P. J. Barry. 87:828 N 17 '21

Aerial photography as applied to topographical surveys. J. B. Mandeville. *il Aerial Age* 11:87-8 Mr 29 '20

Aerial survey in India. *Aerial Age* 14:40 S 19 '21

Aerial surveying in India. *Aerial Age* 13:280 My 30 '21

Aerocamera in the service of the engineer. E. H. Corlett. *il Eng & Contr* 55:559-61 Je 8 '21

Airplane in modern hydro-electric practice. R. C. Starr. *il J Elec* 45:357-9 O 15 '20

Surveying, Aerial—Continued

- Airplane saved large sum in railroad reconnaissance survey. E. S. Piontkowski. Eng N 87:71 JI 14 '21
- Alaskan flying expedition; remarkable achievement for the army air service. il maps Flying 9:626-30 N '20
- Automatic cinematograph for aerial surveying. A. Gradenwitz. il Aviation 9:24-5 Ag 1 '20
- Mapping from aeroplane photographs. R. B. Unwin. il Engineering 112:557-8 O 21 '21
- Mapping the Orinoco delta. Flying 10:184+ Je '21
- Railroad reconnaissance by aeroplane. Aerial Age 13:399 JI 4 '21; Same. Aviation 11:110 JI 25 '21
- Report on experimental aerial survey at Ottawa, 1920. il (Bul. 2) 16p Canada air board, Ottawa '21
- Surveying from the air. E. L. Jones. Aviation 9:284 N 15 '20; Same. Flying 9:617-18 N '20; Same. Eng N 85:1184-6 D 16 '20
- Surveying from the air. H. B. Say. il Pop Mech 35:891-3 Je '21
- Thousands of dollars saved to the public by aerial survey of cyclone-swept district in Washington state. Aerial Age 13:321+ Je 13 '21

Cost

- Cost estimate for aerial mapping. Eng N 87:599 O 13 '21

Surveying, Magnetic. See Magnetic surveying

Surveying, Military. See Military topography

Surveying, Photographic. See Photographic surveying

Surveying, Topographical. See Topographical surveying

Surveying instruments

- Accuracy of the internally focussing telescope in tachemetry. T. Smith. Philos Mag 6th ser 41:890-9 Je '21
- Manual of the principal instruments used in American engineering and surveying, manufactured by W. & L. E. Gurley. 48th ed. 333p W. & L. E. Gurley, Troy, N.Y. '21
- Use of a self-computing level rod in highway surveys. R. T. Brown. Eng & Contr 52:534 N 5 '19

See also Graviscopes; Levels; Plane tables; Protractors

Surveyors

- Land surveyors approve proposed engineering legislation for Ontario. Can Eng 40:281 Mr 10 '21
- Outlook for Dominion land surveyors. F. V. Seibert. Can Eng 40:271-3 Mr 3 '21
- Outlook for surveyors. J. R. Akins. Can Eng 38:262-3 Mr 4 '20
- Proposed qualifications and duties of county surveyor in Montana. Pub Works 49:592-3 D 25 '20
- Relation of surveyors to town planning. T. D. LeMay. Can Eng 40:282 Mr 10 '21
- Relations between land surveyors and engineers. W. D. Jones. Munic Eng 60:103-4 Mr '21

Licenses

- Legislative act for licensing land surveyors in Illinois. Eng & Contr 53:196 F 18 '20
- Registration of architects, engineers, and land surveyors. Am Inst E E J 40:70-1 Ja '21

Surveyors' chains

- Tests of extension in steel surveyor's chains. J. T. Jackson and D. E. Allen. Eng N 84:957 My 13 '20

Surveys

- Plea for re-surveys; Ontario. E. T. Wilkie. Can Eng 38:265-6 Mr 4 '20

See also Geological surveys

Surveys, Industrial. See Industrial surveys

Surveys, Market. See Market surveys

Surveys, Social. See Social surveys

Suspenders

- Saving an old industry hard hit by whim of fashion. M. Hussobee. Ptr Ink 115:41-2 Je 2 '21

Suspension bridges. See Bridges, Suspension

Suverkrop, E. A., 1864-1921

- Sketch. por Am Mach 55:248d Ag 11 '21

Swages

- Design of steam-hammer swages. A. S. Hesse. diags Am Mach 52:145-6 Ja 15 '20
- Forging round and shaped pieces under the steam hammer. A. S. Hesse. diags Am Mach 52:185-8 Ja 22 '20

Swaging

- Cold swaging. F. R. Daniels. il Mach 27:930-4, 1018-21 Je-JI '21
- Cold swaging; abstract. Mech Eng 43:546 Ag '21

Swaging machines

- Cold swaging. F. R. Daniels. il Mach 27:930-4 Je '21
- Langelier heavy hot-swaging machine. il Iron Age 106:78 JI 8 '20
- Langelier hot swaging machine. E. L. Dunn. il diags Am Mach 52:790-1 Ap 8 '20
- Rotary swaging machines and their work. E. A. Suverkrop. il diags Am Mach 51:973-8 D 11 '19
- Swaging and side-dressing machine for band saws. il diags Engineering 112:186, 188 JI 29 '21

Manufacture

- Swaging machine and toolroom methods of making the dies. W. E. Thompson. diags Am Mach 52:275-7 F 5 '20

Swamp lands. See Drainage—United States; Marshes

Swans

- Trumpeter swan. T. M. Fraser. il Sci Am 124:191+ Mr 5 '21

Swasey, Ambrose, 1846-

- President of the Warner & Swasey co. honored abroad. por Mach 27:1169 Ag '21

Sweaters

- Sweaters' year, 1920, disappointing. Textile World 59:1060-1 F 5 '21
- See also National knitted outerwear association

Sweden

- See also Automobile industry and trade—Sweden; Chemical industries—Sweden; Clay industries—Sweden; Electricity supply—Sweden; Forests and forestry—Sweden; Hydroelectric plants—Sweden; Iron mines and mining—Sweden; Lumber trade—Sweden; Machine tool industry—Sweden; Paper industry and trade—Sweden; Water power—Sweden

Economic conditions

- Industrial conditions in Sweden. Mach 27:672 Mr '21
- Industrial position of Sweden. Electrician 86:592 My 13 '21
- Industrial situation in Sweden. Elec R (Lond) 88:597-8 My 6 '21
- See also Wages—Sweden

Sweet potato sirup

- Preparation of sweet potato sirup. H. C. Gore. il Chem Age 29:151-3 Ap '21

Sweet potatoes

- All-around vegetable; the many uses of the sweet potato. S. R. Winters. il Sci Am 125:182-3 S 10 '21
- Discoloration in canned sweet potatoes. E. F. Kohman. J Ind & Eng Chem 13:634-5 JI '21
- Manufacture of sweet potato flour by the flake process. C. E. Mangels and S. C. Prescott. il Chem Age 29:132-5 Ap '21
- Sweet potatoes as stock food. Sci Am 124:73 Ja 22 '21
- Sweet potatoes for the candy manufacturer. Sci Am 125:39 JI 16 '21

Swimming

- Swimmer's cramp—its causes and how they may be avoided. J. S. Taylor. Sci Am 125A:37 N '21

Swimming pools

- Bathing pavilion and swimming pool; estate of Cyril Crimmins, Noroton, Conn. il Am Arch 119:285 Mr 9 '21

Swimming pools —Continued

- California regulations for construction and operation of swimming pools. Eng & Contr 52:560-1 N 12 '19
- Cost of 595x340 ft. out door swimming pool at Baltimore, Md. il Eng & Contr 52:664-5 D 10 '19
- Madison Square garden pool has special features. il Pop Mech 36:331 S '21
- Natatoriums; a discussion of their architectural shortcomings. E. H. Wood. Am Arch 117:281-2 Mr 3 '20
- Open-air swimming and wading pools, Atlanta, Georgia. plan Eng N 84:673 Ap 1 '20
- Open-air swimming pool in England. J: Y. Dunlop. il diag plans Am Arch 116:735-8 D 10 '19; Same. Metal Work 93:10-12 Ja 2 '20
- Purification of swimming-pool waters. A. S. Wootton. Can Eng 39:493-4 N 4 '20
- Purification of water for swimming pools. F. E. Hartman. 20p F. E. Hartman, Scottsdale, Pa. '21
- Spalding swimming pool at Dartmouth college. L. V. Solon. il diags plan Arch Rec 50:183-92 S '21
- Swimming pool of the Louisville water company, Louisville, Ky. J. B. Wilson. il Munic Eng 61:67-8 Ag '21
- Swimming pool of the West Point military academy. il diags plans Am Arch 116:701-5 D 3 '19
- Swimming pools. Am Inst Arch J 9:30-2 Ja '21
- Swimming pools: a new municipal enterprise. C. G. Gillespie. Eng & Contr 53:668-9 Je 9 '20
- Swimming tank vacuum cleaner. diags Power Pl Eng 24:251-2 F 15 '20
- Treatment of swimming pool water by the ultra violet ray sterilizer. G. R. Shaw. Munic Eng 61:78 Ag '21
- Swimming suits. See Bathing suits
- Swindlers and swindling**
- Exploiting the inventor. C. H. Claudy. Sci Am 122:388+. 452+, 484+ Ap 10, 24-May 1 '20
- Swine**
- Concrete bathtub makes contented hogs. il diags Metal Work 93:210 F 13 '20
- Feeding garbage to hogs at St Paul. Eng N 84:289-90 F 5 '20
- Swine houses**
- How to heat a hog house. diags Dom Eng 92:227-8 Jl 31 '20
- Swing saw.** See Saws
- Swingbridges.** See Drawbridges
- Swiss bridge builders and structural fabricators' association**
- Work of the Swiss bridge-builders' structural research board. Eng N 86:1113 Je 30 '21
- Switchboards**
- Changed switchboard connections to improve operation. W. D. Lewis. diags Power 50:627 O 21 '19
- Control for canal locks is virtually foolproof. il Elec W 78:210 Jl 30 '21
- Dead front and rear switchboard made by Westinghouse electric and manufacturing company. il J Elec 46:466 My 1 '21; Same. Power Pl Eng 25:493 My 1 '21
- D.C. switchgear and contactor control for marine use. A. S. Horne. il diags Electrician 87:139-42 Jl 29 '21
- E.A.C. switchgear works. il diags Elec R (Lond) 88:164-6 F 11 '21
- Factors in design of distribution panels for industrial plants. J. E. Housley. il diags Elec W 78:524-5 S 10 '21
- Generator and switchboard arrangement to give 220 volts to 2,300 volts. A. R. McDonald. diags Elec W 76:26-7 Jl 3 '20
- Hazards of faulty switchboard construction. R. M. Bert. Elec R 78:453-4 Mr 19 '21; Abstract. Elec Ry J 57:643 Ap 2 '21
- High tension switchboards. H: E. Poole. 114p Pitman '21
- Large switchboard for service in South Africa. il Elec R 78:320 F 19 '21
- Line and generator switching at Niagara Falls. S. Q. Hayes. il Elec R 78:203-7 F 5 '21

- Model of canal used as control and indicating board. il Elec R 78:477-8 Mr 19 '21; Marine Eng 26:302 Ap '21; Sci Am 124:453+ Je 4 '21
- Modern practice in industrial switchboard design. D. H. Colcord. il Elec R 76:228-30 F 7 '20; Excerpt. J Elec 44:306 Ap 1 '20
- Modern tendencies in low tension non-automatic ironclad switch and fuse gear. W. L. Barber. il Electrician 87:452-3 O 7 '21
- Present tendencies in safe construction of switchboards. il Elec R 76:330 F 21 '20
- Remodeling switch gears for power systems. S. Q. Hayes. il diags Power Pl Eng 25:126-31, 221-5, 320-4, 419-22, 515-19 Ja 15, F 15, Mr 15, Ap 15, My 15 '21
- Repairing electrical switchboard instruments. V: H. Todd. il diags Power 53:1044-7 Je 28 '21
- Safety features of British switchgear. B. E. G. Mittell. il diags Elec W 75:309-12 F 7 '20
- Secure method of mounting switchboard. J: F. Hanley. diags Elec W 77:434-5 F 19 '21
- Selecting a switchboard for a plant of moderate size. G. E. Wendle. il Elec R 75:1103-7 D 20 '19
- Specialised switchgear manufacture. il diag Electrician 86:203-5 F 11 '21
- Switch and control equipment at Niagara Falls. S. Q. Hayes. il Elec R 78:47-53 Ja 8 '21
- Switchboard equipment for Cape Town. E. G. Bern. il diags Gen Elec R 24:226-9 Mr '21
- Switchboard made of standard parts is compact and safe. F. W. McGraw. il Elec W 77:1259 My 28 '21
- Switchboard-meter connections—common types of alternating-current instruments. E. A. Reinman. diags Power 54:625-8 O 25 '21
- Switchboard-meter connections—direct-current voltmeters and ammeters. E. A. Reinman. diags Power 53:380-2 Mr 8 '21
- Switchboard meter connections for alternating current circuits. J. C. Group. diags Elec J 17:25-30, 61-5, 99-103, 131-5, 219-22, 251-3, 281-4, 355-6, 536-8, 567-71 Ja-Ag, N-D '20
- Switchboard-meter connections—simple alternating-current circuits. E. A. Reinman. il diags Power 53:576-8 Ap 12 '21
- Switchboard-meter connections—three-phase circuits. E. A. Reinman. diags Power 53:963-6 Je 14 '21
- Switchboard of dead-front and rear construction. il Elec R 79:32 Jl 2 '21
- Switchboard useful for motor repair shop. C. W. Goding. diag Elec W 75:1377 Je 12 '20
- Switchboards for industrial plants. V: H. Todd. il Power Pl Eng 25:904-8 S 15 '21
- Switchboards for merchant ships. P. J. Whitmore. il diags Gen Elec R 24:164-6 F '21
- Troublesome switchboard gives perfect service after remodeling. il Elec W 78:932 N 5 '21
- Wiring a switchboard. J: J. Ramsey. diags Power Pl Eng 25:998-9 O 15 '21

Standards

- How standardized switchboards aid in substation enlargements. D. D. Clarke. il Elec W 75:955 Ap 24 '20
- Switches, Electric.** See Electric switches
- Switches, Railroad.** See Railroads—Switches, frogs, etc.; Street railroads—Switches, frogs, etc.
- Switzerland**
- See also Electricity supply—Switzerland; Engineering—Switzerland; Hydroelectric plants—Switzerland; Railroads—Switzerland; Waterways—Switzerland
- Economic conditions**
- Economic position of Switzerland during the war. L: A. Rufener. U S Bur For & Dom Com misc ser 90:1-87 '19
- See also Prices—Switzerland

Industries and resources

- See also Chemical industries—Switzerland; Electric industries—Switzerland; Machine tool industry—Switzerland

Sycamore

- Micrography of sycamore pulp. Y. L. Vidal. il
Paper 27:18-19 S 22 '20
Utilization of sycamore. W. D. Brush. il
diags map U S Agric Bul 884:1-24 '20

Sydney, New South Wales**Rapld transit**

- New rapid transit railway for Sydney. map
Eng N 85:56-8 J1 8 '20

Symbiosis

- Parasitism and symbiosis in relation to
evolution. M. Caullery. il diags Sci Am M
1:399-403 My '20
Symbiotes or benevolent microbes and
vitamines. M. Tevis. Sci Am S 88:282-3 N
15 '19

Symbols

- International physico-chemical symbols. Chem
Soc J 119:502-12 Ap '21
Preliminary report of the American society
of mechanical engineers' Standing Commit-
tee on symbols in heat engineering. Mech
Eng 43:623 S '21
Symbols for heating terms. Heat & Ven 17:52
J1 '20

See also Abbreviations; Electric symbols

Symbols, Mnemonic

- Alphabetical and mnemonic symbols on tabu-
lating machine cards. C. M. Ford. Ind
Management 61:347-50 My 1 '21
Mnemonic system of classification. H. K.
Hathaway. il diags Ind Management 60:
173-83 S '20

Symmetry. See Design; Proportion**Synchronizing**

- Calculation of synchronizing power. E. S.
Henningsen. diags Gen Elec R 24:951-6 N
'21
Switchboard meter connections for alterna-
ting current circuits. J. C. Group. diags
Elec J 17:536-8, 567-71 N-D '20; Same (pt 1,
Synchronizing with lamps). Power Pl Eng
25:376-8 Ap 1 '21

Synchroscope. See Synchroscope**Synchronous motors.** See Electric motors, Syn-
chronous**Synchroscope**

- Alternating current meters; frequency me-
ters, synchrosopes and power factor in-
dicators. V. H. Todd. il diags Power Pl
Eng 25:464-9 My 1 '21
Easily constructed synchroscope for instruc-
tion purposes. L. F. Curtis. diags Elec W
76:529 S 11 '20
Rotating-light synchroscope easily seen at
distance. J. O. Bangsburg. il Elec W 75:
1373 Je 12 '20
Switchboard-meter connections—common types
of alternating-current instruments. E. A.
Reinman. diags Power 54:625-8 O 25 '21
Switchboard meter connections for alternat-
ing-current circuits; synchronizing with a
synchroscope. J. C. Group. diags Elec J
17:567-71 D '20

Syndicalism

- Syndicalism: economic and political. J. A.
R. Marriott. 64p Duckworth & co., London
'20

See also Gild socialism; Socialism; Soviets

Bibliography

- Social movements. S. Zimand. p. 213-26 H. W.
Wilson co. '21

Syndolag

- Governmental power over manufacturers. W.
Gustin. Chem & Met Eng 22:703-4 Ap 14
'20

Synthesis

- Attempted synthesis of a hydrocarbon, $C_{14}H_{10}$;
abstract. R. Meyer, W. Meyer and K.
Taeger. Chem Soc J 120 pt 1:20-1 Ja '21
Experiments on the synthesis of the polyacetic
acids of methane. C. K. Ingold, W. J.
Powell and E. A. Perren. Chem Soc J 119:
341-54, 1222-31, 1582-1601 Mr, Ag, O '21
Synthesis of indanediones; abstracts. K.
Fleischer, F. Siefert and J. Stemmer. Chem
Soc J 120 pt 1:251-6, 264-5 Ap '21

Synthetic air chart. See Ventilation—Tables,
calculations, etc.**Synthetic organic chemical manufacturers' as-
sociation of the United States**

- Organization. Chem & Met Eng 25:847 N 2 '21

Syphilis

- La lutte contre la syphilis dans le bassin de
Briey. E. Macé. Chimie & Ind 3:391-6 Mr
'20

- Syphilis and industry. A. N. Thomson. J
Ind Hygiene 3:99-101 J1 '21

Syracuse, New York

- Lay concrete channel lining with large travel-
ing form. il diags Eng N 84:1056-8 My 27
'20

Water supply

- Troubles with algae in the Skaneateles water
supply of Syracuse. Am Water Works Assn
J 7:237-8 Mr '20

Syrups. See Sirups**T****Tabulating machines**

- Alphabetical and mnemonic symbols on tab-
ulating machine cards. C. M. Ford. Ind
Management 61:347-50 My 1 '21
How a railway simplified its disbursements
accounting. C. O. Price. Ry R 68:134-40 Ja
22 '21

See also Calculating machines

Tabulating machines, Electric

- Census tabulating machine. il Engineer
131:532-3+ My 20 '21
Electricity and the census. J. A. Stewart.
il Sci Am 122:109 Ja 31 '20
Sorting and tabulating machines in disburse-
ment work. Ry R 67:51-2 J1 10 '20

Tables, Computing. See Ready-reckoners; also
subdivision Tables, calculations, etc., under
various subjects, e.g. Building, Earthwork,
Electric engineering, Heating, Hydraulics,
Lighting, Railroad engineering, Telegraph,
Ventilation**Tachograph**

- Recording speed indicators. A. G. Newell.
diags Ry R 68:7-10 Ja 1 '21; Abstract.
Mech Eng 43:128 F '21; Same. Sci Am M
3:185-6 F '21
Speed indicator combining stopwatch and
revolution counter. il Sci Am 124:354 Ap 30
'21

Tachometers

- Hasler integrating tachometer. il Mach 26:
1187-8 Ag '20
Jones tachometer for textile machines. il
Textile World 59:3547 My 28 '21
Novel tachometer. A. Swenson. diags Pop
Mech 36:296 Ag '21
Tachometers in the paper mill. T. R. Gresh-
am. Paper 27:54 N 10 '20
Use and advantages of electric tachometer
in paper mills. C. O. Kunde. chart Paper
26:17 J1 7; 17+ J1 14 '20

Tackle blocks

- Standardizing tackle blocks. diags Int Marine
Eng 25:362-3 Ap '20

Tacoma, Washington**Harbor**

- Tacoma to spend \$900,000 on harbor develop-
ment. J Elec 47:318 O 15 '21

Taconite

- Treatment of taconite. Min & Sci P 122:455
Ap 2 '21

**Taft-Peirce manufacturing company, Woon-
socket, Rhode Island**

- Modernizing the apprenticeship; methods used
by the Taft-Peirce mfg. co. E. Oberg. il
Mach 27:220-4 N '20

Tallings

- Crahall tailing plant. W. F. Boericke. flow
sheet & plan Eng & Min J 111:1065-8 Je
25 '21

Tailings—Continued

Cyanide plant without frills at Calico, Cal. L. A. Palmer. *il Eng & Min J* 109:1260-2 Je 5 '20

Pump for elevating tailing. *il diag Min & Sci P* 121:918 D 25 '20

Tailoring

Complete handbook of tailoring and shop management on the sectional or group system. F. F. Deiner. 152p F. F. Deiner & company, New York '20

Guide du tailleur, à l'usage des gens de métier et des cours professionnels. A. Morin. 150p Dunod, Paris '21

Tailoring (women's)

New standard work on designing and pattern-making of ladies tailor-made garments. new rev. ed. 136p Mitchell publications, New York '21

Tailors**Advertising**

How custom tailors may advertise co-operatively. A. E. Hasse. *Ptr Ink* 117:81-2 O 20 '21

Taintor gates. See Gates, Hydraulic

Talbot's bands

Talbot's bands and the colour-sequence in the spectrum. N. K. Sethi. *diags Philos Mag* 6th ser 41:211-24 F '21

Talc

California talc production declining. *Eng & Min J* 112:338 Ag 27 '21

Domestic talc situation for 1920. *Eng & Min J* 111:313 F 12 '21

High-grade talc for gas burners. J. S. Diller, J. G. Fairchild and E. S. Larsen. *Econ Geol* 15:665-73 D '20

Important factors in talc milling efficiency. R. B. Ladoo. *Min & Met* 169:29-30 Ja '21

Imports and consumption of talc. *Eng & Min J* 111:428 Mr 5 '21

Milling talc. *Min & Sci P* 121:738 N 20 '20

New talc-grinding capacity in the United States. R. B. Ladoo. *Eng & Min J* 111:752 Ap 30 '21; Same, with chart. *Chem Age* 29:200 My '21

Our mineral supplies; talc and soapstone. J. S. Diller. *U S Geol S Bul* 666:55-6 '19

Properties domestic talc should possess. *Eng & Min J* 112:373 S 3 '21

Talc and soapstone in 1918. J. S. Diller. *U S Geol S Min Res of U S* 1918,pt 2:557-63 '20

Talc and soapstone in 1919. J. S. Diller. *U S Geol S Min Res of U S* 1919,pt 2:265-8 '21

Talc and soapstone in 1919. R. B. Ladoo. *Eng & Min J* 109:235-7 Ja 17 '20

Talc in fire-resistant paint. R. B. Ladoo. *Chem & Met Eng* 23:689 O 6 '20

Talc industry in 1920. R. B. Ladoo. *Can Chem & Met* 5:169-71 Je '21

Talc mining in South Africa. *Eng & Min J* 110:860 O 30 '20

Uses of talc and soapstone; summarized list of the present and possible future uses of powdered and massive talc and soapstone. R. B. Ladoo. *Chem & Met Eng* 23:235-6 Ag 11 '20

Vermont talc. *Sci Am* 122:262 Mr 6 '20

Talcum powder**Advertising**

Mr Crump gets an O. K. S. Dick. *il Ptr Ink* M 3:46+ S '21

Tallow

Experiments on tallows used for launching ships. J. J. King-Salter. *diag Engineering* 111:405-7; Discussion. 385 Ap 1 '21

Tamalpais vocational school

Choosing teachers for vocational schools. W. T. Elzinga. *Am Mach* 52:1144 My 27 '20

Tampa, Florida**Rapid transit**

One-man cars saved Tampa. *Elec Ry J* 58:338 Ag 27 '21

Tampico, Mexico

Wages in Tampico. *Monthly Labor R* 12:786 Ap '21

Tamping machines

Centrifugal-electric tie tampers. *il Elec Ry J* 55:953 My 8 '20

Imperial pneumatic tie tampers. *diags Ry R* 66:418-21 Mr 13 '20

Jackson electric tie tamper. *il diags Ry R* 66:90-3 Ja 17 '20

Method of working Jackson electric tie tamper. *diags Ry R* 67:294-5 Ag 21 '20

Pneumatic tie tamper—rules for its use. W. H. Armstrong. *Eng & Contr* 53:579-80 My 19 '20

Pneumatic tie tampers used in breaking ice on tracks. *il Ry R* 66:778-9 My 8 '20

Test to determine the cost of pneumatic tie tamping. *Ry Age* 70:721 Mr 18 '21; Same. *Eng & Contr* 55:386 Ap 20 '21

Use of electric tie tampers on the Michigan Central railroad. *il diags Ry R* 67:84-6 Jl 17 '20

Tank cars

Ask industry's backing to get revision of M.C.B. rules. *Nat Pet N* 13:27-8 F 2 '21

Duties of car inspectors in handling tank cars. J. E. Grant. *Ry Mech Eng* 94:769-72 D '20

Handling wrecks and derailments involving loaded tank cars. W. S. Topping. *Ry Mech Eng* 94:157-8 Mr '20

Inspection of freight equipment. L. K. Sillcox. *il Ry Mech Eng* 94:463-4 Jl '20

Oil transportation. A. M. Schoyer. *Ry Age* 69:897 N 19 '20

Railway tank wagon for ammonium nitrate. *il diags Engineer* 129:176-7 F 13 '20

Report of committee on tank cars; abstracts. *Ry Age* 71:376-8 Ag 20 '21; *Ry R* 69:238-9 Ag 20 '21; *Ry Mech Eng* 95:586-8 S '21

Report of the committee on tank cars. *Ry Age* 68:1848-51 Je 16 '20; *Ry R* 66:1043-5 Je 19 '20

Specifications for tank compartments. *Nat Pet N* 12:50 Ag 4 '20

Sulphuric acid tank cars of 70 tons capacity. *il diags plan Ry Age* 70:203-5 Ja 14 '21; Same. *Ry Mech Eng* 95:94-6 F '21

Tank car maintenance problem. P. Bateman. *diags Mech Eng* 41:817-19 O '19; Same. *Ry R* 65:677-9 N 8 '19; Same. *Ry Mech Eng* 93:647-8 N '19

Tank car outlets and other projections. B. W. Dunn. *Ry Age* 69:1074 D 17 '20; Same. *Ry Mech Eng* 95:170 Mr '21

See also Tank trucks; Tanks—Measurement

Explosions

Failure to relieve pressure thru valves cause of Memphis explosion. *il Nat Pet N* 13:31 F 23 '21

Tank gages. See Gaging

Tank hoops

Repair and maintenance of tank hoops. *Ry R* 67:750-1 N 13 '20; Same cond. *Ry Age* 69:760-1 O 29 '20

Tank ships

Le bateau pétrolier San Fernando. *il diags Génie Civil* 76:197-9 F 21 '20

Big oil-tank vessel made of corrugated plates. *il Pop Mech* 35:579 Ap '21

Big tanker of improved design. *il diags Marine R* 50:494-6 S '20

Details of 10,000-ton tankers. *diags plans Marine R* 50:542-5 O '20

Huge ore and oil carrier Marore and Steelore. *diags Marine R* 51:160-2 Ap '21; Same. *Iron Tr R* 68:972-3 Ap 7 '21

Large tanker Swiftsure successfully launched. *il Marine R* 51:164 Ap '21

Motor-driven tanker. *il plan Int Marine Eng* 25:170-1 Mr '20

Motor tank-ship Conde de Churruca. *il diags plan Engineer* 132:297-301 S 16 '21; Abstract. *Mech Eng* 43:742-3 N '21

Motor tanker Mexico. C. E. Spinnler. *Marine Eng* 25:1000-1 D '20

Motor ship Narragansett. *il diags (supp) Engineering* 109:716-19, 722 My 28 '20

Motorship Narragansett. *il diags plans Marine Eng* 26:16-20 Ja '21

New design of 10,000-ton tanker. *diags plans Marine Eng* 26:12-15 Ja '21

New machinery for Atlantic refining tankers. *il Marine Eng* 26:597-9 Ag '21

Tank ships—Continued

- New 20,000-ton tankers. H. F. Norton. diags plans (supp) Marine Eng 25:970-4 D '20
- New uses for old sailing vessels. il Int Marine Eng 25:393-4 My '20
- 9,420-ton tankers San Lamberto and San Leon. diags plans Marine Eng 26:513-19 Jl '21
- Oil-carrying steamer San Felix for the Eagle oil transport line. il Engineering 112:441-2, 444, pl 25 S 23 '21
- Oil companies use their own tankers to help Shipping board. V. B. Guthrie. Nat Pet N 12:35 D 1 '20
- Oil tank steamer San Fernando. il diags pl 4 (supp) Engineering 109:76-8 Ja 16 '20
- Oil tank steamer San Fernando: largest of the new fleet of 18,000-ton steamers building for the Eagle oil transport company, limited. F. C. Coleman. il diags plans Int Marine Eng 25:484-8 Je '20
- Oil tanker San Fernando. il diags Engineer 128:605-7 D 19 '19
- Oil-tight bulkheads for tankers. diag Engineer 131:331 Mr 25 '21
- Ore and oil steamers Marore and Steelore. diags plans Marine Eng 26:283-9 Ap '21
- Progress of the oil-tank steamer San Felix. il Eng & Ind Management 5:238+ F 24 '21
- Rivets and spacing of rivets for oil-tight work. H. P. Frear. Engineering 110:817-19 D 17 '20; Same. Marine R 51:27-30 Ja '21; Same cond. Marine Eng 25:1008-9 D '20; Abstract. Mech Eng 43:46 Ja '21
- Tank steamer of 12,620 tons deadweight. diags plans Int Marine Eng 25:476-8 Je '20
- Tank steamers vital link in meeting world's demand for oil. W. H. Reed. Nat Pet N 12:97+ D 1 '20; Same. Am Ind 21:42+ D '20
- Tankers delivered to Lux navigation company; the Henry Deutsch De La Meurthe and the Emily Deutsch De La Meurthe. il Marine Eng 26:547 Jl '21
- 10,000-ton oil tank steamship for Union oil company of California. il diags plans Int Marine Eng 25:272-4 Ap '20

Tank ships, Concrete

- Concrete tanker built like grain elevator. il Pop Mech 34:695-6 N '20
- Concrete tanker built of separately cast cylinders. il diags plan Eng N 85:388-93 Ag 26 '20
- Concrete tankers built with slip forms. il Concrete 17:198-200 D '20
- Daring ship design: concrete tankers cast in sections from sliding forms. R. Howard. il Sci Am 124:68+ Ja 22 '21
- Interior braces and stirrups added to concrete tankers. il diags Eng N 84:705-8 Ap 8 '20
- Navires pétroliers de 2 000 tonneaux, en béton armé, construits en éléments cylindriques moulés. P. Calfas. il diags plan Génie Civil 77:449-52 D 4 '20
- New concrete tanker to be tested soon in ocean service. il Nat Pet N 12:95+ N 3 '20
- Stone age on the ocean. J. F. Springer. il Am Ind 21:27-9 Mr '21

Tank trucks

- Motor truck selection and operation in oil distribution. F. A. Bean. Nat Pet N 12:43+ Ag 4 '20
- New type of tank mounting permits 2,400-gallon trucks. il Nat Pet N 12:30-1 My 19 '20
- Overload, piping, and filler plug size vital points on tank truck. F. A. Bean. Nat Pet N 12:43+ S 29 '20

Tanks

- Concrete hoops and columns support chemical tanks. H. V. Berg. il Concrete 18:224-5 My '21
- Reinforcement of manholes in tanks. Eng N 84:952 My 13 '20
- Tanks and pipe lines as causes of accidents. H. A. Hoffman. Chem & Met Eng 23:1023-5 N 24 '20

Tanks for plumbing and heating work. C: L. Hubbard. il diags Dom Eng 90:383-5+, 432-4 F 21-28 '20

See also Electric transformers—Tanks; Gas holders; Imhoff tanks; Septic tanks; Sewage tanks; Standpipes; Surge tanks; Tank cars; Tank ships; Tank trucks; Water tanks

Failures

Hot-water tank explosion. J. P. Morrison. il Power 53:86 Ja 11 '21

Measurement

- Capacity of cylindrical tanks. Power 51:153 Ja 27 '20
- Chart for determining tank capacity. Motor Age 38:40 Jl 29 '20
- Determining tank capacity or contents. W. F. Schaphorst. chart Textile World 60:687 Jl 30 '21
- Instructions for inspection of construction of bituminous macadam surface; calculating volume of tank cars. D. Q. McComb. Eng & Contr 56:104-5 Ag 3 '21
- Tabulation showing the estimated contents and capacity in gallons of various sized oil storage tanks. Am Gas Eng J 112:59 Ja 17 '20
- Volume of liquid in a horizontal tank. H. J. Geerlings. Am Mach 55:498 S 29 '21

Repair

Oxy-acetylene welding kinks. J. F. Springer. diags Textile World 58:885+ Ag 7 '20

Transportation

Shipping large size welded tank. il Gas Age 47:366 My 10 '21

Tanks, Concrete

- Coal pockets—a construction opportunity. W. G. Kaiser. il diags Concrete 17:120-2 O '20
- Concrete block lining for fuel oil tanks. Eng & Contr 55:321 Mr 30 '21
- Concrete brine tanks. H. C. Boyden. A S R E J 7:390-5; Discussion. 395-400 Mr '21
- Concrete fuel oil storage tanks. J. E. Freeman. il Power Pl Eng 24:881-3 S 15 '20
- Concrete fuel oil tanks at Panama canal terminals. Eng & Contr 54:398 O 20 '20
- Concrete oil storage tanks for industrial plants. J. E. Freeman. il Ind Management 59:133-6 F '20
- Concrete oil tanks. J: H. Hession. diags Arch Forum 31:215-16; 32:37-8 D '19-Ja '20
- Concrete storage tanks are adaptable to any petroleum product. H. C. Boyden. Nat Pet N 12:89+ O 13 '20
- Concrete storage tanks for fuel oil—square and circular. R. E. Parker. diags plans Concrete 16:213-17 My '20
- Concrete tanks for gasoline. diags plans Concrete 17:101-2 S '20
- Concrete tanks for storage of crude carbolic acid and a larvacide. G: C. Bunker and A. H. Khachadorian. plans Concrete 19:145-7 O '21
- Concrete tanks hold light flash oil. il Concrete 17:171 N '20
- Concrete wine tanks. diags plan Concrete 16:171 Ap '20
- Constructing a concrete freezing tank. W. A. Darter. diags Power Pl Eng 24:665-6 Jl 1 '20
- Effect of oil on untreated concrete storage tanks. Eng & Contr 53:213 F 25 '20
- Essential features in the design of reinforced concrete tanks for the storage of fuel oil. il diags plans Am Arch 118:753-7 D 8 '20
- Fifteen thousand-gallon concrete fuel-oil tank. diags plans Power 51:619 Ap 20 '20
- Fuel-oil installation. H. A. Wilcox. il diags plans Power Pl Eng 24:501-6, 527-31 My 15 '20
- Large concrete oil tank built for Panama canal. R. C. Hardman. diags plans Eng N 84:380-1 F 19 '20
- Steel versus concrete oil storage tanks. W. E. Goldsworthy. Metal Work 93:241+ F 20 '20
- See also Bins, Concrete; Septic tanks, Concrete

Tanks, Steel

- Big moving job. *il Sci Am* 124:411 My 21 '21
Electrically welded tanks show many advantages over riveted ones. W. Schenstrom. *il Elec W* 77:1377-8 Je 11 '21
Enameled steel manufacture; development of glass-lined steel containers. C. H. Jones. *il Chem & Met Eng* 25:883-6 N 9 '21
Field men are shown new type of bolted tank. *Nat Pet N* 12:76 D 15 '20
New design for oil tankage. H. T. Carlton. *diags plan Eng & Min J* 109:1078-9 My 8 '20
Proper tank construction would save much in insurance premiums. S. H. Brooks. *il diags Nat Pet N* 13:27+ Ag 10 '21

Failures

See also Molasses tank explosions

Repair

- Repairing steel tanks with gunite. *diag plan Concrete* 17:90 S '20
Tanks, Surge. *See* Surge tanks
Tanks, Water. *See* Water tanks

Tanneries

- Structural service department; concrete vats for tanneries. S. W. Jones and L. E. Kern. *Am Inst Arch J* 8:437-8 D '20

Tannic acid

- Effect of tannic acid on strength of concrete. D. A. Abrams. *Am Soc T M Pro v* 20 pt 1: 309-39 '20; Excerpt. *Ry Age* 68:1971 Je 25 '20; Same. *Eng & Contr* 54:277 S 22 '20; Same. *Concrete* 17:172 N '20; Abstract. *Power Pl Eng* 25:853 S 1 '21
Extraction of tannin from Indian myrabolans. *Chem & Met Eng* 22:1123-4 Je 16 '20
New source of tannin. *Sci Am* 124:403 My 21 '21
Tannin content of Pacific coast conifers. R. H. Clark and H. I. Andrews. *J Ind & Eng Chem* 13:1026-7 N '21

See also Tanning materials

Tannin. *See* Tannic acid; Tanning materials

Tanning

- Chemist and his relation to the tannery. J. Helfrich. *Color Tr J* 8:63-5 F '21
La chimie des divers procédés de tannage. H. R. Procter. *Génie Civil* 76:318-19 Mr 27 '20
Dyeing and tanning of leather. J. Helfrich. *il Color Tr J* 5:134-7; 6:11-14, 125-8 N '19, Ja, Ap '20
Economy of chlorine as a disinfectant for tannery effluent. W. S. Wainright. *diags Stevens Ind* 38:1-7 Ja '21
Effect of concentration of chrome liquor upon the adsorption of its constituents by hide substance. A. W. Thomas and M. W. Kelly. *J Ind & Eng Chem* 13:65-7 Ja '21
Hides and leather in France. N. Hertz. *il map U S Bur For & Dom Com* 200:1-159 '20
Hydration as an explanation of the neutral salt effect. J. A. Wilson. *Am Chem Soc J* 42:715-20 Ap '20
L'industrie du cuir au Maroc. C. Chaveau. *Chimie & Ind* 4:409-18 S '20
Leather—a product that is still a mystery. R. G. Skerrett. *il Sci Am M* 1:513-16 Je '20
Meetings of the Division of leather chemistry of the A. C. S. *Chem & Met Eng* 25: 549-50 S 21 '21
Nature of the hide-tannin compound and its bearing upon tannin analysis. J. A. Wilson and E. J. Kern. *J Ind & Eng Chem* 12: 1149-52 D '20
Purification of tannery wastes. H. B. Hommon. *U S Public Health Service Pub Health Bul* 100:133p '19
Soluble oils and their production. R. Sansone. *Sci Am M* 4:377-8 O '21
Synthetic tannins and their use in tanning. E. Nihoul. *Sci Am M* 1:326-30 Ap '20
Use of gas in the artificial leather and kindred industries. G. C. Shadwell. *il Am Gas Eng J* 112:120-3 F 14 '20
See also Leather; Tannic acid; Tanning materials

By-products

- Miles-acid process on tannery waste. E. S. Dorr. *Pub Works* 49:403-4 O 30 '20; Same. *Eng & Contr* 54:570 D 8 '20; Abstract. *Eng N* 85:939 N 11 '20

Tanning materials

- Color value of a tan liquor as a function of the hydrogen-ion concentration. J. A. Wilson and E. J. Kern. *J Ind & Eng Chem* 13:1025-6 N '21
Les matières tannantes de nos colonies. H. Jumelle. *Chimie & Ind* 5:103-8 Ja '21
Synthetic tanning agents; patent. *Chem & Met Eng* 23:1269; 24:984 D 29 '20, Je 1 '21
Synthetic tannins and their use in tanning. E. Nihoul. *Sci Am M* 1:326-30 Ap '20
See also Catechin; Tannic acid

Analysis

- Determination of tannin. J. A. Wilson and E. J. Kern. *diag J Ind & Eng Chem* 13: 772-4 S '21
Nature of the hide-tannin compound and its bearing upon tannin analysis. J. A. Wilson and E. J. Kern. *J Ind & Eng Chem* 12: 1149-52 D '20; Abstract. *Chem & Met Eng* 23:613-14 S 29 '20
True tanning value of vegetable tanning materials. J. A. Wilson and E. J. Kern. *J Ind & Eng Chem* 12:465-9 My '20

Taper pins

- Test of taper-pin fastenings for levers. E. A. Dixie. *il Am Mach* 52:520-1 Mr 4 '20
Using taper pins for repairs. E. A. Dixie. *diags Am Mach* 54:519-20 Mr 24 '21

Tapers

- Cruban micro-automatic taper turning tool. *il Am Mach* 52:159-60 Ja 15 '20; *Mach* 26: 471-2 Ja '20
Formula for making taper measurements. C. N. Pickworth. *diag Mach* 27:4 S '20
Formula for taper measurements. H. Bold. *diag Mach* 26:763 Ap '20
Inspection of a triple-tapered chamber check. V. E. Ayre. *diags Mach* 26:648 Mr '20
Inspection of tapered plugs. V. E. Ayre. *diags Mach* 26:541-2 F '20
Standard tapers for lathe and grinding machine centers. T. Fish. *Mach* 27:141 O '20
Taper boring devices. W. C. Steuart. *diags Mach* 27:962 Je '21

Tapping

- Friction-driven drilling and tapping head. H. F. Pannepacker. *diag Am Mach* 52:205-6 Ja 22 '20

Tapping machines

- Anderson automatic nut tapping machine. *il Mach* 27:979-80 Je '21; *Am Mach* 54:966 Je 2 '21
Cadillac double-end tapping machine. *il Am Mach* 52:1162 My 27 '20
Cincinnati hy-speed automatic tapping machine. *il Mach* 28:246 N '21
Defiance multiple-spindle drilling and tapping machines. J. V. Hunter. *il Am Mach* 54:1046-9 Je 16 '21
Foote-Burt way tapping machines. J. V. Hunter. *il Am Mach* 52:975-7 My 6 '20
Langelier multiple tapping machine. *il Mach* 27:604-5 F '21; *Iron Age* 107:192 Ja 20 '21
Langelier special machine for drilling and tapping spoke nipples. *il Iron Age* 108:338 Ag 11 '21; *Mach* 28:82+ S '21
Machine for multiple drilling and tapping, brought out by Fox machine co. *il Automotive Ind* 44:611 Mr 17 '21

Taps

- Bath easy-cut ground taps. *il Am Mach* 54: 798 My 5 '21
Design of square and acme thread taps of steep lead. E. A. Dixie. *il diags Am Mach* 53:887-8 N 11 '20
Removing broken taps. K. L. Unland. *il Am Mach* 52:899-900 Ap 22 '20
Rickert-Shafer collapsible tap of simple rugged design. *il Ry Mech Eng* 94:803-4 D '20
Roughing and finishing taps of recent development. *il Iron Age* 107:1102 Ap 28 '21

Taps—Continued

- Screw tap with shearing cutting edge. *il* Automotive Ind 42:711 Mr 18 '20
 Standardization of boiler and staybolt taps. *diags* Ry Mech Eng 94:653-5 O '20
 Tap drills, clearances and tolerances. W. J. Rudolph. *Am Mach* 52:65-6 Ja 8 '20
 Tapping attachment with automatic reversal. C. Ruiz. *diags* Mach 27:80 S '20

Tar

- Apparatus for testing tar. *diag* Sci Am 125:170 S 3 '21
 Characteristics of primary low-temperature tar. F. Fischer. *Chem & Met Eng* 23:70 Jl 14 '20
 Continuous system of tar distillation. *Am Gas Eng J* 112:sup20 Ja 31 '20
 Potash from kelp; the preliminary examination of kelp distillates. G. C. Spencer. *J Ind & Eng Chem* 12:786-92 Ag '20
 Tar preparations in road construction. *Gas Age* 45:21-3 Ja 10 '20
 Testing water in tar emulsions. W. W. Odell and E. W. Thiele. *diag* Gas Age 47:234-6 Mr 25 '21; Same. *Am Gas J* 114:252, 257-8 Mr 19 '21

See also Coal tar; Tar burners; Tar extractor

Tar burners

- Drying 100-ton ladles. A. E. Dynan. *il* Iron Age 107:394 F 10 '21

Tar extractor

- Centrifugal separator for tar. *il* *diag* Gas Age 47:512-13 Je 25 '21
 Design for tar extractor. C. E. Reese. *diags* Gas Age 46:41-4 Jl 26 '20
 Removing tar from coke gas. A. Thau. *diags* Iron Tr R 67:241-7, 510-16, 1331-5, 1607-10 Jl 22, Ag 19, N 11, D 9 '20
 Tar extractors. J. W. Wohrley. *Am Gas Assn Technical sec v* 2:235-9 '20

Tar roofing board

- Testing tar roofing board. *Paper* 27:18 S 8 '20

See also Felt, Roofing

Tardiness

- Cutting out the lates. B. Daniels. *Inland Ptr* 66:55-6 O '20
 Dealing with the tardy employee. *Ptr Ink* 115:114+ Ap 14 '21
 Power of pride in improving punctuality. G. O. Swartz. *il* *Ind Management* 61:212-15 Mr 1 '21

Target practice

- Super-dreadnaught as target; latest German battleship Baden sunk by gunfire and torpedo. H. C. Bywater. *il* *Sci Am* 124:412+ My 21 '21

Tariff

- American foreign trade relations. Ed. by S. M. Lindsay. 186p Academy of political science, Columbia univ., New York '21
 Depreciated foreign currencies and the tariff. J. F. Lockett. *Textile World* 58:2056+ S 25 '20
 Foreign import duties on American automotive products; tabulation. *Automotive Ind* 44:868-9 Ap 21 '21
 Foreign import duties on boots and shoes. *India Rubber W* 64:574-5 My '21
 Foreign import duties on rubber tires; table, corrected to February 15, 1920. *India Rubber W* 61:355-6 Mr '20; *Automotive Ind* 42:921 Ap 15 '20
 Rubber tariffs of Europe. *India Rubber W* 62:415-19 Ap '20
 Selected readings in international trade and tariff problems. F. W. Taussig. 566p Ginn '21

See also Commerce; Free harbors; Free trade and protection

Bibliography

- Reciprocity and the tariff in the paper industry. C. J. West, comp. *Paper Trade Journal* 72:48+ My 5 '21

Australia

- Australia changes method of appraising values for duty purposes. *J Elec* 46:378 Ap 15 '21

Canada

- Tariff on pulp and paper in Canada. R. Black. *Paper* 27:44+ D 1 '20

France

- Tarif général des douanes à l'importation. A. Toulouse. *Chimie & Ind* 5:604-10 My '21

Great Britain

- Protection of key industries. *Electrician* 86:742-3 Je 17 '21
 Safeguarding of industries. *Elec R (Lond)* 88:461 Ap 8 '21

Italy

- Der neue italienische zolltarif. *Stahl & Eisen* 41:1089-91 Ag 4 '21

Spain

- Der neue vorläufige zolltarif in Spanien. *Stahl & Eisen* 41:839-41 Je 16 '21

United States

- Acids of paragraph 1 and related materials provided for in the tariff act of 1913. (Tariff information series no. 13) 85p '20 U.S. Tariff commission, Washington, D.C.
 Advantages of American valuation plan. J. F. Zoller. *Iron Age* 108:413-14 Ag 18 '21
 Basis for a scientific tariff. J. Frostmann. *Textile World* 59:1974 Mr 19 '21
 Business eyes the tariff bill. *Nation's Business* 9:40+ Ag '21
 Chemical industry from a tariff viewpoint. C. R. DeLong. *J Ind & Eng Chem* 13:470-2 My '21; Same cond. *Chem & Met Eng* 24:712-13 Ap 20 '21
 Does international position justify a high tariff? O. S. Payne. *Annalist* 18:102+ Ag 1 '21
 Effect of emergency tariff in restricting Canadian exports to U.S. *Comm & Fin Chr* 113:1622-3 O 15 '21
 Effect of new Fordney bill on Canadian trade. W. G. Cates. *Annalist* 18:77 Jl 25 '21
 Effect of United States emergency tariff on Canadian exports. *Comm & Fin Chr* 112:2584-5 Je 18 '21
 Emergency tariff act. J. R. Rafter. *Chem Age* 29:215-16 Je '21
 Emergency tariff act; text. *Comm & Fin Chr* 112:2370-2 Je 4 '21; Same. *Oil Paint & Drug Rep* 99:24+ sec 1 Je 6 '21
 Emergency tariff passed by Senate. *Oil Paint & Drug Rep* 99:25 sec 1 My 16 '21
 Fordney tariff. *Paper* 28:9-11+ Jl 27 '21
 Forecast of tariff policy of new Congress. L. W. Moffett. *Iron Age* 107:851-3 Mr 31 '21
 Foreign trade outlook as affected by prospective tariff changes. G. E. Roberts. *Americas* 7:1-3 Ap '21
 Guaranty trust co. of New York warns against unwise tariff legislation. *Am Mach* 54:486-7 Mr 17 '21
 Hearings of Senate committee on tariff bill. *Comm & Fin Chr* 113:592-3, 799 Ag 6, 20 '21
 Hearings on wood pulp tariff. *Paper* 27:9-11+ F 16 '21
 New plan of tariff making. J. W. Bishop. *Nation's Business* 9:31-2 Je '21
 New tariff bill. *Nation's Business* 9:16-17 Ag '21
 \$1,000,000,000 tariff bill. *Am Ind* 21:14 D '20
 Our tariff as others see it. T. Tittoni, F. Gamba and A. Balfour. *Nation's Business* 9:20-2 O '21
 Permanent tariff bill introduced in House. *Comm & Fin Chr* 113:28-9 Jl 2 '21
 Permanent tariff bill—majority and minority reports. *Comm & Fin Chr* 113:144-5 Jl 9 '21
 Permanent tariff bill passed by House. *Comm & Fin Chr* 113:359-60 Jl 23 '21
 Preparing for general tariff legislation. *Iron Age* 107:507-8 F 24 '21
 Proposed tariff legislation in the United States and its effect on Canadian policy. *Comm & Fin Chr* 112:15 Ja 1 '21
 Proposed tariff revision. *Iron Age* 106:1677 D 23 '20

Tariff—United States—Continued

- Protective tariff and the American valuation plan. J McElroy. Elec W 78:913-15 N 5 '21
- Protest proposed duty on plumbago. Foundry 49:241+ Mr 15 '21
- Senate passes Emergency tariff bill; text. Comm & Fin Chr 112:2035-7 My 14 '21
- Some features of the American valuation plan. Dom Eng 96:481-2 S 10 '21
- South wants a protective tariff. C: F. Wood. il Am Ind 21:19-21+ Ja '21
- Status of a creditor nation. G. W. Wolf. Administration 2:387-8 S '21
- Summary of tariff information, 1920. 1004p U.S. Congress. House. Committee on ways and means. '20
- Tariff a question legislators would let wait. Annalist 17:349-50 Mr 21 '21
- Tariff bill discussion. Textile World 59:16 Ja 1 '21
- Tariff for export protection. Nation's Business 9:67+ Mr '21
- Tariff hearings upon graphite, peanut and coconut oil and talc. Oil Paint & Drug Rep 100:23 sec 1 Ag 29 '21
- Tariff measure at last introduced in the House. Oil Paint & Drug Rep 100:25+ Jl 4 '21
- Tariff problems from the standpoint of western business. C: H. Bentley. J Elec 47:225 S 15 '21
- Tariff proposals. Iron Age 107:1170 My 5 '21
- Tariff to move goods out. W: C. Redfield. Nation's Business 9:17-18 Je '21
- Tax imports at American values. M. de Vries. Nation's Business 9:67+ Je '21
- Taxes and tariff major topics at U.S. Chamber meeting. C. Jennings. Automotive Ind 44:941-4 My 5 '21
- U.S. Chamber of commerce asks that tariff fit new conditions. Oil Paint & Drug Rep 99:25+ sec 1 My 2 '21
- Ways and means committee begins tariff hearings. Oil Paint & Drug Rep 99:27-8, 48a-b sec 1 Ja 10; 28+ sec 1 Ja 17 '21
- What American valuation means. J. F. Zoller. Am Ind 22:15-16 S '21
- What the new tariff bill means to the automotive industry. C. Jennings. Automotive Ind 45:1-2 Jl 7 '21

Chemical schedule

- Chemical schedule of the Fordney permanent tariff bill. Chem & Met Eng 25:11-14 Jl 6 '21
- Chemical tariff schedule under consideration. Chem & Met Eng 24:181-2 Ja 26 '21
- Dye embargo and petroleum duty have first places in tariff bill. Oil Paint & Drug Rep 100:25+ sec 1 Jl 11 '21
- Import valuation of foreign chemicals. H: Howard. Chem Age 29:83-4 Mr '21
- Is it the part of economic wisdom to deny to a neighbor and a friend the opportunity of growth? H. W. Matheson. Chem Age 29:293-5 Ag '21
- Suggested reclassification of chemicals, oils and paints. 140p U.S. Tariff commission, Washington '21
- Tariff rates in Fordney bill compared with earlier duties. Oil Paint & Drug Rep 100:23-4 sec 1 Jl 25 '21

Dyes

- Analysis of the dye bill. Color Tr J 9:64-7 Ag '21
- Dye embargo provision causes hot clash in Senate committee. Oil Paint & Drug Rep 100:23+ sec 1 Ag 8 '21
- Dyestuffs, petroleum and asphalt items to be discussed in House. Oil Paint & Drug Rep 100:25+ sec 1 Jl 18 '21
- Hearings before Senate on dye embargo. Textile World 60:971+ Ag 13 '21
- Plea for dye protection stirs chemists. F. P. Garvan. Textile World 60:1501+ S 10 '21
- Proposed tariff bill for dyestuffs. Color Tr J 9:22-4 Jl '21
- Tariff rates necessary for ample protection of American dyestuff industry. E. R. Pickrell. Color Tr J 9:93-6 S '21

Electric apparatus and appliances

- High tariff likely on carbons and electrodes. Elec W 78:432 Ag 27 '21
- Tariffs on electrical goods provided in new bill. Elec Ry J 58:77-8 Jl 9 '21

Metal schedule

- Balfour before Senate finance committee. Am Mach 55:534c-d S 29 '21
- Fordney tariff bill. Metal Ind 19:292 Jl '21
- Fordney tariff bill. Min & Sci P 123:67 Jl 9 '21
- Hearings of Senate committee on tariff bill—protest against steel duties. Comm & Fin Chr 113:1006-7 S 3 '21
- House studies tariff problem; comparisons of its provisions relating to iron and steel industry. Iron Tr R 67:1801-2 D 30 '20
- Many new features of tariff bill. L. W. Moffett. Iron Age 108:16-19 Jl 7 '21
- Metal duties equal 1909 schedule. Iron Tr R 69:22-4 Jl 7 '21
- Metal schedule of the new tariff bill; text. Iron Age 108:19-22, 45-8 Jl 7 '21
- Metal tariff schedule is nearly completed. L. W. Moffett. Iron Age 107:987-8 Ap 14 '21
- New tariff on metals in tangle. Iron Tr R 68:203-4 Ja 20 '21
- Only minor changes in metal schedule. L. W. Moffett. Iron Age 108:153-4 Jl 21 '21
- Plea for crucible steel industry. J. A. Mathews. Iron Age 107:197-8 Ja 20 '21
- Price movements of protected and unprotected metals compared. Iron Tr R 69:758-9 S 22 '21
- Protest manganese tariff rates. Iron Tr R 69:155-6 Jl 21 '21
- Senate committee begins tariff hearings. L. W. Moffett. Iron Age 108:214-15 Jl 28 '21
- Steel industry heard on tariff schedules. Iron Age 108:468-70 Ag 25 '21
- Steelmakers discuss tariff bill. Iron Tr R 69:543-5 S 1 '21
- Steel makers heard on metal tariff. L. W. Moffett. Iron Age 108:527-39 S 1 '21
- Tariff on minerals. M. Pawl. Eng & Min J 111:977-83 Je 11 '21; Same. Chem & Met Eng 24:1002-8 Je 8 '21; Discussion. C: W. Potts. Eng & Min J 112:4-5 Jl 2 '21
- What tariff rates on our minerals? F. L. Garrison. Iron Age 107:1700-2 Je 23 '21

Oils and fats

- Effects of proposed tariff too little appreciated. C: V. Bacon. Annalist 18:126-7 Ag 8 '21
- Reactions of a tariff on oriental oils. J: Aspegren. Chem Age 29:110 Mr '21

Petroleum

- Proposed tariff on oil. G. Stevens. Annalist 18:104 Ag 1 '21
- Tariff on Mexican crude is favored with reservations. Nat Pet N 13:25+ Ap 27 '21
- Tariff on Mexican oil appears defeated by president's stand. P. Truesdell. Nat Pet N 13:19-20 Jl 22 '21

Rubber

- Rubber manufactures and the tariff. R: H. Tingley. India Rubber W 65:87-8 N '21

Textile schedule

- Tariff briefs of wool and cotton industries; textile manufacturers optimistic on outlook. Textile World 59:850-1+ F 5 '21
- Wool, cotton and dye tariff schedules. Textile World 60:70a-d Jl 2 '21

Wool

- Additions to woolen tariff brief. Textile World 59:1317+ F 12 '21
- Criticism of schedule eleven. Textile World 60:565+ Jl 23 '21
- Unprotective schedule eleven. Textile World 60:841 Ag 6 '21

Tartar emetic

- Tartar emetic in the dye house. E. R. Darling. Textile World 58:3641 N 27 '20; Excerpt. Color Tr J 8:123 Ap '21

Tartaric acid

Decomposition of tartaric acid by heat. F: D. Chattaway and F. E. Ray. Chem Soc J 119:34-7 Ja '21

Studies in the resolution of racemic acids by optically active alcohols; the resolution of atrolactic and α -hydroxy- β -phenylpropionic acids by *l*-menthol. H: Wren and E: Wright. Chem Soc J 119:798-803 Je '21

Tartrates

See also Cupritartrates

Tasmania

See also Hydroelectric plants—Tasmania; Mines and mineral resources—Tasmania; Tin mines and mining—Tasmania

Taste

Chemical constitution and taste of aldehydes, detones, etc. S: Furukawa. Chem Soc J 120 pt 1:637-8 Ag '21

Flavors, odors and infra-red rays; measuring degrees of taste and smell with the olfactometer and the saporimeter. G: Hamelin. il Sci Am M 3:519-22 Je '21

Tata iron & steel company, ltd., Jamshepdur, India

Iron and steel industry in India; present and projected works of Tata iron and steel co., ltd., Jamshepdur. Iron Age 106:1119-22 O 28 '20

Tate process. *See* Waterproofing of textiles

Tautomerism

Stability of tautomeric formaldehydephenylhydrazones. N. V. Sidgwick and E. K. Ewbank. Chem Soc J 119:486-92 Ap '21

Tautomerie des α -amino-pyridins und seiner derivative. A. E. Tschitschibabin, R. A. Konowalowa and A. A. Konowalowa. Deutsche Chem Gesell Ber 54:814-22 Ap '21

Tautomerism in the triaryl carbinol series; diphenyl-4-hydroxy-1-naphthyl carbinol and diphenyl-2-hydroxy-1-naphthyl carbinol. M. Gomberg and F. W. Sullivan, jr. Am Chem Soc J 42:1864-70 S '20

Tautomerism in the triaryl-carbinols: mono-para-hydroxy-diphenyl- α -naphthyl carbinol. M. Gomberg and N. A. Lange. Am Chem Soc J 42:1879-83 S '20

Über die tautomerie der phenole; bisulfit und phloroglucin. W. Fuchs. Deutsche Chem Gesell Ber 54:245-9 F '21

Über die tautomerie der phenole; entgegnungen. W. Fuchs. Deutsche Chem Gesell Ber 54:249-52 F '21

Zur tautomerie des resorcins; abwehr gegen Hrn. W. Fuchs, J. Herzig and S. Zeisel. Deutsche Chem Gesell Ber 54:1403-7 Jl '21

See also Isomerism

Tautometer

Tautometer for testing doped surfaces. diags Sci Am M 1:130-1 F '20

Tax exemption. *See* Taxation, Exemption from; Taxation of bonds, securities, etc.

Taxation

Cancer of taxation and how to cure it. W: C. Cornwell. Comm & Fin Chr 112:713-14 F 19 '21

Direct taxation—employer's privilege tax. T. H. Price. Textile World 58:2291+ O 2 '20

Does our tax system make prosperity a rainbow? C: H. Ingersoll. Ptr Ink 114:101-2+ F 17 '21

Fundamental principles of taxation in the light of modern developments (The New-march lectures for 1919). J. Stamp. 201p Macmillan '21

Taxes of the nations. Nation's Business 8: 30-1 D '20

See also Assessments; Excess profits tax; Forest taxation; Income tax; Inheritance tax; Mine taxation; Municipal finance; Sales tax; Tariff; *also* subdivision Taxation under various subjects, e.g. Advertising—Taxation, Automobiles—Taxation, Corporations—Taxation, Motor vehicles—Taxation, Petroleum—Taxation, Public utilities—Taxation, Timber—Taxation

Canada

Canada abolishes luxury taxes. Comm & Fin Chr 112:310-11 Ja 22 '21

Canadian experience in taxing unearned increment. Comm & Fin Chr 111:1609 O 23 '20

Canadian sales tax not fulfilling expectations. Annalist 17:617 Je 6 '21

France

L'impôt de 1,10 % sur le chiffre d'affaires; les affaires conclues avant 1^{er} juillet 1920. A. Lainé. Génie Civil 77:257-8 S 25 '20

Paying taxes in France and England. Am Ind 21:43+ Mr '21

La prescription des coupons, intérêts, dividendes, etc. A. Lainé. Génie Civil 78:177-8 F 19 '21

What the French taxpayer pays. S. Lauzanne. Annalist 18:267-8 S 19 '21

Germany

Die erhöhung der privatanschlussgebühren. R. Schmidt-Ernsthausen. Stahl & Eisen 41:13-14 Ja 6 '21

Great Britain

British taxes. H. N. Casson. Gas Age 46: 517 D 25 '20

Letting up on business men. Nation's Business 8:28 S '20

Paying taxes in France and England. Am Ind 21:43+ Mr '21

Report of the Royal commission on the British income tax. A. Comstock. Comm & Fin Chr 111:1514-15 O 16 '20

New York (state)

See also Income tax—New York (state)

Spain

Spanish tax law and American trade. Am Mach 54:556 Mr 31 '21

United States

Amendments of Senate committee to tax revision bill. Comm & Fin Chr 113:1207-8 S 17 '21

Amortization of war facilities. A. F. Van Pelt. Ind Management 60:301-5, 345-51 O-N '20; Same. Automotive Ind 43:1318-22 D 30 '20

Chamber of commerce tax recommendations. Am Mach 55:248b Ag 11 '21

Effect of new tax bill provisions—tax on capital gain. Comm & Fin Chr 113:905-6 Ag 27 '21

Effect of tax revision on prosperity. O: H. Kahn. Comm & Fin Chr 113:1742-4 O 22 '21

Federal tax regulations. T: S. Adams. Textile World 59:3795+ Je 4 '21

Federal taxation and foreign trade. S. Chevalier. Annalist 18:367-8 O 17 '21

Federal taxation of corporations. F. R. C. Steele. J Account 28:420-34 D '19

Hearings on taxation revision. Comm & Fin Chr 113:590-2 Ag 6 '21

High taxes drive capital out of business. E. C. McDougal. Comm & Fin Chr 113:582-4 Ag 6 '21

Keen interest in tax revision plans. O. F. Schuette. Iron Age 106:1317 N 18 '20

Majority report of chairman Fordney on revised tax bill. Comm & Fin Chr 113:797-8 Ag 20 '21

National game—more! more! H: Abbott. Am Ind 21:19-21 Jl '21

N.Y. chamber of commerce urges repeal of profits and sur-tax, and recommends consumption tax. Comm & Fin Chr 110:1810-11 My 1 '20

Plans of Internal revenue bureau to collect millions in delinquent taxes. Comm & Fin Chr 113:39 Jl 2 '21

Present system of taxation destroys incentive to save. W. H. Hays. Comm & Fin Chr 113:1317-18 S 24 '21

President Harding's message to Senate on soldier bonus and tax legislation. Comm & Fin Chr 113:249-50 Jl 16 '21

Taxation—United States—Continued

- Program of federal taxation as outlined by the Tax committee of the National industrial conference board. Gas Age 46:8-10 J1 10 '20
- Program of taxation drawn up by Chamber of commerce of U.S. B. H. Lambe. Nation's Business 9:19-21 Ja '21
- Report of the committee on taxation of the Investment bankers' association. J. H. Harris. Comm & Fin Chr 113:1949-50 N 5 '21
- Representative committee of American industry seeking solution of tax problem. Am Lumberman 2353:62-3 Je 19 '20
- Revision of tax as proposed in annual report of Secretary Houston. Comm & Fin Chr 111:2289-90 D 11 '20
- Revision of tax laws urged by secretary of the treasury Mellon. Comm & Fin Chr 112:1926-8 My 7 '21
- Secretary Mellon's tax recommendations seem likely to be adopted. Annalist 17:545 My 16 '21
- Secretary of treasury Mellon's taxation proposals. Comm & Fin Chr 113:588-90, 687-8 Ag 6-13 '21
- Securing of relief from war taxation. S. D. Fess; L. T. McFadden. Comm & Fin Chr 111:1906-7 sec 1 N 13 '20
- Senator Smoot's tax revision proposals. Comm & Fin Chr 113:1529 O 8 '21
- Tax program of business. B. H. Lambe. Nation's Business 9:11 S '21; Comm & Fin Chr 113:495-6 J1 30 '21
- Tax revision bill. Comm & Fin Chr 113:795-6, 904-5 Ag 20-27 '21
- Tax revision bill. Iron Age 108:868 O 6 '21
- Tax revision bill as amended by committee presented to Senate. Comm & Fin Chr 113:1315-17, 1937-8 S 24, N 5 '21
- Tax revision bill in Senate. Comm & Fin Chr 113:1527-8, 1634-5, 1727-8 O 8-22 '21
- Tax revision bill in Senate—text of report of majority committee. Comm & Fin Chr 113:1412-19 O 1 '21
- Taxation and public expenditures. C. L. King, ed. (Annals v. 95, no. 184) 314p Am. Acad. of Pol. and Soc. Sci. '21
- Taxation and the industries. T. H. Price. Mach 27:639-40 Mr '21; Discussion. G: E. Randles. 27:740 Ap '21
- Taxation and the mineral industry. R. E. Brinsmade. Min & Sci P 123:84-6 J1 16 '21
- Taxation questions submitted to referendum of members of U.S. Chamber of commerce. Comm & Fin Chr 112:2500 Je 11 '21
- Taxes and business depression. A. W. Markley. charts Am Mach 54:225-6 F 10 '21
- Textile property values and federal taxes. L. G. Hawkins. Textile World 57:961+ F 7 '20
- To level our tax inequalities. Nation's Business 9:33-5 Je '21; Same. Dom Eng 95:529-30+ Je 11 '21
- Two years of faulty taxation and the results. O: H. Kahn. Am Ind 20:32-6 My '20
- Way out on taxation. J. W. Good. Nation's Business 9:22-3 Ap '21
- What about taxes? Paper 27:9-11 N 24 '20
- Why not lessen the evils of present taxation? E. W. Sells. J Account 32:161-6 S '21
- Written and spoken views on taxation. O: H. Kahn. Annalist 17:15-16 Ja 3 '21
- See also Excess profits tax; Income tax—United States; War revenue law of 1916
- Taxation, Exemption from**
- Alcohol for all manufacturing should be exempt from taxation. Oil Paint & Drug Rep 99:27+ sec 1 My 2 '21
- How tax exemption helps home builders in New York. E: A. MacDougall. Bldg Age 43:25 Ap '21
- Problem of reducing the tax exempt evil. N. F. Ross. Annalist 18:125+, 150 Ag 8-15 '21
- Results from tax-exemption. Arch Forum 34:150 Ap '21
- Tax exemption; section of ordinance adopted in New York city to promote building. A. L. Smith. Sheet Metal Worker 12:269 My 13 '21
- See also Taxation of bonds, securities, etc.

Taxation of bonds, securities, etc.

- Evils of tax exemption of securities. L: T. McFadden. Comm & Fin Chr 113:38-9 J1 2 '21
- Importance of exemptions nearly that of tax levies. E: A. Bradford. Annalist 17:323-4 Mr 14 '21
- Summary of tax exemptions—liberty bonds and victory notes. E: H. Moeran. J Account 31:121-3 F '21
- Tax exempt and taxable securities. S: Spring. 83p Financial pub. co., Boston '20
- Tax exemption for mortgages. Arch Forum 32:48 Ja '20
- Tax exemption of securities. H. A. Traylor. Comm & Fin Chr 111:172-3 sec 2 N 20 '20
- Why everyone should advocate mortgage tax exemption. W. Clay. Eng & Contr 54:274 S 22 '20
- Taylor, Frederick W.**
- Supplement to Frederick W. Taylor's On the art of cutting metals. C. G. Barth. Ind Management 58:169-75, 282-7, 369-74, 483-7; 59:49-53, 153-5, 222-6, 395-9, 483-6; 60:49-52, 218-25, 365-72 S '19-Mr, My-J1, S, N '20
- Taylor society**
- Annual meeting, New York, Dec. 5-6. Iron Age 101:1202-4 D 11 '19
- Annual meeting, New York, Dec. 2-4. Ind Management 60:455; 61:63-8 D 1 '20, Ja 1 '21; Iron Age 106:1550-1 D 9 '20
- Convention of the Taylor society, Oct. 3-4. Ind Management 58:408 N '19
- New industrial developments presented at meeting, Rochester, May 6-8. Eng & Contr 53:594 My 26 '20
- Post-war problems; studies scientific management as guest of Harvard school of business administration. Iron Age 104:1129-31 D 4 '19
- Spring meeting, Cleveland, May 19-21. Iron Age 107:1377-8+ My 26 '21; Iron Tr R 68:1442 My 26 '21; Mech Eng 43:497 J1 '21
- Taylor meeting, Rochester, N.Y., May 6-8. Iron Age 105:1367-9 My 13 '20
- Taylor system.** See Industrial management; Motion study; Time study
- Tea**
- Campbell's tea, coffee and spice manual; a comprehensive trade manual. L. E. Campbell. 180p L. E. Campbell, Los Angeles, Cal. '20
- Advertising**
- Lipton's tea to be advertised by American methods. C. P. Russell. Ptr Ink 111:73-4+ Ap 15 '20
- Tea association of the United States**
- Tea association prepares to conduct extensive co-operative campaign. Ptr Ink 110:17-19 Ja 22 '20
- Teachers**
- Salaries**
- Salaries of technical teachers. Electrician 87:171 Ag 5 '21
- Training**
- Training trade teachers. L. Parker. Am Mach 54:405-6 Mr 10 '21
- Teaching**
- Putting the responsibility on the student. J. W. Richards. Chem & Met Eng 23:1115 D 8 '20
- See also Education; Industrial education; Mental discipline; Technical education; also subdivision Study and teaching under special subjects, e.g. Chemistry—Study and teaching, Foundry practice—Study and teaching
- Teall, F. Horace, 1850-**
- F. Horace Teall—an appreciation. por Inland Ptr 66:506-7 Ja '21
- Tear bombs**
- Philadelphia's tear bombs and mobs. W: A. McGarry. il diag Sci Am 125:197+ S 17 '21
- Teasel**
- Revival of the teasel. Textile World 60:66 J1 2 '21

Technical association of the pulp and paper industry

Fall meeting, Saratoga, Sept. 1-3. Chem & Met Eng 23:508-10 S 15 '20; Paper 27:9-13+ S 8 '20

5th annual meeting, New York, April 13-15. Paper 26:23-4 Mr 24; 212+ Ap 21 '20; Chem & Met Eng 22:735-6, 781-2 Ap 21-28 '20

6th annual meeting, New York. Paper 28: 22-33+ Ap 20 '21; Chem & Met Eng 24: 726-7 Ap 27 '21

Technical education

Co-operation of technical and practical men in industry. H. D. Matthews. Elec W 77: 992 Ap 30 '21

Educational waste in industry. H. Godfrey. Chem & Met Eng 25:378 Ag 31 '21

L'enseignement commercial complément de l'enseignement technique. P. Fauvet. Chimie & Ind 3:828-30 Je '20

Linking the technical school with the shop. H. R. Simonds. il Iron Tr R 67:646-51 S 2 '20

Loughborough technical college. il diagrs plans Engineering 110:199-202, 232-6, pl 21-2 Ag 13-20 '20

Millerand cabinet of the French government plans technical education for workmen. Iron Tr R 66:1261 Ap 29 '20

Proceedings of the first National conference on technical education, Ottawa, Oct. 25-26, 1920. (Vocational education ser. Bul. no. 1) 76p Canada Dept. of labour, Ottawa '21

Purchasing technical school equipment. J. R. Camm. Am Mach 54:870 My 19 '21

Responsibilities of the technical school. E. F. Nichols. Chem Age 29:209-11 Je '21

Secondary technical education. G. Beebe. il W Soc E J 25:333-48 My 20 '20

Secondary technical education. E. C. Rosseter. W Soc E J 25:349-51 My 20 '20

Technical education through university extension. R. J. Heffner. J Elec 44:56-7 Ja 15 '20

Technology plan. W. H. Walker. Chem & Met Eng 22:463-4 Mr 10 '20

Well-developed technical high school. F. D. Hood. il Am Mach 53:343-4 Ag 19 '20

Zur reform der technischen hochschulen. H. Aumund. Stahl & Eisen 41:713-19 My 26 '21

See also Agricultural education; Agricultural engineering—Study and teaching; Apprentices; Automobile schools; Chemistry—Study and teaching; Corporation schools; Employees, Training of; Engineering education; Evening and continuation schools; Industrial education; Industrial management—Study and teaching; Machine shop practice—Study and teaching; Manual training; Mining schools and education; Plumbing—Study and teaching; Printing, Practical—Study and teaching; Professional education; Shipbuilding—Study and teaching; Textile schools; Trade schools; Vocational education

Technical handbook, Mechanics of. R. B. Lockwood. Ptr Ink M 2:51-2 D '20

Technical libraries

Classification, filing and indexing system for pulp and paper library. C. E. Curran. Paper 28:9-11+ Jl 13 '21

Library as a business asset. H. B. Megargee. Elec Ry J 55:1095-6 My 29 '20; Same. Eng & Contr 53:692 Je 16 '20

P. C. G. A. librarian's report. W. M. Henderson. il Gas Age 46:296 O 25 '20

Service of an industrial library. E. MacPhail. Special Lib 12:196 S '21

Technical library aid to industry. J. S. Thorp. il Iron Tr R 66:1480-2 My 20 '20

See also American electric railway association—Library; Business libraries; Engineering libraries; Mining camps—Libraries; Public utilities—Libraries

Technical literature

British and American technical books. P. L. Pratley. Eng N 85:1000-1 N 18 '20; Discussion. E. Godfrey. 85:1199 D 16 '20

Makeup of technical books. R. Fleming. Eng N 85:369 Ag 19 '20

See also subdivision Bibliography under technical subjects

Technical periodicals

Concerning technical publications. Electrician 85:153 Ag 6 '20

Publicity for engineers; abstracts. Elec W 75:1363-4 Je 12 '20; Min & Met 163:15-16 Jl '20

Value to a young engineer of technical press contributions. C. A. Tupper. Arch & Bldg 53:31-2 Ap '21

See also Engineering periodicals; Trade journals; *also* names of periodicals, e.g. Industrial management (periodical)

Bibliography

Technical and scientific serials in the libraries of Providence, 1920. F. K. W. Drury. 63p Providence public library, Providence, R.I. '21

Verzeichnis der regelmässig bearbeiteten Zeitschriften. Stahl & Eisen 41:126-8 Ja 27 '21

Technical products**Advertising**

Advertising the technical product. C. A. Sloan and J. D. Mooney. 365p McGraw '20

Endowing technical subjects with human qualities in advertising. R. B. Lockwood. il Ptr Ink 110:61-4 Ja 1 '20

Finding enough ideas to go around; what happened in the case of piston rings. W. L. Larned. Ptr Ink 113:73-4+ O 14 '20

Hitting the high spots in writing technical copy. R. B. Lockwood. Ptr Ink 111:33-6 My 13 '20

How to advertise the technical product effectively. Automotive Ind 43:926-7 N 4 '20

Humanizing the obvious in technical copy. R. B. Lockwood. Ptr Ink 112:49-50+ Ag 12 '20

Increasing sales by advertising the industry. E. T. Tandy. Ptr Ink 114:49-50+ Mr 24 '21

Is technical advertising too technical? S. C. Lambert. Ptr Ink 112:77-8+ Jl 8 '20

Realism in mechanical illustrations. L. N. Burnett. il Ptr Ink M 2:68+ My '21

Secret process as an advertising possibility. A. W. Hawkins. Ptr Ink 117:133+ O 27 '21

Show me, says the reader of technical advertisements. R. B. Lockwood. Ptr Ink 111:69-70+ Ap 8 '20

Trade- and class-paper advertising. Ptg Art 38:45-9 S '21

Where some technical advertisers find unusual copy angles. R. B. Lockwood. Ptr Ink 110:169+ Mr 18 '20

See also Machinery industry—Advertising; Motor-truck industry—Advertising; Piston rings—Advertising

Technical service. *See* Service (in industry)

Technical terms

See also Mining terms; *also* subdivision Terminology under names of technical subjects, e. g. Physics—Terminology, Rubber—Terminology, Textile industry—Terminology

Technical writing

Essentials of popular scientific writing. A. Black. Eng & Contr 56:340 O 5 '21

More points on technical writing. J. L. Cochran. Eng & Min J 110:477 S 4 '20

Teaching engineering journalism at Iowa state college. H. E. Pride. Eng & Contr 56: 341 O 5 '21

Teaching engineering students to write. F. H. Mason. Min & Sci P 122:324 Mr 5 '21

Teaching engineering students to write. H. A. Watt. Min & Sci P 122:192-4 F 5 '21

Technical writing: jargon. T. A. Rickard. Min & Sci P 120:640-4 My 1 '20

See also Engineering reports; Scientific literature

Technology

Developments in industrial technology. 124p McGraw-Hill '21

See also Building; Chemistry; Chemistry, Technical; Electric engineering; Engineering; Industrial arts; Industrial education;

Technology —Continued

Inventions; Machinery; Manufactures; Metallurgy; Railroad engineering; Technical education; *also* names of specific industries, trades, etc., e.g. Brick making, Clay industries, Concrete, Dyes and dyeing, Oil industries, Paper making, Plumbing, Pottery, Printing, Rubber, Steel, Textile industry

Bibliography

Bibliotheca chemico-mathematica; catalogue of works in many tongues on exact and applied science. 2v 868p H. Sothorn and co., London '21

Co-ordination in libraries and abstracts. A. B. Eason. Special Lib 11:201-3 D '20

Eight hundred useful books. S. H. Powell, comp. 68p 2d ed. n.d. American library association, 24 W. 39th st, N.Y.

New foreign technical books. Special Libraries 11:27a-30a My '20

New technical books. Published quarterly, New York public library

Periodical bibliographies and abstracts for the scientific and technological journals of the world. R. Cobb, comp. (National Research Council Bul. v. 1, no. 3) p 131-54 Je '20 National research council, 1701 Massachusetts av, Washington, D.C.

Recent scientific and technical books. D. A. Hooker. Library J 45:967-73 D 1 '20

Technical books of 1919. D. Hendry, comp. Pratt institute free library, Brooklyn, N.Y. 28p '20

Technical books of 1920. D. Hendry, comp. Pratt institute free library, Brooklyn, N.Y. 28p '21

See also Technical periodicals—Bibliography

Dictionaries

Lexique technique anglais-français. G. M. Malgorn. 216p Gauthier-Villars, Paris '20

Tectoscope

Examination of noise in mechanisms. il diags Automobile Eng 11:148-9 Ap '21

Telegraph

Annual report of the A.I.E.E. telegraphy and telephony committee. Am Inst E E J 39: 747-8 Ag '20

Fullerphone, and its application to military and civil telegraphy. A. C. Fuller. diags Inst E E J 57:sup29-36; Discussion. 37-49 '19

Modern telegraph service. R. B. Calkins. il J Elec 45:121-5 Ag 1 '20

Progress in the art of communication. B. Gherardi and F. B. Jewett. il Elec W 75: 202-4 Ja 24 '20

Review of the engineering of telegraphy, telephony and radio communication during 1920-1921. Am Inst E E J 40:583-7 Jl '21

Sorry—line to China's busy. F. R. Eldridge, jr. Nation's Business 8:20-1 My '20

Statistics show development in South America. Elec R 77:609-10 O 16 '20

Technical development of telegraphy since 1870. Electrician 84:175 F 13 '20

Telegraph and telephone engineering in the United States. W: Noble. Electrician 85: 448 O 15 '20

Telegraph instructor. G. M. Dodge. 7th ed. rev. 274p George M. Dodge, Valparaiso, Ind. '21

Telegraph-switch arrangement used in France. S: W. Beach. diag Pop Mech 35: 434 Mr '21

La télégraphie électrique par le sol. R. Jouaust. diags Génie Civil 77:357-8 O 30 '20

Telegraphy. T. E. Herbert. 4th ed. 900p Pitman '20

Telegraphy; a detailed exposition of the telegraph system of the British post office. T. E. Herbert. 4th ed. 1019p Pitman '20

Telegraphy and telephony in 1919. A. A. Gray. Elec R 76:5-6 Ja 3 '20

Telegraphy and telephony in the United States. Elec R (Lond) 89:261-2 Ag 19 '21

Telegraphy self-taught; a complete manual of instruction. T. A. Edison. 172p Drake '21

L'utilisation des courants alternatifs industriels dans les bureaux télégraphiques. diags Génie Civil 76:102-4 Ja 24 '20

See also Cables, Submarine; Phototelegraphy; Railroads—Telegraph; Wireless telegraph

Laws and regulations

Comparative summary of laws relating to the regulation of telephone and telegraph companies by commission in force January 1, 1919. 4th ed. 250p American telephone and telegraph co., New York '21

Tables, calculations, etc.

Arithmetic of telegraphy and telephony. T. E. Herbert and R. G. de Wardt. 187p Pitman

Submarine cable telegraphy. E: Raymond-Barker. diags Elec R (Lond) 88:575-6, 629-30, 661-2 My 6-20 '21

Telegraph, Carrier current

Carrier current telephony and telegraphy. E. H. Colpitts and O. B. Blackwell. diags Am Inst E E J 40:301-15, 410-21, 517-25 Ap-Je '21; Abstract. Electrician 86:451-3, 485-7, 551-4 Ap 15-22, My 6 '21

Multiple telephony and telegraphy in Germany; abstracts. K. W. Wagner. Elec W 76:985 N 13 '20; Sci Am M 3:48 Ja '21

Multiplex telephony and telegraphy; abstract. K. W. Wagner. diag Elec W 76:336 F 7 '20

Multiplex telephony and telegraphy over open-circuit bare wires laid in the earth or sea. G. O. Squier. il diags J Fr Inst 189: 693-714 Je '20; Excerpts. Wireless Age 7: 20-1 Jl '20; Abstract. Electrician 84:641-3 Je 11 '20

Recent attainments in wired radio. R. D. Duncan, jr. il diags J Fr Inst 191:23-56 Ja '21

Romance of invention; General George O. Squier—the genius of wired wireless. C. H. Claudy. Sci Am 122:620+ Je 5 '20

Transmit messages on bare wire under water. P. H. Woodruff. il Pop Mech 34:5-6 Jl '20

Wired wireless. J Elec 45:337 O 1 '20

Bibliography

Books and papers relating to multiplex carrier telephony and telegraphy. Am Inst E E J 40:525-6 Je '21

Telegraph, Printing

Appareil automatique de télégraphie privée, système télétype. il diags Génie Civil 79: 271-4 S 24 '21

Development of printing telegraphy. J. O. Carr. il diags W Soc E J 26:116-38 Mr '21

Kleinschmidt printing telegraph. il Ry Age 69:116 Jl 16 '20

Physical and optical societies' annual exhibition. il diags Electrician 86:105-7 Ja 21 '21

Printing telegraph systems. J: H. Bell. Elec W 75:491-2 F 28 '20

Printing telegraphs in America. J. C. Fuller. il Electrician 86:353-4 Mr 25 '21

Western electric company's multiplex telegraph system. il diag Electrician 86:74-6 Ja 14 '21

Telegraph, Submarine. *See* Cables, Submarine

Telegraph, Wireless. *See* Wireless telegraph

Telegraph codes. *See* Cipher and telegraph codes

Telegraph companies

See also Western union telegraph company, Chicago

Advertising

Public utility uses advertising as strict commercial proposition. Ptr Ink 113:54+ D 30 '20

When customers take you for granted. C. P. Russell. Ptr Ink M 2:25-6+ My '21

Telegraph lines

Determining the tension in telegraph and telephone lines. Engineer 129:202 F 20 '20; Same. Eng & Contr 53:738-9 Je 30 '20

For freedom of the underseas. C. H. Mackay. Nation's Business 9:24+ My '21

Longest land line in the United States. Sci Am 124:23 Ja 8 '21

Telegraph lines —Continued

- Telegraph wires as weather prophets. Sci Am 124:47 Ja 15 '21
 Telephone and telegraph lines to operate on poles carrying over 5,000 volts. Elec W 76:590 S 18 '20

See also Telegraph, Carrier current

Telegraph offices

- New telegraph office in Indianapolis union station. il plan Ry Age 68:765-7 Mr 12 '20
 Structural and electrical features of the new Western union telegraph building, Chicago, Ill. E. M. Fisk. il diags plans W Soc E J 26:86-115 Mr '21
 Twentieth century telegraphy; the big San Francisco central office, the last word in equipment for speed and capacity. C. W. Geiger. il Sci Am 123:378+ O 9 '20

Telegraph relays. *See* Relays, Telegraph

Tele-mechanics

- Practical applications of selenium; its utilization in tele-mechanics. L. Ancell. diags Sci Am M 1:253-5 Mr '20

Telephone

- Annual report of the A.I.E.E. telegraphy and telephony committee. Am Inst E E J 39:747-8 Ag '20
 Anti-noise marine telephone inter-communication systems. il Int Marine Eng 25:607 Jl '20
 Big telephone drive fills community chest. P. H. Woodruff. il Pop Mech 33:683-4 My '20
 Day's telephone calls. Sci Am 122:41 Ja 10 '20
 Developments and research in telephony shown in annual report of president of American telephone and telegraph co. for 1920. Elec R 78:630-2 Ap 16 '21
 Electrostatic adhesion. diag Elec R (Lond) 88:744-5 Je 10 '21
 Eliminating the lost call. R. G. Skerrett. il Sci Am 122:164+ F 14 '20
 Engineering of buildings for telephone service. T. B. Lambert. W Soc E J 26:319-22 S '21
 High-power telephone for system dispatching. R. C. Denny. il Elec W 75:437-8 F 21 '20
 Invention that brought the world together; ancestry, early life and experiments of Alexander Graham Bell. F. H. Sweet. Power Pl Eng 24:1136-8, 1180-2 D 1-15 '20
 Multiple telephony and telegraphy in Germany; abstracts. K. W. Wagner. Elec W 76:985 N 13 '20; Sci Am M 3:48 Ja '21
 Multiplex telephony and telegraphy; abstract. K. W. Wagner. diag Elec W 75:336 F 7 '20
 Outline of the most striking developments in telephony during the past fifty years. F. F. Fowle. W Soc E J 24:497-9 O '19
 Physical phenomenon and its application. A. Johnsen and K. Rahbek. diags Engineer 131:600-1 Je 3 '21; Excerpts. Electrician 86:694 Je 3 '21; Sci Am 125A:41 N '21; Discussion. Engineer 131:614 Je 10 '21
 Progress in the art of communication. B. Gherardi and F. B. Jewett. il Elec W 75:202-4 Ja 24 '20
 Radio link; extending the usual telephone service by bridging present gaps with radio telephone installations. il Sci Am 125A:40-1 N '21
 Recent advances in telephone art affect inductive interference problem. W. N. Furthman. N E L A Bul 8:247-8 Ap '21
 Re-discovered physical phenomenon; work of Johnsen and Rahbek. Engineering 111:685-6 Je 3 '21
 Review of the engineering of telegraphy, telephony and radio communication during 1920-1921. Am Inst E E J 40:583-7 Jl '21
 Scrapping good machinery for better service. H. A. Mount. il Sci Am 123:103+ Jl 31 '20
 Secret common battery intercommunication telephone system. il diags Engineer 129:550-1 My 28 '20
 Secret telephone. F. Honoré. diags Sci Am 121:555 D 6 '19
 Secret telephony; abstract. Elec W 76:937 N 6 '20

- Something new in telephones. il Sci Am 125:189 S 10 '21
 Telegraphy and telephony in 1919. A. A. Gray. Elec R 76:506 Ja 3 '20
 Telephone as a water-flow gage. A. G. Vestal. il Sci Am 122:303+ Mr 20 '20
 Telephone equipment employed in train operation. D. V. Weed, jr. il Elec R 79:516-17 O 1 '21
 Telephone—how it is altering business—its drawbacks. Comm & Fin Chr 111:1606-7 O 23 '20
 Telephone noises reduced by double overhead ground wire. R. H. N. Lockyer. diag Elec W 77:544 Mr 5 '21
 Telephone receiver that is different. il Sci Am 122:168 F 14 '20
 Telephone repeaters. B. Gherardi and F. B. Jewett. diags Electrician 84:517-19, 543-4, 571-3, 618-20 My 7-21, Je 4 '20
 Telephone service of large cities, with special reference to London. E. A. Laidlaw and W. H. Grinstead. diags Inst E E J 57:sup 158-88; Discussion. sup 188-201 '19
 Telephonic transmission, theoretical and applied; with 196 diagrams. J. G. Hill. 398p Longmans '20
 Telephoning in cipher. M. Tevis. Sci Am 123:107 Jl 31 '20
 Telephoning over the lighting mains; abstract. Elec W 77:329 F 5 '21
 Theory of magneto-mechanical systems as applied to telephone receivers and similar structures. R. L. Wegel. diags Am Inst E E J 40:791-802 O '21
 Throat phone transmitter displaces the mouthpiece. il Pop Mech 36:395-6 S '21
 Valve and long-distance telephony. Electrician 85:719 D 17 '20

See also Light telephone; Railroads—Telephone; Wireless telephone

Amplifying apparatus

- Addressing thousands without raising the voice. R. Howard. il Sci Am 122:695 Je 26 '20
 Demonstration of vocal magnification at Chicago. il Elec R 76:1063-4 Je 26 '20
 New style of amplifying telephone of simple construction. il Sci Am 124:13 Ja 1 '21
 Population of United States assembled could hear one speaker thru new loud speaking telephone. il Elec W 78:156 Jl 23 '21
 Something new in loud-speaking telephones. il Sci Am 125:154 Ag 27 '21
 Triumph for the telephone in voice amplification; equipment used at inauguration. diag Elec R 78:831-2 My 21 '21
 Western electric co.'s loud speaking telephone. il diags Electrician 84:300 Mr 12 '20

Laws and regulations

- Comparative summary of laws relating to the regulation of telephone and telegraph companies by commission in force January 1, 1919. 4th ed. 250p American telephone and telegraph co., New York '21

Tables, calculations, etc.

- Arithmetic of telegraphy and telephony. T. E. Herbert and R. G. de Wardt. 187p Pitman
 Wave propagation over parallel wires: the proximity effect. J. R. Carson. Philos Mag 6th ser 41:607-33 Ap '21

Chicago

- Figures and facts about Chicago telephone system. il Elec R 78:869-70 My 28 '21

China

- China to have extensive long distance telephones. Elec R 79:618 O 22 '21

Great Britain

- Activities of the P. O. engineering department. Electrician 85:231-3 Ag 27 '20
 Long-distance telephone system of the United Kingdom. W. Noble. Inst E E J 59:389-406 Ap '21; Abstracts. Engineer 131:319-20 Mr 25 '21; Elec R (Lond) 88:429-31 Ap 1 '21; Electrician 86:350-2, 376-7 Mr 25-Apr 1 '21; Discussion. Elec R (Lond)

Telephone—Great Britain—Continued

88:460-1, 566-7 Ap 8, 29 '21; Electrician 86:356-7, 377-8, 590 Mr 25-Ap 1, My 13 '21; Inst E E J 59:406-26 Ap '21

London

London toll exchange. il diags Electrician 87:510-14 O 21 '21

London toll telephone exchange. Elec R (Lond) 89:371 S 16 '21; Engineer 132:271 S 9 '21

Telephone service of large cities, with special reference to London. E. A. Laidlaw and W. H. Grinstead. diags Inst E E J 57:sup158-88; Discussion. sup188-201 '19

San Francisco

Telephone in Chinatown. C. L. Huyck. il J Elec 44:78-9 Ja 15 '20

South America

Telephone statistics show business development in South America. Munic Eng 59:sup27-8 O '20; Same. Am Ind 21:10 N '20; Same cond. Elec R 77:609-10 O 16 '20

United States

Census report on the telephone systems. Elec W 75:177 Ja 17 '20

Telegraph and telephone engineering in the United States. W: Noble. Electrician 85:448 O 15 '20

Telegraphy and telephony in the United States. Elec R (Lond) 89:261-2 Ag 19 '21

Telephone rates and values. C: W. McKay. 245p Cornhill pub. co., Boston '21

Telephone, Automatic

Automatic telephone progress; introduction of a new system in London. il diags Electrician 85:466-71 O 22 '20

Automatic telephone system abroad. il Sci Am 124:413 My 21 '21

Automatic telephony. A. B. Smith and W. L. Campbell. 2d ed. rev. & enl. 430p McGraw-Hill '21

Influence of traffic on automatic exchange design. G. F. O'Dell. Electrician 85:682 D 10 '20

Machine switching for automatic telephony. il diag Elec R 76:687-90 Ap 24 '20

Mechanical hello girl. H. A. Mount. il diag Sci Am 123:40-1+ JI 10 '20

Transition from manual to automatic switching of telephone traffic in large metropolitan networks. F. L. Baer. il diags W Soc E J 25:593-614 D '20

Telephone, Carrier current

Adaptability of aerial and cabled telephone lines for carrier wave multiplex; abstract. Fassbender and Habann. Elec W 76:537 S 11 '20

Carrier current telephony and telegraphy. E. H. Colpitts and O. B. Blackwell. diags Am Inst E E J 40:301-15, 410-21, 517-25 Ap-Je '21; Abstract. Electrician 86:451-3, 485-7, 551-4 Ap 15-22, My 6 '21

Conductor-directed radio-telephony; abstract. Arco. Elec W 76:1127 D 4 '20

Conductor-directed wireless for interplant communication. Gewecke. diag Elec W 77:218 Ja 22 '21

Guided-wave telephony. C: A. Culver. diags J Fr Inst 191:301-28 Mr '21; Abstract. Electrician 87:271 Ag 26 '21; Discussion (Load characteristics of wired radio). R. D. Duncan. Elec W 77:1164-5 My 21 '21

Multiplex telephony and telegraphy over open-circuit bare wires laid in the earth or sea. G: O. Squier. il diags J Fr Inst 189:693-714 Je '20; Excerpts. Wireless Age 7:20-1 JI '20

Recent attainments in wired radio. R. D. Duncan, jr. il diags J Fr Inst 191:23-56 Ja '21

Telephone to Europe?; what General Squier has done by way of utilizing bare wire even in water. C. H. Claudy. Sci Am 122:513+ My 8 '20

Transmit messages on bare wire under water. P. H. Woodruff. il Pop Mech 34:5-6 JI '20

Bibliography

Books and papers relating to multiplex carrier telephony and telegraphy. Am Inst E E J 40:525-6 Je '21

Telephone, Loud speaking. See Telephone

Telephone, Portable

Portable safety telephone set of practical design. Elec R 79:180 JI 30 '21

Telephone, Wireless. See Wireless telephone

Telephone booths, Concrete

Concrete for safety telephone booths. K. H. Hamilton. il Sci Am 122:159 F 14 '20

Telephone cables

New German submarine telephone cable; abstract. Elec W 76:1273 D 25 '20

Telephone cables for use in power schemes. Elec R (Lond) 88:469-70 Ap 15 '21

Telephone companies**Advertising**

Public service corporation goes to public in advance. Ptr Ink 111:141-2+ Ap 8 '20

Telephone directories

Reducing space to its lowest terms. K. F. Gray. Ptg Art 36:301-4 D '20

Telephone exchanges

Work of Holabird & Roche, architects. il plans Am Arch 118:165-72, pl 182f-i Ag 11 '20

Telephone lines

Cable line to Cuba opened by President Harding. T. T. Cook. il Elec R 78:711-12 Ap 30 '21

Construction of rural telephone lines. J: E. Lear. diags Univ North Carolina Ext Leaflets v 4, no 2:1-20 O '20 North Carolina university, Chapel Hill

Determining the tension in telegraph and telephone lines. Engineer 129:202 F '20 '20; Same. Eng & Contr 53:738-9 Je 30 '20

Experiences in correcting telephone interference. H. S. Phelps. Elec W 75:833-4 Ap 10 '20

Joint pole-line construction in Chicago. H. B. Gear. Elec R 78:156-7 Ja 22 '21; Correction. 78:732 My 7 '21

Multiplex telephony and telegraphy over open-circuit bare wires laid in the earth or sea. G. O. Squier. il diags J Fr Inst 189:693-714 Je '20; Excerpts. Wireless Age 7:20-1 JI '20; Abstract. Electrician 84:641-3 Je 11 '20

Public necessity the controlling factor in Homer case. Elec W 78:117-18 JI 16 '21

Tapping of telephone circuits during the war; abstract. A. Carletti. Elec W 77:1499 Je 25 '21

Telephone and telegraph lines to operate on poles carrying over 5,000 volts. Elec W 76:590 S 18 '20

Telephone lines have no right to monopolize highways. Elec W 77:336-7 F 5 '21

Telephone to Europe?; what General Squier has done by way of utilizing bare wire even in water. C. H. Claudy. Sci Am 122:513+ My 8 '20

Wagner earth connection. D. W. Dye. diags Electrician 87:55-6 JI 8 '21

Wagner earth connection in practice. G. E. Moore. diags Electrician 86:744-5 Je 17 '21

See also Telephone, Carrier current; Telephone cables

Telephone operators

Telephone industry in New York state. Monthly Labor R 11:1237-42 D '20

Telephone industry investigation. J Ind Hygiene 3:sup17-18 My '21

Telephotography

Camera's eye discovers ancient ruins. F: Kinney. il Pop Mech 33:502-3 Ap '20

Telescope

Accuracy of the internally focussing telescope in tachometry. T. Smith. Philos Mag 6th ser 41:890-9 Je '21

Did the Babylonian astronomers possess telescopes? H. Hein. il diag Sci Am M 1:489-91 Je '20

New telescope. Sci Am 125:221 S 24 '21

Telescope —Continued

- Portable telescope with equatorial mounting. diags Sci Am 124:233 Mr 19 '21
 72-in. reflecting telescope for the Dominion of Canada. il diags Engineering 112:207-9, 222, 240-4, 269-72, pl 9 Ag 5-19 '21
 Tower telescope. J. M. Le Grand. il diag Sci Am 122:92+ Ja 24 '20
 Turret-mounted telescope boon to observers. il diag Pop Mech 35:362-3 Mr '21

See also Lenses; Periscope

Télétype

- Appareil automatique de télégraphie privée, système télétype. il diags Génie Civil 79:271-4 S 24 '21

Tell El-Amarna

- Excavations at Tell El-Amarna. il Sci Am M 4:100-3 Ag '21

Tellurium

- Organic derivatives of tellurium; action of ammonia and the alkalis upon α -dimethyltelluronium di-iodide. R: H: Vernon. Chem Soc J 119:687-97 My '21
 Organic derivatives of tellurium; crystallographic and pharmacological comparison of the α - and β -dimethyltelluronium dihaloids. I. E. Knaggs and R: H: Vernon. Chem Soc J 119:105-8 Ja '21
 Selenium and tellurium. V: Lenher. J Ind & Eng Chem 12:597-8 Je '20; Same. Sci Am M 1:552-3 Je '20
 Tellurium as an industrial health hazard. Monthly Labor R 10:1472-3 Je '20

Tellurium acetylacetone

- Researches on residual affinity and coordination; reactions of selenium and tellurium acetylacetones. G. T. Morgan and H. D. K. Drew. diags Chem Soc J 119:610-25 My '21

Tellurium alloys

- Alloying tellurium with some white metals. J. H. Ransom and C. O. Thieme. il Chem & Met Eng 25:102-3 Jl 20 '21

Telpherage

- British automatic electric telpher. G: F: Zimmer. il diags Eng & Ind Management 6:161-5 Ag 11 '21
 Overhead monorail trolley service. il Textile World 58:2995+ O 30 '20
 Short-turn overhead trolley system. il Iron Age 108:139 Jl 21 '21; Ry Age 71:262 Ag 6 '21

Temiskaming & Northern Ontario railway

- Locomotive booster as an operating factor; increases operating capacity of locomotives on Temiskaming and Northern Ontario. il charts diags map plan Ry R 69:461-9 O 8 '21

Temperature

- Value of temperature charts. C. B. Hudson. Power 50:718 N 11 '19
See also Atmospheric temperature; Boiling points; Concrete—Temperature; Earth temperature; Freezing points; Heat; Melting points; Soil temperature; Thermostats

Measurement

- Compte rendu de l'exposition des appareils de controle de la chauffe. P. Frion. diags Soc Ing Civils Bul 74:7-34 Ja '21; Abstract. Génie Civil 79:231-3 S 10 '21
 Embedded temperature detectors in large generators. F. D. Newbury and C. J. Fecheimer. diags Elec J 17:410-18 S '20
 Importance of temperature measurement. A. Walton. Textile World 57:2813+ Ap 17 '20
 Measurement of losses and efficiency by temperature rise of ventilating air. W: F. Dawson. il diags Gen Elec R 23:153-61 F '20
 Measuring temperatures in internal-combustion engines. P. Ferretti. Aerial Age 13:522 Ag 8 '21
 New compensated heatmeter. C: P. Frey. diags Sci Am S 88:379+ D 27 '19
 Relation between katathermometer and thermometer readings under ordinary indoor conditions. C. E. A. Winslow and E. L. Hewitt. Heat & Ven 18:27-31 Mr '21

- Standard scale of temperature. C. W. Waidner, E. F. Mueller and P. D. Foote. Min & Met 153:2051-63 S '19; Discussion. 156:3144-6 D '19; 157:(sec 12) 16 Ja '20

- Temperature conversion tables. A. Sauveur. Am Mach 53:1052 D 2 '20

- Temperature indicators for alternators. S. L. Henderson. il diags Power Pl Eng 24:188-91 F 1 '20

- Total sensible heats of motor fuels and their mixtures with air. R. E. Wilson and D. P. Barnard. diag J Ind & Eng Chem 13:912-15 O '21

See also Calorimeters and calorimetry; Katathermometers; Pyrometers and pyrometry; Thermocouples; Thermometers and thermometry

Regulation

- Arca pressure and temperature regulator. charts diags Power 52:141-3 Jl 27 '20
 Automatic control of high temperatures. il Iron Age 105:1516-17 My 27 '20
 Automatic control of temperatures. R: P. Brown. il Am Soc Heat & V E J 26:427-30 My '20
 Automatic regulation of humidity in factories. il diag plan Sci Am M 1:24-8 Ja '20
 Automatic regulator for the heating plant. il Sci Am 122:137+ F 7 '20
 Comparative fuel economies effected by automatic temperature regulation and manual control with divided radiation. diags Heat & Ven 17:53 S '20
 Engelhard automatic temperature regulator. il Am Mach 52:1015 My 6 '20
 Fuel conservation by means of automatic temperature regulation. F. A. De Boos. Am Soc Heat & V E 25:153-9; Discussion. 159-61 '19
 Functions of the orifice in steam and water heating. S. H. Woodbridge. charts diags Heat & Ven 17:29-32 D '20; 18:30-3 Ja; 34-7 Mr '21
 Heating, ventilation and temperature control in school buildings. il diags Dom Eng 94:78-80+, 126-9 Ja 8-15 '21
 Industrial uses of heat regulators. il Dom Eng 91:188 My 1 '20
 Instruction course for custodians and janitors. E. S. Hallett. diags Heat & Ven 18:37-9 Je '21
 Place of thermostatic control in connection with electric heating. G: Wilkinson. Electrician 86:422-3 Ap 8 '21
 Report of committee on automatic heat control. Am Soc Heat & V E 25:163-70 '19
 Samson automatic temperature regulator. diag Engineering 112:307 Ag 26 '21
 Some characteristics of the Gouy thermoregulator. T. S. Sligh, jr. diag Am Chem Soc J 42:60-8 Ja '20
 Steam saving by temperature control. W: J. Baldwin. Am Soc Heat & V E J 26:671-2 O '20
 Temperature control system for commercial use. diags Automotive Ind 41:1269 D 25 '19
 Temperature regulation for vulcanizers. R. A. Cultra. diag Power Pl Eng 25:234-5 F 15 '21
 Temperature regulator chart. Sanitary & Heat Eng 96:83 Jl 29 '21; Power Pl Eng 25:920-1 S 15 '21
 Thermostatic control saves energy. Elec Ry J 55:1245-6 Je 19 '20
See also Thermostats
- Temperature, Animal and human**
 Back to first principles: an elementary course in heating and ventilating engineering. R. Davies. Heat & Ven 18:37-9 Jl '21
 Bodily heat of young animals. Leichtentritt. Sci Am M 4:224 S '21
 Human body as a heat machine; studying the vital processes by determining the amount of heat they evolve. Sci Am M 4:32 Jl '21
 Physiological heat regulation and the problem of humidity. E. P. Lyon. Am Soc Heat & V E J 26:677-85 N '20; Same. Plumber 95:31-4 Ja 28 '21; Same cond. Heat & Ven 18:43-5 F '21

Temperature, Animal and human—Continued
Some notes on electrical methods of measuring body temperatures. R. S. Whipple. diags Inst E E J 57:sup1-9; Discussion. 9-12 '19

Temperature of the human skin. F. G. Benedict. W. R. Miles and S. Johnson. Sci Am S 88:311 N 22 '19; Abstract. Chem & Met Eng 22:1108 Je 16 '20

Temperature, Atmospheric. See Atmospheric temperature

Temperature, High

Researches at high temperatures and pressures; investigation into the internal conditions of the earth. C. A. Parsons. diags Sci Am M 1:432-8 My '20; Abstract. Engineering 109:150-1 Ja 30 '20

Temperature, Low

Low-temperature studies. Engineering 109:122-3 Ja 23 '20

See also Freezing points; United States—Bureau of mines—Cryogenic laboratory

Tempering

Points on the tempering of tools. G. G. Shadwell. Am Gas Eng J 112:183-4+ Mr 6 '20

Tempering pots

Manufacture of seamless steel tempering pots. diags Mach 27:629 Mr '21

Temple driver

Hand-gun riveter has marvelous power. il Pop Mech 36:321 S '21

Temple driver—a powder gun which has no recoil, concussion or flash. il Sci Am 125:61 Jl 23 '21

Temple submarine stud driver. Engineering 112:475 S 30 '21

Temples

Exotic temples for our two greatest cities. A. A. Hopkins. il Sci Am 123:159 Ag 14 '20

Model for the Bahai temple, Chicago. J. R. Reid. il plan Arch Rec 47:501-5 Je '20

Temples, Buddhist

Making Boro-Budur known. F. Dickie. il Sci Am 122:398+ Ap 10 '20

Templets

Curves lined accurately to templet in sewer tunnels. A. L. Sears. diags Eng N 84:737 Ap 8 '20

Hawkes die- and templet-making machine. il Am Mach 54:1100 Je 23 '21

Table simplifies use of templates in track plotting. J. G. Walsh. Eng N 85:276 Ag 5 '20

Tamping templet expedites brick road construction. F. A. Churchill. il Eng N 84:282-3 F 5 '20; Concrete 16:188 Ap '20

Templet for cutting commutator mica segments. W. A. Harris. diag Power 51:635 Ap 20 '20

Tenement houses

Architectural competition for remodeling of a tenement block. il plans Am Arch 118:305-14 S 8 '20

Architectural competition for the remodeling of a New York city tenement block. diag Am Inst Arch J 8:198-9 My '20

Competition for the remodeling of a block of old tenements in New York city. C. S. Stein. Am Inst Arch J 8:135-7 Mr '20

Is it advisable to remodel slum tenements in New York? A. J. Thomas. il plans Arch Rec 48:417-24; Discussion. R. D. Kohn. 425-6 N '20

Summary of program of architectural competition for the remodeling of a New York city tenement block. Am Arch 117:497 Ap 21 '20

See also Apartment houses; Housing problem

Tennessee

See also Roads—Tennessee

Industries and resources

See also Mines and mineral resources—Tennessee

Tennessee (United States battleship)

Electrically driven battleship launched. il Elec R 77:95-6 Jl 17 '20

Electrically propelled battleship Tennessee. il diags plan Elec J 18:237-89 Je '21

Propelling machinery of the U.S.S. Tennessee. il Marine Eng 26:269-73 Ap '21

United States battleship Tennessee. J. L. Bates. il Int Marine Eng 25:642-3+ Ag '20

Tennis courts

Lighting

Easy hot weather business: gas lighted tennis and golf courts. C. W. Pierson. plans Gas Age 46:123-4 Ag 10 '20

Illumination of outdoor sports. R. E. Harrington. il diags plans Elec R 78:85-90 Ja 15 '21

Tennis at night. I. E. Voyer. il J Elec 45:414-15 N 1 '20

Tensimeter

Surface tensimeter for small quantities of liquids. C. C. Kiplinger. diag Am Chem Soc J 42:472-6 Mr '20

Tensiometer, Airplane. See Airplane tensiometer

Tents

Portable camping and sleeping tents. N. F. Mills. diags Pop Mech 33:943-4 Je '20

Ter Meulen credit plan. See Credit, International

Teredos

Marine boring animals and submerged structures. Eng & Contr 53:753-4 Je 30 '20

Teredo damage in San Francisco Bay twenty-five million dollars in two years. Ry Age 69:1082 D 17 '20; Same. Eng & Contr 54:621-2 D 22 '20

Teredos destroy piles in waters not previously infested. il map Eng N 84:1000-2 My 20 '20

Terminals

Base aids Norfolk's commerce. il map plan Marine R 50:290-3 My '20

Belt line plan to make New York a railhead port. il map Eng N 86:182-5 Ja 27 '21

Big Boston terminal will promote port development. diag plan Marine R 50:133-6 Mr '20

Co-ordination of railway and marine terminals. Ry Age 69:1040 D 10 '20

Cost of inefficiency at our terminals. H. Frost. Int Marine Eng 25:768-9 S '20

Dedication of new Barr terminal at San Francisco. C. W. Geiger. il Ry R 67:334-5 Ag 28 '20

Design and erection features of steel transit sheds at Halifax ocean terminals. J. Robertson. il diag Eng & Contr 53:495-6 Ap 28 '20

Discussion on material-handling problems of ports. Mech Eng 43:283 Ap '21

Engineer board recommends plans for Jersey City. maps Eng N 86:177-9 Ja 27 '21

Fair principles of freight rate making and their effect on our national marine terminal problem. J. Meigs. Gen Elec R 24:293-7 Ap '21

Freight handling at marine terminals. A. K. West. il diags Int Marine Eng 25:598-600 Jl '20

Function of port terminals as clearing agencies. J. R. Bibbins. Am Soc C E Pro 47:332-5 O '21

General cargo transferring speed per linear foot. il Marine Eng 26:779 O '21

Largest barge canal terminal opened in New York city. F. M. Williams. il diags plan Eng N 83:1047-51 D 25 '19

Location of river terminals. H. M. Harding. Marine Eng 25:929-30+ N '20

Marine terminals. J. A. Jackson. il Gen Elec R 24:234-7 Mr '21

Marine terminals and harbor engineering. H. Harding. Int Marine Eng 25:175-6 Mr '20

Marine terminals and port facilities. F. T. Smith. il Marine Eng 26:66-71 Ja '21

Maritime and industrial project at San Francisco. B. F. Cresson, jr. il Iron Age 105:333-4 Ja 29 '20

Mechanical equipment for a railway water terminal. il Ry Age 70:522 Mr 4 '21

Municipal grain and freight port terminal at Portland, Ore. W. P. Hardesty. il diag map plan Eng N 84:179-82 Ja 22 '20

Terminals —Continued

- New industrial development planned at San Francisco. diag plan Eng N 84:319-20 F 12 '20
- New terminal at Philadelphia. il map plan Marine R 50:346-50 Je '20
- Les nouvelles installations de déchargement du port de Bordeaux. H: Martin. il diags plans Génie Civil 77:1-8, 25-30, pl 1-2 Jl 3-10 '20
- Operation of the New York terminal district. J. J. Mantell. Ry Age 67:1109-12 D 5 '19
- L'outillage mécanique des ports; les appareils de manutention des minerais et des charbons aux Etats-Unis. il diags map plans Génie Civil 76:169-77 F 14 '20
- Panama terminals; recent pier construction at the ends of the canal. J. F. Springer. il Sci Am 122:130-1+ F 7 '20
- Plan piers of record length for terminal at New York. plans Eng N 84:970-3 My 13 '20
- Port development at Portland, Oregon. G. B. Hegardt. il plans Am Arch 118:863-7 D 29 '20
- Practical ideas for the engineer. F. T. Chambers. Marine R 50:422-3, 477-8 Jl-Ag '20
- Preparing for foreign trade; grain elevator and pier at Portland, Ore. W. C. Heston. il J Elec 46:8-9 Ja 1 '21
- Problem of better harbor freight handling methods. Eng N 86:641-3 Ap 14 '21
- Proposed reorganization of the port of New York. maps plan Ry Age 70:269-74 Ja 28 '21
- Quay design for ocean, lake, inland river and canal terminals. H. M. Harding. il diag plan Int Marine Eng 25:182-7 Mr '20
- Quay steamship terminal design. H. M. Harding. diag plan Marine Eng 26:634-5 Ag '21
- Rail and water terminal for Nashville, Tenn. diags Eng N 86:766-7 My 5 '21
- Railway terminal improvements on the Seattle water front. C: W. Geiger. il map Ry R 67:75-81 Jl 17 '20
- Relationship of rail and water carriers. W: J. Wilgus. Am Soc C E Pro 47:359-62 O '21
- St Johns municipal terminal at Portland, Ore. il plan Ry R 66:751-4 My 8 '20
- Serious traffic situation at New York. Sci Am 122:564 My 22 '20
- \$700,000,000 for harbors and terminals. H. M. Harding. il Marine Eng 26:849-52 N '21
- Shunt-less freight terminal. il Sci Am 122:42+ Ja 10 '20
- Small river terminal for widely varying water stages. H. Abbott. diag plan Eng N 83:999 D 11 '19
- Some aspects of the problem of Chicago as the mid-interior rail-water gateway. J. R. Bibbins. W Soc E J 26:194-6 My '21
- Terminal facilities to increase foreign trade. G: F. Nicholson. il J Elec 46:126-7 F 1 '21
- Terminal handling of package freight. H. Frost. Ry R 67:616-18 O 23 '20
- Terminal railways and drayways. H. M. Harding. plan Ry R 69:163-5 Ag 6 '21
- Terminal wastefulness at New York. W: J. Wilgus. il diag Sci Am M 2:61-5 Jl '20
- Terminals. L. H. Beach. Am Soc C E Pro 47:309-20 O '21
- Unification of terminals and foreign commerce. T. C. Powell. Ry Age 67:1123-4 D 5 '19
- World's greatest shipping terminal? W: B. West. il Sci Am 123:590+ D 11 '20
- See also* Electric railroads—Terminals; Freight handling; Harbors; Locomotive terminals; Ports; Railroads—Terminals; Street railroads—Terminals; also New York (city)—Harbor

Electric equipment

- Electrical equipment of Fowey harbour; handling china clay by modern methods. il diags plan Electrician 85:269-75 S 3 '20
- Electrical terminal facilities. C. S. McDowell. Am Inst E E J 40:682-5 Ag '21; Excerpts. Elec W 77:365-7 F 12 '21
- Electrifying facilitates port operation. C. S. McDowell. il Elec W 77:365-7 F 12 '21
- Port development and the central station. C: K. Nichols. Gen Elec R 24:287-8 Ap '21
- Terminals, Railroad. *See* Railroads—Terminals

Terminology

See also Mining terms; also subdivision Terminology under various subjects, e.g. Concrete—Terminology, Gypsum products—Terminology; Physics—Terminology, Pipes—Terminology, Rubber—Terminology, Textile industry—Terminology

Termites

- Ant proofing building construction in Formosa. diags Eng & Contr 54:278 S 22 '20
- Protecting buildings against the white ant. T: E. Snyder. il diags Eng N 84:1110-12 Je 3 '20
- Steel and stone cannot stop them. G: H. Dacy. il Sci Am 122:222 F 28 '20
- Termites of the temperature zone. N. Banks and T: E. Snyder. il Sci Am M 2:325-9 D '20
- White-ant-proof wood for the tropics. T. E. Snyder. il Am Lumberman 2324:58 N 29 '19

Terne-plate

- Tin-plate and terne-plate manufacture. Iron Age 108:213 Jl 28 '21

Terpenes

- Contributions to the chemistry of the terpenes; the action of hypochlorous acid on pinene. G: G. Henderson and J. K. Marsh. Chem Soc J 119:1492-1500 O '21
- Optische untersuchungen in der terpenchemie. A. Müller. Deutsche Chem Gesell Ber 54:1466-71 Jl '21

See also Toron

Terra cotta

- Composition of kiln gases and their effect on terra cotta glazes and colors. F. B. Ortman. Am Cer Soc J 3:476-88 Je '20
- Data on the development of terra cotta glazes. E. C. Hill. Am Cer Soc J 3:13-25 Ja '20
- Decorating cemeteries with terra cotta tombstones. Brick & Clay Rec 59:578 O 18 '21
- Effect of glaze composition on the crazing of terra cotta; with discussion. E. C. Hill. Am Cer Soc J 4:25-31 Ja '21
- Effect of the size of grog grain in a terra cotta body. H. E. Davis. Am Cer Soc J 3 pt 1:640-52 Ag '20
- Effect of variation of the size of the grog in terra cotta bodies. R. L. Clare and D. F. Albery. Am Cer Soc J 3:384-7 My '20
- Manufacturers of terra cotta indicted under Sherman law. Comm & Fin Chr 113:1534-5 O 8 '21
- Notes on terra cotta slips with reference to the use of asbestos and chlorite mica. H. Wilson. Am Cer Soc J 3:114-33 F '20
- Satisfactory method of using barium hydrate in terra cotta bodies. M. E. Gates. diag Am Cer Soc J 3:313-15 Ap '20
- Terra cotta industry for Ohio. A. S. Watts. Am Cer Soc J 4:731-7 S '21
- Value of ageing the terra cotta body. R. L. Clare and R. N. Long. Am Cer Soc J 4 pt 1:453-8 Je '21

Advertising

- Terra cotta association sells the advertising value of business buildings. H. E. Agnew. Ptr Ink 113:81-2+ D 16 '20

Terra cotta kilns

- Application of producer gas to periodic muffle kilns. F. B. Ortman. Am Cer Soc J 4:669-72 Ag '21

Terraces

- How to estimate driveways, terraces and seeding. L. S. Keir. il diags Bldg Age 43:34-5 S '21

Terraces (geology)

- Piedmont terraces of the northern Appalachians. J. Barrell. diags maps Am J Sci 49:227-58, 327-62, 407-28 Ap-Je '20
- Post-glacial terraces of Anticosti Island. W. H. Twenhofel and W. H. Conine. diag Am J Sci 5th ser 1:268-78 Mr '21

Terrapin

- Fish fancying and freak farming. G: H. Dacy. il Sci Am 123:31+ Jl 10 '20
- Turtles, terrapins and tortoises. M. Tevis. il Sci Am M 2:21-7 Jl '20

Terre Haute, Indiana

Rapid transit

- Survival of the fitter at Terre Haute, Ind. il Elec Ry J 56:412-14 Ag 28 '20
 Vae jitnis at Terre Haute. Elec Ry J 56:1148 D 4 '20
 Why the safety cars were installed in Terre Haute. E. M. Walker. Elec Ry J 56:1193; Discussion. 1193-4 D 11 '20

Water supply

- Meter practices of the Terre Haute water company. D. R. Gwinn. Am Water Works Assn J 7:12-32 Ja '20

Testing

- American society for testing materials in session at Asbury Park. Iron Age 105:1805-6 Je 24 '20
 Examination of materials by X-rays. G. W. C. Kaye. Engineer 131:437-8 Ap 22 '21
 Growing need for accurate testing instruments. il Automotive Ind 42:607-9 Mr 4 '20
 Modern apparatus for testing described. Iron Tr R 67:23-4 Jl 1 '20
 Modern testing apparatus for pulp and paper mills. F. M. Williams. il Paper 26:25+ Jl 21 '20
 Radiology applied to the testing of materials. A. P. M. Fleming and J. R. Clarke. diags Engineering 110:850-2, 877-9 D 24-31 '20; Abstract. Engineer 130:642 D 24 '20
 Work of the Bureau of standards. il Mach 26:505-8 F '20

See also Automobile engines—Testing; Boilers—Testing; Brinell hardness test; Cement—Testing; Coal testing; Concrete—Testing; Dynamometer cars; Electric testing; Engineering laboratories; Fuel—Testing; Gas and oil engines—Testing; Gas testing; Laboratories; Magnetic testing; Metals—Testing; Oil testing; Plumbing fixtures—Testing; Rails—Testing; Steel—Testing; Strains and stresses; Strength of materials; Testing laboratories; Testing machines; United States—Standards, Bureau of

Testing laboratories

- Central gas appliance testing laboratory idea eminently correct and if properly handled can be made to function successfully from the start. H. M. Riley. Am Gas Eng J 113:385-6, 401-4 N 13 '20
 National lamp works of the General electric co., Cleveland, completes laboratory for research in machinery. il diags plan Iron Tr R 68:152-3 Ja 13 '21
 New engine-testing plant. R. S. McBride. il plan Am Mach 52:1061-3 My 13 '20; Same. Power 51:792-5 My 18 '20
 New England forge plant owes success to laboratory. H. R. Simonds. il Iron Tr R 67:96-103 Jl 8 '20
 Organization and method in the testing laboratory. P. S. Tice. Automotive Ind 42:1061-3 My 6 '20

See also Waterworks—Laboratories

Testing machines

- Alternating stress testing machine. il Engineer 131:550 My 20 '21
 Ansler standardizing boxes for checking testing machines. il Iron Age 106:1612 D 16 '20
 Cold-bend testing machine has automatic clutch. il Pop Mech 33:112 Ja '20
 Direct-reading hardness testing machine. il Sci Am 124:433 My 28 '21
 Ductility testing machines. T. Y. Olsen. il Am Soc T M Pro v 20 pt 2:398-403; Discussion. 404-7 '20
 European hand-operated transverse and bend testing machine actuated by oil pressure. il Foundry 48:885-6 N 1 '20
 Fatigue phenomena in metals. diags Sci Am M 1:221-8 Mr '20
 500-ton compression testing machine; National physical laboratory. il diags Engineering 111:488-90 Ap 22 '21
 Gauge measuring and pitch testing machines. diags Engineering 110:366-8 S 17 '20

Haigh alternating stress testing machine. il diags Engineer 132:116-17 Jl 29 '21; Elec R (Lond) 89:668-9 N 18 '21

High-speed alternating torsion testing machine; with discussion. D. J. McAdam, jr. diags Am Soc T M Pro v 20 pt 2:366-71 '20
 Humphrey testing machine. diag Metal Ind 19:90 F '21

Large vertical screw power testing machine. il Iron Age 105:1248 Ap 29 '20

Lewis impact machine. A. G. Zimmermann. diags Chem & Met Eng 22:325-7 F 18 '20

Machine for testing the shock strength of hardened steel. diag Engineer 132:150-1 Ag 5 '21

Million pound testing machine for Forest products laboratory. L. J. Markwardt. il Eng N 86:31-2 Ja 6 '21

New machine for bending tests. il Iron Tr R 67:1139-40 O 21 '20

Pittsburg continuous and alternating impact testing machine. il Am Mach 54:480 Mr 17 '21

Pittsburgh hardness testing machine and indentation micrometer. il Mach 26:880 My '20

Riehle combination Brinell and scleroscope hardness testing machine. il Am Mach 55:363 S 1 '21; Ry R 69:314-15 S 3 '21; Ry Mech Eng 95:656 O '21

Static notched-bar testing machine. il diag Iron Age 106:1471 D 2 '20; Chem & Met Eng 23:1180 D 15 '20

Testing and heat indicating equipment for hardening rooms. S. P. Rockwell. il Mach 26:933-5 Je '20

Testing machine helps. R. W. Allard. Iron Age 108:87 Jl 14 '21

Testing machines. diags India Rubber W 62:652-3 Jl '20

Testing machines as related to the foundry. T. Y. Olsen. il Am Mach 53:525-30 S 16 '20

Testing rock bearing by leverage loading machine. H. J. Gavit. diag plan Eng N 85:417 Ag 26 '20; Same. Eng & Contr 54:495 N 17 '20

Testing ropes and straps. S. R. Winters. Sci Am 123:399 O 16 '20

See also Charpy impact test; Gear testing machines; Modulimeter

Tetraalkyl-(aryl)-arsoniumtriiodides

Zur kenntnis organischer arsenverbindungen; über die einwirkung von halogenalkyl auf kakodyle und eine neue bildung von tetraalkyl-(bezw. -aryl-) arsoniumtriiodiden. W. Steinkopf and G. Schwen. diag Deutsche Chem Gesell Ber 54:1437-65 Jl '21; Abstract. Chem Soc J 120 pt 1:694-6 S '21

Tetrachlorethane

Tetrachlorethane poisoning and its prevention. D. C. Parmenter. bibliog J Ind Hygiene 2:456-65 Ap '21; Abstract. Monthly Labor R 12:1227-9 Je '21

Tetrahydronaphthalene. See Tetralin

Tetrahydronaphthylamine

Preparation of derivatives of tetrahydro- β -naphthylamine. Chem Soc J 120 pt 1:558-9 Ag '21

Tetralin

Formation of derivatives of tetrahydronaphthalene from γ -phenyl fatty acids. G. A. R. Kon and A. Stevenson. Chem Soc J 119:87-94 Ja '21

New engine fuel; tetra-hydronaphthalene. A. Gradenwitz. Sci Am 125A:27 N '21

Tetralin and dekalin; new illuminant, a new lubricant and a new source of synthetic drugs. Sci Am M 4:65-6 Jl '21

Über benzopolymethylen-verbindungen; über bromhaltige alicyclische substitutionsprodukte des tetrahydro-naphthalins (tetralins) und über Δ^1 -dihydro-naphthalin (Δ^1 -dialin). J. v. Braun and G. Kirschbaum. Deutsche Chem Gesell Ber 54:597-618 Ap '21

Tetramethyl-quinolines

Tetramethyl-quinolines. L. A. Mikeska and E. Q. Adams. Am Chem Soc J 42:2394-6 N '20

Tetranitroaniline. See Tetryl

Tetranitromethane

Zur kenntnis des tetranitro-methans; überführung tertiärer amine in sekundäre nitrosamine. E. Schmidt and R. Schumacher. Deutsche Chem Gesell Ber 54:1414-19 JI '21

Tetraphenyldiarsine

Tetraphenyldiarsine. C. W. Porter and P. Borgstrom. diag Am Chem Soc J 41:2048-51 D '19

Tetryl

Stability of tetryl. C. L. Knowles. J Ind & Eng Chem 12:246-8 Mr '20

Texas

Texas. A. W. Douglas. Nation's Business 8: 36+ S '20

See also Mines and mineral resources—Texas; Petroleum—Texas; Roads—Texas

Textile alliance, incorporated

Real function of the Textile alliance, inc. Textile World 57:4673+ Je 26 '20

Report of E. S. Chapin, Paris representative of the Textile alliance, inc. Color Tr J 7: 126-8 O '20; Same. Textile World 58:2512+ O 9 '20; Same. J Ind & Eng Chem 12: 1130-2 N '20; Abstract. Sci Am M 3:83 Ja '21

Textile design

American art development in textile designs. il Textile World 57:1109+ F 7 '20

Decorative fabrics following original designs. il Arch Forum 34:143-6 Ap '21

Designs in cotton shirting fabrics. il Textile World 57:379+ Ja 17 '20

Grammar of textile design. H. Nisbet. 504p 2d ed., rev. and enl. 635 il. Scott, Greenwood & son (E. Greenwood), London '19

Original designs in American textiles. J. F. Turner. Textile World 57:3073 Ap 24 '20

Standardization of textile products. S. H. Ditchett. Textile World 59:2884 Ap 30 '21

Stitch effects in designing. il Textile World 58:1683 S 11 '20

See also Embroidery

Textile fabrics

Action of sea water on cotton and other textile fibers. C. Dorée. Color Tr J 8:215-18 Je '21; Excerpts. Sci Am M 4:260 S '21

American fabrics and their uses. T. L. Foulkes. Textile World 60:1778-9+ S 24 '21

Applications of maleic and fumaric acids and their salts in the textile industry. J. H. Carpenter. J Ind & Eng Chem 13:410-13 My '21

Artificial leather and coated fabrics. Chem & Met Eng 23:487-8 S '20

Cloth for children's coats and caps. il Textile World 58:3891-2 D 4 '20

Colloid chemistry in textile industries. W. Harrison. Color Tr J 6:50-5, 91-5 F-Mr '20

Effect of moisture on tensile strength. G. B. Haven. Textile World 59:2881 Ap 30 '21

English makes of covert cloths. il Textile World 56:3185+ N 29 '19

Fireproofing fabrics; treatment of sack materials, tent cloths and balloon fabrics. W. Hacker. Sci Am M 3:171-3 F '21

Hairs that make fabrics. L. A. Hausman. diags Sci Am 122:184+ F 21 '20

High grade novelty men's wear. Textile World 58:3239+ N 6 '20

Increased use of fabrics by shoe trade. Textile World 57:2273+ Mr 27 '20

Measurement of crimp in yarns and fabrics. A. N. Gadsby and E. D. Walen. diags India Rubber W 63:10-11 O '20

New light weight samples for men's wear. il Textile World 58:2663+ O 16 '20

Novelty dress goods fabric. Textile World 58:901+ Ag 7 '20

Overcoating fabric of merit. Textile World 59:25+ Ja 1 '21

Popular cloth for women's wear; silvertone effect that may become a staple. Textile World 57:3645+ My 15 '20

Resistance of silk and linen fabrics to weather conditions and ultraviolet rays; abstract. L. Vignon. Chem & Met Eng 23:207 Ag 4 '20

Structure of textile cloths. J. Crompton. Textile World 60:983+ Ag 13 '21

Work of the cellulose experts. J. A. Hunter. Textile World 58:3892-3+ D 4 '20

Yarn twist and cloth strength. H. Priestman. Textile World 57:2535 Ap 3 '20

See also Airplane fabric; Airship fabric; Balloon fabric; Beaver cloth; Bleaching; Cotton fabrics; Crepe; Crepe meteore; Dress goods; Dry goods; Elastic fabrics; Fabric fur; Felt; Fulling; Jersey cloth; Kersey; Knit goods; Linen; Paper textiles; Rugs; Satin; Shirting; Shoddy; Silk; Silk, Artificial; Sizing (textiles); Textile fibers; Textile finishing; Textile industry; Textile printing; Textile research; Tibet; Tire fabrics; Underwear; Wool, Artificial; Waterproofing of textiles; Woolen and worsted manufacture; Worsted

Analysis

Analysis of a cotton-back satin. A. H. Schnell. Textile World 59:3116-17 My 7 '21

Analysis of finished fabrics. J. Geoff. Textile World 56:3519+ D 27 '19

Microscopy of textiles. F. J. Hoxie. il Textile World 59:2567+ Ap 16 '21; Same. Mech Eng 43:592-3 S '21

Photo-micrographs in the textile industry. W. F. Edwards. il Textile World 58:3363+ N 13 '20

See also Textile fibers—Analysis

Bibliography

Subject list of works on the textile industries and wearing apparel; including the culture and chemical technology of the textile fibres in Library of the Patent Office. London, W. C.: Patent Office. 1919. 329 p. 2 c. n.

Cleaning

See Cleaning

Mechanical uses

Cloth for mechanical uses. J. W. Cox, jr. il Textile World 60:67+, 1205+, 1921+, 2423 JI 30, Ag 27, O 1, 29 '21; Excerpts. Sibley J 35:4-12 Ja '21; Same. Mech Eng 43:177-80+ Mr '21; Same. Chem & Met Eng 24:613-18 Ap 6 '21

Proposed tentative definitions of terms relating to mechanical fabric. India Rubber W 64:737-8 JI '21

Specifications

Report of committee D-13 on textile materials. Textile World 59:4157+ Je 25 '21

Testing

Effect of jaws on fabric strength. J. H. Dunlap, A. E. Jury, and W. O. Jelleme. Am Soc T M Pro v 20 pt 1:469-74 '20

Machine for testing shrinkage in fabrics. Sci Am 124:93 Ja 29 '21

Machine rate-of-load as affecting breaking strength shown by fabric testing machines. W. O. Jelleme. Am Soc T M Pro v 20 pt 1: 460-8 '20

Resistance of silk and linen to high temperatures and to ultra-violet rays. L. Vignon. Color Tr J 7:157 N '20

Tensile and bursting strain of fabrics. J. Huebner. Color Tr J 8:227-8 Je '21

Tentative methods for testing textiles. Am Soc T M Pro v 20 pt 1:804-5 '20

Testing machines. diags India Rubber W 62:652-3 JI '20

Testing the mildew resistance of textiles. B. S. Levine and F. P. Veitch. J Ind & Eng Chem 12:139-41 F '20; Same. Textile World 57:1633+ F 28 '20

Testing the strength of fabrics. A. J. Turner. Textile World 58:1559+ S 4 '20

Testing water resistance of fabrics. F. P. Veitch and T. D. Jarrell. Textile World 57: 2811+ Ap 17 '20

See also Cotton fabrics—Testing

Textile fibers

Approach to textile fibre research. N. A. Cobb. Textile World 57:949+ F 7 '20

Colloid chemistry in textile industries. W. Harrison. Color Tr J 6:50-5, 91-5 F-Mr '20

Cottonizing of vegetable fibres. E. O. Rasser. Color Tr J 6:88 Mr '20

Decorticating machine for pineapple plant fibre. il Textile World 58:3375 N 13 '20

Textile fibers—Continued

- Degree of heat employed in various textile operations has great influence upon the results. *Textile World* 60:1509+ S 10 '21
- Destiny of our deserts. A. T. Vogelsang. *il Nation's Business* 8:16-17 Ag '20
- Fiber of Japanese seaweed used to mix with cotton. *Pop Mech* 33:669 My '20
- German vegetable fibers. H. W. Adams. *Textile World* 59:637+ Ja 29 '21; Excerpts. *Chem & Met Eng* 23:1208 D 22 '20
- Marine fibre of Australia. J. Read and H. G. Smith. *Color Tr J* 6:155 My '20
- Physical consideration of various textile fibers; abstract. R. O. Herzog and W. Jancke. *Color Tr J* 8:175 My '21
- Production of textile fibers from wood; patent. L. Enge. *Paper* 27:23 Ja 5 '21
- Review of chemical research in textile fibres. S. S. Napper. *Color Tr J* 7:129-31 O '20
- Technology of garment dyeing and cleaning. J. Loehl. *il Color Tr J* 7:152-7 N '20
- Textile fibers; nature of the fibers and tests for their identification. H. G. Elledge and A. L. Wakefield. *il Sci Am M* 3:421-4 My '21
- Treating textile materials; patent. *Chem & Met Eng* 23:1182 D 15 '20
- Treating vegetable fibers; patent. *Chem & Met Eng* 23:846 O 27 '20
- Turning a liability into an asset; making rope, baggings, etc., from water hyacinths. *Sci Am M* 2:129 O '20
- Utilizing pineapple fiber in textile industry. *il Pop Mech* 36:210 Ag '21
- Yarn from vegetable fiber. *Color Tr J* 8:70-1 F '21
- See also* Cotton; Flax; Gelso-lino; Hemp; Kapok; Milkweed; Peat fiber; Ramie; Silk; Wool

Analysis

- Fabrics under the microscope. L. A. Hausman. *il diags Sci Am* 125A:35-7 N '21
- Proximate compositions of Korean hemp and ramie. Y. Uyeda. *J Ind & Eng Chem* 12:573-6 Je '20
- Studies on Korean bast fibers; cellulose in bast fibers. Y. Uyeda. *J Ind & Eng Chem* 13:141-3 F '21

Textile finishing

- Adjustable speed motors and control in finishing plants. C. W. Babcock. *il Elec J* 18:509-11 N '21
- Finishing cotton and linen towels. *Textile World* 58:1548+ S 4 '20
- Finishing of knitted goods. *Color Tr J* 6:87 Mr '20
- Finishing silkette. *Color Tr J* 6:28-9 Ja '20
- Influence of finishing on woven goods. E. Midgley. *il Textile World* 57:2285+ Mr 27 '20
- Motors for textile finishing plants. W. B. Lewis. *Elec J* 18:504-7 N '21
- Producing moiré finish. *Color Tr J* 6:9 Ja '20
- See also* Cotton finishing; Sizing (textiles); Waterproofing of textiles; Woolen and worsted finishing

Textile industrial institute, Spartanburg, South Carolina

- Model mill erected for instruction in cotton manufacturing. *il Textile World* 57:2003 Mr 13 '20

Textile industry

- Adaptability in the textile industry. J. W. Cox, jr. *Textile World* 60:877+ Ag 6 '21
- Export outlook affected by divergent factors. *Textile World* 60:2052+ O 8 '21
- Foreign markets found by American buyers. H. E. Fayes. *Textile World* 57:957+ F 7 '20
- Future foreign trade in textiles. E. L. Little. *Textile World* 57:958+ F 7 '20
- Future of the textile trade. H. B. Cheney. *Textile World* 57:1507-8 F 21 '20
- Manufacture of specialties. A. Brandt. *Textile World* 60:1113 Ag 20 '21
- Slight improvement in textile balance of trade. *Textile World* 58:3846+ D 4 '20
- Textile manufacturer's problems. H. A. Carter. *Textile World* 59:877+ F 5 '21
- Textiles and dye-making industry. C. H. Clark. *Textile World* 59:2887+ Ap 30 '21

- Truth about the textile industry. G. H. Hodgson. *Am Ind* 21:20 N '20
- Uniform sales note a significant development. C. Bernheimer. *Textile World* 57:1379 F 14 '20

Wool and cotton in all forms from yarn to fabric. 177p William Whitman co., inc., New York '21

See also Bleaching; Carpets; Clothing; Cotton; Cotton manufacture; Cotton trade; Dress goods; Drying apparatus—Textiles; Dye industry; Dyes and dyeing; Flax; Gas mantles; Hosiery; Knit goods; Knitting; Lace; Linen; Paper textiles; Rugs; Shirting; Shoddy; Silk; Silk manufacture and trade; Sizing (textiles); Spinning; Textile design; Textile fabrics; Textile fibers; Textile finishing; Textile machinery; Textile mills; Textile printing; Thread; Weaving; Wool; Wool trade; Woolen and worsted manufacture; Worsted; Yarn

Advertising

- Nainsook underwear advertising threatens market of knit goods manufacturers. *Ptr Ink* 116:41-2+ Ag 4 '21
- Prestige for American merchandise built on exhaustive study. E. T. Tandy. *il Ptr Ink M* 2:17-18+ Ja '21

Dictionaries

- Dictionary of technical textile terms. T. F. Palmer. Hirschfeld brothers, ltd., London '20

Exhibitions

- 8th annual textile and machinery exposition held in conjunction with the 24th annual convention of the International association of garment manufacturers. *Textile World* 59:3405-6 My 21 '21
- Exhibit of knitting machinery and supplies at Philadelphia. *il Textile World* 57:3279+ My 1 '20
- First textile products show held in Greenville. *Textile World* 60:2157+ O 15 '21
- 4th Southern textile show a success. *il Textile World* 58:2959, 2969-71+ O 30 '20
- 7th International textile exposition, Boston, Oct. 31-Nov. 5. *Textile World* 60:1924+, 2415+ O 1, 29 '21
- South American exposition; plan for display of American textiles at Buenos Aires. *il Textile World* 57:1835+ Mr 6 '20

Tables, calculations, etc.

- Textile calculations. J. H. Whitwam. 427p Pitman '20

Terminology

- Proposed tentative definitions of terms relating to mechanical fabric. India Rubber W 64:737-8 Jl '21
- Textile nomenclature. *Textile World* 57:279+ Ja 10 '20

Brazil

- Textile markets of Brazil. L. S. Garry. U S Bur For & Dom Com 203:1-47 '20

China

- China's Americanized knitting industry. Sih-Zung Yang. *il diags Textile World* 59:1391+ F 19 '21

England

- Development of the textile industries in England. *Color Tr J* 6:26-8 Ja '20
- View of English textile conditions. L. B. Gary. *Textile World* 58:4147+ D 18 '20

France

- La destruction systématique des industries de la filature et du tissage; et l'effort de reconstitution déjà réalisé dans les régions envahies plus particulièrement dans celle de Fourmies. M. P. Mariage. *Soc Ing Civils Bul* 74:83-97, pl 10 Ja '21; Same cond. *Génie Civil* 78:390-2 My 7 '21
- Reconstruction of French textile industries. *il Textile World* 58:3844+ D 4 '20

Textile industry—Continued**Germany**

- Germany's economic recovery. Textile World 58:3845+ D 4 '20
 Germany's giant supertrust a myth; nationalization of textiles most improbable. M. Metzner. Textile World 59:872+ F 5 '21

Poland

- Textile industry in Poland. W: J. Kelly. il Textile World 59:1691+ Mr 5 '21

South America

- Textile markets of Argentina, Uruguay, and Paraguay. L. S. Garry. il U S Bur For & Dom Com 194:1-151 '20

United States

- Credit outlook for 1921 in textile industry. A. D. Whiteside. Textile World 59:852+ F 5 '21
 Enormous textile growth within the last 20 years. Textile World 59:3931 Je 11 '21
 Problems which confront textile export trade. Textile World 59:853+ F 5 '21
 Tariff briefs of wool and cotton industries; textile manufacturers optimistic on outlook. Textile World 59:850-1+ F 5 '21
 Textile imports and exports for the fiscal year ended June 30, 1920. Textile World 58:1306+ Ag 28 '20
 Textile trade for eleven months of 1920. Textile World 59:195+ Ja 8 '21
 U.S. imports and exports of textiles. Textile World 58:2964 O 30 '20
 Waste in industry and remedies therefor. Textile World 60:63+ Jl 2 '21

See also Tariff—United States—Textile schedule

Textile laws and regulations

- Brief of Natl. association of wool mfrs; arguments against Capper bill. Textile World 59:4050-1 Je 18 '21
 State pure fabric bill. Textile World 57:2492+ Ap 3 '20
 Textile men oppose Capper truth-in-fabric bill. Textile World 59:3927+, 3967+ Je 11 '21

Textile machinery

- Ball bearings in textile machinery. A. G. Webster. il Textile World 59:2301+ Ap 2 '21
 British and foreign textile machinery industry. Engineering 110:209 Ag 13 '20
 Decline in British textile machinery exports. Textile World 58:1511+ S 4 '20
 Italian textile machinery trade. R. Sansone. Textile World 58:2323+ O 2 '20
 Machine for mixing stock. diag plan Textile World 58:4161 D 18 '20
 Manufacture of rubberized and rubber coated fabrics. F: Dannerth. il Color Tr J 8:23-7 Ja '21
 Motors are attached directly to textile machines. il Elec R 77:713 N 6 '20
 New conc duster or willow made by the Davis & Furber machine company. il Textile World 57:3077 Ap 24 '20
 Pantograph machine with 54 ball bearings. il Textile World 57:3789 My 22 '20
 Revolutions; their importance where production is depended upon for profit. A. Walton. Textile World 58:3881 D 4 '20
 Some unusual machine operations on textile machinery. E. Sheldon. il Am Mach 54:665-71 Ap 21 '21
 Tillinghast doubling and tacking machine. il Textile World 58:669 Jl 31 '20
 Time recorder for textile machines. diags Textile World 58:4017 D 11 '20

See also Bale tiering machine; Bleaching machinery; Braiding machines; Carding machines; Cotton machinery; Dyeing machines; Knitting machines; Looms; Rolls (textile machinery); Silk machinery; Spinning machinery; Winding machines; Woolen and worsted machinery

Manufacture

- Quantity production of intricate parts. H. R. Simonds. il Foundry 49:743 S 15 '21

Porcelain guides

- Manufacture of porcelain guides. Textile World 59:3419 My 21 '21

Repair

- Welding repairs in textile mills. J. F. Springer. il Textile World 57:1845+ Mr 6 '20

Safety devices and measures

- Standard guards for textile machinery. H: A. Owen. il Textile World 56:3159+ N 29 '19

Textile mills

- Automatic control of textile processes. diags Textile World 57:639+ Ja 31 '20
 Building a model textile plant of concrete at Somersworth, N. H. il Concrete 18:144-5 Mr '21
 Conveying systems in textile mills. il Textile World 57:225+, 1849+ Ja 10, Mr 6 '20
 Cooling ponds for textile mills. L. H. Parker. il Textile World 56:2763+ N 1 '19
 Developments in the use of fuel oil. J. J. Tyrrell. il Textile World 60:73+ Jl 2 '21
 Expansion at Sanford mills. il Textile World 57:1875+ Mr 6 '20
 Fuel oil in textile mills. J. J. Tyrrell. il Textile World 57:1203+ F 7 '20
 Modern textile mill at Lowell, Mass. il Am Arch 118:675-7 N 24 '20
 New mercerizing and bleaching plant occupied by Boger & Crawford, Philadelphia. il Textile World 58:2521+ O 9 '20
 New projects, enlargements and improvements; a statistical review for 1919. Textile World 57:1207+ F 7 '20
 New projects, enlargements and improvements; a statistical review for 1920. Textile World 59:1119+ F 5 '21
 New Tillotson mill; built in 66 working days. il Textile World 57:2539 Ap 3 '20
 Plant layout for southern textile mill. W: F. Lockhardt. il plans Concrete 17:183-5 D '20
 Profitable year in New Bedford textile mills. Textile World 59:1089+ F 5 '21
 Southern mill village developments. E. S. Draper. il plan Textile World 59:2297+ Ap 2 '21
 Steam use in textile processes. G: H. Perkins. Mech Eng 42:14-16 Ja '20; Same. Textile World 57:1841+ Mr 6 '20; Same. Power Pl Eng 24:376-8 Ap 1 '20
 Textile mill of U. S. Bureau of standards. R. T. Fisher. il Textile World 57:1160a-b F 7 '20
 Textile property values and federal taxes. L. G. Hawkins. Textile World 57:961+ F 7 '20
 W. A. Slater mills' coaling plant. G: P. Carver. il Textile World 56:3163+ N 29 '19
 Worumbo mfg. co. builds new mill, dyehouse, garage, etc., Lisbon Falls, Maine. W. H. Nye. il diag plan Textile World 59:1129+ F 5 '21
See also Carpet factories; Cotton mills; Hosiery mills; Knitting mills; Silk mills; Textile industry; Textile machinery; Tire fabric mill; Woolen and worsted mills; *also* Cleveland worsted mill company

Accidents

- Study of accident records in a textile mill, by students in the course in statistics at Mount Holyoke college. J Ind Hygiene 3:187-95 O '21

See also Textile mills—Safety devices

Accounting

- Accurate costs with red tape. E. Szepesi. Textile World 59:2421+, 2673+ Ap 9, 23 '21
 Uniform accounting in the textile industry. C. R. Union. J Account 29:104-12 F '20

Electric equipment

- Chauffage électrique avec accumulation de chaleur de la filature de Langnau-sur-Albis (Suisse). Génie Civil 78:88 Ja 22 '21
 Electrical equipment in textile mills. Elec R 78:661 Ap 23 '21
 Transmission and distribution of electricity in textile mills and works. W. T. Reynolds. Electrician 84:268-70 Mr 5 '20

Textile mills—Continued

Employees

See Textile workers

Equipment

- Heavy handling in textile mills. E. N. Hescock. *il Textile World* 57:4229+ Je 5 '20
- Hot water supply for mills. W. G. Starkweather and F. S. Broadhurst. *il diags Textile World* 59:2671+ Ap 23 '21
- Hot water supply of textile mills. W. C. Beekley. *Textile World* 57:227+ Ja 10 '20
- Laying out a repair department. J. A. Butler. *il Textile World* 60:1367+ S 3 '21
- Textile mill equipment—its advance and systems. C. S. Ickringill. *il Electrician* 84:254-9 Mr 5 '20
- Textile uses of compressed air. *diag Textile World* 57:233+ Ja 10 '20; Same cond. *Am Ind* 22:35-6 O '21
- Value of industrial laundries. *il Textile World* 58:3195+ N 6 '20
- Wide field for motor trucks in textile industry. *Automotive Ind* 44:617-18 Mr 17 '21

Heating and ventilation

- Humidifying apparatus for textile factories. *diag plan Engineer* 131:648 Je 17 '21
- Ventilation and humidification of textile factories. H. N. Leask. *diag Engineering* 112:202-4 Jl 29 '21

Lighting

- Day and night lighting in textile mills. S. G. Hibben. *il Elec J* 18:515-17 N '21
- Defective vision and poor lighting. *Textile World* 60:2060-1 O 8 '21
- Laying out a lighting system in textile mills. J. J. McLaughlin. *il diags Textile World* 59:1703+ Mr 5 '21
- Lighting conditions in the textile industry. A. L. Arenberg. *diags Textile World* 57:1194-5+ F 7 '20
- Lighting fancy goods weave rooms. G. R. Merrill. *diags Textile World* 56:3157+ N 29 '19
- Lighting in the textile and clothing industries. J. S. Dow. *il diags Electrician* 84:260-3 Mr 5 '20
- Lighting of textile mills. A. L. Powell. *il Textile World* 58:101+, 879+ Jl 3, Ag 7 '20
- Modern silk mill lighting. J. J. McLaughlin. *il Textile World* 60:1371+ S 3 '21
- Monochromatic illumination of mills. *il Textile World* 58:1531+ S 4 '20
- Output by natural and artificial light in the silk industry. *Illum Engr* 13:245-8 S '20
- Standardized textile mill lighting; new system at Easley cotton mills. G. Wrigley. *il Textile World* 59:1295+ F 12 '21

Management

- CO₂ recorders in textile mills. A. Walton. *il chart Textile World* 56:2733+ N 1 '19
- Cleanliness in textile mills. A. S. Mann. *Textile World* 58:2993 O 30 '20
- Comparative cost records as an aid to manufacturing profits. S. R. Gordon. *il diags Ind Management* 61:17-22 Ja 1 '21
- Conservation of coal by saving exhaust steam in the textile industries. W. B. Hoyt. *Am Soc Heat & V E* 25:407-10 '19
- Democracy in New York textile mill; the Ascher plant. *Textile World* 57:3006 Ap 24 '20
- Dividends from the repair department. J. A. Butler. *il Textile World* 59:3813+ Je 4 '21
- Employment problems in textile industry. H. W. Kimball. *Textile World* 57:938+ F 7 '20
- Employment system in the textile industry. P. Tucker. *Textile World* 57:946+ F 7 '20
- Fuel saving in bleaching, dyeing and finishing. L. Loeb. *il diags plan Textile World* 59:1103-5+ F 5 '21
- Industrial history made at Wappingers Falls. *il Textile World* 57:2661+ Ap 10 '20
- Personnel, purchase and production. F. A. Hayes. *il Textile World* 57:2287+ Mr 27 '20
- Problems of a manufacturer. W. M. Wood. *Textile World* 57:1507 F 21 '20

Records of machine equipment; simple plan for showing the history and condition of every machine in the mill. *Textile World* 60:2061 O 8 '21

Sixty per cent of lubricating oil bought by textile mills is wasted. J. R. Battle. *Nat Pet N* 13:75+ Ap 13 '21

South Manchester—a model textile community. *il Textile World* 57:936-7+ F 7 '20

Standardized warehouse management. E. Szepesi. *diags Textile World* 57:964+ F 7 '20

See also Knitting mills—Management

Power

- Central station and the textile mill. F. S. Root. *il Elec J* 18:487-9 N '21
- Central station power for textile mills. J. H. Fox. *Elec J* 18:507-9 N '21
- Considerations in the application of electricity to textile mills. J. T. Randles. *il Electrician* 86:153-6 F 4 '21
- Continental practice in the electrical driving of textile factories. W. D. Fox. *Electrician* 86:165-8 F 4 '21; Excerpts. *Elec W* 77:718 Mr 26 '21
- Design of induction motors for textile service. O. C. Schoenfeld. *il Elec J* 18:494-500 N '21
- Development of electric supply to textile mills. W. Browning. *Electrician* 84:263-5 Mr 5 '20
- Electric power supply of southern textile mills. J. E. Serrine. *il map Mech Eng* 42:161-3+ Mr '20
- Electrical power in the textile industry. F. H. Rudd. *Electrician* 86:174-6 F 4 '21
- Electricity supply in Dundee textile mills. C. Lamb. *Electrician* 84:270-2 Mr 5 '20
- Electro-textile progress. *Electrician* 86:148-9 F 4 '21
- Gas engines for textile mills. J. G. Walthew. *il Electrician* 84:266-8 Mr 5 '20
- Industrial power problems. W. F. Uhl. *Textile World* 56:2742+ N 1 '19
- Mechanical problems in auxiliary motor drives. F. S. Root. *plans Elec W* 78:625-6 S 24 '21
- Modernized plant of Prudential worsted co. J. B. Parks. *il Elec J* 18:489-90 N '21
- Superheated steam in textile power plants. P. W. Foster, jr. *il Textile World* 58:3851+ D 4 '20

Safety devices

- Accident hazards in jute industry. S. Ingham. *Textile World* 60:1943+ O 1 '21
- Contributory causes of industrial accidents. C. H. Clark. *Textile World* 58:2523+ O 9 '20
- Plant layout affects accident hazards. K. Moller. *Textile World* 56:2767+ N 1 '19
- Reducing accidents in the textile industry. H. A. Hale, jr. *Textile World* 59:868+ F 5 '21
- Safety rules for cotton mill workers. *Textile World* 58:2807+ O 23 '20
- Selling safety to executives and employes. I. M. Wilson. *Textile World* 58:2658+ O 16 '20
- Textile mill safety engineering. E. F. King. *Textile World* 60:1935+ O 1 '21
- Textile printing**
- Application of sulphur dyes. E. Cagliostro. *il diags Color Tr J* 7:143-6 N '20
- Blotch ground effects on cotton piece goods. J. A. Wilson. *Color Tr J* 6:28 Ja '20
- Development of dyeing and printing. E. W. Pierce. *Textile World* 57:1635, 1637+, 2291 F 28, Mr 27 '20
- Fixation of alizarine viridine in printing; abstract. G. Stein. *Color Tr J* 8:176-7 My '21
- Iron buff printing pastes. R. Sansone. *Textile World* 58:2071 S 25 '20
- Methods of direct indigo printing. R. Sansone. *Textile World* 58:4293+ D 25 '20
- Printing of aniline black; abstract. E. Yentsch. *Color Tr J* 7:159-60 N '20
- See also Aniline black

Textile research

- Approach to textile fibre research. N. A. Cobb. *Textile World* 57:949+ F 7 '20

Textile research—Continued

- British government aids textile research. Textile World 59:943 F 5 '21
- Economics of research. H. E. Howe. Textile World 57:3049 Ap 24 '20
- German textile research status. M. Metzner. Textile World 59:1081 F 5 '21
- Practical aspects of cotton fibre research. E. D. Walen. Textile World 57:2001 Mr 13 '20
- Research and merchandizing. E. H. Hinckley. Textile World 59:993 F 5 '21
- Research department of the Cotton research co., inc. il Textile World 57:950-1+ F 7 '20
- Research in the textile industry. C. Goldthwait. il Textile World 57:947-8+ F 7 '20
- Research in the textile industry. E. D. Walen. Textile World 56:2527+ O 25 '19
- Research institute for cotton industry. A. W. Crossley. Textile World 60:324d-e Jl 9 '21
- Review of chemical research in textile fibres. S. S. Napper. Color Tr J 7:129-31 O '20; Abstract. Sci Am M 3:173 F '21
- Technical research and the textile industry. B. T. Brooks. Chem Age 29:195-8 My '21
- Textile research laboratory. H. T. Wade. il diags plan Sci Am M 2:153-7 O '20
- Work of research associations in England. J. A. Hunter. Textile World 59:3543+ My 28 '21

See also Cotton research company, inc.

Textile schools

- Advantages of textile school training. J. L. Burton. Textile World 59:876 F 5 '21
- Broadened opportunities for textile schools. H. W. Nichols. Textile World 57:962+ F 7 '20
- Campaign to insure textile school permanency. Textile World 57:989+ F 7 '20
- Function of a textile school. W. H. Dooley. Textile World 57:3062 Ap 24 '20
- Manufacturer's essential qualifications. J. Thomson. Textile World 59:876-7 F 5 '21
- New York textile school. il Color Tr J 8:67 F '21
- Textile schools hold graduation exercises. Textile World 59:4045 Je 18 '21

See also Lowell textile school; Philadelphia textile school

Textile sizing. See Cotton sizing; Sizing**Textile workers**

- Descriptions of occupations; textiles and clothing. 94p '18 U.S. Bureau of labor statistics, Washington, D.C.
- English cotton industry service work. Textile World 58:2355+ O 2 '20
- German spinners' wages. Textile World 59:458 Ja 22 '21
- How textile workers are paid. Textile World 58:2999 O 30 '20
- Standardized training of textile apprentices. E. Szepesi. il chart Textile World 59:865+ F 5 '21
- Textile trade unionism in France. Textile World 59:1695 Mr 5 '21
- What about textile mill wages? Textile World 58:3187 N 6 '20

Thacher, Arthur, 1857-

- Mining engineers of note. por Eng & Min J 110:1089 D 4 '20

Thacher, Edwin, 1839-1920

- Sketch. por Eng N 85:675 S 30 '20

Thallium

- Organo-derivatives of thallium; interaction of thalliumdialkyl hydroxides with nitrophenols and nitrocresols. A. E. Goddard. Chem Soc J 119:1310-15 Ag '21
- Organo-derivatives of thallium; some reactions of thalliumdialkyl haloids. A. E. Goddard. Chem Soc J 119:672-6 My '21
- Thermodynamic treatment of concentrated solutions, and applications to thallium amalgams. G. N. Lewis and M. Randall. Am Chem Soc J 43:233-54 F '21

Thalofide

- Spectrophotoelectric sensitivity of thalofide. W. W. Coblentz. U S Bur Stand Sci Pa 380:253-8 '20

Thames river

- Thames conservancy's bill. Engineer 131:311 Mr 25 '21

Thawing

- Cold water thawing successful in Iditarod district, Alaska. J. G. Rivers. Eng & Min J 109:1087-8 My 8 '20
- Cold weather troubles of water departments. Eng & Contr 54:376 O 13 '20
- Economic method of thawing dynamite. D. Lay. plans Eng & Min J 110:106-7 Jl 17 '20; Same. Eng & Contr 54:264-5 S 15 '20
- Method and cost of thawing ground by steam coils. R. T. Dana. plan Eng & Contr 53:690-1 Je 16 '20
- Method of thawing frozen water pipes and sewers. Metal Work 92:649-50 N 28 '19
- Pipe-thawing outfit for the coming winter. H. S. Rush. diag Elec W 76:480 S 4 '20; Same. Eng & Contr 54:376-7 O 13 '20
- Portable self contained outfit for electric thawing of water mains. F. J. Gifford. il Eng & Contr 54:51-2 Jl 14 '20
- Ross hydrant thawing device. il Textile World 59:225 Ja 8 '21; Safety Eng 41:45-6 Ja '21; Plumber 95:67+ F 11 '21; Eng & Contr 54:638 D 29 '20
- Thawing frozen gravel with cold water. W. S. Weeks. il diags Min & Sci P 120:367-70 Mr 13 '20; Abstract. Eng & Contr 53:507 My 5 '20
- Thawing frozen ground with cold water. Pop Mech 36:329 S '21
- Thawing frozen hopper cars. E. A. Miller. diags Ry Mech Eng 95:638 O '21
- Thawing frozen pipes electrically. A. H. Scott. diags Pop Mech 36:766-7 N '21
- Thawing frozen water pipes by electricity. il Sci Am 123:527 N 20 '20
- Thawing gravel by cold water; abstract. S. H. Cathcart. Eng & Min J 109:632 Mr 6 '20
- Wayne pipe thawer. il Plumber 94:547 D 3 '20
- See also Sleet; Snow melters; Snow removal

Thayer, Harry Bates, 1858-

- Sketch. por Elec W 77:1406 Je 18 '21

Theater

- What business can learn from the theatre. R. R. Updegraff. Ptr Ink M 3:31-2+ S '21
- See also Moving pictures

Advertising

- High freight rates may force radical change in theatrical advertising. J. G. Condon. Ptr Ink 112:49-50+ S 23 '20
- Playwright puts last \$1,000 in advertising. Ptr Ink 113:149 N 11 '20
- Theatrical ad-man tries to kill off a superstition. Ptr Ink 115:103-4 My 12 '21
- When will theatrical advertisers break away from the conventional? W. H. Heath. Ptr Ink 110:120+ F 12 '20

Theaters

- Broadway theatre, South Boston, Mass.; views and plans. Am Arch 119:pl 616i-m Je 8 '21
- Central theatre, Jersey City, N.J. Arch & Bldg 53:55-6, pl 107-9 Jl '21
- Coliseum theatre, 181st street and Broadway, New York city. Arch & Bldg 53:41, pl 70-2 My '21
- Colossal German theater in Greek style. il Pop Mech 33:672-3 My '20
- Concrete trusses and cantilever girders in theatre. il diags plans Eng N 85:604-5 S 23 '20
- Fordham theatre, Fordham road and Valentine avenue, New York city. Arch & Bldg 53:41-2, pl 73-5 My '21
- Klaw theatre, 251-257 West Forty-Fifth street, New York city. Arch & Bldg 53:49-50, pl 90-2 Je '21
- Loew's State theatre, New York. Arch & Bldg 53:81, pl 162-6 O '21
- Old departure in theater building; Grosses Schauspielhaus, Berlin. A. Gradenwitz. il Sci Am 122:599+ My 29 '20
- Parkway theatre, Baltimore, Md.; views and plans. Arch Forum 33:pl 89 D '20
- Regulations for theatre buildings in Pennsylvania. Am Arch 118:284 S 1 '20

Theaters—Continued

- Safety in a modern theater; Capitol theater, Hartford, Conn. *il* Am Arch 119:292-4 Mr 9 '21
- Smallest theater in the world in Ypsilanti, Mich. R. H. Moulton. *il* Pop Mech 33:552-3 Ap '20
- Stage design in communal buildings. G. M. P. Baird. bibliog *il* diags plan Am Arch 117:507-10, 549-55 Ap 28-May 5 '20
- Strand theatre, Brooklyn, N.Y. Arch & Bldg 51:79, pl 146-51 D '19
- Times Square and Apollo theatres, New York. Arch & Bldg 52:104-5, pl 142-7 D '20
- See also* Moving picture theaters; Stage mechanism

Heating and ventilation

- Capitol theater heating and ventilating plant cost \$80,000. *il* plans Metal Work 93:5-9+, 77-80, 268-9 Ja 2, 16, F 27 '20
- Design and operation of reversing dampers for theatre ventilation. diags plans Heat & Ven 17:35-9 Ag '20
- Heating of a theatre building. diag Dom Eng 91:511 Je 19 '20
- Largest theater heating and ventilating plant in New York. *il* diags plans Metal Work 93:77-80 Ja 16 '20
- Ventilation of large auditoriums. R. S. M. Wilde. Am Soc Heat & V E J 26:353-6 Ap '20; Same. Dom Eng 92:5-6 Jl 3 '20; Discussion. Am Soc Heat & V E J 26:557-8 Jl '20

Lighting

- Artistic and utilitarian theater lighting. L. D. Morgan. *il* diags Elec W 75:4-6 Ja 3 '20
- Decorative lighting in its application to fronts of theaters. *il* Elec R 78:932 Je 11 '21
- Lighting the world's largest theater; Capitol theater, New York. *il* diags Elec W 76:776-9 O 16 '20
- Milwaukee theatre installs largest indirect lighting fixture. *il* N E L A Bul 8:285-6 My '21
- Theater and auditorium fixtures and illumination. H. A. Harris. *il* Elec R 78:246-8 F 12 '21
- Theater lights concealed on balcony and in cornices. diags Elec W 75:889 Ap 17 '20
- See also* Moving picture theaters—Lighting; Stage lighting

Stage setting and scenery

- Four illustrations of Walter Hampden's production of Hamlet. C. Bragdon. Am Inst Arch J 9:240-3 Jl '21
- Illustrations of stage settings. *il* Am Inst Arch J 9:70, 77-84, 128-34 Mr-Apr '21
- Relation of dyestuffs to the theatre. N. Tempest. Color Tr J 8:8-9 Ja '21

Theaters, Open-air

- Designing the open-air theatre. S. Cheney. *il* plan Am Arch 116:775-81, pl 211-18, 803-10 D 24-31 '19

Thebaine

- Reduction products of thebaine; abstract. M. Freund and E. Speyer. Chem Soc J 120 pt 1:125-6 F '21

Theft. *See* Automobiles—Theft; Larceny; Platinum—Theft; Railroads—Theft losses; Silk theft**Theory and practice**

- Practical use of theoretical knowledge. S. L. Lloyd. Eng & Min J 112:53-5 Jl 9 '21

Therapeutics

- See also* Chemotherapy; Radium—Therapeutic use

Thermal analysis

- Determining the heating and cooling curves of metals. S. R. Winters. *il* Sci Am 122:595 My 29 '20
- Procédé nouveau d'analyse thermique; abstract. Perrier and Wolfers. diags Génie Civil 78:490 Je 4 '21
- Properties of iron-chromium-carbon steels. C. A. Edwards, H. Sutton and G. Oishi. *il* diags Engineering 109:692-4; Discussion. 676-8 My 21 '20

- Similarity of magnetic change in cementite and ferrite. H. G. Movius and H. Scott. Chem & Met Eng 22:1069-70 Je 9 '20

- Use of a modified Rosenhain furnace for thermal analysis. H. Scott and J. R. Freeman, jr. *il* diags U S Bur Stand Sci Pa 348:317-23 '19

- See also* Critical point; Steel, Heat treatment of

- Thermal expansion. *See* Expansion (heat)

- Thermal filters. W. D. Bancroft. J Phys Chem 24:421-36 Je '20

- Thermal waters. *See* Hot springs

Thermalloy

- Alloy for high temperature castings. Ry Mech Eng 95:654 O '21

- Thermionic valves. *See* Vacuum tubes

- Thermit welding. *See* Welding

Thermite

- Incendiaries in modern warfare; thermite. A. B. Ray. J Ind & Eng Chem 13:641-3 Jl '21

- Thermix stoves. *See* Heaters, Catalytic

Thermochemistry

- Calorimetric procedure for determining the heats of slow reactions. F. Barry. Am Chem Soc J 42:1295-1308, 1911-45 Jl, O '20

- Heat of absorption of vapors on charcoal. A. B. Lamb and A. S. Coolidge. diag Am Chem Soc J 42:1146-70 Je '20

- Heat of solution and the partial molal heat content of the constituents in aqueous solutions of sodium chloride. M. Randall and C. S. Bisson. diags Am Chem Soc J 42:347-67 Mr '20

- Molecular heat of hydrogen. R. H. MacDougall. Am Chem Soc J 43:23-8 Ja '21

- Restatement and correction of the thermochemical data on organic compounds; the data of P. W. Zubow. W. Swietoslawski. Am Chem Soc J 42:1092-1100 Je '20

- Thermal decomposition of oil shales; determination of the heat of reaction involved in their thermal decomposition. R. H. McKee and E. E. Lyder. bibliog diag J Ind & Eng Chem 13:678-84 Ag '21

- Thermochemical data of cadmium chloride and iodide. H. S. Taylor and G. St J: Perrott. Am Chem Soc J 43:484-93 Mr '21

- Thermochemistry of hydrocarbons according to P. W. Zubow's data. W. Swietoslawski. Am Chem Soc J 42:1312-21 Jl '20

- La thermodynamique et ses applications à l'industrie chimique. G. Urbain. Chimie & Ind 3:750-60; 4:31-42 Je-Jl '20

- See also* Boiling points; Combustion; Dilution, Heat of; Dissociation; Distillation; Evaporation; Hydration, Heat of; Ionization; Latent heat; Melting points; Specific heat; Temperature, High; Vapor density

Thermocouples

- Construction of thermo-couples by electro-deposition. W. H. Wilson and T. D. Epps. diags Engineer 130:143 Ag 6 '20; Abstract. Sci Am M 3:90 Ja '21

- Devise interchangeable thermocouples. Brick & Clay Rec 58:37-8 Ja 11 '21

- Measurement of casting temperatures in the brass foundry. J. Arnott. *il* Engineering 110:277 Ag 27 '20; Same. Foundry 48:766-7 O 1 '20

- Observing temperatures in marine propelling installations. Engineer 129:226-8 F 27 '20

- Power from the thermocouple and wind motors. L. G. Hall. Sci Am 123:521 N 20 '20

- Protects thermocouples with wash. K. Marsh. *il* diag Foundry 49:260-1 Ap 1 '21

- Some improvements on the needle type thermo-couple for low temperature work. G. F. Taylor. *il* J Ind & Eng Chem 12:797 Ag '20

- Some notes on electrical methods of measuring body temperatures. R. S. Whipple. diags Inst E E J 57:sup1-9; Discussion. 9-12 '19

- Suggestions for calibrating base metal thermocouples by the freezing point method. K. Marsh. Chem & Met Eng 24:1071 Je 15 '21

Thermocouples —Continued

- Thermocouple potentials. I. M. Stein. Elec W 75:1371 Je 12 '20
 Use of thermocouples of iron and nickel alloys, at high temperatures; abstract. Elec W 76:841 O 23 '20

Thermodynamics

- Dynamical method for raising gases to a high temperature without the use of high pressures. W. H. Watkinson. diags Engineering 110:276 Ag 27 '20
 Elements of engineering thermodynamics. J. A. Moyer, J. P. Calderwood, and A. A. Potter. 216p Wiley '20
 Entropy changes at low temperatures. G. E. Gibson, W. M. Latimer and G. S. Parks. Am Chem Soc J 42:1533-50 Ag '20
 New thermodynamic cycle. W. J. Walker. Engineering 109:467 Ap 9 '20; Abstract. Mech Eng 42:361 Je '20
 Principles of thermodynamics. G. A. Goode-nough. 353p Holt '20
 Properties of steam. Engineering 111:63-5, 93-4 Ja 21-28 '21; Abstract. Mech Eng 43:259-60 Ap '21
 Recent changes of ideas concerning heat engineering. M. Smith and A. G. Warren. Engineer 129:569-70, 592-3, 615-17 Je 4-18 '20
 Relations entre les réactions métallurgiques et les lois physico-chimiques. L. Guillet. diags Génie Civil 78:104-8, 126-30, 151-3, 169-73, 190-2 Ja 29-F 26 '21
 Steam formulas. R. C. H. Heck. diags Mech Eng 42:669-70 D '20
 Thermodynamic cycles in relation to internal combustion engines. W. J. Walker. diags Engineer 130:666-9 D 31 '20; Same. Engineering 110:847-50 D 24 '20; Abstract. Mech Eng 43:408-9 Je '21; Discussion. Engineer 130:640-1, 655-6 D 24-31 '20; Engineering 110:827-9 D 24 '20
 Thermodynamic investigation of reactions involving silver sulfide and silver iodide. A. A. Noyes and E. S. Freed. Am Chem Soc J 42:476-87 Mr '20
 Thermodynamic properties of the ions of some strong electrolytes and of the hydrogen ion in solutions of tenth molal hydrochloric acid containing uni-univalent salts. H. S. Harned. Am Chem Soc J 42:1808-32 S '20
 Thermodynamic relation between solubility and internal pressure. J. H. Hildebrand. Am Chem Soc J 43:500-7 Mr '21
 Thermodynamic treatment of concentrated solutions, and applications to thallium amalgams. G. N. Lewis and M. Randall. Am Chem Soc J 43:233-54 F '21
 Thermodynamics. J. E. Emswiler. 266p McGraw-Hill '21
 Thermodynamics and chemistry. F. H. MacDougall. 391p Wiley '21
 Thermodynamics for engineers. J. A. Ewing. 383p University press, Cambridge '20
 La thermodynamique et ses applications à l'industrie chimique. G. Urbain. Chimie & Ind 3:750-60; 4:31-42 Je-Jl '20
 Third law of thermodynamics and the entropy of solutions and of liquids. G. N. Lewis and G. E. Gibson. Am Chem Soc J 42:1529-33 Ag '20
 Total heat diagrams for ammonia. E. F. Mueller and C. H. Meyers. A S R E J 7:419-25 My '21
 Velocity of particles in thermal movement. Engineering 111:593-4 My 13 '21
See also Adiabatic compression; Entropy; Heat; Joule-Thomson effect; Steam; Vapor pressure
- Thermoelectric effects**
 Thermoelectric electric effects in iron and mercury due to asymmetric heating. J. M. Benade. diags Phys R 18:199-205 S '21
- Thermoelectricity**
 Recent progress in thermo-electricity; abstracts. C. Benedicks. diags Engineer 129:617-18 Je 18 '20; Engineering 109:831-2 Je 18 '20; Sci Am M 3:182-3 F '21
 Temperature of an electrically heated filament. C. Snow. Phys R 18:158-60 Ag '21

Thermo-electromotive force and alloy research. J. L. Haughton. il diags Engineering 109:803-7 Je 11 '20

See also Piezoelectricity

Thermometers and thermometry

- Calorimetric method for standardizing thermometers by electrical energy. T. W. Richards and S. Tamaru. Am Chem Soc J 42:1374-7 Jl '20
 Construction of platinum resistance thermometers and immersion heating coils of low lag. T. S. Sligh, jr. il Am Chem Soc J 43:470-5 Mr '21; Excerpts. J Fr Inst 191:538-40 Ap '21
 Dampfdrucktafeln für temperaturbestimmungen zwischen +25° und -185°. A. Stock, F. Henning and E. Kuss. diags Deutsche Chem Gesell Ber 54:1119-29 My '21
 Distance-reading thermometer. diags Engineering 110:736-7 D 3 '20
 Establishing of the absolute temperature scale. F. G. Keyes. Am Chem Soc J 42:54-9 Ja '20
 Illuminated thermometer case. W. J. McGuffage. il Pop Mech 33:303 F '20
 Importance of temperature measurement. A. Walton. Textile World 57:2813+ Ap 17 '20
 Manipulating the mercurial thermometer. diags Sibley J 34:128-31+ S '20
 Metal-expansion thermometer. L. Pyle. il Pop Mech 33:156 Ja '20
 New fixed point on the thermometric scale. F. Bates and F. P. Phelps. Phys R 18:115-16 Ag '21
 New recording thermometer works at long distance. il Pop Mech 36:5 Jl '21; Ry Mech Eng 95:471 Jl '21
 Partial and total immersion thermometers. C. W. Waidner and E. F. Mueller. J Ind & Eng Chem 13:237-40 Mr '21
 Radiation effects in thermometry. C. S. Robinson. bibliog J Ind & Eng Chem 13:820-2 S '21
 Recent modifications in the construction of platinum resistance thermometers. T. S. Sligh, jr. il U S Bur Stand Sci Pa 407:49-63 '21
 Recording thermometer. il Power Pl Eng 25:444 Ap 15 '21
 Thermometer conversion chart. R. McBride. Power 52:552 O 5 '20
 Time punch attachment of recording thermometer. diags Textile World 59:3281+ My 14 '21
 Twin thermometers reveal why one is uncomfortable. il Pop Mech 36:78 Jl '21
See also Calorimeters and calorimetry; Katathermometers; Pyrometers and pyrometry; Temperature
- Thermometers and thermometry, Medical**
 Some notes on electrical methods of measuring body temperatures. R. S. Whipple. diags Inst E E J 57:supl-9; Discussion. 9-12 '19
- Thermopak**
 Marketing a product by the easiest way. Ptr Ink 111:97-8 Je 24 '20
- Thermopiles**
 Seeing in the dark; detecting invisible objects by their bodily heat. S. O. Hoffman. il Sci Am 123:154+ Ag 14 '20
- Thermostatic metal**
 Thermostatic metal. H. Herrman. il Gen Elec R 23:57-9 Ja '20
 Wilco thermostatic metal. Automotive Ind 43:819 O 21 '20
- Thermostats**
 Heating, ventilation and temperature control in school buildings. il diags Dom Eng 94:78-80+ Ja 8 '21
 Industrial uses of heat regulators. il Metal Work 93:546+ Ap 30 '20
 Instruction course for custodians and janitors. E. S. Hallett. diags Heat & Ven 18:37-9 Je '21
 Thermostat's job. diag Sanitary & Heat Eng 96:232 O 7 '21
 Wild-Barfield thermostat. il Elec R (Lond) 88:290 Mr 4 '21

Thiazolidones

Reactions of the formamidines; some thiazolidone derivatives. F. B. Dains, R. Irvin and C. G. Harrel. *Am Chem Soc J* 43:613-18 Mr '21

Thibet (textile). See Tibet

Thickeners

Required capacity of continuous thickeners. W. A. Deane. *Eng & Contr* 53:541 My 12 '20

Thickeners and decanting appliances. H. Hanson. *il Eng & Min J* 109:853-6 Ap 10 '20
See also Dorr thickener

Thioalcohols. See Mercaptans

Thiocarbamide

Studies in substituted quaternary azonium compounds containing an asymmetric nitrogen atom; additive compounds of thiocarbamide with azonium iodides. B. K. Singh and M. Lal. *Chem Soc J* 119:210-11 F '21

Thiocarbanilide

Influence of certain organic accelerators on vulcanization of rubber. G. S. Whitby and O. J. Walker. *J Ind & Eng Chem* 13:816-19 S '21

Thiocarbonates

Trithiocarbonates and perthiocarbonates. E. W. Yeoman. *Chem Soc J* 119:38-54 Ja '21

Thiocyanates

Action of the Grignard reagent on thiocyanates. R. Adams, H. B. Bramlet and F. H. Tendick. *Am Chem Soc J* 42:2369-74 N '20

Method for the determination of thiocyanates in ammoniacal liquor and waste liquor from ammonia stills in the by-product coking industry. J. A. Shaw. *J Ind & Eng Chem* 12:676-7 Jl '20

New method of parchmentizing paper. *Paper* 26:15 Ap 14 '20

New process for parchment paper and vulcanized fibre. *Paper* 26:17+ Jl 21 '20

Researches on thiocyanates and isothiocyanates; a new method of synthesizing 2-thiohydantoins. T. B. Johnson, A. J. Hill and E. B. Kelsey. *Am Chem Soc J* 42:1711-20 Ag '20

Thiocyano compounds

Einwirkung von *tert.* natriumarsenit auf schwefelcyan-verbindungen. A. Gutmann. *Deutsche Chem Gesell Ber* 54:1410-14 Jl '21

Thiocyanogen

Free thiocyanogen. C. J. West. *Chem & Met Eng* 23:925 N 10 '20

Thiodiglycol

L'action du thiodiglycol sur les sels d'argent. C. Moureu and M. Murat. *Chimie & Ind* 4:593-6 N '20

Schwefelhaltige abkömmlinge aus äthylen chlorhydrin. E. Fromm and A. Kohn. *Deutsche Chem Gesell Ber* 54:320-1 F '21

Thioethers. See Sulfides

Thiofluorescein

Constitution of thiofluorescein and its technical applications; abstract. T. Maki. *Chem Soc J* 120 pt 1:183-5 Mr '21

Thioglycolic acid

Sulfide acid or the butyl ether of thioglycolic acid. Y. Uyeda and E. E. Reid. *Am Chem Soc J* 42:2385-9 N '20

Thiohydantoin

Researches on thiocyanates and isothiocyanates; a new method of synthesizing 2-thiohydantoins. T. B. Johnson, A. J. Hill and E. B. Kelsey. *Am Chem Soc J* 42:1711-20 Ag '20

ψ -Thiohydantoin; abstract. E. Schmidt. *Chem Soc J* 120 pt 1:100 F '21

Thiophene

Über thiophen-verbindungen; die isomeren *n*-propyl- und isopropyl-thiophene. H. Scheibler and M. Schmidt. *Deutsche Chem Gesell Ber* 54:139-54 Ja '21

Thiophene-mercury compounds

Thiophen-mercury compounds. W. Steinkopf. *Chem Soc J* 120 pt 1:630-2 Ag '21

Thiophenols

Über thio-phenole; über thiophenol-äther des triphenyl-methans und die auxochrome wirkung der alkylmercaptogruppen. K. Brand and O. Stallman. *Deutsche Chem Gesell Ber* 54:1578-85 Jl '21

Thiouric acids. See Uric acid

Third rails

Electric railway contact systems. P. Dawson. *il diags Inst E E J* 58:838-49; Discussion. 849-57 S '20

History and comments on the third rail system. *Elec Ry J* 58:743-4 O 22 '21

Northwestern Pacific's experience with third-rail. C. E. Hatch. *il map Ry Age* 71:531-2 S 17 '21; Same. *Eng & Contr* 56:380 O 19 '21

Third rail gaging device. W. A. Burnham. *il Elec Ry J* 57:559 Mr 19 '21

Third rail shoe maintenance. *il Elec Ry J* 56:424 Ag 28 '20

Thomas, Isaiah, 1749-1831

Biography of Isaiah Thomas, America's most successful printer. H. L. Bullen. *por* (front) *il Inland Ptr* 67:483-6 Jl '21

Printer of the colonial days. W. H. Jackson. *Inland Ptr* 66:609-12 F '21

Thompson, Benjamin, 1753-1814

Engineer who anticipated Hoover. P. B. McDonald. *Chem & Met Eng* 24:252 F 9 '21

Thompson, Silvanus Phillips, 1851-1916

Four great British electric lights: Faraday—the discoverer; Maxwell—the interpreter; Kelvin—the measurer; Silvanus Thompson—the teacher. L. B. Atkinson. *Inst E E J* 59:667-76 Je '21

Thompson, William Boyce

Sketch. *por Eng & Min J* 110:575 S 18 '20

Thomson, Elihu, 1853-

Dr Elihu Thomson; scientist, inventor, and educator. D. C. Jackson. *por Gen Elec R* 23:983-4 D '20

Thordarson stove

Mystic stove to be a feature at pageant of progress. *il Elec R* 79:99-100 Jl 16 '21

Thorium

Distribution of the active deposits of radium, thorium, and actinium in electric fields. G. H. Briggs. *diags Philos Mag* 6th ser 41:357-77 Mr '21

Long-range particles from thorium active deposit. A. B. Wood. *diags Philos Mag* 6th ser 41:575-84 Ap '21

Mass of the long-range particles from thorium. C. E. Rutherford. *Philos Mag* 6th ser 41:570-4 Ap '21

Range and ionization of the α particles from radium C and thorium C. G. H. Henderson. *Philos Mag* 6th ser 42:538-51, pl 17 O '21

Thorium, zirconium, and rare-earth minerals. W. T. Schaller. *U S Geol S Min Res of U S* 1919, pt 2:1-16; Bibliography. 16-18 '20

Thread

Preparation of textile thread from wood. *Paper* 28:28-31+ My 25 '21

Preventing yarn and thread mixtures. *diags Textile World* 58:385+ Jl 17 '20

Thread cutting

Cutting metric threads without a 127-tooth gear. C. E. Josselyn. *Am Mach* 54:120b Ja 20 '21; Discussion. A. M. O'Brien. 54:415 Mr 10 '21

Cutting screws of quick lead. E. A. Dixie. *il diags Am Mach* 52:883-4 Ap 22 '20

Design of square and acme thread taps of steep lead. E. A. Dixie. *il diags Am Mach* 53:887-8 N 11 '20

Increasing the diameter of work before and after threading. E. A. Dixie. *diags Am Mach* 54:1092-3 Je 23 '21

Metal cutting tools. A. L. De Leeuw. *il diags Am Mach* 55:551-4, 600-3 O 6-13 '21

Pitch compensator for thread-cutting lathes. J. B. Conway. *diags Mach* 26:452 Ja '20

Precision and thread lead-screw variator. *il Am Mach* 54:477 Mr 17 '21

Problem of accurate thread cutting. B. M. W. Hanson. *il diags Mach* 27:1012-14 Jl '21

Thread cutting—Continued

- Proper use of thread cutting tools. G. H. Radebaugh. *il* diags Brick & Clay Rec 58:650-2 Ap 19 '21
- Side-cutting of thread-milling hobs. E. Buckingham. diags Am Mach 53:1190-5, 1222-4 D 23-30 '20; Same cond. Mech Eng 43:9-11+ Ja '21; Same cond. Eng & Ind Management 5:136-9 F 3 '21
- Tap drills, clearances and tolerances. W. J. Rudolph. Am Mach 52:65-6 Ja 8 '20
- Taper threading operation. *il* diag Mach 27:499 Ja '21
- Variator generates leads for thread cutting. *il* Iron Tr R 68:979-80 Ap 7 '21

See also Screw threads

Thread cutting machines

- Automatic thread milling machine. *il* Am Mach 52:532 Mr 4 '20; Mach 26:672-3 Mr '20; Iron Age 105:756 Mr 11 '20
- Geometric double spindle threading machine. *il* Iron Age 107:578 Mr 3 '21
- Gray thread milling machines. *il* Mach 26:875-6 My '20
- Gray thread-milling machines of improved design. E. L. Dunn. *il* Am Mach 52:959-60 Ap 29 '20
- H. & G. threading machines. *il* Mach 27:982 Je '21; Am Mach 54:1012-13 Je 9 '21; Ry Mech Eng 95:394-5 Je '21
- Thread cutter embodies goose neck spring. *il* Iron Tr R 68:494 F 17 '21
- Waltham automatic thread milling machine. *il* Iron Age 108:546 S 1 '21

Thread gages. See Gages**Thread rolling machines**

- Rolling threads on container caps. S. A. Hand. *il* diags Am Mach 52:111-13 Ja 15 '20; Discussion. 52:767-8 Ap 8 '20

Threading machines. See Thread cutting machines**Three-shift system. See** Hours of labor**Thrift. See** Saving**Thrift stamps**

- Postmaster sells thrift stamps in mail campaign. *Ptr Ink* 116:33-4 Jl 7 '21

Thrust boring. See Drilling and boring (earth and rocks)**Thulium**

- Determination of the atomic weight of thulium. C. James and O. J. Stewart. Am Chem Soc J 42:2022-3 O '20

Thunder

- Power of a modern gun and of thunder. Sci Am 125A:49 N '21
- Sounds of meteorological origin. W. J. Humphreys. Sci Am M 4:75-6 Jl '21

Thunderstorms

- Magnetic storms of the present solar cycle. A. L. Cortie. Engineering 112:500 O 7 '21
- Magnetic storms: their effects upon railway signal and telegraph apparatus. W. J. Thorrold. Elec R (Lond) 89:260-1 Ag 19 '21
- Thunderstorm-breeding spots and engineering design. R. E. Horton. Eng N 87:241 Ag 11 '21

- Thunderstorms in the making. R. D. Rusk. *il* Pop Mech 33:30-1 Ja '20

See also Lightning detectors

Thymol

- Synthesis of thymol from *p*-cymene. M. Phillips and H. D. Gibbs. J Ind & Eng Chem 12:733-4 Ag '20

Thymotol. See Aristol**Thyroid gland**

- Effect of feeding tadpoles with the thyroid gland. Sci Am M 4:211 S '21

Tibet

- Construction and finish for tibets. Textile World 57:4245-6 Je 5 '20

Ticholeptus rusticus

- Ticholeptus rusticus and the genera of oreodontidae. F. B. Loomis. bibliog *il* Am J Sci 50:281-92 O '20

Ticket offices, Railroad. See Railroads—Ticket offices**Ticket protective bureau, Railway. See** Railway ticket protective bureau**Tickets. See** Railroads—Tickets; Street railroads—Tickets**Tide power**

- Britain's huge tidal-power project. P. H. Woodruff. *il* Pop Mech 35:344-6 Mr '21
- British report on use of tidal power. Chem & Met Eng 24:428 Mr 9 '21
- Chinese tidal power plant. J. R. West. *il* Eng N 86:378 Mr 3 '21
- Developing one million horsepower from tidal energy; Severn barrage. Sci Am 124:61, 67+ Ja 22 '21
- Étude théorique d'une usine actionnée par la marée. P. Caufourier. diags Génie Civil 76:180-2 F 14 '20; Same. Engineer 129:372-3 Ap 9 '20
- Famous Bay of Fundy tides basis of new power plant. Pop Mech 33:186 F '20
- Great west-sea bubble; government engineering up-to-date. Elec R (Lond) 88:68-9 Ja 21 '21
- Half a million horsepower from the tides. Sci Am M 3:3 Ja '21
- Limits of tidal power. Sci Am 124:162 F 26 '21
- Long-distance transmission of electrical energy with special reference to tidal power. T. F. Wall. Engineering 112:587-8 O 21 '21; Excerpts. Elec R (Lond) 89:387-8 S 16 '21; Engineer 132:345 S 30 '21; Electrician 87:408-10 S 30 '21; Discussion. Elec R (Lond) 89:418-19 S 23 '21; Engineering 112:409 S 16 '21
- Losses in electric networks. R. Capraro. Elec W 76:486 S 4 '20
- Old New England tidal power plants. D. C. Davis. diag Eng N 86:89 Ja 13 '21
- Power from the tide. Power 51:892 Je 1 '20
- Projet d'utilisation des marées dans la baie de Rothéneuf (Ille-et-Vilaine). C. Dantin. diags maps Génie Civil 79:102-6 Jl 30 '21
- Projet d'utilisation des marées dans l'estuaire de la Severn (Grande-Bretagne). diag plans Génie Civil 78:550-3 Je 25 '21
- Proposed tidal-power development at Hope-well, N.B.; abstract. map Mech Eng 42:115 F '20
- Report on tidal power; water power resources committee. Engineer 130:614-15 D 17 '20
- Setting the tides to work; various plans for utilizing tidal power. diags Sci Am M 2:100-1 O '20
- Severn barrage scheme. *il* Electrician 85:659-60 D 3 '20
- Severn barrage scheme; discussion at Birmingham, Feb. 10-11. *il* Elec R (Lond) 88:254-7 F 25 '21; Engineer 131:210-11, 230-1 F 25-Mr 4 '21; Electrician 86:279-80 Mr 4 '21
- Severn tidal power development. map Eng & Contr 55:326-7 Mr 30 '21
- Studies in tidal power. N. Dravey. *il* diags Engineer 130:556-8, 578-80, 603-4, 634-6, 652-4 D 3-31 '20
- Theory of tide-power stations. Engineer 129:528 My 21 '20
- Tidal hydro-electric scheme for the Severn. map Engineer 130:562-3 D 3 '20; Same cond. Eng N 85:1221-2 D 23 '20; Abstract. Mech Eng 43:119-21 F '21
- Tidal power. A. M. A. Struben. 115p Pitman '21
- Tidal power; abstract. A. Struben. Sci Am M 1:564 Je '20
- Tidal power development. A. H. Gibson. diags Engineering 110:778-80, 793-5, 833 D 10-24 '20
- Tidal power experiments in France. Engineer 131:649-50 Je 17 '21
- Tidal power plant at East Saugus, Mass. Elec W 77:675 Mr 19 '21
- Use tide to install huge steel bridge span. *il* Pop Mech 34:643 N '20
- Utilising the power of the tides. Eng & Contr 54:299 S 29 '20
- Utilization of the tides for the production of power. J. H. Blakey. diag plans Power Pl Eng 25:1047-8 N 1 '21

Tide power —Continued

Utilisation of tidal power, with special reference to the Severn estuary. F. C. Lea. diags Engineering 112:424-6 S 16 '21; Abstract. Elec R (Lond) 89:418 S 23 '21; Abstract. Engineer 132:311 S 23 '21

Tides

Forecasting the path of hurricanes on the Gulf of Mexico by tides. H. H. Dunn. il maps Pop Mech 35:377-81 Mr '21

Tidal friction and the toll it takes. H: N. Russell. il Sci Am 124:272+ Ap 2 '21

See also Bores (tidal phenomena); Tide power

Tidewater coal exchange

Bureau of mines will sample and test coals shipped through Tidewater exchange. Coal Age 19:506 Mr 17 '21

Kinds of coal that go into Tidewater pools. H: M. Payne. Coal Age 19:490-3 Mr 17 '21

Operators, shippers and railroads form new Tidewater coal exchange. Coal Age 17:764 Ap 15 '20

Simple operation of Tidewater coal exchange cuts transportation expense. H: M. Payne. map Coal Age 19:539-41 Mr 24 '21

Where classified Tidewater coals come from. H: M. Payne. maps Coal Age 19:442-5 Mr 10 '21

Tide water oil company

31st annual report, 1919. Comm & Fin Chr 110:1433-4 Ap 3 '20

32d annual report for the fiscal year ended Dec. 31, 1920. Comm & Fin Chr 112:1418-19 Ap 2 '21

Tide water oil sales corporation

Forty per cent increase in sales volume this year; how the Tide water oil sales corporation has achieved it. V. S. Hewitt. Ptr Ink 116:53-6 Jl 28 '21

Tidewater transshippers association

New Tidewater pooling association formed. Coal Age 17:451-2 Mr 4 '20

Tie lines. See Electric lines

Tie plates, Railroad. See Railroad tie plates

Tie rods. See Railroad tie rods

Tiering machines. See Bale tiering machine

Ties, Mine. See Mine ties

Ties, Railroad. See Railroad ties

Tile

Enrichment of concrete surfaces with clay tile. J. H. Donahey. il Concrete 16:14+ Ja '20

How to get best results laying floor and other tile. diag Bldg Age 43:33 Jl '21

Special lap tile for boiler baffles. L. E. Brown. diags Power 54:690 N 1 '21

Terra cotta roofing tile. A. Lo Cascio. il diags Arch Forum 34:59-62, 97-9, 187-9 F-Mr, My '21

Tile and its installation. E. S. Wires. diags Arch Forum 33:137-8, 163-6 O-N '20

See also Concrete tile; Drain tile; Hollow tile

Testing

Transverse strength of fire-clay tiles at furnace temperatures. R. F. Geller. diags plan Am Cer Soc J 4:608-15 Jl '21

Tile, Concrete. See Concrete tile

Timber

Comparative value of timber cut from live and dead trees. Sci Am 125:108 Ag 6 '21

See also Dry rot; Forests and forestry; Hard woods; Lumber; Lumbering; Trees; Wood; also names of woods, e.g. Douglas fir, Pine, Possum wood

Specifications

Report of committee D-7 on timber. Am Soc T M Pro v 20 pt 1:446-8 '20

See also Douglas fir—Specifications

Taxation

Louisiana lumbermen accept state's new program of two percent on timber cut. Am Lumberman 2346:53 My 1 '20

Selected questions and answers on the forest industries questionnaire. E. T. Allen. Am Lumberman 2326:59-61 D 13 '19

Treasury rulings: income tax; depletion of timber. J Account 30:443-7 D '20

Timber preservation. See Wood preservation

Time

Why it is twelve o'clock. W. M. Butterfield. Sci Am 122:83 Ja 24 '20

See also Daylight saving

Time keeping

Daily time sheet form. C. M. Cruikshank. Bldg Age 43:49+ Je '21

Reason why. W. J. Hiscox. Electrician 85:656-7 D 3 '20

Repairing tools—one hour. il Factory 26:172-4 Ja 15 '21

Scientific management; time booking. H: Atkinson. il Eng & Ind Management 5:162-5 F 10 '21

See also Time tickets

Time measurement

Development of time slide-rule. J. B. Conway. chart diags Mach 26:453-4 Ja '20

See also Timing devices

Time saving

Business man—and his time. il System 39:40-3 Ja '21

Time signals

From star to chronometer via radio; the function and the manner of transmission of the modern time signal. C. H. Claudy. il Sci Am 125:186+ S 10 '21

Time study

Application of time study in the foundry. J. F. Blank. Iron Age 108:958-9 O 13 '21

Determining productive time. Factory 24:1694 Je 1 '20

Effective time study methods increase individual production. N. G. Shidle. Automotive Ind 43:421-4 Ag 26 '20

Eliminating the stop watch from industry. C. E. Knoepfel. Iron Age 104:766-7 S 18 '19; Same. Sci Am 121:308 S 27 '19; Same abr. Metal Ind 17:495 N '19

Eliminating unproductive time in industry. chart Eng & Ind Management 6:205-7 Ag 25 '21

Establishing a rate setters' school. G: F. Barber. Ind Management 60:24-8 Jl '20

Getting the correct mixer gang organization. W. R. Basset. charts diag Concrete 16:151-4 Mr '20

How to conduct a time study organization. C. D. Buoy. Ind Management 62:104-5 Ag '21

How to make and apply time studies. A. G. Bryant. Eng & Contr 52:602 N 19 '19

How to make group time studies. P. Bernstein. Ind Management 61:187-9 Mr 1 '21

Improvements in time study methods. A. H. Chubberly. il charts Ind Management 58:118-20 Ag '19; Same abr. Eng & Contr 52:707-8 D 17 '19

Lincoln motor production plan. I. J. Beatty. Factory 24:967-70 Ap 1 '20

Making time studies pay. B. M. Maynard. il Factory 26:1178-83 My 15 '21

Measuring the human and mechanical elements in manual work. L. A. Sylvester. Ind Management 62:141-4 S '21

Modern production methods. W. R. Basset. Am Mach 55:501-5, 604-8 S 29, O 13 '21

Motion and time study and laboratory practice. F. B. Gilbreth. Eng & Ind Management 5:101 Ja 27 '21

Payment of bonus to pipe press crews. W. F. Godejohn. charts Brick & Clay Rec 58:1076-9 Je 28 '21

Prevention of fatigue in industry; time study and task setting. R. A. Spaeth. Ind Management 59:409-11 My '20

Rate fixing by the factor method. F: Fulforth. Ind Management 61:402-3 Je '21

Serial rate-setting; determining time-rates on varying sizes of similar parts. H. P. Losely. Ind Management 61:409-15 Je '21

Setting a job time limit. S. B. Keator. Factory 24:268-9 F 1 '20

Silberg time-study watch. il Mach 28:74-5 S '21; Iron Age 108:390 Ag 18 '21; Am Mach 55:861-2 N 24 '21

Time study—Continued

- Standard day's work. C. C. Hermann. *Ind Management* 59:288-9 Ap '20
- Standard time in connection with time-study work. J. B. Conway. *chart Mach* 26:461-2 Ja '20
- Standard times for jobs on gang drills. H. Newell. *Ind Management* 59:219-21 Mr '20
- Standardization of mine work. R. Linton. *Min & Sci P* 121:312 Ag 28 '20
- Time and job analysis in management. W: O. Lichtner. *chart il Ind Management* 59: 301-6, 361-6, 487-91; 60:28-34, 130-9, 201-7 Ap-S '20
- Time studies for a power shovel. D. J. Hauer. *Eng & Contr* 54:168-70 Ag 18 '20
- Time studies in the foundry. A. G. Peter. *Ind Management* 62:244-50 O '21
- Time studies of production to be continued at Lynn. *Elec W* 75:1395 Je 12 '20
- Time studies on wooden knife handles. P. Bernstein. *diags Ind Management* 62:76-82 Ag '21
- Time study and industrial unrest. C. M. Bigelow. *Ind Management* 59:143-5 F '20
- Time study and job analysis. W: O. Lichtner. 397p *Ronald press* '21
- Time study and motion study. F. B. Gilbreth and L. M. Gilbreth. 16p '20 Frank B. Gilbreth, 68 Eagle Rock Way, Montclair, N.J.; Same. *Eng & Ind Management* 5:168-73 F 10 '21
- Time study as basis of production. J. A. Bennie. *Ind Management* 60:99-102 Ag '20
- Time study in small part manufacture. P. Bernstein. *Ind Management* 60:401-6 D 1 '20
- Time study in unloading lumber. C. C. Hermann. *Ind Management* 62:16-17 Jl '21
- Time-study methods of training. W. O. Lichtner. *Factory* 25:1942 D 15 '20
- Time study underlies bonus system. H. E. Diller. *Foundry* 48:682-6 S 1 '20
- Time study watch, by Stein & Ellbogen co. *il Am Mach* 55:246 Ag 11 '21
- Time-study watch that records number of operations performed in one hour. *il Coal Age* 20:52 Jl 14 '21
- Time study work requires high grade men. W: Baum. *Automotive Ind* 44:463 F 24 '21
- Training toward true time standards. C. B. Tyson. *il Factory* 26:1402-6; 27:47-8 Je 15-Jl '21
- Winning the worker to the time study plan. *Automotive Ind* 42:666-8 Mr 11 '20
- Time tickets**
- How cost systems benefit the employee. C. A. Jettinger. *Inland Ptr* 68:46-8 O '21
- Timepieces**
- See also Watches*
- Timetables.** *See Railroads—Time tables*
- Timing devices**
- Accurate timer holds voltage constant when testing meters. *diag Elec W* 75:1007 My 1 '20
- Limitations of the stop watch as a precision instrument. A. L. Ellis. *il diags Am Inst E E J* 40:104-12 F '21
- Stromberg process-timing and signaling instrument. *il Am Mach* 55:654-5 O 20 '21
- Time recorder for textile machines. *diags Textile World* 58:4017 D 11 '20
- Time recording devices. G. R. Shaw. *il Paper* 27:216 N 10 '20
- Timing Diesel engine valves. *diags Power* 53: 102-4 Ja 18 '21
- Timing Diesel engine valves. D. P. Peel. *diag Engineer* 129:559 My 28 '20
- Timing the hundred-mile-per-hour racer. R. Howard. *il Sci Am* 123:299+ S 25 '20
- See also Watches*
- Timken-Detroit axle company**
- Reaching the prospect who can't make up his mind. R. W. Johnson. *Ptr Ink* 116:42+ Jl 14 '21
- Timperly, Charles H., 1794-1846**
- Dictionary of printers and printing, by C. H. Timperly, London, 1839. Review. Inland Ptr* 66:488 Ja '21

Tin

- Boom sheet metal for roofs. *il Metal Work* 93:798-800 Je 18 '20
- Conservation of tin in bearing metals, bronzes and solders. G. K. Burgess and R. W. Woodward. *Am Mach* 51:883-5 N 13 '19
- Erratic behavior of tin. *Eng & Min J* 111:610 Ap 2 '21
- Evolution of the Nu-dura-tin idea. Z. T. Hall. *Sheet Metal Worker* 12:259-60 My 13 '21
- Federated Malay states tin exports. *Eng & Min J* 111:505 Mr 19 '21
- Future of tin. M. R. Lamb. *Eng & Min J* 111:388 F 26 '21
- Getting together to push tin roofing. F. K. Chew. *il Sheet Metal Worker* 11:363-5 N 26 '20
- Grades of tin. *Eng & Min J* 109:808 Ap 3 '20
- How tin roofers gave industry new impetus. *il Sheet Metal Worker* 11:489-91 Ja 21 '21
- Nu-dura-tin night at Philadelphia. *Sheet Metal Worker* 12:168-9 Ap 1 '21
- Ore deposition in the Bolivian tin-silver deposits. W. M. Davy. *il diags map Econ Geol* 15:463-96 S '20; Discussion. J. T. Singewald, jr. 16:60-9 Ja '21
- Preparation of tin for roofing. J: Troland. *diags Metal Work* 93:770 Je 11 '20
- Revision of the atomic weight of tin. B. Brauner and H: Krepelka. *diags Am Chem Soc J* 42:917-25 My '20
- Revision of the atomic weight of tin. H: Krepelka. *Am Chem Soc J* 42:925-8 My '20
- Tin a much-maligned metal. E. D. Ward. *Eng & Min J* 110:564 S 18 '20
- Tin and tungsten production in Burma in 1919. *Eng & Min J* 111:309 F 12 '21
- Tin exports from Malaya. *Min & Sci P* 122: 285 F 26 '21
- Tin in 1919. J. H. Lang. *Eng & Min J* 109:122-3 Ja 17 '20
- Tin in 1920. J. H. Lang. *Eng & Min J* 111: 140-1 Ja 22 '21
- Tin in the Malay peninsula. *Eng & Min J* 110:360 Ag 21 '20
- See also Tin mines and mining; Tin plate*
- Analysis**
- Analyses of tin. *Foundry* 49:398a, 434a My 15-Je 1 '21
- Analysis of refined tin. W. H. Jacobson. *Metal Ind* 19:410 O '21
- Revision of the atomic weight of tin; the electrolytic determination of tin in tin tetrachloride. G. P. Baxter and H. W. Starkweather. *diags Am Chem Soc J* 42: 905-17 My '20
- Tin cans**
- Blanking, drawing and piercing a varnish can top in one operation. S. A. McDonald. *diags Am Mach* 55:29-30 Jl 7 '21
- Tin cans as fuel. *Sci Am* 124:405 My 21 '21
- Tin chlorides**
- Action of anhydrous stannic chloride on petroleum and its distillates. G. Torossian. *J Ind & Eng Chem* 13:903-4 O '21
- Decomposition of stannous chloride by water and by potassium hydroxide solutions. C. M. Carson. *Am Chem Soc J* 41:1969-77 D '19
- Revision of the atomic weight of tin; the electrolytic determination of tin in tin tetrachloride. G. P. Baxter and H. W. Starkweather. *diags Am Chem Soc J* 42: 905-17 My '20
- Tin foil**
- Manufacture of tin foil in Swatow. *Metal Work* 92:434-5 O 10 '19
- Tin metallurgy**
- Electrolytic detinning process; patent. *diags Chem & Met Eng* 24:708 Ap 20 '21
- Electrolytic refining of tin. E: F. Kern. *il Am Electrochem Soc Trans v* 38 (preprint 16):187-206 O '20; Abstract. *Chem & Met Eng* 23:723-4 O 13 '20
- Séparation de l'étain et de l'antimoine. A. Kling and A. Lassieur. *Chimie & Ind* 4: 155-6 Ag '20
- Weissblech—weissband. W. Krämer. *diag plan Stahl & Eisen* 41:234-6 F 17 '21

Tin mines and mining

Tin—its political and commercial control. J. M. Hill. il map Eng & Min J 109:1011-20 My 1 '20

Alaska

Alaska tin deposits. F. C. Fearing. il map Eng & Min J 110:154-8 Jl 24 '20
Tin in Alaska. Min & Sci P 123:129 Jl 23 '21

Bolivia

Revival of the Colquechaca silver-tin district, in Bolivia. J. T. Singewald, jr. il map Eng & Min J 110:763-7 O 16 '20
Tin mines of the Quimsa Cruz range in Bolivia. J. T. Singewald, jr. il maps Eng & Min J 110:986-90 N 20 '20

Federated Malay states

Electricity in tin mining. D. M. W. Hutchison and W. J. Wayte. diags plans Inst E E J 58:171-91 F '20; Same abr. Electrician 84:8-10, 36-9 Ja 2-9 '20; Discussion. Inst E E J 58:191-7 F '20
Tin in Malaya. Min & Sci P 122:13 Ja 1 '21
Tin mining in Malaya. Engineer 132:125 Jl 29 '21

New Mexico

Black range tin district of New Mexico. F. S. Naething. map Min & Sci P 122:557-8 Ap 23 '21

Straits Settlements

Cost of tin mining in Straits Settlements. Eng & Min J 112:453 S 17 '21

Tasmania

Mining and milling tin-tungsten ore in Tasmania. W. E. Hitchcock and J. R. Pound. Min & Sci P 120:229-31 F 14 '20

Tin plate

Metal, tin-plate and sheet prices for twenty-one years. chart (supp) Iron Age 105:60 Ja 1 '20
Metal, tin plate and sheet prices for twenty-one years, 1900-1920; with supplement. Iron Age 107:64 Ja 6 '21
1919 tin plate output shows falling off. Iron Tr R 66:109-10 Ja 1 '20
Sheet and tin plate trades in 1919. B. E. V. Luty. Iron Age 105:50-1 Ja 1 '20; Same. Metal Work 93:31-3 Ja 2 '20
Sheet and tin plate trades in 1920. Iron Age 107:54-5 Ja 6 '21
Special car service relieves tin plate. Iron Tr R 68:85-6 Ja 6 '21
Tin-plate and terne-plate manufacture. Iron Age 108:213 Jl 28 '21
Weissblech—weissband. W. Krämer. diag plan Stahl & Eisen 41:234-6 F 17 '21
See also Tinning

Manufacture

Bethlehem's sheet and tin plate mills. diag Iron Age 105:1433-5 My 20 '20; Same cond. Iron Tr R 66:1388-9 My 13 '20
Electrically-driven tin plate mills; a comparison of Welsh and American practice. W. E. Taylor. il Electrician 85:592-5 N 19 '20
Influence of hours of work and of ventilation on output in tinplate manufacture. H. M. Vernon. Chem & Met Eng 22:223-5 F 4 '20
Making tin mills more efficient. J. K. Lamoree. Iron Tr R 65:1642-6 D 18 '19
Reclaiming tin mill by-products. J. D. Knox. il Iron Tr R 66:551-7 F 19 '20
Use of hydrogenated oils in the manufacture of tin plate. W. D. Collins and W. F. Clarke. J Ind & Eng Chem 12:149-52 F '20
Tinkham, Samuel Everett, 1852-1921
In memory of Samuel E. Tinkham. por Boston Soc C E J 8:290-309 O '21

Tinning

Hot tinning; designing, founding and treating bronze, brass, gray iron and malleable iron castings for hot tin coating. W. H. Parry. Metal Ind 19:400-1 O '21
Machines for tinning heavy sheets. il Metal Work 93:411 Ap 2 '20
Metal plating. W. G. Knox. Metal Ind 18:361-2 Ag '20

Method for cleaning and retinning copper wanted. H. F. Munro. Sheet Metal Worker 12:643 O 14 '21

Outfit for tinning copper strips. R. S. Boyd. diags Sheet Metal Worker 11:501 Ja 21 '21
Tin plating from alkaline tin baths by the use of addition agents. F. C. Mathers and W. H. Bell. Am Electrochem Soc Trans v 38 (preprint 6):41-4 O '20; Same. Metal Ind 18:558 D '20; Same. Brass W 17:61 Mr '21

Tinning methods and tin house equipment. C. F. Poppleton. il diags Iron Age 107:187-91 Ja 20 '21

See also Tin plate

Tinsel

See also Dyes and dyeing—Tinsel

Tint photometer. *See* Hess-Ives tint photometer

Tipples, Mine. *See* Mine tipples

Tire fabric mills

Canadian tire fabric mill. il Textile World 59:3801+ Je 4 '21
Planning of a cotton mill for tire fabrics. G. J. Nord. il plans India Rubber W 64:750-2 Jl '21

Tire fabrics

Brief analysis of tire fabric manufacture. H. R. Whitehead. il India Rubber W 64:814-16 Ag '21
Cotton and the automobile tire. E. H. Barnwell. il Textile World 58:249+ Jl 10 '20
Process of treating tire fabric. diag India Rubber W 62:431 Ap '20
Substitutes for rubber tires. Jahr. diags India Rubber W 63:417-21 Mr '21
Tire fabric and long-staple cotton. L. W. Alwyn-Schmidt. India Rubber W 62:640-1 Jl '20
Toron and toron-treated tires. il chart India Rubber W 62:803-4 S '20
Toron finish on cotton goods. H. S. Miller. il Textile World 58:3639+ N 27 '20

Specifications

Proposed tentative specifications for imperfections and tolerances for 60-inch 17¼-ounce square-woven tire builder fabric. India Rubber W 64:738 Jl '21

Tire making machines

Automatic cord tire building machine. il India Rubber W 62:734 Ag '20
Mathern tire making machine. A. Mathern. il India Rubber W 62:584 Je '20

Tire pumps

Efficient tire pump. R. Howard. il Sci Am 124:25 Ja 8 '21
Long stroke tire pump. diags Automotive Ind 43:417 Ag 26 '20
New electrically operated tire pump. il Engineer 131:576 My 27 '21

Tires**Manufacture**

High-speed-steel tools for turning tires. F. A. Stanley. il diags Am Mach 53:265-6 Ag 5 '20

Tires, Aircraft

Development of tires and wheels. Aerial Age 13:205 My 9 '21; Same. Automotive Ind 44:1065 My 19 '21

Tires, Automobile

Advantages and safety of the straight side tire. P. M. Heldt. Automotive Ind 44:697-8 Mr 31 '21
Advertiser shows retailers how to do 85 per cent of their business in off months. J. A. Murphy. Ptr Ink 115:3-4+ My 19 '21
Aging of certain rubber compounds. I. R. Ruby and H. A. Depew. India Rubber W 63:246 Ja '21
Better tiremen. H. H. Tufford. 291p Dunwoody press, Minneapolis '21
Determining factors for the life of a pneumatic tire. W. G. Nelson. Chem & Met Eng 25:153-4 Jl 27 '21; Same. India Rubber W 64:806-8 Ag '21
Dynamic balance and construction of the pneumatic tire. W. Roberts. il diags India Rubber W 64:811-13 Ag '21

Tires, Automobile —Continued

- European tire construction. *il* Automotive Ind 45:368 Ag 25 '21
- Foreign import duties on rubber tires; table. corrected to February 15, 1920. *India Rubber W* 61:355-6 Mr '20; *Automotive Ind* 42:921 Ap 15 '20
- Foreign import duties on rubber tires; table. corrected to April 16, 1921. *India Rubber W* 64:575-7 My '21
- French propaganda against the straight side tire. *diag* *Automotive Ind* 44:696-7 Mr 31 '21
- How the tire industry is readjusting itself. *E: S. Babcox. Ptr Ink* 112:10+ S 9 '20
- If you operate a tire business know where you stand. *Motor Age* 38:12+ S 9 '20
- International discussion of clincher and straight-side tires. *India Rubber W* 62:796 S '20
- Making money with a tire service club. *Motor Age* 37:10-11 Je 24 '20
- New form of tire. *il* *Sci Am* 122:118 Ja 31 '20
- New uses for old tires and tubes. *il* *diags* *India Rubber W* 62:410-12 Ap '20
- Pneumatic tire exports; tabulation. *Automotive Ind* 42:216 Ja 15 '20
- Pneumatic tire tread designs. December, 1916, to September, 1917. *il* *India Rubber W* 62:537 My '20
- Pneumatic tire tread designs. October 1917, to August, 1918. *India Rubber W* 62:616 Je '20
- Pneumatic tire tread designs. September, 1918, to September, 1919. *diags* *India Rubber W* 62:683 Jl '20
- Pneumatic tire tread designs. September, 1920, to November, 1920, and January, 1921, to March, 1921. *il* *India Rubber W* 64:862 Ag '21
- Question of tire guaranties and adjustments. *India Rubber W* 61:231-2 Ja '20
- Rubber surplus and its relation to future tire production. *R: H. Tingley. India Rubber W* 63:158-61 D '20
- Studies of the automobile; load carrying capacity of tires on hard roads. *G. B. Upton. Sibley J* 35:80-1+ My '21
- Substitutes for rubber tires. *Jahr. diags* *India Rubber W* 63:417-21 Mr '21
- Tire and rim sizes; 1914-1919 cars. *Motor Age* 36:45 D 4; 47 D 11; 48 D 18; 46 D 25 '19; 37:55-6 Ja 1; 54-5 Ja 8; 58-9 Ja 15; 52-3 Ja 22; 49 F 5; 67 F 12; 51 F 19 '20
- Tire and rim sizes; 1920 models. *Motor Age* 38:46 Ag 5 '20
- Tire and rim styles; diagrams. *Motor Age* 37:116 Ja 29 '20
- Tire business answered. *H: H. Tufford. 471p* Dunwoody institute press, Minneapolis '21
- Tires and vulcanizing. *H: H. Tufford. F. J. Drake & co., Chicago* '20
- Umbrellalike protector shades tires from sun. *il* *Pop Mech* 36:216 Ag '21
- Warning whistle of tire over-inflation: tire pressure-indicator. *diag* *Sci Am* 123:309 S 25 '20
- What of the scrap tire? *il* *Motor Age* 38:11-12+ Ag 26 '20
- What's the best way to carry spare tires? *il* *Automotive Ind* 45:411-13 S 1 '21
- See also* Automobiles—Wheels; Tire fabrics; Tire pumps; Tires, Motor truck; Tires, Pneumatic

Manufacture

- Curing tires in melted metal molds. *diags* *India Rubber W* 64:556-7 My 1 '21
- Design and construction of a five-inch straight-side cord tire. *B. W. Morrison. diags* *India Rubber W* 65:13-15 O '21
- Machining molds and cores for auto tires. *W. O. Francis. il* *diags* *Am Mach* 52:1099-1102 My 20 '20
- Making rubber mold castings. *P. Dwyer. il* *Foundry* 48:43-8 Ja 15 '20
- Manufacture of tire flaps. *il* *India Rubber W* 63:243-4 Ja '21
- Modern tire plant layout. *M. A. Pearson. il* *plans* *India Rubber W* 62:635-9 Jl '20
- New tire construction. *il* *Automotive Ind* 42:372 Ja 29 '20

- Pneumatic tire in the making. *H. F. Blanchard. il* *Pop Mech* 35:213-15 F '21
- Some mechanics of hand made tires. *il* *Am Mach* 53:1095-6 D 9 '20
- Tire bead manufacture. *R. C. Kelley. il* *India Rubber W* 62:790-1 S '20
- Tire molds are made as specialties. *il* *plan* *Foundry* 48:93-8 F 1 '20
- Toron and toron-treated tires. *il* *chart* *India Rubber W* 62:803-4 S '20

Prices

- Dollar is biggest in buying tires. *R. C. Busbey. India Rubber W* 62:799 S '20

Repair

- Better standard of tire repairing. *R. R. Reid. il* *India Rubber W* 65:109-11 N '21
- Better ways of doing work in the tire repair shop. *diags* *Motor Age* 38:44-5 Jl 22 '20
- Doing one thing well has helped to make the success of a tire service station in one of our western cities. *J: H. Lionberger. il* *diag* *Motor Age* 38:14-15 Ag 19 '20
- Don't repair tires in your salesroom. *il* *Motor Age* 37:14+ Je 10 '20
- Have you considered tire repairing? *il* *Motor Age* 38:14-16 O 14 '20
- Machinery equipment for tire repairing and re-building. *il* *India Rubber W* 61:348-50 Mr '20
- New opportunities in tire repairing. *il* *Motor Age* 38:7-8 Jl 29 '20
- Planning a tire service station. *il* *plan* *Motor Age* 38:12-13+ S 2 '20
- Practical advice to repairmen. *A. B. Zwebell. India Rubber W* 62:435-6 Ap '20
- Practical tire repairing. *A. B. Zwebell. diags* *India Rubber W* 62:576-8 Je '20
- Repairing a blowout correctly. *il* *Motor Age* 37:35 Mr 11 '20

Repair patches

- Manufacture of blow-out patches. *A. C. Squires. diags* *India Rubber W* 62:647-8 Jl '20

Standards

- British standard list of rubber tyres for British standard rims. *diags* *India Rubber W* 62:570-3 Je '20
- British tire standardization. *Soc Auto Eng J* 7:154 Ag '20
- French standardization of solid tire sizes. *Automotive Ind* 42:522 F 19 '20
- Government standard specifications for rubber tires, tire repairs and accessories. *India Rubber W* 61:351-3; 62:419-22 Mr-Ap '20
- Pneumatic tires for passenger cars and commercial vehicles: Tire and rim division Standards committee report. *diags* *Soc Auto Eng J* 6:69-70 Ja '20
- S.A.E. standards report of the tire and rim division. *diags* *India Rubber W* 62:800-2 S '20

Statistics

- Consumption of automobile tires in 1920. *India Rubber W* 63:410-11 Mr '21
- Exports of automobiles and tires; monthly statistics. *Automotive Ind* 44:717, 819, 1069, 1389; 45:77, 327 Mr 31, Ap 14, My 19, Je 23, Jl 14, Ag 18 '21
- Tire exports, 1911 to 1920; tabulation. *Automotive Ind* 44:387 F 17 '21
- Tire production in the United States. *India Rubber W* 62:713-14 Ag '20
- Tire production in the United States. *India Rubber W* 64:728-30 Jl '21

Testing

- New machines and appliances. *il* *India Rubber W* 61:296-8 F '20
- Tire tolls on the car engine. *Sci Am* 124:89 Ja 29 '21

Tires, Locomotive

- Tire fixing rolls for railway wheels. *il* *diags* *Engineer* 131:441 Ap 22 '21
- Tools for boring and turning locomotive tires. *F. H. Colvin. diags* *Am Mach* 55:218-20, 313-17 Ag 11, 25 '21

Tires, Motor truck

- Advantages of pneumatic tires for trucks. W: V. Logan. *Automotive Ind* 42:1150 My 20 '20
- Critique of present day pneumatics. W. J. P. Moore. *diags Automotive Ind* 43:180-1 JI 22 '20
- Cushion tire for heavy trucks. *il Automotive Ind* 45:107 JI 21 '21
- Cushioning in motor-truck design. C. O. Guernsey. *il diags Soc Auto Eng J* 9:143-7; Discussion. 147-50 Ag '21
- Cutting trucking costs: how drivers' cooperation has been secured in increasing tire mileage. *Factory* 26:1177-8 My 15 '21
- Data on pneumatic tires and rims used on trucks. B. Darrow. *diags Soc Auto Eng J* 7:366-8 O '20; *Abstract. India Rubber W* 63:84-5 N '20; Discussion. *Soc Auto Eng J* 7:377-84 O '20
- Design of pneumatic-tired trucks. C. M. McCreery. *il diags Soc Auto Eng J* 6:87-98 F '20; Same abr. *Automotive Ind* 42:565-7, 612-17 F 26-Mr 4 '20; Discussion. *Soc Auto Eng J* 7:80-3 JI '20
- Discussion of motor truck tires. *Soc Auto Eng J* 7:377-84 O '20
- Equipment design for use on the pneumatic tired truck. J. E. Schipper. *Automotive Ind* 42:1152-3 My 20 '20
- French solid tire. *diag Automotive Ind* 45:225 Ag 4 '21
- Keeping records of motor truck tires. W. P. Snidtker. *Eng & Contr* 55:544 Je 1 '21
- Making the motor truck pay better. *Factory* 24:1820+ Je 1 '20
- Packard adapts three truck models to pneumatic tires. J. E. Schipper. *il diags plans Automotive Ind* 42:596-601 Mr 4 '20
- Pneumatic or solid tires for motor trucks? *Sci Am* 125:69 JI 23 '21
- Pneumatic tire and wheel equipment for motor trucks. J. E. Hale. *diags Automotive Ind* 41:918-21 N 6 '19
- Pneumatic truck tire. D. Beecroft. *il diags Motor Age* 37:7-10+ Ap 22; 12-15+ Ap 29; 18-19+ Je 3 '20
- Relation of solid and pneumatic tires to motor-truck efficiency. S. V. Norton. *Soc Auto Eng J* 6:208-14 Ap '20; Same. *Sci Am* M 2:254-9 N '20; Same cond. *India Rubber W* 62:564-7 Je '20
- Salvaging of truck tires by the army. *India Rubber W* 62:505 My '20
- Solid and pneumatic tires used on new truck wheel. *il Pop Mech* 34:699 N '20
- Solid vs. pneumatic tires for trucks. *Eng N* 87:161, 620 JI 28, O 13 '21
- Solids plus pneumatics. F. R. Fageol. *Automotive Ind* 43:231 JI 29 '20
- Truck engineers foresee greater use of pneumatic tires. J. E. Schipper. *Automotive Ind* 41:1202-3 D 18 '19
- Truck tires and road damage. *diags India Rubber W* 64:655-6 Je '21
- Use of pneumatics limited on trucks of more than 3½-ton capacity. *Automotive Ind* 44:960-1 My 5 '21
- What motor trucks need to supplement pneumatic-tire equipment. E. W. Templin. *il diags Soc Auto Eng J* 7:369-74+ O '20; *Abstract. India Rubber W* 63:85-7 N '20; Discussion. *Soc Auto Eng J* 7:377-84 O '20
- Why use pneumatic tires for motor trucks? W. E. Shively. *diag Soc Auto Eng J* 7:363-5 O '20; *Abstract. India Rubber W* 63:83-4 N '20; Discussion. *Soc Auto Eng J* 7:377-84 O '20
- Word of caution concerning pneumatic truck tires. J. N. Gunn. *India Rubber W* 61:295 F '20

Repair

- Machines for retreading and regrooving solid tires. *il diag India Rubber W* 64:582 My '21
- Pneumatic truck-tire repair vulcanizers. *il India Rubber W* 64:651-4 Je '21
- Repairing giant pneumatic tires. R. R. Reid. *il India Rubber W* 63:422-4 Mr '21

Testing

- Pneumatic-tire and motor-truck development experiences. M. D. Scott. *Soc Auto Eng J* 7:375-7 O '20; *Abstract. India Rubber W* 63:87-8 N '20; Discussion. *Soc Auto Eng J* 7:377-84 O '20
- Study of road impact and spring and tire deflection. A. F. Masury. *Soc Auto Eng J* 7:96-8 JI '20; Same cond. *Automotive Ind* 42:514-16 F 19 '20; Same cond. *Eng N* 84:668-70 Ap 1 '20; Same cond. *Am Mach* 53:212-14 JI 29 '20; Discussion. *Soc Auto Eng J* 7:98-102 JI '20; *Eng N* 84:786-7 Ap 15 '20

Tires, Pneumatic

- Pneumatic tire inside rim instead of outside of it. *il Pop Mech* 36:682 N '21
- Solid vs. pneumatic tires for trucks. *Eng N* 87:161, 620 JI 28, O 13 '21
- See also* Tires, Automobile; Tires, Motor truck

Terminology

- Pneumatic tire definitions. H. C. Pearson. *India Rubber W* 64:882-7; 65:7-9, 93-5 S-N '21

Tires, Steel

- Standard specifications for steel tires; English and French. *diags U S Bur For & Dom Com Industrial Standards* 120:1-14 '21
- See also* Tires, Locomotive

Tissues

- Animal tissue that does not die; how a bit of chicken heart has been alive and growing for more than the chick's span of life. H. A. Mount. *Sci Am* 125:10 JI 2 '21

Titanium

- Action of titanium in blast-furnace slags; abstract. *Chem & Met Eng* 25:801-2 O 26 '21
- Results of extended tests with titanium treated rails; abstracts. *Ry Age* 70:1122 My 13 '21; *Elec Ry J* 58:248 Ag 13 '21
- Separation of zirconium and titanium as the phosphates. J. Brown and H. T. Madden. *Am Chem Soc J* 42:36-9 Ja '20
- Titanium in 1917. F. L. Hess. *U S Geol S Min Res of U S* 1917,pt 1:929-30 '20
- Trivalent titanium: notes on the volumetric determination of iron by means of titanous salts. W: M. Thornton, jr., and J. E. Chapman. *diags Am Chem Soc J* 43:91-102 Ja '21

Analysis

- Determination of zirconium and titanium in zirconium ores. G. E. F. Lundell and H. B. Knowles. *Am Chem Soc J* 42:1439-48 JI '20

Titanium alloys

- Purifying steel ingots with alloys of titanium. *Sci Am M* 3:109 F '21
- Some electrical properties of titanium alloys. M. A. Hunter and J. W. Bacon. *Am Electrochem Soc Trans v* 37 (preprint 28): 391-401 Ap '20

Titanium chlorides

- Analysis of aromatic nitro compounds by means of titanous chloride. F. L. English. *J Ind & Eng Chem* 12:994-7 O '20
- Emploi du chlorure titaneux en analyse. A. Kling and A. Lassieur. *Chimie & Ind* 4: 324-6 S '20

Titanium dioxide

- Titanium enamels. R. D. Landrum and L. J. Frost. *Am Cer Soc J* 3:316-21 Ap '20
- Titanium pigment industry in Norway; abstract. *Chem & Met Eng* 23:845 O 27 '20

Title pages

- Title pages in Caslon. *Inland Ptr* 67:208a-f My '21

TNT. *See* Trinitrotoluene

TNX. *See* Trinitroxylene

Tobacco

- Bernard M. Baruch developing plans for tobacco marketing organization. *Comm & Fin Chr* 112:428 Ja 29 '21
- Fragrant weed; some interesting details in the art of tobacco culture. W: Henry. *il Sci Am* 124:406 My 21 '21

Tobacco —Continued

Manufacture of tobacco shade cloth. J. W. Cox, jr. *il* Textile World 59:3415+ My '21

Mendelian law and tobacco. Setchell, Goodspeed and Clausen. *Sci Am M* 4:272 S '21
Steaming the tobacco field. *il* Sci Am 125:83 JI 30 '21

Tobacco-growing in Cuba. T. C. Francis. *il* Sci Am S 88:304-5 N 22 '19

See also American tobacco company;
Green river tobacco growers' association

Diseases and pests

Government reports regarding tobacco disease unjustified. *Comm & Fin Chr* 112:2263-4 My 28 '21

Tobacco pest fought with poison-dust sprayer. *il* Pop Mech 35:537 Ap '21

Tobacco habit

Output study of users and non-users of tobacco in a strenuous physical occupation. J. P. Baumberger, E. E. Perry and E. G. Martin. *J Ind Hygiene* 3:1-10 My '21

Toggle press. *See* Presses

Toilet preparations**Accounting**

Accounting for proprietary preparations. J. H. Devlin. *J Account* 30:36-42 JI '20

Toilet rooms

Basis for standards for adoption of plumbing codes. W. C. Groeniger. *Dom Eng* 96:241-2+ Ag 6 '21

Venting ten closets on four-inch stack in five-story building. *diags* Dom Eng 96:426-7 S 3 '21

See also Bathrooms; Department stores—
Toilet rooms; Lavatories; Public comfort stations

Toledo, Ohio**Rapid transit**

Ten-cent fare asked in Toledo. *Elec Ry J* 55:967 My 8 '20

Toledo settlement delayed. *Elec Ry J* 55:534 Mr 13 '20

Toledo walked while cars rested in Michigan. *il* Elec Ry J 54:970-5 D 20 '19

Trolley car and the city man. E. Hungerford. *il* Elec Ry J 55:842-6 Ap 24 '20

Valuation the final issue. *Elec Ry J* 55:911 My 1 '20

Sanitary affairs

Toledo garbage disposal. *Pub Works* 50:263 Mr 26 '21

Sewerage

Designing improvements in Toledo sewers. *Pub Works* 50:519-22, 544-6 Je 18-25 '21

Tolerance

Component drawings for interchangeable manufacture. E. Buckingham. *diags* Mach 26:259-63, 332-6 N-D '19

Equipment for interchangeable manufacturing. E. Buckingham. *il* *diags* Mach 26:759-60 Ap '20

Precision is aid to production. H. L. Van Keuren. *il* Iron Tr R 67:378-80 Ag 5 '20

Thread gage standards. J. E. Collins. *il* *diags* Mach 26:427-33 Ja '20

Tolerance systems for cylindrical fits. P. M. Heldt. *Automotive Ind* 44:1274-80+ Je 16 '21

Tolerances allowed in grinding splined shafts. *diags* Automotive Ind 45:525-6 S 15 '21

Les tolérances dans la construction mécanique. C. Reinwald. *diags* Génie Civil 78:130-2 F 5 '21

See also Fits (machinery)

Toluene

Bearing of a synthetic dye industry upon our national welfare; toluene (toluole). M. T. Bogert. *J Fr Inst* 191:459-61 Ap '21; Same. *Gas Age* 48:50-1 JI 25 '21

Sulphonation of toluene with chlorosulphonic acid. L. Harding. *Chem Soc J* 119:1261-6 Ag '21

Thermal decomposition of turpentine with particular reference to the production of toluene and isoprene. S. A. Mahood. *il* *J Ind & Eng Chem* 12:1152-5 D '20

See also Dinitrotoluene; Trinitrotoluene

Toluenesulfonnitramide

Benzene sulfonnitramide, toluene-4-sulfonnitramide, 2-nitrotoluene-4-sulfonnitramide, and some of their salts. B. R. Mathews. *J Phys Chem* 24:108-19 F '20

Toluene-sulfonyl-anisidide

Umlagerung und verseifung des toluol-*p*-sulfonsäure-*p*¹-anisidids und seines *N*¹-methyl-derivates. J. Halberkann. *Deutsche Chem Gesell Ber* 54:1665-75 JI '21; Abstract. *Chem Soc J* 120 pt 1:660-1 S '21

Toluenesulfonyl chlorides

Melting points of mixtures of *o*- and *p*-toluenesulphonyl chlorides. L. Harding. *Chem Soc J* 119:260-2 Mr '21

Toluidin

Toluidin, a new flotation agent. *Eng' & Min J* 109:846 Ap 10 '20; Same. *Sci Am* 122:568 My 22 '20

Tolyl mercaptan

Schwefelhaltige abkömmlinge aus äthylen chlorhydrin. E. Fromm and A. Kohn. *Deutsche Chem Gesell Ber* 54:320-6 F '21

Tomato products

Modification of the Howard method for counting yeasts, spores, and bacteria in tomato products. H. M. Miller. *J Ind & Eng Chem* 12:766 Ag '20

Tomatoes

Choice of color in tomatoes. *Sci Am* 124:231 Mr 19 '21

Utilizing tomato waste. *Sci Am* 125:161+ S 3 '21

Tombs

J. S. Bache mausoleum, Woodlawn, N.Y. *il* Arch Rec 47:456-61 My '20

Shedd mausoleum, Lowell, Mass. Arch Forum 35:151, pl 56 O '21

Tombstones

Decorating cemeteries with terra cotta tombstones. *Brick & Clay Rec* 59:578 O 18 '21

Advertising

Making people think memorials instead of gravestones. C. B. McCuaig. *il* Ptr Ink 115:110-12 My 19 '21

Tomsk railway

Mechanical equipment on the Tomsk railway. J. Grant. *il* *diags* map plans Ry Mech Eng 95:7-14 Ja '21

Tonawanda, New York**Water supply**

Typhoid fever outbreak at Tonawanda. T. Horton. *Am Water Works Assn J* 7:176-8 Mr '20; Same. *Can Eng* 38:439 My 6 '20

Tone reproduction. *See* Photography

Tonetti, François Michel

Sketch. D. Barber. *Am Inst Arch J* 8:345-6 S '20

Tonnage

Practical ideas for the engineer. C. H. Hermance. *il* *diags* Marine R 50:520-4 S '20

Steam tonnage of maritime countries of world. *Comm & Fin Chr* 111:1811 N 6 '20

Total U.S. tonnage at the end of the fiscal year June 30, 1920. *Marine R* 50:639 D '20

What tonnage means. *Sci Am* 122:212 F 28 '20

World tonnage data. *Marine R* 50:208 Ap '20

Tool boxes

Making apprentice's tool box of metal. *il* *diags* Sheet Metal Worker 11:277-9 O 15 '20

Tool holders

How to use stellite. G. L. Kronfeld. *diags* Am Mach 52:293-5 F 5 '20

Improving tool equipments. H. Bentley. *diags* Eng & Ind Management 6:265-6 S 8 '21

Slotting-machine and planer toolholders for railroad shop use. F. A. Stanley. *il* *diags* Am Mach 53:1231-2 D 30 '20

Tool holders—Continued

- Slotting machine tool-holder. H: Daut. diags Mach 27:75 S '20
- Toolholders and interchangeable form tools. F. H. Cox. diags Am Mach 54:830-1 My 12 '21
- Unit tooling for flat turret lathes. il plan Mach 27:749-50 Ap '21
- Wheel lathe tool-holders for use with high-speed steel tool bits. il diags Ry Mech Eng 95:651-2 O '21
- Willard spring toolholders. il Am Mach 55:447 S 15 '21

Tool steel

- Alloy-steel development. J. W. Marshall. Am Mach 52:817-18 Ap 15 '20
- Artificial seasoning of gage steels. Eng & Contr 54:605 D 22 '20; Same. Am Mach 53:1258 D 30 '20; Same. Sci Am M 3:80 Ja '21
- Breakage and heat treatment of rock drill steel. A. E. Perkins. Iron Age 108:7-8 Jl 7 '21; Abstract. Min & Met 176:36 Ag '21; Summary. Eng & Contr 56:282 S 21 '21
- Carbon and high speed steel. J. Purcell. Ry Mech Eng 94:799-800 D '20
- Carbon and high speed steel. J. J. Ryan. diags Ry Mech Eng 94:717-18 N '20
- Characteristics, treatment and uses of high-speed tool steel. Am Mach 53:121-3 Jl 15 '20
- Comparative test upon high-speed steels. A. J. Langhammer. Chem & Met Eng 22:829-32, 889-92, 939-42, 969-75 My 5-26 '20; Same. Am Mach 52:979-82, 1140-3, 1227-30, 1292-7 My 6, 27, Je 10-17 '20
- Constitution of chromium:tungsten steels. il Chem & Met Eng 24:791-3 My 4 '21
- Cutting edges. R. E. Crompton. Engineer 130:207-8 Ag 27 '20; Same. Engineering 110:292 Ag 27 '20
- Discussion on the drill steel problem at meeting of A. I. M. E. Iron Age 107:504-5 F 24 '21; Iron Tr R 68:544-5 F 24 '21
- Drill steel from hollow ingots. P. A. E. Armstrong. il Chem & Met Eng 24:960-4 Je 1 '21; Abstract. Min & Met 175:34-5 Jl '21; Abstract. Iron Age 108:596-8 S 8 '21
- Electric furnace tool steel qualities. W. J. Green and S. S. Green. Iron Age 108:669-71 S 15 '21
- Failure of metals through the action of internal stress irregularities with special reference to tool steels. J. N. Greenwood. il Engineering 111:535-7 Ap 29 '21
- Features of electric tool steel practice. W. J. Green and S. S. Green. Iron Age 108:1061-4 O 27 '21
- Forging of high-speed steels. A. H. Kingsbury. Iron Age 105:328-9 Ja 29 '20
- Hardening of high speed steel. A. H. D'Arcambal. Ry Mech Eng 94:665-6 O '20
- Hardening of tungsten steels. Engineering 112:517 O 7 '21
- Heat treatment of rock-drill steel; abstracts. G: H. Gilman. Min & Met 174:35, 38-9+ Je '21; Eng & Contr 56:55-6 Jl 20 '21
- High-speed cast steel tools from the electric furnace. S. H. Bunnell. il Iron Age 106:1258-9 N 11 '20
- High-speed steel manufacture in Sheffield: present practice, costs, prices and raw material sources. P. M. Tyler. Iron Age 107:371-4 F 10 '21; Discussion. F. Hodson. 107:721-2 Mr 17 '21
- Manufacturer and seller of tool steel warrants his product—high-speed steel not a trade name. W. Gustin. Chem & Met Eng 22:368 F 25 '20
- Oxidation of carbon tool steel on heating in air. H. Scott. il Chem & Met Eng 25:72-4 Jl 13 '21
- Practical information concerning high speed steel; abstracts. R. C. McKenna. Ry Mech Eng 93:667-8 N '19; Am Mach 51:989-91 D 11 '19; Iron Tr R 66:148-9 Ja 8 '20
- Prevention of hardening cracks and the effect of controlling recalcence in a tool steel. S. N. Brayshaw. il diags Iron & Steel Inst J 103:131-216; Discussion. 217-49 no 1 '21; Abstract. Iron Age 107:1400-1 My 26 '21
- Production of tool steel. F. R. Daniels. il Mach 27:42-6 S '20

- Recent work on chromium:tungsten steel—methods of magnetic analysis. diags Chem & Met Eng 24:573-5 Mr 30 '21
- Reclaiming hollow drill steel. J. C. Lamont. diags Eng N 86:607 Ap 7 '21
- Restoring tool steel burned in welding. T: D. Reese. diags Am Mach 51:914 N 27 '19
- Review of drilling. G: J. Young. Eng & Min J 112:379-80 S 3 '21
- Rock-drill steel. N. B. Hoffman. diag Min & Met 175:30+ Jl '21
- Rolling bars in merchant sizes. J: D. Knox. il Iron Tr R 66:1123-7 Ap 15 '20
- Salvaging high speed steel scrap. S: S. Buckley. Ry Mech Eng 94:290 My '20
- Selecting high speed steel for tools. H: Trap-hagen. Iron Tr R 69:162 Jl 21 '21; Same cond. Am Mach 53:649 S 30 '20
- Shanks for hammer drill steel. il Eng & Min J 111:471 Mr 12 '21
- Standardizing steel for mining and milling. R. C. Gosrow. Min & Sci P 123:147-9 Jl 30 '21
- Stellite and stainless steel. E. Haynes. Eng Soc W Pa 35:467-74 Ja '20; Same abr. Am Mach 53:171-2 Jl 22 '20; Same cond. Soc Auto Eng J 7:349-51 O '20; Excerpts. Iron Age 105:1723-4 Je 17 '20; Mach 27:357 D '20; Discussion. Eng Soc W Pa 35:475-82 Ja '20
- Stuck steel. D. E. Dunn. il diags Eng & Min J 110:903-5 N 6 '20; Same. Eng & Contr 54:492 N 17 '20
- Sullivan drill-steel furnace for oil or gas fuel. il diag Min & Sci P 120:555-6 Ap 10 '20
- Theory and practice in the drill sharpening shop. J. A. Noyes and F. M. Lee. il diags Eng & Contr 55:387-9 Ap 20 '21
- Tool salvage department. C. B. Cole. Mach 26:435-7 Ja '20
- Tool steel; abstracts of papers presented at American society for steel treating meeting. Chem & Met Eng 25:645-7 O 5 '21
- Tungstenless tool steel. Iron Age 105:339 Ja 29 '20
- What is the ideal drill steel? F. H. Kingdon. diags Eng & Min J 111:668-9 Ap 16 '21; Same. Eng & Contr 55:597-8 Je 15 '21; Same cond. Min & Met 174:47, 50-1 Je '21
- When you have trouble with the tool steel you are using. G: A. Richardson. Am Mach 54:269-70 F 17 '21
- See also Chrobalitic alloy; Chromium steel; Molybdenum steel; Rock drills; Tungsten; Vanadium steel

Specifications

- Standardization of mining and milling materials. E. A. Wraight. Min & Sci P 122:361-3 Mr 12 '21
- Steel for machine tool parts. R. M. Taylor. Mach 27:770-1 Ap '21
- Tentative specifications for carbon tool steel. Am Soc T M Pro v 20 pt 1:502-3 '20

Testing

- Analysis of some drill-steel tests. F. B. Foley. Min & Met 174:43, 46-7 Je '21; Same. Sci Am M 4:187-8 Ag '21
- Application of magnetic analysis to rock drills. C: W. Burrows. il Min & Met 174:42-3 Je '21
- Standardized tool steel testing. Iron Age 107:465, 720 F 17, Mr 17 '21
- Testing high speed steel stock. Mach 27:228 N '20
- Testing merits of high-speed steel. T: Fish. Mach 27:640 Mr '21; Same. Am Mach 54:466 Mr 17 '21
- Tool storage**
- Group tool storage system. P: F. O'Shea. il Am Mach 51:887-9 N 13 '19
- Substantial and convenient tool storage rack. il diags plan Am Mach 55:560-2 O 6 '21
- Tool storage in a gas-engine factory. il Am Mach 52:183-4 Ja 22 '20
- Toolmakers**
- Planning a toolmaker's course. O. S. Edward. Factory 27:102 Jl '21

Tools

- Balancing factory equipment for efficient manufacture. J. E. Schipper. *Automotive Ind* 44:841-3 Ap 21 '21
- Cross-checking system for the tool crib. R. Hofstetter. *diags Am Mach* 51:959 N 27 '19
- Engineer's tool list for a new plant. J. A. Stevens. *Power* 50:704-5 N 11 '19
- Evolution of the workshop. H. H. Manchester. *il Am Mach* 51:781-4; 52:115-17, 245-8, 389-92, 449-52, 545-8, 726-9, 889-91, 1187-9 O 30 '19, Ja 15, 29, F 19-26, Mr 11, Ap 1, 22, Je 3 '20
- Forging mechanic's hand tools. J. V. Hunter. *il diags Am Mach* 52:557-9 Mr 11 '20
- Ingenuity of the watchmaker; some of the methods and tools that make this trade rank as a profession. R. F. Nattan. *il Sci Am* 122:482-3+ My 1 '20
- Insuring the toolroom against loss. *Factory* 24:1552-3 My 15 '20
- Modern production methods. W. R. Basset. *il charts Am Mach* 52:1177-82 Je 3 '20
- Now is the time to retool the factory. J. E. Schipper. *Automotive Ind* 43:1022-3 N 18 '20
- Organisation of the tool room. G. W. Tripp. *Eng & Ind Management* 6:2-5 Jl 7 '21
- Relation of portable tools to building berth. M. Nicholls. *Marine Eng* 26:378-80 My '21
- Special bench-lathe tools to avoid resetting. H. F. Colvin. *il diags Am Mach* 54:470-1 Mr 17 '21
- Tool system that speeds production. W. J. Burger. *Factory* 26:458-60 F 15 '21
- See also* Chisels; Electrician's tools; Files and rasps; Machine tools; Machinery; Plumbers' tools; Pneumatic tools; Railroads —Tools; Saws; Scriber; Tool steel; Wrenches

Advertising

- Letters from farmers make effective sales arguments; Greenfield tap and die corporation uncovers big field for farm tools. O. De Camp. *Ptr Ink M* 3:37-8 Ag '21

Records

- Speeding shop orders by accurate tool records. H. P. Johnson. *il Factory* 25:1224-6 O 15 '20

Tools, Machine. *See* Machine tools

Tools, Pneumatic. *See* Pneumatic tools

Toothbrushes

- Electrical tooth-brush. *il Sci Am* 125:226 S 24 '21
- Ultra-sanitary toothbrush has removable bristles. *il Pop Mech* 35:648 My '21

Topographical maps

- Conference of map-making organization of the U.S. government. *Eng & Contr* 52:629-32 N 26 '19
- Need of topographical maps in Canada. T. Adams. *map Can Eng* 40:399-400 Ap 21 '21
- Progress on the national topographic map, and estimated cost of completion. *Eng & Contr* 52:591-2 N 19 '19
- Surveys for flood protection at Columbus, Ohio. R. C. Chaney. *plan Eng N* 84:966-8 My 13 '20
- Topographic mapping of United States. *Min & Met* 178:32 O '21
- Topographic maps; what they are, who uses them, and how. H. P. Little. *Sci Am M* 4:365-6 O '21
- Utility of Canadian topographic maps. J. D. MacKenzie. *Can Eng* 40:375-6+ Ap 14 '21

Topographical surveying

- Combined methods useful in topographical surveying. P. J. Barry. *diags Eng N* 86:801-3 My 12 '21
- Comprehensive topographical surveys required. P. J. Barry. *diags map Can Eng* 38:433-5 My 6 '20
- Rapid progress in stadia work. H. Gerharz. *Eng N* 85:473 S 2 '20
- Rapid progress made on topographic survey. R. H. Randall. *Eng N* 85:150 Jl 22 '20
- Report of Topographical surveys committee, Dominion land surveyors' association. *Can Eng* 40:463-4 My 12 '21

Topographic survey of the city of Flint, Michigan. C. S. Elicker. *il maps Eng N* 84:700-2 Ap 8 '20

Topographical and exploratory surveys. C. A. Biggs. *Can Eng* 40:269-71 Mr 3 '21

See also Military topography; Photographic surveying; Regional planning; Surveying, Aerial; Topographical maps

Tornadoes

Tornado destroys great forest in Olympic Peninsula, Wash. F. R. Pierce. *il Pop Mech* 35:659-62 My '21

Toron

Toron and toron-treated tires. *il chart India Rubber W* 62:803-4 S '20

Toron finish on cotton goods. H. S. Miller. *il Textile World* 58:3639+ N 27 '20

Toron patents and products. *diags India Rubber W* 63:26 O '20

Toronto, Ontario**Harbor**

Progress of Toronto harbor work. *il Can Eng* 39:353 S 16 '20

Progress on Toronto harbor works. *diag map Eng N* 84:724-6 Ap 8 '20

Water supply

Could Toronto obtain her water supply as do cities in the Bermudas? P. Gillespie. *Can Eng* 40:358+ Ap 7 '21

Toronto, University

Hart House, University of Toronto, Canada; views and plans. *Am Arch* 117:492a-g Ap 21 '20

Torpedo boat destroyers

Destroyer Tyrian. *Engineer* 129:22 Ja 2 '20

H. M. destroyer Wolverine. *il Engineer* 130:130 Ag 6 '20

Italian flotilla leaders. *il diags plan Engineer* 130:267-9, 278 S 17 '20

Successful performance of recent destroyers. *il diags Marine Eng* 26:209-10 Mr '21

Super-destroyer; facts concerning the origin and development of the flotilla leader. H. C. Bywater. *il Sci Am* 123:472+ N 6 '20

World's record in shipbuilding. *Int Marine Eng* 24:811-12 D '19

Torpedo boats

Italian torpedo craft. *il Engineer* 130:630, 638 D 24 '20

New type of torpedo boat. *il Sci Am* 123:633 D 25 '20

One man is crew of curious torpedo boat. *il Pop Mech* 33:642-3 My '20

Salvaging torpedo boats for peaceful uses. W. A. McGarry. *il Sci Am* 124:185+ Mr 5 '21

Torpedo motor boat. *il diag Sci Am* 122:447+ Ap 24 '20

Why not the torpedo motor boat carrier? *Sci Am* 123:516 N 20 '20

See also Submarine warfare

Torpedoes

American ordnance production in the Great War. *Engineer* 132:268-9 S 9 '21

Bombs or torpedoes in airplane attacks on seacraft. *Aviation* 11:256 Ag 29 '21

Destroyer torpedoes fired from triple tubes. *il Pop Mech* 36:204-5 Ag '21

Radio controlled air torpedo. *il Wireless Age* 8:9 N '20

Super-dreadnaught as target; latest German battleship Baden sunk by gunfire and torpedo. H. C. Bywater. *il Sci Am* 124:412+ My 21 '21

Torpedo controlled by airplane by means of wireless. E. T. Jones. *diags Wireless Age* 8:30-1 O '20

See also Explosives, Military; Mines, Military

Torpedoplanes

Blackburn swift torpedo plane. *Aerial Age* 12:566 F 7 '21

Glenn L. Martin torpedo plane. *il Aviation* 8:101-2 Mr 1 '20

New Glenn L. Martin navy torpedo plane. *il Aviation* 8:359-60 Je 1 '20; Same. *Aerial Age* 11:366-7 My 24 '20

Torpedoplanes —Continued

Romance of invention; inventor of fighting machines and his work in adding to the efficiency of navies. C. H. Claudy. *il Sci Am* 124:46+ Ja 15 '21

Tests of Martin torpedoplane. *il Aerial Age* 10:782 Mr 8 '20

Torpedoplane in future naval battles. A. Guidoni. *il Flying* 9:184-5 Ap '20

Torque

Torque compensator. V. H. Todd. *il diags Power Pl Eng* 24:284-5 Mr 1 '20

Torsion

High-speed alternating torsion testing machine; with discussion. D. J. McAdam, jr. *diags Am Soc T M Pro v* 20 pt 2:366-71 '20

Moduli of rigidity for spruce. H. Carrington. *Philos Mag* 6th ser 41:848-60 Je '21

New torsion strain meter. E. H. Lamb. *il diags Engineering* 111:279-80 Mr 11 '21

Torsion of closed and open tubes. C. Batho; J. Prescott. *Philos Mag* 6th ser 41:568-9 Ap '21

Torsion of wing trusses at diving speeds. R. G. Miller. *U S Nat Advisory Com for Aeronautics* 1920:603-8 '21

Torsion on rectangular cross-sections. C. R. Young. *diags Can Eng* 40:315-18 Mr 24 '21; *Excerpts. Eng & Contr* 55:415-16 Ap 27 '21

Torsion balance. See Aerodynamic balance

Tortoises. See Turtles

Tourist industry. See Travel—Advertising

Towboats

Controls of new motor tug centered in wheelhouse. *il Pop Mech* 34:719 N '20

Craft for canal and river service in the United States. *diags plans Engineer* 129:593-6 Je 11 '20

Design of ore fleet for upper Mississippi. W. S. Mitchell. *diags plans Mech Eng* 42:380-1 Jl '20

Mississippi-Warrior river towboats. *il diags plan Marine Eng* 26:434-7 Je '21

Navigating ships in trains; an electrically-driven power boat that supplies current to the motor-equipped units of its convoy. R. G. Skerrett. *il Sci Am* 122:270+ Mr 13 '20

On river and canal. R. G. Skerrett. *il Sci Am* 122:158-9+ F 14 '20

100-foot wooden harbor tugs. *il diags plans Int Marine Eng* 25:269-71 Ap '20

Reinforced concrete tug. *il diags Engineer* 128:544-6 N 28 '19

River transportation in the Mississippi valley. E. W. Schadek. *il Mech Eng* 42:270-2 My '20

Sea-going tug Adler. *il diags plans Marine Eng* 26:746-50 O '21

War service tugs. *il diags (supp) plan Engineer* 129:96-7 Ja 23 '20

Wooden tug for service in tropics. *diags Marine Eng* 26:278-9 Ap '21

Towels

Finishing cotton and linen towels. *Textile World* 58:1548+ S 4 '20

Towels, Paper. See Paper towels

Tower guying methods for concrete chuting plant. Details of. *diags Eng N* 84:1270 Je 24 '20

Tower Hill school, Wilmington, Delaware

Tower Hill school, Wilmington. *il Arch Forum* 34:45-6, pl 17-20 F '21

Tower packing. See Packing, Absorption tower

Tower telescope. See Telescope

Towers

Clocks, historically and architecturally considered. *il Am Arch* 117:445-50, 499-505 Ap 7, 21 '20

Harkness memorial quadrangle at Yale. M. Wilcox. *il plan Arch Rec* 50:162-82 S '21

Harkness memorial tower. S. T. Williams. *Am Arch* 120:315-16 O 26 '21

Memorial quadrangle and the Harkness memorial tower at Yale. *il plans Am Arch* 120:298-314, 312a-p O 26 '21

See also Electric lines—Poles and towers; Shot towers

Towers, Concrete

Concrete tower supports huge crane. *il Pop Mech* 36:330 S '21

Concrete wireless tower 672 ft. high in Japan. *il diags Eng N* 86:847-8 My 19 '21; *Discussion. K. Shibata. 87:204-5 Ag 4 '21*

See also Mystery ships; Water towers, Concrete

Towers, Portable

Adjustable tower truck for lamp inspection. *il Elec W* 75:494-5 F 28 '20

Keeping the overhead system fit. *il Elec Ry J* 55:591-5 Mr 20 '20

New tower truck for Detroit. *il Elec Ry J* 58:680 O 15 '21

Towers, Steel

Steel transmission line towers. E. L. Gemmill. *il diags Elec R* 76:385-90, 555-60, 645-51 Mr 6, Ap 3, 17 '20

Why steel towers are needed in electrical transmission. G. E. Honn. *il diag J Elec* 46:285-7 Mr 15 '21

Testing

Tests on full-size high-voltage transmission towers. E. F. Kriegsman. *il diags Eng N* 87:350-1 S 1 '21

Towing

Electric mule for France's canals. F. P. Mann. *il Sci Am* 124:229 Mr 19 '21

Nouveaux systèmes de halage électrique sur les canaux. E. Imbeaux. *il diags Génie Civil* 77:521-4 D 25 '20

Town planning. See City planning

Towne, Henry R., 1844-

Sketch. *por Ind Management* 61:230 Ap 1 '21

Townley, Calvert, 1864-

Sketch. *por Elec W* 75:1354 Je 12 '20

Townsend cells. See Electrolytic cells

Townsite companies

Fake townscheme schemes. A. G. Wolf. *Eng & Min J* 109:492-3 F 21 '20

Toxicity

Chemical potential of phenol in solutions containing salts; and the toxicity of these solutions towards anthrax and staphylococcus. J. S. Laird. *J Phys Chem* 24:664-72 N '20

Methylene-blue as indicator in determining the toxicity of phenol and phenol-salt solutions toward yeast. C. G. Fraser. *J Phys Chem* 25:1-9 Ja '21

Toxicity and chemical potential. W. L. Miller. *J Phys Chem* 24:562-9 O '20

Toxicity of various fractions and combinations of fractions of coal-tar creosote to wood-destroying fungi. H. Schmitz and S. M. Zeller. *J Ind & Eng Chem* 13:621-3 Jl '21

Toxicity of wood preservatives. C. J. Humphrey, R. M. Fleming and E. Bateman. *il J Ind & Eng Chem* 13:618-21 Jl '21

Toxicity towards anthrax and staphylococcus, of solutions containing phenol and sodium chloride. J. S. Lemon. *J Phys Chem* 24:570-84 O '20

Toxicity towards staphylococcus of dilute phenol solutions containing sodium benzoate. K. E. Burgess. *J Phys Chem* 24:738-40 D '20

See also Poisons

Toy balloons**Advertising**

Bringing an article of merchandise into dignified company; toy balloon placed with the established merchant. R. Cole. *Ptr Ink* 112:20+ Ag 12 '20

Toy locomotives

Self-propelling toy locomotive made from scraps. F. E. Leitch. *diags Pop Mech* 33:636-7 Ap '20

Toys

American boy wants a practical toy; success of "Chemcraft." C. P. Russell. *Ptr Ink* 110:45-8 F 5 '20

German toys—a cloud with a silver lining. J. H. Collins. *Ptr Ink* 116:145-6+ S 15 '21

Toys —Continued

- German toys are here, but quality is lacking. C. M. Harrison. *Ptr Ink* 112:73-4+ S 16 '20
- Gilbert, maker of scientific toys. R. Cole. *il Ptr Ink M* 2:25-6+ Ja '21
- New American industry: how the making of toys has been established on a solid basis in this country. H. A. Mount. *il Sci Am* 123:634+ D 25 '20
- Toy city. *il Sci Am* 122:115 Ja 31 '20
- Toy shop succeeds among mountaineers of North Carolina. *il Am Lumberman* 2332:52-3 Ja 24 '20
- Toys, moulders of industrialists. W. O. Coleman. *il Am Ind* 22:13-15 Ag '21
- Yankee toyland busiest in the world. R. H. McCready. *il Am Ind* 21:15-17 N '20

Advertising

- Advertising that teaches children how to play; exploitation of backyard railroad. G. A. Nichols. *il Ptr Ink M* 3:21-2+ S '21
- Building a business on children's good will. S. C. Lambert. *Ptr Ink* 112:89-91 JI 29 '20
- Seasonal market taken during the war is made continuous. H. E. Agnew. *Ptr Ink* 113:93-4+ D 2 '20

Tracing cloth

- Erasures on tracing cloth. D. C. Howard. *Am Mach* 52:732 Ap 1 '20

Track. See Electric railroads—Track; Railroads—Track; Street railroads—Track**Track bolts.** See Rail fastenings**Track circuits**

- Alternating-current track circuiting. L. H. Peter. *diags Inst E E J* 58:491-506 Je '20; Same cond. *Electrician* 85:417-19 O 8 '20; Discussion. *Inst E E J* 58:891 S '20
- Track circuits. *Electrician* 85:111-12 JI 23 '20

Track circuits, Artificial

- Artificial track circuit. D. C. Gall. *il diags Electrician* 84:54-5 Ja 16 '20

Track rollers. See Mine haulage**Track scales**

- New Fairbanks track scale contains many novel features. L. R. Boyer. *il Ry Age* 68:1345-7 My 7 '20; Same. *Ry R* 66:799-801 My 15 '20; Same cond. *Min & Sci P* 121:107-8 JI 17 '20; Excerpt. *Iron Age* 105:1515-16 My 27 '20; Excerpt. *Am Lumberman* 2348:73 My 15 '20
- Specifications for the manufacture and installation of railroad track scales. U S Bur Stand Circ 83:1-35 '20; Excerpt. *Ry Age* 67:1098-1100 D 5 '19
- Weighing a monster locomotive. H. T. Wade. *il Sci Am* 122:211 F 28 '20

Testing

- Testing and inspection of industry owned scales. C. H. Mann. *Ry R* 68:534-5 Ap 2 '21

Track spikes. See Spikes (railroad)**Track spirals.** See Street railroads—Curves and turnouts**Trackless locomotive.** See Tractors**Trackless trolley**

- Another trolley bus tested. *il Elec Ry J* 58:522 S 24 '21
- Arguments for and against trackless street cars. *Iron Age* 107:508 F 24 '21
- Les autobus électriques à trolley de South Bank (Angleterre). *il diag plans Génie Civil* 76:70-1 Ja 17 '20
- Bus, the trackless trolley or the trolley car for light traction—which? L. M. Aspinwall. *Elec J* 17:443-5 O '20
- Chinese city uses modern trackless trolley. *il Pop Mech* 35:645 My '21
- Details of Packard trolley bus. *il Elec Ry J* 58:359-60 S 3 '21
- Detroit trolley buses. *Elec Ry J* 58:320-1 Ag 27 '21
- Field of the trackless trolley. W. Jackson. *Elec Ry J* 57:189-90 Ja 22 '21
- Field of the trolley bus. K. F. Simmon. *Elec Ry J* 58:394 S 10 '21

Foreign experience with the trackless trolley. J. W. Welsh. *Eng & Contr* 55:159 F 16 '21

Improved type of trackless trolley car. *il Elec R* 79:528 O 1 '21

New merchandising agent—the rail-less vehicle. *il Elec Ry J* 58:514-17 S 24 '21

Pioneer trackless trolley installation at Richmond, Va. *il diag plan Elec Ry J* 57:1158-61 Je 25 '21

Possibilities of the trackless trolley. H. L. Andrews. *il diags plan Elec Ry J* 56:1136-40 D 4 '20

Rail-less car. *il Elec Ry J* 58:550-2 O 1 '21

Railless traction at York. *il Electrician* 87:329 S 9 '21

Re-introducing the trackless trolley in the United States. *il Sci Am* 125:27 JI 9 '21

Shanghai tramways are prosperous. *il Elec Ry J* 56:76-7 JI 10 '20

Trackless trolley buses in Vienna; abstract. E. Findeis. *Elec W* 78:182 JI 23 '21

Trackless trolley demonstration. *Elec Ry J* 57:846 My 7 '21

Trackless trolley in England. *Elec Ry J* 57:865 My 7 '21

Trackless trolley in two British cities. *il diags Elec Ry J* 57:77-9 Ja 8 '21

Trackless trolley proposed for Greenville, Texas. *Elec R* 78:666 Ap 23 '21

Trackless trolley tested at Schenectady. *il Elec Ry J* 57:1132 Je 18 '21; Same. *Ry R* 69:29-30 JI 2 '21

Trackless trolleys. *Pub Works* 50:455 My 28 '21

Trackless trolleys for New York. *Elec Ry J* 57:1002-3 My 28 '21

Trackless trolleys in Germany. *Elec Ry J* 57:849 My 7 '21

Trolley bus an evolution, not revolution. T. S. Wheelwright. *Elec Ry J* 58:710 O 15 '21

Trolley bus operation commences on Staten Island. *il map Elec Ry J* 58:689-91 O 15 '21

Trolley buses at York, England. *Elec Ry J* 58:772 O 29 '21

Cost of operation

Bus and car costs compared. H. L. Andrews. *Elec Ry J* 58:769-71; Discussion. C. W. Stocks. 771-2 O 29 '21

Bus transportation field. C. W. Stocks. *Elec Ry J* 58:517-22 S 24 '21

Motor busses or trackless trolleys. H. L. Andrews. *il Gen Elec R* 23:331-4 Ap '20; Abstract. *Sci Am M* 1:565-6 Je '20

Urban transportation field analyzed. J. C. Thirlwall. *Elec Ry J* 58:546-50 O 1 '21

Trackman's rule

Trackman's rule. J. H. Ritter. *diag Coal Age* 17:298 F 12 '20

Tracks, Concrete. See Concrete tracks**Tractive resistance**

Studies of the automobile; tractive resistance. G. B. Upton. *Sibley J* 35:120-4 S '21

Tractor engines

Accessibility is featured in tractor engine. *diags Automotive Ind* 41:1064-6 N 27 '19

Analysis of truck and tractor engine governors. F. C. Ziesenheim. *il diags Automotive Ind* 43:1010-15 N 18 '20

Features of latest design in new W.S.M. tractor engine. *il Automotive Ind* 42:896-7 Ap 15 '20

Heavy-duty high-speed engine; with discussion. O. E. Griner and M. A. Smith. *il Soc Auto Eng J* 7:89-95 JI '20

Midwest tractor engine for heavy duty. *il Automotive Ind* 41:1262-3 D 25 '19

Ricardo engine for agricultural tractor; Darlington show. *diags Engineering* 110:44-6 JI 9 '20

Stearns tractor engine. *il diags Motor Age* 37:36-7 Ap 29 '20

Tractor engines. E. F. Hallock. *American automobile digest, Cincinnati* '20

See also Tractors

Tractor engines—Continued**Cooling**

Standard mechanical operations in tractor service; the cooling system. J: C: Thorpe and G. H. Radebaugh. *il* Motor Age 37:34-5 My 20; 38-9 My 27; 30-1 Je 3; 28-9 Je 10; 32-3 Je 17; 32-3 Je 24 '20

Fuel

Carburetion of alcohol. A. W. Scarratt. Soc Auto Eng J 8:328-30 Ap '21; Same cond. Automotive Ind 44:454-5 F 24 '21

Government is conducting experiments on motor car fuels. Motor Age 37:27-8 My 13 '20

Kerosene as a tractor fuel. J: A. Secor. Soc Auto Eng J 7:140-3; Discussion. 143-4+ Ag '20

Ignition devices

Standard mechanical operations in tractor service; ignition troubles. J: C: Thorpe. and G. H. Radebaugh. *il* Motor Age 37:38-9 Mr 4; 40-1 Mr 11 '20

Lubrication

Tractor lubrication problem intensified through use of heavy fuels. W: F. Parish. Nat Pet N 13:75+ Ja 12 '21

Manufacture

Grinding in valves in motor heads. F. A. Stanley. *il* diags Am Mach 54:332-3 F 24 '21

Machining cylinders for the Fordson tractor. F. H. Colvin. *il* diags Am Mach 52:269-73 F 5 '20

Machining tractor camshafts. R. E. Flanders. *il* diags plan Mach 26:825-7 My '20

Methods in a tractor engine plant; Avery co., Milwaukee, Wis. *il* diags Mach 27:424-7, 516-18, 641-4 Ja-Mr '21

Modern tractor building machine shop. J. V. Hunter. *il* Am Mach 54:804-7 My 12 '21

Pistons for the Fordson tractor. F. H. Colvin. *il* diags Am Mach 52:675-9 Mr 25 '20

Producing engines in quantity. E. F. Ross. *il* plan Iron Tr R 68:479-84 F 17 '21

Specifications

1921 specifications of stock engines for passenger cars, trucks and tractors; tabulation. Automotive Ind 44:388-9 F 17 '21

Tractor industry and trade

Addresses at the Kansas City tractor dinner. J. W. Perry; R. F. Crawford. Soc Auto Eng J 6:361-2 My '20

Automotive dealers dominate tractor trade. F. M. Loomis. map Motor Age 37:9-12 F 12 '20

Buyers' guide to tractors; tabulation. Motor Age 37:157 Ja 29 '20

Dealer must analyze his territory before selecting a tractor line. Motor Age 38:10-11 O 14 '20

Don't set up scarecrows to frighten yourself! F. M. Loomis. Motor Age 36:29-30 D 4 '19

Equipment belongs with tractor sales. F. M. Loomis. Motor Age 36:35-6 D 25 '19

Factory production methods for the farm. F. M. Loomis. Motor Age 37:18+ Ap 8 '20

Farm power business has brought into existence a new type of dealer. F. M. Loomis. *il* Motor Age 37:15 F 26 '20

Getting the ideal tractor salesman is a real job. F. M. Loomis. Motor Age 36:26-7+ D 11 '19

How changing a policy multiplied our sales by 8. G: M. Gillette. *il* System 39:362-4+ Mr '21

Keeping tab on tractors in hands of farmers. Motor Age 37:15 Mr 4 '20

Problems involved in tractor merchandising. Automotive Ind 45:478-9 S 8 '21

Show your faith in your tractor by demonstrations. F. M. Loomis. Motor Age 36:35-6+ D 18 '19

Tractor business is a true survival of the fittest. F. M. Loomis. Motor Age 37:42-3 Ja 1 '20

Tractor must be suited to the farm on which it will be used and whether it is or not is something the dealer must know! Motor Age 37:29 F 12 '20

Tractors now beyond speculative stage. B. M. Ikert. Motor Age 37:8 F 26 '20

Advertising

How Allis-Chalmers presents its new advertising campaign to dealers. G: J. Gardner. Ptr Ink 115:49-50+ Je 9 '21

How Case capitalizes tractor contest award. Ptr Ink 117:133+ O 13 '21

Tank advertises for a peace-time come-back. C. P. Russell. Ptr Ink 111:50+ Ap 8 '20

Service

Dealer equipped for service wins. F. M. Loomis. Motor Age 37:13-14+ Je 24 '20

Keeping the tractor fit. F. M. Loomis. *il* Motor Age 37:37+ Ap 1 '20

Orange groves of Pomona, Cal., determine tractor types. F. M. Loomis. *il* Motor Age 37:13-15+ My 6 '20

Some considerations in tractor service. J. C. Thorpe. Soc Auto Eng J 8:540-2; Discussion. 598-600 Je '21

Standard mechanical operations in tractor service. J: C: Thorpe and G. H. Radebaugh. *il* Motor Age 37:38-9 Mr 4; 40-1 Mr 11 '20

Success depends on your service following tractor sales. F. M. Loomis. Motor Age 36:32-4 D 25 '19

Take a lesson from this successful tractor dealer; Harrison P. Smith, inc., San Jose, Calif. *il* Motor Age 38:12-13+ S 23 '20

Tractor service in Southwest needs stimulation. F. M. Loomis. Motor Age 37:16-17+ Mr 11 '20

Training men for tractor service work. N. G. Shidle. *il* Automotive Ind 44:224-6 F 3 '21

Tractor accessories

Parts and accessories at the National tractor show. P. M. Heldt. *il* diags Automotive Ind 44:497-500 Mr 3 '21

Tractor accessories show 'useful purpose. *il* Motor Age 37:16-17 F 26 '20

Bulgaria

Conditions in Bulgaria favorable to the tractor. A. M. Gheorghiew. Automotive Ind 44:967-8 My 5 '21

California

Tractor trade conditions in California. F. M. Loomis. *il* Motor Age 38:7-9+ Jl 15 '20

Louisiana

Tractors in Louisiana. Automotive Ind 44:33 Ja 6 '21

New England

New England tractor situation unique. F. M. Loomis. *il* Motor Age 37:37-8+ Ja 22 '20

New York (state)

Tractor conditions in the Empire state. F. M. Loomis. *il* Motor Age 37:38-40 Ja 8; 46-8+ Ja 15 '20

Texas

Thousands of tractors for Texas. F. M. Loomis. *il* Motor Age 37:7-9+ Ap 15 '20

United States

Gas tractor engine exports 1914-1920; tabulation. Automotive Ind 44:360-1 F 17 '21

Gas tractor engine exports; with table. Automotive Ind 42:158-9 Ja 15 '20

Some hints on how to sell tractors in the South. H. F. Podhaski. Automotive Ind 43:771-3 O 14 '20

Tractor operation

Adams' common sense instruction on gas tractor operation. H. W. Adams. 311p The Jensen printing company, Minneapolis '20

Study and teaching

Helping the power farmer to run his tractor. *il* Motor Age 38:15+ S 2 '20

Traveling tractor schools. *il* Motor Age 38:12-13+ Jl 29 '20

Tractor trallers. See Motor truck trailers; Motor trucks in freight service

Tractors

- Agricultural tractors in France. Engineer 129: 345 Ap 2 '20
- All work tractor designed for orchards. il Motor Age 38:28-9 Jl 22 '20
- American tractors on rubber plantations. il India Rubber W 63:324 F '21
- Avery completes machinery line. il Motor Age 36:27-8 D 4 '19
- Avery completes tractor line. il Motor Age 36:28 D 18 '19
- Avery 2-plow tractor has 6-cylinder engine. il Automotive Ind 43:604-5 S 23 '20
- Caterpillar vehicles. il diags Automobile Eng 11:198-200 Je '21
- Continuous-tread tractor has new features. il Pop Mech 36:739 N '21
- Convertible machine is both tractor and cultivator. il Automotive Ind 42:1004 Ap 29 '20
- Crawler tractor has novel track assembly. il Automotive Ind 43:806-7 O 21 '20
- Description and features of the British tractors. M. W. Bourdon. il diags Automotive Ind 41:852-9 O 30 '19
- English farm tractor has three-wheel drive. il Pop Mech 35:653 My '21
- Farm and garden tractors. A. F. Collins. 279p Stokes '20
- Farm horse and farm tractor. Sci Am 122: 597 My 29 '20
- Farm tractor in 1920: an effort to reconcile conflicting views. F. Z. Hazlett. il Sci Am 123:612-13 D 18 '20
- Farm tractor of today; its beginning and development. il Motor Age 37:34-5 F 5 '20
- Farm tractors regarded from the point of view of the user and potential user; abstract. S. F. Edge. Engineering 110:319-20 S 3 '20; Engineer 130:256 S 10 '20
- Four-wheel-drive vs. caterpillar tractor. E. R. Greer. il Soc Auto Eng J 7:385-7; Discussion, 387-9 O '20
- French tractor goes forward or backward. il Pop Mech 33:19 Ja '20
- Fulcrum of a rearing tractor. H. A. Schwager. Automotive Ind 43:380 Ag 19 '20
- General farm tractor. Soc Auto Eng J 9:332-4 N '21
- Hart-Parr tractor has carbureter shunt which eliminates tendency to manifold loading after long periods of idling. diag Motor Age 38:57 S 9 '20
- Horse and the tractor. W. F. Handschin, J. B. Andrews, and E. Rauchenstein. (Univ. of Ill., Agricultural experiment station Bul. no. 231) Urbana, Ill. '21
- Improvements in a line-driven tractor. il Automotive Ind 44:803+ Ap 14 '21
- Increasing the utility of the tractor. A. P. Yerkes. Soc Auto Eng J 6:226-30 Ap '20; Same. Sci Am M 2:66-70 Jl '20
- Iron horse designed for general farm work. il Automotive Ind 41:1081 N 27 '19
- Levels tractor on hillside by adjusting wheels. il Pop Mech 36:84 Jl '21
- Making the tractor more comfortable by enclosing them. M. Brown. il Motor Age 37: 21+ Ap 22 '20
- Many subjects discussed at S. A. E. tractor meeting. P. M. Heldt. Automotive Ind 44: 451-3 F 24 '21
- Moline orchard tractor built low. il Motor Age 38:28 Jl 29 '20
- New Case 22-40 typical of their line. il Motor Age 37:32-4 Mr 4 '20
- New English tractor. diags plan Sci Am 123: 408 O 16 '20
- New Italian farm tractor suited to varied work. il Automotive Ind 41:1201 D 18 '19
- Peoria tractor of single unit type. il Motor Age 38:28-9 O 7 '20
- Post tractor unique in design. il Motor Age 36:31 D 18 '19
- Power farming offers wide field for engineering research. Automotive Ind 43:8-9 Jl 1 '20
- Renault now producing wheel type tractor. W. F. Bradley. il diag Automotive Ind 44: 1417-18 Je 30 '21
- Report of the Minneapolis section tractor research committee. Soc Auto Eng J 7:180-1 Ag '20

- Reviewing the new tractor models. il Motor Age 37:17-22 F 12 '20
- Rigid and semi-rigid vs. flexible mountings in creeper tractors. E. F. Norelius. diags Automotive Ind 42:1368-9 Je 10 '20
- Rigid four-wheel tractor has novel action. il Pop Mech 34:801 D '20
- Rubber blocks form tread of endless tractor. il Pop Mech 36:193 Ag '21
- Rubber-tired kerosene tractor. il Good Roads n s 19:75 F 4 '20
- Six new tractors shown at California exhibit. il diag Automotive Ind 43:705-8 O 7 '20
- 6th annual farm power meeting of the Society of automotive engineers, Columbus, Ohio, Feb. 10. Soc Auto Eng J 8:277-80+ Mr '21
- Small-space tractor. A. P. Child. il Sci Am 122:135 F 7 '20
- Smaller tractor added to Cleveland line. J. E. Schipper. il diags plan Automotive Ind 45:454-7 S 8 '21
- Spading tractor plows, harrows, and cultivates. il Pop Mech 36:731 N '21
- Striking survey shows success of farmer-owner with tractor. J. C. Wooley. Automotive Ind 44:866-7 Ap 21 '21
- Successfully submerging a gasoline engine. L. H. Campbell, jr. il Soc Auto Eng J 6: 251-3 Ap '20
- 30-h.p. four-cylinder agricultural tractor. il diags Engineering 109:244-5 F 20 '20
- Trackless locomotive runs over highway to coast. il Pop Mech 34:16-17 Jl '20
- Tractor belt speed table. Motor Age 37:36-7 F 12 '20
- Tractor belt speeds; Tractor division Standards committee report. Soc Auto Eng J 6:71-3 Ja '20
- Tractor drawbar-pull. E. A. White. Soc Auto Eng J 7:394+ O '20
- Tractor drawn and driven machinery. il Motor Age 37:23-5 F 12 '20
- Tractor principles; the action, mechanism, handling, care, maintenance and repair of the gas engine tractor. R. B. Whitman 267p Appleton '20
- Tractor pulley widths and speeds. Soc Auto Eng J 9:53 Jl '21
- Tractor that turns in the space it stands on. R. Howard. il Sci Am 123:499 N 13 '20
- Tractor to figure in Arctic exploration. il Pop Mech 34:483 O '20
- Tractors and trailers used in road work. il Pub Works 49:314-20 O 2 '20
- Tractors making 1920 debut. il Motor Age 37: 13 F 26 '20
- Tractors, trailers, and the loco-tractor system. W. Hoy. Min & Sci P 122:461-2 Ap 2 '21
- Wallis tractor of unit construction has low weight. il diag Automotive Ind 42:1397-1400 Je 17 '20

See also Tractor engines; Tractor industry and trade

Consult the Agricultural Index for addition material

Accessories

See Tractor industry and trade—Tractor accessories

Axles

- Front axles for tractors. diags Automotive Ind 44:747 Ap 7 '21

Clutches

- F.J.X. Bork and Beck heavy duty single plate clutch. diags Automotive Ind 44:1116 My 26 '21

Control

- Studies of the control and seating arrangements of tractors. P. M. Heldt. diags Automotive Ind 42:1051-5 My 6 '20

Cost of operation

- Analysis of the recent horse-tractor work cost report. D. Beecroft. Automotive Ind 44:1413-14 Je 30 '21
- Cost of plowing and grading with tractors. A. Dixon. Eng & Contr 53:634 Je 2 '20

Tractors—Cost of operation—Continued

- Fuel comparison. H. F. Crafts. *il Sci Am* 125:268 O 15 '21
- Use of heavy tractors for hauling elevating graders and wagon trains from steam shovel. L. V. Branch. *il Eng & Contr* 53:451-4 Ap 21 '20; Same. *Concrete* 16:241-3 My '20
- Use of tractors on road construction and maintenance work. L. A. Wilson. *il Munic Eng* 60:sup26+ Ap '21

Design

- Analysis of fundamental factors affecting tractor design. O. B. Zimmerman. *diags Soc Auto Eng J* 7:7-12 Jl '20; Discussion. 7:465-7 N '20
- Application of engineering building tractors. E. F. Norelius. *Automotive Ind* 42:854-6 Ap 8 '20
- British agricultural tractor practice in 1921. M. W. Bourdon. *Automotive Ind* 44:362 F 17 '21
- Constructive comment on tractor design. M. W. Bourdon. *Automotive Ind* 41:849-51 O 30 '19
- Engineering fundamentals of the crawler tractor. J. Jandasek. *diags Automotive Ind* 42:1344-7 Je 10 '20
- Four winds of tractor design. B. M. Ikert. *il diags plan Motor Age* 37:13-16 F 12 '20
- Good and bad in tractor design. R. E. Berg. *il diags Motor Age* 37:10-11+ F 26 '20
- Increased drawbar pull as related to rearing in tractors. P. M. Heldt. *diag Automotive Ind* 42:1298-9 Je 10 '20
- One-man combination of tractor and tool. *il diags Automotive Ind* 41:1254-6 D 25 '19
- Tractor stability and drawbar pull. E. F. Norelius. *Automotive Ind* 43:230-1 Jl 29 '20
- Tractor weight and drawbar pull. A. F. Moyer. *diags Soc Auto Eng J* 7:232-4 S '20
- Trend of tractor design. F. M. Loomis. *Motor Age* 37:87 Ja 29 '20
- Trend of tractor design as revealed by statistics for 1921 models. P. M. Heldt. *Automotive Ind* 44:355+ F 17 '21
- Unit construction of new tractor facilitates production. P. M. Heldt. *il diags Automotive Ind* 42:799-801 Ap 1 '20
- W-S-M tractor of frameless type has unit construction. *il diag Automotive Ind* 42:948-50 Ap 22 '20

Equipment and supplies

- Exhibit of tractor equipment shows improvement and advance of industry. P. M. Heldt. *il chart diag Automotive Ind* 42:654-7 Mr 11 '20
- Fitments for the tractor. *il diags Motor Age* 37:26-8 F 12 '20

Exhibitions

- Chicago favored for next national tractor show. D. Beecroft. *Automotive Ind* 44:439-42 F 24 '21
- Engineer's impressions of the tractor exhibit. P. M. Heldt. *Automotive Ind* 44:443-4 F 24 '21
- Exhibit of tractor equipment shows improvement and advance of industry. P. M. Heldt. *il chart diags Automotive Ind* 42:654-7 Mr 11 '20
- Makers of six nations show tractors at Paris. *il Automotive Ind* 42:796-8 Ap 1 '20
- Parts and accessories at the National tractor show. P. M. Heldt. *il diags Automotive Ind* 44:497-500 Mr 3 '21
- Technical features of the fifth national tractor show. P. M. Heldt. *il Automotive Ind* 42:543-50 F 26 '20

Gearing

- Discussion of materials for tractor bull gears. W. H. T. Thornhill. *Automotive Ind* 43:570-3 S 16 '20
- Estimate and analysis of various forms of tractor transmissions. P. M. Heldt. *diags Automotive Ind* 44:1284-8 Je 16 '21

Manufacture

- Building a small track-laying tractor. F. H. Colvin. *il Am Mach* 52:407-10 F 19 '20

Case designs production machines for unit frames. P. M. Heldt. *il diags plan Automotive Ind* 43:562-8 S 16 '20

Caterpillars and their construction. K. H. Condit. *il diags Am Mach* 52:33-6, 233-7, 287-91, 343-8 Ja 1, 29-F 12 '20

Connecting rods for the Fordson tractor. F. H. Colvin. *il diags Am Mach* 53:273-7 Ag 5 '20

Efficient handling of heavy castings in tractor plant. N. G. Shidle. *il Automotive Ind* 43:1328-30 D 30 '20

Metallurgist and the tractor. C. S. Moody. *Soc Auto Eng J* 9:189-92; Discussion. 192-4 S '21

Operations in building tractors. F. H. Colvin. *il Am Mach* 53:877-83 N 11 '20

Press tools for caterpillar parts. F. A. Stanley. *il diags Am Mach* 53:987-8 N 25 '20

Routine of assembling a small tractor in quantity. *il Automotive Ind* 42:1268-9 My 27 '20

Special machines in a tractor shop. E. K. Hammond. *il Mach* 26:1147-50 Ag '20

Works of Messrs. Clayton and Shuttleworth, Ltd., Lincoln; Clayton chain-track tractor. *il diags Engineering* 109:743-4 Je 4 '20

See also Tractor engines—Manufacture

Operation

See Tractor operation

Performance

Company evolves new method of pulling casing, rods and tubing. *il Nat Pet N* 12:73+ Je 16 '20

Cost of plowing and grading with tractors. A. Dixon. *Eng & Contr* 53:634 Je 2 '20

How the orchard tractor is performing in California. *Motor Age* 38:15-16+ S 9 '20

Mechanical mule for dirt moving. *il Eng & Contr* 54:70 Jl 21 '20

Notes on power farming. R. W. Lohman. *il chart diag Soc Auto Eng J* 7:160-74+ Ag '20; Discussion. 7:469-70 N '20

Relation of tractor weight to pull. *Soc Auto Eng J* 7:329 O '20

Road grading with tractor drawn wheel scraper outfits. W. B. Hill, jr. *il Eng & Contr* 55:435-6 My 4 '21; Same. *Munic Eng* 60:sup24+ My '21; Same. *Pub Works* 50:406-8 My 14 '21

Tractor or the carabao. *Am Ind* 21:40-1 S '20

Tractor performance at the British tractor trials. *Automotive Ind* 42:572 F 26 '20

Tractor plowing speeds. O. B. Zimmerman. *Soc Auto Eng J* 6:133-7 F '20; Same. *Automotive Ind* 42:760-4 Mr 25 '20

Tractor sled haulage in Alaska. E. M. Lagron. *il Eng & Contr* 55:504 My 18 '21

286 tractors average 30.8 full days work a year. *Automotive Ind* 44:764-5 Ap 7 '21

Use of heavy tractors for hauling elevating graders and wagon trains from steam shovel. L. V. Branch. *il Eng & Contr* 53:451-4 Ap 21 '20; Same. *Concrete* 16:241-3 My '20

Use of tractors on road construction and maintenance work. L. A. Wilson. *il Munic Eng* 60:sup26+ Ap '21

Wheeled tractor for oil field use. *il Automotive Ind* 43:573 S 16 '20

Prices

Buyers guide to farm tractors. *Motor Age* 37:33 F 12 '20

Trucks and tractors have prices, too. C. Jennings. *Automotive Ind* 43:701-4 O 7 '20

Rating

Rating tractors on piston displacement. E. A. White. *Soc Auto Eng J* 7:334 O '20

Repair

Standard mechanical operations in tractor service. J. C. Thorpe and G. H. Radebaugh. *il Motor Age* 37:7-10 F 5; 30-1 F 12; 22-3 F 19; 24-5 F 26; 38-9 Mr 4; 40-1

Tractors—Repair —Continued

Mr 11; 36-7 Mr 18; 35-7 Mr 25; 54-5 Ap 1; 37-9 Ap 8; 38-9 Ap 15; 38-9 Ap 22; 40-1 Ap 29; 42-4 My 6; 34-5 My 20; 38-9 My 27; 30-1 Je 3; 28-9 Je 10; 32-3 Je 17; 32-3 Je 24; 38:36-7 Ag 12; 36-7 Ag 19; 35-6 Ag 26; 36-7 S 2; 34-5 S 16 '20

Seats

Studies of the control and seating arrangements of tractors. P. M. Heldt. diags Automotive Ind 42:1051-5 My 6 '20

Specifications

British agricultural tractor specifications for 1921; tabulation. Automotive Ind 44:362 F 17 '21
 Motor age monthly guide to tractors and their technical specifications. Motor Age 38:48-53 S 30 '20
 Recommended power equipment for tractors. il Motor Age 37:34-5 F 12 '20
 Specifications of American farm tractors for 1921; tabulation. Automotive Ind 44:256-9 F 17 '21
 Specifications of British tractor with internal combustion engines; tabulation. Automotive Ind 42:122-3 Ja 15 '20
 Specifications of continental agricultural tractors. W. F. Bradley. Automotive Ind 44:396 F 17 '21
 Technical specifications of American farm tractors; tabulation. Automotive Ind 42:160-3 Ja 15 '20

Steering gear

Analysis of creeper type tractor steering. E. F. Norelius. diag Automotive Ind 42:1005-8 Ap 29 '20
 Directional control of tractors. V. L. Darnell. diags Automotive Ind 45:709-10 O 13 '21

Testing

Agricultural motor tractors. Engineer 129:112-13 Ja 30 '20
 Agricultural tractor trials. Engineering 111:526 Ap 29 '21
 Agricultural tractor trials. Engineering 112:446-7 S 23 '21; Engineer 132:372 O 7 '21
 Closer observation in 1921 British tractor trials. M. W. Bourdon. Automotive Ind 44:766 Ap 7 '21
 Data on Illinois tractors. R. I. Shawl. Soc Auto Eng J 8:487-8 My '21
 Demonstration shows tractors more economical. D. Beecroft. Automotive Ind 45:126-7 Jl 21 '21
 Fargo tractor demonstration. Soc Auto Eng J 9:108 Ag '21
 French tractor trials are merely a demonstration. W. F. Bradley. il Automotive Ind 43:906-9 N 4 '20
 How and why Nebraska will test tractors. il Automotive Ind 42:365-8 Ja 29 '20
 Internal-combustion cable ploughing engine. diags Engineering 110:506-7 O 15 '20
 Judges' report on the 1920 British tractor trials. Automotive Ind 44:1050 My 19 '21
 Lincoln tractor trials. Engineering 109:90-1 Ja 16 '20
 More results of tractor tests at Nebraska. Automotive Ind 43:1306-8 D 30 '20
 National physical laboratory traction dynamometer for agricultural tractors. J. H. Hyde. il diags Engineering 110:693-4 N 26 '20
 Nebraska makers rules for tractor tests. Motor Age 37:44-5+ Ja 15 '20
 Nebraska tractor tests. O. W. Sjogren. Soc Auto Eng J 8:391-5 My '21; Discussion. 9:173-9 S '21
 Nebraska tractor tests made during 1920 at the University of Nebraska, Lincoln, Neb. 76p Farm implement news, Chicago '21
 Ottawa beach plowing-speed tests. il Soc Auto Eng J 7:274-6 S '20
 Results of Argentine tractor trials. Automotive Ind 45:403 S 1 '21
 Royal agricultural society's trials of agricultural tractors and ploughs. Engineering 110:451, 481-2 O 1-8 '20

Testing of farm tractors. C. H. Benjamin. il diag Mech Eng 42:101-2+ F '20; Same. Engineering 110:255-7 Ag 20 '20
 Tractor engine test. C. A. Norman and B. Stockfleth. il diags Soc Auto Eng J 6:99-106 F '20; Discussion. 7:84-5+ Jl '20
 Tractor plowing demonstrations and dynamometer tests. il Automotive Ind 43:12-13 Jl 1 '20
 Tractor testing from the user's standpoint. L. W. Chase. diags plan Soc Auto Eng J 6:44-6 Ja '20; Discussion. 7:76 Jl '20
 Tractor testing required in Nebraska. il Pop Mech 33:517 Ap '20
 Tractor tests under new rules insure comprehensive results. Automotive Ind 44:1368-9 Je 23 '21
 Tractors at the Royal agricultural society's trials at Lincoln. il Engineering 110:472-4, 476 O 8 '20
 Tractors perform effectively in British trials. M. W. Bourdon. il Automotive Ind 43:856-60 O 28 '20
 Trials of agricultural motors. Engineer 131:464-5 Ap 29 '21
 Twenty-one more tractors undergo Nebraska tests. Automotive Ind 44:216-18 F 3 '21
 22 tractors tested under Nebraska law. Automotive Ind 43:460-2 S 2 '20

Wheels

Compound blanking; forming and piercing die for tractor wheel spoke cover. F. H. LeJeune. diags Mach 27:441-2 Ja '21
 Studies of the automobile. G. B. Upton. Sibley J 35:120-4 S '21
 Tractor wheel molding simplified. H. N. Tuttle. diags Foundry 48:350-2 My 1 '20
 Tractor wheels. A. W. Scarratt. Soc Auto Eng J 7:342 O '20
 W & K tractor wheel with composite hub. il Automotive Ind 43:663 S 30 '20

Tractors, Industrial

Atlas four-wheel-steer tractor. il Am Mach 54:1099 Je 23 '21
 Elwell-Parker type-TM electric industrial tractor. il Am Mach 54:749-50 Ap 28 '21
 Four-wheel-drive tractor for industrial use. il Automotive Ind 43:105 Jl 15 '20
 Gasoline tractor for industrial plants. il Iron Age 105:604 F 26 '20
 Industrial tractors serve to move loads economically. Elec W 75:1137 My 15 '20
 Industrial truck-tractor. il Sci Am 124:495 Je 18 '21
 New duplex compensation for industrial tractors. il Sci Am 124:516 Je 25 '21
 New Haven freight transfer facilities at Cedar Hill. il plan Ry Age 71:751-4 O 22 '21
 Reliance industrial tractor. il Am Mach 54:532 Mr 24 '21
 Towmotor gasoline industrial tractor. il Automotive Ind 42:751 Mr 25 '20; Ry R 66:580-1 Ap 3 '20
 Twin steering wheels for Mercury tractor. il Am Mach 54:705-6 Ap 21 '21
 Why the industrial tractor and trailer system makes good. il Sci Am 122:625+ Je 5 '20
 See also Motor trucks, Industrial.

Tractors, Military

Artillery motorization as related to caterpillar traction. G. W. Dunham. il diags Soc Auto Eng J 6:161-73 Mr '20; Discussion. 7:76-80 Jl '20
 Captured enemy mechanical transport vehicles at Aldershot. Engineering 110:611-15 N 5 '20; Engineer 130:456-60, 487 N 5-12 '20
 Caterpillar artillery. il Engineering 111:215-17 F 25 '21
 Combined tire and caterpillar tank. il Sci Am 124:251+ Mr 26 '21
 New army light artillery tractor. G. R. Pennington and S. K. Wellman. il diags Soc Auto Eng J 7:321-5 O '20
 New artillery tractor has great speed. il Pop Mech 35:888 Je '21
 New motor equipment for the army's artillery. Automotive Ind 43:10+ Jl 1 '20
 Recent development of artillery automotive material. J. B. Haney. il Soc Auto Eng J 8:375-9 Ap '21

Tractors, Military —Continued

Remarkable new types of motorized ordnance. P. H. Woodruff. *il Pop Mech* 34:527-8 O '20
Submarine tractor hauls guns over water. *il Pop Mech* 36:175 Ag '21
Tank: its birth and development. Engineer 129:624 Je 18 '20

Tractors, Steam

Convertible steam roller and traction engine. *il diags Engineer* 131:570, 575 My 27 '21
High-pressure steam drives small tractor. *il Pop Mech* 34:75 Jl '20
Three plow steam tractor product of Iowa concern. *il Motor Age* 37:37 Ja 1 '20

Tractors and roads

Relation of tractor and trailer traffic to highway design. H. E. Breed. *il Good Roads n s* 19:311-13 Je 23 '20; Same. *Can Eng* 38:510 My 27 '20; Same. *Munic Eng* 59:21-2 Jl '20; Same cond. *Eng & Contr* 53:631 Je 2 '20

See also Motor trucks and roads

Tractors in lumbering

Logging with belt tread tractors. C. D. Metcalf. *il Sci Am M* 1:42-4 Ja '20
Military tanks used for logging in France. *il Pop Mech* 35:581 Ap '21

Tractors in mining

Caterpillar tractor supplants team at Pennsylvania coal mine. *il Coal Age* 18:629-30 S 23 '20

Trade acceptances. See Acceptances

Trade agreements

Adjusting public labor disputes. *Iron Tr R* 66:1055, 1128 Ap 8-15 '20
Agreement affecting employees of Haverhill (Mass.) shoe manufacturers association. *Monthly Labor R* 12:136-8 Ja '21
Analysis of collective agreements in France, January to October, 1920. *Monthly Labor R* 12:573-7 Mr '21
Collective bargaining as basis of efficiency. B. Fisher. *Textile World* 57:3054 Ap 24 '20
Collective bargaining on B.R.T. *Elec Ry J* 56:1117 N 27 '20
Employer enjoined against breaching collective agreements, Michigan. *Monthly Labor R* 12:1237-9 Je '21
Essentials of a labor contract. E. Gruhl. *Elec Ry J* 55:96-101; Discussion. R. I. Todd. 92-4 Ja 10 '20
Increased cost of producing stoves; some of the new factors influencing the Conference of manufacturers and molders in Atlantic City. *Metal Work* 93:147-50 Ja 30 '20
Labour conditions fixed by collective agreements in France during 1920. *Int Labour R* 2:187-204 My '21
Legal effect of collective agreements. L. D. Clark. *Monthly Labor R* 11:416-19 F '21
National agreement with shopmen. F. McManamy. *Ry R* 66:515-18 Mr 27 '20; Same cond. *Ry Age* 68:959-61 Mr 19 '20; Same cond. *Ry Mech Eng* 94:233-5 Ap '20
New agreement affecting men's clothing industry in Rochester, N.Y. *Monthly Labor R* 11:1219-21 D '20
New agreement affecting the men's clothing industry in Chicago. *Monthly Labor R* 10:971-2 Ap '20
New working agreement affecting coal miners in Alberta and eastern British Columbia. *Monthly Labor R* 11:1021-8 N '20
Portland (Oregon) plan of preventing labor disputes. *Monthly Labor R* 11:1214-18 D '20
Recent agreements in building trades. *Monthly Labor R* 10:451-5 F '20
Standardization of output by agreement. E. Stewart. *Monthly Labor R* 13:263-4 Ag '21; Same. *Eng & Contr* 56:315 S 28 '21
Uniform form of agreement. *Dom Eng* 97:109-11 O 15 '21
Working of article three resulted in a virtual monopoly in mill work in favor of Chicago union mill concerns. B. G. Anderson. *Am Ind* 22:21+ S '21
Working together for mutual profit. S. Crowther. *il System* 39:789-91+ Je '21
See also Arbitration, Industrial

Trade associations

Commercial and industrial organizations of the United States. U S Bur For & Dom Com misc ser 99:1-121 '20
Engineering in trade association work. W. Clay. *W Soc E J* 25:181-220 Mr 29 '20; Excerpts. *Am Arch* 117:563-8 My 5 '20
In defense of the trade association. C. F. Hughes. *Annalist* 17:736 Jl 11 '21
Raising the funds for the association campaign. C. H. Rohrbach and J. A. Murphy. *Ptr Ink* 111:81-2+ Ap 1 '20
Reverse side of the open price association. C. H. Rohrbach and J. A. Murphy. *Ptr Ink* 111:41-2+ Je 24 '20
Right side of trade associations. *Nation's Business* 9:18-19 N '21
Simplification in industry; how trade associations help the manufacturer promote standardization. A. L. Smith. *il Factory* 26:1391-3 Je 15 '21
Some queer trade problems that manufacturers are unriddling through co-operation. C. H. Rohrbach and J. A. Murphy. *Ptr Ink* 112:73-4+ S 23 '20
To determine status of trade associations. *Iron Age* 107:1547-8 Je 9 '21
Trade associations. F. H. Burgher. *Textile World* 59:3069 My 7 '21
Trade associations and the law. F. K. Nebeker. *Nation's Business* 9:9-10 Jl '21; Same. *Am Mach* 55:162-4 Jl 28 '21; Same. *Dom Eng* 96:61-2+ Jl 9 '21
Trade organizations and the law. H. C. Hoover. *Am Mach* 54:1147 Je 30 '21
Why do some trade associations fail? C. H. Rohrbach and J. A. Murphy. *Ptr Ink* 111:137-8+ My 6 '20
Why trade associations should stay out of the publishing business. J. A. Murphy. *Ptr Ink* 113:33-4+ D 30 '20; 114:57-8+ Ja 6 '21
See also Conventions; Lumber associations; Plumbers' associations; Trade unions
Trade composition association, International. See International trade composition association
Trade extension bureau
Achievements of the Trade extension bureau. W. J. Woolley. *Plumber* 95:374-5+ Je 17 '21
Facts and suggestions about plumbing. A. Mueller. *Plumber* 96:1-6 Jl 1 '21; Same. *Dom Eng* 96:12-14, 24-6 Jl 2 '21
National trade extension bureau; report of the activities. *Dom Eng* 95:559-63 Je 18 '21
They even come from Norway for trade extension ideas. *Metal Work* 93:419 Ap 2 '20
What National trade extension means. D. F. Durkin. jr. *Dom Eng* 92:444-5 Ag 28 '20; Same. *Metal Work* 94:274-5 Ag 27 '20
Trade journals
Business and the business press; the development of the specialized medium serving a single trade or industry. R. W. Johnson. *Ptr Ink* 117:61-2+ O 20 '21
Business paper convention an experience exchange. *Ptr Ink* 113:17-20 O 28 '20
Business press and increased production. J. H. McGraw. *Elec Ry J* 55:947-8 My 8 '20
Do you read trade papers? R. E. Dockham. *Inland Ptr* 66:465-7 Ja '21
How the shop owner may learn to buy and manage better; trade journals and trade catalogs. *Plumber* 94:434-6 O 8 '20
Opportunities that have been brought to the business press. H. A. Lewis. *Ptr Ink* 113:117-18+ O 28 '20
Reliability of trade journal quotations in trade contracts. W. Gustin. *Chem & Met Eng* 22:943 My 19 '20
Service of the business press to foreign trade. J. H. McGraw. *Am Mach* 52:1269-71 Je 10 '20; Same cond. *J Elec* 44:602-3 Je 15 '20
Trade paper and the trade. *Electrician* 87:490-1 O 14 '21
Trade papers. E. F. Creager. *il Am Mach* 53:262 Ag 5 '20
Using the trade magazine to capacity. E. L. Bowman. *il Am Mach* 53:489-90 S 9 '20; Discussion. O. E. Perrigo. 55:803-4 N 17 '21

Trade journals—*Continued*

- Value of the trade press to the sanitary engineer. H. A. Call. Metal Work 94:369 S 17 '20
 What trade journals mean to the electrical industry. Elec R 77:938-9 D 11 '20
 Why I write for the technical papers and why I think you should. E. F. Creager. Am Mach 54:1062 Je 16 '21
 Why trade associations should stay out of the publishing business. J. A. Murphy. Ptr Ink 113:33-4+ D 30 '20; 114:57-8+ Ja 6 '21

See also House organs

Directories

- Crain's market data book and directory of class, trade and technical publications. 462p G. D. Crain, jr., 417 S. Dearborn St., Chicago '21
 Guide to the current periodicals and serials of the United States and Canada. H. O. Severance. 4th ed. 564p G. Wahr, Ann Arbor, Mich. '20

Trade marks

- Aspirin trade-mark opinion denies validity in sales made to public. Oil Paint & Drug Rep 99:26+ sec 1 My 2 '21
 B. V. D. company has another infringement case. Ptr Ink 116:77-8 S 1 '21
 Be cautious when you adopt a trade character. H. O. Lennin. Ptr Ink 110:69-70+ Ja 1 '20
 Can your slogan be registered? C. R. Allen. Ptr Ink 110:10+ Ja 22 '20
 Corporate title adapted for a trade-mark. Ptr Ink 114:28 Ja 27 '21
 Creating and using a trademark. W. G. Astle. Iron Tr R 69:617-18 S 8 '21
 Declaration of trade-mark independence. E. E. Calkins. Ptr Ink 114:41-2 Mr 17 '21
 Demand for separate trade-mark bureau increases. C. P. Carter. Ptr Ink 116:113-14+ S 1 '21
 Do's and don't's of the new British trade-mark act. C. H. Claudy. Ptr Ink 111:107-8 Ap 22 '20
 Effect of peace on patents and trademarks. Sci Am 122:647 Je 12 '20
 Executive's responsibility in patent matters. R. P. Clarkson. Ind Management 61:303-5 Ap 1 '21
 Giving effect to the new trade-mark act. Ptr Ink 112:114+ S 30 '20
 Grade-mark may also serve as a trade-mark. Ptr Ink 112:141-2 S 16 '20
 High cost of ransoming pirated trade-marks. Ptr Ink 112:49-50+ Jl 29 '20
 How National oats came to adopt a new trade-mark. F. H. Morse. il Ptr Ink 112:57-8+ S 9 '20
 Kellogg trade-mark case decided at last. Ptr Ink 114:35 Ja 13 '21
 Kellogg's novel action to make court decree effective. R. W. Johnson. Ptr Ink 116:77-8+ Jl 21 '21
 Latin-American countries don't want pirated trade-marks. Ptr Ink 110:106+ F 5 '20
 Legal status of the generic trade-mark. R. W. Johnson. Ptr Ink 110:142+ Mr 4 '20
 Modifications récentes apportées à la législation sur la propriété industrielle. L. Pailard. Chimie & Ind 4:818-24 D '20
 Not infringement, but perhaps unfair competition. Ptr Ink 113:20 D 23 '20
 La nouvelle législation fiscale sur les brevets d'invention et les marques de fabrique. P. Razous. Génie Civil 77:375-7 N 6 '20
 Old trade-mark registrations valuable. C. P. Carter. Ptr Ink 115:93-4+ Ap 21 '21
 Operation of the new trade-mark law. C. P. Carter. Ptr Ink 116:117-18+ S 15 '21
 Past history usually determines trade-mark rights. R. W. Johnson. Ptr Ink 116:93-4+ Ag 4 '21
 Patent office registers bank emblems. C. P. Carter. Ptr Ink 115:118+ Je 2 '21
 Patent office stiffens practice in the registration of slogans. Ptr Ink 112:141+ Ag 12 '20
 Registration of color in trade-marks. C. P. Carter. Ptr Ink 111:80+ Ap 22 '20
 Registration of descriptive, geographical and family name trade-marks. R. W. Johnson. Ptr Ink 115:41-2+ My 12 '21

- Regulations for registering trade-marks. Ptr Ink 113:140 D 16 '20
 Report of committee of N.W.D.A. on trade-marks. Oil Paint & Drug Rep 100:15+ O 4 '21
 Revolutionary changes in trade-mark law proposed. C. P. Carter. Ptr Ink 110:73-4 F 26 '20
 Rights to trade mark between manufacturer and distributor. W. Gustin. Chem & Met Eng 24:355 F 23 '21
 Rights to Woodbury trade-mark divided. Ptr Ink 114:12 Mr 31 '21
 San-tox selects trade-mark which permits constant addition to line. Ptr Ink 111:41-4 My 27 '20
 Scope of common law trade-marks. Sci Am 123:196 Ag 28 '20
 Selecting a historic character to give product personality. L. N. Burnett. il Ptr Ink M 2:29-31+ Ja '21
 Similar trade-marks on non-competing products. Ptr Ink 117:25-6 O 6 '21
 Some needed reforms in trade-mark procedure. C. P. Carter. Ptr Ink 114:49-52 Ja 6 '21
 Some valuations that have been placed on well-known trade-marks. Ptr Ink 113:109-10 N 11 '20
 Text of proposed new trade-mark law. Ptr Ink 115:77+ Je 23 '21
 Time now to examine your export trade-marks. Ptr Ink 110:93-4 F 19 '20
 To trade-mark a product that has survived years of anonymity. Ptr Ink 115:10+ Je 9 '21
 Trade mark law. Engineering 110:799 D 17 '20
 Trade-mark more than a mark of origin. Ptr Ink 113:142+ O 14 '20
 Trade-mark piracy. Sci Am 122:56 Ja 17 '20
 Trade mark policy. F. H. Williams. Textile World 57:3269+ My 1 '20
 Trade-mark protection is up to you. R. W. Johnson. Ptr Ink 111:81-2+ Je 3 '20
 Trade-marking difficult merchandise. R. Johnson. il Ptr Ink M 3:13-14+ Je '21
 Trade-marking the hard-to-brand product. R. W. Johnson. Ptr Ink 111:42-4 My 20 '20
 Trade marks on patented articles. Ptr Ink 115:149-50 My 12 '21
 Unfair competition by use of trade mark—extent of the use of trade mark. W. Gustin. Chem & Met Eng 22:180-1 Ja 28 '20
 United States statutes concerning the registration of trade-marks, with the rules of the Patent office relating thereto. 46p Gov. ptg. '20
 Use of trade-marks. C. C. Sherlock. Am Mach 51:651-3, 1097-8 O 2, D 25 '19
 Votre production doit-elle rester anonyme? O. J. Gérin. Chimie & Ind 3:679-83 My '20
 What is a trade-mark? R. W. Johnson. Ptr Ink 110:37-9 F 5 '20
 What legal rights have commercial nicknames? Ptr Ink 112:129-30 S 9 '20
 When is it wise to extend the quality trade-mark to other goods? J. A. Murphy. Ptr Ink 111:140+ Je 17 '20
 Where trade-marking the product found new markets for it. E. A. Muschamp. Ptr Ink 113:177+ N 11 '20
 Why should a trade-mark be registered? R. W. Johnson. Ptr Ink 111:60+ Ap 29 '20
 Why we need a separate trade-mark bureau. C. P. Carter. Sci Am 123:377+ O 9 '20
See also Branding; Patents; Trade names

Advertising

- Adopting an advertising character with no near relatives. Ptr Ink 113:113-14 O 7 '20
 Advertising investment fortifies trade-mark rights. Ptr Ink 113:80+ O 28 '20
 Deceptive trade-marks in national advertising. H. J. Kenner. Ptr Ink 112:97 S 30 '20
 Effect of advertising on trade-mark rights. Ptr Ink 115:137+ My 5 '21
 Emblem of advertising agency obtains federal credentials. Ptr Ink 110:17-18 Ja 29 '20
 Heading off trade-mark infringement by advertising its penalties. Ptr Ink 112:109-10 Jl 22 '20
 Proposed trade-mark act advances honest advertising. Ptr Ink 116:12 Ag 25 '21

Trade marks—Advertising—*Continued*

Sweet-Orr consumers' contest increases business fifty-two per cent; trade mark dramatized. R. Dickinson. *il* Ptr Ink M 2: 17+ My '21

Trade-mark advertising as an investment. A. Acheson. Administration 2:555-6 O '21

Unfair use of trade-mark in advertising. Ptr Ink 116:28 S 29 '21

Use of advertising picture confers no trade-mark monopoly. Ptr Ink 112:113-14 Ag 26 '20

When a business outgrows its short pants; how Van Raalte company solved the problem of expansion. E. T. Tandy. Ptr Ink 113: 93-4+ D 9 '20

Trade marks (international law)

Czechoslovak trade-mark law. V. A. Geringer. Automotive Ind 42:624 Mr 4 '20

Czechoslovakia plans to protect American trade-mark. Ptr Ink 110:124-5 Ja 15 '20

Germany enters British domain with Sheffield-made goods. Ptr Ink 112:25-6 S 23 '20

Germany favors international registration of trade-marks. C. P. Carter. Ptr Ink 114: 41-2+ Mr 10 '21

International trademark. C. P. Carter. Sci Am 122:568 My 22 '20

Register trade-marks now in Mexico. Ptr Ink 112:85-6 Ag 5 '20

Revalidating American trade-marks in Germany. F. H. Williams. Am Mach 52:216+ Ja 22 '20

Status of American trade-marks abroad. D. A. Brennan. Ptr Ink 117:125-6+ O 6 '21

Trade marks in China. Am Ind 22:45 O '21

Trade marks, National

National trade-mark may become feasible. C. P. Carter. Ptr Ink 116:45-6+ J1 21 '21

Shall we have a national trade-mark? E. T. Williamson. Sci Am 124:167+ F 26 '21

Trade names

Advertising success causes change in product's name; Velmo succeeds Mohair velvet. Ptr Ink 110:41-3 F 12 '20

Another court decision proves importance of record of trade-name use. Ptr Ink 111: 133+ Je 24 '20

Cannot use the name Overland for tires. Ptr Ink 116:35-6 J1 7 '21

Catching the housewife's imagination; the Virginia Dare company does it by cashing in on a popular trade name. H. A. Ballard. Ptr Ink 110:144+ F 12 '20

Dodging the dilemma of trade name translation in Latin America. Ptr Ink 110:85-6 Ja 8 '20

Fanciful trade names appeal to purchasers. Ptr Ink 112:103-4 Ag 5 '20

How some advertisers are correcting pronunciation to aid sales. R. L. Burdick. Ptr Ink 113:136+ O 14 '20

Maybe the product's name restricts its sale. Ptr Ink 110:141 Ja 8 '20

Picking a trade name from the alphabet. G. K. Brown. Ptr Ink 111:149-50+ Ap 8 '20

Present status of celluloid as a trade-mark. J. Larocque. Ptr Ink 115:25-6 Ap 28 '21

To change name of product and preserve good-will. Ptr Ink 113:117-18 N 25 '20

To the man who wants a trade-mark like kodak. R. W. Johnson. Ptr Ink 115:25-7+ Ap 7 '21

Trade names now in use on face brick and other clay products. See bi-monthly numbers of Brick and clay record

When an old trade-mark name has to be changed; Auto-Strop company's new title for its razor. M. Hussobee. Ptr Ink 115: 33-4 Ap 14 '21

When your name isn't your own. W. W. Goldsmith. Nation's Business 8:29 D '20

See also Coca-cola; Trade marks

Trade papers. See Trade journals

Trade practice submittal. See Federal trade commission

Trade routes

Reducing trade routes with submarine freighters. R. G. Skerrett. *il* Sci Am 123: 150+ Ag 14 '20

Trade schools

Cincinnati sheet metal trades school. *il* Sheet Metal Worker 12:251-2 My 13 '21

Delgado Central trades school, New Orleans. *il* Sheet Metal Worker 12:580, 626-7 S 16, O 14 '21

Harmful tendency in trade education. B. A. Tibbab. Am Mach 53:74 J1 8 '20

Linking education with factory profits; Ford motor company. T. P. Hickey. *il* Factory 25: 1394-6, 1594-5, 1726-7 N 1-D 1 '20

Mechanical trades schools of the A.E.F. C. E. Lester. *il* Ry Mech Eng 94:532-4 Ag '20

Organizing a trade school along business lines. D. B. Cobb. *il* Mach 26:325-7 D '19

Real school shop for boys. F. H. Colvin. *il* Am Mach 52:1335-7 Je 24 '20

Trade-trained boy. C. MacNiven. Am Mach 52:198-9, 1183 Ja 22, Je 3 '20

Training trade teachers. L. Parker. Am Mach 54:405-6 Mr 10 '21

Westinghouse technical night school. W. W. Reddie. *il* Elec J 18:150-2 Ap '21

What shall the school shop produce? W. D. Forbes. *il* Am Mach 53:486-8 S 9 '20

What to make in a trade school. Am Mach 52:1077-8 My 20 '20

World's largest trade school trains mechanics for U.S. naval air service. P. A. Jenkins. *il* Pop Mech 34:41-4 J1 '20

See also Automobile schools; Corporation schools; Industrial education; Technical education; Textile schools; also names of schools. e.g. Boston trade school, Davis-Bournonville institute for welding and cutting, Lincoln institute for vocational education; Shepard technical night school

Trade secrets

Governmental power over manufacturers. W. Gustin. Chem & Met Eng 22:703-4 Ap 14 '20

Judgment to deliver in writing unwritten secret formulas is impossible of enforcement. Chem & Met Eng 22:322 F 18 '20

Salesman who gives away secrets. W. L. Larned. Ptr Ink 113:89-91 D 23 '20

Secret processes and letters patent—nature of the rights therein distinguished. W. Gustin. Chem & Met Eng 24:130 Ja 19 '21

Theory vs. practice and trade secrets from the viewpoint of the industrial chemist. Chem & Met Eng 23:1086 D 1 '20

Trade tests. See Ability tests

Trade union congress, International. See International trade union congress, London

Trade union education. See Labor colleges

Trade unions

Collective bargaining in practice. D. R. Kennedy. Ind Management 59:149-52 F '20

Contracts with labor unions. C. C. Sherlock. Am Mach 53:897-8 N 11 '20

Growth of trade-unionism, 1910 to 1919. Monthly Labor R 12:1091-3 My '21

Growth of trade unionism since 1913. Int Labour R 3:78-109 J1 '21

Have labor unions raised the general level of wages? Eng & Contr 56:299 S 28 '21

History and problems of organized labor. F. T. Carlton. 559p D. C. Heath & co., Boston. '20

Industrial decay seen in complete unionization of industry. E. H. Gary. Comm & Fin Chr 112:1694-5 Ap 23 '21

Industry's eternal triangle: case for the union, the industrial court and the open shop. M. Woll. Nation's Business 8:17-18 Je '20

Is trade unionism sound? by J. H. Bunting. Review. Engineering 111:721-2 Je 10 '21

Labor and industry. W. H. Barr. Am Mach 52:1212-13, 1256-7 Je 3-10 '20; Excerpt. Metal Ind 18:278 Je '20

Labor and the industrial engineer. Sci Am 124:62 Ja 22 '21

Labour monopoly and the right to work. T. Rich. Eng & Ind Management 5:496-8+ Ap 28 '21

Labor organizations. See monthly numbers of the Monthly labor review

Labor unionists are merely human after all. H. Tipper. Automotive Ind 43:782-3 O 14 '20

Trade unions—Continued

- Labor unions and the government. L. Y. Sherman. Ry R 65:961-3 D 27 '19
- Labor unmask: the movement made plain. Comm & Fin Chr 113:14-15 JI 2 '21
- Law courts and trade union practices. Engineering 111:752 Je 17 '21
- Majority of union leaders are skilled in human affairs. H. Tipper. Automotive Ind 43:232-3 JI 29 '20
- Responsibility of organized labor for the stagnation in the building industry. C: R. Gow. Boston Soc C E J 8:129-55 Ap '21; Same. Eng & Contr 55:611-17 Je 22 '21; Excerpts. Eng N 86:991-3 Je 9 '21
- Shall we employ union labor? C: F. Dingman. Concrete 17:181-2 D '20
- Should professional engineers organize union? W: Snaith; P: Gillespie. Can Eng 38:281-5 Mr 11 '20
- Social movements. S. Zimand. p.5-66 H. W. Wilson co. '21
- Some thoughts on modern trade unionism. E: Brown. Eng & Ind Management 6:209-11, 237-9, 296-7, 320-2, 356-8 Ag 25-S 1, 15-29 '21
- Taft, Hughes and Hoover on collective bargaining. Ind Management 59:93-7 F '20
- Trade union movement. Int Labour R 1:328-32; 2:17-25, 160-5; 4:47-57 Mr-My, O '21
- Trade unionism and engineers. C: A. Mullen. Can Eng 38:119-21 Ja 8 '20
- Trade unionism and labor problems. J: R. Commons. 2d series. 838p Ginn '21
- Trade unionism and temperament; the psychiatric point of view in industry. E. E. Southard. Ind Management 59:265-70 Ap '20
- Trade unionism versus shop committees. W: L. Stoddard. Ind Management 61:310 Ap 1 '21
- Trade unions and profit-sharing agreements. Elec R (Lond) 88:806 Je 24 '21
- Trade unions jealous of privileges and precedents. H. Tipper. Automotive Ind 43:32-3 JI 1 '20
- Union labor and the enlightened employer. J: Flodin. Ind Management 62:72-5 Ag '21
- Union labor and the enlightened employer. S: Gompers. Ind Management 61:234-9 Ap 1 '21
- United States chamber of commerce meeting hears labor debate. Iron Tr R 66:1322-3 My 6 '20
- Wages working to normal basis. il Iron Tr R 68:7-11 Ja 6 '21
- What are we likely to do about labor unions? E. H. Fish. Ind Management 60:109-12 Ag '20
- Women in trade unions. B. Drake. 244p G. Allen and Unwin, ltd., London '20
- See also* Arbitration, Industrial; Boycott; Collective bargaining; Cooperation; Guild socialism; Labor and laboring classes; Open and closed shop; Salaried workers, Organization of; Strikes; Trade agreements; *also* names of labor organizations, e.g. Almagamated association of iron, steel and tin workers; Cigar makers' union; International association of machinists; Pan American federation of labor; United typothetæ of America

Public relations

- Painters advertise for public good will. R. Dickinson. Ptr Ink 111:41-4 Ap 22 '20

Statistics

- European trade-union statistics. A. Maylander, comp. Monthly Labor R 10:1500-4 Je '20

Canada

- Labor organization in Canada, 1920. Can Eng 40:499 My 26 '21

France

- Le congrès de la C. G. T. à Lille. R. Roure. Génie Civil 79:172-4 Ag 20 '21
- La crise du syndicalisme en France. R. Roure. Génie Civil 79:83-6 JI 23 '21
- Textile trade unionism in France. Textile World 59:1695 Mr 5 '21

Germany

- Organization of employers and workers in Germany. Monthly Labor R 12:613-20 Mr '21; Same. Chem & Met Eng 24:934-6 My 25 '21

Great Britain

- History of trades councils from 1860 to 1875. C. Richards. 36p Labour research department, London '20
- How the British labor unions became a power in politics. C. H. Northcott. Automotive Ind 43:778-80 O 14 '20
- Industrial democracy. S. Webb and B. Webb. 1920 ed. 899p Longmans '20
- Law relating to trade unions. H: H. Slessor. 149p Labour pub. co.; G. Allen & Unwin, London '21
- Membership of trade-unions in Great Britain in 1918. Monthly Labor R 10:1053-4 Ap '20
- Process of amalgamation in British trade unionism. S. Webb. Int Labour R 1:45-60 Ja '21

Italy

- Die ueberwachung der italienischen industrie durch die gewerkschaften. Stahl & Eisen 41:177-8 F 3 '21

Japan

- Membership of labor unions in Japan. Monthly Labor R 12:1276-7 Je '21

Netherlands

- Dutch trade-union congress. Monthly Labor R 11:1088-9 N '20

New York

- New York law forbidding labor union price fixing. Comm & Fin Chr 112:2040 My 14 '21

Russia

- Trade unions in soviet Russia. L. Pasvolsky. Annalist 18:177 Ag 22 '21

Turkey

- Types of labor organizations in Turkey. Monthly Labor R 12:886-9 Ap '21

United States

- Court defines employers' rights. Iron Tr R 66:297-8 Ja 22 '20
- Supreme court decision regarding labor unions and the secondary boycott. Comm & Fin Chr 112:96-8 Ja 8 '21
- Trade waste**
- Ammonia still waste liquor. E. A. Dieterle. Gas Age 46:427-8 N 25 '20
- Disposal of gas plant wastes. L. J. Willien. diag Gas Age 46:349-52 N 10 '20; Same. Am Gas Eng J 113:363-6 N 6 '20
- Disposal of industrial wastes and stream pollution. C. A. Emerson, jr. J Fr Inst 191: 807-18 Je '21; Abstract. Pub Works 51:94-5 JI 30 '21
- Disposal of trade wastes. R. S. Weston. Pub Works 49:504-6 N 27 '20
- Disposal of waste from gas plants; report of A.G.A. 1920 committee. diags plan Am Gas Assn Technical sec v 2:413-56; Discussion. 457-64 '20
- Dorr systems of sewage and trade waste treatment. R. H. Eagles. il diags Boston Soc C E J 7:245-62 N '20; Same cond. Pub Works 50:52-6 Ja 15 '21; Discussion. Boston Soc C E J 7:262-8 N '20
- Further study of the excess oxygen method for the determination of the biochemical oxygen demand of sewage and industrial wastes. E. J. Theriault. (U.S. Pub. health rep. v 35, no 19) 29p '20
- Handling sugar refinery wastes. Eng N 87: 178 Ag 4 '21
- Industrial waste prevents self-purification of water courses. T. C. Nelson. Eng N 86: 36 Ja 6 '21
- Industrial wastes in relation to water supplies: abstracts. W. Donaldson. Eng N 85: 740 O 14 '20; Chem & Met Eng 23:882 N 3 '20
- Miles-acid process on tannery waste. E. S. Dorr. Pub Works 49:403-4 O 30 '20; Same. Eng & Contr 54:570 D 8 '20; Abstract. Eng N 85:939 N 11 '20

Trade waste—Continued

- Operating experiences with activated sludge process for factory wastes. G: W. Fuller. *Munic Eng* 57:123-5 S '19; Same. *Can Eng* 38:367-8 Ap 8 '20
- Packington waste problem. L. Pearse. *W Soc E J* 25:365-73 Jl 20 '20; Abstract. *Pub Works* 49:251-3 S 18 '20
- Purification of creamery wastes. H. B. Hommon. 87p [bibliog p. 56-8] (U.S. Public health service. *Pub. health bul.* no. 109) Washington '21
- Purification of tannery wastes. H. B. Hommon. *U S Public Health Service Pub Health Bul* 100:133p '19
- Relation of chemical engineering to sewage and trade waste treatment. R. H. Eagles. *il Chem & Met Eng* 23:438-40 S 8 '20
- Some limitations in the chemical precipitation of trade wastes. F. Bachmann. *Eng & Contr* 56:126-7 Ag 10 '21
- Studying manufacturing wastes in Connecticut. *Pub Works* 48:184-6 Mr 13 '20
- See also Acid waste; Dye waste; Gas manufacture and works—Waste disposal; Gasoline in sewers; Refuse, Utilization of; Waste; Waste products

Bibliography

- Fertilizing value of factory wastes. *Shoe and Leather Reporter* N 4-18, D 2 '20
- Traffic. See Bridge traffic; River traffic; Road traffic; Street railroads—Traffic; Street traffic
- Traffic census. See Road traffic
- Traffic league, National industrial. See National industrial traffic league
- Traffic regulations
- Accident prevention is everybody's business. R. Mayne-Reade. *Elec Ry J* 57:268 F 5 '21
- Classification and traffic regulations for Arkansas roads. *Eng & Contr* 53:640 Je 2 '20
- Conference discusses highway traffic regulation. *Eng N* 86:963-4 Je 2 '21
- Detroit's new traffic-control system. C. E. Planck. *il Pop Mech* 35:836 Je '21
- Fifth avenue's traffic tower. *il Sci Am* 124:45+ Ja 15 '21
- Handling motor truck traffic on trunk highways of Marquette county. Mich. K. I. Sawyer. *il Munic Eng* 59:94-5 S '20; Same cond. *Eng N* 85:833 O 28 '20
- International traffic officers' association urge uniform traffic regulations. *Eng N* 85:1300 D 30 '20
- London traffic. *Engineer* 129:407-8 Ap 16 '20
- London's traffic problem. Lord Ashfield. *Elec Ry J* 56:271-4 Ag 7 '20
- Model traffic ordinance considered. *Elec Ry J* 56:494-5 S 11 '20
- One-way traffic on 5th Ave. to be controlled by signal towers. *il Eng N* 84:434-5 F 26 '20
- Police traffic regulations of New York city. J: O'Brian. *Elec Ry J* 58:603-4 O 8 '21
- Principles of traffic regulation on city streets. W: P. Eno. *Eng N* 86:996-7 Je 9 '21; Same. *Good Roads n s* 21:313+ Je 15 '21; Same. *Eng & Contr* 56:116-17 Ag 3 '21
- La réglementation de l'usage des voies ouvertes à la circulation publique. *Génie Civil* 78:509 Je 11 '21
- Relation of proposed uniform vehicle law to municipal traffic regulations. H. G. Shirley. *Can Eng* 39:614+ D 16 '20; Same. *Munic Eng* 59:sup14+ D '20; Same cond. *Good Roads n s* 20:215+ N 3 '20; Same cond. *Eng & Contr* 54:531-2 D 1 '20
- Safety zones and parking regulations. *Good Roads* 61:41-2+ Jl 27 '21; Same. *Munic Eng* 61:7-10 Jl '21
- San Francisco's traffic convention and street safety show. C. W. Geiger. *il Sci Am* 123:431+ O 23 '20
- Segregating city traffic in Cleveland. *Pub Works* 49:33-4 Jl 10 '20
- Symposium on automobile hazards at annual convention of American electric railway claims association. R. Stickie and others. *Elec Ry J* 56:913-21 O 30 '20

- Traffic and transportation. A. H. Blanchard. *Can Eng* 40:129-31 Ja 13 '21; Same abr. *Good Roads n s* 20:237-8+ N 17 '20
- Traffic control on Fifth avenue, New York city. *il Good Roads n s* 20:117-18 S 8 '20
- Traffic problem becoming increasingly important. map *Motor Age* 37:26 Je 10 '20
- Traffic regulations. A. Gaboury. *Elec Ry J* 57:269 F 5 '21
- Traffic regulations of New York city make Broadway a one-way street. map *Eng N* 86:256 F 10 '21
- Traffic tower. *il Sci Am* 122:249 Mr 6 '20
- Transport ministry to issue regulations for London traffic control. *Eng N* 87:230-1 Ag 11 '21
- Tricks of traffic control. *il Sci Am* 124:510+ Je 25 '21
- See also Automobile laws and regulations; Jitney buses; Motor trucks—Laws and regulations; Motor vehicles—Laws and regulations; Road traffic; Street traffic; Traffic signs

Traffic signs

- AGA highway lighthouses; flashing beacons of three colors show the kind and degree of danger at curves, etc. *il Good Roads n s* 21:163 Mr 16 '21
- Beacon safety standard for highways. *il diag Elec R* 79:253-4 Ag 13 '21
- New crossing signal makes officer a human semaphore. *il Pop Mech* 36:42 Jl '21
- Trailers. See Street cars—Trailers
- Trailers, Motor truck. See Motor truck trailers
- Train despatching
- Best method of handling freight trains. *Ry Mech Eng* 94:699-700 N '20
- Le "despatching system"; son application sur les chemins de fer français. *Génie Civil* 78:335-6 Ap 16 '21
- Questions about unsigned train orders. W: Nichols. *Ry Age* 71:704 O 15 '21
- Safe train despatching. O. W. Brandt. *Ry R* 67:760-3 N 20 '20
- Signatures to train orders. *Ry Age* 71:479 S 10 '21; Discussion. 71:562-3, 662 S 24, O 8 '21
- Some phases of railroad telegraph and telephone engineering. S. Rhoads. *il diags Am Inst E E J* 40:224-32, 315-25, 387-97 Mr-My '21
- System of railway traffic control by telephone. T. F. Lee. *diags Electrician* 86:382-4 Ap 1 '21
- Telephone equipment employed in train operation. D. V. Weed, jr. *il Elec R* 79:516-17 O 1 '21
- Train director and his work. *Sci Am* 124:329 Ap 23 '21
- Train operation by signal indication. H: M. Sperry. *il Ry Age* 68:1553-8, 1669-74 Je 4-11 '20; Same cond. *Ry R* 67:585-90 O 16 '20
- Train order deliverer eliminates unnecessary stops. *il Ry Age* 71:576-7 S 24 '21
- Utilizing motive power on the lines of the Delaware & Hudson; effective methods of terminal management permit constant control of locomotives. F. P. Gutelius. *Ry R* 67:961-7 D 25 '20

See also Hedwaygraph

Train lighting. See Car lighting

Train resistance

- Effect of car weight and speed on coal consumption. G: S. Chiles. *Ry R* 69:575-8 O 29 '21
- Effect of train speed on energy consumption. G. S. Chiles and R. G. Kelley. *Ry Age* 70:1083-4 My 6 '21
- Passenger train resistance. E: C. Schmidt and H. H. Dunn. *diags Ill U Eng Exp Sta Bul* 110:1-39 '18; Abstracts. *Eng & Contr* 52:584 N 19 '19; *Eng N* 83:1017 D 11 '19
- See also Locomotive resistance
- Train sheds. See Railroads—Train sheds
- Train speed. See Railroads—Train speed
- Training ships
- Nautical schoolships; training officers for U.S. merchant marine. J. S. Baylis. *il Gen Elec R* 24:102-4 F '21

Trains. See Railroads—Trains

Tramps

Hoboes of industry. H. A. Mount. Sci Am 122:541 My 15 '20

Tramways and light railways association

Annual congress, London, July 15. Elec R (Lond) 89:131-3, 164-6 Jl 22-29 '21; Electrician 87:103-5 Jl 22 '21

Trans-Andine railroads. See Railroads—South America

Transatlantic flight. See Aviation—Transatlantic flight

Transcontinental motor convoy

First transcontinental motor convoy. E. R. Jackson. il map Mech Eng 42:145-50+ Mr '20

Transference numbers. See Ions

Transfers. See Street railroads—Transfers

Transformation (chemistry)

Les progrès récents des méthodes de controle des produits métallurgiques. L. Guillet. il diags plan Génie Civil 77:268-73 O 2 '20

Transformers, Electric. See Electric transformers

Translocation. See Plants—Translocation

Transmission towers. See Electric lines—Poles and towers

Transmitters, Wireless. See Wireless transmitters

Transmutation of metals

Transmutation of elements. Sci Am 124:489 Je 18 '21

Trans-Pacific flight. See Aviation—Trans-Pacific flight

Transplantation (physiology)

Artificial Siamese twins. M. Heyde. Sci Am M 2:19-21 Jl '20

Human grafting. M. Tevis. il Sci Am M 1:307-9 Ap '20

Modern elixir of life; experiments in the rejuvenation of aged animals by the grafting of special organs. D. McClure. il Sci Am M 2:202-4 N '20

Transplanting

Working evergreen transplantation practical. Sci Am 125:30 Jl 9 '21

Transport world (periodical)

Ag the transport problem; a new Bennos. journal. Electrician 85:573 N 12 '20

Transportation

Build up distributive channels to achieve best advertising results. W: B. Colver. Ptr Ink 112:41-2+ Jl 8 '20

Chamber of commerce discusses railroad problem. Ry Age 68:1303-8 Ap 30 '20

City building and transportation. J. R. Bibbins. diags maps plans W Soc E J 25:411-59 Ag 20 '20; Abstract. Elec Ry J 55:1061-2 My 22 '20; Discussion. W Soc E J 25:459-69 Ag 20 '20

Co-ordination of rail and water transport. C: H. Markham. Ry Age 69:1057-60 D 17 '20

Co-ordination of railway and other transportation discussed by American society of mechanical engineers. Ry Age 69:1009-14 D 10 '20; Iron Tr R 67:1666-8 D 16 '20

Economic aspect of our transportation routes. J. R. Bibbins. Ry R 68:166-8 Ja 29 '21; Abstract. Mech Eng 43:183 Mr '21

Economic place of the motor truck in the nation's transportation. G: M. Graham. Automotive Ind 42:1122-3 My 13 '20

Efficient transportation machine a national necessity. H. Elliott. Ry R 65:880-2 D 13 '19

Highway engineering; relation between highway and railway engineering. W. G. Thompson. il Good Roads n s 18:161-2 O 1 '19; Same. Eng & Contr 52:541-2 N 5 '19

Highway transport conference at Chicago, Jan. 24-31. Ry Age 68:433-4 F 6 '20

Highway's part in the development of efficient transportation. J. W. Brooks. Good Roads n s 21:102+ F 16 '21

Inland waterway transportation. T. Brent. W Soc E J 24:359-64; Discussion. 364-74 Je '19

Interrelationship of highway, railway and waterway transport. H: E. Riggs. Can Eng 38:441-2 My 6 '20

Military traffic control in relation to highway traffic. M. L. Ireland. Soc Auto Eng J 6:159-60 Mr '20; Same. Good Roads n s 19:105-6 F 18 '20

Problems of transportation. F. H. Sisson. Ry R 67:563-4 O 9 '20

Progress in transportation. S: O. Dunn. W Soc E J 24:484-6 O '19

Public welfare demands efficient transportation. E. E. Clark. Ry Age 68:367-9 Ja 30 '20

Railroad transportation. D. E. Willard. Mech Eng 43:17-18 Ja '21; Same cond. Ry Age 69:1009-10 D 10 '20; Same cond. Ry R 67:887-8 D 11 '20; Excerpts. Eng N 85:1193 D 16 '20; Abstract. Elec Ry J 56:1248-9 D 18 '20

Regulation of railways is regulation of all commerce. E: A. Bradford. Annalist 17:563-4 My 23 '21

Relation of highway transportation to increased production. G: M. Graham. il Good Roads n s 20:1-4+, 13-15+, 36-7 Jl 7-21 '20; Same abr. Eng & Contr 54:106-9 Ag 4 '20

Report of the transportation engineering committee. N E L A Bul 7:655-9 S '20

Should commerce follow or dictate transportation? J. R. Bibbins. map W Soc E J 25:615-21 D '20

Transport and the machinery market in China. M. Smith. Engineer 128:604-5 D 19 '19

Transport in Roumania. Engineering 112:351-2 S 2 '21

Transportation and civilization. Comm & Fin Chr 112:1452-3 Ap 9 '21

Transportation by sea and land; review of seventy-five years of progress. il diags Sci Am 123:327-30+ O 2 '20

Transportation engineering recognized. A. J. Marshall. Good Roads n s 19:129-30 Mr 3 '20; Same. N E L A Bul 7:62-3 Ja '20

Transportation in relation to production. Ry Age 68:1306-7 Ap 30 '20

Transportation in Sze-Chuan, China. J. A. T. Robertson. il map Eng & Min J 110:994-6 N 20 '20

Trucking along the two great oceans. F: J. Koster. Am Ind 21:19-20 Ag '20

What is the future of inland water transportation? C: W. Baker. Eng N 84:19-28, 85-9, 137-44, 184-91, 234-42 Ja 1-29 '20

See also Aeronautics, Commercial; Airplanes; Airships; Automobiles; Barges; Bridges; Cableways; Canals; Carriers; Coal handling; Commerce; Communication and traffic; Delivery of goods; Demurrage; Electric railroads; Electric vehicles; Express companies; Express service; Factory transportation; Ferry bridges; Ferryboats; Freight car service; Freight cars; Freight handling; Harbors; Haulage; Institute of transport; Jitney buses; Machine shops—Moving; Mechanical handling; Merchant marine; Mine haulage; Motor trucks; Motor vehicles; Moving platforms; Ore transportation; Packing for shipment; Parcel post; Pneumatic conveying; Ports; Postal service; Rafts; Railroads; Railroads—United States; Rapid transit; River traffic; Road traffic; Roads; Shipping; Steamboat lines; Steamboats; Street railroads; Street traffic; Streets; Terminals; Traffic regulations; Trucks; Waterways; Waterways—United States; also subdivision Transportation under special subjects, e.g. Coal—Transportation, Explosives—Transportation, Lumber—Transportation, Petroleum—Transportation; Road materials—Transportation

Bibliography

Co-ordination of transportation facilities. Library J 45:737-41 S 15 '20

Cost

Automobile transportation costing as much as railroad transportation. Ry Age 69:214-15 Ag 6 '20

Comparison of the cost of transport and ton-miles by land, sea and air. Aerial Age 12:638 F 28 '21

Transportation—Cost—Continued

- Cost of rail transport and water transport compared. C: W. Baker. Eng N 84:186-90 Ja 22 '20
- Economy of water transportation. S. Cunningham, jr. Marine Eng 25:843-5 O '20
- Experiences and prospects of inland waterway transportation. Eng N 84:763-70 Ap 15 '20
- Transportation, Military**
- English transport service in France. W. M. Acworth. Ry Age 68:1407-8 My 14 '20
- Transportation act, 1920**
- Address. E. E. Clark. Ry Age 68:1244-6 Ap 23 '20
- Amendment to transportation act extending repayment of loans under revolving fund to fifteen years. Comm & Fin Chr 111:261-2 Jl 17 '20
- Amendments to transportation act likely to be considered in Congress. il Ry Age 71:886 N 5 '21
- Analysis of labor clause in the railway act. N. B. Williams. Ry R 66:495-6 Mr 20 '20
- Analysis of labor provisions of the new transportation act. Monthly Labor R 10:880-7 Ap '20
- Bill for return of railroads to private control. passed by Congress; comments of Mr Esch and Senator Cummins. Comm & Fin Chr 110:819-21 F 28 '20
- Complete text of new railroad bill. Ry R 66:319-35 F 28 '20; Same. Ry Age 68:555-73 F 20 '20
- Conferees come to agreement on railroad bill. Ry Age 68:435-8 F 6 '20
- Esch-Cummins bill passed by Senate and House. Ry Age 68:619-27 F 27 '20
- Fundamental weakness of the transportation act. Ry Age 71:861-2 N 5 '21
- Give the railroad act a chance. Nation's Business 9:36-7 Je '21
- Important points in the new railroad law. Eng & Contr 53:336-8 Mr 24 '20
- Interstate commerce commission interprets transportation act. Ry Age 68:683-4 Mr 5 '20
- I.C.C. notice to carriers. G: B. McGinty. Ry R 66:380 Mr 6 '20
- Labor board denies jurisdiction over interurbans by transportation act. Ry Age 69:1121-3 D 24 '20
- Labor leaders fight the Esch-Cummins bill. Ry Age 68:639-41 F 27 '20
- Maintenance allowance during the guaranty period. Ry Age 69:711-14 O 22 '20
- New railroad bill reported to Congress. Ry R 66:293-5 F 21 '20
- Problems of transportation act to be solved. S. D. Warfield. Comm & Fin Chr 111:1812-13 N 6 '20
- Proposed amendment to transportation act affecting revolving fund. Comm & Fin Chr 110:2041 My 15 '20
- Provisions of the conference railroad bill. C. Thorne. Nat Pet N 12:58+ Mr 3 '20
- Railroad bill signed by President Wilson. Ry Age 68:675-6 Mr 5 '20
- Railroad regulation under the new law. E. E. Clark. Ry Age 69:833 N 12 '20
- Railroad return bill completed in conference; with text of bill. Comm & Fin Chr 110:715-19 F 21 '20
- Railroad unions petition President Wilson to veto the Cummins-Esch bill—farmers council and others take similar action. Comm & Fin Chr 110:821-3 F 28 '20
- Reconstruction of railway transportation. A. P. Thom. Ry Age 69:765-7 O 29 '20
- Return of the railroads to corporate management and their problems. S: O. Dunn. W Soc 12 J 25:253-66 Ap 20 '20
- Special meeting of the American short line railroad association. Washington. Ry Age 68:1237-49 Ap 23 '20
- States to attack constitutionality of transportation act. Ry Age 70:470 F 25 '21
- Status of the engineer in railroad service as affected by Esch-Cummins bill. A. M. Van Auken. Eng & Contr 53:288 Mr 17 '20
- Transportation act—an important reconstructive measure. Ry Age 69:657-8 O 15 '20
- Transportation act as solution of railroad problem. D. Willard. Ry Age 69:787-9 N 5 '20

- Transportation act; its effect on credit. J: J. Pulleyn. Comm & Fin Chr 111:107-10 sec 2 N 20 '20; Excerpts. Ry Age 69:703-4 O 22 '20
- Two important valuation developments in 1920; Kansas City Southern decision and transportation act. Ry Age 70:74-6 Ja 7 '21
- W. G. McAdoo's criticism of Esch-Cummins railroad act. Comm & Fin Chr 111:1627-8 O 23 '20

What can the commission do? S. Thompson. Ry R 66:491-2 Mr 20 '20

Transportation and traffic association. See American electric railway transportation & traffic association

Transportation conference, National. See National transportation conference

Transportation of employees. See Employees, Transportation of

Transportation of school children. See School children, Transportation of

Transportation tax

Bibliography

Transportation tax. Library J 46:699-701 S 1 '21

Transporter bridges. See Ferry bridges

Transports

Buoyancy and stability of troop transports. W: Hovgaard. diags Int Marine Eng 25:60-4, 132-7 Ja-F '20

Troopships completed at Hog Island. il Int Marine Eng 25:737-40 S '20

Trans-Siberian railway

See also Tomsk railway

Transvaal

See also Gold mines and mining—Transvaal

Trapezoid

Dividing a trapezoid into strips of equal area. R. B. McWhorter. diag Eng N 84:194 Ja 22 '20

Trapping. See Fur trade

Traps. See Plumbing—Traps; Steam traps

Trass

Volcanic tuff and its uses. A. L. Shaw. Concrete 16:sup62-4 Ap '20

Travel**Advertising**

Advertising opportunities of the tourist industry. C: F: Carter. Ptr Ink 114:110+ Mr 24 '21

America's world neighbors introduced by advertising. S. C. Lambert. Ptr Ink 114:125-6+ Ja 27 '21

Using modern advertising to increase ocean travel. E: T. Tandy. Ptr Ink 115:33-6 My 19 '21

Travelers' checks

Europe favors advertised money orders. H. T. Mitchell. Ptr Ink 114:149+ Ja 27 '21

Traveling engineers association

28th annual convention, Chicago, Sept. 14-17. Ry Age 69:519-23, 544-5 S 24 '20; Ry R 67:455-60, 500-6 S 25-O 2 '20; Ry Mech Eng 94:623-30 O '20

Meeting, Chicago, Sept. 7-8. Ry R 69:330 S 10 '21; Ry Age 71:533-8 S 17 '21

Traveling libraries. See Libraries, Traveling

Traveling stores

Business as usual aboard ship. il Sci Am 125:95 Ag 6 '21

Motor drug stores serve rural trade. il Good Roads n s 21:197-8 Ap 6 '21

Ship-shop experiment in trade. Comm & Fin Chr 113:1292-3 S 24 '21

Should manufacturers recognize the store on wheels? Ptr Ink 112:43-4 Ag 12 '20

Traveling stores exhibit speed in getting turnover. Ptr Ink 113:97-8 O 21 '20

Wheeled store sells shoes by window display. il Pop Mech 36:364 S '21

Trawlers. See Fishing boats

Treasury stock

Treasury stock. R. H. Whitehead. J Account 30:49-53 Jl '20

Treaties, Commercial

Striking the shackles from South American trade. C. H. Claudy. *Ptr Ink* 110:101, 105 Ja 1 '20

Tree hoppers

Brownies of the insect world; leaf hoppers and tree hoppers. M. Tevis. *il Sci Am M* 2: 123-5 O '20

Tree planting

Beautifying our roadsides. C. F. Boehler. *Good Roads n s* 20:157-8+ S 29 '20

Million trees for Nebraskan homesteaders. A. P. Child. *il Pop Mech* 34:97-8 JI '20

Moving a standing 210-ft. tree. E. P. Stamm. *il Eng N* 87:230 Ag 11 '21

Need for tree planting along the public highways. F. W. Besley. *il Pub Roads* 4: 19-20 S '21; Same *abr. Eng & Contr* 56:418 N 2 '21

Planting trees along Pennsylvania highways. *Munic Eng* 61:22 JI '21

Tree moving new enterprise of western city. J. E. Hogg. *il Pop Mech* 34:722-3 N '20

Tree planting at Kensico dam of New York city water supply system. *Eng & Contr* 56: 36 JI 13 '21

Tree planting in the city of St Paul, Minnesota. J. E. Carroll. *Munic Eng* 59:9-10 JI '20

Tree planting to serve as railway snow fences. *Eng & Contr* 53:308-9 Mr 17 '20

Tree surgery. See **Trees, Care of**

Trees

Dendrograph—an instrument that keeps tabs on tree growth. W. A. Murrill. *il Sci Am* 122:595 My 29 '20

Design of a tree. R. Fleming. *Eng & Contr* 55:418 Ap 27 '21

Interesting facts about trees. E. A. Laughlin. *Am Lumberman* 2328:59 D 27 '19

Knots and boles on forest trees; causes of grain in timber. C. E. Chidsey. *il Sci Am M* 2:209-10 N '20

Shade trees for city streets. A. Longville. *Sci Am* 123:157 Ag 14 '20

Sunstroke in trees. *Sci Am* 123:178 Ag 21 '20

Tree telephony and telegraphy. G. O. Squier. *Electrician* 84:111-12, 147-9 Ja 30-F 6 '20

Trees and streets. *Pub Works* 48:552 Je 19 '20

Trees that are older than history. S. J. Hall. *il Sci Am* 122:303 Mr 20 '20

See also **Forests and forestry; Lumber; Sap; Timber; Wood; also names of trees, e.g. Coniferae, Douglas fir, Maiden plum tree, Palms, Para rubber trees**

Breeding

Crossbreeding trees to strengthen species. H. A. Mount. *il Pop Mech* 36:70-1 JI '21

Diseases and pests

See also **Chestnut blight; Powder-post beetles**

Trees, Care of

Advertising establishes profession of tree surgery. R. Cole. *il Ptr Ink* 110:17-20+ F 19 '20

Giving medicine to trees. C. Rumbold. *il Sci Am M* 2:114-16 O '20

Perform unusual operations on storm-damaged trees. *il Pop Mech* 33:70 Ja '20

Trees, Dwarf

How Japanese dwarf trees are raised. *il Sci Am* 124:473 Je 11 '21

Treillage. See **Trellis work**

Trellis work

Lattice: some notes on the origin and general adaptation of lattice as a decorative form. *il Bldg Age* 42:26-9 F; 23-6 Mr '20

Porches and treillage design. A. E. Bullock. *il diags Arch Rec* 47:77-83 Ja '20

Tremont Temple. See **Boston, Massachusetts—Tremont Temple**

Trenches

Excavating small earth trenches. *Pub Works* 49:443-4 N 6 '20

Method of sheeting trench in running sand. *diag Eng & Contr* 55:267 Mr 16 '21

Rock trenching for St Paul water mains. *Pub Works* 51:291-2 O 15 '21

See also **Sewerage**

Trenching machinery

Austin trenching machine performance data. *il Munic Eng* 61:sup24 Ag '21

18 hints for machine trenching. *Eng & Contr* 53:423 Ap 14 '20

Endless-tread excavator turns in own length. *il Pop Mech* 36:690 N '21

Excavator for trench digging. *il Engineering* 109:822, 828 Je 18 '20

Experience with trenching machines in Massachusetts. *Eng & Contr* 54:469 N 10 '20

Heavy spreader plow for the Oliver iron mining co. *il diag plan Ry R* 65:877-80 D 13 '19; *Ry Age* 67:1119-20 D 5 '19

Mann spreader cars for heavy work. *il Ry R* 66:188-9 Ja 31 '20

Mechanical equipment of Baltimore water department. V. B. Siems. *il Pub Works* 51: 39-42, 73-7 JI 16-23 '21; Same, without tables. *Munic Eng* 60:sup 19-20+ Je '21

Modern uses of trench excavators. J. McElroy. *il Munic Eng* 58:sup40-2 F '20

New all-multipedal Austin machine at work on trench excavation. *il Eng & Contr* 54:472 N 10 '20; *Munic Eng* 59:sup 24+ N '20

New steam hoe for trench excavation. *il Eng & Contr* 55:481 My 11 '21; *Coal Age* 20:594 O 13 '21

Test of a Jordan ditcher. C.R.I. & P.Ry. *il Ry R* 67:481-2 S 25 '20

See also **Excavating machinery**

Trent process. See **Flotation process (coal)**

Trenton, New Jersey**Water supply**

Improvements in Trenton water purification. *il Pub Works* 50:341-3 Ap 23 '21

Trepanning

Trepanning tools for locomotive main and side-rod forgings. J. V. Hunter. *il diags Am Mach* 54:549-50 Mr 31 '21; *Discussion. E. A. Dixie.* 55:30-1 JI 7 '21

Trestles

Allegheny steel co. by erecting big mine-car viaduct avoids freight rate and car shortage. *il diags Coal Age* 18:331-3 Ag 12 '20

Damage by fire to creosoted trestle. N.C. & St L. Ry. *il diag plan Ry R* 69:133-5 JI 30 '21

Lag screws vs. bolts in trestle construction. *diags Elec Ry J* 55:208 Ja 24 '20

Methods in the Northwest that impressed the coal men of the A.I.M.E. R. D. Hall. *il Coal Age* 18:575-81 S 16 '20

Supporting reactions in pile foundations and batters for railway trestle bents. B. Wilson. *Eng & Contr* 54:196 Ag 25 '20

Trestle viaducts on the Great Western railway. *il diags Engineer* 131:64-5, 72 Ja 21 '21; Same. *Eng & Contr* 56:195-6 Ag 31 '21

See also **Bridges**

Estimates

Construction trestle plans and quantity tables. F. J. Herlihy. *diags Eng N* 84:844-7 Ap 29 '20

Filling

Filling high viaducts on the Philadelphia & Reading Ry. P. S. Baker. *il diags Eng N* 86:1020-2 Je 16 '21

Methods of filling railway trestles and bridges and maintenance of structures during the work. *Eng & Contr* 54:482-6 N 17 '20; Same. *Ry R* 67:731-6 N 13 '20; *Abstract. Ry Age* 69:762 O 29 '20

Unusual trestle filling methods on the Soo line. *il Eng N* 86:123-4 Ja 20 '21

Trestles, Concrete

Design and operation of modern car-dump coal pier. *il diags plan Eng N* 84:759-62 Ap 15 '20

Long concrete trestles to cross southern river swamps. J. L. Parker. *diags map Eng N* 87:725-6 N 3 '21

Triacetin

Successive stages of the hydrolysis of triacetin. E. Yamasaki. *Am Chem Soc J* 42: 1455-68 J1 '20

Trial orders. See Salesmanship—Trial orders

Triangle

Trigonometric computer. F. E. Wright. *il Sci Am M* 1:228 Mr '20

Triangulation

Rectangular co-ordinates used in surveys and maps. H. A. Foster. *diag Eng N* 84: 962-3 My 13 '20

Secondary triangulation. J. L. Rannie. *Can Eng* 40:404-6 Ap 21 '21

Triangulation simplified by army co-ordinate system. H. A. Foster. *diags Eng N* 84: 1006-11 Mv 20 '20

Tribromophenol bromide

Catalytic decomposition of certain phenol silver salts: the action of mercury on tribromophenol bromide. W. H. Hunter and G. H. Woollett. *Am Chem Soc J* 43:131-5 Ja '21

Tricalcium arsenates. See Calcium arsenates

Trichloro-ammonium chloride

Reaction between chlorine and ammonia; probable formation of trichloro-ammonium chloride. W. A. Noyes. *Am Chem Soc J* 42: 2173-9 N '20

Trichlorodinitrobenzenes

Trichlorodinitrobenzenes; their reaction with sodium methoxide and with ammonia. E. J. E. Hüffer. *Chem Soc J* 120 pt 1:549-51 Ag '21

Trichloromethyl propanol

Derivatives of trihalogen tertiary-butyl alcohols; the benzoic acid ester of trichloro-tertiary-butyl alcohol or chloretoic benzoic acid ester. T. B. Aldrich. *Am Chem Soc J* 42:1502-7 J1 '20

Tricyclic compounds

Some new tricyclic bases. T. S. Moore and I. Doubleday. *Chem Soc J* 119:1170-5 J1 '21

Triethylarsine

Zur kenntnis organischer arsenverbindungen; die einwirkung von bromcyan auf triäthylarsin. W. Steinkopf and J. Müller. *Deutsche Chem Gesell Ber* 54:841-7 Ap '21

Trigonometric functions

Alignment chart for circular and hyperbolic functions of a complex argument in rectangular coordinates. V. Bush. *chart diag Am Inst E E J* 39:658-9 J1 '20

Trigonometry

Formulas for the solution of right and oblique spherical triangles. W. G. Holmes. *diags Am Mach* 54:227-9 F 10 '21

Plane trigonometry. A. Dresden. 110p Wiley '21

Solution of a trigonometric problem. A. J. Pruszyński. *diags Am Mach* 54:330-1 F 24 '21

Trigonometry for toolmakers. R. H. Worthy. *diags Am Mach* 54:8-11 Ja 6 '21

Trihalogen-methyl compounds

Trihalogen-methyl reactions; the use of the silver cathode in electro-deposition of copper. H. W. Doughty and B. Freeman. *Am Chem Soc J* 43:700-4 Ap '21

Trimethyl arsine

Preparation of trimethyl arsine and trimethyl arsine selenide. R. R. Renshaw and G. E. Holm. *Am Chem Soc J* 42:1468-71 J1 '20

Trimethyl arsine selenide

Preparation of trimethyl arsine and trimethyl arsine selenide. R. R. Renshaw and G. E. Holm. *Am Chem Soc J* 42:1468-71 J1 '20

Trimethyl phosphine

Trimethyl phosphine and its selenide. R. R. Renshaw and F. K. Bell. *Am Chem Soc J* 43:916-19 Ap '21

Trimethylethyl-aniline

Preparation of optically active hydrazines; the preparation of *dl-p*-trimethylethyl-phenylhydrazine—the isolation of pure *d-p*-trimethylethyl-aniline. J. W. E. Glattfeld and C. H. Milligan. *Am Chem Soc J* 42: 2322-8 N '20

Trimethylethyl-phenylhydrazine

Preparation of optically active hydrazines; the preparation of *dl-p*-trimethylethyl-phenylhydrazine—the isolation of pure *d-p*-trimethylethyl-aniline. J. W. E. Glattfeld and C. H. Milligan. *Am Chem Soc J* 42:2322-8 N '20

Trimming machines

Bat trimming machine. *il Textile World* 58: 117 J1 3 '20

Trimming novelties

Embroidery made on flat machines. *il Textile World* 58:527+ J1 24 '20

Trimming tools

Press tools for trimming a box cover. S. A. McDonald. *diags Am Mach* 55:565 O 6 '21

Trimstone. See Concrete stone

Trinidad

Trinidad as a field for the study of the origin of petroleum. P. Carmody. *Engineering* 111:591 My 13 '21

See also Mines and mineral resources—Trinidad; Petroleum industry—Trinidad

Trinitro-benzaldehyde

Derivatives of 2,4,6-trinitro-benzaldehyde. A. Lowy and E. H. Balz. *Am Chem Soc J* 43: 341-6 F '21

Trinitrophenylhydrazine

Über die kondensation von 2,4,6-trinitrophenylhydrazin mit chinonen. W. Borsche. *Deutsche Chem Gesell Ber* 54:1287-90 Je '21

Trinitroresorcinol. See Styphnic acid

Trinitrotoluene

Economical blasting with T.N.T. J. L. Clarke. *Pub Works* 51:335 O 29 '21

Hygroscopicity of trinitrotoluene. W. J. Huff. *Chem & Met Eng* 21:570-1 O 29 '19

Method of measuring low vapor pressures, with its application to the case of trinitrotoluene. A. W. C. Menzies. *Am Chem Soc J* 42:2218-21 N '20

New method of firing T.N.T. in propagated ditch blasting. *Eng & Contr* 56:368 O 19 '21

Toxic effect of TNT due to inhalation of fumes. P. M. Holmes. *Monthly Labor R* 10:761-2 Mr '20

TNT a success in road work. L. E. Smith. *Can Eng* 40:311 Mr 17 '21

TNT as a blasting explosive. C. E. Munroe and S. P. Howell. *il U S Agric Dept Circ* 94:1-24 '20

Trinitrotoluene as an industrial poison. A. Hamilton. *bibliog J Ind Hygiene* 3:102-16 J1 '21

Trinitrotoluene poisoning. *J Fr Inst* 189:127-8 Ja '20

TNT practicable for ordinary blasting. *Eng N* 84:1078 My 27 '20

T.N.T. used in pulling earth's molars. G. H. Dacy. *il Pop Mech* 35:405-7 Mr '21

Bibliography

Trinitrotoluene poisoning; its nature, diagnosis and prevention. C. Voegtlin and others. U. S. Public health service (Hygienic laboratory bul. no. 126), Washington, D.C.

Trinitrotolylmethylnitroamine

2:4:6-trinitrotolylmethylnitroamine. O. L. Brady and W. H. Gibson. *Chem Soc J* 119:98-104 Ja '21

Trinitroxylenes

Manufacture of trinitroxylenes for use as a substitute for TNT in bursting charges for high explosive shell. J. Marshall. *J Ind & Eng Chem* 12:248-50 Mr '20

Triodes. See Vacuum tubes

Triphenylmethane

Über thio-phenole; über thiophenol-äther des triphenyl-methans und die auxochrome wirkung der alkylmercaptogruppen. K. Brand and O. Stallman. *Deutsche Chem Gesell Ber* 54:1578-85 J1 '21

Triphenylphosphine

Über die einwirkung von bromcyan auf triphenyl-phosphin. W. Steinkopf and K. Buchheim. *diag Deutsche Chem Gesell Ber* 54:1024-35 My '21

Triphenylvinyl alcohol

Action of magnesium phenyl haloids on diphenylchloroacetyl chloride; constitution of triphenylvinyl alcohol. A. McKenzie and J. S. W. Boyle. *Chem Soc J* 119:1131-40 JI '21

Triphenyl-vinylalkohol und 9-benzoyl-fluoren. K. H. Meyer and H. Gottlieb-Billroth. *Deutsche Chem Gesell Ber* 54:575-8 Ap '21

Triplanes. See **Airplanes****Tripoli**

Mining and preparation of tripoli. R. B. Ladoo. *Brass W* 17:233-4 Ag '21

Tripotassium lead hydrogen octafluoride

New methods of preparing tripotassium lead hydrogen octafluoride. F. C. Mathers. *Am Chem Soc J* 42:1309-11 JI '20

Tripp, Guy Eastman, 1865-

Portrait. *Elec W* 77:2 Ja 1 '21

Trisection of angles

Trisection of an angle. diags *Engineer* 129:189, 216-17 F 20-27 '20

Tristearin

Some anomalies in the solidification point of tristearin. B. H. Nicolet. *J Ind & Eng Chem* 12:741-3 Ag '20

Trithiocarbonates. See **Thiocarbonates****Trojan powder**

New non-freezing military explosive and its application to mining. D. C. Ashmead. *il Coal Age* 19:527-8 Mr 24 '21

Trolley, Pantagraph. See **Pantagraph trolley****Trolley brackets**

Neat trolley bracket. *il diag Elec Ry J* 56:557 S 18 '20

Trolley buses. See **Trackless trolley****Trolley cars.** See **Electric railroads; Street cars****Trolley guards.** See **Electric railroads—Trolley guards****Trolley wheels.** See **Electric railroads—Trolley wheels****Trolley wire**

Discussion on qualities of trolley wire before the American electric railway engineering association. *Elec Ry J* 58:633 O 8 '21
Overhead practice and experience in Atlanta. *il Elec Ry J* 55:563-5 Mr 20 '20

Results from cadmium-copper trolley wire. *Elec Ry J* 58:277 Ag 20 '21

Safety cut-out for trolley wires at loading chutes. E. D. Gardner. *diag plan Sci Am M* 4:94 JI '21

Steel trolley shortens trolley wheel life. F. H. Miller. *Elec Ry J* 57:553-4 Mr 19 '21

Tapping the trolley wire without stopping the trolley cars. C. W. Geiger. *il Sci Am* 123:615 D 18 '20

Trolley base tension discussed at meeting of Association of electric railway men. *Elec Ry J* 57:543 Mr 19 '21

Trona. See **American trona corporation****Trô, France**

Twentieth-century troglodytes. *il Sci Am M* 2:130-2 O '20

Troopships. See **Transports****Troostite**

Constitution of martensite and troostite. D. J. McAdam, jr. *diags plan Chem & Met Eng* 25:613-18 S 28 '21

Tropics**Diseases and hygiene**

Looking after one's health in the tropics. L. T. Emory. *il Eng & Min J* 111:1017-19 Je 18 '21

Trousers

Worstest trouserings featured with silk. *il Textile World* 60:2057+ O 8 '21

Trout

Stocking mountain brooks for anglers. W. F. Wilcox. *il Pop Mech* 33:689-90 My '20

Uncle Sam's artificial fish; the hatchery work of the United States forest service. S. R. Winters. *il Sci Am* 124:284 Ap 9 '21

Trout fishing

Trout angling at fifty cents a fish; artificial concrete angling pools. J. E. Hogg. *il Pop Mech* 35:529-32 Ap '21

Trouton's law

Critical energy increment and Trouton's rule. E. K. Rideal. *Philos Mag* 6th ser 42:156-63 JI '21

Trucking

Trucking on a scientific basis. A. E. Smith. *il Am Ind* 22:17-20 Ag '21

Trucks

Combined street and warehouse truck. *il diag Sci Am* 124:172 F 26 '21

Handling material in railroad shops. F. A. Stanley. *il Am Mach* 53:953-4 N 18 '20

Improved axle suspension for industrial trucks. *il Pop Mech* 36:203 Ag '21

Lakewood no. 703-A tier-lift truck. *il Am Mach* 53:1014 N 25 '20

Lift trucks replace cars and tracks. C. R. Wood. *il Concrete* 17:69 Ag '20

Making hand trucks work more. *il Factory* 26:1303-6 Je 1 '21

Shop trucking on a bonus basis. R. J. Spence. *Mach* 27:782-3 Ap '21

Special truck for handling crankshafts. E. H. Tingley. *il Pop Mech* 36:618 O '21

Spring-driven hand trucks lessen stevedore labor. *il Pop Mech* 36:279 Ag '21

Truck for driving boxes. J. H. Hahn. *diag Ry Mech Eng* 95:518 Ag '21

Wooden wheels eliminate noise. C. A. Elliott. *il Elec Ry J* 56:1160 D 4 '20

See also **Car trucks; Electric trucks; Electric trucks, Industrial; Motor trucks**

Trucks, Hydraulic. See **Hydraulic trucks****Trucktractors.** See **Motor trucks****Trumbull, Frank, 1858-1920**

Frank Trumbull retires from the C. & O. *por Ry Age* 68:167-8 Ja 9 '20

Sketch. *por Ry Age* 69:114-15 JI 16 '20

Trunks

Making one's own steamer and wardrobe trunks. H. Marcelle. *il diags Pop Mech* 35:312-13, 469-71 F-Mr '21

Trusses

Arc-welded building construction. *il diags Engineer* 129:510 My 14 '20; Same. *Eng & Contr* 53:740 Je 30 '20; Same cond. *Iron Age* 106:12 JI 1 '20

Beams vs. trusses for pier shed. L. C. Jordan; G. W. True. *diags plan Eng N* 85:375-6 Ag 19 '20

Calculation of stresses in wood trusses. M. S. Farwell. *diags Arch Forum* 34:133-4 Ap '21

Comparative economics of continuous and non-continuous trusses. J. A. L. Waddell and H. M. Priest. *plans Eng Soc W Pa* 36:409-17 JI '20

Construction of Parliament buildings, Ottawa. F. D. Withrow. *diag Can Eng* 39:255 Ag 19 '20; Same. *Eng & Contr* 54:426 O 27 '20

Detail design of riveted joints of bridge trusses. W. M. Wilson. *diags Eng N* 85:259-60 Ag 5 '20

Detail drawing of one of the trusses over the auditorium, the Metropolitan annex, New York city. *Am Arch* 118:832 D 22 '20

Electric arc welding applied to structural steel framing. *il diag Am Arch* 117:707-11 Je 2 '20

Electrically welded steel structure erected in New York. R. V. Ficker. *il Iron Tr R* 66:1270-2 Ap 29 '20; Same abr. *Eng & Contr* 53:498 Ap 28 '20

Failure of steel truss support wrecks concrete dome. E. R. Bowen. *il diags Eng N* 86:294-6 F 17 '21; Discussion. 86:479 Mr 17 '21

Long span concrete arches used in garage. *il diags plan Am Arch* 117:743-7 Je 9 '20

New steel truss. *il Eng & Contr* 53:486 Ap 28 '20

Overhead truss supports falsework for concrete arch. R. W. Stewart. *il diag Eng N* 85:495 S 9 '20

Steel framing for public hall in Cleveland. *diags plan Eng N* 84:414-15 F 26 '20

Trusses—Continued

- Temporary trusses support columns. E: U. Smith. *il Eng N 87:377 S 1 '21*
- Temporary trusses support roof forms. P. S. Toney. *il Eng N 84:1270 Je 24 '20*
- Timber truss roof designed for special conditions. *diags Eng N 87:246-7 Ag 11 '21; Discussion. E. D. Gilman. 87:418 S 8 '21*
- Truss centering used for 113-ft. concrete arch. C. B. McCullough. *il diags Eng N 84:851-2 Ap 29 '20*
- Truss design and details. C: L. Shedd. *diags Arch Forum 33:161-2, 217-18; 34:29-30, 63-4, 100-2 N '20-Mr '21*
- Welded joint in structural-steel work. R. Howard. *il Sci Am 122:567+ My 22 '20*
- See also Bridges; Building; Girders; Roofs; Strains and stresses*

Trusses, Concrete

- Concrete T-beams designed as truss. J: B. Hutchings, jr. *diags Eng N 86:233 F 3 '21*
- Concrete truss spans erected without false-work. *il Eng N 86:608 Ap 7 '21*
- Concrete trusses and cantilever girders in theatre. *il diags plans Eng N 85:604-5 S 23 '20*
- Large timber frame to support concrete truss forms. R. C. Mitchell. *il diags plan Eng N 86:380-1 Mr 3 '21*
- Precast concrete roof trusses in Panama pier shed. G. W. True. *il diags plans Eng N 84:1232-8 Je 24 '20*
- Proposes design of concrete truss for Davies bridge on Don Mills road, near Toronto. E. A. James. *diags Can Eng 38:338 Ap 1 '20*

Trust companies

- Banks and trust companies. Published in monthly Bank and quotation section of Commercial & financial chronicle
- Committee and officers' report—trust company division of American bankers' association. *Comm & Fin Chr 113:211-13 sec 2 O 29 '21*
- Growth in resources of New York trust companies and state banks. *Comm & Fin Chr 110:2028-9 My 15 '20*
- Modern trust company; its functions and organization. F. B. Kirkbride and others. 5th ed., enl. and rev. 549p Macmillan '20
- New York trust companies under present economic conditions. L: G. Harriman. *Comm & Fin Chr 113:246 Jl 16 '21*
- Report of committee on protective laws of the American bankers' association. N. D. Prince. *Comm & Fin Chr 113:214-16 sec 2 O 29 '21*
- Symposium of articles on trust companies given before the 25th convention of the American bankers' association. *Comm & Fin Chr 111:191-204 sec 2 N 20 '20*
- Trust companies in New York and elsewhere. *Comm & Fin Chr 110:808-11 F 28 '20*
- Trust companies in New York and elsewhere. *Comm & Fin Chr 112:784-6 F 26 '21*
- Trust company returns in 7 large cities. *Comm & Fin Chr 112:805-22 F 26 '21*
- Trust officer—the man and his equipment. W: R. Hervey. *Comm & Fin Chr 113:207-8 sec 2 O 29 '21*

See also Banks and banking

Advertising

- National advertising campaign for trust companies. *Ptr Ink 110:69-70 Mr 18 '20*

Trustees system service corporation

- Goal of the builders. G. M. Briggs. 127p
- Trustees system pub. corporation, Chicago '21

Trusts, Industrial

- American foreign trade, as promoted by the Webb-Pomerene and Edge acts. W: F: Notz and R: S. Harvey. 593p Bobbs '21
- Anti-trust proceedings by the U.S. government against the tile and cement manufacturers. *Comm & Fin Chr 113:1322-4 S 24 '21*
- Combinations of industry under federal supervision favored by War industries board. *Comm & Fin Chr 112:1229-30 Mr 26 '21*

- Dangers of discriminating prices and export duties. T. Tittoni. *Comm & Fin Chr 113:1101-2 S 10 '21*

- Les ententes entre producteurs et entre vendeurs. J. Carlioz. *Chimie & Ind 6:111-17 Jl '21*

- Fifty years a trader. C: R. Flint. *il System 40:152-5+, 558-60+ Ag, N '21*

- Frenzied finance in quicksilver. W. Gustin. *Eng & Min J 109:75-8 Ja 10 '20*

- Industrial consolidation. C: R. Flint. *Comm & Fin Chr 112:2706-7 Je 25 '21*

- New war on the trusts and price fixers. E: A. Bradford. *Annalist 17:659-60 Je 20 '21*

- Trust mania in Germany. F: Simpich. *il Nation's Business 9:16-18 My '21*

- U.S. Supreme court finds Reading coal combination in violation of Sherman anti-trust act. *Comm & Fin Chr 110:1816-17 My 1 '20; Ry Age 68:1298-1300 Ap 30 '20*

See also Competition; Corporations; Government ownership; Interstate commerce commission; Railroads; Restraint of trade; Tariff; also Reading company

Trusts and trustees

- Trust estates as business companies. J: H. Sears. 2d ed. 782p Vernon law book co., Kansas City, Mo. '21

Truxillic acids

- Über die 6. säure der truxillsäure-gruppe, ζ-truxinsäure (zetruixinsäure). R. Stoermer and F. Scholtz. *Deutsche Chem Gesell Ber 54:85-96 Ja '21; Abstract (Sixth acid of the truxillic acid series, ζ-truxinic acid). Chem Soc J 120 pt 1:180-2 Mr '21*

- Über die siebente säure der truxillsäure-gruppe, die neo-truxinsäure. R. Stoermer and E. Laage. *Deutsche Chem Gesell Ber 54:96-101 Ja '21; Abstract (Seventh acid of the truxillic acid series, neotruxinic acid). Chem Soc J 120 pt 1:182-3 Mr '21*

- Über natürliche und künstliche truxill- und truxinsäuren. R. Stoermer and E. Laage. *Deutsche Chem Gesell Ber 54:77-85 Ja '21; Abstract (Natural and synthetic truxillic and truxinic acids). Chem Soc J 120 pt 1:179-80 Mr '21*

Tryptophane

- Humin formed by the acid hydrolysis of proteins; the effect of acid hydrolysis upon tryptophane. G: E. Holm and R. A. Gortner. *Am Chem Soc J 42:2378-85 N '20*

Tube mills

- Advantages of river coal and pulverized anthracite canvassed by engineers. R. D. Hall. *il diags Coal Age 18:1280-2 D 23 '20*
- Allis-Chalmers ball-granulators. *il Min & Sci P 121:645-6 O 30 '20*

- Application of ball mills in southeast Missouri; abstract. L: A. Delano and H. Rabling. *Min & Met 163:34-5 Jl '20*

- Ball-mill tests on Missouri lead ore. L: A. Delano and H. Rabling. *Eng & Min J 110: 567-8 S 18 '20*

- Convenient laboratory ball mill. A. W. Fahrenwald. *il Eng & Min J 112:579 O 8 '21*

- Curves to show what a ball mill should do. T: E. Fisher. *Eng & Min J 109:859-60 Ap 10 '20*

- Fine-grinding in ball-mills. H: Hanson. *Min & Sci P 120:17-20 Ja 3 '20*

- Helipebs. Concrete 17:sup 77 N '20

- Notes on grinding efficiency. S. L. Meyers. *Concrete 18:sup89-90 My '21; Correction. 18: sup112 Je '21*

- Steel rails as ball-mill lining. E. B. Morse. *diags Min & Sci P 122:465-6 Ap 2 '21*

- Tube-mill calculations. G: O. Deshler. *Eng & Min J 109:861 Ap 10 '20*

- Tube-mill pebbles and colloids. *Min & Sci P 123:219-20 Ag 13 '21*

See also Crushing machinery; Gold milling

Tube mills (factories)

- Heating system features new tube mill of Youngstown sheet & tube co. *il Iron Age 107:255-6 Ja 27 '21*

- Increases pipemaking capacity; Youngstown sheet & tube co. *Iron Tr R 68:157+ Ja 13 '21*

Tube mills (factories)—Continued

- New tube mill built in Detroit. E. L. Shaner. il Iron Tr R 67:1805-9+ D 30 '20
 New tube mill of Youngstown sheet and tube company in Youngstown. il Blast F & Steel Pl 9:84-5 Ja '21

See also Tubes—Manufacture

Tuberculosis

- Experiment with new serum for tuberculosis. Pop Mech 35:905 Je '21
 Industrial tuberculosis and the control of the factory dust problem. C.-E. A. Winslow and L. Greenburg. bibliog J Ind Hygiene 2: 333-43, 378-95 Ja-F '21
 Keeping workers well; how to fight tuberculosis. Factory 25:1908+ D 15 '20
 La lutte antituberculeuse dans la grande industrie. L. Petit. Chimie & Ind 4:551-3 O '20
 Prevalence and causes of consumption among miners of Butte, Mont. Monthly Labor R 12: 1229-32 Je '21
 Putting the ex-consumptive back on the job; abstract. J Ind Hygiene 2:sup186-8 Ja '21
 Salvaging industrial workers; National tuberculosis association needs funds to continue its excellent work. Ind Management 60: 407-8 D 1 '20

Tuberculosis, Hospitals and sanatoriums for
 Tuberculosis sanatorium at Mount McGregor, N.Y., for the employees of the Metropolitan life insurance company. D. E. Waid. il diags plans Arch Forum 32:15-20, pl 1-6 Ja '20

Tubes

- Collapsing strength of iron pipes and tubes. W. F. Schaphorst. chart Power Pl Eng 25:431 Ap 15 '21
 Time-saving tube and rod chart. M. D. Casler. chart diag Am Mach 52:67-70 Ja 8 '20
 See also Chemical apparatus; Pipes

Manufacture

- Davis-Bournonville tube manufacturing equipment. il Mach 28:241-4 N '21; Am Mach 55: 777-8 N 10 '21
 La fabrication des tubes sans soudure par laminage oblique, système Mannesmann. F. Couleru. diags Génie Civil 79:225-9 S 10 '21
 Machine for cutting off and counterboring tubing. J. A. H. Phillips. diags Mach 26: 1153 Ag '20
 Machines applied to making small tubes. L. Broemel. diags Sheet Metal Worker 12:407-9 Jl 8 '21
 Manufacture of seamless tubes. K. Gruber. Blast F & Steel Pl 9:212, 247-52, 320-3, 442-4 Mr-My, Jl '21; Same cond. Iron Age 107:903-5, 977-80+, 1049-52, 1114-18 Ap 7-28 '21; Same. Génie Civil 79:225-9, 247-9 S 10-17 '21
 Mold serves as electric furnace. E. C. Kreutzberg. il diags Iron Tr R 69:33-5 Jl 7 '21; Same. Foundry 49:772-4 O 1 '21
 Seamless tubing. L. Wolffgram. Metal Ind 19:112 Mr '21
 Tube welding by the oxy-acetylene process. F. W. Smith. il diags plan Am Mach 51: 845-8 N 13 '19

See also Tube mills (factories)

Tubes, Brass

- Hard soldering and brazing joints for copper and brass tubing. J. E. Springer. diags Textile World 58:3859+ D 4 '20
 Internal stresses in brass tubes. R. H. N. Vaudrey and W. E. Ballard. il Engineering 111:421; Discussion. 430-2 Ap 8 '21
 Non-ferrous metal specifications of the S.A.E.; seamless brass tubing. Soc Auto Eng J 8:186 F '21

Manufacture

- Making seamless brass tubes. O. A. Kenyon. il Iron Age 105:1087-92 Ap 15 '20
 Making seamless copper and brass tubing. E. K. Hammond. il diags Mach 26:487-93 F '20
 Seven centuries of brass making; phono-electric wire—brass and copper tubes. O. A. Kenyon. il Am Mach 53:1033-9 D 2 '20

Tubes, Copper

- Hard soldering and brazing joints for copper and brass tubing. J. E. Springer. diags Textile World 58:3859+ D 4 '20

Manufacture

- Hooker method of extrusion; extruding brass cartridge shells and seamless copper radiator tubes. G. Frazar. il Iron Age 107:453-7 F 17 '21
 Making seamless copper and brass tubing. E. K. Hammond. il diags Mach 26:487-93 F '20
 Making seamless copper tubing. il diags Iron Tr R 66:638-41 F 26 '20
 Seven centuries of brass making; phono-electric wire—brass and copper tubes. O. A. Kenyon. il Am Mach 53:1033-9 D 2 '20

Tubes, Glass

- Glass tubes by machine. il Sci Am 125:222-3 S 24 '21

Tubes, Rubber

- Molding inner tubes by the pneumatic process. diags India Rubber W 63:32-3 O '20

Tubes, Steel

- Electrically treated light wall tubing. H. P. MacDonald. il diags Iron Age 105:249-51 Ja 22 '20
 Making drawn steel tubes. il diags Gas Age 46:131-5 Ag 25 '20
 Manufacturing seamless steel tubes. il diags Mach 26:1013-18 Jl '20; Same abr. Blast F & Steel Pl 8:487-93 S '20; Excerpt. Iron Age 106:377-9 Ag 12 '20; Excerpt. Ry Mech Eng 94:601-2 S '20
 New tube mill built in Detroit. E. L. Shaner. il Iron Tr R 67:1805-9+ D 30 '20
 Seamless steel tubing industry. Blast F & Steel Pl 9:92-3 Ja '21
 Segregation in bars for steel tubing. H. D. Newell. il Chem & Met Eng 23:745-6 O 13 '20

Tuck school. See Dartmouth college—Amos Tuck school

Tuff, Volcanic. See Volcanic ash, tuff, etc.

Tugboats. See Towboats

Tulsa, Oklahoma**Water supply**

- Tulsa water situation. Eng N 87:719 N 3 '21
 Water supply of Tulsa. H. N. Roberts. il Pub Works 48:413-16 My 15 '20

Tulsa purchasing agents association

- Agents find means to fight pipe profiteers. Nat Pet N 12:30+ Ap 7 '20

Tumbling barrels

- Home-made water tumbling-barrel. J. Vincent. il Am Mach 53:634 S 30 '20
 Standard sand blast barrel. il Metal Ind 17: 140-1 Mr '20; Foundry 48:292 Ap 1 '20; Iron Tr R 66:1207 Ap 22 '20
 Tumbling brass castings. W. H. Parry. Metal Ind 19:195 My '21

Tumors

See also Bladder tumors

Tung oil

- Report of sub-committee on testing of paint vehicles; tests of tung oil. Am Soc T M Pro v 20 pt 1:390-404, 819-21 '20

Tungsten

- Chinese tungsten and the American market. H. Koppel. Eng & Min J 111:308-9 F 12 '21
 Contact-metamorphic tungsten deposits of the United States. F. L. Hess and E. S. Larsen. il diags maps plans U S Geol S Bul 725—D: 245-309 '21
 Effect of strong electrostatic fields on the vaporization of tungsten. A. G. Worthing and W. C. Baker. Phys R 17:239-40, 418-20 F-Mr '21; Same. J Fr Inst 191:833-7 Je '21
 High temperature phenomena of tungsten filaments. C. J. Smithells. Electrician 87:241 Ag 19 '21
 Historical notes on tungsten refining in Europe. C. Matignon. Chem & Met Eng 23: 696-8 O 6 '20

Tungsten—Continued

- Industrial applications of hydrogen; manufacture of tungsten and molybdenum. H. L. Barnitz. *diags Sci Am M* 3:347-8 Ap '21
- Manufacture and uses of tungsten. W. E. John. *Min & Sci P* 122:879-80 Je 25 '21
- Metallurgy of tungsten. *Eng & Min J* 111:1070 Je 25 '21
- Metallurgy of tungsten. *Sci Am* 123:526 N 20 '20
- Metallurgy of tungsten; discussion. J. L. F. Vogel; C. H. Desch. *Engineering* 110:415-16 S 24 '20
- Mining and milling tin-tungsten ore in Tasmania. W. E. Hitchcock and J. R. Pound. *Min & Sci P* 120:229-31 F 14 '20
- Molten tungsten. H. Lohmann. *Sci Am M* 4:155-6 Ag '21
- New developments in the manufacture of tungsten and its compounds. *Chem & Met Eng* 25:120 Jl 20 '21; Same. *Sci Am M* 4:375-6 O '21
- Political and commercial geology series; the tungsten resources of the world. F. L. Hess. *map Eng & Min J* 108:715-22 N 1 '19
- Possibilities of tungsten-bearing deposits. C. Stoddard. *Eng & Min J* 112:445 S 17 '21
- Production of metallic tungsten at Keeler, Cal. *Chem & Met Eng* 24:374 Mr 2 '21
- Reaction between tungsten and naphthalene at low pressures. M. R. Andrews and S. Dushman. *J Fr Inst* 192:545-6 O '21
- Reducing tungsten ore. T. Sington. *Eng & Min J* 109:879-80 Ap 10 '20
- Romance of invention; Dr W. D. Coolidge's invention makes tungsten workable, revolutionizes the lighting industry and makes the X-ray an instrument of precision. C. H. Claudy. *Sci Am* 123:282+ S 18 '20
- Romance of tungsten. G. Gaulois. *il Sci Am* 123:130+ Ag 7 '20
- Short tungsten filament as a source of light and electrons. G. Stead. *diag Inst E E J* 58:107-17 Ja '20
- Small tungsten production in 1920. *Eng & Min J* 111:1027 Je 18 '21
- Some practical operating features of tungsten filament electron tubes. W. C. White. *diag Gen Elec R* 23:840-6 O '20
- Some unique Bolivian tungsten deposits. F. L. Hess. *il Eng & Min J* 112:492-9 S 24 '21
- South American trade and the tungsten tariff. R. H. Hepburn. *Eng & Min J* 109:1105 My 15 '20
- Total emissive powers and resistivities of tungsten at incandescence. A. G. Worthing and W. E. Forsythe. *Phys R* 18:144-7 Ag '21
- Tungsten deposits of Burma and their origin. J. M. Campbell. *Econ Geol* 15:511-34 S '20
- Tungsten in China. *Min & Sci P* 120:90 Ja 17 '20
- Tungsten in 1917. F. L. Hess. *U S Geol S Min Res of U S* 1917,pt 1:931-47 '20
- Tungsten in 1918. F. L. Hess. *U S Geol S Min Res of U S* 1918,pt 1:973-1026 '21
- Tungsten market situation in 1919. C. Hardy. *Eng & Min J* 109:210-11 Ja 17 '20
- Tungsten market in 1920. C. Hardy. *Eng & Min J* 111:146 Ja 22 '21
- Tungsten mining in China. R. Slessor. *map Eng & Min J* 109:344-5 Ja 31 '20
- Tungsten mining in 1920. F. W. Horton. *Eng & Min J* 111:146-7 Ja 22 '21
- Tungsten mining industry in 1919. G. J. Young. *Eng & Min J* 109:211-12 Ja 17 '20
- Tungsten ores. R. H. Rastall and W. H. Wilcockson. J. Murray, London '20
- Tungsten situation in Peru. *Chem & Met Eng* 21:739 D 10 '19
- Tungsten tariff and national policy. R. H. Hepburn. *Eng & Min J* 109:688-90 Mr 20 '20
- Le tungstène; minerais, métallurgie, propriétés et applications. C. Matignon. *il diags Chimie & Ind* 3:277-92, 442-34 Mr-Apr '20; Abstract. *Génie Civil* 77:239-40 S 18 '20
- Volumetric method for determination of tungsten. G. M. Enos. *diag Min & Sci P* 120:869-70 Je 12 '20
- Wolfram mining in China. C. Y. Wang. *Eng & Min J* 109:16 Ja 3 '20

Wrought tungsten. I. Langmuir. *Min & Met* 178:40 O '21; Same cond. *Mach* 28:37 S '21

Bibliography

- Review of the recent literature on the tungsten deposits of Burma. H. W. Turner. *Econ Geol* 14:625-39 D '19
- Tungsten in 1917; publications. *U S Geol S Min Res of U S* 1917,pt 1:947-54 '20

Patents

- Coolidge wrought tungsten patent is declared valid. *Chem & Met Eng* 23:121-2 Jl 21 '20
- Method of obtaining pure tungsten; patent. *Chem & Met Eng* 22:233 F 4 '20
- Tungsten powder from sodium or potassium tungstate. *diag Chem & Met Eng* 24:896 My 18 '21
- Tungsten lamps. See Electric lamps, Tungsten
- Tungsten steel
- Constituents found in tungsten and molybdenum steels. A. M. Portevin. *il Engineering* 112:372-3 S 9 '21
- Constitution of chromium:tungsten steels. *il Chem & Met Eng* 24:791-3 My 4 '21
- Metallographic study on tungsten steels. A. Hultgren. 95p Wiley '20
- Ein neues aetzmittel für chrom- und wolframstähle. K. Daerves. *il Stahl & Eisen* 41:1262-4 S 8 '21
- Quelques constantes physiques des aciers au tungstène. K. Honda and T. Maturhita. *diags Chimie & Ind* 4:207-8 Ag '20
- Recent work on chromium:tungsten steel—methods of magnetic analysis. *diags Chem & Met Eng* 24:573-5 Mr 30 '21
- Structure of tungsten steels. *il Chem & Met Eng* 24:745-8 Ap 27 '21
- Tunnel kilns. See Kilns
- Tunnel lining
- Circular forms and tamped concrete hold swelling tunnel ground; San Pablo tunnel. *diag Eng N* 86:737 Ap 28 '21
- Concrete for lining railroad tunnel poured through 50-ft. drill holes. *il diag Eng & Contr* 54:159-60 Ag 18 '20
- Concrete lining for cast iron tunnel. *il Pub Works* 49:247-9, 471-3, 511-12 S 18, N 20-27 '20
- Concreting small tunnel under difficult circumstances by pneumatic method. *diag Eng & Contr* 54:486-7 N 17 '20
- How to drive small earth tunnels. *Pub Works* 51:263-5 O 1 '21
- Hudson vehicle tunnel discussed. G. W. Goethals. *Eng N* 84:729-32 Ap 8 '20
- Liberty tunnel, Pittsburgh. *il diags Pub Works* 51:59-62 Jl 23 '21
- Lining rock tunnels in New York. *il Pub Works* 49:185-7 Ag 28 '20
- Lining the Canadian Pacific's five-mile tunnel. *il Ry Age* 71:525-7 S 17 '21
- Method of lining the Connaught tunnel of Canadian Pacific Ry. *il Eng & Contr* 55:393-4 Ap 20 '21
- New machine completes tunnel in one operation. *il diag Eng N* 87:555-6 O 6 '21
- Newark sewer tunnel. *il diags Pub Works* 48:221-3 Mr 20 '20
- Plant and equipment for lining the Selkirk tunnel. *il Eng N* 86:418-20 Mr 10 '21
- Pneumatic concrete mixer for Jap tunnel. *diags Pub Works* 50:452-4 My 28 '21
- Pressed steel tunnel linings. *il Iron Age* 108:336 Ag 11 '21
- Relining Pacific coast railroad tunnels with concrete. *il diag Eng N* 87:134-7 Jl 28 '21
- Report of the American railway bridge and building association on lining tunnels under traffic. *Ry R* 69:613-19 N 5 '21; Same. *Eng & Contr* 56:456-9 N 16 '21; Excerpts. *Ry Age* 71:783 O 22 '21
- Small tunnel lined by pneumatic method. H. B. Kirkland. *diag Eng N* 85:343 Ag 19 '20
- Tunnel concrete lining placed by pneumatic gun. W. D. Shannon. *il diags Eng N* 87:14-15 Jl 7 '21
- Tunnel lining by depositing concrete through holes from above. *il Ry R* 67:422-3 S 18 '20

Tunnel lining—Continued

- Tunnel lining continued beyond portals for protection from slides. *il Eng N 87:247 Ag 11 '21*
 Tunnel lining set on fire by lime. *Ry R 67:795 N 20 '20*
 Tunneling the Selkirks; the pneumatic placing of concrete. *il Sci Am 125A:50-1 N '21*

Cost

- Controversy over concrete-block tunnel construction. *Eng N 84:624-6 Mr 25 '20*

Tunnel ventilation

- Automobile exhaust gases in tunnels; abstracts. A. C. Fieldner. *Soc Auto Eng J 6:269 Ap '20; Sci Am M 1:548 Je '20*
 Bureau of mines will investigate tunnel ventilation problems. *Chem & Met Eng 22:295 F 18 '20*
 Chemical problems in the ventilation of vehicular tunnels. A. C. Fieldner. *Heat & Ven 18:33-4 Ja '21*
 Co-operative investigations on tunnel ventilation. *Eng & Contr 55:265-6 Mr 16 '21*
 Danger of automobile exhaust gas. V. H. Manning. *Sci Am M 1:64-6 Ja '20*
 Experiments in tunnel ventilation. *Ry R 68:356-7 Mr 5 '21*
 Gasoline losses due to incomplete combustion in motor vehicles; abstracts. A. C. Fieldner, A. A. Straub and G. W. Jones. *il diags J Ind & Eng Chem 13:51-7 Ja '21; Soc Auto Eng J 8:295-305 Ap '21; Discussion. J Ind & Eng Chem 13:57-8 Ja '21; Soc Auto Eng J 8:451-66 My '21*
 How much air for the tunnel? G. H. Dacy. *il Sci Am 125:42+ Jl 16 '21*
 Method for rapid removal of powder smoke in tunnels. W. S. Weeks and G. L. Wolfin. *il diags Eng & Min J 112:699-700 O 29 '21*
 Model of vehicular tunnel for experimental purposes. *il Pop Mech 36:42 Jl '21*
 Motor-car gases in tunnel create problem. J. A. Ford. *il diag Pop Mech 36:393-5 S '21*
 Structural design and ventilation of Liberty tunnels. *il diags plan Eng N 85:52-3 Jl 8 '20*
 Sudden death versus slow poisoning in the Hudson vehicular tunnel. F. L. Hoffman. *Sci Am 123:497 N 13 '20*
 Tests fix vehicle tunnel ventilation policies. *Eng N 86:602-3 Ap 7 '21; Discussion. C. M. Holland. 86:960-1 Je 2 '21*
 Ventilation of the Hudson river tunnel. *Sci Am 123:249 S 11 '20*
 Ventilation of the New York-New Jersey vehicular tunnel. *il diag map plan Am Soc Heat & V E J 27:302-20 Ap '21; Abstract. Heat & Ven 18:53 My '21*

Tunneling machines

- New machine completes tunnel in one operation. *il diag Eng N 87:555-6 O 6 '21*
 Tunneling machines successful on Detroit sewers. *Eng N 84:329-31 F 12 '20*

Tunnels and tunneling

- Battery on trolley-type locomotive speeds tunneling. R. C. Starr. *il diags Elec W 78:424-5 Ag 27 '21*
 Breaking the Michigan record in tunnel driving. *il Eng & Min J 109:698 Mr 20 '20*
 Brooklyn-Richmond freight and passenger tunnel. *map Ry Age 71:836 O 29 '21*
 La construction des tunnels par la méthode Kunz. *diags Génie Civil 78:300 Ap 2 '21*
 Despite a high hill and winding approach tunnel rapidly and accurately driven. M. W. Venable. *diag plan Coal Age 19:704-5 Ap 21 '21*
 Draining concrete railroad tunnels. *Eng N 87:113 Jl 21 '21*
 Driving sewer tunnel in rock. *diags Pub Works 49:558-60 D 11 '20*
 Electric mucking machine used on Hetch Hetchy tunnels. *Eng N 83:996 D 11 '19*
 Fast railway tunneling in France during the war. A. Moutier. *diag Eng N 85:844 O 28 '20*
 Fire protection for railway timbered tunnels. H. Pollard. *Eng N 87:731 N 3 '21*
 Heavy work and novel arrangement of new Louisville & Nashville R.R. loop. *il Eng & Contr 56:369 O 19 '21*

- Hetch-Hetchy aqueduct tunnel. *il Pub Works 48:508-9; 51:21-2 Je 12 '20, Jl 9 '21*
 How to drive small earth tunnels. *Pub Works 51:243-5, 263-5 S 24-O 1 '21*
 Lengthening the Parsons tunnel on the Great Western railway. *il diags plan Engineer 131:256-7, 259 Mr 11 '21; Same. Eng & Contr 55:631-2 Je 29 '21; Abstract. Eng N 86:1108 Je 30 '21*
 Liberty highway tunnels of Allegheny county, Pennsylvania. *il Good Roads n s 20:257-8 D 1 '20*
 Liberty tunnel, Pittsburgh. *il diags Pub Works 51:59-62 Jl 23 '21*
 Liberty tunnels driven by full-section excavation. *il Eng N 87:478-80 S 22 '21*
 Methods and costs of constructing tunnel for heating and power lines. W. C. Huntington and W. E. Brockway. *diags map Eng & Contr 53:459-62 Ap 21 '20*
 Mountain lake siphoned down to connect tunnel outlet. F. T. Crowe. *il diags Eng N 85:80-1 Jl 8 '20*
 Mountain tunnels carry irrigation water in Twin Lakes region of Idaho. F. Kinney. *il Pop Mech 34:729-30 N '20*
 Mucking with steam shovels speeds up tunnel driving. *il Eng N 84:314-15 F 12 '20*
 Newark sewer tunnel. *il diags Pub Works 48:221-3 Mr 20 '20*
 Notes on California rock tunneling practice; sizes, methods and terms of contracts. A. J. Cleary. *il diag Eng N 86:1082-5 Je 23 '21*
 Operation and maintenance of the Gunnison irrigation tunnel. F. D. Pyle. *diags Eng & Contr 54:231-2 S 8 '20*
 Piercing New Zealand's mountain barrier. O. Johnson. *il Sci Am 122:363+ Ap 3 '20*
 Piercing the Catskills for water; some constructional details of the 18-mile tunnel under the Shandaken Mountains. R. G. Skerrett. *il Sci Am 122:538+ My 15 '20*
 Pivoted jacks to prevent rotation of tunnel shields. *il diags Eng N 86:892 My 26 '21*
 Pneumatic hand shovels hasten tunnel excavation. G. C. D. Lenth. *il diag Eng N 86:500-1 Mr 24 '21*
 Progress of Alpine tunnels. *Engineer 131:348 Ap 1 '21*
 Reconstructing a tunnel with modern methods. *il diags map Ry Age 71:5-8 Jl 2 '21; Same. Eng & Contr 56:53-4 Jl 20 '21*
 Reconstruction of bridges and tunnels in France. O. F. Allen. *il Ry Age 70:973-6 Ap 22 '21*
 Reinforced concrete tunnel construction on Bagdad Ry. *diag Eng & Contr 53:349 Mr 31 '20*
 Renewal of overhead construction in the Hoosac tunnel. *Eng & Contr 55:167 F 16 '21*
 Restoration of underground flows cut by Alpine tunnel. *diags plan Eng N 84:1054-5 My 27 '20*
 St Louis tunnels unwatered by air lift. E. E. Wall. *diags plans Eng N 84:857-9 Ap 29 '20*
 Southern Pacific builds long tunnel to eliminate operating hazard. *il map Eng N 87:367-8 S 1 '21*
 Spader in pneumatic hammer cuts costs and expedites work on Chicago sewer tunnel. *il Eng & Contr 55:404-5 Ap 20 '21*
 State of Colorado proposes three railway tunnels. *map Eng N 84:716-17 Ap 8 '20*
 Structural design and ventilation of Liberty tunnels. *il diags plan Eng N 85:52-3 Jl 8 '20*
 Swiss engineers seek data on pressure tunnel construction. *Eng N 87:285 Ag 18 '21*
 Tables for designing non-pressure water and sewer tunnels. J. Hinds. *Eng N 87:693-4 O 27 '21*
 Timbered and roof-shield tunneling in deep loose-ground subway section. W. C. Briggs. *il diags Eng N 87:676-81 O 27 '21; Discussion. 87:867 N 24 '21*
 Tunnel building in Nicaraguan jungles. H. L. Thackwell. *il diag map Eng N 86:821-3 My 12 '21*
 Tunnel built above ground and pushed into place. *il Pop Mech 36:724 N '21*

Tunnels and tunneling—Continued

- Tunnel construction on new Stevenage line of Great Northern railway (England). diag Eng & Contr 55:303-4 Mr 30 '21
- Tunnel maintenance. O. G. C. Drury. Engineering 112:30-1 JI 1 '21; Discussion. Engineer 132:31 JI 8 '21; Engineering 112:21, 49 JI 1-8 '21
- Tunnel widening on the Virginian railway. il diags Ry R 68:387-9 Mr 12 '21; Excerpt. Eng & Contr 55:397 Ap 20 '21
- Tunneling and lining the penstocks for the extension to the Niagara Falls power company's station No. 3. G. W. Hewitt. il Eng N 85:698-701 O 7 '20; Same. Can Eng 39:343-5 S 16 '20
- Tunneling in the sand dunes of the Belgian coast. H. Tatham. diags Engineering 110:178-9 Ag 6 '20
- Tunneling through soft ground. R. W. Jones. diags Eng & Min J 111:625-6 Ap 9 '21; Same. Eng & Contr 55:583 Je 15 '21
- World's longest tunnel for New York's water supply. il diag maps Pub Works 50:465-71, 496-8 Je 4-11 '21
- See also Blasting; Drilling and boring (earth and rocks); Excavation; Mining engineering; Rock drills; Subways; Tunnel lining; Tunnel ventilation; Tunneling machines

Cost

- Cost of driving 8,700 ft. of tunnel by station men. il Eng & Contr 52:689-90 D 17 '19
- Tunnel driving in war and peace; Spiro tunnel project, near Park City, Utah. H. A. Lee. il Eng & Min J 111:587-8 Ap 2 '21; Same. Eng & Contr 55:395 Ap 20 '21
- What is the cost of tunnel rock excavation? Pub Works 50:13-15 Ja 1 '21
- Tunnels and tunneling, Subaqueous**
- Central station supplies power for long tunnel. Elec R 77:107 JI 17 '20
- Concrete block vehicular tunnel investigation. Pub Works 48:549-51 Je 19 '20
- Construction of conduit tunnels under bodies of water. Elec R 78:541-2 Ap 2 '21
- Controversy over concrete-block tunnel construction. Eng N 84:624-6 Mr 25 '20
- Fourteenth street tunnel, New York. il diags Pub Works 48:74-7 F 7 '20
- Hudson river vehicular tunnel. diags plans Engineer 130:394-6 O 22 '20
- Hudson river vehicular tunnel. J. F. O'Rourke. Pub Works 48:406-8 My 8 '20
- Hudson vehicle tunnel designs and bidding methods. C. M. Holland. Eng N 84:777-9 Ap 15 '20
- Hudson vehicle tunnel discussed. G. W. Goethals. Eng N 84:729-32 Ap 8 '20
- Hudson vehicular tunnel at New York. diags plan Ry R 68:309-13, 353-6 F 26-Mr 5 '21
- Keeping the river tunnel dry. M. A. Henry. il Sci Am 123:99 JI 31 '20
- Largest American shield tunnel designed to carry vehicular traffic under Hudson river. diag plans Eng N 84:357-64 F 19 '20
- Mathematical analyses of concrete block tunnels. diags Pub Works 49:74-6 JI 24 '20
- Method of driving river Dee tunnel through water bearing strata. R. F. Baker. Eng & Contr 55:299-300 Mr 30 '21
- New York-New Jersey vehicular tunnel. Pub Works 48:212-13 Mr 20 '20
- Pneumatic caisson tunnel shafts. il Pub Works 48:539-42 Je 19 '20
- Recovery of flooded sewer tunnels at Milwaukee. il diags Eng N 87:4-8 JI 7 '21
- Taylorville dam controlling conduits. il diag Pub Works 48:464-6 My 29 '20
- Tunnel of twin steel tubes under the Elbe at Hamburg. Pop Mech 36:398 S '21
- Tunneling in silt. diags Pub Works 48:372-4 My 1 '20
- World's greatest vehicular tunnel. R. G. Skerrett. il Sci Am 122:510+ My 8 '20

Turbidimeter

- New turbidimeter for solutions of gelatin, cellulose, and varnishes. S. E. Sheppard. il J Ind & Eng Chem 12:167-9 F '20

Turbidity

- Turbidity standard of water analysis. P. V. Wells. il U S Bur Stand Sci Pa 367:693-721 '20

Turbines

- Advances in the art of waterwheel designs and settings. W. M. White. il diags Am Inst E E J 40:668-82 Ag '21; Abstract. Power 54:76-8 JI 12 '21
- Centrifugal Pelton jet deflector. il diag Engineer 129:583 Je 4 '20
- Current progress in water-wheel design and operation. Eng N 84:1208 Je 17 '20
- Descendants of the water-wheel; installations for developing hydroelectric power. J. F. Springer. il Sci Am 123:82+ JI 24 '20
- Design of the Allis-Chalmers unit for the extension to the Niagara Falls power company's station No. 3. W. M. White. il Eng N 85:650-3 S 30 '20; Same. Can Eng 40:115-16, 123-4 Ja 6-13 '21; Abstract. Elec W 76:679-81 O 2 '20
- Details of the I. P. Morris unit for the extension to the Niagara Falls power company's station No. 3. L. F. Moody. il Eng N 85:648-50 S 30 '20; Same. Can Eng 39:340-2 S 16 '20; Same cond. Elec W 76:679-82 O 2 '20
- Details of turbine settings for the extension to the Niagara Falls power company's station No. 3. L. S. Bernstein. il diag Eng N 85:587-8 S 23 '20; Same cond. Can Eng 39:342-3 S 16 '20; Excerpts. Elec W 76:568 S 18 '20
- Diagram to determine turbine specific speed. E. A. Van Deusen. chart Eng N 86:806 My 12 '21
- Discussion of modern hydraulic turbines. F. H. Rogers. Power 53:196 F 1 '21
- Features of design in large hydraulic turbines. F. H. Rogers. il diags Gen Elec R 22:849-52 N '19
- 515-ft. head 20,000-h.p. vertical hydraulic turbines. il Engineering 111:682, 684 Je 3 '21
- 50,000-hp. wheels for 500,000-hp. Queenston-Chippawa plant. E. T. J. Brandon. il map plan Elec W 77:697-9 Mr 26 '21
- Fundamental principles of water power engineering. F. F. Fergusson. 116p [bibliog. p. 112-13] Pitman '21
- High-speed wheels for low-head plants. A. Streiff. il diag Elec W 76:121-2 JI 17 '20
- Hydraulic design and efficiency of units and plant of Niagara Falls power company. N. R. Gibson. il diag Elec W 76:566-7 S 18 '20; Same. Can Eng 39:339-40 S 16 '20; Same. Eng N 85:646-53 S 30 '20
- Hydraulic turbines for electric generators. L. W. Wyss. il diags Power Pl Eng 25:267-8 Mr 1 '21
- Hydroelectric plant. N. L. Devendorf. diags Power 54:484-6, 513-16 S 27, O 4 '21
- Hydro-electric practice—features of design. C. Voetsch. il diags Power 53:818-23 My 24 '21
- Important features in the design of high-head reaction turbines. F. H. Rogers. il diag Power 54:244-8 Ag 16 '21; Abstract. Sci Am M 4:382 O '21
- Impulse turbines utilize wide range of head and flow. il Eng N 85:278 Ag 5 '20
- Increasing efficiency by speed control of turbine driven pulp grinders. A. F. Meyer. il charts Paper 26:11-19 My 19 '20
- Installations de dessablage des eaux. pour éviter l'usure rapide des turbines. H. Dufour. Génie Civil 77:278 O 2 '20
- Kaplan hydraulic turbine. diags Mech Eng 42:516-17 S '20; Abstract. Sci Am M 3:279-80 Mr '21
- Largest European waterwheels on the Glomfjord in Norway. Power 54:595 O 18 '21
- Modern developments of hydraulic turbine design. R. E. Horton. Eng N 85:683-5 O 7 '20; Discussion. W. S. Pardoe. 85:1006-7 N 18 '20
- Modern hydraulic turbines—requirements and tests on models. F. H. Rogers. il chart diags Power 53:583-7, 615-18 Ap 12-19 '21
- New analytical theory of water turbines. A. Petot. diag Mech Eng 42:689-92 D '20

Turbines—Continued

- New hydraulic turbine. M. Burger. diag Mech Eng 43:345-6 My '21; Discussion. F. Nagler. 43:622 S '21
- New type of hydraulic-turbine runner. F. Nagler. il Mech Eng 41:921-5 D '19; Abstracts. Elec R 76:69 Ja 10 '20; Power 51:81-2 Ja 13 '20; Eng N 84:271-2 F 5 '20; Power Pl Eng 24:337-40 Mr 15 '20
- New type of water turbine. il diags Engineer 131:518-19 My 13 '21
- New type of waterwheel. diag Power 54:101 Jl 19 '21
- New western turbine installations. L. F. Moody. il J Elec 46:119-20 F 1 '21
- Pelton wheel reconstruction. P. Pitman. il diags Engineering 109:851-3 Je 25 '20; Abstract. Mech Eng 42:520-1 S '20
- Present trend of turbine development. L. F. Moody. il diags Mech Eng 43:235-44 Ap '21; Discussion. A. F. Sherzer; L. F. Moody. 43:488-9 Jl '21
- Recent advances in utilisation of water power. E. M. Bergstrom. il diags Engineering 109:140-3, 191-7, 227-32 Ja 30-F 13 '20; Same cond. Engineer 129:110-11, 146-7, 172-3 Ja 30-F 13 '20; Abstracts. Elec R 76:400-3 Mr 6 '20; Eng & Contr 53:360-2 Mr 31 '20; Mech Eng 42:513-15 S '20
- Regulating hydro-electric prime movers. C. F. Mosher. Elec W 76:280-1 Ag 7 '20
- La régulation des turbines. Eydoux and Gariel. Génie Civil 78:260-1 Mr 19 '21
- Repair and inspection of hydraulic turbines. L. W. Wyss. Elec W 76:1064-5 N 27 '20
- Repairing waterwheel runner by electric welding. J. H. Siegfried. il Elec W 77:769 Ap 2 '21
- Les roues Pelton. Génie Civil 78:45 Ja 8 '21
- Seewer Pelton wheel regulator. J. H. Blakey. il diags Power Pl Eng 24:145 Ja 15 '20
- Some features of modern hydro-electric practice. H. M. Turner. Power 52:352-3 Ag 31 '20
- Speed regulation of hydraulic turbines. J. S. Carpenter. charts diags plan Power Pl Eng 25:947-50, 990-3 O 1-15 '21
- Speed regulation of the hydraulic turbine. R. D. Johnson. diags Mech Eng 43:245-6+ Ap '21
- Tendencies in development of hydraulic prime movers. S. L. Shuffleton. il J Elec 46:116-18 F 1 '21
- Tidal power development. A. H. Gibson. diags Engineering 110:793-5 D 17 '20
- Tour in Italy and France. N. Davey. il diags (supp) plan Engineer 128:456-7, 506, 603-4 N 7, 21, D 19 '19; Abstracts. Mech Eng 42:57-9 Ja '20; Power 51:62 Ja 13 '20; Sci Am M 1:82 Ja '20
- Turbines for Niagara's high-head plant. il diag Iron Age 106:1453-7 D 2 '20; Same abr. Can Eng 40:185-6a F 3 '21; Abstract. Génie Civil 78:216-17 Mr 5 '21
- Les turbines Francis modernes. Génie Civil 78:69 Ja 15 '21
- Turgo impulse water turbine. il diags Engineer 131:411 Ap 15 '21
- L'usine hydro-électrique de Vamma (Norvège); les turbines hydrauliques Jensen et Dahl. il diag Génie Civil 77:414-16 N 20 '20
- Vertical-shaft waterwheel-driven alternators—mechanical features. S. H. Mortensen. il Power 51:698-700 My 4 '20
- Water wheels for braking and initial power. C. H. Tallant. il J Elec 44:163-4 F 15 '20
- See also Draft tubes; Gas turbines; Governors (machinery); Steam turbines; Water wheels; Wave motors

Fallures

- Turbine case blowout repeated at Wachusett power house. il Eng N 85:74-5 Jl 8 '20

Lubrication

- Lubrication of hydraulic turbines; abstract. Mech Eng 43:264 Ap '21
- Recooling the lubricating oil from turbine bearings and reduction gears. S. E. Derby. diags Power 54:179-81 Ag 2 '21
- Worm-gear oiling device. L. W. Kelly. diags Power 54:424 S 13 '21

Manufacture

- Casting a 60,000 h.p. hydraulic turbine. Sci Am 124:189 Mr 5 '21
- Machining large water turbines. F. H. Colvin. il Am Mach 53:1234-6 D 30 '20

Terminology

- Turbines and waterwheels; terminology. C. H. Tallant. Elec W 75:324 F 7 '20

Testing

- New methods of water measurement in efficiency tests of 37,500-hp. turbines; abstracts. N. R. Gibson. il diags Power 53:452-8 Mr 22 '21; Eng N 86:465-8 Mr 17 '21; Elec W 77:591-3 Mr 12 '21; Mech Eng 43:247-8 Ap '21
- Quick and economical waterwheel test. R. C. Starr. il diag Elec W 78:509-13 S 10 '21
- Tests of an impulse water turbine. Engineering 112:504 O 7 '21
- Turbines, Gas.** See Gas turbines
- Turbines, Mercury vapor.** See Boilers, Mercury
- Turbo-alternators.** See Electric generators, Alternating current
- Turbo-blowers.** See Blowers
- Turbo-compressor.** See Airplane engines—Superchargers
- Turbo-generators.** See Electric generators
- Turbulence.** See Flame propagation
- Turf.** See Peat
- Turkey**
- President Wilson's note making known his opposition to plan for settlement of the Turkish problem. Comm & Fin Chr 110:1380-1 Ap 3 '20
- Tripartite agreement defining spheres of influence in Turkey. Comm & Fin Chr 111:1917 sec 1 N 13 '20
- See also Trade unions—Turkey

Commerce

- Trend of Turkish thought and trade. A. J. Wolfe. il Am Ind 21:33-5 Ja '21

Industries and resources

- Mining chrome ore in Turkey. R. W. Lane. il Eng & Min J 111:749-50 Ap 30 '21
- Turkey red oil**
- Uses of Turkey red oils; a study of their properties, manufacture and laboratory tests. F. Dannerth. Textile World 59:3541+ My 28 '21
- Turmeric**
- Use of organic dyestuffs in the manufacture of lakes; chlorophyll, turmeric, cutch and fustic. B. DePuyster. Color Tr J 5:175-8 D '19
- Turnbuckles**
- Aeronautic division standardization report of the S.A.E. diags Soc Auto Eng J 8:169-71 F '21

Turning

- Axle shaft turning machine. il Iron Age 108:525 S 1 '21
- Cutting power of lathe turning tools; abstract with discussion. G. W. Burley. Engineer 128:640-1 D 26 '19; Excerpt. Ry Mech Eng 94:531 Ag '20
- Foote-Burt company's continuous drilling and turning machines. J. V. Hunter. il Am Mach 52:165-9 Ja 22 '20
- Form-turning on a boring mill. F. C. Hudson. diag Am Mach 53:31 Jl 1 '20
- Jones vertical turning and boring mill. il Iron Age 108:350 Ag 11 '21
- Rotating-tool crank pin turning machine. il diags Engineer 131:102-3 Ja 28 '21
- Sellers 35-foot boring and turning mill. il Mach 27:1065-6 Jl '21
- Time chart for lathe turning. L. deL. Berg. chart Mach 26:741 Ap '20
- Turning fixture for small cranks. J. Blakey and J. H. Shankley. diags Eng & Ind Management 5:679 Je 16 '21
- Turning tool of unusual design. W. D. Forbes. diags Mach 26:624 Mr '20

Turning—Continued

Turret tool for ball turning. H. Mohay. diags plan Am Mach 53:557 S 16 '20

See also Lathes

Turnover

Analysis of turnover. H. H. Reeves. charts Administration 2:436-58 O '21

Does turnover talk in advertising slow up the selling? G. A. Nichols. Ptr Ink 116:150+ Ag 18 '21

How do you make your profits? W. R. Basset. Am Mach 54:588-90 Ap 7 '21

Quick turnovers of capital. E. L. Seabrook. Dom Eng 90:533-4 Mr 13 '20

Short, compact line means quick, paying turnover. C. James. Ptr Ink 112:33-4 S 30 '20

Stock turnover—a deceptive index. C. S. Duncan. Annalist 18:271 S 19 '21

Students' department. H. A. Finney. J Account 32:372-6 N '21

What's wrong with distribution? how fast rates of turnover increase profits and cut overhead. N. M. Clark. il System 40:159-61+ Ag '21

What's wrong with distribution? making fast rates of turnover carry their share of merchandising profits. N. M. Clark. System 40:40-2+ Jl '21

See also Labor turnover

Turntables

Ball bearing turntable. G. H. Bailey. diags Ry Mech Eng 94:301 My '20

Cover to keep out snow complicates turntable replacement. diags plan Ry Age 71:412 Ag 27 '21; Discussion. E. R. Lewis. 71:522 S 17 '21

Lifting a turntable out of its pit without jacking. G. T. Kuntz. il Eng N 84:1005 My '20

New method of installing a new turntable in place of an old one. Ry R 67:691-2 N 6 '20; Same. Eng & Contr 54:498 N 17 '20

Placing a 100-ft. turntable by cribbing and jacks. M., K. & T. Ry. il Eng N 87:293 Ag 18 '21

Tentative specifications for bronze bearing metals for turntables and movable railroad bridges. diags Am Soc T M Pro v 20, pt 1:533-7 '20

Turntable reinforced by trussing to carry heavy engines. diags plan Eng N 83:1014 D 11 '19

Twin-span turntables on the Chesapeake & Ohio. il diags Ry R 69:563-8 O 29 '21

Turpentine

Are there suitable substitutes for turpentine?; with discussion. C. F. Mayer. Ry Mech Eng 94:948-50 O '20

Finland's export of turpentine. Oil Paint & Drug Rep 100:24 sec 1 S 5 '21

How to paint turpentine tanks and cars. Chem & Met Eng 23:887 N 3 '20

Report of the chairman at the annual meeting of the National research council; turpentine. W. D. Bancroft. J Ind & Eng Chem 12:912 S '20

Thermal decomposition of turpentine with particular reference to the production of toluene and isoprene. S. A. Mahood. il J Ind & Eng Chem 12:1152-5 D '20

Turpentine. F. P. Veitch and V. E. Grotlisch. Am Inst Arch J 9:102-3 Mr '21

Turpentine from British Columbia firs. Chem & Met Eng 23:338 Ag 25 '20

Analysis

Detection and estimation of coal-tar oils in turpentine. V. E. Grotlisch and W. C. Smith. J Ind & Eng Chem 13:791-3 S '21

Specifications

Recommended specifications for turpentine. diags U S Bur Stand Circ 86:1-11 '20; Same abr. Am Soc T M Pro v 20, pt 1:680-9 '20

Turtle Bay gardens. See New York (city)—Architecture

Turtles

Turtles, terrapins and tortoises. M. Tevis. il Sci Am M 2:21-7 Jl '20

Tussah silk

Treatment of tussah silk with neatsfoot oil. Textile World 58:2809 O 23 '20

Twilight

Duration of twilight. J. G. Sullivan. diag Can Eng 38:373-4 Ap 15 '20

Twin Falls, Idaho**Water supply**

Twin Falls, Idaho, water supply and purification plant. R. E. McDonnell. il Munic Eng 58:81-3 F '20

Twine

Binder twine from Florida; cultivation of sisal and henequen fibers as a source of supply. S. R. Winters. il Sci Am 123:379 O 9 '20

Manufacture of rope and twine. S. G. Williams. il Sci Am M 3:349-52 Ap '21

Twins

Origin of twins. C. B. Davenport. Sci Am M 2:364 D '20

Twisting machines

Starters for individual drives on twistors. J. W. Easter. Textile World 59:3817+ Je 4 '21

Tying machines. See Package tying machines

Tylosaurus proriger

Extinct sea lizard from western Kansas. C. W. Gilmore. il Sci Am 124:273+ Ap 2 '21

Type and type founding

Book of type sheets for advertising layout men, designers, and schools of printing. H. John. 28 1. Wentworth inst. school of ptg., Boston '21

How the point system was started. N. C. Hawks. Ptg Art 36:389-92a Ja '21

Infancy of wood type west of the Alleghenies. E. H. Hauenstein. Inland Ptr 64:297-8 D '19

Korean metal type of 1403 now in American museum. Pop Mech 33:21 Ja '20

Modern type display. J. L. Frazier. 78p J. L. Frazier, Chicago '20

Proper type selection. D. Baker. Ptg Art 37:547-8 Ag '21

Type foundry of G. Peignot and sons. P.-J. Mariette. il Ptg Art 37:155-7 Ap '21

William Caslon and his types. H. L. Bullen. Inland Ptr 67:51-4 Ap '21

See also Printing—Specimens; Typesetting

Typesetting

In defense of our old friend, the printer's measuring rule. H. Normandin. Inland Ptr 66:504 Ja '21

Overlooked opportunities. M. Heir. Inland Ptr 64:553-5 F '20

Reducing space to its lowest terms. K. F. Gray. il Ptg Art 36:301-4 D '20

What can we do to help it—the short line? J. E. Allen. Inland Ptr 67:808 S '21

See also Advertisements—Typography;

Linotype; Printing; Printing, Practical—Style manuals; Type and type founding; Typesetting machines

Job work

Contour. J. L. Frazier. Inland Ptr 65:481-4 Jl '20

Decorative borders. J. L. Frazier. Inland Ptr 65:209-12 My '20

Interpretative display—a summary. J. L. Frazier. Inland Ptr 64:449-51 Ja '20

Job composition. J. L. Frazier. See monthly numbers of Inland printer

Proportion. J. L. Frazier. Inland Ptr 64:705-8 Mr '20

Tone harmony and contrast. J. L. Frazier. Inland Ptr 64:577-80 F '20

Twenty years' progress in typographical display. C. G. McCoy. il Ptg Art 36:213-19 N '20

Use of initial letters. J. L. Frazier. Inland Ptr 64:321-6 D '19

Use of ornament. J. L. Frazier. il Inland Ptr 65:353-6 Je '20

Value of standardized measures in job composition. E. A. Seagers. Inland Ptr 66:327-8 D '20

Typesetting —Continued**Layout**

- Exhibit of printing from layouts by students of the School of printing located at Indianapolis. Inland Ptr 68:64a-d O '21
- The layout; a series of rough crayon sketches together with the completed work. W. E. Hegle. Inland Ptr 67:352a-f Je '21
- Making a design for your customer. C. S. Wady. Inland Ptr 68:43-4 O '21
- Systematic type layout. Ptg Art 37:340-2 Je '21

Typesetting machines

- Novel departure in typesetting machines. il Sci Am 125:241 O 1 '21
- See also* Linotype

Manufacture

- Some tools used in making the keyboard of a composing machine. S. A. Hand. il Am Mach 52:461-3 F 26 '20

Typewriters

- New alphabet and a typewriter for Chinese. E. McCormick. il Sci Am 122:576 My 22 '20
- Page as well as line ends signaled on typewriter. il Pop Mech 36:231 Ag '21
- Pocket typewriter. il Sci Am 122:494 My 1 '20
- Typewriter inks and ribbons; German methods of manufacture. B. Walter. Sci Am M 3:536-7 Je '21
- Typewriter sets full line of type before printing. il Pop Mech 35:582 Ap '21
- See also* Oliver typewriter company

Manufacture

- Electric heat in the typewriter industry. A. M. Clark. Elec R 75:620 O 11 '19; Excerpt. Elec W 75:135 Ja 17 '20
- Milling slender castings. F. D. Jones. il diags plan Mach 27:935-7 Je '21
- Press tools for a typewriter part. F. A. Stanley. il diags plan Am Mach 54:597-9 Ap 7 '21
- Routing 1600 parts through a typewriter plant; Royal typewriter co., Hartford, Conn. H. R. Simonds. il Iron Tr R 68:1031-6 Ap 14 '21

Typewriters for the blind

- Blind engineer's invention. il Elec R (Lond) 88:721 Je 3 '21
- Machine à écrire en caractères Braille pour aveugles. Berger. Génie Civil 79:91-2 Jl 23 '21
- Satisfactory typewriting for war heroes. il Electrician 86:497 Ap 22 '21
- Typewriters for the blind. il Sci Am 125:163 S 3 '21

Typewriting

- Copyholders for typists, which magnifies and illuminates one line at a time. il Sci Am 122:462 Ap 24 '20
- Coté method touch typewriting. A. J. Coté. 96p Albert J. Coté company, Detroit '21
- Mental control through rhythmical influence in the learning of typewriting. A. B. Crosier. 34p Gregg pub. co., New York '21
- Ornamental typewriting. il Sci Am 124:493 Je 18 '21
- With typewriter and offset press; how the Scientific American was manufactured in the absence of compositors and pressmen. il Sci Am 121:581+ D 13 '19

Dictionaries

- Dictionary typewriting. H. Etheridge. 276p Pitman '20

Typhoid fever

- Cost of a typhoid fever epidemic. Eng & Contr 55:377 Ap 13 '21
- Effect of sewerage and water works on typhoid death rate. G. G. Earl. Can Eng 38:126-7 Ja 8 '20
- Innocence or repentance in drinking waters? H. W. Clark. Can Eng 39:478-9 O 28 '20
- Outbreak of typhoid and dysentery at the Chicago & Alton shops at Bloomington. M. C. Sjoblom. Am Water Works Assn J 7:560-5; Discussion. 565-8 Jl '20

Recent progress in the fight against typhoid fever. W. J. Orchard. Can Eng 39:185-6 Jl 22 '20

Recent typhoid fever epidemic at Salem, Ohio. Eng N 85:1244-6 D 23 '20

Reducing the typhoid toll in West Virginia. Eng & Contr 56:129 Ag 10 '21

Reducing typhoid fever rates. Munic J 48:46-8 Ja 31 '20

Reduction of typhoid fever in Minnesota. Eng N 84:921-2 My 6 '20

Relation of raw water to endemic typhoid fever. N. J. Howard. Can Eng 40:139-41 Ja 20 '21

Typhoid fever and prejudice against chlorination of drinking water. R. G. Perkins. Munic Eng 61:154 O '21

Typhoid fever outbreak at Tonawanda, New York. T. Horton. Am Water Works Assn J 7:176-8 Mr '20; Same. Can Eng 38:439 My 6 '20

Water-borne outbreak of typhoid at Schenectady, N.Y. T. Horton. Eng N 85:1101 D 2 '20; Discussion. 85:1203 D 16 '20

Water borne typhoid fever at Greeneville, Tennessee. C. N. Harrub. Am Water Works Assn J 8:132-7 Mr '21

Water-borne typhoid in West Virginia. Pub Works 50:476-8 Je 4 '21

Water-supply typhoid outbreak at Lansing, Michigan. J. R. Daugherty. diags plan Eng N 84:92-4 Ja 8 '20

Typhoon (motor boat)

Looping the North Atlantic in the Typhoon. W. W. Nutting. il Soc Auto Eng J 8:314-17 Ap '21

Typographical union, International. *See* International typographical union

Typophonia system. *See* Blind—Printing and writing systems

Tyrosine

Colorimetric estimation of tyrosine by the method of Folin and Denis. R. A. Gortner and G. E. Holm. Am Chem Soc J 42:1678-92 Ag '20

Über die kondensation von glycin-anhydrid mit aldehyden. Eine neue synthese von *d*, *l*-phenyl-alanin und *d*, *l*-tyrosin. T. Sasaki. Deutsche Chem Gesell Ber 54:163-8 Ja '21

U

Uintalite. *See* Gilsonite

Ukraine

Das Donetzbecken unter bolschewistischer regierung. M. Ullrich. Stahl & Eisen 41:277-80 F 24 '21; Translation. Blast F & Steel Pl 9:273-4, 314-16 Ap-My '21

Ultraclay

Discovery of unknown substance in soil. S. P. Winters. Sci Am 125:239 O 1 '21

Ultraclay is new substance found in soil. Pop Mech 35:868 Je '21

Ultramarine blue

Ultramarine blue in paper making. L. P. Schweitzer. Paper 27:12+ Mr 2 '21

Ultra-violet rays

Action of ultra-violet light on colloidal platinum. E. B. Spear and others. Am Chem Soc J 43:1385-91 Jl '21

Action of ultraviolet light on the yeast-like fungi. B. Feuer and F. W. Tanner. bibliog diag J Ind & Eng Chem 12:740-1 Ag '20

Action of ultraviolet rays on the saccharomycetes. B. Feuer and F. W. Tanner. J Ind & Eng Chem 13:265-6 Mr '21

Cooper Hewitt quartz lamp and ultra-violet light. L. J. Buttolph. bibliog il diags Gen Elec R 23:909-16 N '20

Effect of ultra-violet rays on the eye. C. R. Kindall. Chem & Met Eng 23:1071 D 1 '20; Same. Gen Elec R 23:893 N '20

Effect of ultraviolet rays upon the eggs of the sea urchin. Sci Am M 4:216 S '21

Ultra-violet rays—Continued

- Elements of the theory underlying the disinfection of water by ultra violet light. G. M. Fair. bibliog Am Water Works Assn J 7:325-42 My '20
- Factors influencing ultra violet light water treatment. R. D. Scott. Eng N 85:1283-4 D 30 '20
- Microscopy with ultra-violet light; increased resolution obtained by using the short-wave light beyond the visible spectrum. J. E. Barnard. il Sci Am M 3:219-20 Mr '21
- Paint that will not reflect ultra violet rays. W. S. Andrews. Gen Elec R 24:866 O '21
- Resistance of silk and linen fabrics to weather conditions and ultraviolet rays; abstract. L. Vignon. Chem & Met Eng 23:207 Ag 4 '20
- Signaling by invisible rays. il diags Elec W 78:307-8 Ag 13 '21; Excerpts. Elec R (Lond) 89:327-8 S 2 '21
- Spectrum of helium in the extreme ultra-violet. H. Fricke and T. Lyman. Philos Mag 6th ser 41:814-17 My '21
- Sterilization of water by means of ultra-violet rays. W. L. Decker. diags Chem & Met Eng 22:639-44 Ap 7 '20
- Ultraviolet rays disclose secrets of old parchments. Pop Mech 35:804 Je '21
- Use of heat and ultra-violet radiation in the war. Illum Engr 12:295-6 O '19
- Use of ultra-violet light for testing balloon fabrics. J. D. Edwards and I. L. Moore. U S Nat Advisory Com for Aeronautics 1918:424-8 '20
- Use of ultra-violet light in treating diseases of the eye. T. H. Butler. Illum Engr 13:272 O '20
- Water for shipyard drinking fountains treated by violet rays. W. L. Decker. Eng N 84:572-3 Mr 18 '20

See also Phosphoroscope

Bibliography

- Cooper Hewitt quartz lamp and ultra-violet light. L. J. Buttolph. Gen Elec R 23:916 N '20
- Ultra X rays**
- Does the earth emit ultra X-rays? J. Perrin. Sci Am M 4:106-8 Ag '21
- Ultra X-rays and cosmogony. J. Perrin. Sci Am M 4:248-50 S '21
- Undark.** See Radium luminous material corporation
- Underfeed stokers.** See Stokers, Mechanical
- Underground railroads.** See Subways
- Underpinning.** See Shoring and underpinning
- Undertakers and undertaking**
- Undertaking establishment and mortuary chapel, Columbus, Ohio. H. D. Smith. il plans Arch Forum 32:235-8, pl 93-6 Je '20
- See also Embalming
- Underwear**
- Hours and earnings in the hosiery and underwear and silk industries. Monthly Labor R 10:405-21 F '20
- Plan of an underwear mill. Textile World 59:4059 Je 18 '21
- Production reports in underwear industry. R. A. Cheney. Textile World 59:2663, 2666-7 Ap 23 '21
- Protracted dullness in underwear in 1920. Textile World 59:1060 F 5 '21
- Reducing the waste in underwear mills. G. H. Goldsmith. diags Textile World 59:467+ Ja 22 '21
- Report on underwear labeling. Textile World 56:2549+ O 25 '19
- See also Hosiery

Advertising

- How futurist got national distribution in a year. G. A. Nichols. Ptr Ink 111:17-20 Je 17 '20
- Nainsook underwear advertising threatens market of knit goods manufacturers. Ptr Ink 116:41-2+ Ag 4 '21

- Taking a product out of the special-sale class. R. Cole. Ptr Ink 111:69-72 My 20 '20
- Underwear—the difficult to advertise. A. L. Townsend. Ptr Ink 113:103-4+ O 21 '20
- Using the economy appeal to change a luxury into a necessity; silk underwear manufacturer averts sales slump. R. Cole. Ptr Ink 113:3-4+ O 14 '20
- Whispering campaign for superior underwear. Ptr Ink 111:36 Ap 15 '20
- Why not advertise "Wear B.V.D.'s all year round"? H. Varley. Ptr Ink 110:145-6 Mr 11 '20
- Year-round advertising for athletic underwear. A. Joyce. Ptr Ink 112:150+ S 16 '20
- Underwriters' laboratories**
- Organization, scope and service. G. B. Muldaur. Safety Eng 41:212-14 My '21
- Underwriters' laboratories and aviation. A. R. Small. Aviation 10:21-2 Ja 3 '21
- Underwriters' laboratories and its work. G. B. Muldaur. Elec Ry J 58:594-5 O 8 '21
- Undistributed profits tax.** See Corporations—Taxation
- Unemployment**
- Adverse balance and unemployment in England. J. Oakwood. Annalist 18:317-18 O 3 '21
- Alarm over unemployment lessened by study. R. Bean. Annalist 18:219-20 S 5 '21
- Causes and remedy for unemployment. Engineering 111:80 Ja 21 '21
- Cost of industrial accidents. R. Meeker. Monthly Labor R 10:836-40 Ap '20
- Elimination of waste in the building industry. D. K. Boyd. Heat & Ven 18:50-1 Ag '21
- Employment situation in Russia since the bolshevik revolution. Int Labour R 4:96-110 O '21
- Federal reserve board on business conditions—wages and employment. Comm & Fin Chr 112:2488 Je 11 '21
- \$500,000,000 a year lost in wages in building industry through unemployment. Comm & Fin Chr 113:490-2 Jl 30 '21
- Ohio and unemployment in 1920-1921. 40p Ohio council on women and children in industry, 305 Commerce guardian bldg., Toledo, O. '21
- Pleasant bit of back talk from New York Call; are you churning butter? J. R. Sprague. Ptr Ink 116:109-10 S 1 '21
- Reabsorption of labor and unemployment in the United Kingdom. N. C. Adams. Monthly Labor R 10:985-1004 Ap '20
- Report of sub-committee on unemployment at meeting of the Employment service council of Canada. Can Eng 39:409 O 7 '20
- Roots of unemployment. R. Estcourt. Annalist 18:389-90 O 24 '21
- Selected articles on unemployment. J. E. Johnson, comp. 2d ed. enl. 309p H. W. Wilson co. '21
- Unemployment. Engineer 131:63-4, 209-10 Ja 21, F 25 '21
- Unemployment—a cause, not an effect, of industrial depression. J. H. Van Deventer. Ind Management 62:193-4 O '21
- Unemployment a vital problem in Great Britain. H. Tipper. Automotive Ind 44:519-21 Mr 3 '21
- Unemployment as it affects the building trades. E. S. Bradford. Eng N 87:710-11 O 27 '21
- Unemployment; individual barter in goods not practical. J. S. Watts. Am Mach 54:823-5 My 12 '21
- Unemployment, national taxation and profit sharing. H. Hess. Mech Eng 42:185-6 Mr '20
- Unemployment practically universal throughout world. Comm & Fin Chr 113:1328-9 S 24 '21
- Unemployment scores; abstract. M. L. Cooke. Am Mach 55:55 Jl 14 '21
- Waste in the building industry. F. L. Ackerman. Am Inst Arch J 9:303+ S '21
- What is unemployment? C. S. Duncan. Annalist 18:295-6 S 26 '21

Unemployment —Continued

Why unemployment is a problem of industry.
J. B. Andrews. *Factory* 26:467+ F 15 '21
See also Employment agencies; Labor supply; Tramps

Relief measures

Campaign under way to relieve unemployment in New York. *Comm & Fin Chr* 113:1110-11 S 10 '21
Deflation of salary costs during depressions. J. P. Goodwin. *Administration* 2:319-20 S '21
Economic effects of colonies for the unemployed in Germany. *Monthly Labor R* 13:384-7 Ag '21
Experience with unemployment insurance. *Factory* 26:876+ Ap 1 '21
Ideas or industrial warfare? R. Dickinson. *Ptr Ink* 116:33-4+ S 29 '21
Keeping your force at work. A. M. Simons. *Factory* 26:192-3 Ja 15 '21
Lower prices and better selling as the key to normal times. R. Dickinson. *Ptr Ink* 117:3-4+ O 6 '21
No-profit sale to make jobs. *Ptr Ink* 117:8+ O 6 '21
Pension for workers when the plant is idle; the United diamond works. J. Henle. *Ptr Ink* 116:121-2 Ag 18 '21
Practical plans to relieve unemployment. L. W. Moffett. *Iron Age* 108:1007-9 O 20 '21
Providing for a plant's unemployed. W. L. Stoddard. *Factory* 27:481 O '21
Public works as temporary solution of unemployment. *Pub Works* 51:259-60 O 1 '21
Racine company helps unemployed men. *Iron Age* 108:85 Jl 14 '21
Railroad bill as a relief for unemployment. *Ry Age* 71:747-9 O 22 '21
Replenishing retailers' stocks will help solve unemployment. J. G. Condon. *Ptr Ink* 116:77-8+ S 15 '21
Unemployment. *Engineer* 131:63-4, 209-10; 132:429-30 Ja 21, F 25, O 21 '21
Unemployment and the cure. *Elec R (Lond)* 89:580-1 O 28 '21
Unemployment measures. *Pub Works* 51:299-300 O 15 '21
What construction can do for the unemployed. R. C. Marshall, jr. *Eng & Contr* 56:378-9 O 19 '21
When the men are out of work. R. Dickinson. *Ptr Ink* 116:83-4 S 1 '21
See also Public works; Unemployment conference, Washington, D.C., 1921

Statistics

Comparisons of employment and unemployment figures. *Am Mach* 54:580 Mr 31 '21
Employment and unemployment. *See* monthly numbers of *Monthly labor review*
Inaccuracy of current unemployment statistics. H. Tipper. *Automotive Ind* 45:582-3 S 22 '21
Report to Senate estimates number of unemployed in U.S. at 5,735,000. *Comm & Fin Chr* 113:908-10 Ag 27 '21
State of employment in April 1921. *Int Labour R* 3:140-7 Jl '21
State of employment; monthly statistics. *Int Labour R* 1:363-70; 2:182-6 Mr, My '21
Statistics of the unemployed. *Int Labour R* 4:110-13 O '21
Statistics of the unemployed based chiefly on returns from workers' organisations. *Int Labour R* 3:137-9 Jl '21
Statistics of unemployment among workers' organisations. *Int Labour R* 1:115-20 Ja '21
Three decades of employment fluctuation. R. G. Hurlin. *diags Annalist* 18:387-8 O 24 '21
Unemployed number 3,473,466. *Iron Tr R* 68:302 Ja 27 '21; *Comm & Fin Chr* 112:429-30 Ja 29 '21
Urges rate revision. *Ry Age* 71:711-12 O 15 '21
Unemployment conference, Washington, D.C., 1921
Afterthoughts of the unemployment conference. *Am Mach* 55:702-a O 27 '21
Arrangements for President Harding's conference on unemployment. *Comm & Fin Chr* 113:1319-20 S 24 '21

Conference on unemployment in adjourning provides for standing committee. *Comm & Fin Chr* 113:1938-9 N 5 '21
Conference suggests plan for unemployment relief. *Eng N* 87:576-7 O 6 '21
Consider labor fundamentals at national unemployment conference. *Iron Tr R* 69:861-2 O 6 '21
Practical achievements of the unemployment conferences. E. E. Whitehorne. *Elec W* 78:813-14 O 22 '21
President Harding's conference on unemployment; emergency program adopted. *Comm & Fin Chr* 113:1419-21, 1529-30, 1636-7 O 1-15 '21; *Ry Age* 71:771-6 O 22 '21; *Am Mach* 55:658 O 20 '21; *Dom Eng* 97:215-16 O 29 '21; *Elec Ry J* 58:660 O 8 '21; *Elec W* 78:742 O 8 '21; *Eng N* 87:656-7 O 20 '21; *Ind Management* 62:290-1 N '21
Relief measures for unemployment. *Textile World* 60:2053+ O 8 '21
Reports of committees on municipal organization and unemployment agencies of national unemployment conference. *Comm & Fin Chr* 113:1638 O 15 '21
Unemployment conference begins work with committee hearings. *Iron Tr R* 69:795-6 S 29 '21
Unemployment conference makes rapid progress. P. Wooton. *Coal Age* 20:549-50 O 6 '21
Unemployment personnel; President selects delegates for national conference. *Iron Tr R* 69:732 S 22 '21
Unemployment insurance. *See* Insurance, Unemployment
Unfair competition. *See* Competition, Unfair
Uniflow engines. *See* Steam engines
Uniform, Military
Needed—a new army uniform. E. C. Crossman. *il Sci Am* 125:234 O 1 '21
Union oil company
1st annual report for the fiscal year ended December 31, 1920. *Comm & Fin Chr* 112:1879-80 Ap 30 '21
Union Pacific railroad
Annual report for 1919. *Comm & Fin Chr* 110:1859-63 My 1 '20
Annual report for 1920. *Comm & Fin Chr* 112:2422-7 Je 4 '21
Annual report for 1920; editorial. *map Ry Age* 71:150-2 Jl 23 '21
Large shop marks development of western road; new locomotive facilities at Cheyenne exemplify the rapid growth of the Union Pacific. *il diags plan Ry Age* 59:687-90 O 22 '20
Union warehouse and compress company
Plans of Union warehouse and compress co. R. R. Wilson. *Textile World* 57:955+ F 7 '20
Unit heaters. *See* Steam heaters
United alloy steel corporation
Canton companies merge. *Iron Age* 107:690 Mr 17 '21
United brotherhood of maintenance of way employees and shop laborers
Railway brotherhood to extend manufacture of gloves and overalls. *Ptr Ink* 110:84+ Mr 11 '20
United cigar stores
What the United cigar stores company has accomplished in twenty years. C. P. Russell. *Ptr Ink* 115:17-19 My 19 '21
United drug company
Digest of annual report for year ended Dec. 31, 1920. *Comm & Fin Chr* 112:947-8 Mr 5 '21
How we keep our sales volume growing. L. K. Liggett. *il System* 39:355-9+ Mr '21
United engineering society
Extracts from the president's report for the year 1920. J. V. Davies. *Am Inst E E J* 40:258-9 Mr '21
United light and railways company
Report for the fiscal year ended December 31, 1919. *Comm & Fin Chr* 110:2084-6 My 15 '20

United retail stores corporation

United retail stores invade many fields of merchandising. G. A. Nichols. *Ptr Ink* 111:153-4+ Ap 15 '20

United shoe machinery company, Beverly, Massachusetts

Programs of apprenticeship and special training in representative corporations. J. V. L. Morris. *il Am Mach* 54:13-14 Ja 6 '21

United States

Dimensions and area of the United States. Eng & Min J 110:716 O 9 '20

See also Aircraft industry—United States; Cement industry and trade—United States; Electric plants (central stations)—United States; Electric railroads—United States; Engineering—United States; Finance—United States; Irrigation—United States; Oil industries—United States; Pacific coast; Railroads—United States; Roads—United States; Waterways—United States

Aeronautics bureau (commerce department) (proposed)

For a Bureau of aeronautics. *Sci Am* 122:640 Je 12 '20

Aeronautics bureau (navy department)

Naval Bureau of aeronautics. *Aviation* 11:251-2 Ag 29 '21

Navy bureau of aeronautics formed. *Aerial Age* 13:571 Ag 22 '21

Navy should have a Bureau of aeronautics. *Sci Am* 124:302 Ap 16 '21

Need of a Bureau of naval aeronautics. *Aviation* 10:506-7 Ap 18 '21

Aeronautics department (proposed)

Another bill to establish an aeronautic department. A. Sinsheimer. *Automotive Ind* 41:1274-5+ D 25 '19

Bill to create a department of aeronautics. A. Sinsheimer. *Automotive Ind* 41:999-1001+ N 20 '19

Civilian aviation control favored by general staff. A. Sinsheimer. *diag Automotive Ind* 41:949-58 N 13 '19

Naval aviation and a united air service. T. T. Craven. *il Flying* 10:96-100 Ap '21

Paragraph 13 left out; minority views outvoted in writing N.A.C.A. report to President Harding. *Aviation* 10:588-90 My 9 '21

United air force—pro and con. *Aviation* 9:480-2; 10:196-8 D 27, F 11 '21

Agriculture, Department of

Banker and agriculture. E. T. Meredith. *Comm & Fin Chr* 111:98-103 sec 2 N 20 '20

Creating new advertisers: a job for the government. E. T. Meredith. *Ptr Ink* 111:66+ Je 17 '20

Fruits of scientific farming. C. H. Claudy. *Sci Am* 122:216 F 28 '20

Secretary of agriculture sells his department. E. T. Meredith. *Ptr Ink* 110:148-9+ Mr 18 '20

Uncle Sam—motion picture producer. G. H. Dacy. *il Sci Am* 122:422+ Ap 17 '20

Bureau of plant industry

See United States—Plant industry, Bureau of

Air service

Our air force, the keystone of national defense. W. Mitchell. 223p Dutton '21

Air service, Army

Air service and civilian aeronautics. H. E. Hartney. *Aviation* 10:307-9 Mr 7 '21

Air service promotions; lists of officers promoted. *Aviation* 10:209-12 F 14 '21

Air service requests \$60,000,000. *Aviation* 9:476-7 D 27 '20; Same. *Aerial Age* 12:490 Ja 17 '21

Annual report of the director of the Air service. *Flying* 9:719-28; 10:17-21 Ja-F '21; Excerpts. *Aviation* 9:448-52 D 20 '20; Excerpt. *Aerial Age* 12:363-4, 396-7 D 13-20 '20

Army balloon service offers opportunities. R. L. Foster. *il Aerial Age* 12:273 N 15 '20

Aviation expenditures. J. W. Weeks. *Aviation* 10:715-16 Je 6 '21

Cost of war aviation only \$598,090,781; \$582,564,781 has been returned to U.S. treasury. *Aviation* 10:488-91, 524-5 Ap 18-25 '21

Directory of air service activity. *Aviation* 10:751-2 Je 13 '21

First semi-annual report of the Civil affairs division of the Army air service. *Aerial Age* 12:565, 586-7 F 7-14 '21

General Mitchell courageously defends air service. *Aerial Age* 14:63 S 26 '21

General Mitchell retained in air service. *Aviation* 10:800 Je 27 '21

Geographical distribution of qualified fliers of the air service. *Aviation* 10:501 Ap 18 '21

Organization of U. S. army air service. *Aviation* 10:501 Ap 18 '21

Personnel. *Aviation* 9:289-90 N 15 '20

Recruiting skilled mechanics. C. T. Menoher. *Aviation* 9:266 N 8 '20

Reorganization of the Air service at reduced strength. *Aerial Age* 14:110-11 O 10 '21

Training reserve air officers. *Aviation* 10:81-2 Ja 17 '21

Two years' work at McCook field. *Aviation* 10:263-5 F 28 '21

Air service, Navy

Appropriations for naval aviation. T. T. Craven. *Aerial Age* 12:562-4 F 7 '21; Excerpts. *Aviation* 10:104-5 Ja 24 '21

Development of U.S. naval aviation. *il Aviation* 7:424-8 D 15 '19

For an independent naval air service. *Sci Am* 123:372 O 9 '20

Naval air service independence. T. T. Craven. *Aviation* 10:304-5 Mr 7 '21

Naval air station at Pensacola. F. H. Colvin. *il Am Mach* 53:197-9 Jl 29 '20

Naval aviation and a United air service. T. T. Craven. *il Flying* 10:96-100 Ap '21

Naval aviation estimates for 1922. *Aviation* 10:101-4 Ja 24 '21

Report of navy general board. *Aviation* 10:198-9 F 14 '21

Seagoing air fleet now a permanent part of the U.S. navy. *il Pop Mech* 34:354-5 S '20

Secretary Daniels on aeronautics; excerpts from the annual report of the secretary of the navy. *Aviation* 9:414-16 D 13 '20

Senators urge nation to save millions by increasing air defense over sea. *Aviation* 11:223-4 Ag 22 '21

U.S. naval aircraft. J. C. Hunsaker. *il J Fr Inst* 189:715-36 Je '20

U.S. naval aircraft construction, 1920. *Aviation* 10:10-11 Ja 3 '21

World's largest trade school trains mechanics for U.S. naval air service. P. A. Jenkins. *il Pop Mech* 34:41-4 Jl '20

See also United States—Aeronautics bureau (navy department)

Air service library

American research centers, Washington, D.C.; air service library. H. M. Hickam. *Special Lib* 12:98-100 My '21; Excerpts. *Aerial Age* 13:423 Jl 11 '21

Appropriations and expenditures

Brief analysis of the annual appropriation bills. chart *Automotive Ind* 44:791-4 Ap 14 '21

Economic importance of the scientific work of the government; abstract. E. B. Rosa. *Monthly Labor R* 11:44-50 Jl '20; N E L A Bul 7:786-92 N '20

Economy in the new administration. C. G. Dawes. *Administration* 1:348-50 Mr '21

Expenditures of the Bureau of mines. F. G. Cottrell. Eng & Min J 110:1074-5 D 4 '20

Fundamentals of national economy. S. P. Gilbert, jr. *Comm & Fin Chr* 112:796-8 F 26 '21

Rigid economy to keep national budget within \$4,000,000,000. *Annalist* 17:520-1 My 9 '21

Scientific and engineering work of the government. E. B. Rosa. *Mech Eng* 43:111-18 F '21; Excerpts. Eng & Contr 55:487-90 My 18 '21

United States—Appropriations and expenditures

—Continued

Uncle Sam and your pocketbook. J. W. Bishop. Nation's Business 9:36+ My '21
What does the government do with your money? Eng & Min J 109:1276 Je 5 '20
What is public economy? W: C. Redfield. Ptr Ink 112:121-2+ Ag 26 '20

Army

American army on the Rhine—the army without a kick. Comm & Fin Chr 113:813-14 Ag 20 '21

Our new army. Sci Am 123:588 D 11 '20

Right man in the right place in the army. J: J. Swan. Mech Eng 41:423-8 My '19; Excerpts. Eng & Contr 52:570-1 N 12 '19

See also Mobilization; United States—Navy

Air service

See United States—Air service, Army

Coast artillery

Balloons instead of C.A.C. observation posts. il Aviation 10:113-14 Ja 24 '21

Heavy coast artillery. D. A. Tomlinson. diags W Soc E J 24:375-98 Je '19

Construction division

Board of review justifies war construction methods. Eng N 85:590-3 S 23 '20

Construction division of the army. R. C. Marshall, jr. J Fr Inst 189:581-601 My '20

Future conduct of building operations in the United States army. Am Inst Arch J 8:38-9 Ja '20

Future of the Construction division, U.S. army. Am Arch 117:506 Ap 21 '20

Military vs. civil control of construction in war time. C. L. Hall. Eng N 85:1239-40 D 23 '20

Review of activities of government engineers during war. H. B. Joyce. Elec R 76:273-4 F 14 '20

Work of the Construction division of the army. R: W. Alger. Am Soc Heat & V E J 26:167-76; Discussion. 303-4 Mr '20

Education

A. E. F. art training center, Bellevue, France. P. L. Small. Arch Rec 46:447-50 N '19

Educational and vocational training in the army. Monthly Labor R 11:1008-11 N '20

Instruction in architecture in the A.E.F. art training center at Bellevue, Seine-et-Oise, France. G: H. Gray. Am Inst Arch J 8: 63-6 F '20

Our peace time army and industry: giving soldiers military training but also education. P. C. Harris. il Am Ind 21:11-14 N '20

Engineer troops

Résumé of the activities of the 108th engineers at home and abroad. H: A. Allen. W Soc E J 24:519-31 O '19

Engineers, Corps of

Army and the engineer. L. Wood. W Soc E J 25:159-61 Mr 5 '20

Corps of engineers and public works. F. C. Shenehon. Eng N 85:1056 N 25 '20

Future of the Corps of engineers of the United States army. Am Arch 116:800-2 D 24 '19

Military vs. civil control of construction in war time. C. L. Hall. Eng N 85:1239-40 D 23 '20

Service of reserve engineers in army in time of peace. Min & Met 167:30-2 N '20

Equipment

Difficulties met in selling the A.E.F. cars. W. F. Bradley. il Automotive Ind 42:493-500 F 19 '20

U.S. army methods of procuring and salvaging rubber articles. J: J. Cameron. il India Rubber W 61:211-13 Ja '20

Expeditionary force

Forestry with the A. E. F. J Elec 43:505-6 D 1 '19

Light railways of the battle front in France. F. G. Jonah. il diag map Ry Age 68:421-4 F 6 '20; Same cond. Engineering 109:277-9 F 27 '20

Pioneer ordnance machine shop. H. D. Parker. diags plan Am Mach 51:1003-8 D 11 '19

Road work of the A.E.F. il Good Roads n s 19:241-3 My 12 '20

Scheduling and routing work in the A.E.F. shop. C. E. Lester. il Ry Mech Eng 94: 97-102 F '20

Water supply of the American expeditionary forces. E: Bartow. il J Ind & Eng Chem 12:903-7 S '20

Water supply problem in a combat division. L. A. Fritze. Am Water Works Assn J 7: 117-26 Ja '20

Medals, decorations, etc.

Pomp and circumstance. A. A. Hopkins. il Sci Am M 4:228-34 S '21

Motor transport corps

Motor transport corps transcontinental convoy. R. B. Burton. Soc Auto Eng J 7:39-41 Jl '20

War department motor transport policy. C. B. Drake. Soc Auto Eng J 7:175-7 Ag '20

Signal corps

Scope and development of the signal corps, U.S.A. L. D. Wildman. W Soc E J 25:267-80 Ap 20 '20

Signal corps. D. Hodges. il Sibley J 35:82-3 My '21

Signal corps war work was based on American practice. Elec W 75:35-6, 92 Ja 3-10 '20

Wireless in the A.E.F. L. R. Krumm and W. H. Taylor, jr. il diags Wireless Age 7: 14-19 Ja; 10-14 Ap '20

Assay office

Melting gold coin at New York assay office. il Sci Am 123:429 O 23 '20

Board of surveys and maps

Committees on highway maps and co-ordination present reports. Eng N 85:1089-90 D 2 '20

Committee on technical standards recommends use of English measuring system. Am Mach 53:647-8 S 30 '20

Budget, Bureau of the

Budget director bent upon accomplishing results. Comm & Fin Chr 113:11-13 Jl 2 '21

Charles G. Dawes made director of Budget bureau. Comm & Fin Chr 112:2702-3 Je 25 '21

Capitol

Competition for the Federal buildings, 1792-1793. F. Kimball and W. Bennett. Am Inst Arch J 7:8-12, 98-102, 202-10, 355-62, 521-8; 8:117-24 Ja, Mr, My, Ag, D '19, Mr '20

Census

Bibliography

Census publications available for distribution by the Bureau of the census. 16p U.S. Bureau of the census, Washington, D.C. '21

Chemical warfare service

Reserves of the Chemical warfare service. C: H. Herty. Nat Research Council Reprint & Circ Ser 16:1-17 '21 25c

Chemistry, Bureau of

See also Engineering service for business (United States Bureau of chemistry)

Color laboratory

Problems investigated at the Color laboratory, Bureau of chemistry. H. D. Gibbs. il Chem & Met Eng 22:405-7 Mr 3 '20

Claims

Work by President Wilson regarding claims of Americans against German government. Comm & Fin Chr 112:1093-6 Mr 19 '21

United States—Continued

Coal commission

Coal commission begins its work. Ry R 66: 16-17 Ja 3 '20

Coast guard

Between the sea and the land. A. H. Ulm. il Nation's Business 8:21-3 Ag '20
Carrying justice into the Arctic. L. W. Pedrose. il Pop Mech 35:713-14 My '21
Handling of high explosives in war time. G. L. Carden. il Eng & Min J 109:17-23 Ja 3 '20

Commerce

American foreign trade, as promoted by the Webb-Pomerene and Edge acts. W. F. Notz and R. S. Harvey. 593p Bobbs '21
American foreign trade relations. Ed. by S. M. Lindsay. 186p Academy of political science, Columbia univ., New York '21
Annual review of the foreign commerce of the United States. 1919. U S Bur For & Dom Com misc ser 103:1-36 '20
Bogy of German competition. J. H. Collins. il Ptr Ink M 3:15-16+ S '21
Can you sell to the Far East today? P. Thayer. System 39:572+ Ap '21
China trade act to aid American business in the Orient. Annalist 17:493 My 2 '21
Commercial and financial supremacy lies ahead. J. Oakwood. Annalist 18:366 O 17 '21
Conditions in the United States; opinions of leading executives in twenty of the basic industries. Am Ind 21:14-21, 26-37 Ap; 13-21, 26-38 My '21
Eritrea; a Red Sea Italian colony of increasing interest to American commerce. A. E. Southard. U S Sp Cons Rep 82:1-67 '20
Essentials of successful foreign trade. Ry Age 68:1514-15 My 28 '20
Export and import statistics indicate industrial trend. O. M. Fox. Eng N 85:835-6 O 28 '20; Discussion. 85:1103-4 D 2 '20
Exports from United States, June, 1921, June, 1920, and twelve months ending June, 1921. Oil Paint & Drug Rep 100:36-7 sec 1 Ag 15 '21
Farewell to one-way trade! W. L. Saunders. il Nation's Business 9:26-7 Je '21
Foreign commerce series. Nos. 1-3 '20 The National City Bank of New York, N.Y.
Foreign trade of the United States. L. C. Ford and Thomas F. Ford. 325p Scribner '20
Function of imports in our foreign trade. G. E. Roberts. 14p (Foreign commerce ser. no. 2) National city bank of New York, New York '20
How a free port operates; cities in northern Europe can help United States in trading with Russia. C. D. Snow. Nation's Business 9:22-3 O '21
If you don't import you can't export. P. E. Derrick. Ptr Ink 113:133-4 O 14 '20
Lifting restrictions on foreign commerce. Iron Age 105:1033-4 Ap 8 '20
Manufacturer's view on the revivification of our commerce. E. M. Herr. Ptr Ink 115: 53-4+ My 19 '21
New regulations affect trade with Italy. Am Mach 53:924b-c N 11 '20
Open door and business. S. Bent. il Nation's Business 9:16-17 N '21
Opportunity for America in the Orient. H. A. Andresen. Blast F & Steel Pl 8:569 O '20
Our foreign trade in 1919. Comm & Fin Chr 110:504-7 F 7 '20
Our new market in Mexico. E. R. Murphey. map System 39:194-5+ F '21
Our new place in world trade. 24p Guaranty trust company of New York, 140 Broadway, New York '21
Our stake in the Pacific. C. F. Weed. Textile World 57:3047+ Ap 24 '20
Plea for greater imports. F. E. Tyng, jr. Annalist 18:293+ S 26 '21
Rewards of wartime development not unmixed. R. J. McFall. Annalist 17:688-9 Je 27 '21

Ship operator's interest in foreign trade. J. L. Binda. Marine Eng 26:727-8 O '21
Sources of our exports. 38p National foreign trade council, New York '20
Trade before and after the war. Am Ind 21: 23 S '20
Trade of the United States and Canada. W. L. Edmonds. Iron Age 106:137-8 Jl 15 '20
Trade of the United States with the world, 1917-1918; exports. U S Bur For & Dom Com misc ser 78:1-346 pt 2 '19
Trade of the United States with the world, 1918-1919; exports. U S Bur For & Dom Com misc ser 106:1-456 pt 2 '21
Trade of the United States with the world, 1918-1919; pt 1—imports. U S Bur For & Dom Com misc ser 106 pt 1:1-103 '20
United States trade with Germany in 1920. Am Mach 54:120e Ja 20 '21
Why not quit buying abroad? L. E. Pierson. Nation's Business 9:21-3 Jl '21

See also Automobile industry and trade—United States; Chamber of commerce of the United States; Chemical industries—United States; Cotton trade—United States; Dye industry—United States; Export trade; Interstate commerce commission; Merchant marine—United States; Paper industry and trade—United States; Rubber industry—United States; Shipping—United States; Tariff—United States; Terminals; Textile industry—United States; United States—Foreign and domestic commerce, Bureau of; United States—Industries and resources

Commerce, Department of

Business and government; what the Department of commerce is doing for America and what it would like to do. J. W. Alexander. Sci Am 122:650+ Je 12 '20
Federal views toward building trades. H. Hoover. Am Arch 119:598-600 My 25 '21
Hooverizing the Department of commerce. R. Dickinson. Ptr Ink 117:28+ O 13 '21
Industry and the Department of commerce. Mach 27:943 Je '21
Secretary Hoover outlines the scope of work to be done by Commerce department. H. Hoover. Am Mach 54:533-4 Mr 24 '21
What Secretary Hoover hopes to do. Nation's Business 9:45+ My '21

Commercial policy

See also Merchant marine—United States; Tariff—United States

Congress

Bloc menace in law making. W. H. King. Nation's Business 9:11-12 N '21
Business man in Congress. A. H. Ulm. Nation's Business 9:21-2 F '21
Listening in on Congress. Nation's Business 9:22-3 Mr '21
Work of the sixty-sixth Congress. Comm & Fin Chr 112:1093 Mr 19 '21

House of representatives

Congressional reapportionment—the arguments against increasing size of house. Comm & Fin Chr 113:1620-2 O 15 '21
Vote against increasing the membership of the House of representatives in Congress. Comm & Fin Chr 112:301-2 Ja 22 '21

Senate

Senatorial science; venerable senators discuss fertilizer materials. M. Seyt. Chem & Met Eng 24:636-7 Ap 13 '21

Constitution

Inferential and emergency interpretation of constitutions; 18th amendment. Comm & Fin Chr 112:2241-2 My 28 '21
Some notes concerning our American constitution. Comm & Fin Chr 112:2023-5 My 14 '21
To study the Constitution of the United States is to take the first step in Americanization. Am Lumberman 2349:52-5 My 22 '20

United States—Continued

Crop estimates, Bureau of

Assistance for advertisers in finding a market. *Ptr Ink* 110:110 Ja 22 '20

Defenses

Modern preparedness. B. Crowell. *Nation's Business* 9:9-10 S '21
War and the engineer. J. C. Nichols. *Sibley J* 35:108-10 Ag '21

Economic conditions

America's wealth due largely to railway expansion. J. M. Goldstein. *Ry Age* 71:875-9 N 5 '21

Comptroller of currency John Skelton Williams' hopeful view of future. *Comm & Fin Chr* 111:440-2 Jl 31 '20

Conditions in the United States; opinions of leading executives in twenty of the basic industries. *Am Ind* 21:14-21, 26-37 Ap; 13-21, 26-38 My '21

Congress is struggling with grave problems. L. W. Moffett. *Iron Tr R* 66:2-6 Ja 1 '20

Dollar education. W. M. Lewis. *Sibley J* 34:105-8 Ag '20

Economic development of the United States. I. Lippincott. 691p Appleton '21

Economic history of the United States. T. W. Van Metre. 672p Holt '21

Economic outlook in industry. H. I. Harri-man. *Elec W* 75:200-1 Ja 24 '20

Economic problems faced by the new administration. *Annalist* 17:299-300 Mr 7 '21

Europe's anxiety over America's economics. J. Oakwood. *Annalist* 18:437 N 7 '21

Flood tide of extravagance wanes. W. P. Beazell. *Am Ind* 20:22-5 Ap '20

Industry, emotion, and unrest. E. Thomas. 255p Harcourt, Brace and Howe, New York '20

Inter-relationship of general industry and food production and distribution. H. C. Hoover. *W Soc E J* 25:145-53 Mr 5 '20; Same. *Min & Sci P* 120:383-6 Mr 13 '20

Labor the holder of the nation's wealth and income. W. R. Ingalls. *Min & Sci P* 121:558-60, 592-6, 628-32 O 16-30 '20; Discussion. C. V. Corless. 121:829-31 D 11 '20

Modern economic tendencies; an economic history of America. S. A. Reeve. 871p Dutton '21

Nation on a sound basis despite troubles of last year. B. M. Anderson, jr. *Annalist* 17:9-10+ Ja 3 '21

National need for increased production. W. Compton. *Am Lumberman* 2342:66-7 Ap 3 '20

Noted financier reviews America's problems. F. A. Vanderlip. *Am Lumberman* 2344:62-3 Ap 17 '20

Our situation today—a country-wide economic survey. J. S. Drum. *Comm & Fin Chr* 113:102-9 sec 2 O 29 '21

Riddle of the world. P. H. W. Ross. *J Account* 29:19-29 Ja '20

Russian collapse and its lesson at home. S. H. Bunnell. *Iron Age* 107:847+ Mr 31 '21

Some phases of the economic outlook. W. R. Ingalls. *Min & Met* 173:3-4 My '21

Time to cure the nation's ills. P. West. *Metal Work* 93:513-15+ Ap 23 '20

What government can do. H. Hoover. *Nation's Business* 9:11-13 Je '21

What is the country's condition; a nation wide digest of facts and opinions made by Fidelity & deposit co. *Sheet Metal Worker* 12:184-6 Ap 15 '21; Same. *Plumber* 95:274-6 My 6 '21; Same abr. *Paper* 28:112-13 Ap 20 '21

Wonderful times ahead. C. F. Kettering. *Motor Age* 37:7-8+ Je 24 '20

See also Banks and banking—United States; Business conditions; Finance—United States; Housing problem—United States; Immigration and emigration—United States; Labor and laboring classes—United States; Prices—United States; Wages—United States; West—Economic conditions

Economic policy

Laying a course for business. *Nation's Business* 8:36+ Je '20

Efficiency, Bureau of

Governmental information service. *Special Lib* 11:165 S '20

Saving Uncle Sam's pennies. H. D. Brown. *Sci Am* 125:272+ O 15 '21

Library

American research centers, Washington, D.C.; library of the U.S. Bureau of efficiency. F. C. Bell. *Special Lib* 12:121 Je '21

Employment service

Present scope and activities of the Federal employment service. map *Monthly Labor R* 10:1201-14 My '20

Executive departments

Getting advertising help from Washington. *Ptr Ink* 111:89-90+ Je 3 '20

Federal electric railway commission

Conclusions and recommendations of the Federal electric railway commission. *Eng & Contr* 55:168 F 16 '21

Correspondence on Washington testimony. *Elec Ry J* 54:907-8 N 15 '19

Extending benefits assessments to street railways. *Eng N* 85:594 S 23 '20

Federal commission and its work. C. Ogburn. *Elec Ry J* 55:8-10 Ja 3 '20

Report from a financial standpoint. C. W. Beall. *Elec Ry J* 57:487-8 Mr 12 '21

Report of Federal electric railways commission. *Monthly Labor R* 11:649-52 O '20; *Elec Ry J* 56:398-411 Ag 28 '20; *Pub Works* 49:349-50 O 9 '20; *Ry Age* 69:358 Ag 27 '20; *Comm & Fin Chr* 111:849-50 Ag 28 '20

Federal trade commission

See Federal trade commission

Foreign and domestic commerce, Bureau of

Government's foreign trade service. G. E. Holt. *Ptr Ink* 114:104, 109-10+ Mr 31 '21

Hoover plans to aid industry. *Iron Tr R* 68:1438-9 My 26 '21

New commodity divisions; establishment of branches on unique basis finds short cut through the red tape. J. Klein. *Am Ind* 22:33-5 N '21

Division of commercial laws

Plans and possibilities of the Division of commercial laws, Bureau of foreign and domestic commerce. A. J. Wolfe. *Am Ind* 22:13-14 S '21

Foreign relations

China

United States informs China it will maintain open door policy. *Comm & Fin Chr* 113:260 Jl 16 '21

See also Boxer indemnities

Colombia

Treaty with Colombia. *Min & Sci P* 122:555-6 Ap 23 '21

United States Senate ratifies Colombian treaty. *Comm & Fin Chr* 112:1831-2 Ap 30 '21

Mexico

American co-operation is needed to restore Mexico. J. Speyer. *Annalist* 17:17 Ja 3 '21; Same. *Comm & Fin Chr* 112:15-16 Ja 1 '21

Brush the cobwebs from diplomacy in dealing with Mexico. A. R. Hinton. *Nat Pet* N 13:45+ F 16 '21

President Obregon declares treaty with U.S. neither possible nor necessary—re-opening of banks. *Comm & Fin Chr* 113:1019-20 S 3 '21

Recognition of Mexico. H. P. Fletcher. *Comm & Fin Chr* 113:920-1 Ag 27 '21

Some mistakes of American diplomacy in Mexico—a retrospect. A. R. Hinton. *Nat Pet* N 13:41+ Mr 23 '21

United States—Foreign relations—Mexico—*Cont.*
State department at Washington on policy
toward Mexico; Gen. Obregon's stand.
Comm & Fin Chr 112:2603-5 Je 18 '21

Panama

Panama accedes to United States demand to
evacuate Coto territory—commission ap-
pointed to adjust boundary. Comm & Fin
Chr 113:1120-2 S 10 '21

Poland

United States refuses to support Poland's
claims in upper Silesia. Comm & Fin Chr
112:2153-4 My 21 '21

Russia

No resumption of commercial relations by
United States with soviet Russia. Comm &
Fin Chr 112:1358-9 Ap 2 '21

Forest products laboratory

Decennial celebration Forest products labora-
tory. Chem & Met Eng 23:270-2 Ag 18 '20
Decennial celebration of the Forest products
laboratory. Sci Am 124:392 My 14 '21

Development of the Forest products labora-
tory. C. P. Winslow. Paper 26:26+ JI 28 '20

Forest products laboratory. C. H. Jones. il
Chem & Met Eng 21:757-64 D 24 '19

Forest products laboratory and the paper
manufacturer. O. Kress. il Paper 27:9-11+
D 1 '20

Forest products laboratory plans work for
the year 1921-22. il Chem & Met Eng 25:
27-9 JI 6 '21

How to equip and operate an experimental
laboratory. O. Kress, S. D. Wells and V.
P. Edwards. il diag Paper 26:11-14+ Je 2;
24-7 Je 9; 19-23 Je 16; 23-5+ Je 23 '20

Relation of the work of the Forest products
laboratory to engineering. G. M. Hunt. il
W Soc E J 25:312-29 My 5 '20; Excerpts.
Am Arch 118:25-7 JI 7 '20

Research laboratory adopts modern man-
agement. C. V. Maudlin. il chart Ind Man-
agement 61:98-102 F 1 '21

Research problems of the pulp and paper in-
dustry. D. C. Everest. il Paper 26:11-14+
Ag 4 '20

United States Forest products laboratory. il
Engineer 131:326-7 Mr 25 '21

Valuable work done by the Forest products
laboratory. Automotive Ind 44:255 F 10 '21

General staff college library

American research centers, Washington,
D.C.; General staff college library. Special
Lib 12:118-19 Je '21

Geological survey

Work on mineral resources done by the
United States geological survey. E. S. Bas-
tin and H. D. McCaskey. Min & Sci P 121:
166-8 JI 31 '20

Hydrographic office

Hydrographic office. Sci Am 124:262 Ap 2 '21

Hydrographic office should remain with the
navy. Sci Am 124:442 Je 4 '21

Industries and resources

America as a world power. J. P. Goode. Soc
Auto Eng J 9:139-42+ Ag '21

America's share in world production. R.
Howard. il Sci Am 122:295+ Mr 20 '20

Consumption estimates; showing production,
imports, exports, and amounts available for
consumption of various articles in the
United States by years specified. U S Bur
For & Dom Com 105:543-57 '20

Manufacturing industries in America; funda-
mental economic factors. M. Keir. 324p
Ronald press '20

Preliminary summaries of 1919 census of
manufactures. Chem & Met Eng 25:465-70
S 7 '21

See also Agriculture—United States; Air-
craft industry—United States; Airplane in-
dustry—United States; Automobile industry

and trade—United States; Building trades—
United States; Cement industry and trade—
United States; Chemical industries—United
States; Clay industries—United States; Coal
mines and mining—United States; Coal trade
—United States; Dye industry—United
States; Electric industries—United States;
Forests and forestry—United States; Gold
mines and mining—United States; Iron in-
dustry and trade—United States; Machine
tool industry—United States; Mines and
mineral resources—United States; Mining in-
dustry and finance—United States; Motor
truck industry and trade—United States;
Oil industries—United States; Paper indus-
try and trade—United States; Petroleum—
United States; Petroleum industry and trade
—United States; Potash; Rubber industry—
United States; Shipbuilding—United States;
Steel industry and trade—United States;
Sugar industry and trade—United States;
Textile industry—United States; Tractor in-
dustry and trade—United States; United
States—Commerce; Water power—United
States; Water supply—United States

Labor, Department of

Attitude of the Department of labor toward
admission of Chinese industrial students.
E. Stewart. Monthly Labor R 11:1311-17 D
'20

Keeping the peace with labor. M. H. Wiseman.
diag Ind Management 59:177-83 Mr '20

Manufactures

See Manufactures—United States

Mines, Bureau of

Annual report for the fiscal year ending
June 30. F. G. Cottrell. Am Gas Eng J 113:
sup17-18 D 11 '20

Bureau of mines and private investigations.
H. F. Bain. Eng & Min J 112:450-3 S 17 '21

Bureau of mines announces plans for its
supervision of production. Nat Pet N 13:56
Mr 30 '21

Coal industry and the Bureau of mines. V. H.
Manning. Coal Age 17:80-1 Ja 15 '20

Destiny of the Bureau of mines. Eng & Min
J 109:1149-50 My 22 '20

Electric furnace laboratory of the Bureau of
mines. C. D. Grier. il diags Chem & Met
Eng 21:574-6 O 29 '19

Expenditures of the Bureau of mines. F. G.
Cottrell. Eng & Min J 110:1074-5 D 4 '20

Relation of the Bureau of mines to the oil
industry. F. G. Cottrell. Eng & Min J
110:678-9 O 2 '20; Excerpt. Nat Pet N 12:
61+ O 6 '20

Scope of work of the Bureau of mines. V.
H. Manning. Min & Sci P 121:21-2 JI 3 '20

War minerals problems; war minerals investi-
gations of the Bureau of mines. J. E.
Spurr. Eng & Min J 112:651-6 O 22 '21

What the Bureau of mines purposes to do on
behalf of the coal industry. F. G. Cottrell. il
Coal Age 18:731-5 O 7 '20

See also Bain, H. Foster; Moore, R. B.

Ceramic station

Work of the ceramic station of the Bureau
of mines at Columbus, Ohio. D. A. Lyon.
Brass W 17:73-4 Mr '21

Cryogenic laboratory

Below zero; the low temperature laboratory
of the United States Bureau of mines. il
Sci Am 124:466 Je 11 '21

Bureau of mines cryogenic laboratory dedi-
cation. il Chem & Met Eng 24:914-15 My
25 '21

Low-temperature station opened by Bureau
of mines. Pop Mech 36:184 Ag '21

Experiment stations

Bureau of mines petroleum experiment sta-
tion at Bartlesville, Okla. A. W. Ambrose.
Eng & Min J 110:1001-2 N 20 '20

Colorado station to be moved to new home
at Reno. Eng & Min J 110:133 JI 17 '20

United States—Mines, Bureau of—Experiment stations—*Continued*

Current activities of the Bureau of mines stations. Chem & Met Eng 22:542-3 Mr 24 '20
Experiment stations of the Bureau of mines. V. H. Manning. il diag plan U S Bur Mines Bul 175:1-106 '19
New designations of Bureau of mines stations. Eng & Min J 110:855 O 30 '20

Pittsburgh station

Some thoughts on filing systems. D. J. Baker. il Coal Age 16:736-40 N 6 '19

Rare and precious metals station

Rare and precious metals station of the Bureau of mines, Reno, Nevada. il Eng & Min J 112:214-15 Ag 6 '21

National advisory committee for aeronautics

Aviation report of President to Congress. Aviation 10:552-8 My 2 '21; Same abr. Aerial Age 13:178-81, 200-2 My 2-9 '21
National advisory committee report for 1920. Aviation 9:453-4 D 20 '20; Same. Aerial Age 12:387-8 D 20 '20
Paragraph 13 left out; minority views outvoted in writing N.A.C.A. report to President Harding. Aviation 10:588-90 My 9 '21
Scientific flight study urged by national aeronautic body. A. Sinsheimer. Automotive Ind 41:1224-5 D 18 '19
Senator Borah wants N.A.C.A. abolished. Aviation 10:800 Je 27 '21

Naval communication service

United States Naval communication service. S. W. Bryant. J Fr Inst 188:751-70 D '19

Navy

Bombing tests and our naval policy. Sci Am 125:90 Ag 6 '21
Depth-bombing from the air; results and lessons of the sinking of the Frankfurt and Ostfriesland off the Virginia coast. il Sci Am 125:92-3+ Ag 6 '21
Do we need the largest navy in the world? Sci Am 122:268 Mr 13 '20
Folly of a divided fleet. Sci Am 123:56 Jl 17 '20
Japan and a big navy. F. P. Archer. Sci Am 125:81 Jl 30 '21
Naval strength of United States, Great Britain and Japan. J. B. Walker. il Sci Am 125A:11-13 N '21
Navy equal to any other. Sci Am 124:162 F 26 '21
Our naval standing. Sci Am 122:696 Je 26 '20
Sea-power in the Pacific. H. C. Bywater. 334p Houghton '21
Ships under construction in various yards for United States navy; tabulation. Marine Eng 26:418-19 My '21
United States navy. Engineer 129:428-9 Ap 23 '20
Uses of the navy. Sci Am 121:574 D 13 '19
See also United States—Hydrographic office; United States naval observatory; Warships—United States; *also* Langley (aircraft carrier)

Air service

See United States—Air service, Navy

Bureau of aeronautics

See United States—Aeronautics bureau (navy department)

Bureau of engineering

Navy bureau of engineering—1920. Aviation 10:76-7 Ja 17 '21

Experimental model basin

With model basin and wind-tunnel; how our naval constructors check up their designs by means of miniature hulls and model airplanes. il Sci Am 125:82 Jl 30 '21

Medals, decorations, etc.

Pomp and circumstance. A. A. Hopkins. il Sci Am M 4:228-34 S '21

Navy department

Admiral Sims vindicated. Sci Am 124:362 My 7 '21
Annual report of the secretary of the United States navy, Engineer 129:57-9 Ja 16 '20
Rear-Admiral William S. Sims; charges against the Navy department. Sci Am 122:106 Ja 31 '20
Senate naval committee reports on the Sims-Daniels controversy. Comm & Fin Chr 113:366-8 Jl 23 '21
Should the secretary of the navy be a civilian? Sci Am 122:668 Je 19 '20

Ordnance, Bureau of (navy department)

See also United States naval ordnance plant, South Charleston, West Virginia

Ordnance department

Gages and the Ordnance department. E. C. Peck. Am Mach 52:105-7 Ja 8 '20

Paper laboratory

Progress of U.S. paper laboratory in 1920. Paper 27:14-16 Ja 5 '21

Patent office

Delays in the patent office hamper business. C. H. Claudy. Ptr Ink 113:65-6+ O 14 '20
Farmer and the patent system. E. J. Prindle. Am Ind 21:19-20+ Mr '21
Federated American engineering societies working for patent office relief and New York state reorganization. Power 53:487 Mr 22 '21
Government stepchild. Sci Am 124:142 F 19 '21
Governmental step-child; struggles of the patent office. Sci Am 122:36 Ja 10 '20
Hearings on patent office bill. Chem & Met Eng 24:53-5 Ja 12 '21
Inadequate salaries of patent office employes. Mach 26:731 Ap '20
Needed improvements in our patent office and system. G. B. Harris. Am Mach 52:798-803 Ap 8 '20
Needs of the patent office. W: I. Wyman. Sci Am 123:592+ D 11 '20
Our anomalous patent office. K. P. McElroy. J Ind & Eng Chem 13:469-70 My '21; Same. Min & Sci P 123:128-9 Jl 23 '21
Patent office facts. il Sci Am 122:67+ Ja 17 '20
Patent situation. E. J. Prindle. Chem & Met Eng 25:417-19 Ag 31 '21
Present needs of the United States patent office. R. F. Whitehead. Chem Age 29:1-3 Ja '21
Problem and its attempted solution; the filing of papers, as improved by the inventive talent of our patent office. W: I. Wyman. il Sci Am 125:146+ Ag 27 '21
Proposed patent legislation. Mach 26:888-9 My '20
Prosperity and the patent office. C: E. Duryea. Automotive Ind 43:1030 N 18 '20
Report of the Patent committee of the National research council. L. H. Baekeland. (Reprint & Circ. Ser. 1) 24p n.d. 30c National research council, 1701 Massachusetts av, Washington, D.C. [Published (without proposed bills) in Chemical & Metallurgical Engineering, F '19]
Seventy-five years of American patent administration. W: I. Wyman. il Sci Am 123:340-1+ O 2 '20
Whole U.S. patent system in danger. Chem & Met Eng 21:755-6 D 24 '19
Why is a patent? Sci Am 123:588 D 11 '20
See also Patent laws and legislation

Plant industry, Bureau of

Teaching plants table manners; government searching little explored countries for useful plants that produce food and clothing for us. A. H. Ulm. Nation's Business 8:30+ S '20

Politics and government

Direct message for American engineers. F. K. Lane. Ind Management 59:96a-b F '20

United States—Politics and government —Cont.

Our government and business. C. Jennings. Automotive Ind 44:891-3 Ap 28 '21

Problem of reorganization of the federal government. H. C. Hoover. Chem & Met Eng 24:743-4 Ap 27 '21; Same. Am Mach 54:755-6 Ap 28 '21; Excerpts. Eng N 86:731-2 Ap 28 '21; Excerpts. Gas Age 47:363 My 10 '21

Reorganization plans of Hoover received with favor. L. W. Moffett. Iron Age 107:1395+ My 26 '21

Reorganizing our government machinery. C. H. Claudy. Sci Am 124:428, 448 My 28-Je 4 '21

See also Taxation—United States

Population

Final census returns show population of United States 105,708,771. Comm & Fin Chr 112:331 Ja 22 '21

First 100 cities of United States in order of population. Eng & Contr 55:96 Ja 26 '21

Returns show population of U.S. 105,683,108—state figures. Comm & Fin Chr 111:1428 O 9 '20

Some 1920 census figures. Pub Works 50:33-4 Ja 8 '21

Where the population centers. map J Elec 46:278 Mr 15 '21

Post office department

Reduction in expenditures at post offices planned. Comm & Fin Chr 113:494 Jl 30 '21

Public roads, Bureau of

Annual report of Bureau of public roads. T: H. MacDonald. Pub Works 49:593-4 D 25 '20

Federal aid road work in 1919-20. Eng & Contr 55:5-8 Ja 5 '21

Public works, Department of (proposed)

Analysis of the proposal to establish a national department of public works. C. O. Sherrill. Eng N 85:1273-6 D 30 '20

Future of the Corps of engineers of the United States army. Am Arch 116:800-2 D 24 '19

McCormick drafts new Public works bill. Eng N 85:1107-8 D 2 '20

National department of public works. M. O. Leighton. Min & Sci P 121:758 N 27 '20

National department of public works situation. Eng N 85:834-5 O 28 '20

National program for great engineering problems. H. Hoover. Min & Met 166:3-5 O '20; Same. Eng & Contr 54:258-9 S 15 '20; Same. Eng N 85:544-5 S 16 '20

Proposed National department of public works. W. B. Gregory. Munic Eng 57:252-4 D '19

Rival arguments on the Public works department. Eng N 87:563-5 O 6 '21

Race problems

Races in the United States. il Sci Am 125:125 Ag 20 '21

Railroad administration

Annual report for the year 1919. W. T. Tyler. Ry R 66:246-8 F 14 '20; Excerpt. Eng & Contr 53:192 F 18 '20

Annual report of Division of labor, United States railroad administration, for 1919. Monthly Labor R 10:888-90 Ap '20

Annual report of regional director Aishton. Ry Age 68:298 Ja 23 '20

Annual report of regional director Hardin. Ry Age 68:375-7 Ja 30 '20

Annual report of the car service section, U.S. R. A. Ry Age 68:949-54 Mr 19 '20

Annual report of the Division of labor. W. S. Carter. Ry Age 68:365-7 Ja 30 '20; Ry R 66:171-3 Ja 31 '20

Annual report of the Division of operation. Ry Age 68:481-3 F 13 '20

Annual report of the Division of purchases. Ry R 66:307-9 F 21 '20

Appropriation for Railroad administration reduced. Ry Age 68:1259-62 Ap 23 '20

Central coal committee report. Ry R 66:142-3 Ja 24 '20; Same. Ry Age 68:369-70 Ja 30 '20

Claims against the Railroad administration. Ry Age 69:151-2 Jl 23 '20

Deficiency appropriation passed. Ry R 66:693-5 Ap 24 '20

Director general Hines reports to president. Ry Age 68:685-700 Mr 5 '20

Director general's report to the president. W. D. Hines. Ry R 66:371-5, 411-14, 468-70, 577-9, 604-8 Mr 6-20, Ap 3-10 '20

Federal control of roads results in \$900,000,000 deficit; abstract of annual report of Division of finance. S. Sherley. Ry R 66:878-81 My 29 '20; Same. Coal Age 17:1150-2 Je 3 '20; Excerpt. Ry Age 68:1506 My 28 '20

Liquidation staff of the Railroad administration. Ry Age 68:767-8 Mr 12 '20

People pay the railway loss, anyhow. Ry R 66:682-3 Ap 24 '20

Railroad mechanical department activities in 1919. Ry Age 68:759-63 Mr 12 '20; Same. Ry Mech Eng 94:200-4 Ap '20

Report of Allegheny regional director. L. W. Baldwin. Ry Age 68:305-6 Ja 23 '20

Report of director Chambers of the Division of traffic. Ry R 66:304-7 F 21 '20; Same. Ry Age 68:487-9 F 13 '20

Report of Division of capital expenditures. Ry Age 68:1291-2 Ap 30 '20

Report of sections of the Division of operation—police; telegraph; engineering tests; health and medical relief; administration. Ry Age 68:1151-4 Ap 9 '20

Report of the general counsel, Division of law. E. M. Underwood. Ry R 66:174-5 Ja 31 '20; Same. Ry Age 68:380 Ja 30 '20

Review of policies of the railroad administration. Ry Age 68:61-90 Ja 2 '20

Some of the failures of government management. Ry Age 68:615-17 F 27 '20

Work of the Fuel conservation section. E. McAuliffe. Ry Age 67:1011-13 N 21 '19; Same. Ry R 65:920-2 D 20 '19

Work of the Public service division, U.S.R.A., in 1919. M. Thelen. Ry R 66:139-41 Ja 24 '20; Same. Ry Age 68:323-5 Ja 23 '20

Work of the U.S. railroad administration. J. F. Jarrell. il Ry R 66:95-7 Ja 17 '20; Same. Nation's Business 8:20+ Ja '20

See also Railroads and state—United States—Government operation

Railroad labor board

See Railroad labor board

Reclamation service

See Reclamation service (United States)

Shipping board

Albert D. Lasker appointed chairman of U.S. Shipping board. Comm & Fin Chr 112:2602 Je 18 '21

Big five; our bid for the transatlantic passenger trade. il Sci Am 125A:9-10 N '21

Chairman Lasker announces his plans for reorganization of the U.S. Shipping board. Comm & Fin Chr 113:255-7 Jl 16 '21

Chairman Lasker's statement on financial condition of Shipping board. Comm & Fin Chr 113:364-5 Jl 23 '21

Criticism of high salaries paid officers of N. Y. Federal reserve bank and U. S. Shipping board. Comm & Fin Chr 113:1523-4 O 8 '21

Do conditions justify the Shipping board's policy? S. G. Riggs. Annalist 17:735-6 Jl 11 '21

Flying the flag on a deficit; the costly failure of the Shipping board. J. B. Morrow. il Nation's Business 8:11-13 D '20

Future policy of the Shipping board. H. F. Lane. Marine Eng 26:581-2 Ag '21

Heavy claims against the government held by shipbuilders and shipping interests. W. Fawcett. Marine Eng 26:298-300 Ap '21

Losses in ship operation. V. G. Iden. Annalist 18:269 S 19 '21

Newly appointed Shipping board. Marine Eng 26:501-2, 564-6 Jl '21

Oil companies use their own tankers to help Shipping board. V. B. Guthrie. Nat Pet N 12:35 D 1 '20

Practical U.S. ship problems. R. E. Annin. Marine R 51:440-1+, 499-501 O-N '21

Problems of the Shipping board. A. D. Lasker. Ptr Ink 117:28 O 6 '21

United States—Shipping board—Continued

- Reorganization of the Shipping board. W. Fawcett. Marine Eng 26:579-80+ Ag '21
- Shipping board advertising programme begins to take form. Ptr Ink 112:87-8 Jl 1 '20
- Shipping board feels its way. W. Fawcett. Int Marine Eng 25:735-7 S '20
- Shipping board gets its chance. W. Fawcett. Marine Eng 26:729-30 O '21
- Shipping board investigation. Comm & Fin Chr 112:430-1 Ja 29 '21
- Shipping board must be reorganized. A. D. Lasker. Comm & Fin Chr 113:33 Jl 2 '21
- Shipping board operation of its fleet imperils merchant marine. Marine R 50:622-32 D '20
- Shipping board to put big push behind U.S. mail line. E. T. Tandy. il Ptr Ink 115:101-4+ Je 2 '21
- Shipping depression. V. G. Iden. Annalist 18:199 Ag 29 '21
- Text of Shipping board wage agreement with marine engineers. Comm & Fin Chr 112:2710 Je 25 '21
- U.S. Shipping board alleged to have lost two billion dollars. Comm & Fin Chr 111:2008-9 sec 1 N 20 '20
- U. S. Shipping board divorced from Emergency fleet corporation—foreign interests seek to undermine American merchant marine. A. D. Lasker. Comm & Fin Chr 113:1643 O 15 '21
- United States Shipping board operations. 53p U.S. Congress. House. Select committee on U.S. Shipping board operations, Washington, D.C. '21
- U.S. Shipping board seeks advertising advice. Ptr Ink 111:66+ Je 24 '20
- What the government is doing to help port layout. F. T. Chambers. Eng N 85:850-1 O 28 '20
- What the Shipping board is doing. Marine Eng 26:855-6 N '21
- Who is who in new ship board. E. C. Boehringer. Marine R 51:346-7 Ag '21

Library

- American research centers, Washington, D.C.; library of the U.S. shipping board. Special Lib 12:119-20 Je '21

Standards, Bureau of

- Annual report of director, Bureau of standards. Am Gas Eng J 113:522 D 18 '20
- Annual report shows extent of automotive research. Automotive Ind 44:178-9 Ja 27 '21
- Good work in the U.S. Bureau of standards. Am Mach 54:741 Ap 28 '21
- Much useful automotive research in progress at Bureau of standards. H. Chase. diags Automotive Ind 44:750-5 Ap 7 '21
- Publications of the Bureau of standards. U S Bur Stand Circ 24 (Supp. no. 4):1-21 '20 [List of publications revised biennially, and a supplement issued quarterly]
- Relation of the Bureau of standards to the printing industry. W. Blumm. Inland Ptr 67:792 S '21
- Research work of the United States Bureau of standards. Sci Am M 1:93-5 Ja '20
- Textile mill of U.S. Bureau of standards. R. T. Fisher. il Textile World 57:1160a-b F 7 '20
- War work of the Bureau of standards. il U S Bur Stand Misc Pub 46:1-299 '21; Abstract. Am Mach 54:1043 Je 16 '21
- Work of the Bureau of standards. il Mach 26:505-8 F '20
- Work of the Bureau of standards of 1920. Iron Age 106:1688-9 D 23 '20

Library

- American research centers, Washington, D.C.; library of the Bureau of standards. Special Lib 12:121 Je '21

Statistics

- Picture of the progress of the United States during 120 years of national life. Americas 7:30-2 Jl '21

Statistical record of the progress of the United States, 1800-1920 and monetary, commercial, and financial statistics of principal countries. E: Whitney. U S Bur For & Dom Com p 750-852 '20

Sugar equalization board

- President Wilson signs the McNary bill extending the life and powers of the Sugar equalization board. Comm & Fin Chr 110:34-6 Ja 3 sec 1 '20

Surgeon general's office**Library**

- American research centers, Washington, D.C.; the nation's medical library. H. J. Councilor. Special Lib 12:97-8 My '21

Transportation, Department of (proposed)

- Department of transportation proposed. Ry Age 70:707-8 Mr 18 '21

Treasury

- Autocrat of the treasury; Walter Winter Warwick, comptroller of the treasury. J. B. Morrow. Nation's Business 9:32-3 Ja '21
- Comptroller of currency Williams's annual report—criticism of interest rates in New York. Comm & Fin Chr 112:609-10 F 12 '21
- Economic policy commission of A. B. A. endorses McFadden bill abolishing office of comptroller of currency. Comm & Fin Chr 112:425-6 Ja 29 '21

War department

- How advertising is moving war department's surplus stock. Ptr Ink 113:120+ N 4 '20
- How war surplus was marketed. E. C. Boehringer. Iron Tr R 68:898-900 Mr 31 '21
- Secretary of war in answer to reports of irregularities. N. D. Baker. Comm & Fin Chr 111:2196-7 D 4 '20
- Uncle Sam's success as a salesman; war department has sold \$1,750,000,000 worth of surplus stock since the armistice. C. M. Willoughby. Am Ind 21:31-2 Ja '21

War industries board

- American industry's part in the war. B. M. Baruch. Iron Age 107:779-80 Mr 24 '21
- Combinations of industry under federal supervision favored by War industries board. Comm & Fin Chr 112:1229-30 Mr 26 '21
- Giant hand. B. Crowell and R. F. Wilson. 191p Yale university press, New Haven '21
- Overseas war mineral movements; a record of activities of the Committee of mineral imports and exports. C. K. Leith. Eng & Min J 112:570-5 O 8 '21
- Work of the paper division of the War industries board. Paper 28:125-6 Ap 20 '21

War trade board

- Overseas war mineral movements; a record of activities of the committee of mineral imports and exports. C. K. Leith. Eng & Min J 112:570-5 O 8 '21

Weather bureau

- What the Weather bureau does for air pilots. il Aviation 10:595-7 My 9 '21

Women's bureau

- Women's bureau in the United States Department of labor. Monthly Labor R 11:174-5 Jl '20
- United States council of national defense. See Council of national defense
- United States grain growers, inc. Grain growers' conference on grain marketing plan. Comm & Fin Chr 112:1472 Ap 9 '21
- Organization. Comm & Fin Chr 112:1576-7 Ap 16 '21
- United States housing corporation Architects and war housing. Am Inst Arch J 8:supl-8 Ja '20
- Housing corporation replies to senatorial criticism. Am Arch 117:343 Mr 17 '20
- Senate and the United States housing corporation. Am Inst Arch J 8:103-4 Mr '20
- Senate committee investigates the housing corporation. Eng N 84:386-7 F 19 '20

- United States mail steamship company**
Francis R. Mayer steps to the front in marine activities in creating U.S. mail. V. G. Iden. il map Marine R 51:259-64 Je '21
- United States military academy, West Point**
Swimming pool of the West Point military academy. il diags plans Am Arch 116:701-5 D 3 '19
- United States naval observatory**
Relation of the U.S. naval observatory to the navy and shipping interests of the country. J. A. Hoogewerff. il J Fr Inst 189:441-61 Ap '20
- United States naval ordnance plant, South Charleston, West Virginia**
Armor-plate and gun-forging plant of U.S. navy. R. M. Freeman. il diags plans Mech Eng 42:657-68+ D '20; Same abr. Iron Age 106:1458-62, 1600-4 D 2, 16 '20; Same cond. Iron Tr R 67:1669-74+ D 16 '20
- Government armor plate factory; naval ordnance plant compared with 1897 project. S. G. Koon. il plans Iron Age 107:1365-71 My 26 '21
- Make shells in navy ordnance plant, South Charleston, W. Va. Iron Tr R 66:778-9 Mr 11 '20
- United States naval ordnance plant. W: J. Priestley. il Blast F & Steel Pl 9:254-9 Ap '21
- United States pharmacopoeia**
Relation of the chemist to the United States pharmacopoeia. C: H. LaWall. J Ind & Eng Chem 12:696-7 Jl '20
- United States rubber company**
28th annual report. India Rubber W 62:511-12 My '20
- United States shipping board emergency fleet corporation**
Buckman village; housing development at Chester, Pa. il plans Arch Forum 32:183-8 My '20
- Building the emergency fleet. W: C. Mattox. 279p Penton pub. co. '20
- United States steel corporation**
18th annual report, 1919. Comm & Fin Chr 110:1237-9, 1298-1305 Mr 27 '20; Chem & Met Eng 22:579 Mr 31 '20
- Nineteenth annual report for the fiscal year ended December 31, 1920. Comm & Fin Chr 112:1211-12, 1291-7 Mr 26 '21; Iron Age 107:814-16 Mr 24 '21; Same. Iron Tr R 68:821-3 Mr 24 '21
- Complaint of Federal trade commission on basing of steel prices. E. H. Gary. Comm & Fin Chr 112:1932 My 7 '21
- Decision in the steel dissolution suit. Comm & Fin Chr 110:909-10 Mr 6 '20
- Federal trade commission issues complaint against U.S. steel corporation in matter of basic steel price. Comm & Fin Chr 112:1931-2 My 7 '21
- Financing homes for employes. il Iron Tr R 67:107-11 Jl 8 '20
- Judge Gary discusses the decision of the Supreme court in the dissolution case. Iron Age 105:1174-8 Ap 22 '20
- Pittsburgh view of labor problems. G: Smart. Iron Age 106:391-2 Ag 12 '20
- Power system of the U.S. steel corporation in Pittsburgh. S. S. Wales. map Elec J 18:222-3 My '21
- Safety methods of the United States steel corporation. Blast F & Steel Pl 8:267, 313 Ap-My '20
- Steel corporation is not dissolved. Iron Age 105:670-7 Mr 4 '20
- United States Steel; a corporation with a soul.** A. Cotter. 312p Doubleday '21
- U.S. steel corporation acquires large coal acreage. Coal Age 17:758-9 Ap 15 '20
- U.S. steel corporation principles; annual address. E. H. Gary. Iron Age 107:1043-5 Ap 21 '21; Iron Tr R 68:1096-7 Ap 21 '21
- United States steel corporation's answer to complaint in Pittsburgh plus case. Iron Age 107:1551-4 Je 9 '21
- United States steel corporation's answer to Federal trade commission a smoke screen. Iron Age 107:1625-6 Je 16 '21
- U.S. steel earnings greater than in 1919. Coal Age 17:1002 My 13 '20
- U.S. Supreme court decides in favor of U.S. steel corporation. Comm & Fin Chr 110:925-9 Mr 6 '20
- Welfare work in the steel industry. C. L. Close. il Blast F & Steel Pl 8:418-21, 462-5 Jl-Ag '20; Same cond. Iron Tr R 66:1685-90 Je 10 '20; Abstract. Iron Age 105:1599-1601 Je 3 '20
- United States trucking corporation**
Trucking on a scientific basis. A. E. Smith. il Am Ind 22:17-20 Ag '21
- United typothetæ of America**
Brief review of the thirty-fifth annual U. T. A. convention. H. Hillman. Inland Ptr 68:233-4 N '21
- 34th annual convention, St Louis, Sept. 13-15. Inland Ptr 66:60 O '20
- Typothetæ gives autonomy to open and closed shop divisions. Ptr Ink 112:95-6 S 23 '20
- Units**
Some new consequences of the theory of ultimate rational units. G. N. Lewis. Phys R 18:121-5 Ag '21
- See also Electric units; Heat unit; Horsepower; Metric system; Weights and measures
- Universal craftsmen council of engineers**
18th annual convention, Springfield, Mass., August 6-10. Power 52:277-8 Ag 17 '20
- 19th annual convention, Toronto, Canada, August 1-6. Power 54:274 Ag 16 '21
- Universal joints.** See Joints, Universal
- Universe**
Between the infinites; an essay upon the impressive magnitudes which the universe presents. H. Maxim. Sci Am M 4:204-7 S '21
- Einstein's finite universe. Sci Am 124:202 Mr 12 '21
- Einstein's theory of the universe; the hypersphere—a universe unbounded but of finite volume. L. P. Eisenhart. Sci Am M 4:7-8 Jl '21
- Infinitely small and infinitely great; lengths, volumes, masses, velocities, etc., at the limits of measurement. G. Estoppey. Sci Am M 3:388-91 My '21
- Scale of the universe. H. Shapley and H. D. Curtis. il Nat Research Council Bul 2 pt 3:171-217 My '21
- See also Cosmogony
- University college, London**
Engineering education at University college, London. il diags plans Engineering 109:339-42 Mr 12 '20
- University extension.** See California. University—Extension division
- Unskilled labor.** See Labor and laboring classes
- Upholstery**
See also Automobiles—Upholstery
- Uranium**
Alloys of iron and uranium. E. P. Polushkin. il Iron & Steel Inst C S M 10:129-50 '20
- Analytical chemistry of uranium and its separation from other rare elements. C. A. Pierlé. J Ind & Eng Chem 12:60-3 Ja '20
- Brannerite, a new uranium mineral. F. L. Hess and R. C. Wells. il J Fr Inst 189:225-37 F '20
- New radioactive substance in uranium. O: Hahn. Chem Soc J 120 pt 2:478-9 Ag '21
- Note on brannerite. R. C. Wells. J Fr Inst 189:779-80 Je '20
- Qualitative separation and detection of uranium, vanadium and chromium when present together. P. E. Browning. Am Chem Soc J 43:114-15 Ja '21
- Relative activity of radium and the uranium with which it is in radioactive equilibrium. J. H. L. Johnstone and B. B. Boltwood. Am J Sci 50:1-19 Jl '20; Abstract. Sci Am M 2:182 O '20
- Über die eigenschaften des protaktiniums; seine lebensdauer und sein gehalt in uranmineralien. O: Hahn and L. Meitner. Deutsche Chem Gesell Ber 54:69-77 Ja '21

Uranium—Continued

Über eine neue radioaktive substanz im uran. O: Hahn. Deutsche Chem Gesell Ber 54:1131-42 Je '21

Uranium and radium in 1920. R: B. Moore. Eng & Min J 111:151-2 Ja 22 '21

Uranium in 1919. R: B. Moore. Eng & Min J 109:213 Ja 17 '20

See also Uranium steel

Uranium oxide

Vermilion color from uranium. C: F. Binns and F. Lyttle. Am Cer Soc J 3:913-14 N '20

Uranium steel

American company investigates uranium alloy steel. E. Polushkin. il Iron Tr R 68: 413-17 F 10 '21

Uranium as a structural steel alloy. H. S. Foote. Ry Mech Eng 94:695-6 N '20

Uranium in steel. 32p Standard alloys co., Pittsburgh '21

Uranium steels. H. S. Foote. il Chem & Met Eng 25:789-92 O 26 '21

Urea

Determination of dicyanodiamide and of urea in fertilizers. E. Johnson. J Ind & Eng Chem 13:533-5 Je '21

Entropy changes at low temperatures; formic acid and urea: a test of the third law of thermodynamics. G. E. Gibson, W. M. Latimer and G. S. Parks. Am Chem Soc J 42:1533-42 Ag '20

Four-membered cyclic ureas; the condensation of isocyanic acid with alkyl Schiff bases and related compounds. W: J. Hale and N. A. Lange. Am Chem Soc J 42:107-16 Ja '20

Ionization of aqueous solutions of ammonia in the presence of urea. W. M. Burke. diag Am Chem Soc J 42:2500-6 D '20

Preparation of urea; patent. Chem & Met Eng 23:941 N 10 '20

Ureido-phenylacetylurea

Preparation of para-ureido-phenylacetylurea, and related compounds. M. Rising. Am Chem Soc J 42:128-36 Ja '20

Uric acid

Acidität der wasserstoffatome in der harnsäure. H. Biltz and L. Herrmann. Deutsche Chem Gesell Ber 54:1676-94 Jl '21; Abstract. Chem Soc J 120 pt 1:691-2 S '21

Derivatives of 7:9-dimethyluric acid and other papers on uric acids. H: Biltz and others. Chem Soc J 120 pt 1:609-16 Ag '21

8-thiouric acids and isoxanthines containing alkyl groups in position 9. H: Biltz and others. Chem Soc J 120 pt 1:611-12 Ag '21

7-ethyluric acid and its derivatives. H: Biltz, K. Marwitzky and M. Heyn. Chem Soc J 120 pt 1:607-9 Ag '21

7-methyluric acid and its derivatives. H: Biltz, K. Marwitzky and M. Heyn. Chem Soc J 120 pt 1:606-7 Ag '21

Urns, Concrete

Urn woman—a products manufacturer. E. L. Simms. il Concrete 16:203-4 Ap '20

Uruguay**Commerce**

Advertising methods in Argentina, Uruguay, and Brazil. J. W. Sanger. il U S Bur For & Dom Com 190:56-70 '20

Electrical goods in Argentina, Uruguay, and Brazil. P. S. Smith. U S Bur For & Dom Com 184:75-92 '19

Textile markets of Argentina, Uruguay, and Paraguay. L. S. Garry. il U S Bur For & Dom Com 194:1-151 '20

Economic conditions

Industrial conditions in Uruguay in 1920. Monthly Labor R 13:312-12 Ag '21

Used cars. See Automobile industry and trade—Used cars

Used equipment, Buying of, requires care. T: R. Hay. Iron Age 107:981-2 Ap 14 '21; Elec W 78:520 S 10 '21

Utah

Wonderland revealed by new highway; new temple of the gods. J. C. Alter. il Pop Mech 33:698-9 My '20

See also Irrigation—Utah; Mines and mineral resources—Utah; Petroleum—Utah

Utah Apex mining company

Utah Apex v. Utah Consolidated; abstract of the court's opinion. diags Min & Sci P 121:725-32 N 20 '20

Utah Consolidated—Utah-Apex lawsuit. E. B. Jennings. il Eng & Min J 110:875-8 O 30 '20

Utica, New York**Rapid transit**

Ten-cent fare denied in Utica. Elec Ry J 58: 535-6 S 24 '21

Utopias

Folly of Utopianism. D. C. Calthrop. Engineer 131:462-3 Ap 29 '21

Uva-chrom process. See Color photography

V**V-blocks**

Taft-Pierce V-blocks and angle-iron. il Mach 26:567-8 F '20; Am Mach 52:423-4 F 19 '20

V-block for milling operations. diags Mach 26: 1156 Ag '20

Vacations

Do factory vacations pay? il Factory 26: 1086-7 My 1 '21

Vacation arrangements that don't upset things. il Factory 24:1550-2 My 15 '20

What about vacation? Ptr Ink 115:129+ Je 9 '21

Vaccination

New theories and methods of vaccination. Sci Am M 3:30-2 Ja '21

Vaccines and serums; modern methods of preparing medicaments for killing microbes. D. McClure. il Sci Am M 3:507-11 Je '21

Vacuum

Electric phenomena in extreme vacuo. H. E. Lilienfeld. diags Sci Am M 3:46-8 Ja '21

Limitations of high vacuum in actual practice. A. D. Bailey. Elec R 76:1019-20 Je 19 '20; Same. Power 52:192-3 Ag 3 '20; Same. Sci Am M 2:167-8 O '20

Methods for the production and measurement of high vacua. S. Dushman. Gen Elec R 23:493-402, 605-14, 672-83, 731-40, 847-55; 24: 58-68, 244-52, 436-43, 669-80, 810-18, 890-900 Je-O '20, Ja, Mr, My, Jl, S-O '21

Why not express vacuum values in per cent? Power 50:836-7 D 16 '19

Vacuum cleaners

Canadian electrical dealers show initiative in display of washers and vacuum cleaners. E. A. Dench. Elec R 78:191-2 Ja 29 '21

Cleaning kiln flues with vacuum cleaner. il diags Brick & Clay Rec 59:670-1+ N 1 '21

Considering woman's viewpoint in sale of appliances. K. Maddock. il Elec R 79:613-15 O 22 '21

Distinctive features of Gainaday suction cleaner. il Elec R 79:329 Ag 27 '21

Electric vacuum cleaners; how to use them. Elec R (Lond) 89:4-5 Jl 1 '21

Making a success selling vacuum cleaners. M. McLoughlin. il Dom Eng 90:55 Ja 10 '20

Vacuum cleaner; new model either sucks up or blows away lint and dirt. il Textile World 57:1523 F 21 '20

Vacuum cleaning

Swimming tank vacuum cleaner. diags Power Pl Eng 24:251-2 F 15 '20

Vacuum gages

Barometers and vacuum measuring instruments. il diags Power Pl Eng 24:86-7 Ja 1 '20

Vacuum oil company

Helping a world organization to advertise. R. Giles. Ptr Ink 113:77-8+ N 18 '20

Vacuum pans

Vacuum pan for laboratory and experimental use. F. A. McDermott. *il diags Sci Am M* 1: 62-3 Ja '20

Vacuum pumps

High-vacuum mercury pump with provision for the preservation of the exhausted gases. A. Beutell and P. Oberhoffer. *diag Mech Eng* 42:242 Ap '20

Langmuir condensation pump. L. A. Hawkins. *il Sci Am* 122:511+ My 8 '20

Power consumed by dry vacuum piston-type pumps. M. A. Kolb. *Power* 53:432 Mr 15 '21

Production and measurement of high vacua. S. Dushman. *il diags Gen Elec R* 23:605-14, 672-83 Jl-Ag '20

Sulfuric acid concentrator and vacuum pump. O. Maass. *diag Am Chem Soc J* 42:2571-4 D '20

Thompson Du Moin return line vacuum pump. *diag Heat & Ven* 18:58 Mr '21

Trompe à mercure, d'encombrement réduit. G. Ranque. *diags Génie Civil* 79:87-8 Jl 23 '21

Vacuum or pressure pump of new design. *il Ry Mech Eng* 94:736 N '20

Vacuum pump for corrosive gases. *il diag Engineer* 132:224 Ag 26 '21

Vacuum pump trouble on heating system. R. L. Tullis. *Power* 53:716 My 3 '21

Vacuum pumps. *il diag Engineer* 129:74 Ja 16 '20

Testing

Dry-vacuum pump capacity tests. S. B. Redfield. *diags Mech Eng* 43:315-18 My '21; Excerpts. *Power* 53:990 Je 14 '21

Testing vacuum pumps. W. D. Taylor. *il Power* 50:816-17 D 16 '19

Vacuum traps

Vacuum trap used for turbine drainage. *il diag Marine Eng* 26:843-4 N '21

Wilmon vacuum trap used afloat and ashore. *il diag Marine R* 51:520-1 N '21; Same. *Power Pl Eng* 25:1172-3 D 1 '21; Same abr. *Elec Ry J* 58:906-7 N 19 '21

Vacuum tubes

Algebra of ionic valves. W. H. Eccles. *diags Electrician* 84:162-3 F 13 '20

Another vacuum tube makes its advent. *Elec W* 78:809-10 O 22 '21

Audio-frequency vacuum-tube generator. J. A. Eyser. *il diags Am Inst E E J* 39: 888-9 O '20

Behaviour of a three-electrode vacuum tube as an oscillation generator. E. Takagishi. *diags Electrician* 86:346-8, 374-5 Mr 25-Apr 1 '21

Calculation of the amplification constant of the Weagant thermionic vacuum tubes. A. Marcus. *diags Phys R* 17:1-6 Ja '21

Concerning grid leaks. P. H. Boucheron. *diag Wireless Age* 8:15 Ap '21

Control means for vacuum tube generator. *diags Wireless Age* 8:19-20 Ap '21

De Hull predicts electron tubes soon in heavy power service. *Elec W* 77:1263 My 28 '21

Dependence of the input impedance of a three-electrode vacuum tube upon the load in the plate circuit. J. M. Miller. *diags U S Bur Stand Sci Pa* 351:367-85 '19

Design of multi-stage vacuum tube receiving circuits. J. Scott-Taggart. *diags Wireless Age* 7:13-18 My '20

Design of multiple-stage amplifiers using three-electrode thermionic valves. C. L. Fortescue. *diags Inst E E J* 58:65-74; Discussion. 74-82 Ja '20

Design of soft thermionic valves. G. Stead. *diags Philos Mag* 6th ser 41:470-82, pl 8 Mr '21

Detecting efficiency of the resistance-capacity coupled electron tube amplifier. E. O. Hulburt. *diags Phys R* 18:165-77 S '21

Determination of the output characteristics of electron tube generators. L. M. Hull. *diags U S Bur Stand Sci Pa* 355:497-517 '19; Abstract. *J Fr Inst* 188:816-18 D '19

Development of electron tubes. M. Latour. *diags Elec W* 76:521-4, 870-2 S 11, O 30 '20

Development of thermionic valves for naval uses. B. S. Gossling. *diags Inst E E J* 58:670-97 Ag '20; Abstract. *Electrician* 85: 494-5 O 29 '20; Discussion. *Inst E E J* 58: 697-703 Ag '20

Distortion in thermionic tube circuits. L. C. Pocock. *diag Electrician* 86:246-7 F 25 '21

Double-anode rectifier and generator. *diags Wireless Age* 8:20-1 D '20

Dynamic characteristics of three electrode vacuum tubes. J. G. Frayne. *Phys R* 17: 391-3 Mr '21

Effect of electron emission on the temperature of the filament and anode of a thermionic valve. G. Stead. *Inst E E J* 59:427-9 Ap '21; Same cond. *Electrician* 86:755-6 Je 17 '21; Discussion. *Inst E E J* 59:429-32 Ap '21

Electron power tubes and some of their applications. W. C. White. *il diag Gen Elec R* 23:514-26 Je '20

Electron tube transmitter of completely modulated waves. L. M. Hull. *il diags U S Bur Stand Sci Pa* 381:259-71 '20

Electrostatic transformers and coupling coefficients. F. C. Blake. *diags Am Inst E E J* 40:23-9 Ja '21

Filament protection in vacuum tubes. W. J. O'Neill, jr. *diags Wireless Age* 8:25 Ag '21

Form of free triode vibrations. E. V. Appleton and B. van der Pol. *diags Philos Mag* 6th ser 42:201-20 Ag '21

Four-electrode vacuum tube. *Sci Am* 125:75 Jl 30 '21

Fundamental phenomena in electron tubes having tungsten cathodes. I. Langmuir. *Gen Elec R* 23:503-13, 589-96 Je-Jl '20

German contributions to theory and practice of vacuum-tube applications. *Elec W* 75: 1382-3 Je 12 '20

Improved connections for two-element vacuum tube. *diags Wireless Age* 8:21 O '20

Low-frequency voltage factor of an oscillating triode. M. Taylor. *diags Electrician* 87:205-6 Ag 12 '21

Manufacture of modern vacuum tubes for radio detection, amplification and power work. *il Wireless Age* 9:18-20 O '21

Methods of prolonging the life of vacuum tubes. L. R. Felder. *diags Wireless Age* 8: 26-7 Ag '21

New cathode for vacuum tubes. *diags Wireless Age* 8:23 Ag '21

New negative resistance thermionic device. J. Scott-Taggart. *diags Wireless Age* 8: 21-2 S '21

New three-electrode vacuum tube. *il Wireless Age* 7:16-17 Je '20

Oscillatory valve relay: a thermionic trigger device. L. B. Turner. *diags Inst E E J* 57:sup50-9; Discussion. 59-65 '19

Radio telephony systems employing thermionic vacuum tubes. J. Scott-Taggart. *diags Wireless Age* 8:17-18 Ja; 17-19 F; 21-3 Mr; 17-18 Ap '21

Regenerative receiver vs. cascade amplifier. H. W. Lewis. *diags Wireless Age* 7:20-2 F '20

Relay protects vacuum tube of wireless detector. *il Pop Mech* 35:516 Ap '21

Scottish centre of I. E. E.; chairman's address. W. B. Hird. *Inst E E J* 58:43-6 D '19

Short tungsten filament as a source of light and electrons. G. Stead. *diag Inst E E J* 58:107-17 Ja '20

Single battery vacuum tube hook up. *diags Wireless Age* 8:18-19 Mr '21

Some operating characteristics of electron tubes. W. C. White. *diags Wireless Age* 8: 11-17 Jl '21; Same abr. *J Fr Inst* 191:473-91 Ap '21

Some practical operating features of tungsten filament electron tubes. W. C. White. *diag Gen Elec R* 23:840-6 O '20

Some thermionic tube circuits for relaying and measuring. W. H. Eccles and W. A. Leyshon. *diags Inst E E J* 59:433-6 Ap '21; Abstract. *Electrician* 86:754-5 Je 17 '21; Discussion. *Inst E E J* 59:436-8 Ap '21

Speaking on a battleship to a crowd in New York city. R. Howard. *il diag Sci Am* 122: 601 My 29 '20

Vacuum tubes—Continued

Stability conditions in vacuum tube circuits. R. D. Duncan, jr. diags Phys R 17:302-14 Mr '21

Structure and operation of the vacuum valve. R. W. A. Brewer. J Elec 44:102-5 F 1 '20

Thermionic amplifiers. W. D. Owen. il Elec R (Lond) 88:528-9 Ap 22 '21

Thermionic tube—a return to simplicity. L. C. Pocock. diags Electrician 87:232-4 Ag 19 '21

Thermionic vacuum tube and its applications. H. J. van der Bijl. 391p McGraw-Hill '20

Thermionic vacuum tube as detector, amplifier and generator of electrical oscillations. W. H. Eccles. diags Electrician 84:522-4 My 7 '20

Thermionic valve in wireless telegraphy and telephony; abstracts. J. A. Fleming. Electrician 84:646 Je 11 '20; Engineering 109:760 Je 4 '20

Thermionic valves. Engineer 131:610 Je 10 '21; Discussion. 131:663 Je 24 '21

Thermoionic tube. diags Engineering 109:724-5 My 28 '20

Les tubes à décharge électronique et leurs applications. P. Letheule. il diags Génie Civil 76:199-205. 233-5, 254-6, 269-71, 292-4, 413-17, 432-5, 453-5, 472-5, 491-2, 508-12 F 21-Mr 20, My 1-Je 5 '20

Two laboratory applications of the triode valve. J. Scott-Taggart. diags Electrician 86:124 Ja 28 '21

Two new vacuum tubes. P. H. Boucheron. il diags Wireless Age 8:15-16 F '21

Use of vacuum tubes for wireless transmission and the reception of continuous waves. J. Scott-Taggart. diags Inst E E J 58:893-7 S '20; Abstract. Electrician 86:97-8 Ja 21 '21

Using the vacuum tube so that deaf may hear. il Sci Am 124:251+ Mr 26 '21

Vacuum tube—an electrical acrobat. P. H. Boucheron. il diags Sci Am 122:64-5+ Ja 17 '20

Vacuum tube as an engineering problem. W. C. White. Sci Am 124:125+ F 12 '21

Vacuum tube in radio telephony. J. Scott-Taggart. diags Electrician 85:301-3 S 10 '20

Vacuum-tube trigger relay. J. Scott-Taggart. diags Wireless Age 7:23 Je '20

Valve and long-distance telephony. Electrician 85:719 D 17 '20

Who invented the vacuum tube? T. A. Edison; P. H. Boucheron. Sci Am 122:185 F 21 '20

See also Kenotron; Magnetron

Testing

Testing Marconi VT's. il diags Wireless Age 7:20-1 Mr '20

Testing of thermionic valves. H. J. Lucas. il diags Electrician 87:404-6 S 30 '21

Vacuum unloading system. *See* Pneumatic conveying

Vail, Theodore N., 1845-1920

Sketch. por Elec R 76:694-5 Ap 24 '20; Elec W 75:966-7 Ap 24 '20; Ry Age 68:1264 Ap 23 '20

Theodore N. Vail as a great advertiser. Ptr Ink 111:28 Ap 22 '20

Valence

Beiträge zum valenzproblem des schwefels; über aryl-schwefelrhodanide. H. Lecher and K. Simon. Deutsche Chem Gesell Ber 54: 632-8 Ap '21

Electrochemical conceptions of valency. J. A. N. Friend. Chem Soc J 119:1040-7 Jl '21

Electronic conception of valence and the constitution of benzene. H. S. Fry. 300p Longmans '21

Formation and stability of spiro-compounds; derivatives of cyclohexanespirocyclohexane and of cyclopentanespirocyclohexane. W. S. G. P. Norris and J. F. Thorpe. Chem Soc J 119:1199-1210 Ag '21

Nature of secondary valence. H. W. Smith. J Phys Chem 25:160-9, 204-63 F-Mr '21

Nonexistence of valence and electronic isomerism in hydroxylammonium derivatives. A. Michael. Am Chem Soc J 42:1232-45 Je '20

Octet theory of valence and its applications with special reference to organic nitrogen compounds. I. Langmuir. Am Chem Soc J 42:274-92 F '20

Polarity and ionization from the standpoint of the Lewis theory of valence. W. M. Latimer and W. H. Rodebush. Am Chem Soc J 42:1419-33 Jl '20

Properties of subsidiary valence groups. G. L. Clark, A. J. Quick and W. D. Harkins. Am Chem Soc J 42:2483-98 D '20

Structure of atoms and its bearing on chemical valence. I. Langmuir. J Ind & Eng Chem 12:386-9 Ap '20

Study of the possible asymmetry of the aliphatic diazo compounds. C. S. Marvel and W. A. Noyes. Am Chem Soc J 42:2259-78 N '20

Über die natur der nebenvalenzen; stabilität komplexer kationen bei wechselnder grössse der anionen. F. Ephraim and F. Müller. Deutsche Chem Gesell Ber 54:973-8 My '21

See also Chemical affinity

Valley Forge

Valley Forge memorial nearing completion. G. F. Paul. il Pop Mech 33:49-50 Ja '20

Valuation

Appraisal and inventory. W. F. Worcester. Textile World 60:1515+ S 10 '21

Appraisal and its benefits to the lumberman. W. F. Worcester. Am Lumberman 2332:53 Ja 24 '20

Appraisal and valuation methods. D. H. Ray. il diags Mech Eng 41:931-6 D '19

Appraisal methods. L. L. Thwing. Mech Eng 43:619-21 S '21

Appraisal principles applied to industrial properties. J. S. Brown. Mech Eng 43:208-9 Mr '21; Discussion. M. G. Farrell. 43:276-7 Ap '21

Appraisals and income tax. L. H. Olson. J Account 32:28-35 Jl '21

Appraisals and their relation to accounts. L. G. Hawkins. J Account 29:206-9 Mr '20

Court decision that pre-war price levels are not applicable in present appraisals. Eng & Contr 55:246-7 Mr 16 '21

Do you know what your business is worth? P. Golsan. il Factory 26:455-8 F 15 '21

Engineering appraisal. L. V. Estes. Mech Eng 43:486-7 Jl '21

Excessive fees paid to appraisal experts by Chicago. Eng & Contr 55:432-3 My 4 '21

How the shop manager can use an appraisal. M. G. Farrell. Am Mach 54:929-31 Je 2 '21

Illogical conclusions of many engineers respecting depreciated value. Eng & Contr 53:31 Ja 14 '20

Interest charges during construction. P. Golsan. Elec W 76:116-17 Jl 17 '20

Investigation of excessive fees paid to appraisal experts in Chicago, and a recommendation for new plans of employment and payment. H. P. Gillette. Eng & Contr 55:600-1 Je 15 '21

Normal value in appraisals. C. F. Elmes. chart Eng & Contr 53:66-70 Ja 21 '20

Rational valuation—a comparative study. J. R. Bibbins. Mech Eng 42:549-53 O '20

Reconciling depreciation and appraised values of industrial equipment. L. G. Hawkins. Ind Management 60:207-9 S '20

Relation of valuation to investment. T. W. Hulme. Ry Age 68:177-8 Ja 9 '20

Valuation of stocks and taxation of business profits. Eng & Ind Management 6:149-50 Ag 11 '21

View of value for rate base and value for compensation. Eng N 86:1125 Je 30 '21

What is your plant worth? C. W. McKay. Factory 24:41-2, 270-2, 451-3, 639-40, 800-2, 1526-8 Ja-Mr 15, My 15 '20

See also Depreciation; Electric plants (central stations)—Valuation; Electric railroads—Valuation; Machine tools—Valuation; Mine valuation; Oil lands—Valuation; Ore valuation; Public utilities—Valuation; Railroads—Valuation; Street railroads—Valuation; Waterworks—Valuation

Valuation of imports—American plan. *See* Tariff—United States

Valve gear

- New type of vacuum dashpot. F. B. Miller. diag Power Pl Eng 24:236 F 15 '20
 New valve gear adds power. H. Penton. Marine R 50:138-40 Mr '20
 Single eccentric valve gear. diags Ry R 67:623-4 O 23 '20
 Steam-engine operation and maintenance—why valve gears get out of order. H. Hamkens. diags Power 52:208 Ag 10 '20

Valves

- Capacities of reducing valves for steam heating systems. J. A. Donnelly. Am Soc Heat & V E 25:357-8; Discussion. 359-64 '19
 Cleco pressure seated air valve for compressed air installations. diag Eng & Contr 55:504 My 18 '21; Mach 27:992 Je '21; Marine Eng 26:452 Je '21
 Coxon automatic stop valves. diags Mech Eng 42:64-5 Ja '20
 Departures from accepted designs. W. D. Forbes. Power 52:892-3 D 7 '20
 Double-seated bypass valve. W. L. Ticer. diags Power 53:980 Je 14 '21
 Electrical operation of gate-valves. P. P. Dean. Eng Soc W Pa 35:483-93 Ja '20; Same. Elec R 76:641-4 Ap 17 '20; Discussion. Eng Soc W Pa 35:494-504 Ja '20
 Explosion of a steam-heated calender. Engineering 112:583-4 O 21 '21
 Explosion of a steam stop valve. Engineering 112:537 O 14 '21
 Golden-Anderson automatic, non return valve. il Ry Mech Eng 95:258 Ap '21
 Golden-Anderson double cushioned check valve. diags Eng & Contr 56:271-2 S 14 '21
 Goodyear automatic gas valve. A. G. Maranville. il Aviation 8:111 Mr 1 '20
 High pressure steam in small power plants. C. L. Hubbard. diags Sanitary & Heat Eng 96:136-8+ Ag 26 '21
 Importance of valves often underestimated. il Brick & Clay Rec 59:272-3 Ag 23 '21
 Improvised low-pressure valves. diags Pop Mech 35:782 My '21
 Locating water-relief valves. R. A. Cultra. diags Power 54:302-3 Ag 23 '21
 Marine brass goods and fittings. P. W. Blair. il Metal Ind 18:351-2 Ag '20
 Merco Nordstrom plug valve. il Min & Sci P 121:508 O 2 '20
 Method of connecting returns to one or more boilers with check valves. diag Am Soc Heat & V E J 26:supX-XIII My '20
 New method of connecting return pipes to cast iron heating boilers. diags Locomotive 33:68-73 Jl '20
 New packless valve. il Power Pl Eng 25:99 Ja 1 '21
 Non-return or boiler check and stop valves. C. B. Risley. Power Pl Eng 24:199-200 F 1 '20
 Non-stick lubricated plug valve. il Chem & Met Eng 22:230 F 4 '20
 Operating with non-return valves. Power 53:265 F 15 '21
 Putting more than brass into valves; Jenkins valves. il Plumber 95:129-31 Mr 11 '21
 Rate of steam flow to regulate boiler. il Blast F & Steel Pl 8:210 Mr '20
 Reducing-valve troubles. diags Power 53:35-6 Ja 4 '21
 Remedy for present valve setting. diags Power 50:518; 51:74, 187 S 23 '19, Ja 13, F 3 '20
 Rigby liquid fuel regulating valve. diag Iron Age 106:1605 D 16 '20; Iron Tr R 67:1618 D 9 '20; Ry Mech Eng 95:194 Mr '21
 Selecting the right kind of valves. Paper 27:19+ D 29 '20
 Setting ammonia expansion valves. J. C. Moran. diags Power 53:579-81 Ap 12 '21
 Setting valves on marine Diesel engines. L. R. Ford. diags Power 53:66-8 Ja 11 '21
 Simultaneous breakdown of a pair of check valves. A. J. Dixon. diag Power 53:400 Mr 8 '21
 Steam pipe size and valve setting. il diags Power Pl Eng 24:854-5 S 1 '20
 Steel for valves of combustion motors. G. Gabriel. Iron Age 106:1249-51, 1465-9 N 11, D 2 '20

- Throttle valves for steam engines. W. H. Wakeman. diags Power 54:372-3 S 6 '21
 Troubles with pump valves. R. A. Cultra. diags Power Pl Eng 25:1011-14 O 15 '21
 Unbalanced throttle valves a failure on large engine stops. G. Van Vlack. Power 53:75 Ja 11 '21
 Unic automatic air valve. diag Engineering 111:456 Ap 15 '21
 Using check valves with jet condensers. R. A. Cultra. diag Power 53:715-16 My 3 '21
 Valve failures and valve steels in internal-combustion engines; abstracts. L. Aitchison. diags Mech Eng 42:59-60 Ja '20; Power 51:396-7 Mr 9 '20
 Valve setting involves many factors. H. Stone. Marine R 50:34-5 Ja '20
 Valves for emergency service. W. H. Wakeman. diags Power 54:7-10 Jl 5 '21
 Valves for inconvenient locations; methods of reaching and operating in power plants. C. L. Hubbard. il diags Power Pl Eng 25:111-15 Ja 15 '21
 Valves for steam and gas engines. C. Hurst. diag Engineer 130:152 Ag 13 '20
 Wanted: formulas for design of air-inlet valves. H. L. Thackwell. diag Eng N 86:76-7 Ja 13 '21; Discussion. 86:478-9 Mr 17 '21
 What happens at the expansion valve. diags Power 54:678-9 N 1 '21

See also Automobile engines—Valves; Diesel engines—Valves; Locomotives—Valves; Safety valves; Slide valves

Manufacture

- Valve work on the turret lathe. E. Oberg. il diags Mach 26:419-23 Ja '20

Repair

- Pneumatic clamp for triple valves. T. H. Birch. diags Ry Mech Eng 94:462 Jl '20
 Re-grinding valves. H. S. Trecartin. Am Mach 54:615-16 Ap 7 '21

Testing

- Feed valve testing device. N. McCleod. diags Ry Mech Eng 95:644 O '21

Valves, -Hydraulic

- Abolition of double check valves on Hartford water-works. Eng N 87:12-13 Jl 7 '21
 Automatic valve applicable to twin pumping duty. il Elec R 79:712 N 5 '21
 Automatic valve for sprinkler system. diags Power Pl Eng 24:498-9 My 1 '20
 Balanced hydraulic valve. il diags Engineering 109:281-2 F 27 '20; Same. Mech Eng 42:294 My '20
 Development of the F. M. double check valves as a safeguard for public water supplies. H. A. Burnham. diags plans Am Water Works Assn J 8:222-32 My '21; Same. Can Eng 40:203-6 F 10 '21
 Duplex unaflo pump-engine water valves. il diags Power 52:734-5 N 9 '20
 Emergency fire protection connections to municipal water system at Hartford, Conn. Am Water Works Assn J 7:221-2 Mr '20
 Features of W-S-M balanced plunger hydraulic valve. il Elec R 79:179 Jl 30 '21
 Hydraulic valve operated quickly by motor. R. K. Durland. il Elec W 75:1374 Je 12 '20
 Investigation of automatic pump valves and their influence on the operation of pumping machinery. L. Krauss. diags Mech Eng 43:269-70 Ap '21
 Loss of pressure due to placing 12-in. gate in 16-in. pipe and to partial closure of gate. T. E. Lally. Can Eng 39:449-50 O 21 '20; Same. Eng & Contr 55:42-3 Ja 12 '21; Abstract. Eng N 85:608-9, 1007 S 23, N 18 '20
 Manganese bronze for water-works valve stems. W. R. Conard. Eng N 87:575 O 6 '21
 New hydraulic valve. il diags Engineer 131:77 Ja 21 '21

Electric control-

- Using electrically operated valves at Buffalo, N.Y. and Cambridge, Mass. il Munic Eng 61:105-7 S '21; Same. Pub Works 51:189-91 S 3 '21; Same abr. Eng & Contr 56:263 S 14 '21

Valves, Hydraulic—Electric control—*Continued*
What electrical operated valves are doing for the city of Buffalo. *il diag Pub Works* 51:189-91 S 3 '21

Testing

Test of a hydraulically operated throttling valve. B. R. Vanleer. *diag Elec W* 77:48 Ja 1 '21

Vanadium

Determination of vanadium and chromium in ferrovanadium by electrometric titration. G. L. Kelley, and others. *J Ind & Eng Chem* 13:939-41 O '21

Qualitative separation and detection of uranium, vanadium and chromium when present together. P. E. Browning. *Am Chem Soc J* 43:114-15 Ja '21

Vanadiferous asphaltites of central Peru. J. G. Baragwanath. *il map Eng & Min J* 111:778-81 My 7 '21

Vanadium. F. L. Hess. *Chem & Met Eng* 23:1063-4 D 1 '20

Vanadium as an alloy gives greatest elasticity and tenacity to iron. *Coal Age* 19:944 My 26 '21

Vanadium corporation of America improving Minasragra property in Peru. *il Eng & Min J* 109:814-16 Ap 3 '20

Vanadium corporation of America income for the six months ended June 30, 1920. *Min & Sci P* 121:810 D 4 '20

Vanadium in 1919. R. B. Moore. *Eng & Min J* 109:212-13 Ja 17 '20

Vanadium in 1920. R. B. Moore. *Eng & Min J* 111:152 Ja 22 '21

Vanadium production in Peru. *Iron Age* 108:389 Ag 18 '21

Vanadium (the master alloy) in war and peace. 49p Vanadium corporation of America, New York '21

Analysis

Modified method for the determination of iron and vanadium after reduction by hydrogen sulfide. G. E. F. Lundell and H. B. Knowles. *Am Chem Soc J* 43:1560-8 Jl '21

Simple method for the determination of vanadium in ores and metallurgical products. R. B. Schaal. *J Ind & Eng Chem* 13:698-9 Ag '21

Vanadium corporation of America

1st annual report for fifteen and one-half months ended December 31, 1920. *Comm & Fin Chr* 112:1642-3 Ap 16 '21

Vanadium steel

Churchward patents held not invention—prior art and history of vanadium alloys. W. Gustin. *Chem & Met Eng* 25:159-60 Jl 27 '21

Properties of water quenched vanadium-molybdenum high-speed steel. J. D. Arnold. *Engineer* 129:480 My 7 '20

Vancouver, British Columbia

Description

Observations on a Pacific coast trip. F. C. Wight. *Eng N* 85:1220-1 D 23 '20

Harbor

Port of Vancouver and its development. G. H. Kirkpatrick. *Engineer* 130:474 N 12 '20

Port of Vancouver and proposed development. W. G. Swan. *Can Eng* 39:381-2 S 30 '20

Vanderbilt, William K., 1849-1920

Sketch. *por Ry Age* 69:196-7 Jl 30 '20; *Ry R* 67:165 Jl 31 '20

Van Dervoort, William H., 1869-1921

Sketch. *por Soc Auto Eng J* 8:383+ Ap '21

Vanilla

Guadeloupe's vanilla crop. *Chem & Met Eng* 24:608 Ap 6 '21

Vanilla extract

Analysis

New lead number determination in vanilla extracts. H. J. Wichmann. *J Ind & Eng Chem* 13:414-18 My '21

Vanillyl-acyl amides

Vanillyl-acyl amides. E. K. Nelson. *Am Chem Soc J* 41:2121-30 D '19

Van Raalte company

When a business outgrows its short pants; how Van Raalte company solved the problem of expansion. E. T. Tandy. *Ptr Ink* 113:93-4+ D 9 '20

Vapor density

Comparative method for determining vapour densities. P. Blackman. *diags J Phys Chem* 24:225-9, 266-76 Mr-Apr '20

Vapor pressure

Apparatus for demonstrating the vapor pressure of liquids. C. D. Carpenter. *diag J Ind & Eng Chem* 13:332 Ap '21

Application of the vapor pressures of potassium compounds to the study of the recovery by volatilization. D. D. Jackson and J. J. Morgan. *J Ind & Eng Chem* 13:292-5 Ap '21

Calculations with the Williamson formula. W. Savage. *Chem & Met Eng* 22:1155-6 Je 23 '20

Dampfdrucktafeln für temperaturbestimmungen zwischen +25° und -185°. A. Stock, F. Henning and E. Kuss. *diags Deutsche Chem Gesell Ber* 54:1119-29 My '21

Determination of the vapor pressure of salt-hydrates by a distribution—conductivity method. A. A. Noyes and L. R. Westbrook. *Am Chem Soc J* 43:726-34 Ap '21

Equilibrium in the system ammonia:ammonium nitrate:ammonium thiocyanate. H. W. Foote and S. R. Brinkley. *diags Am Chem Soc J* 43:1018-31 My '21

Equilibrium in the system ammonia:water:ammonium thiocyanate. H. W. Foote. *Am Chem Soc J* 43:1031-8 My '21

High temperature investigations; measurement of vapour pressures at high temperatures of the alkali haloids. O. Ruff and S. Mugdan. *Chem Soc J* 120 pt 2:485-6 Ag '21

Humidity control by means of sulfuric acid solutions, with critical compilation of vapor pressure data. R. E. Wilson. *diag J Ind & Eng Chem* 13:326-31 Ap '21

Lowering of the vapor pressure of water at 20° produced by dissolved potassium chloride. B. F. Lovelace, J. C. W. Frazer and V. B. Sease. *Am Chem Soc J* 43:102-10 Ja '21

Measurement of vapor pressures of certain potassium compounds. D. D. Jackson and J. J. Morgan. *diags J Ind & Eng Chem* 13:110-18 F '21

Measuring vapor pressures. *il Sci Am*, 124:447 Je 4 '21

Method of measuring low vapor pressures, with its application to the case of trinitrotoluene. A. W. C. Menzies. *Am Chem Soc J* 42:2218-21 N '20

Phthalic anhydride; the vapor pressure of phthalic anhydride. K. P. Monroe. *J Ind & Eng Chem* 12:969-71 O '20

Pressure and temperature relations for vapor of liquids. P. B. Williamson. *Chem & Met Eng* 22:1151-5 Je 23 '20

Pressure measurements of corrosive gases, the vapor pressure of nitrogen pentoxide. F. Daniels and A. C. Bright. *diags Am Chem Soc J* 42:1131-41 Je '20

Pyrolysis of some hydrocarbons. F. Denig. *il Chem & Met Eng* 25:751-3 O 19 '21

Some new methods for the determination of the vapor pressure of salt-hydrates. R. E. Wilson. *diags Am Chem Soc J* 43:704-25 Ap '21

Studies in evaporator design. W. L. Badger and E. M. Baker. *Chem & Met Eng* 23:569-74 S 22 '20

Study of the vapor pressure of aqueous solutions of mannite. J. C. W. Frazer, B. F. Lovelace and T. H. Rogers. *diags Am Chem Soc J* 42:1793-1808 S '20

Surface condensation error in certain measurements of vapor pressure by the gas current saturation method. A. W. C. Menzies. *Am Chem Soc J* 42:978-85 My '20

Vapor pressure curves of solid and liquid selenium near the melting point. L. E. Dodd. *diag Am Chem Soc J* 42:1579-94 Ag '20

Vapor pressure—Continued

- Vapor pressure of ammonia. C. S. Cragoe, C. H. Meyers and C. S. Taylor. *il diag U S Bur Stand Sci Pa* 369:1-35 '20; Same. A S R E J 6:307-43 Mr '20; Same cond. Am Chem Soc J 42:206-29 F '20
- Vapor pressure of ammonia-salt solutions. R. O. E. Davis, L. B. Olmstead and F. O. Lundstrum. Am Chem Soc J 43:1580-3 JI '21
- Vapor pressure of lithium nitrate:ammonia system. R. O. E. Davis, L. B. Olmstead and F. O. Lundstrum. Am Chem Soc J 43:1575-80 JI '21
- Vapor pressure of white phosphorus from 44° to 150°. D. MacRae and C. C. Van Voorhis. Am Chem Soc J 43:547-53 Mr '21
- Vapor pressures and free energies of the hydrogen halides in aqueous solution; the free energy of formation of hydrogen chloride. S. J. Bates and H. D. Kirschman. Am Chem Soc J 41:1991-2001 D '19
- Vapour pressures and the isothermals of vapours. J. H. Shaxby. *Philos Mag* 6th ser 41:441-54 Mr '21
- Vapor pressures of cadmium, lead and tin amalgams. J. H. Hildebrand, A. H. Foster and C. W. Beebe. Am Chem Soc J 42:545-8 Mr '20
- Vapor pressures of certain substances: chloropicrin, cyanogen bromide, methyl-dichloro-arsine, phenyl-dichloro-arsine, diphenyl-chloro-arsine and arsenic trichloride. G. P. Baxter, F. K. Bezenberger and C. H. Wilson. *diag Am Chem Soc J* 42:1386-93 JI '20
- Volatility of internal-combustion engine gasoline. F. A. Howard. *diag Soc Auto Eng J* 8:145-8 F '21; Same. *Nat Pet N* 13:65+ Ja 26 '21; Abstract. *Mech Eng* 43:196-7 Mr '21; Discussion. *Soc Auto Eng J* 8:451-66 My '21
- Vaporisers**
Paraffin vaporiser; new system for utilising heavy fuel on commercial vehicles. *il diags Automobile Eng* 11:252-3 JI '21
- Vapors**
Choice of the datum-temperature for tables of properties of vapors. R. Matthews. *diags Sibley J* 34:95-7+ JI '20
See also Evaporation; Gases; Steam; Vapor density; Vapor pressure; Water vapor
- Variation (biology)**
Individual and the species. L. Bertin. *Sci Am M* 4:235-8 S '21
- Variators**
Precision and thread lead-screw variator. *il Am Mach* 54:477 Mr 17 '21
- Variometers**
Variometers and their construction. T. W. Benson. *diags plan Wireless Age* 7:23-4 F '20
- Varnish and varnishing**
Application of gas to varnish boiling. P. Dorchester. *Am Gas Assn Commercial sec v* 2: 81-5 '20; Abstract. *Am Gas Eng J* 113:303-4 O 16 '20; Same abr. *Gas Age* 46:447-8 N 25 '20
- Artificial versus natural means of drying paint and varnish. R. E. Lippert. *il diags Soc Auto Eng J* 9:335-40; Discussion. 340-3 N '21
- Contribution à la caractérisation des gommes à vernis. P. Nicolardot and C. Coffignier. *il Chimie & Ind* 5:150-6 F '21
- Dry heat varnishes and their manufacture. *il diags India Rubber W* 63:167-8 D '20
- L'évolution de l'industrie des vernis gras. C. Coffignier. *Chimie & Ind* 4:317-23 S '20
- Hardened rosin and resin esters. A. Murray. *Chem & Met Eng* 25:473-5 S 7 '21
- Keeping properties of varnish products; how to store varnish, enamels, lacquers and japans. E. J. Cole. *chart Metal Ind* 18:270-1 Je '20
- Measurement of the consistency of varnish. H. A. Gardner and P. C. Holdt. 51p National capital press, Washington '21
- Modern equipment in varnish manufacture. A. P. Gloeckler. *il Chem Age* 29:381-3 S '21

- Moisture-resistant finishes for airplane woods. M. E. Dunlap. *il U S Nat Advisory Com for Aeronautics* 1920:127-9 '21
- New varnish that insulates. *Sci Am* 125:77 JI 30 '21
- Observations on catalyzers in paint and varnish manufacture. F. P. Ingalls. *Chem & Met Eng* 22:590-2 Mr 31 '20
- Paint and varnish symposium. *Chem & Met Eng* 25:590-2 S 28 '21
- Paint and varnish; their function, selection and application. H. A. Gardner. *il Bldg Age* 42:61-5 My '20
- Progrès réalisés dans la fabrication des vernis à la colophane. C. Coffignier. *Chimie & Ind* 5:495-9 My '21
- Putting the paint and varnish industry on a scientific basis. M. Toch. *Chem & Met Eng* 23:469-70 S 8 '20
- Quantity production of insulating varnish. *Electrician* 86:640-1 My 20 '21
- Rapid examination of shellac, shellac varnish, and lacquer. T. L. Crossley. *J Ind & Eng Chem* 12:778-81 Ag '20
- Relation of the chemical engineer to the manufacture and application of automobile finishes. C. D. Holley. *il diag Chem & Met Eng* 25:873-6 N 9 '21
- Selecting varnish and applying it to motors and coils. J. C. Dolph. *Elec W* 78:375-7 Ag 20 '21
- Treatment of direct-current motors for mining conditions. T. H. Arnold. *il Power* 52: 582-3 O 12 '20; Discussion. 53:38, 519 Ja 4, Mr 29 '21
- Use of paracoumarone resin in varnishes. W. W. King, F. W. Bayard and F. H. Rhodes. *J Ind & Eng Chem* 12:549-52 Je '20
- Use of rosin in paint and varnish. M. Toch. *Chem & Met Eng* 21:767-8 D 24 '19
- Varnish fume recovery. C. H. Jones. *il diag plan Chem & Met Eng* 23:771-6 O 20 '20
- Les vernis cellulosiques. L. Clément and C. Rivière. *Chimie & Ind* 6:283-95 S '21
- Wearing quality of exterior varnishes compared with their physical and chemical analyses. W. T. Pearce. *diag J Ind & Eng Chem* 12:552-5 Je '20
See also Cellulose acetate; Japanning; Lacquer and lacquering

Specifications

- Ideal paint or varnish specifications. F. P. Ingalls. *Chem & Met Eng* 25:595-8 S 28 '21; Same. *Chem Age* 29:405-8 O '21; Same. *Oil Paint & Drug Rep* 100:xix+ S 20 '21
- Recommended specification for asphalt varnish. U S Bur Stand Circ 104:1-6 '20
- Recommended specification for spar varnish. U S Bur Stand Circ 103:1-5 '20
- Vaseline**
Pyrolysis of some hydrocarbons. F. Denig. *il Chem & Met Eng* 25:751-3 O 19 '21
- Vats, Concrete.** *See* Concrete vats
- Vats, Dipping. *See* Dipping vats
- Vauclain, Samuel Matthews, 1856-
Labor problem? why have one? some timely philosophy from Samuel Matthews Vauclain. *Nation's Business* 9:23 F '21
- Vaughan, Louis Bertrand, 1858-1920
Sketch. *Boston Soc C E J* 8:198-201 My '21
- Vaulting**
Elliptical vaulting as primary factor in contemporary architecture. M. S. R. Adams. *il Eng & Contr* 53:353-4 Mr 31 '20
- Vector analysis**
Integration theorems of four-dimensional vector analysis. H. T. Flint. *Philos Mag* 6th ser 41:389-404 Mr '21
- Vectors**
Application of vectors to wiring diagrams. L. A. Terven. *diags Elec W* 75:60-3 Ja 10 '20
- Vector diagram for salient-pole alternators. E. B. Shand. *diags Elec J* 18:59-60 F '21
- Vegetable-fiber.** *See* Textile fibers
- Vegetable gardening**
See also School gardens

Vegetables

Food values of alfalfa used as a table vegetable. G. Haberlandt. *Sci Am S* 88:298+ N 22 '19

Green peas and spinach as a tonic—chlorophyll as a blood maker and energy producer. E. Bürgi. *Sci Am M* 2:122 O '20

See also Drying (fruit and vegetables); Potatoes

Vegetables, Dried

Effect of heat on different dehydrated vegetables. C. E. Mangels and H. C. Gore. *J Ind & Eng Chem* 13:525-6 Je '21; Abstract. *Sci Am M* 4:275-6 S '21

Relation of moisture content to the deterioration of raw-dried vegetables upon common storage. H. C. Gore and C. E. Mangels. *J Ind & Eng Chem* 13:523-4 Je '21

See also Drying (fruit and vegetables)

Vehicles

See Automobiles; Bicycles; Cars; Cycle cars; Electric vehicles; Jitney buses; Motor cycles; Motor trucks

Veils**Advertising**

Associated campaign puts veils in Christmas gift class. M. Hussobee. *Ptr Ink* 113:50+ D 23 '20

Velmo

Advertising success causes change in product's name; Velmo succeeds Mohair velvet. *Ptr Ink* 110:41-3 F 12 '20

Velocity diagrams. *See* Machinery, Kinematics of

Veneer paper

Japanese veneer paper. S. J. Record. *Sci Am* 125:149 Ag 27 '21

Veneers and veneering

Accounts for the manufacture of wood veneer. H. C. Jordan. *J Account* 30:118-24 Ag '20

Venezuela

See also Engineering—Venezuela; Finance—Venezuela; Roads—Venezuela

Commerce

Venezuela, an economic report presented by students of the School of foreign service as an aid to the foreign trade of the United States. 166p (Bul., ser. 2, no. 1) Georgetown university, Washington '21

Industries and resources

Venezuela rapidly developing cotton manufacture. H. C. Plummer. *Textile World* 57:2799+ Ap 17 '29

See also Automobile industry and trade—Venezuela; Cattle industry—Venezuela; Gold mines and mining—Venezuela; Petroleum—Venezuela; Petroleum industry and trade—Venezuela; Shipbuilding—Venezuela

Public works

Venezuela's department of public works. H. C. Plummer. *il Ind Management* 59:453-5 Je '20

With our Latin customers; engineering works that have put Venezuela abreast of the twentieth century. H. C. Plummer. *il Sci Am* 122:675+ Je 19 '20

Venom

Are harmless snakes really harmless? C. Phisalix and M. Phisalix. *Sci Am M* 3:14-15 Ja '21

Ventilating fans. *See* Electric fans, Ventilating; Fans, Mechanical

Ventilation

Argument concerning mechanical and natural ventilation. E. V. Hill. *Am Soc Heat & V E* 25:59-64; Discussion. 65-8 '19

Back to first principles; human ventilation requirements. R. Davies. *Heat & Ven* 18:41-3 O; 38-41 N '21

Elimination of noise from heating and ventilating systems. C. L. Hubbard. *diags Dom Eng* 89:625-8 D 27 '19

Elimination of noises in heating and ventilating systems. *diags Heat & Ven* 17:34-7 Je; 34-7 Jl; 33-5 Ag '20

Flue arrangement for gravity heating. C. L. Hubbard. *diags Dom Eng* 93:503-5 D 11 '20

Handbook for heating and ventilating engineers. J. D. Hoffman and B. F. Raber. 478p McGraw '20

Heating and ventilating equipment. C. L. Hubbard. *il diags Am Arch* 119:367-72, 399-405 Mr 23-30 '21

How far to go in recirculating air. C. L. Hubbard. *diags Heat & Ven* 18:25-9 Je '21

Important work on the science of ventilation. *diags Heat & Ven* 17:39-41 N '20

Improved fan blast system of heating and ventilating. A. R. Klein. *il diags Heat & Ven* 17:29-33 Jl; 29-33 Ag '20

John R. Allen's last pronouncement on heating and ventilation. *Heat & Ven* 18:29-30 Ja '21

Mechanical equipment of the new Manitoba parliament building. *il Heat & Ven* 18:29-31 Je '21

Natural ventilation in photometric rooms to admit air while shutting out light. *diags plan Heat & Ven* 17:45 Ja '20

Notes on accelerating coils. *diags Heat & Ven* 17:42 F '20

Odd notes on heating and ventilation. *diags Metal Work* 92:727-9 D 19 '19

Plan more ventilating business during 1920. E. C. Allan. *il Dom Eng* 90:64-6 Ja 10 '20

Plea for better air distribution in ventilating systems. J. R. McColl. *Am Soc Heat & V E J* 27:417-19 My '21; Same. *Dom Eng* 96:18-19 Jl 2 '21; Discussion. *Am Soc Heat & V E J* 27:611-14 Jl '21

Poor ventilation kills appetites. G. C. Breidert. *plans Dom Eng* 90:11-12 Ja 3 '20; Same. *Heat & Ven* 17:47-9 Ja '20

Significance of odorless concentration of ozone in ventilation. E. S. Hallett. *Am Soc Heat & V E J* 26:423-5 My '20; Same. *Heat & Ven* 17:39-40 Je '20; Discussion. *Am Soc Heat & V E J* 26:555-6 Jl '20

Small fans as an aid to bigger business. *il plan Sheet Metal Worker* 12:526+ S 2 '21

Speaking of ventilation. *Sci Am* 124:172 F 26 '21

Studies in theory—outside versus inside air. *diags Sheet Metal Worker* 12:145-6 Ap 1 '21

Study of the infiltration of air in buildings. O. W. Armspach. *il diags Am Soc Heat & V E J* 27:43-53 Ja '21

Testing and improving ventilation. C. L. Hubbard. *diags Power* 53:1000-4 Je 21 '21

Ventilating, heating, and humidifying plant in the new court house for the London quarter sessions. *diags plan Engineering* 112:518-19, pl 27-8 O 7 '21

Ventilating scheme that worked; 1-in fan used to draw the foul air out of underground toilet room. *diag Sheet Metal Worker* 12:73 Mr 4 '21

Ventilation handbook. C. L. Hubbard. 2d ed. rev. and enl. 231p Sheet metal pub. co., New York '20

Ventilation made to order. *Sci Am* 123:636 D 25 '20

Ventilation of concrete buildings. E. L. Joseph. *Can Eng* 39:181-3 Jl 22 '20

Ventilation of public comfort stations. *il diags plans Am Arch* 118:611-14 N 10 '20

Ventilation of the home office building of the Travelers insurance company, Hartford, Conn. *il Am Arch* 119:459-62 Ap 13 '21

Ventilation of the machine room with the Briner economizer. W. H. Howell, jr. *Paper* 28:32-3 My 18 '21

See also Air conditioning; Air filters; Air flow; Air pipes; Air pollution; Air purification; Air washers; Air washing; Barns and stables—Heating and ventilation; Boiler plants—Ventilation; Chimneys; Cooling; Dust removal; Electric fans; Electric fans, Ventilating; Electric motors—Ventilation; Factories—Heating and ventilation; Fans, Mechanical; Flues; Foundries—Heating and ventilation; Heating; Hotels—Heating and

Ventilation—Continued

ventilation; Humidity; Mine ventilation;
Paper mills—Heating and ventilation;
Schoolhouses—Heating and ventilation;
Ships—Heating and ventilation; Submarine
boats—Heating and ventilation; Theaters—
Heating and ventilation; Tunnel ventilation;
Ventilators

Forms, blanks, etc.

Plan and specification data sheets for heat-
ing and ventilating. Heat & Ven 17:29-31
Ja: 29-32 F: 31-3 Mr; 33-5 Ap '20
Time saving for the engineering office. Heat
& Ven 17:31-3 O '20

Standards

Discussion of proposed standard for venti-
lation. chart Am Soc Heat & V E J 26:
580-4 Jl '20
Report of committee on minimum ventila-
tion requirements for public and semi-
public buildings, for legislation purposes.
Am Soc Heat & V E J 26:385 Ap '20
Standard measure of ventilation adopted at
St Louis meeting. May 26-28. charts Heat
& Ven 17:38-9 Je '20

Tables, calculations, etc.

Flow of air through small brass tubes.
T. S. Taylor. Mech Eng 42:334-5 Je '20;
Same cond. Power 51:1022 Je 22 '20
How to figure sizes of flues for ventilating
school rooms. diags Dom Eng 90:387 F 21
'20
Modus operandi of the synthetic air chart. il
chart Am Soc Heat & V E J 26:597-603 S
'20
New measure of ventilation. E. V. Hill.
charts Heat & Ven 17:27-9 Ag '20
See also Air flow

Testing

Observations of an auditorium having air in-
lets in the window sills. S: R. Lewis. diags
plans Am Soc Heat & V E J 26:415-22 My
'20
Ventilation tests of schoolrooms at Minneapo-
lis. L. A. Scipio. diag Am Soc Heat & V E J
27:543-6 Jl '21

Ventilators

Acme ventilator. il diag Textile World 57:
387 Ja 17 '20
American Larson suction ventilator. il Tex-
tile World 59:3547 My 28 '21
Bologh skylight and gravity ventilators. il
Textile World 60:2062 O 8 '21
Capacities of automatic roof ventilators; dis-
cussion. Am Soc Heat & V E 25:174-6 '19
Collapsible window ventilator. F. E. Leitch.
diag Pop Mech 33:134 Ja '20
Comparative tests of sixteen-inch roof ven-
tilators. H. L. Dryden, W. F. Stutz and
R. H. Heald. il diags Am Soc Heat & V E
J 27:93-100 Mr '21
New Bologh skylight ventilator. il Metal
Work 93:516-18 Ap 23 '20
Patterns for revolving ventilators. diags plan
Metal Work 93:175-6 F 6 '20
Spot welding machine for making ships' ven-
tilators. il Engineer 132:176 Ag 12 '21
Telescoping ventilator adjustable to window.
il Pop Mech 33:262 F '20
Tests on lighting ability of Burt glass top
ventilators. F. G. Legg, jr. diag Sheet
Metal Worker 12:503 Ag 19 '21
Unusual problems in setting ventilators.
diags Metal Work 94:391-2 S 24 '20
Ventilating system for modern dairy barn.
C. H. Pierce. diags Metal Work 94:73-4 Jl
16 '20

Ventilators, Automatic

Comments on recent automatic ventilator
tests. A. J. Mack. Heat & Ven 18:42 Je
'21
Recent tests on automatic ventilators. A. J.
Mack. chart diags Am Soc Heat & V E J
26:849-53 D '20; Same. Heat & Ven 17:27-9
O '20; Discussion. 18:48-9 Ja '21

Venturi flumes

Study of the Venturi flume as a measuring
device in open channels. P. S. Wilson
and C. A. Wright. il diag plan Eng N 85:
452-7 S 2 '20; Discussion. H. L. Thackwell.
85:861 O 28 '20
Venturi flume data throws light upon con-
trol weir. J. Hinds. diags Eng N 85:1223-4
D 23 '20

Venturi meters

Measuring flow of fluids. J. M. Spitzglass.
diags Power 51:503-7 Mr 30 '20
Nomograms for calculating flow in venturi
tubes. J. W. Ledoux. Eng & Contr 56:138-9
Ag 10 '21
Simplification of venturi-meter calculations.
C: G. Richardson. Mech Eng 42:304-5 My
'20
Simplification of venturi-meter calculations.
G. B. Warren. diag Mech Eng 42:220-1+ Ap
'20
Test curves of special venturi meter agree
with theory. W. S. Pardoe. Eng N 85:589 S
23 '20

Venturi tube

Utilization of venturi tubes for power in air-
planes; abstract. R. Gsell. Aerial Age
12:254 N 8 '20
Utilizing freshet water for power generation
with venturi tube in turbine. C. Herschel.
diag Power 52:861-2 N 30 '20
Venturi tube suggested for holding vacuum
in siphon. G: S. Binckley. Eng N 85:669 S
30 '20

Verbenene

Über verbenen (dehydro- α -pinen) und einige
seiner abkömmlinge. A. Blumann and O.
Zeitschel. Deutsche Chem Gesell Ber 54:
887-94 My '21

Vertebrates, Fossil

Fossil vertebrates and the cretaceoustertiary
problem. W. D. Matthew. Am J Sci 5th
ser 2:209-27 O '21

See also Promerycochærus

Vestibule schools. *See* Corporation schools

Vesuvius, Mount

Volcanic architecture; how Vesuvius rebuilds
its broken cone. F. A. Perret. il Sci Am M
3:110-11 F '21

Veterinary medicine

Clinic for animals. il Sci Am M 3:128-9 F '21

Viaducts. *See* Bridges

Vibration

Angular vibrations in marine propelling
machinery. R: Gardner. Engineering 112:
363-4 S 9 '21; Discussion. 112:661 N 11 '21
Comparative study of vibration absorbers.
H. C. Howard. il diags J Ind & Eng Chem
13:231-5 Mr '21
Correction for shear of the differential equa-
tion for transverse vibrations of prismatic
bars. S. P. Timoshenko. diag Philos Mag
6th ser 41:744-6 My '21
Critical speeds of torsional vibration. F. M.
Lewis. diags Soc Auto Eng J 7:418-24; Dis-
cussion. 424-31 N '20
Eliminating vibration, an enemy of produc-
tion. C: L. Hubbard. diags Factory 26:1075-
8 My 1 '21
Graphical method for determining the fre-
quencies of lateral vibration, or whirling
speeds, for a rod of non-uniform cross-sec-
tion. R. V. Southwell. Philos Mag 6th ser
41:419-31 Mr '21
How to prevent torsional vibration in the
crankshaft. P. M. Heldt. diag Automotive
Ind 42:26-8 Ja 1 '20
Measurement of vibration of the 660-ft.
wireless telegraph station tower at Harano-
machi. F. Omori. il diags Engineering 112:
196-9 Jl 29 '21
Menace of vibration. E. V. Amy. Sci Am M
1:337-8 Ap '20
Negligible vibration effects from subway
traffic. Eng N 87:60-1 Jl 14 '21
New principle of engine suspension. S. E.
Slocum. diags Soc Auto Eng J 8:54-6 Ja
'21; Abstract. Mech Eng 43:200 Mr '21

Vibration—Continued

Noise and vibration from electrical apparatus. K. Rankin. diags Power Pl Eng 25:581-2 Je 1 '21

On the period of vibration of the gravest mode of a thin rod, in the form of a truncated wedge, when in rotation about its base. L. M. Swain. diags Philos Mag 6th ser 41:259-66 F '21

Photo-radiograph; new instrument for the study of vibrations. A. C. Banfield. il Sci Am M 3:44-5 Ja '21

Reducing noise and vibrations. K. Rankin. Power 51:580 Ap 13 '20

Some effects of vibration on electrical machinery. K. Rankin. Power Pl Eng 25:861-2 S 1 '21

Torsional vibration and critical speeds in crankshafts. J. F. Fox. il diags Soc Auto Eng J 7:413-17+; Discussion. 424-31 N '20

Transmission to a distance of ground vibrations due to machinery with reciprocating masses; abstract. diag Mech Eng 42:693-4 D '20

Transverse vibrations of beams and the whirling of shafts supported at intermediate points. E. R. Darnley. Philos Mag 6th ser 41:81-96 Ja '21

Type of vibration of an elastic spherical shell. N. Sen. Philos Mag 6th ser 42:185-93 Jl '21

Vibration amplitude indicator. il Power 54:635 O 25 '21

Vibration and balancing of engines. R. L. Daugherty. diags Sibley J 34:46-51 Ap '20

Vibration, including that of crankshafts, flywheels, and alternating current generators and the paralleling of alternators. J. Frith. Engineering 110:657-8 N 12 '20; Correction. 110:703 N 26 '20; Discussion. G. Greenhill. 110:769 D 10 '20

Vibration of spars in aircraft. A. H. Stuart. diags Engineering 109:201 F 13 '20; Same. Aviation 8:290-1 My 1 '20

Vibration records traced with light beams; the photo-radiograph. W. H. Hunt. il Pop Mech 34:819-20 D '20

See also Automobiles—Vibration; Balancing of machinery; Water hammer

Viburnum prunifolium

Some constituents of viburnum prunifolium. F. W. Heyl and C. Barkenbus. Am Chem Soc J 42:1744-55 Ag '20

Vicat apparatus

Modified Vicat apparatus for study of setting time of cement. O. L. Moore. il Eng N 86:70 Ja 13 '21; Same. Concrete 18:sup43 Mr '21

Vickers aircraft works, Weybridge, England
Vickers aircraft works. il Engineer 130:444-6, 454 N 5 '20

Victor records. *See* Phonograph records

Victor talking machine company

What advertising has done to make 1921 Victor's best year. R. L. Freeman. Ptr Ink 116:3-4+ Jl 14 '21

Victoria, British Columbia**Bridges**

Canadian bascule bridge built as two bridges. il Pop Mech 36:701-2 N '21

Victory loan. *See* War loans

Vienna, Austria-Hungary**Economic conditions**

Vienna out of the cataclysm. Am Ind 21:41-2 Jl '21

Rapid transit

Plight of Vienna's railways. Elec Ry J 57:1037-8 Je 4 '21

Vienne river

Usines électriques de la Société des forces motrices de la Vienne; usine de l'Isle-Jourdain (Vienne). A. Pawlowski. il diags map plan Génie Civil 78:285-9 Ap 2 '21

Villa Gallieo. *See* Pian de'Giullari, Italy

Villas. *See* Architecture, Domestic

Villeneuve-sur-Lot**Bridges**

Le pont de Villeneuve-sur-Lot (Lot-et-Garonne); perfectionnements dans la construction des grandes voûtes. E. Freyssinet. il plans Génie Civil 79:97-102, 124-8, 146-50, pl 2 Jl 30-Ag 13 '21

Vincent, Jesse Gurney, 1880-

Who's who in aeronautics. por Aerial Age 13:85 Ap 4 '21

Vinci, Leonardo da

Leonardo Da Vinci as an inventor. A. A. Hopkins. il diag Sci Am M 3:263-5 Mr '21

Leonardo Da Vinci as aviation engineer. A. A. Hopkins. il diags Sci Am M 3:355-9 Ap '21

Leonardo da Vinci—natural philosopher and engineer. J. W. Lieb. por il J Fr Inst 191:767-806, 192:47-68 Je-Jl '21

Vinegar

Fabrication moderne et rationnelle du vinaigre. A. Manoncourt. il Chimie & Ind 6:276-82 S '21

Orange vinegar—its manufacture and composition. H. D. Poore. J Ind & Eng Chem 12:1176-9 D '20

Le régime fiscal des vinaigres. A. Toulouse. Chimie & Ind 6:247-8 Ag '21

Vinegar manufacture in the United States. P. Hassack. Chem Age 29:105-9 Mr '21

Violet-ray apparatus

Selling violet-ray apparatus in electrical stores. W. B. Eastwood. il Elec R 78:165-8 Ja 29 '21

Violones

Zur kenntnis der violone (über pyryliumverbindungen). W. Dilthey and B. Burger. Deutsche Chem Gesell Ber 54:825-30 Ap '21

Virginia

Virginia-West Virginia debt dispute. A. G. Potter. J Account 32:167-82 S '21

See also Coal mines and mining—Virginia; Gold mines and mining—Virginia; Iron mines and mining—Virginia

Virginia Iron, coal and coke company

18th annual report for the year ended December 31, 1920. Comm & Fin Chr 112:1168-9 Mr 19 '21

Virginian railway

Annual report for 1920. Ry Age 71:149-50 Jl 23 '21

Marking another milestone in air brake achievement. il diags Ry R 68:885-94 Je 11 '21

Record train loading features Virginian operation. il maps Ry Age 70:1203-8 My 27 '21

Tunnel widening on the Virginian railway. il diags Ry R 68:387-9 Mr 12 '21; Excerpt. Eng & Contr 55:397 Ap 20 '21

Virginian builds double track to relieve congestion. il diag Ry Age 71:487-90 S 10 '21

Virginian demonstration of double-capacity brake. il diag Ry Mech Eng 95:428-32 Jl '21; Excerpts. Ry Age 70:1407-10 Je 17 '21

Viscosimeters

Air bubble viscosimeter. V. R. Abrams, J. T. Kavanagh and C. H. Osmond. diags Chem & Met Eng 25:665-6 O 5 '21

MacMichael torsional viscosimeter. J Ind & Eng Chem 12:817-18 Ag '20

MacMichael torsional viscosimeter. W. H. Herschel. J Ind & Eng Chem 12:282-6 Mr '20

Measurement of viscosity of pyroxylin solutions. E. F. Higgins and E. C. Pitman. J Ind & Eng Chem 12:587-91 Je '20

Shop lubricating problem. R. F. Yates. il diags Sci Am S 88:317 N 29 '19

Use of the MacMichael viscosimeter in testing petroleum products. W. H. Herschel and E. W. Dean. Mech Eng 43:199 Mr '21

Workshop viscosity meter. il Engineering 109:509 Ap 16 '20

Viscosity

Chart of viscosities in different systems. H. G. Nevitt. Chem & Met Eng 22:1171 Je 23 '20

Viscosity—Continued

- Charts effect of temperature increases on viscosities. A. R. Lange. *Nat Pet N* 13:85 Ap '20
- Determination of the coefficient of normal viscosity of metals. K. Honda and S. Konno. *diags Philos Mag* 6th ser 42:115-23, pl 3-6 Jl '21
- Effect of temperature on the modulus of rigidity, and on the viscosity of solid metals. K. Iokibe and S. Sakai. *diags Philos Mag* 6th ser 42:397-418 S '21
- Effect of the method of preparation on the viscosity of a casting slip. V. S. Schory. *Am Cer Soc J* 3:286-95 Ap '20
- Factory method for measuring the viscosity of pot made glass during the process of manufacture together with some discussion of the value of viscosity data to the manufacturer. E. W. Washburn. *il diags Am Cer Soc J* 3:735-45; Discussion. 745-9 S '20
- Flow of oil in pipes. A. C. Preston. *Chem & Met Eng* 23:607-13, 685-9 S 29-O 6 '20
- Fluid motion and viscosity. W. L. Cowley. *diags Engineering* 109:101-2 Ja 23 '20
- Fundamental property of viscous fluids. G. De Bothezat. *U S Nat Advisory Com for Aeronautics* 1920:100-3 '21
- Lubricating oil temperature charts. *Gas Age* 48:201-2 Ag 20 '21
- Motion of a sphere of oil through carbon dioxide and a determination of the coefficient of viscosity of that gas by the oil drop method. L. J. Lassalle. *Phys R* 17:354-66 Mr '21
- Properties and constitution of glues and gelatines. R. H. Bogue. *Chem & Met Eng* 23:5-12, 61-6, 105-9, 154-8, 197-203 Jl 7-Ag 4 '20
- Saybolt viscosity of blends. W. H. Herschel. *U S Bur Stand Tech Pa* 164:1-21 '20; Same cond. *Chem & Met Eng* 22:1109-12 Je 16 '20
- Viscosities at high temperatures of California and eastern lubricants. *Nat Pet N* 13:90 Ag 3 '21
- Viscosity of engine oils. O. W. Franke. *Power Pl Eng* 25:847-8 S 1 '21
- Viscosity of gelatin solutions. C. E. Davis, E. T. Oakes and H. H. Browne. *Am Chem Soc J* 43:1526-38 Jl '21
- Viscosity of liquids; ideal mixtures of the types ether-ether and ester-ester. J. Kendall and A. H. Wright. *Am Chem Soc J* 42:1776-84 S '20
- Viscosity of liquids; the ideality of the system: benzene—benzyl benzoate and the validity of the Bingham fluidity formula. J. Kendall and K. P. Monroe. *Am Chem Soc J* 43:115-25 Ja '21
- Viscosity of rubber. A. M. Munro. *il India Rubber W* 63:169-70 D '20
- Viscosity-temperature curves of fractions of typical American crude oils. E. W. Dean and F. W. Lane. *bibliog diag J Ind & Eng Chem* 13:779-86 S '21
- Viscosity values of protoplasm. W. Seifriz. *Sci Am M* 3:314 Ap '21
- See also Fluidity; Viscosimeters
- Vise mounts**
- Analysis of construction costs and methods. H. A. Call. *il Plumber* 95:269-71 My 6 '21
- Vises**
- Analysis of construction costs and methods. H. A. Call. *il Sanitary & Heat Eng* 96:202-3 S 23 '21
- Ball joint vise for die sinking. *diags Ry Mech Eng* 91:48 Ja '20
- Fixie 3-jaw machine vise. *il Am Mach* 53:432-3 Ag 26 '20
- Joyce drilling machine vise. *il Am Mach* 54:433 Mr 10 '21
- Nelson quick-acting milling machine vise. *il Mach* 27:191-2 O '20
- Quick-acting machine vise. H. W. Belmont. *diags Am Mach* 52:1109 My 20 '20
- Tool engineering; vise-jaws and vise fixtures. A. A. Dowd and F. W. Curtis. *diags Am Mach* 55:299-304 Ag 25 '21

Universally-mounted bench vice. *il diag Engineering* 111:105 Ja 28 '21

Vise used in straddle-milling four pieces of work. *diags Mach* 26:827 My '20

Visibility

Peculiar visual phenomena revealed by airmen; bottom of ocean visible from airships and balloons. F. Linke. *Aerial Age* 12:441, 445 Ja 3 '21

Seeing in the dark; detecting invisible objects by their bodily heat. S. O. Hoffman. *il Sci Am* 123:154+ Ag 14 '20

See also Airplanes—Visibility; Light

Vitamines

Chemistry of vitamines. A. Seidell. *J Ind & Eng Chem* 13:72-5 Ja '21

Food value of margarin. J. S. Abbott. *Chem Age* 29:93-4 Mr '21

Function of vitamines in the metabolism of sclerotinia cinerea. J. J. Willaman. *diags Am Chem Soc J* 42:549-85 Mr '20

New facts about vitamines. *Sci Am M* 3:222 Mr '21

Nutritional requirements of yeast; the role of vitamines in the growth of yeast. E. I. Fulmer, V. E. Nelson and F. F. Sherwood. *Am Chem Soc J* 43:186-91 Ja '21

Quantitative determination of vitamine. *Sci Am* 125:28 Jl 9 '21

Vitamines, essential food factors. B. Harrow. 219p Dutton '21

What are vitamines? H. A. Mount. *il Sci Am* 125:76+ Jl 30 '21

Bibliography

Present status of vitamines. K. Blunt and C. C. Wang. *bibliog J Home Econ* 13:115-119 Mr '21

Viticulture. See Grapes

Vitreosil. See Silica, Fused

Vitrification

Rate of vitrification of porcelain molded under different conditions; with discussion. R. F. Sherwood. *Am Cer Soc J* 3:837-41 O '20

Vitri-flux

Calcium chloride and vitri-flux. *Am Inst Arch J* 8:239-41 Je '20

Vivaudou, V., inc.

Abstract of statement to the New York stock exchange in connection with the listing of its capital stock. *Comm & Fin Chr* 110:2206-7 My 22 '20

Viviani, René

René Viviani's visit to United States—mission not financial. *Comm & Fin Chr* 112:1469-71 Ap 9 '21

Vocational education

Antioch plan; training for administration and proprietorship at a small college. A. E. Morgan. *Eng N* 86:108-11 Ja 20 '21; Discussion. 86:349-50, 480 F 24, Mr 17 '21

Choosing teachers for vocational schools. W. T. Elzinga. *Am Mach* 52:1144 My 27 '20

Industrial education—where is industry? H. E. Miles. *Am Ind* 20:30-1 Mr '20

Junior wage earners. A. Y. Reed and W. Woelpper. 171p Macmillan '20

Vocational education. See monthly numbers of Monthly labor review

Vocational education. E. Robison. 2d ed., rev. J. E. Johnsen. 359p H. W. Wilson co. '21

Vocational education in public schools. A. M. Mercker. *Sheet Metal Worker* 12:287-8 My 27 '21

See also Agricultural education; Disabled—Rehabilitation; Engineering education; Industrial education; Manual training; Mining schools and education; Professional education; Technical education; Trade schools

Vocational guidance

Employment managers as vocational counselors. H. D. Kitson. *Ind Management* 61:211 Mr 1 '21

Vocational guidance—Continued

Opportunity monographs. Pub. by Federal board for vocational education, Washington, D.C.

See also Disabled—Rehabilitation

Bureau of vocational information is a research and educational organization established to study the opportunities for training and for professional employment for women; to supply educational institutions with information concerning the occupational opportunities and needs of women and to help women to choose wisely and prepare adequately for their fields of work. Emma P. Hirth, Director, 2 West 43d St, New York.

Bibliography

Bibliography on vocational guidance. 35p (Bul. 66 Trade and industrial ser. 19) U.S. Federal board for vocational education, Washington '21

Voice

Nature of vowel sounds; the laryngeal puff which distinguishes the musical from the unmusical quality of voice. E. W. Scripture. diags Sci Am M 3:361-4 Ap '21; Discussion. P. Edwards. 4:364 O '21
Speaking without a larynx. Sci Am M 3:211 Mr '21

Volatility

Chemistry of the volatile. A. Gradenwitz. Sci Am 125A:10 N '21
Influence of position on the solubility and volatility of the mono- and di-nitro-phenols. N. V. Sidgwick and W. M. Aldous. Chem Soc J 119:1001-12 Jl '21
Solubility and volatility of the chloro- and nitro-anilines and of their acetyl derivatives. N. V. Sidgwick and H. E. Rubie. Chem Soc J 119:1013-24 Jl '21
Volatility of lubricating oils. H. R. Smith. Power 53:597-8 Ap 12 '21
Volatility with steam of lower fatty acids in dilute aqueous solutions. E. J. Witzemann. Am Chem Soc J 41:1946-51 D '19
Volatilization in assaying. F. P. Dewey. Min & Met 158:(sec 31) 1-16 F '20; Same. Chem & Met Eng 22:797-802 Ap 28 '20; Excerpt. Min & Sci P 120:458 Mr 27 '20

Volcanic ash, tuff, etc.

Chemical observations on the volcanic emanations and incrustations in the Valley of 10,000 Smokes, Katmai, Alaska. J. W. Shipley. Am J Sci 50:141-53 Ag '20
Volcanic tuff and its uses. A. L. Shaw. Concrete 16:sup62-4 Ap '20

Volcanoes

Ballistics of volcanoes. E. Belot. il diags Sci Am M 1:292-7 Ap '20
Data of geochemistry. F. W. Clarke. U S Geol S Bul 695:255-315 '20
Origin of volcanoes. H. W. Hixon. diags Sci Am M 2:96 Jl '20; Discussion. N. Johannsen. 2:288 N '20
Volcanic power to be used in Hawaiian Islands. Pop Mech 36:24 Jl '21

See also Popocatepetl; Steam, Natural; Vesuvius, Mount

Volmerhaus, Otto, 1889-

Master typographers of today. por Inland Ptr 67:497-9 Jl '21

Voltage regulation

Calculation of feeder voltage regulation. W. C. Chappell. Elec W 76:73-4 Jl 10 '20
How power factor affects the voltage regulation of an alternator. Q. Graham. Power 51:379-81 Mr 9 '20
Induction motors on unbalanced voltages. J. Slepian. diags Elec W 75:313-15 F 7 '20
Inherent regulation of continuous current circuits. A. L. Ellis and B. W. St Clair. Am Inst E E J 39:135-42 F '20; Abstract. Elec W 75:490 F 28 '20
Power indicating and limiting apparatus for the Chicago, Milwaukee & St Paul railroad. B. H. Smith. il diags Elec J 17:42-6 F '20
Rational practice in voltage rating. F. D. Newberry and R. W. E. Moore. diags Elec W 76:916-18 N 6 '20

Voltage and power factor control of 66,000-volt transmission lines connecting two generating stations. R. Bailey. il diags Am Inst E E J 40:462-9 Je '21

Voltage control for large E. H. T. transformer sets. il diags Electrician 87:455 O 7 '21

Voltage control of long-distance transmission lines. A. Still. diags Elec R 77:876-8 D 4 '20

Voltage regulating systems of synchronous converters. F. T. Hague. il Elec J 18:52-6 F '21

Voltage regulation. W. B. DeMuth. diags Power Pl Eng 25:531-2 My 15 '21

Voltage regulation and insulation for large power, long distance transmission systems. F. G. Baum. il diags Am Inst E E J 40:643-65 Ag '21; Abstract. Sci Am M 4:281-2 S '21

Voltage regulation of distributing feeders. F. Hershey. Electrician 84:165-7 F 13 '20

Voltage regulation on long alternating-current lines. Thielemans. Elec W 77:384 F 12 '21

Voltage regulators

Huge induction regulator installation. R. Bailey. il diags plan Elec W 75:1355-8 Je 12 '20; Same. Electrician 87:292-3 S 2 '21

Liquid slip regulator. G. F. Scott. il diags Elec J 18:37-8 Ja '21

Step induction regulator. E. E. Lehr. il diags Elec J 17:510-14 N '20

Tie line application for induction feeder regulators. C. R. Gilchrist. il diag Elec J 17:518-20 N '20

Voltage regulators for A. C. circuits. J. H. Boynton. Power Pl Eng 25:961-2 O 1 '21

Voltmeters

Absolute voltmeter for 250,000 volts effective. A. Palm. diag Sci Am M 4:372-3 O '21

Alternating current instruments; discussion of the theory, construction, and application of voltmeters, ammeters and watt-hour meters. V. H. Todd. il diags Power Pl Eng 25:370-4 Ap 1 '21

Corona voltmeter and the electric strength of air; a natural secondary standard of voltage. J. B. Whitehead and T. Isshiki. il diags Am Inst E E J 39:441-4, 511-26 My '20

Interpreting the voltmeter reading. R. E. Berg. diags Motor Age 38:16-17 Ag 5 '20

Locating cable trouble with sensitive voltmeter. J. B. Dillon. diag Power Pl Eng 25:375-6 Ap 1 '21

Multipliers for use with portable voltmeters and wattmeters. H. C. Yeaton. diags Power 52:395 S 7 '20; Discussion. 52:594 O 12 '20

Precision form of the Kelvin electrostatic voltmeter. E. H. Rayner. diags Inst E E J 59:138-42 Ja '21; Discussion. 59:387-8 Ap '21

Resilia voltmeter for pyrometers. il diags plan Engineering 111:318 Mr 18 '21

Switchboard-meter connections—direct-current voltmeters and ammeters. E. A. Reinman. diags Power 53:380-2 Mr 8 '21

Voltmeters affected by line inductance. V. H. Todd. Power 53:378 Mr 8 '21

Voltmeters and ammeters. V. H. Todd. il diags Power Pl Eng 25:276-80 Mr 1 '21

Volumeters

Direct reading overflow volumeter. H. G. Schurecht. il diags Am Cer Soc J 3:730-4 S '20

Mercury volumeter. E. F. Goodner. diags Am Cer Soc J 4:288-300 Ap '21

Volumetric analysis

Alum testing. P. W. Codwise. Paper 26:13-15 Ap 7 '20

Analysis of acetone by Messinger's method. L. F. Goodwin. Am Chem Soc J 42:39-45 Ja '20

Analysis of special steels; use of electrometric titration methods. C. O. Bannister. il diags Electrician 85:535-8 N 5 '20

Catalysis of permanganate titrations. P. H. Segnitz. J Ind & Eng Chem 12:1196-7 D '20

Contribution to the estimation of H-acid. H. R. Lee. J Ind & Eng Chem 13:1049-51 N '21

Volumetric analysis—Continued

- Determination of chromium in ferrochromium by electrometric titration. G. L. Kelley and J. A. Wiley. *J Ind & Eng Chem* 13:1053-4 N '21
- Determination of iodic acid and silver by electrometric titration. W. S. Hendrixson. *Am Chem Soc J* 43:858-66 Ap '21
- Determination of vanadium and chromium in ferrovanadium by electrometric titration. G. L. Kelly and others. *J Ind & Eng Chem* 13:939-41 O '21
- Electrometric analysis of arsenicals. C. S. Robinson and O. B. Winter. *diag J Ind & Eng Chem* 12:775-8 Ag '20
- Electrometric determination of bromate, dichromate, nitrate and chloride ions. W. S. Hendrixson. *Am Chem Soc J* 43:1309-17 Je '21
- Electro-titration of hydriodic acid and its use as a standard in oxidimetry. W. S. Hendrixson. *Am Chem Soc J* 43:14-23 Ja '21
- Formaldehyde method for determining ammonium nitrate. J. T. Grissom. *J Ind & Eng Chem* 12:172-3 F '20
- Further work on potassium hydrogen phthalate as a standard in volumetric analysis. W. S. Hendrixson. *Am Chem Soc J* 42:724-7 Ap '20
- McCrudden gravimetric calcium method modified. J. O. Halverson and J. A. Schulz. *J Ind & Eng Chem* 12:77-8 Ja '20
- Method of determining nickel in silverhorn ores. E. C. D. Marriage. *Eng & Min J* 112:174 JI 30 '21
- Eine neue methode zur titration von enolen in keto-enol-gemischen; (anwendungen der komplexchemie auf probleme der organischen chemie). W. Hieber. *Deutsche Chem Gesell Ber* 54:902-12 My '21
- Rapid method for the determination of sulfur in petroleum oils. A. W. Christie and C. S. Bisson. *J Ind & Eng Chem* 12:171-2 F '20
- Rapid volumetric method for determining alcohol. A. Lachman. *J Ind & Eng Chem* 13:230 Mr '21
- Sodium oxalate as a standard in volumetric analysis. *U S Bur Stand Circ* 40:1-13 '20
- Study of the determination of amino acids by means of the hydrogen electrode. E. L. Tague. *Am Chem Soc J* 42:173-84 F '20
- Titration of ammonium acid fluoride. W. S. Chase. *J Ind & Eng Chem* 12:567-8 Je '20
- Titration of sulphite liquors. R. Sieber. *Paper* 28:24-7 Ap 6 '21
- Trivalent titanium; notes on the volumetric determination of iron by means of titanous salts. W. M. Thornton, jr., and J. E. Chapman. *diags Am Chem Soc J* 43:91-102 Ja '21
- Unterscheidung von oxy- und hydro-cellulosen durch titration. K. G. Schwalbe and E. Becker. *Deutsche Chem Gesell Ber* 54:545-50 Mr '21
- Volumetric determination of aluminium in its salts. A. Tingle. *J Ind & Eng Chem* 13:420-2 My '21
- Volumetric determination of sulfide by oxidation to sulfate. H. H. Willard and W. E. Cake. *Am Chem Soc J* 43:1610-14 JI '21
- Volumetric estimation of mixtures of acids and of bases, and of polybasic acids or bases. H. T. Tizard and A. R. Boeree. *Chem Soc J* 119:132-42 Ja '21
- Volumetric method for determination of tungsten. G. M. Enos. *diag Min & Sci P* 120:869-70 Je 12 '20
- Volumetric method for the detection and estimation of neutralizers in butter and in certain allied products. L. W. Ferris. *diag J Ind & Eng Chem* 12:757-60 Ag '20
- Volumetric method for the determination of diastatic capacity. J. T. Flohil. *J Ind & Eng Chem* 12:677 JI '20
- See also Colorimetric analysis
- Volumetric apparatus**
- Telephone receivers for electrometric work. C. C. Kiplinger. *diag J Ind & Eng Chem* 13:713 Ag '21
- Volute.** See Scrolls (decorative design)

Vouchers

- Sufficiency of vouchers. J. B. Geijsbeek. *J Account* 32:101-12 Ag '21

Vowels

- Nature of vowel sounds; the laryngeal puff which distinguishes the musical from the unmusical quality of voice. E. W. Scripture. *diags Sci Am M* 3:361-4 Ap '21; Discussion. P. Edwards. 4:364 O '21

Vulcalum

- Anti-slip surfacing decreases accidents. *il diag Ry Mech Eng* 94:307-8 My '20

Vulcanization

- L'accélération de la vulcanisation du caoutchouc. A. Neef. *Génie Civil* 78:382 Ap 30 '21
- Action of certain organic accelerators in the vulcanization of rubber. G. D. Kratz and others. *J Ind & Eng Chem* 12:317-24, 971-4; 13:67-70 Ap, O '20, Ja '21; Excerpts (pts. 2 & 3). *India Rubber W* 64:664-6, 744-5 Je-JI '21
- Action of certain organic accelerators in vulcanization of rubber. G. D. Kratz, A. H. Flower and B. J. Shapiro. *Chem & Met Eng* 23:739 O 13 '20
- Advantages of water vulcanization. A. E. Friswell. *India Rubber W* 64:662-3 Je '21
- Cold vulcanization. S. J. Peachey. *Sci Am M* 2:368-9 D '20
- Cold vulcanization of rubber; a new English process. F. Rowlinson. *Sci Am* 124:369+ My 7 '21
- Curing tires in melted molds. *diags India Rubber W* 64:556-7 My 1 '21
- Determination of true free sulfur and the true coefficient of vulcanization in vulcanized rubber. W. J. Kelly. *J Ind & Eng Chem* 12:875-8 S '20; Same cond. *India Rubber W* 63:175-6 D '20
- Effect of certain accelerators upon the properties of vulcanized rubber. G. D. Kratz and A. H. Flower. *India Rubber W* 63:95-7 N '20
- Expansion of rubber compounds during vulcanization. C. W. Sanderson. *diags J Ind & Eng Chem* 12:37-40 Ja '20; Same. *India Rubber W* 61:292-4 F '20
- Influence of certain organic accelerators on vulcanization of rubber. G. S. Whitby and O. J. Walker. *J Ind & Eng Chem* 13:816-19 S '21
- Manufacture of rubberized and rubber coated fabrics. F. Dannerth. *il Color Tr J* 8:102-5 Mr '21
- Mechanism of the action of certain accelerants of the vulcanisation of caoutchouc; abstract. G. Bruni and E. Romani. *Chem Soc J* 120 pt 1:734 O '21
- New cold process for vulcanizing rubber. *Sci Am* 123:229 S 4 '20
- New vulcanizing process. S. J. Peachey. *Sci Am M* 2:211 N '20
- Notes on accelerators. H. P. Stevens. *India Rubber W* 62:719-20 Ag '20
- Peachey process demonstration plant. *il India Rubber W* 64:850 Ag '21
- Peachey vulcanization process. *India Rubber W* 63:408-9 Mr '21
- Peachey's new vulcanization process. S. J. Peachey. *il India Rubber W* 62:729 Ag '20
- Possibilities of the Peachey process. *India Rubber W* 62:787-9 S '20
- Reactions of accelerators during vulcanization. C. W. Bedford, W. Scott and L. B. Sebrell. *J Ind & Eng Chem* 12:31-3; 13:125-8, 1034-8 Ja '20, F, N '21; Same cond. *India Rubber W* 61:206-7; 64:572-3 Ja '20, My '21; Abstract. *Chem & Met Eng* 24:836 My 11 '21
- Reagents for vulcanization. *India Rubber W* 64:895 S '21
- Relative accelerating action of different compounds of lead in the vulcanizing of rubber. J. M. Grove. *India Rubber W* 64:663-4 Je '21
- Steam requirements for vulcanizing. W. J. Bitterlich. *diags India Rubber W* 63:22-4 O '20
- Theory of acceleration based on the formation of polysulphides during vulcanization. C. W. Bedford and W. Scott. *Chem & Met Eng* 23:739-40 O 13 '20

Vulcanization—Continued

- Theory of acceleration in vulcanization. India Rubber W 63:174-5 D '20
- Vulcanization tests on hexamethylene tetramine, formaldehyde aniline and aldehyde ammonia. C. S. Williams. India Rubber W 65:101-6 N '21
- Vulcanizing India rubber; patent. Chem & Met Eng 23:1181 D 15 '20
- What the rubber chemists are doing. India Rubber W 62:730-2; 63:251-3 Ag '20, Ja '21
- See also Rubber; Vulcanizer explosions
- Vulcanized fiber**
- New process for parchment paper and vulcanized fibre. Paper 26:17+ J1 21 '20
- Vulcanized fiber. L. R. W. Allison. Chem & Met Eng 22:1126 Je 16 '20
- Wilmington and the chemical industry. Chem & Met Eng 23:1084-5 D 1 '20
- Vulcanizer explosions**
- Explosion of a vulcanising pan. Engineering 112:236 Ag 5 '21
- Vulcanizers and de-vulcanizers. H. E. Dart. Locomotive 33:108-10 O '20
- Vulcanizers**
- Pneumatic truck-tire repair vulcanizers. il India Rubber W 64:651-4 Je '21
- Temperature regulation for vulcanizers. R. A. Cultra. diag Power Pl Eng 25:234-5 F 15 '21
- Vulture mine.** See Gold mines and mining—Arizona

W

Wabash railroad

- Career of the Wabash. map Ry Age 70:1103-5 My 13 '21

Wage claims

- Collection of wage claims by state labor offices. M. T. Waggaman. Monthly Labor R 12:556-65 Mr '21

Wages

- Adjusting the wages on index plan. E. H. Underhill. Am Ind 21:32 F '21
- Adjustment of wages to the cost of living. Int Labour R 3:152-65 J1 '21
- Bases of Emerson incentive. H. Emerson. Ind Management 60:413-16 D 1 '20
- Bonus and wage-payment plans other men use. Factory 25:1596+ N 15 '20
- Both sides of the Priestman plan. Factory 24:814-15 Mr 15 '20
- Building wages. Am Arch 120:252 S 28 '21
- Comparison of wage incentive systems and the 100 per cent. time premium. L. V. Estes. Ind Management 60:210-17 S '20
- Le Congrès national des caisses de compensation d'allocations familiales (Paris, 4 juillet 1921). Génie Civil 79:113-14 J1 30 '21
- Cost of labor and the labor-cost. E. W. Leach. Am Mach 53:1188-9 D 23 '20
- Cost of living and wages. C. S. Duncan. Analyst 18:200+ Ag 29 '21
- Cost of living and wages. J. W. Scoville. Administration 2:507-10 O '21
- Counterfeit wages and high prices. E. A. Filene. Ptr Ink 111:99-100+ My 6 '20
- Creative ability and its compensation. C. N. Young. Ind Management 59:33-5 Ja '20
- Day wages now paid in West Virginia. Coal Age 18:1009 N 11 '20
- Determining a better basis for wage payments. H. Tipper. Automotive Ind 44:1442-3 Je 30 '21
- Do employees really vote wage reductions? W. A. Davenport. Factory 26:968-9 Ap 15 '21
- Earnings versus wages. D. R. Kennedy. Ind Management 58:465-9 D '19
- Economic of wage reductions. O. Tead. Administration 2:36-40 J1 '21
- Economics of production: production and wages. D. A. McCabe. Am Mach 55:539-40 O 6 '21

- Efficiency and high wage rates. R. S. Clark. Ind Management 58:506-9 D '19
- Employees vote for wage reduction. Textile World 58:3492 N 20 '20
- Evolution of wage and price levels. H. H. Manchester. chart Am Mach 52:1123-7 My 27 '20; Am Ind 20:14-18 Mr '20
- Face your men with the facts. G. E. Roberts. Nation's Business 9:11-13 Ja '21
- Formule de salaire à prime de production. P. Le Breton. Chimie & Ind 4:116-20 J1 '20
- Gaining workman cooperation through efficient wage regulation. C. H. Northcott. Automotive Ind 43:880-1 O 28 '20
- Grading of labour. A. W. Kirkaldy. Eng & Ind Management 6:347-9 S 29 '21
- Great wage change outlined. Iron Tr R 68:636 Mr 3 '21
- Hours and earnings in anthracite and bituminous coal mining. U S Bur Labor Statistics Bul 279:1-114 '21
- How low will wages fall? Eng & Contr 55:1 Ja 5 '21
- How to handle wage cuts. S. Crowther. il System 39:660-2+ My '21
- How will you reduce wages when living costs come down? Ptr Ink 111:17-19 Ap 22 '20
- Incentive or production basis of wage payment. H. Farquhar. Am Mach 55:169-72, 275-7, 344-8 Ag 4, 18, S 1 '21
- Industrial relations in mining industry. Min & Sci P 120:517-18 Ap 10 '20
- Is 7½ per cent a fair profit in the plumbing and heating business? Dom Eng 96:234-5+ Ag 6 '21
- Is the family of five wage standard desirable? Factory 27:84 J1 '21
- Judge Landis' awards compared with wages in 45 cities. Eng & Contr 56:292 S 21 '21
- Keeping workers contented with two-pay envelopes. F. C. Hudson. Am Mach 53:249 Ag 5 '20
- Labor cost and the rental harvest. G. T. Bain. Am Ind 21:9-11 Ag '20
- Labor situation. Pub Works 49:298-300 O 2 '20
- Labor situation; Associated general contractors of America in convention at New Orleans discuss reduction of wages, open shop, union labor and apprenticeship. Pub Works 50:303-5 Ap 9 '21
- Lay-off compensation. J. D. Hackett. Ind Management 60:67 J1 '20
- Less wages, or more work? M. Droke. Ind Management 61:103-5 F 1 '21
- Living costs and wages. J. F. Layng. Elec Ry J 57:628-30 Ap 2 '21
- Man's pay should equal the value of his production. J. S. Watts. Am Mach 52:43-4 Ja 1 '20; Discussion. 52:388 F 19 '20
- Mars as a sales outlet; a one-sided discussion on wages, buying power and production in relation to advertising. R. Dickinson. Ptr Ink 117:128+ O 20 '21
- Master plumber taking job and working with tools himself is entitled to more than a day's wage in absence of agreement to contrary. Dom Eng 93:259-60 N 6 '20
- Mechanics getting more than professors. Am Ind 20:11-12 F '20
- Methods of making wage adjustments need careful study. H. Tipper. Automotive Ind 43:1282-3 D 23 '20
- On the level. Automotive Ind 43:1334 D 30 '20
- Past and future wage levels. H. P. Gillette. Eng & Contr 56:97-101 Ag 3 '21
- Paying cost-of-living wages. J. K. Novins. Ptr Ink 111:103+ My 13 '20
- Paying the worker a fair reward on his just worth. H. Tipper. Automotive Ind 42:1174-5 My 20 '20
- Preparing for a wage arbitration. Elec Ry J 57:481-3 Mr 12 '21
- Present price-levels and wages. A. K. Deane. Am Ind 20:29-30 Ja '20
- Prices and wages in the machine tool industry. Mach 27:692 Mr '21
- Principles by which wages are determined. W. L. Hichens. Eng & Ind Management 6:346-7 S 29 '21
- Readjustment of living costs and wages. Mach 27:741-2 Ap '21

Wages—Continued

Real and nominal wages. E: Brown. Eng & Ind Management 5:572-3 My 19 '21
 Reduction of wages. E. J. P. Benn. Electrician 86:233-4 F 18 '21
 Remuneration of labour and increased production. Engineering 109:219-20 F 13 '20
 Scientific management. H: Atkinson. Eng & Ind Management 5:35-8 Ja 13 '21
 Seeking a fair basis for compensating the worker. H. Tipper. Automotive Ind 43:1332-3 D 30 '20
 Settlement of wage disputes. H. Feis. 289p Macmillan '21
 Sharing the wage fund according to merit. L. E. Ashley. Factory 24:621-2 Mr 1 '20
 Should the state interfere in the determination of wage rates? H. H. Hartman. 158p National industrial conference board, New York '20
 Should wages be cut? P. L. Burkhard. Ptr Ink 114:141+ F 3 '21
 Some thoughts on modern trade unionism. E: Brown. Eng & Ind Management 6:209-11 Ag 25 '21
 Some wage philosophy. J. Levy. Sci Am 122:273 Mr 13 '20
 Striking the wage balance between brain and brawn. L. H. Butler. Ptr Ink 110:1-4+ Ja 8 '20
 Le sursalaire familial et l'évaluation des charges permettant de le servir. P. Razous. Génie Civil 76:475-7 My 22 '20
 Survey reveals wages lower than estimated by current opinion. Automotive Ind 43:976-7 N 11 '20
 La théorie du salaire moderne; graphiquement exposée à l'usage des syndicats ouvriers. F. Bayle. Génie Civil 79:243-6 S 17 '21
 These workers set their own pay. S: Crowther. il System 40:31-4+ Jl '21
 Trends in management. W. R. Basset. Factory 24:1703-4 Je 1 '20
 True relation between wages and unit cost. H. Tipper. Automotive Ind 45:301-2 Ag 18 '21
 Two years' working of the Priestman plan. C. H. S. Tupholme. Factory 24:436-9 F 15 '20
 Valuation of productive work. J: S. Watts. Ind Management 59:283 Ap '20
 Wage payment. A. L. DeLeeuw. Mech Eng 41:939-40+ D '19; Same. Am Ind 20:12-17 Ja '20; Same. Am Mach 52:331-5 F 12 '20; Same. Eng & Contr 53:183-5 F 18 '20; Same cond. Iron Tr R 65:1579-81 D 11 '19
 Wage payment administration and its relation to production control. P. Faltin and L. Blog. Ind Management 60:139-42 Ag '20
 Wage plan for the new era. K. M. Mitchell. Ind Management 59:41-2 Ja '20
 Wage plan for the new era—discussion. A. Rothert. Ind Management 61:134 F 1 '21
 Wage reduction movement in the steam fitting trade. Heat & Ven 18:46-7 Ag '21
 Wage reduction that hurts the nation's buying power. C. M. Wright. Ptr Ink 117:101-2+ O 6 '21
 Wage reductions approach the deflated cost of living. Eng & Contr 56:344 O 5 '21
 Wage scales in the building trades prevailing September 30, 1921. Bldg Age 43:58 N '21
 Wages and hours of labor. See monthly numbers of Monthly labor review
 Wages and production. Engineering 111:395-6 Ap 1 '21
 Wages and the cost of living. Eng N 86:1055-6 Je 16 '21
 Wages and working hours are different problems. H. Tipper. Automotive Ind 44:232-3 F 3 '21
 Wages: British and foreign. Engineering 112:517 O 7 '21
 Wages; here and abroad. Eng & Contr 56:262 S 14 '21
 Wages in building trades in U.S. and foreign countries. Eng & Contr 56:301 S 28 '21
 Wages in the United States and foreign countries. (Tariff information, 1921) 103p '21 Prepared for the use of the Committee on ways and means, House of representatives, Washington

Wages in the United States and foreign countries in iron and steel industry. Blast F & Steel Pl 9:461 Jl '21
 Wages in United States and abroad. Iron Age 107:1692 Je 23 '21
 Wages of foreign workers show decline. Am Mach 55:608 O 13 '21
 Wages of women in industry. M. B. Gilson. il Ind Management 61:427-31; 62:37-42 Je-Jl '21
 Wages working to normal basis. il Iron Tr R 68:7-11 Ja 6 '21
 Wanaque dam contract provides for variable labor costs. Eng N 84:734 Ap 8 '20
 War-time changes in wages. Monthly Labor R 10:141-4 Ja '20
 What are you doing about wages? N. M. Clark. Factory 25:1869-74 D 15 '20
 What is a living wage? Ry Age 71:29-30 Jl 2 '21
 What will employers do about wages? D. F. Kennedy. Iron Age 106:1543-4 D 9 '20
 Where men work three times as fast. Factory 25:540-1 Ag 15 '20
 Which wage-payment plan in my shop? Factory 25:1563-6 N 15 '20
 Who started uniform wage scales? Factory 26:660 Mr 1 '21
 Workmen feel just like the rest of us as regards wage cuts. H. Tipper. Automotive Ind 44:470-1 F 24 '21
 See also Bonus system; Cost of living; Electric railroads—Wages; Employees—Rating; Employees as stockholders; Government employees—Salaries; Labor and laboring classes; Labor contracts; Minimum wage; Overtime; Payrolls; Piece work; Prices; Profit sharing; Railroads—Wages; Salaries; Wage claims

Australia

Wage scales in specified occupations in South Australia. Monthly Labor R 12:789-91 Ap '21

Austria

Wages and cost of living in Austria. Monthly Labor R 12:1005-7 My '21

Belgium

Labor costs in Belgium. Iron Age 108:138 Jl 21 '21

California

California labor list now includes everything but slush pit foreman. Nat Pet N 12:27 Jl 7 '20

Oil operators and workmen reach an agreement in California. Eng & Min J 108:776-8 N 8 '19

Canada

Construction wages in Canadian cities. Can Eng 39:268 Ag 19 '20

Wages and hours of labor in Canada. Monthly Labor R 12:1001-3 My '21

China

Wages and hours of labor in five Chinese cities, 1917 and 1920. Ta Chen. Monthly Labor R 13:265-77 Ag '21

Czechoslovakia

Wages in Czechoslovakia, 1920. Monthly Labor R 13:613-16 S '21

Denmark

Wages in Denmark in 1914, 1919, and 1920. Monthly Labor R 11:1206-9 D '20

Wages in various occupations in Denmark, 1920. Monthly Labor R 13:356-8 Ag '21

France

Wages and production in coal mines of France, 1914 to 1919. Monthly Labor R 11:517-21 S '20

Germany

Attitude of German Christian trade-unionists toward reduction of wages. Monthly Labor R 13:358-61 Ag '21

Cost of labor in Germany. Am Mach 52:1197-8 Je 3 '20

Deutsche bergarbeiterlöhne 1913 bis 1920. Stahl & Eisen 41:771-3 Je 2 '21

Wages—Germany—Continued

- German spinners' wages. Textile World 59:458 Ja 22 '21
- German wages and the cost of production. Engineer 131:646 Je 17 '21
- Labour cost in Germany. Engineer 129:502 My 14 '20
- Löhne in der eisen- und metallindustrie. Stahl & Eisen 41:387-9 Mr 17 '21
- Recent collective agreements and wage awards in Germany. A. Maylander. Monthly Labor R 11:759-69 O '20
- Wages in Germany during the war. A. Maylander, comp. Monthly Labor R 11:116-28 Jl '20
- Wages in Germany, 1920, compared with pre-war wages. Monthly Labor R 13:122-8 Jl '21
- Wages in various industries in Germany in 1920. Monthly Labor R 12:1010-15 My '21

Great Britain

- Interpretation of British wage movements. C. H. Northcott. Automotive Ind 43:480-1 S 2 '20
- Rise of wages in British industries. Monthly Labor R 10:1414-21 Je '20
- Wages and empire. V. A. Lyons. 96p Longmans '20
- Wages in the British steel industry. P. M. Tyler. Iron Age 108:191-3 Jl 28 '21
- Wages in various occupations. Monthly Labor R 12:588-92 Mr '21

Hungary

- Wages in Budapest, January, 1921. Monthly Labor R 12:787-9 Ap '21

Italy

- Wages in Italy, 1914 to 1919. Monthly Labor R 11:770-4 O '20
- Wages of agricultural workers in Italy. Monthly Labor R 13:130-4 Jl '21

Japan

- Wages in Japan in 1918 and 1919. Monthly Labor R 11:300-2 Ag '20

New York

- General increase of \$1 a day granted in New York building trades. Comm & Fin Chr 110:1814-16 My 1 '20
- New York city wage scale. Pub Works 48:429 My 15 '20
- Union wages in the principal building trades in New York city—1914 and 1920; tabulation. Concrete 17:146 N '20

New Zealand

- Wages in New Zealand, 1913 to 1919. Monthly Labor R 11:113-15 Jl '20

Norway

- Wage award in the Norwegian iron and steel industry. Monthly Labor R 11:514-16 S '20

Scotland

- Wages and hours of labor of farm workers in Scotland, 1919-20. Monthly Labor R 13:362-4 Ag '21

South Africa

- Rates of wages in certain occupations in South Africa. Monthly Labor R 11:970-3 N '20

Sweden

- Hours and wages of agricultural labor in Sweden. Monthly Labor R 12:791-4 Ap '21

United States

- Average union scale of wage rates per hour and per week May, 1913 to 1920; tabulation of occupations. Monthly Labor R 12:780-3 Ap '21
- Building trade wages in Middle West. Concrete 16:269 Je '20
- Changes in rates of wages, July 1, 1920, to March 31, 1921. Monthly Labor R 12:989-95 My '21
- Changes in union scale of wages and hours of labor, 1913 to 1920. Monthly Labor R 11:699-716 O '20

- Changes in union wage rates in printing and publishing trades from May 15 to August 31, 1920. Monthly Labor R 11:953-8 N '20
- Changes in union wage scales—1907 to 1919. Eng & Contr 53:598 My 26 '20
- Changes in union wage scales, 1907 to 1920. Monthly Labor R 12:548-50 Mr '21
- Comparison of earnings of New York state factory workers with retail prices of food. Monthly Labor R 12:111-12 Ja '21
- Comparison of employment and wages in selected industries in January 1921 and 1920. Comm & Fin Chr 112:800-1 F 26 '21
- Comparison of employment and wages in selected industries in February 1921 and 1920. Comm & Fin Chr 112:1230-1 Mr 26 '21
- Comparison of employment and wages in selected industries in March 1921 and 1920. Comm & Fin Chr 112:1928-9 My 7 '21
- Comparison of non-ferrous metal miners' wages in the United States. Eng & Min J 111:1082 Je 25 '21
- History of prices and wages during and following our Civil war. H. P. Gillette. Eng & Contr 53:420-1 Ap 14 '20
- Important decline in wages in the paper industry. Paper 26:9-10 Ag 25 '20
- Industrial survey in selected industries in the United States, 1919. A. H. Willett. U S Bur Labor Statistics Bul 265:1-509 '20
- Labor conditions; tabulation. Pub Works 50:309 Ap 9 '21
- Labor for public works: unskilled labor in United States; tabulation. map Pub Works 50:121-9 F 5 '21
- Metal worker's wages; National industrial conference board's report. Iron Tr R 68:1400-1 My 19 '21
- National coal association shows that miners make good wages. Coal Age 17:565-6, 676-7 Mr 18, Ap 1 '20
- New wage demands of anthracite miners. Comm & Fin Chr 111:1710-11 O 30 '20
- President approves majority decision of Anthracite coal commission despite strike threat. Coal Age 18:510-11 S 2 '20
- Re-opening of anthracite wage award by President Wilson. Comm & Fin Chr 111:1624 O 23 '20
- Some index numbers of wages in the U.S.A. Int Labour R 3:148-52 Jl '21
- Union scale of wages and hours of labor, May 15, 1918. U S Bur Labor Statistics Bul 259:1-295 '19
- Union scale of wages and hours of labor, May 15, 1919. U S Bur Labor Statistics Bul 274:1-281 '20
- Variations in building material prices and wages during 1920. Heat & Ven 18:59-60 F '21
- Wage advances in building trades 1914 to 1920. Eng & Contr 55:428 Ap 27 '21
- Wage changes in industry, September 1914-December 1920. 50p National industrial conference board, New York '21
- Wage increases in paper establishments since 1914. Comm & Fin Chr 112:1823 Ap 30 '21
- Wages and earnings in anthracite mines. J. Lauck. Coal Age 18:138-46 Jl 15 '20
- Wages and hours in paper-box, women's clothing, confectionery, and overalls industries. Monthly Labor R 10:925-34 Ap '20
- Wages and hours of labor. See monthly numbers of the Monthly labor review
- Wages and hours of labor in cotton-goods manufacturing and finishing, 1918. U S Bur Labor Statistics Bul 262:1-147 '19
- Wages and hours of labor in the boot and shoe industry, 1907 to 1918. U S Bur Labor Statistics Bul 260:1-135 '19
- Wages and hours of labor in the slaughtering and meat-packing industry, 1917. U S Bur Labor Statistics Bul 252:1-1114 '19
- Wages in building trades in western cities. Eng & Contr 53:324 Mr 24 '20
- Wages in steel mills compared. Iron Tr R 67:1353 N 11 '20
- Wages in various industries and occupations; a summary of wage movements 1914-1920. (Bul. 8) 65p '20 U.S. Bureau of applied economics, inc., Washington, D.C.

Wages—United States—Continued

- Wages of both anthracite and bituminous mine workers increase in 1920. R. D. Hall. *il Coal Age* 19:272-4 F 10 '21
- Wages of women employed as cleaners, maids, and elevator operators in buildings and theatres in the District of Columbia. C. E. Mortenson. *Monthly Labor R* 11:976-82 N '20
- Wages scale of building mechanics in effect February 25, 1921; tabulation. Sheet Metal Worker 12:237 Ap 29 '21
- Wagon mines. See Coal mines and mining—Wagon mines
- Wagons. See Carriage and wagon making
- Wales

See also Hydroelectric plants—Wales; Mines and mineral resources—Wales

Walker, Oakley Smith

Magnetic chucks; the father of the magnetic chuck. E. Sheldon. *por il Am Mach* 54:412-15 Mr 10 '21

Walker vehicle company, Chicago

Federal electric and Walker vehicle plants, Chicago. *il diag plans Am Arch* 119:559-64 My 11 '21

Walking

How men walk with artificial legs. R. du Bois-Reymond. *diags Sci Am M* 1:36-9 Ja '20

Wall board

- Remodeling with wallboard. L. H. Harvey. *il diag Bldg Age* 43:48-50 My '21
- Study of commercial wall board. F. C. Clark and A. D. Conley. *Paper* 25:17-20 F 11 '20
- Wallboard much used in anthracite company houses, especially for repairs. *Coal Age* 18:1093-4 N 25 '20
- Wallboard on the farm. L. H. Harvey. *il Bldg Age* 41:380-1 N '19

Wall paper**Advertising**

- Advertising to the dealer through the consumer. *Ptr Ink* 115:83-4 Je 30 '21
- New educational campaign for wallpaper. *Ptr Ink* 114:129-30 Mr 10 '21

Wall Street

- Financing of big business; brief history of Wall Street. S. Wexler. *Comm & Fin Chr* 111:110-13 sec 2 N 20 '20
- Work of Wall Street. S. S. Pratt. 3d ed., rev. and enl. 447p Appleton '21

See also New York stock exchange

Wallace, Henry C., 1866-

Another farm-paper publisher in the president's cabinet. *por Ptr Ink* 114:25-6 Mr 10 '21

Wallace, John Findley, 1852-1921

Sketch. *por Eng N* 87:83-4 Jl 14 '21; *Ry Age* 71:94 Jl 9 '21; *Ry R* 69:43-4, 57-8 Jl 9 '21

Wallace, Lawrence Wilkerson, 1881-

Secretary American engineering council. *por Chem & Met Eng* 24:357 F 23 '21

Walls

- Constructing a well in a sand or sand and gravel formation. J. Oliphant. *diag Eng & Contr* 55:576-7 Je 8 '21
- Gunitite walls and studs for houses. *il Concrete* 17:9-11 Jl '20
- Imitating building-rock in stucco. H. Lindquist. *il Eng & Contr* 54:82-4 Jl 28 '20
- Instrument measures light reflected by room walls. *il Pop Mech* 34:702 N '20
- Prevention of heat losses. W. Clay. *il diags Arch Forum* 35:93-8 S '21
- Stability of thin walls and heat transmission. *Eng & Contr* 54:308-9 S 29 '20
- Suggestions for wall treatment. *il Bldg Age* 43:59 Je '21
- Three-ply building wall constructed of salvage material. E. A. Slater. *diags Eng & Contr* 52:771-2 D 31 '19
- Walls and floors—their effects on lighting. V. R. Lansingh. *il diags Illum Eng Soc* 15:124-31; Discussion. 131-8 no 2 '20
- See also Building; Dams; Dust figures; Foundations; Mural painting and decoration; Partitions; Plaster and plastering; Retaining walls; Sea walls; Wall board

Testing

- Results of additional distortion tests on various types of wall construction. J. C. Peebles. *il diag Am Arch* 118:413-15 S 29 '20; Same. *Concrete* 17:187 D '20; Excerpt. *Eng N* 86:20 Ja 6 '21
- Rigidity tests on various types of wall construction made by Omaha building department. *il diag Am Arch* 118:199-200 Ag 11 '20
- Tests of heat conductivity of walls. *Concrete* 19:66 Ag '21

See also Walls, Brick—Testing

Walls, Brick

- Brick wall thickness for small residences. W. Carver. *diags plan Brick & Clay Rec* 58:894-8 My 31 '21
- Ideal wall house is introduced to Chicago district. *il Brick & Clay Rec* 59:111-12 Jl 26 '21
- New brick hollow wall. M. H. Andrew. *il Brick & Clay Rec* 58:210-12 F 8 '21
- Something new in brick walls, using standard bricks. *il Sci Am* 125:30 Jl 9 '21
- Suggestion for house walls. *diags Coal Age* 19:996 Je 2 '21

Testing

- Building commissioners see tests on ideal wall. R. P. Stoddard. *il Brick & Clay Rec* 58:825-6 My 17 '21

Walls, Concrete

- Acme system hollow wall houses. *il diags Concrete* 18:40-1 Ja '21
- Concrete facing placed on old masonry sea wall. *il diags plan Eng N* 84:996-8 My 20 '20
- Concrete sea wall poured in block sections by tremie. *il diags Eng N* 86:896-9 My 26 '21
- Concrete vs. brick for mill building walls. *il diags Concrete* 19:117-18 S '21
- Dry walls with concrete units. S. H. Wightman. *Concrete* 18:232-3 My '21
- Hollow wall house in Hollywood by Cresmer system. *il diags plans Concrete* 19:100-1 S '21
- Insulation of concrete walls. N. D. Mitchell. *Can Eng* 38:422-3 Ap 29 '20
- McLeod system of hollow wall and floor units. *il diags Concrete* 19:106-7 S '21
- Making wall coping water tight. *diag Concrete* 19:32 Jl '21
- New curtain wall drop for irrigation canals. H. M. Chadwick. *diags plan Eng N* 87:179 Ag 4 '21
- New system of hollow concrete wall construction. C. A. Byers. *il Bldg Age* 42:31-2 N '20
- Patterson double wall and floor system. *il diags Concrete* 19:118 S '21
- Sculptor's experiment in the decoration of concrete surfaces. A. Perrett. *il Arch Rec* 48:31-8 Jl '20
- Sliding forms for concrete wall construction. *diag Ry R* 66:697-8 Ap 24 '20
- Special quay wall for shores which require filling. *il diags plan Eng N* 85:658-9 S 30 '20
- Standard plan double wall houses in St Paul. G. F. Paulson. *il plan Concrete* 18:20 Ja '21
- See also Retaining walls, Concrete

Cost

- Cost of laying block and brick, and comparative strength. H. G. Krum. *Concrete* 17:186 D '20
- Cutting labor costs on double-wall concrete houses. H. W. Remington. *il diags Bldg Age* 43:21-3 S '21

Walls, Glass

New Cornwall railroad shop has walls of glass. J. C. Childs. *il plan Ry Age* 71:197-8 Jl 30 '21

Walnut shells

Conversion of walnut shells into poultry charcoal in a rotary kiln. H. L. Glaze and R. B. Stringfield. *Chem & Met Eng* 23:368 S 1 '20

Walnuts

Branding California walnuts. H. H. Warner. *il Sci Am* 122:96 Ja 24 '20

Waltham, Massachusetts**Water supply**

Effect of pitometer survey and meterage on water waste at Waltham. H. F. Beal. *Eng & Contr* 54:552 D 8 '20

Want ads. See Advertisements, Classified—Want ads

War

See also Disarmament

War finance corporation

Advances by War finance corporation approved or under negotiation \$63,471,700. *Comm & Fin Chr* 113:578-9 Ag 6 '21

Annual report, 1920. *Comm & Fin Chr* 111:2471-3 D 25 '20

Benefits resulting from revival of War finance corporation. E. Meyer, jr. *Comm & Fin Chr* 111:2278-80 D 11 '20

Financing cotton through War finance corporation. *Comm & Fin Chr* 113:902-3 Ag 27 '21

Financing of cotton exports arranged by War finance corporation. *Comm & Fin Chr* 113:243-4 Jl 16 '21

How we are helping exports. E. Meyer, jr. *il Nation's Business* 9:17-18 O '21

Liquidation of loans made by War finance corporation. *Comm & Fin Chr* 111:942-4 S 4 '20

Opposition to revival of War finance corporation. *Comm & Fin Chr* 111:2469-70; 112:105-8 D 25 '20, Ja 8 '21

Plans of the War finance corporation to help cotton exporters. *Comm & Fin Chr* 112:2032-3 My 14 '21

President Wilson vetoes resolution reviving War finance corporation—repassage of resolution. *Comm & Fin Chr* 112:104-5 Ja 8 '21

Proposal to extend powers of War finance corporation as to agriculture. E. Meyer. *Comm & Fin Chr* 113:578 Ag 6 '21

Resources of war finance corporation—what the United States treasury owes it. *Comm & Fin Chr* 113:471 Jl 30 '21

Rules under which War finance corporation will consider agricultural credits. *Comm & Fin Chr* 113:1303 S 24 '21

Text of agricultural amendment to War finance corporation act. *Comm & Fin Chr* 113:1202-4 S 17 '21

Text of bill enlarging powers of War finance corporation to adjust rail financial claims. *Comm & Fin Chr* 113:489 Jl 30 '21

War finance corporation act. *Eng & Min J* 111:1008 Je 11 '21

War finance corporation bill. E. H. Morton. *Ry Age* 71:607-8 O 1 '21

War finance corporation if functioning could help in cotton crisis. E. Meyer, jr. *Comm & Fin Chr* 111:1523-4 O 16 '20

War finance corporation not designed to aid speculation. C. Glass. *Annalist* 17:231 F 14 '21

War industries board. See United States—War industries board

War loans

Immediate refunding of the war debt an invitation to trouble. R. G. Blakey. *Annalist* 17:566+ My 23 '21

Refunding the war debt. Secretary Mellon's big task. *Annalist* 17:469-70 Ap 25 '21

War memorials. See Memorials

War minerals committee

War minerals committee, 1917-1918. W. Y. Westervelt. *Eng & Min J* 112:500-2 S 24 '21

War minerals relief act

New war minerals relief legislation; the Shortridge bill. *Eng & Min J* 111:893-4 My 28 '21

War minerals relief claims. *Min & Sci P* 120:639 My 1 '20

War-minerals relief commission

War-minerals relief commission. *Eng & Min J* 109:477-8 F 21 '20

War revenue law, 1918

Corporation trust company's 1921 war tax service. 832p The Corporation trust company, New York '21

Invested capital from a legal standpoint as applied to excess and war profits taxation. K. H. Addington. *J Account* 31:110-20 F '21

Readjustment relief provisions of the 1918 revenue act. F. Lowson. *Administration* 1:377-88 Mr '21

Warehouse act. See Federal warehouse act

Warehouses

Arched roof construction is successful in Atlanta warehouse. *il Nat Pet N* 13:43+ O 5 '21

Cutlery steel stocks; warehouse of Wetherell brothers co., at Cambridge, Mass. *il Iron Age* 107:1628-9 Je 16 '21

Municipal warehouses and docks, New Orleans. *il Textile World* 56:2511-13 O 25 '19

Refrigerating plant at Los Angeles wholesale terminal. C. W. Geiger. *il Power Pl Eng* 24:1059-61 N 15 '20

Relation of warehouses to port development. M. A. Long. *Am Soc C E Pro* 47:328-31 O '21

Skillful underpinning prevents warehouse collapse. J. J. Rosedale. *Eng & Contr* 55:91-2 Ja 26 '21

Small river terminal for widely varying water stages; municipal pier and warehouse at Fayetteville, N.C. H. Abbott. *diag plan Eng N* 83:999 D 11 '19

Ten acre Nissen building for storage of wool. *il Engineering* 110:617 N 5 '20

Warehouse for the National tea company, Chicago. *il diags plans Am Arch* 119:492-7 Ap 20 '21

Warehouse—its place in the modern community. B. F. Cresson, jr. *Gen Elec R* 24:352-3 Ap '21

Warehouses; layout, construction, and types of freight handling equipment. J. J. Matson. *il Gen Elec R* 24:354-60 Ap '21

Warehousing in Pacific states. D. C. Partidge. *il Iron Tr R* 69:1070-4 O 27 '21

See also Army supply bases; Grain elevators

Cost

Comparative bidding prices 1917-20 on warehouse building. F. E. Davidson. *Eng & Contr* 55:180 F 23 '21

Cost of a 3-story warehouse. W. C. Huntington. *Eng & Contr* 53:496 Ap 28 '20

Employees

Warehousing as a hazardous employment under the Workmen's compensation law of Washington. *Monthly Labor R* 13:679-80 S '21

Management

Economy features in a modern iron and steel warehouse. H. A. Knight. *il plan Iron Age* 107:497-502 F 24 '21

Handling of goods at the port of Manchester warehouses. *il diags Engineering* 111:541-4, 576-7, pl 25, 27-8 My 6-13 '21

Standardized warehouse management. E. Szepesi. *diags Textile World* 57:964+ F 7 '20

These orders are rushed without haste. P. F. O'Shea. *System* 40:290+ S '21

Warehouses, Concrete

Concrete replaces wood as frame of existing warehouses. *il diags plan Eng N* 85:261-2 Ag 5 '20

Effect of fire on concrete in warehouse at Galveston. *il Eng N* 85:980-3 N 18 '20; Discussion. 85:1101-2, 1298; 86:353 D 2, 30 '20, F 24 '21

Le frigorifique à poissons de Lorient (Morbihan). Verrière and Tayon. *il diags plans Génie Civil* 77:245-50, pl 4 S 25 '20

Large concrete warehouse. R. E. Brigham. *il diags plan Arch Forum* 34:25-8 Ja '21

Precast ornaments in polychrome enrich storage warehouse. *il diags Concrete* 19:26-8 Jl '21

Unique construction in reinforced concrete. W. R. Swanson. *il diags plans Am Arch* 117:30-4 Ja 7 '20

Warehouses, Portable

Wharf-house for variable rivers. G: W. Mc-Alpin. *il Eng N* 84:947 My 13 '20

Warehousing system

Advent of the banker-warehouseman. R: H. Tingley. *il Textile World* 59:874-5+ F 5 '21

Importance of warehouses. A. F. Lever. *Textile World* 56:2485 O 25 '19

Linking warehousing and banking. G. P. Billion. *il Am Ind* 21:27-8 N '20

Old and new methods in cotton warehousing and financing. R: H. Tingley. *il India Rubber W* 62:710-12 Ag '20

Warehouse receipts and cotton loans. J. H. Ardrey. *Textile World* 56:2481+ O 25 '19

Warehousing of cotton. W. B. Thompson. *Textile World* 56:2479+ O 25 '19

Warm air furnaces. See *Furnaces, Warm air*

Warner & Swasey company, Cleveland, Ohio Celebrates fortieth anniversary. *Iron Tr R* 66:1534 My 27 '20

Warping machines

Cleaning device for warpers. *il diags Textile World* 59:3805 Je 4 '21

New winding and warping machinery. *il Textile World* 60:467+ JI 16 '21

Warrentine. See *Pavements, Bitulithic*

Warrior river barge canal

Development of Warrior river barge canal. R. S. Thomas. *il Int Marine Eng* 25:193-8, 372-5 Mr-Apr '20

Warships

Armor, speed and freeboard in battleships. H. B. Dieter. *Sci Am* 122:333 Mr 27 '20

Army planes sink German destroyer in twenty minutes. *Aerial Age* 13:460 JI 25 '21

Battleship and the junk heap. L. O. Battle. *il Sci Am* 124:312+ Ap 16 '21

Bombing of warships proves air power. *il Aviation* 11:96-8 JI 25 '21

Bombing tests of the U.S.S. Alabama. *il Aviation* 11:396-7 O 3 '21

Bombing the Alabama. *Aerial Age* 14:85 O 3 '21

Depth-bombing from the air; results and lessons of the sinking of the Frankfurt and Ostfriesland off the Virginia coast. *il Sci Am* 125:92-3+ Ag 6 '21

Design of war vessels as affected by the world war. D: W. Taylor. *il J Fr Inst* 190:157-85 Ag '20; Abstract. *Mech Eng* 42:693 D '20; Same. *Sci Am M* 2:376-7 D '20

Experience and practice in mechanical reduction gears in warships. H. B. Tostevin. *il diags plans Engineering* 109:472-3, 474-80, 482 Ap 9 '20; Same abr. *Int Marine Eng* 25:745-51, 826-9 S-O '20; Same cond. *Engineer* 129:368-9, 405-7 Ap 9-16 '20; Abstract. *Mech Eng* 42:357-8 Je '20

From trireme to dreadnought; the development of the warship from ancient to modern times. J. B. Walker. *il Sci Am* 125A:25-7 N '21

Future of warships. N. Soliana. *diags Engineering* 111:25-7 Ja 7 '21; Discussion. 111:40-1 Ja 14 '21

Is it to be bomb or battleship? elaborate series of tests to determine the effectiveness of aircraft against warships. *il plans Sci Am* 125:4-5 JI 2 '21

Is naval design in the flux? *Sci Am* 123:148 Ag 14 '20

Modern history of warships. W: Hovgaard. 501p Spon '20

New system of bombing tests. A. Guidoni. *il Aviation* 11:307 S 12 '21

Ostfriesland sunk by 2000-lb. aircraft bombs. *il diag Aviation* 11:128-32 Ag 1 '21

Pneumatic transmission of messages on warships. *il diags Engineering* 111:548-50 My 6 '21; Abstract. *Mech Eng* 43:478 JI '21; Abstract. *Sci Am M* 4:91-2 JI '21

Report of joint army and navy board on bombing and ordnance tests. *Aerial Age* 13:614-15 S 5 '21

Report on bombing tests. *il Aviation* 11:276-8 S 5 '21

Schedule of the bombing tests. H: B. Wilson. *il Aviation* 11:8-12 JI 4 '21

Shall we abolish the battleship? J. P. Norfleet. *Aviation* 10:526 Ap 25 '21

Speed versus armor. F. Van Blarcom. *Sci Am* 122:89 Ja 24 '20

Supremacy of the battleship. W: D. Reichmann. *Sci Am* 122:569 My 22 '20

Use of non-ferrous metal in naval machinery; abstracts. G: Goodwin. *Engineering* 109:354-5 Mr 12 '20; *Engineer* 129:268-9 Mr 12 '20

Warship design and torpedo attack. *Engineering* 111:619-20 My 20 '21

Warship's wireless. S: W. Beach. *il Pop Mech* 33:231-2 F '20

Weapons at sea; the place of aircraft and the battleship. E. G. Allen. *Sci Am* 125:25+ JI 9 '21

See also *Navies; Submarine boats; Torpedo boat destroyers; Torpedo boats; also subdivision Navy under names of countries, e.g. Great Britain—Navy, United States—Navy*

Germany

Ex-German battleship Baden. S. V. Goodall. *diags plan Engineering* 111:337-41, pl 13-15; Discussion. 329-31 Mr 18 '21

Ex-German battleship Baden and the cruiser Nurnberg. *il (supp) diags plan Engineering* 130:319-22 O 1 '20

German naval construction, 1914-1918. *Engineer* 129:570-1, 642-4 Je 4, 25 '20; Abstract (Les constructions navales allemandes, de 1914 à 1919). *Génie Civil* 77:441-2 N 27 '20

Our share of the German fleet. *il Sci Am* 122:543+ My 15 '20

Some features of German warship construction. E. T. D'Eyncourt. *Engineering* 111:318-21 Mr 18 '21; Same, without tables. *Engineer* 131:297-8 Mr 18 '21; Discussion. *Engineering* 111:329-31 Mr 18 '21; *Engineer* 131:287-8 Mr 18 '21

Super-dreadnaught as target; latest German battleship Baden sunk by gunfire and torpedo. H. C. Bywater. *il Sci Am* 124:412+ My 21 '21

Great Britain

Backbone of naval power. H. C. Bywater. *il diags Sci Am* 122:490+ My 1 '20

British battle-cruiser Renown. *il Sci Am* 121:560 D 6 '19; Same abr. *Engineer* 128:643 D 26 '19

Le croiseur de bataille Britannique Hood. *il diags plan Génie Civil* 76:465-9 My 22 '20

H. M. battle cruiser Hood. *il (supp) Engineering* 109:397-9, 414, pl 21-4 Mr 26 '20; Abstract. *Mech Eng* 42:297 My '20

H.M. light cruiser Raleigh. *il Engineer* 130:374-5 O 15 '20

H. M. S. Hood. E. d'Eyncourt. *diag Engineering* 109:423-6 Mr 26 '20; Same. *Engineer* 129:314-16 Mr 26 '20; Same. *Int Marine Eng* 25:492-5 Je '20

Largest power plant afloat. *Power* 50:698-9 N 11 '19

Naval construction in 1920. *il (supp) Engineer* 131:16-18 Ja 7 '21

Thirty-one knot British battleship Hood. *il diag Sci Am* 121:610+ D 20 '19

Trials of H.M.S. Raleigh. *il diags Engineering* 110:410, 418-19 S 24 '20; Correction. 110:451 O 1 '20

Italy

Salving of the Italian battleship Leonardo da Vinci. *il (supp) diags plans Engineer* 131:281-3 Mr 18 '21

Saving a capsized dreadnought. *il Sci Am* 122:38 Ja 10 '20

Japan

Latest Japanese battleship Nagato. *il Sci Am* 124:161 F 26 '21

United States

Battleship Maryland to be the most powerful fighting craft in the world. *il Marine Eng* 26:595-6 Ag '21

Battleship Washington launched at Camden. *il Marine Eng* 26:752-4 O '21

Bombing the old battleship Indiana. *il Sci Am* 123:575 D 4 '20

Warships—United States—Continued

- Completing the battleship Tennessee. *il Sci Am* 122:603 My 29 '20
- Electric propelling machinery for U.S.S. Tennessee. W. Sykes. *il Am Inst E E J* 39:52-4 Ja '20
- Electric propelling machinery of future. U.S. capital ships. *Power* 52:238 Ag 10 '20
- Features of the electric plant of the battleship Tennessee. R. L. Weber. *il diags Elec R* 76:95-7 Ja 17 '20
- Maryland—our first 16-inch-gun battleship. *il Sci Am* 122:699+ Je 26 '20
- Motive power of the new 35-knot scout cruiser. *il diags plan Sci Am* 124:113 F 5 '21
- New American warships. *il (supp) diags Engineer* 131:227-30 Mr 4 '21
- New battle-cruiser Constellation. J. B. Walker. *il Sci Am* 124:91+ Ja 29 '21
- New battleship Indiana. *il Sci Am* 123:587+ D 11 '20
- New scout cruisers of immense engine power. *il diags Marine Eng* 26:121-3 F '21
- Our latest battleship, the Maryland. C. D. Wagoner. *il Sci Am* 125:41+ JI 16 '21; Same. *Am Ind* 22:7-10 Ag '21; Same, with table. *Gen Elec R* 24:785-7 S '21
- Our latest dreadnought, the Tennessee. *il Sci Am* 125:169 S 3 '21
- Our new scout cruisers. D. F. Ducey. *il Marine Eng* 26:274-7 Ap '21
- Tennessee—our latest battleship. *il Sci Am* 123:501+ N 13 '20
- U.S. battleship Tennessee. *il Engineer* 129:538 My 21 '20
- United States battleship Tennessee. J. L. Bates. *il Int Marine Eng* 25:642-3+ Ag '20
- United States battleships of the year 1914 and later classes. E. H. B. Anderson. *Int Marine Eng* 25:690-2 Ag '20
- United States light cruiser Omaha. *il Sci Am* 124:49+ Ja 15 '21
- Warwick, Walter Winter, 1868—Autocrat of the treasury. J. B. Morrow. *Nation's Business* 9:32-3 Ja '21
- Wasbrough, Matthew**
- Links in the history of engineering; the steam engine crank. R. Jenkins. *Engineer* 129:162-4 F 13 '20
- Washers (machinery)**
- Comparison of cast and cast-hammered bab-bitt thrust washers. J. M. Henry and F. B. Coyle. *Am Mach* 54:1009 Je 9 '21
- Dies for producing a valve-spring washer. W. A. Flumerfelt. *diags Am Mach* 52:1196 Je 3 '20
- Making cast iron washers in quantity. P. Dwyer. *diag Foundry* 48:79 Ja 15 '20
- Washers, Rail.** See Rail washers
- Washhouses, Mine.** See Mine washhouses
- Washing machines**
- Help the housewife solve wash day problem. Plumber 94:503-4 N 19 '20
- See also Laundry machinery

Advertising

- Advertising in a flood-tide market. W. L. Larned. *Ptr Ink* 113:73-4+ N 11 '20
- Manufacturers who are advertising now to make business good in 1930. G. A. Nichols. *Ptr Ink* 112:41-4 JI 1 '20
- One man did two men's work with help of advertising. S. C. Lambert. *Ptr Ink* 110:154+ Ja 8 '20
- Two thousand women tell why they want washing machines. B. Yale. *Ptr Ink* 113:145-6 O 21 '20
- See also Washing machines, Electric—Advertising

Manufacture

- Quantity production of ABC washing machines. J. H. Vincent. *il Am Mach* 52:617-20 Mr 18 '20
- Sheet metal work on washing machines. E. H. Custer. *il Sheet Metal Worker* 12:281-3 My 27 '21

Washing machines, Electric

- Construction features of Little Giant washer. *il Elec R* 78:833 My 21 '21

- Development of washing machine markets for dealers. E. B. Seitz. *il Elec R* 79:303-6 Ag 27 '21
- Distribution of washing machines through jobbers. W. W. Low. *Elec R* 76:98-9 Ja 17 '20
- Electric washer; is it a toy or a triumph? *Electrician* 85:626-7 N 26 '20; Discussion. 86:304-5 Mr 11 '21
- Electric washer with swinging wringer. *il Elec R* 78:675 Ap 23 '21
- Electric washing machine: from the housewife's point of view. M. G. Howell. *Elec R (Lond)* 89:108-9 JI 22 '21
- Electrical dealers ready to make this year the largest harvest time for washing machine sales. E. C. Dench. *Elec R* 77:141-2 JI 24 '20
- Hazards of electric switches when placed on washing machines. F. A. Cambridge. *Elec W* 75:1197 My 22 '20
- How to sell washing machines. W. B. Stoddard. *il J Elec* 46:403-4 Ap 15 '21
- Potential field for medium-sized electric washers in restaurants, small hotels, clubs, etc. *Elec R* 77:833-4 N 27 '20
- Recent developments. *il Elec R* 79:487-9 S 24 '21
- Selling laundry service rather than washing machines. *Elec R* 77:777-8 N 13 '20
- Small washing machine can be used in limited space. *il Pop Mech* 36:180 Ag '21
- Standard electric washer having simplified design. *il Elec R* 78:674-5 Ap 23 '21
- Washer, wringer, and ironer all in one machine. *Pop Mech* 35:857 Je '21

Advertising

- Canadian electrical dealers show initiative in display of washers and vacuum cleaners. E. A. Dench. *Elec R* 78:191-2 Ja 29 '21
- Emulate leaders, to quicken Gainaday sales. H. E. Agnew. *Ptr Ink* 117:116+ O 13 '21
- Putting over technical facts to women. A. V. Farrington. *Ptr Ink* 114:49-51 Ja 27 '21
- Sales campaign on electric washing machines. H. L. Cook. *il J Elec* 45:515-16 D 1 '20
- Washington, D.C.**
- Provisions of Washington, D.C., zoning plan. *Eng & Contr* 54:451-2 N 3 '20
- Roosevelt and the fine arts. G. Brown. *il Am Arch* 116:711-19 D 10 '19

Bridges

- Army engineers build new highway bridge across Potomac. *il diags map Eng N* 85:970-6 N 18 '20
- Georgetown bridge. *il diags Pub Works* 50:203-5, 221-2, 238-40 Mr 5-19 '21

Libraries

- American research centers. *Special Lib* 12:97-100, 118-21 My-Je '21
- Libraries in the District of Columbia. W. I. Swanton, comp. *Special Lib* 12:135-53 Je '21; Same. (Reprint & Circ. Ser. 20) 19p '21 25c National Research Council, 1701 Massachusetts av., Washington, D.C.

Monuments

- Lincoln memorial in Washington, D.C. G. Brown. *il Am Arch* 118:488-99, 503-6, 522-33, 537-9 O 20-27 '20

Public buildings

- New Freer art gallery. *Am Arch* 116:755 D 17 '19

Rapid transit

- Permanent loading platforms in Washington. *il diag plan Elec Ry J* 57:85-6 Ja 8 '21
- Two-car trains in Washington. *il diag Elec Ry J* 57:168-70 Ja 22 '21
- Washington, D.C., valuations reviewed. A. E. Knowlton. *Elec Ry J* 55:469-70 Mr 6 '20

Sanitary affairs

- Rubbish collection and disposal, District of Columbia. F. S. Besson. *il plan Eng N* 85:1182-4 D 16 '20

Washington, D.C.—Continued

Water supply

More water for greater Washington. R. B. Morse. map Am Water Works Assn J 7: 377-81 My '20

Washington (D.C.) railway & electric company

Report for calendar year 1920. Comm & Fin Chr 113:1769 O 22 '21

Washington (state)

See also Hydroelectric plants—Washington; Irrigation—Washington; Mines and mineral resources—Washington

Washington award

Presentation of the Washington award to Herbert Clark Hoover; with address by C. F. Loweth. W Soc E J 25:169-80 Mr 5 '20

Wasps

First paper makers; the wasps. W: Reinicke. Paper 28:11-13 Jl 20 '21

Hornets and other social wasps; nest building and community life among the vespidae. il Sci Am M 3:307-10 Ap '21

New views regarding the living larder of the sphex wasps. Sci Am M 2:222 N '20

Waste

American engineering council finds waste in printing industry. Am Ind 22:33-5 S '21

American engineering councils' committee report on elimination of waste in industry. Mech Eng 43:579-83 S '21; Abstracts. Iron Tr R 68:1582+ Je 9 '21; Am Mach 54:1064d Je 16 '21; Elec Ry J 57:1091; 58:173-4 Je 11, Jl 30 '21; Min & Met 177:36-7 S '21

American engineering councils' committee reports on elimination of waste in building industry. Eng & Contr 56:92-4 Jl 27 '21; Excerpts. Iron Age 108:347-8 Ag 11 '21

American engineering council's report on waste in the metal trades industry. Am Mach 55:248a Ag 11 '21

Causes of wastes in metal trades. Iron Age 108:216-17 Jl 28 '21; Same. Ry. R 69:649-51 N 12 '21

Elimination of construction wastes. G: W. Burpee. Chem & Met Eng 25:394-6 Ag 31 '21

Elimination of waste in industry. Chem & Met Eng 25:353-4 Ag 31 '21

Enormous waste in industries. Sci Am 124:482 Je 18 '21

Federated American engineering societies attacks industrial waste problem. L. W. Wallace. Am Mach 54:513-14 Mr 24 '21; Same. Mech Eng 43:284-5 Ap '21; Same. Min & Met 172:7-8 Ap '21; Excerpts. Elec W 77: 673 Mr 19 '21; Eng N 86:472-3 Mr 17 '21; Am Inst E E J 40:345-6 Ap '21

Human difficulties predominant in building trades wastes. H. Tipper. Automotive Ind 45:232-3 Ag 4 '21

Human factors largely responsible for waste in metal trades. H. Tipper. Automotive Ind 45:282-3 Ag 11 '21

National survey of waste. Sci Am M 3:195 Mr '21

Research and industrial wastes. G: S. Hessenbruch. Mech Eng 42:104-5 F '20

Role of research in waste elimination. H. E. Howe. Chem & Met Eng 25:379-82 Ag 31 '21

Warring on waste. Factory 24:182+. 488+, 892+, 1070+, 1184+; 25:122+, 956+; 26:674+, 864+, 1202+; 27:64+, 564+ Ja, F 15, Mr 15- Ap 15, Jl 1, S 15 '20, Mr 1, Ap 1, My 15, Jl, O '21

Waste and inefficiency in the industries. Chem & Met Eng 25:433-48 Ag 31 '21

Waste due to lack of standardization of chemicals. W. P. Cohoe. Chem & Met Eng 25:383-4 Ag 31 '21

Waste due to poor engineering and management. D. S. Kimball. Chem & Met Eng 25: 375-7 Ag 31 '21

Waste of material in railroad shops. Ry R 68:184-5 Ja 29 '21

Waste prevention in the electrical industry. E. V. Chambers. il Electrician 86:619-22 My 20 '21; Abstract. Sci Am M 4:87 Jl '21

What can be done to eliminate the wastage of industry. J Elec 47:228-9 S 15 '21

See also Cotton waste; Electric railroads—Scrap material; Fires; Metal waste; Railroads—Scrap material; Rubber waste; Scrap material; Spoilage; Trade waste; Waste heat; Waste products; Waste removal; Water waste; Wood waste

Waste disposal. See Refuse and refuse disposal; Sewage disposal

Waste fuel

Store refuse as boiler fuel. il Power 53:883 My 31 '21

Using waste fuels. Power Pl Eng 25:41-2 Ja 1 '21

Waste heat

Conservation of hot drips and their value as compared with exhaust steam. diags Heat & Ven 17:53-6 S '20

Design of open hearth furnaces. A. D. Williams. diags Iron Age 106:319-21 Ag 5 '20

Developments in power station design. il diags Engineer 132:364-5, 390-2, 445-7 O 7-14, 28 '21

Heating a building with waste air. F. J. Postel. Am Arch 117:821-2 Je 30 '20

Non-condensing turbine operation on heating load. R. D. DeWolf. Power 54:220-1 Ag 9 '21

Present state of manufacturing electrical energy. J. Frith. Inst E E J 59:42-6 D '20

Semi-producer furnace. il diag Iron Age 105: 733 Mr 11 '20

Steel plant operated with waste heat; new works of Electric steel & forge co., Cleveland. il diags plan Iron Age 106:765-9 S 23 '20

Steel plant power generation from waste heat and coal. Blast F & Steel Pl 8:690-2+ D '20

Stopping our coal leaks. C: P. Steinmetz. diag Sci Am 124:325+ Ap 23 '21

Using waste heat from industrial furnaces. il Metal Work 92:427-8, 467-8 O 10-17 '19

Using waste heat from open-hearth furnaces. B. H. Greene. diags plans Iron Tr R 66: 1065-8 Ap 8 '20; Abstract. Mech Eng 42: 358-9 Je '20

Utilization of waste heat. il diag Power Pl Eng 25:47-9 Ja 1 '21

Utilisation of waste heat in gasworks. G: E. Stewart. Engineering 112:77-8 Jl 8 '21; Discussion. Gas Age 48:212-14 Ag 27 '21; Engineering 112:45-6 Jl 8 '21

Ventilation of the machine room with the Briner economizer. W. H. Howell, jr. Paper 28:32-3 My 18 '21; Excerpts. Power 53:720 My 3 '21

Warming buildings with refrigerating equipment. R. Matthews. diags Power 53:628-31 Ap 19 '21; Same. Sci Am M 3:439-42 Je '21

Waste gases from beehive ovens supply power needed in Star Junction plant. C. R. Weihe. il diags plan Coal Age 18:479-81 S 2 '20

Waste heat boilers. D. S. Jacobus and A. D. Pratt. Eng Soc W Pa 36:221-34 My '20; Excerpts. Blast F & Steel Pl 8:205-8 Mr '20; Discussion. Eng Soc W Pa 36:235-42 My '20

Waste heat for paper-mill ventilation. W. H. Howell, jr. Power 53:720 My 3 '21

Waste heat utilization. G. R. McDermott and F. H. Willcox. diags W Soc E J 26:60-76 F '21; Excerpt. Power 52:992-4 D 21 '20; Excerpt. Eng & Ind Management 5:146-8 F 3 '21; Excerpt. Iron Age 107:899-900 Ap 7 '21; Excerpt. Blast F & Steel Pl 9:607-13 O '21

Waste heat utilisation. R. Nelson. Engineering 112:89 Jl 15 '21

See also Blast furnace gas; Exhaust steam; Furnaces. Recuperative; Gas and oil engines—Exhaust

Waste heat boilers. See Boilers, Waste heat

Waste metal

Secondary metals in 1918. J. P. Dunlop. U S Geol S Min Res of U S 1918, pt 1:585-605 '20

See also Scrap metal

Waste paper

- Billingham waste paper recovery system. diags Paper 29:16-18 O 12 '21
 Chemical control of the process for deinking paper. C. M. Joyce. Chem & Met Eng 25:242 Ag 10 '21; Same. Paper 29:26 O 12 '21
 Defibering and de-inking machinery. F. C. Overton. il diag Paper 27:128-31 N 10 '20
 Pitch in waste paper stock. T. F. Heberly. Paper 27:12+ S 22 '20
 Reclaim printed book paper by new process. Pop Mech 35:676 My '21
 Reclaiming writing paper. Paper 27:30 O 13 '20
 Recovering newsprint. C: Baskerville and R. Stevenson. J Ind & Eng Chem 13:213-14 Mr '21; Same. Paper 28:10+ Mr 30 '21
 Regenerating bookstock. C: Baskerville and C. M. Joyce. J Ind & Eng Chem 13:214-15 Mr '21; Same. Paper 28:20 Mr 30 '21
 Secretary Alexander recommends saving of all waste paper. Chem & Met Eng 22:780 Ap 28 '20
 Store refuse as boiler fuel. il Power 53:883 My 31 '21

Advertising

- Wholesalers speed wallpaper sales by newspaper advertising. Ptr Ink 116:64+ S 29 '21

Waste power

- Simple electric water heater for the utilization of surplus hydro-electric power. H. A. Winne. diag plan Gen Elec R 22:1030-4 D '19; Same. Paper 25:28, 30-3 Ja 28 '20

Waste products

- Byproduct expansion in non-metallic mineral industries. O. Bowles. Eng & Min J 111:392 F 26 '21; Same cond. Min & Met 169:27 Ja '21
 Economic importance of waste products utilization. W. H. Dickerson. Chem Age 29:339-42 S '21
 Fields for investigating waste elimination. A. Thau. Iron Age 105:1155-7 Ap 22 '20
 Increasing the yield from rejected materials. T. F. W. Meyer. Factory 24:60-3, 274-7 Ja-F 1 '20
 Multiple production—a new slogan. R. G. Skerrett. il Sci Am 122:58-9+ Ja 17 '20
 Recovery of waste roofing felt. L. F. Hawley and O. Kress. Paper 27:18-19+ O 20 '20
 Save and have; how the war on waste at the General Electric's largest plant is conducted. H. D. Winney. il Ind Management 62:216-20 O '21
 Treatment of canning-plant wastes in Wisconsin. E. J. Tully. diags plans Eng N 83:1017-18 D 11 '19
 Treatment of gas waste to prevent pollution. E. J. Tully. diags plans Eng N 83:917-18 N 27 '19
 Utilization of refuse slate. Sci Am 123:547 N 27 '20
 Utilization of waste products. W. H. Dickerson. Paper 26:15-17 Mr 24 '20
 Utilizing tomato waste. Sci Am 125:161+ S 3 '21
 Valuable binder material from waste. G: H. Dacy. il Sci Am 124:471+ Je 11 '21
 Varnish fume recovery. C. H. Jones. il diag plan Chem & Met Eng 23:771-6 O 20 '20
 Wealth from waste. T. Ruete. Sci Am 121:557 D 6 '19

See also Blast furnace gas; Coke manufacture—By-products; Coke-oven gas; Corn-cobs; Cotton waste; Cottonseed; Electric precipitation; Flue dust; Flue gas; Gas manufacture and works—By-products; Metal waste; Petroleum refining—By-products; Rags; Railroads—Scrap material; Refuse, Utilization of; Sawdust; Scrap metal; Sewage sludge; Slag; Smelter fumes; Sulfite liquor; Tanning—By-products; Tar; Trade waste; Waste paper; Wood waste

Waste removal

- Dracco system at Armour fertilizer co. il diags Chem & Met Eng 22:182 Ja 28 '20
See also Dust removal

Watches

- Electrically driven watch has motor and battery. il Pop Mech 36:10 Jl '21
 Engine winds watches undergoing test. il Pop Mech 35:690 My '21
 Limitations of the stop watch as a precision instrument. A. L. Ellis. il diags Am Inst E E J 40:104-12 F '21
 More jobs for the factory stop-watch. il Factory 27:473-5 O '21
 Silberberg time-study watch. il Mach 28:74-5 S '21; Iron Age 108:390 Ag 18 '21; Am Mach 55:861-2 N 24 '21
 Time study watch, by Stein & Ellbogen co. il Am Mach 55:246 Ag 11 '21
 Time-study watch that records number of operations performed in one hour. il Coal Age 20:52 Jl 14 '21
 World's largest watch. il Sci Am 125:99 Ag 6 '21

See also Ingersoll watches

Advertising

- Evolution of time-keeping devices keynote of Elgin campaign. G. A. Nichols. Ptr Ink 110:17-20 Mr 25 '20

Manufacture

- Automatic machines in a watch factory. F. R. Daniels. il diag Mach 27:1093-7; 28:25-9, 125-8 Ag-O '21
 Important Swiss discovery affecting watch-making. H. L. Groves. Sci Am 124:29 Ja 8 '21; Same. Brass W 17:114 Ap '21
 Ingenuity of the watchmaker; some of the methods and tools that make this trade rank as a profession. R. F. Nattan. il Sci Am 122:482-3+ My 1 '20

Watches, Railroad

- Annual safety-first meeting of the operating officials and watch inspectors. Ry R 67:680-1 O 30 '20
 Montgomery safety watch-dial. H. S. Montgomery. il Ry Age 69:784 N 5 '20
 Safety and time service. W. C. Ball. il Ry Age 69:617-18 O 8 '20; Discussion. W: H. Simms. 69:734 O 29 '20

Watchmen's stations

- Addition to a watchman's clock system. W. B. Bennett. diag Pop Mech 36:295 Ag '21
 Telephone connection with watchman system. W. A. Harris. diags Power 53:701 My 3 '21

Water

- Calcium chloride method for the determination of water in gasoline and in certain other substances. C: W. Clifford. diag J Ind & Eng Chem 13:628-31 Jl '21
 Concerning ice; high pressure experiments on water. P. W. Bridgman. il Sci Am 124:512+ Je 25 '21
 Control of water. Sci Am 122:592 My 29 '20
 Convenient method for the determination of water in petroleum and other organic emulsions. E. W. Dean and D. D. Stark. il diags J Ind & Eng Chem 12:486-90 My '20
 Effect of adsorbed gases on the surface tension of water. S. S. Bhatnagar. diags J Phys Chem 24:716-35 D '20
 Further observations on H-ion concentration in natural waters. A. Wolman and F. Hannan. Chem & Met Eng 25:502-6 S 14 '21
 Solubility of water in gasoline and in certain other organic liquids, determined by the calcium chloride method. C: W. Clifford. J Ind & Eng Chem 13:631-2 Jl '21
 Water in relation to dyeing. J. MacGregor. Color Tr J 9:43-8 Ag '21

See also Air separation process; Air separators; Cooling water; Erosion; Feed water; Floods; Fog; Frost; Hydration; Hydraulic engineering; Hydraulics; Ice; Irrigation; Lakes; Mine water; Mineral waters; Ocean; Pumping; Rain and rainfall; Rivers; Sea water; Snow; Solution (chemistry); Steam; Water supply, and other headings beginning Water; Waterways; Waves; Wells

Analysis

- Analytical data essential to run mechanical filters. C. A. Brown. Eng N 87:353 S 1 '21

Water—Analysis—Continued

- Detection of phenols in water. R. D. Scott. J Ind & Eng Chem 13:422 My '21; Discussion. 13:848-9 S '21
- Interpretation of boiler-water analyses. J. R. McDermet. Mech Eng 43:319-20+ My '21; Same. Chem Age 29:230-2 Je '21; Excerpts. Power 54:198 Ag 2 '21
- Nitrate content of certain waters considered bacteriologically safe. M. S. Nichols. J Ind & Eng Chem 12:987-9 O '20
- Note on the solubility of benzidine sulfate in water. C. S. Bisson and A. W. Christie. J Ind & Eng Chem 12:485-6 My '20
- Preparing Pittsburgh district waters for boilers. il Power Pl Eng 24:777-84 Ag 15 '20
- Relationship of hydrogen-ion concentration of natural waters to carbon dioxide content. R. E. Greenfield and G. C. Baker. J Ind & Eng Chem 12:989-91 O '20
- Report of the committee on official standards of water analysis. Am Water Works Assn J 7:753-60 S '20
- Significance of hydrogen-ion concentration in drinking water and particularly for the business of water supply. A. Massink and J. A. Heymann. Am Water Works Assn J 8:239-69 My '21
- Simple methods of determining dissolved gas content in boiler-feed water. J. R. McDermet and D. Wertheimer. il Power 52:686-8 N 2 '20
- Standard of water analysis. Eng N 85:58-9 JI 8 '20
- Turbidimetry of water. P. V. Wells. Eng & Contr 56:46-7 JI 13 '21
- Turbidity standard of water analysis. P. V. Wells. il U S Bur Stand Sci Pa 367:693-721 '20
- See also Water—Bacteriology; Water sampling

Bacteriology

- B. Welchii as test for safe water and cause of water-borne diarrhea. Eng N 86:929-34, 998-1003 Je 2-9 '21
- B. Welchii, gastro-enteritis and water supply. A. Houston. Eng N 87:484-7 S 22 '21
- Bacteriological tests and standards in filter plant control. M. F. Stein. Eng & Contr 53:424-6 Ap 14 '20
- Experiments with the presumptive and confirmatory tests for B. coli in water analysis for the American expeditionary forces. M. Levine. Am Water Works Assn J 7:188-92 Mr '20
- Further observations on the eosin-methylene blue agar. M. Levine. Am Water Works Assn J 8:151-6 Mr '21; Excerpt. Eng & Contr 55:47 Ja 12 '21
- Index numbers and scoring of water supplies. A. Wolman. Am Water Works Assn J 6:444-56; 7:927-30 S '19, N '20; Same (pt 2). Can Eng 39:197-8 JI 29 '20; Discussion. H. A. Whittaker. Am Water Works Assn J 7:413-15 My '20
- Mailing-case method for long-distance bacteriological control of water supplies. M. H. McCrady. il Am Water Works Assn J 7:845-51 N '20; Same. Can Eng 39:110-11 JI 1 '20; Same abr. Eng & Contr 54:138-9 Ag 11 '20
- Monthly variations in bacteria in effluents from different stages of purification process at Indianapolis. H. E. Jordan. Am Water Works Assn J 7:770-2 S '20
- Official standards of water analysis. J. J. Hinman, jr. Can Eng 39:376-8 S 23 '20
- Quality of water at different points on water system. S. T. Powell. Am Water Works Assn J 8:522-9 S '21
- Relation of raw water to endemic typhoid fever. N. J. Howard. Can Eng 40:139-41 Ja 20 '21
- Standards of quality of water. J. J. Hinman, jr. Am Water Works Assn J 7:821-40 N '20

Standards

See Water—Bacteriology; Water supply—Standards

Water, Distilled

- Preparation of ammonia-free water. G. C. Baker. diag J Ind & Eng Chem 12:798-9 Ag '20
- Water distilled in partial vacuum. J. G. Kemp. diag Pop Mech 33:145 Ja '20
- Water, Mine. See Mine water
- Water, Underground
- Conserving the water table in electric pumping. C. H. Lee. il J Elec 44:271-4 Mr 15 '20
- Correction of foundation troubles. C. E. Smith. il Engineering 110:226-8 Ag 13 '20
- Depletion of ground-water supplies. R. E. Horton. bibliog diags map Am Water Works Assn J 8:167-81 Mr '21; Same abr. Eng & Contr 55:379-81 Ap 13 '21
- Locating an underground water supply by water worn gravel clues. F. S. Tainter. Eng N 85:20 JI 1 '20
- Must humanity perish of thirst? il Sci Am M 4:305-7 O '21
- Self-cleansing underground water collecting system. G. T. Prince. Eng & Contr 54:466 N 10 '20; Same. Can Eng 39:639-40 D 25 '20; Same. Am Water Works Assn J 8:147-50 Mr '21; Abstract. Eng N 85:1045 N 25 '20
- Subsoil water in relation to tube wells for irrigation. T. A. Miller-Brownlie. Eng & Contr 53:355-6 Mr 31 '20
- Underground water storage on the Santa Ana Cone. H. Forbes. diags Eng N 87:683-4 O 27 '21
- Use of fluorescein in tracing water underground. H. Stabler. Eng & Contr 55:377 Ap 13 '21; Excerpts. Eng N 86:639 Ap 14 '21
- Water resources of the Birmingham district. W. S. Boulton. map Engineer 129:646-8 Je 25 '20
- Wells and ground water. Engineering 110:727-9 D 3 '20; Same abr. Eng & Contr 56:200-1 Ag 31 '21; Discussion. Engineering 110:803 D 17 '20
- See also Artesian wells; Mine water; Sea water; Wells

Water aeration

- Water softening in Florida. il Pub Works 48:295-8 Ap 3 '20

Water backs

- Advantages of the water-back. T. A. Marsh. Power 54:459-60 S 20 '21

Water birds

- Where some of the fish go. J. M. T. Hamilton. Sci Am 124:267 Ap 2 '21; Discussion. T. G. Pearson. 125:219 S 24 '21

Water blast

- Water-blast in South African mines. il diag Eng & Min J 109:1057 My 8 '20

Water closets

- Change in water closet outlet horn. Metal Work 93:13-14 Ja 2 '20
- Connecting closets to drains. Metal Work 94:144-5 JI 30 '20
- Connection for water closets with shortened horn. diags Dom Eng 91:334-5 My 22 '20
- Correct connection for short horn outlet closet wanted. diags Metal Work 93:381-2 Mr 26 '20
- Flush valve. G. M. Fair. il diag N E Water Works Assn J 35:137-49; Discussion. 149-50 Je '21
- Milestone in evolution of the closet. B. F. Henry. Metal Work 94:368+ S 17 '20
- New drift in plumbing. Plumber 95:71-2 F 11 '21
- New shortened outlet horn water closet. diags Metal Work 93:304-6 Mr 5 '20
- Sanitary pottery made by casting process. il diag Plumber 95:263-5 My 6 '21
- Water-closet flush tanks and the wastewater problem. A. O. True. Eng N 86:951-2 Je 2 '21

See also Privies

Water color painting

- Arthur Byne's renderings and water-colors. M. Stapley. il plan Arch Rec 47:425-35 My '20

Water columns

- Chart for discharge of water columns supplying locomotives. F. D. Yeaton. chart Eng N 84:1013 My 20 '20
Valves and unions for water columns. W. Wakeman. diag Power 53:943 Je 7 '21

Water companies

- Life notes and sale, water system at Council Grove, Kansas. L. L. Tribus. Am Water Works Assn J 8:91-109 Ja '21
Municipal partnership in water supply in Decatur, Ill. Pub Works 50:256 Mr 26 '21

Advertising

- Example of good-will advertising in water works business. Munic Eng 58:129-30 Mr '20
Water, water everywhere—yet it can be advertised. H. E. Agnew. Ptr Ink 114:81-2+ Mr 31 '21

Law

- Recent legal decisions. Pub Works 51:301 O 15 '21

Public relations

- Operating a water works plant under state supervision. C. M. Roos. Am Water Works Assn J 8:337-45 Jl '21; Same. Munic Eng 60:164+ Ap '21; Same. Can Eng 40:385-7 Ap 14 '21; Excerpts. Eng & Contr 55:467-9 My 11 '21; Discussion. Am Water Works Assn J 8:345-55 Jl '21

Water conduits

- Le calcul des conduites d'eau par la formule de Dupuit. E. Imbeaux. Génie Civil 78:505-7 Je 11 '21
Les causes de l'accident survenu à la galerie sous pression de l'usine du lac Ritom (Suisse). Génie Civil 78:357-8 Ap 23 '21
Les coups de bélier dans les conduites forcées et les moyens de les combattre dans les usines hydro-électriques. A. Causse. diags Génie Civil 76:9-12 Ja 3 '20
E.P. & S.W. rebuilds 141-mile wood stave pipe line. J. L. Campbell. il map Ry Age 71:245-6 Ag 6 '21
Estimation of conduit capacity in relation to storage. F. H. Hapgood. Eng N 85:153-4 Jl 22 '20; Discussion. F. B. Marsh. 85:1179 D 16 '20
Excavating below arch bridge foundations. il diags plans Pub Works 49:205-8 S 4 '20
Inverted siphon terminates in riser on bridge pier; Anderson cottonwood irrigation district in California. il diags Eng N 86:562-3 Mr 31 '21; Discussion. E. H. Tashjian. 86:780 My 5 '21
Method of building concrete tail-race below stone arch bridge foundation level. il diags plan Eng & Contr 54:155-7 Ag 18 '20
Method of repairing water tunnel with cement gun. diags Eng & Contr 53:534-6 My 12 '20
New concrete conduit for Denver water supply! old wood stave line replaced by concrete pipes. il diags plans Eng N 85:551-3 S 16 '20

See also Aqueducts; Flumes; Siphons; Water pipes

Water consumption

- Classification of water consumption in various American cities; tabulation. Eng & Contr 55:222 Mr 9 '21
Future water-supply needs of the Metropolitan district; symposium. Eng N 86:179-81 Ja 27 '21
How much water do we drink in the United States? C. N. Holmes. Sci Am 122:535 My 15 '20
New maximum in water consumption and frozen service lines. F. E. Kingsbury. Am Water Works Assn J 7:84-7 Ja '20
Per capita use of electricity, gas and water. Pub Works 51:326 O 22 '21
Per capita water consumption in the Canal Zone and city of Panama. R. C. Hardman. Eng N 84:1099 Je 3 '20
Some actual results in saving water. Ry Age 68:1578 Je 4 '20
Waste of water in Detroit; abstracts. G. H. Fenkell. Pub Works 51:87-90 Jl 30 '21; Eng & Contr 56:254-7 S 14 '21

- Water consumption in army camps. G. A. Johnson. Am Water Works Assn J 7:102-7 Ja '20

- Water consumption in Waltham, Mass. Pub Works 49:409-10 O 30 '20

- Water use variation in completely metered systems. A. Hazen. Eng N 85:449-50 S 2 '20

- Waterworks data for small towns and villages. D. D. Ewing. Eng & Contr 53:427-8 Ap 14 '20

- What is the legitimate use of water? C. M. Saville. Am Water Works Assn J 7:914-26 N '20; Same. Eng & Contr 54:566-9, D 8 '20; Abstract. Pub Works 49:509-11 N 27 '20

See also Water meters; Water waste

Water cooling. See Cooling of water**Water distribution**

- Application du principe du dispatching au service de distribution d'eau de Genève. A. Bétant. il Génie Civil 78:230-1 Mr 12 '21
Basis for standards for adoption of plumbing codes. W. C. Groeniger. il Dom Eng 96:518-20; 97:4-6 S 17, O 1 '21
Composite distribution system for small waterworks. Eng N 84:770 Ap 15 '20
Distribution of Snake river water during greatest drought. il map Eng N 85:927-31 N 11 '20
Leaky cross-connection located by alkali test. W. M. Angus and C. Francis. Eng N 84:1187-8 Je 17 '20
Method of metering the water supplied to the five distribution systems of the city of Newark, N.J. G. Sanzenbacher. il charts map plan Am Water Works Assn J 7:163-70 Mr '20
More about leaky cross-connections. Eng N 84:1219 Je 17 '20
Overhauling a neglected water distribution system. A. S. Holway. Eng & Contr 56:269-70 S 14 '21
Preliminary report on the proposed uniform plumbing code for Massachusetts. Dom Eng 93:15+, 165+ O 2, 23 '20
Progressive loss of residual pressures in a water works system. W. S. Coulter. Munic Eng 60:73-4 F '21
Water distribution system of industrial housing projects for shipbuilders. W. H. C. Ramsey. diags map Am Water Works Assn J 7:239-63 Mr '20

See also Aqueducts; Hydraulics; Pumping stations; Water pipes; Water supply engineering; Water towers; Waterworks

Water film

- Water film on evaporating and condensing tubes. P. H. Parr. Engineer 131:559-61 My 27 '21; Discussion. 131:617 Je 10 '21

Water flow

- Calibration of circular orifices under high heads. F. W. Greve. Eng N 86:24-5 Ja 6 '21
Chart for the determination of circulating-water flow. E. S. Bristol. Power 50:811-12 D 16 '19
Defects in current meters and a new design. S. Fortier and E. J. Hoff. il Eng N 85:923-4 N 11 '20
Determination of Kutter's coefficient for 30 in. concrete tile. Eng & Contr 55:147-8 F 9 '21
Determination of velocity of flow of liquids. C. Camichel. il Mech Eng 42:56-7 Ja '20
Discharge of smooth wood-stave pipes and wood channels. A. A. Barnes. Eng N 84:228-30 Ja 29 '20
Duplication or looping of water mains; calculation of discharge and effect on the hydraulic gradient. W. Blackadder. Eng & Contr 56:32-6, 130-3 Jl 13, Ag 10 '21
Effect of curvature upon flow in open channels. H. P. Eddy. Eng N 87:516-17 S 29 '21
Effect of fittings on flow of fluids through pipe lines. D. E. Foster. Mech Eng 42:616-18 N '20; Same. Power Pl Eng 24:1115-18 D 1 '20; Same cond. Eng & Contr 54:564-5 D 8 '20; Same cond. Power 52:1032-3 D 28 '20

Water flow —Continued

- Flow in uniform channels when the water-surface is not parallel to the invert. A. H. Jameson. diag Can Eng 38:191-2 F 5 '20; Same. Eng & Contr 53:368-9 Mr 31 '20
- Flow of water in concrete pipe. F. C. Scobey. il diags U S Agric Bul 852:1-100 '20; Excerpts. Can Eng 40:101-5, 124-6 Ja 6-13 '21
- Flow of water in drain tile. D. L. Yarnell and S. M. Woodward. il U S Agric Bul 854:1-50 '20; Excerpt. Eng & Contr 54:374-5 O 13 '20; Abstract. Eng N 86:902 My 26 '21
- Flow of water in dredged drainage ditches. C. E. Ramser. il U S Agric Bul 832:1-60 '20; Conclusions. Pub Works 49:229-31 S 11 '20
- Flow of water through condenser tubes. W. L. De Baufre and M. C. Stuart. diags Mech Eng 41:949-51 D '19
- Flow of water through galvanized spiral riveted steel pipe. F. W. Greve. diags Eng N 87:159-60 Jl 28 '21
- Friction heads for water supply for highway construction. R. E. S. Geare. Eng N 84:928 My 6 '20
- Hexagonal chart for finding the velocity of water in pipes. C. W. Anthony. chart Eng & Contr 53:156 F 11 '20
- Hydraulics of the Chicago sanitary district's main channel. M. Blanchard. diags W Soc E J 25:471-524 S 5 '20
- Loss of pressure due to placing 12-in. gate in 16-in. pipe and to partial closure of gate. T. E. Lally. Can Eng 39:449-50 O 21 '20; Same. Eng & Contr 55:42-3 Ja 12 '21; Abstract. Eng N 85:608-9, 1007 S 23, N 18 '20
- Measuring flow of fluids. J. M. Spitzglass. diags Power 51:503-7 Mr 30 '20
- Measuring the flow of liquids. Sci Am 122:671 Je 19 '20
- Measuring velocity of discharge from hydraulic dredge pipes. P. J. McAuliffe. il diags Eng N 85:62-4 Jl 8 '20; Abstract. Eng & Contr 54:396 O 20 '20
- New application of Pitot tube in testing pumps. A. L. Collins. il diag Eng N 87:616-17 O 13 '21; Same. Power 54:563 O 11 '21
- New hydraulic paradox. Engineering 111:639-40 My 27 '21
- New method of water measurement in efficiency tests of 37,500-hp. turbines; abstracts. N. R. Gibson. il diags Power 53:452-8 Mr 22 '21; Eng N 86:465-8 Mr 17 '21; Elec W 77:591-3 Mr 12 '21; Mech Eng 43:247-8 Ap '21
- Nomograms for calculating flow in Venturi tubes. J. W. Ledoux. Eng & Contr 56:138-9 Ag 10 '21
- Notes on the loss of head due to friction in water pipes. H. M. Brayton. Power 51:848-9 My 25 '20
- Observing currents from high in air. il Sci Am 124:53 Ja 15 '21
- Orifice as a means of measuring flow of water through a pipe. R. E. Davis and H. H. Jordan. il diags Ill U Eng Exp Sta Bul 109:1-52 '18; Abstract. Power 51:238-9 F 10 '20; Summary. Sci Am M 1:79-80 Ja '20
- Pitot tube designed for use in high pressure pipe lines. H. Homberger. diags Power 53:494-7 Mr 29 '21
- Rheograph water flow recorder. il diags Engineer 130:42-3 Jl 9 '20; Same abr. Eng & Contr 54:316 S 29 '20
- Roughness coefficient for dredged drainage ditches. Eng & Contr 54:42-3 Jl 14 '20
- Solution of orifice problems by logarithmic equations. F. W. Greve. Eng & Contr 56:29 Jl 13 '21
- Stevens water level recorder and flow meter. il Eng & Contr 55:244 Mr 9 '21; Eng N 86:531 Mr 24 '21
- Tube de intégrateur pour la mesure de la vitesse moyenne des courants variables. diag Génie Civil 76:186-7 F 14 '20
- Use of photography in hydraulic measurements in India. S. C. Majumdar. il diag Eng N 87:414-15 S 8 '21

Velocity tests in hydraulic dredge pipe. I. E. Houk. diags plan Eng N 86:18-19 Ja 6 '21

See also Current meters; Hydraulics; Intakes; Kutter's formula; Stream flow; Surge tanks; Venturi meters; Water gages; Water meters

Water fowl. See Water birds

Water gages

- Appareil indicateur de niveau à distance, pour réservoirs. diag Génie Civil 78:534-5 Je 18 '21
- Brass tube water gauge. il diags Engineering 109:574 Ap 30 '20
- Long-distance water-level recorder. il diag Elec W 78:828 O 22 '21
- Reservoir water-level gauge. diag Pub Works 48:82 F 7 '20
- Sargent safety gasket for water glasses. il Ry R 66:953 Je 5 '20
- Stevens water level recorder and flow meter. il Eng & Contr 55:244 Mr 9 '21; Eng N 86:531 Mr 24 '21
- Water level indication on locomotive boilers. A. G. Pack. diags Ry R 67:120-4, 149-52 Jl 24-31 '20; Same. Ry Mech Eng 94:575-9, 630-3 S-O '20; Abstract. Ry Age 69:359-62 Ag 27 '20; Abstract. Mech Eng 42:695 D '20; Same. Sci Am M 2:375-6 D '20
- Water level indicator for boilers. diags Power Pl Eng 24:1104-5 N 15 '20

Water gardens

Water gardening: a new floral industry. J. E. Hogg. il Pop Mech 33:252 F '20

Water gas. See Gas, Water

Water-glass. See Sodium silicate

Water hammer

- Les coups de bélier dans les conduites forcées et les moyens de les combattre dans les usines hydro-électriques. A. Causse. diags Génie Civil 76:9-12, 35-9 Ja 3-10 '20
- Eliminating feed-water hammer. G. P. Pearce. il Power 53:1024 Je 21 '21
- Eliminating water hammer in heating systems. C. L. Hubbard. diags Power Pl Eng 24:972-4 O 15 '20
- Elimination of noises in heating and ventilating systems. diags Heat & Ven 17:27-31 My; 34-7 Je; 34-7 Jl; 33-5 Ag '20
- Hammering and knocking troubles in water mains. F. R. Parsons. Eng & Contr 56:219-20 Ag 31 '21
- Noisy hammering in steam piping stopped. diags Metal Work 93:211-13 F 13 '20
- Preventing water hammer. W. H. Wakeman. diags Dom Eng 96:55-6 Jl 9 '21
- Water hammer in elevator pressure lines. J. H. Ryan. diag Power 52:267 Ag 17 '20
- Water hammer in pipe lines. W. F. Durand. Eng N 85:1212-16 D 23 '20

Water heaters

- Apparatus adapted for service as either water heater or steam generator. il diags Heat & Ven 18:58 Ja '21
- C-o-a-l t-a-n-k h-e-a-t-e-r spells cold cash. il Plumber 95:211+ Ap 8 '21
- Exhaust water heater. diag Pop Mech 34:943 D '20
- Father carries the coal that exasperates mother with heat. il Plumber 94:529+ D 3 '20
- Practical and efficient kerosene hot water heater. il Metal Work 93:760 Je 11 '20
- Suggestions for planning water heater business. H. F. Hicks. il Dom Eng 90:89 Ja 10 '20
- Types of water service heaters. il Heat & Ven 18:65-6 Jl; 54-5 S '21
- Water heaters as opportunities of plumbing contractor. il Plumber 94:589-91 D 31 '20
- See also Electric water heaters; Feed water heaters; Gas water heaters; Hot water supply; Steam water heaters

Water heaters, Electric. See Electric water heaters

Water heaters, Steam. See Steam water heaters

Water heating

- Calculations for heating outdoor water tanks. diags Heat & Ven 17:37-8 N '20; Discussion. 18:48 Ja; 52-5 F; 46 My '21

Water heating—Continued

Heating outdoor water tanks. il charts diags

Heat & Ven 18:52-5 F '21

Heating water with exhaust or live steam.
il Sci Am 124:269 Ap 2 '21

See also Feed water heating; Hot water supply; Water heaters

Water hyacinth

Fighting the water hyacinth; clearing the clogged waterways of Louisiana and Florida by means of live steam. T: E. Dabney. il Sci Am 125:260 O 8 '21

Live steam used to fight water hyacinth. il Pop Mech 36:683-4 N '21

Turning a liability into an asset: making rope, baggings, etc., from water hyacinths. Sci Am M 2:129 O '20

Water japan. *See* Japanning

Water laws and legislation

Control of Winnipeg and English river waters. Can Eng 40:468-9 My 12 '21

N. E. L. A. and power commission agree on water-power regulations. Elec W 77:897 Ap 16 '21

New interpretation given to the term navigable streams. Elec W 77:1010 Ap 30 '21

Provisions of the federal water-power act. Eng N 85:204-8 Jl 29 '20

Regulations governing development of water power in Japan. C: B. Hawley. il Elec W 77:1101-4 My 14 '21

Regulations governing water power permits and licenses passed by Federal power commission. Elec W 76:568-9 S 18 '20; Same abr. Power 52:445 S 14 '20

Some facts regarding water power legislation. J Elec 46:430-2 My 1 '21

Synopsis of new water-power law. H: J. Pierce. Elec W 75:1467-72 Je 26 '20

Useful information on water rights. R. P. Teele. Eng & Contr 54:461-5 N 10 '20

See also Irrigation laws; Water companies—Law; Water pollution; Water rights; Waterworks—Laws and regulations

Water leakage. *See* Water pipes—Leakage

Water-level indicators. *See* Water gages

Water mains. *See* Water pipes

Water marks. *See* Watermarks

Water measurement

Electrolysis as applied to the measurement of water. Eng & Contr 55:630 Je 29 '21

Improved weir for gaging in open channels. C. Herschel. il diags Mech Eng 42:83-8+ F '20; Same. Eng & Contr 53:265-8 Mr 10 '20; Same cond. Eng N 84:710-12 Ap 8 '20; Abstract. Power Pl Eng 24:753-5 Ag 1 '20

Method of computing waste-weir capacity and reservoir rise. W. S. Pardoe. diag Eng N 86:114 Ja 20 '21

New method of water measurement in efficiency tests of 37,500-hp. turbines. N. R. Gibson. il diags Power 53:452-8 Mr 22 '21; Same cond. Elec W 77:591-3 Mr 12 '21

Reservoir capacity curves without topographic survey. C. C. Jacob. Eng N 86:948-9 Je 2 '21

Study of the Venturi flume as a measuring device in open channels. P. S. Wilson and C. A. Wright. il diag plan Eng N 85:452-7 S 2 '20; Discussion. H. L. Thackwell. 85:861 O 28 '20

Venturi flume data throws light upon control weir. J. Hinds. diags Eng N 85:1223-4 D 23 '20

See also Pitot tube; Stream measurement; Venturi meters; Water flow; Water gages; Water meters

Water meters

Appliances for measuring water. il diags Power Pl Eng 24:72-80 Ja 1 '20

Fuel economy by the adoption of scientific management in power generation and utilisation. D: Brownlie. il Eng & Ind Management 6:434-6, 475-8 O 20-27 '21

Hartford experience with compound meters. J. E. Garratt. Am Water Works Assn J 7:855-8 N '20; Same cond. Pub Works 49:351-2 O 9 '20

How Los Angeles meters aqueduct water for irrigation. Eng N 85:451 S 2 '20

Lockwood committee takes up water-meters. Eng N 86:784-5 My 5 '21

Meter sizes for multiple-family houses. W. R. Edwards. Can Eng 39:137 Jl 8 '20; Same. Eng & Contr 54:135-6 Ag 11 '20

Metering federal government buildings. Eng N 84:852 Ap 29 '20

Meters cut water consumption of city in irrigated district. C. E. Painter. Eng N 83:956 N 27 '19

Method of metering the water supplied to the five distribution systems of the city of Newark, N.J. G: Sanzenbacher. il charts map plan Am Water Works Assn J 7:163-70 Mr '20

Milwaukee experience with compound meters. H. P. Bohmann. Am Water Works Assn J 7:852-4 N '20

New Orleans experience with compound meters. G: G. Earl. Am Water Works Assn J 7:862-4 N '20

Office methods and the water consumer: abstract. R. J. Newsom. Eng N 85:541 S 16 '20

Philadelphia experience with compound meters. S. M. Van Loan. Am Water Works Assn J 7:859-61 N '20; Same. Can Eng 39:138-9 Jl 8 '20

Proper size of meter for multiple-family houses. G. A. Elliott. Can Eng 39:138 Jl 8 '20; Same. Eng & Contr 54:136 Ag 11 '20

Results of completely metering Omaha water supply. F. P. Larmon. Eng N 84:1186-7 Je 17 '20

Rules and regulations for water meter readers. Eng & Contr 56:42-6 Jl 13 '21

V-notch for measuring blow-down water discharge. Elec R 78:989 Je 18 '21

What is the proper size of meter for multiple-family houses?; discussion. Am Water Works Assn J 8:4-16, 190-1 Ja, Mr '21

See also Current meters; Venturi meters; Water flow; Water gages; Water waste; Weirs

Cost

Cost of meter reading and upkeep in Terre Haute; abstracts. D. R. Gwinn. Eng & Contr 53:661 Je 9 '20; Pub Works 50:253-4 Mr 26 '21

Meter practices of the Terre Haute water company. D. R. Gwinn. Am Water Works Assn J 7:12-32 Ja '20; Excerpt (Cost of outdoor meter installations). Eng & Contr 53:155 F 11 '20

Freezing

Experiences with frozen services, mains and meters during the winter of 1917-18, Rochester, N.Y. B. C. Little. Am Water Works Assn J 7:78-83 Ja '20

Specifications

Report of the joint committee on standard specifications for water meters. Am Water Works Assn J 8:273-82 My '21; Same. N E Water Works Assn J 35:187-9 Je '21

Testing

Finding correction factor for inaccurate water meters. Pop Mech 36:294-5 Ag '21

Test of large water meters in place with a pitometer. F. D. Danielson. diag Eng N 86:64 Ja 13 '21

Testing water meters in series. J. E. Garratt. Am Water Works Assn J 8:127-31 Mr '21

Water pails. *See* Pails

Water pipes

Air pockets and vacuum troubles in gravity water mains. J. W. Ledoux. diags Can Eng 39:461-2 O 21 '20; Same. Eng & Contr 54:468 N 10 '20; Same. Pub Works 49:457-8 N 13 '20; Same. N E Water Works Assn J 35:31-3 Mr '21; Same. Eng & Contr 55:369-70 Ap 13 '21

Arc welding outfit for tapping water mains. il Eng & Contr 55:237 Mr 9 '21

Arc welding outfit used before tapping steel water pipe. il diag Eng N 84:1212-13 Je 17 '20; J Elec 45:528 D 1 '20

Water pipes—Continued

- Bayonne water pipe crossing under the Hackensack river. F. H. Sherrerd. il diag Am Water Works Assn J 7:401-5 My '20; Same cond. Eng & Contr 53:146 F 11 '20
- Butte—and a welded-steel water line. Eng N 85:1032 N 25 '20
- Cast-iron and wood-stave pipe economically compared. J. W. Ledoux. Eng N 85:932 N 11 '20
- Cement joints for cast iron water pipe. G. W. Pracy. Am Water Works Assn J 7:436-9 JI '20; Same. Can Eng 39:295-6 S 2 '20; Same. Eng & Contr 54:245-6 S 8 '20; Discussion. F. M. Randlett. Am Water Works Assn J 7:951-2 N '20
- Discharge or smooth wood-stave pipes and wood channels. A. A. Barnes. Eng N 84:228-30 Ja 29 '20
- Duplication or looping of water mains; calculation of discharge and effect on the hydraulic gradient. W. Blackadder. Eng & Contr 56:32-6, 130-3 JI 13, Ag 10 '21
- Economical design of wooden water conduits for power developments. W. T. Taylor. diag Eng & Contr 52:774-5 D 31 '19
- Features of new aqueduct for Butte, Montana. il Munic Eng 60:40-2 Ja '21; Same. Gas Age 47:53-5 Ja 25 '21
- How to fill a water main line. G. H. Finneran. Eng & Contr 54:377 O 13 '20
- Jointing materials for water mains. F. O. Stevens. Pub Works 49:76-8 JI 24 '20
- Laying a pipe line in frozen ground. W. W. Elmer. il Eng & Min J 108:823-4 N 22 '19; Same cond. Eng N 84:151 Ja 15 '20
- Laying and repairing a 12-inch subaqueous main to North Brother Island, New York. P. Quilty. il diags Am Water Works Assn J 7:388-93 My '20
- Life of cast iron pipe in Philadelphia. C. E. Davis. Am Water Works Assn J 7:155-6 Mr '20; Same. Eng & Contr 53:534 My 12 '20
- Lowering water main with trench machine. Pub Works 50:253 Mr 26 '21
- Method of procedure in economical design of a pipe under high head. E. W. Rettger. Eng & Contr 54:129-30 Ag 11 '20
- New features of the Cedar Falls pipe line. F. R. Nicholas. il J Elec 45:31-2 JI 1 '20
- Penstocks and pipe lines. L. W. Wyss. Power Pl Eng 24:225 F 15 '20
- Pipes for pressure conduits; abstracts. F. W. Macaulay. Engineering 112:168-9 JI 22 '21; Engineer 132:87 JI 22 '21; Eng & Ind Management 5:491-2 Ap 28 '21; Discussion. Engineering 112:145-6 JI 22 '21
- Selection of pipe for water-works. J. W. Ledoux. Eng N 87:556 O 6 '21
- Value of a hydraulic horsepower at the wheel. E. W. Rettger. diag Eng & Contr 53:47-9 Ja 14 '20
- Wanted: formulas for design of air-inlet valves. H. L. Thackwell. diag Eng N 86:76-7 Ja 13 '21; Discussion. 86:478-9 Mr 17 '21
- Water distribution in connection with plumbing and action of water on metal. D. A. Heffernan. N E Water Works Assn J 35:123-5 Je '21
- Water pipes of wood J. F. Springer. il Sci Am 123:250+ S 11 '20
- Water-works service pipes; abstract. D. A. Heffernan. Eng N 85:542 S 16 '20
- Wood pipe lines in New England hydro-electric development. il Elec R 79:265-8 Ag 20 '21
- See also* Aqueducts; Electrolytic corrosion; Hot water heating; Hot water supply; Pipe fittings; Pipe flanges; Pipe joints; Pipe laying; Pipes; Pipes, Concrete; Siphons; Thawing; Water conduits; Water flow; Water hammer; Water waste; Waterworks

Cleaning

- Cleaning a railway water main. F. D. Yeaton. diags Eng N 86:949 Je 2 '21
- Flushing and cleaning water mains. W. Molis. Munic Eng 57:285-6 D '19

Method of cleaning clogged lime water supply line at Cincinnati filter plant. Eng & Contr 53:169-70 F 11 '20

Tool for cleaning water service pipes. diags Eng & Contr 56:46 JI 13 '21

Water main cleaning in Kansas City, Missouri. C. S. Foreman. Am Water Works Assn J 8:369-76 JI '21; Same. Munic Eng 60:249-52 Je '21; Same abr. Eng & Contr 56:39-40 JI 13 '21; Excerpts. Eng N 86:1040 Je 16 '21

Water main cleaning in St Louis. Mo. E. E. Wall. diags Munic Eng 58:249-52 Je '20

Corrosion

Control of corrosion in iron and steel pipe. F. N. Sneller. il diag Can Eng 40:359-62 Ap 7 '21; Same. Mech Eng 43:661-2+ O '21

Iron bacteria in relation to the incrustation of pipes. D. Ellis. il Engineering 112:457 S 23 '21

Preventing corrosion in heating systems. P. West. il diags Dom Eng 97:50-3+ O 8 '21

Prevention and cure of red water. W. H. Walker. Munic J 47:312+ N 22 '19; Same. Metal Work 93:76 Ja 16 '20; Excerpt. Eng N 84:381 F 19 '20

Prevention of corrosion in water pipes. il Sanitary & Heat Eng 96:194-5 S 23 '21

Steel water main electrolysis in St Louis serious. L. Chivvis. Eng N 84:911-12 My 6 '20

See also Electrolytic corrosion; Water pipes—Protection; Water purification—Chlorination

Failures

Break in Lancaster's water main. J. T. Brainard. il Pub Works 50:143-4 F 12 '21

Experience with a broken 24-in. water main. S. L. Etnyre. Munic Eng 57:286 D '19; Same. Am Water Works Assn J 7:232-3 Mr '20

Freezing

Cold weather troubles of water departments. Eng & Contr 54:376 O 13 '20

Experiences with frozen services, mains and meters during the winter of 1917-18, Rochester, N.Y. B. C. Little. Am Water Works Assn J 7:78-83 Ja '20

Method of insulating and heating exposed water lines to prevent freezing. diags Heat & Ven 17:40-1 O '20

New maximum in water consumption and frozen service lines. F. E. Kingsbury. Am Water Works Assn J 7:84-7 Ja '20

Protecting water supply pipes. diag Metal Work 93:75 Ja 16 '20

See also Thawing

Leakage

Amount of leakage in small water works systems. L. W. Cox. Munic Eng 58:252-3 Je '20

Detection of leaks in underground pipes. H. E. Babbitt. Am Water Works Assn J 7:589-95 JI '20; Same abr. Eng & Contr 53:431-2 Ap 14 '20; Same. Eng N 84:1061-2 My 27 '20; Same. Sci Am M 2:344-5 D '20; Excerpts. Munic Eng 59:184-5+ N '20

Heavy leakage from 42-in. concrete pipe on Sooke pipe line. diags Eng N 84:1210 Je 17 '20

Leakage from machine banded wood pipe. J. L. Campbell. Eng N 86:124 Ja 20 '21

Locating leaks and waste in water distribution system. J. P. Lawyer. diag Eng N 85:1170 D 16 '20

Protection

Alkali corroded steel water main protected by concrete; cost tables. G. H. Hand. il Concrete 19:95-6 S '21; Excerpt. Eng & Contr 56:357 O 12 '21

Repair

Detection and repair of leaks in water mains; report of a committee of American railway bridge and building association. Ry R 69:530-2 O 22 '21; Same cond. Ry Age 71:786-7 O 22 '21

Emergency repairs to wrought iron water pipe. diag Metal Work 94:280-1 Ag 27 '20

Water pipes—Repair—Continued

Overhauling a neglected water distribution system. A. S. Holway. Eng & Contr 56:269-70 S 14 '21

Repairing wood water conduit at Norfolk, Virginia. J. W. Ledoux. diags Eng N 87:396-9 S 8 '21

Repairs to a flexible-jointed pipe under the East river to Blackwells Island. G. E. Rodman. Am Water Works Assn J 8:165-6 Mr '21

Underground water waste control in New York City. H. T. Havill; F. B. Nelson. Eng & Contr 54:38-9 Jl 14 '20

See also Water pipes—Leakage

Standards

Can present classes of pipe be reduced by a material increase in the strength of the metal? Am Water Works Assn J 7:364-7 My '20

Weights and classes of cast iron pipe. H. F. Dunham. Am Water Works Assn J 7:765-7 S '20

Testing

Simple plug for testing water mains. E. T. Austin. diags Eng & Contr 56:265 S 14 '21

Thawing

See Thawing

Water pipes, Concrete

Concrete pressure pipe for water supply. C. Meriwether. diag Concrete 16:156-7 Mr '20

Heavy leakage from 42-in. concrete pipe on Sooke pipe line. diags Eng N 84:1210 Je 17 '20

Water pollution

Ammonia still waste liquor. E. A. Dieterle. Gas Age 46:427-8 N 25 '20

Are we abusing our water resources? methods of disposing of organic and mill wastes, and their bearing on the food question. P. W. Claassen. il Sci Am 124:90+ Ja 29 '21

Biological survey of river pollution. Pub Works 51:252-3 O 1 '21

Boating and fishing in water-supply ponds. X. H. Goodnough; abstracts. Can Eng 39:416-17+ O 7 '20; Eng & Contr 54:369-71 O 13 '20; Eng N 85:542-3 S 16 '20

Disposal of gas plant wastes. L. J. Willien. diag Gas Age 46:349-52 N 10 '20; Same. Am Gas Eng J 113:363-6 N 6 '20

Disposal of industrial wastes and stream pollution. C. A. Emerson, jr. J Fr Inst 191:807-18 Je '21; Abstract. Pub Works 51:94-5 Jl 30 '21

Disposal of waste from gas plants; report of A.G.A. 1920 committee. diags plan Am Gas Assn Technical sec v 2:413-56; Discussion. 457-64 '20

Effective dilution as a pollution unit. W. F. Wells. bibliog Am Water Works Assn J 8:233-8; Discussion. G. A. Johnson. 270-1 My '21

Egyptian lacquer manufacturing co. vs. Chemical company of America. W. Gustin. Chem & Met Eng 22:1193 Je 30 '20

Emergency fire protection connections to municipal water system at Hartford, Conn. Am Water Works Assn J 7:221-2 Mr '20

Factory refuse—what is held to be polluting matter—public health paramount. Chem & Met Eng 22:272-3 F 11 '20

Industrial wastes in relation to water supplies; abstracts. W. Donaldson. Eng N 85:740 O 14 '20; Chem & Met Eng 23:882 N 3 '20

Leaky cross-connection located by alkali test. W. M. Angus and C. Francis. Eng N 84:1187-8 Je 17 '20

Microscopic water contaminators. M. C. Kahn. il Sci Am M 2:28-32 Jl '20

Non-riparian owner has no right of action for pollution of stream. W. Gustin. Chem & Met Eng 24:572 Mr 30 '21

Outbreak of typhoid and dysentery at the Chicago & Alton shops at Bloomington. M. C. Sjoblom. diag Am Water Works Assn J 7:560-5; Discussion. 656-8 Jl '20

Pollution of deep wells at Lansing, Michigan. E. D. Rich. Munic Eng 57:278+ D '19

Pollution of Niagara river by wash water from filtration plant enjoined. Am Water Works Assn J 7:52-9 Ja '20

Pollution of public water supply by spring freshet, Schenectady, N.Y. diags Eng & Contr 54:562-4 D 8 '20

Pollution of river water in the Pittsburgh district. C. M. Young. map Am Water Works Assn J 8:201-17 My '21; Discussion. 8:541-9 S '21

Preventing dye waste pollution of streams. Pub Works 48:250-1 Mr 27 '20

Prevention of stream pollution by dye and intermediate wastes. E. J. Casselman. 23p (U.S. Pub. health rep. v 35, no 4) '20; Same. Color Tr J 7:43-7, 75-8 Ag-S '20

Protection of water supplies by sewage purification. H. B. Hommon. Am Water Works Assn J 7:553-9 Jl '20; Same. Munic Eng 59:111-13+ S '20

Relation of water supplies to public health. J. W. S. McCullough. Can Eng 40:199-200 F 10 '21

State's view of stream pollution. F. E. Daniels. Gas Age 47:324-6 Ap 25 '21

Stream pollution in Illinois. L. Pearse. Am Water Works Assn J 7:549-52 Jl '20

Stream pollution in Wisconsin. W. G. Kirchoffer. Eng & Contr 55:367 Ap 13 '21

Studying manufacturing wastes in Connecticut. Pub Works 48:184-6 Mr 13 '20

Temporary contamination of a deep well supply at Montgomery, Alabama. G. H. Hazlehurst. Am Water Works Assn J 7:171-5 Mr '20; Same. Can Eng 38:424-5 Ap 29 '20

Tiny creatures that make bad water. L. A. Hausman. il Sci Am 122:427+ Ap 17 '20

Water-borne outbreak of typhoid at Schenectady, N.Y. T. Horton. Eng N 85:1101 D 2 '20; Discussion. 85:1203 D 16 '20

Water-borne typhoid in West Virginia. Pub Works 50:476-8 Je 4 '21

Water pollution at Auburn, New York, decided to be a violation of the state penal code. J. W. Ackerman. Am Water Works Assn J 7:41-3 Ja '20

Water-supply typhoid outbreak at Lansing, Michigan. J. R. Daugherty. diags plan Eng N 84:92-4 Ja 8 '20

Water-works cross-connections at Hartford, Conn. Eng N 87:409-11 S 8 '21

See also Filters and filtration; Refuse disposal; Sewage; Sewage disposal; Trade waste; Water purification; Water supply

Water power

Age of water power development near. Sibley J 34:45+ Ap '20

Automatic current motor. il Engineer 130:308 S 24 '20

Black coal versus white coal. A. T. Vogel-sang. Power 52:722-3 N 2 '20

Comprehensive water-power development basis for economical operation. L. A. Whit-sit. il Elec W 78:312-14 Ag 13 '21

Development of farm water powers. W. C. Walke. il (Country home comforts & conveniences ser. no. 1, pt. 3) Univ of North Carolina Ext Leaflets 3:1-13 My '20

Employment of water power in the development of the mineral industry. J. W. Evans. Engineering 112:76 Jl 8 '21

Existing and proposed power development on the Rainy river. A. Langlois. diags map Can Eng 39:519-20 N 11 '20

Form value of energy in relation to its production, transportation, and application. C. G. Gilbert and J. E. Pogue. Mech Eng 43:26-8 Ja '21

Joint commission to study St Lawrence schemes. Can Eng 38:211-12 F 12 '20

Observations concerning water power. J. W. Ledoux. Eng & Contr 55:232-4 Mr 9 '21

Plea for development of water powers. W. M. White. Can Eng 39:493 N 4 '20

Power development of the St Lawrence river. A. T. Vogelsang. Elec R 76:348-50 F 28 '20; Same cond. Power 51:397-8 Mr 9 '20

Problem of the world's supply of energy. S. A. Arrhenius. Chem & Met Eng 23:67-9 Jl 14 '20; Same. J Fr Inst 190:114-21 Jl '20; Same. Power 52:57-9 Jl 13 '20; Same. En-

Water power —Continued

- gineer 130:139 Ag 6 '20; Same. Sci Am M 2:103-6 O '20; Excerpts. Can Eng 39:378 S 23 '20; Excerpts. Eng & Contr 54:239-40 S 8 '20
- Problems in utilization of water for production of power. W. J. E. Binnie. Eng & Contr 56:208-10 Ag 31 '21
- Recent advances in utilisation of water power. E. M. Bergstrom. il diags Engineering 109:140-3, 191-7, 227-32 Ja 30-F 13 '20; Same cond. Engineer 129:110-11, 146-7, 172-3 Ja 30-F 13 '20; Abstracts. Electrician 84:139-41 F 6 '20; Elec R 76:400-3 Mr 6 '20; Eng & Contr 53:360-2 Mr 31 '20; Discussion. Engineering 109:338-9 Mr 12 '20; Electrician 84:224-5 F 27 '20
- Role of water power and coal in super-power systems. P. Torchjo. Am Inst E E J 39:315-23 Mr '20
- Small water power developments. diags Power Pl Eng 25:414-16 Ap 15 '21
- Some phases of the power situation. E. A. Van Deusen. diags Power Pl Eng 24:370-3 Ap 1 '20
- Turning the wheels of a century hence. C. H. Claudy. Sci Am 123:36+ JI 10 '20
- Utilizing freshet water for power generation with Venturi tube in turbine. C. Herschel. diags Power 52:861-2 N 30 '20
- Water-power and the coal problem. W. T. Taylor. Electrician 84:444-5 Ap 23 '20
- Water power development. A. H. Gibson. Engineer 132:273-4, 301-2 S 9-16 '21; Same. Engineering 112:420-2 S 16 '21; Abstract. Elec R (Lond) 89:386-7 S 16 '21; Abstract. Electrician 87:355-7 S 16 '21; Discussion. Engineering 112:406 S 16 '21
- Water power development outlook. O. C. Merrill. Power 53:5-6 Ja 4 '21
- White coal for black; the St Lawrence river. A. T. Vogelsang. Nation's Business 8:26+ Ap '20

See also Dams; Flumes; Hydraulic engineering; Hydraulic machinery; Hydroelectric plants; Hydroelectric power; Tide power; Turbines; Water wheels

Alaska

- Alaskan water-power development urged to release paper-pulp supply. Elec W 76:655 S 25 '20

Water-power investigations in southeastern Alaska. G. H. Canfield. U S Geol S Bul 712:53-90 '20

Water-power investigations in southeastern Alaska. G. H. Canfield. U S Geol S Bul 714:143-87 '21

Argentina

See also Iquazu falls

Austria

- Power possibilities of Austria. J. Seidener and A. Gruenhut. Elec W 77:310-11 F 5 '21

Bavaria

- L'exposition de navigation et d'énergie industrielle de Munich (juin-juillet 1921). A. Antoine. diags maps Génie Civil 79:303-7 O 8 '21

Brazil

- Water power in Brazil. J. B. Crane. Power 52:620 O 19 '20

British Columbia

- Water powers of British Columbia. A. V. White and C. J. Vick. 644p il maps (supp) '19 Canada commission of conservation, Ottawa

British Guiana

- Water power in British Guiana. Engineering 110:412 S 24 '20

California

- California asks water-power development. J. J. Britton. il Elec W 75:117-20 Ja 17 '20
- Power needs on the Pacific coast. F. H. Fowler. Elec W 76:873-4 O 30 '20
- Progress of power industry in Far West. F. G. Baum. il map Elec W 75:1189-95 My 22 '20

- Proposed five hundred million power bill for California; complete text with annotations by Robert Sibley. J Elec 47:341-2 N 1 '21; Excerpt. Elec W 78:941-2 N 5 '21

Relation of water power to industrial development in California. W. E. Creed. Elec W 77:1059-60 My 7 '21

Six-year construction program of Southern California Edison company authorized. N E L A Bul 8:160-1 Mr '21

Water power resources in California. P. M. Downing. J Elec 46:643-6 Je 15 '21

See also Hydroelectric plants—California; Water supply—California

Canada

- Possibilities of Canadian water power development. L. G. Dennis. Engineer 129:365-6 Ap 9 '20; Abstract. Can Eng 38:400 Ap 22 '20

Relation of water power to the fuel problem. map Can Eng 40:503-6+ My 26 '21; Same. Engineer 132:4-6 JI 1 '21

Water-power development a factor in Canadian industry. E. J. Dies. Elec R 77:602 O 16 '20

Water power development in Canada. J. T. Johnston. Can Eng 38:388-9 Ap 15 '20; Same. Elec W 76:229-30 JI 31 '20; Same. Engineer 130:76-7 JI 23 '20; Same cond. Eng & Contr 53:548-9 My 12 '20

Water power resources of Canada. diags Engineer 132:233-4 S 2 '21; Same abr. Power 54:224-5 Ag 9 '21; Excerpts. Electrician 87:105-6 JI 22 '21; Chem & Met Eng 25:691 O 12 '21

See also Hydroelectric plants—Canada

France

- Developing France's natural water power. Chem & Met Eng 23:891 N 3 '20

See also Hydroelectric plants—France

Germany

Hydro-electric power in Germany. A. L. Sympher. Electrician 85:590 N 19 '20

Water power in Germany. Halbfass. Elec W 77:217 Ja 22 '21

See also Hydroelectric plants—Germany

Great Britain

Water-power developments in the United Kingdom. J. B. C. Kershaw. il maps Power 53:1054-6 Je 28 '21

See also Hydroelectric plants—Great Britain; Water supply—Great Britain

Iceland

Water power in Iceland; abstract. Elec W 75:223-4 Ja 24 '20

Ireland

Water power in Ireland. Electrician 86:701 Je 3 '21

Japan

Regulations governing development of water power in Japan. C. B. Hawley. il Elec W 77:1101-4 My 14 '21

See also Hydroelectric plants—Japan

Maine

State ownership of water powers killed in Maine. Elec W 77:895 Ap 16 '21

State storage development favored in Maine water-power report. Elec W 77:224-5 Ja 22 '21

Missouri

Water power development in Missouri. P. J. Sergeant. il N E L A Bul 7:480-2 Ag '20

Montana

Hydro-electric possibilities in Montana. E. W. Kramer. il map Elec W 78:111-15 JI 16 '21

Montenegro

Montenegro's water power. il Power Pl Eng 24:417-18 Ap 15 '20

Water power—Continued

New England

- Boston engineers discuss water power. Power 53:42 Ja 4 '21
 Water-power development in New England. H. K. Barrows. maps Boston Soc C E J 8:1-42 Ja '21

New Hampshire

- Water power in New Hampshire. Power 50:675 O 28 '19

New York

- New York state will require 3,500,000 additional hp. by 1930. Elec W 77:386-7 F 12 '21

North America

- Water powers of North America: map. Elec W 76:13 J1 3 '20

Nova Scotia

- Power possibilities of Nova Scotia. K. H. Smith. Can Eng 38:230-2 F 19 '20
 Proposed power developments near Halifax. il plan Can Eng 38:351-3 Ap 8 '20

Ontario

- Control of Winnipeg and English river waters. Can Eng 40:468-9 My 12 '21

Oregon

- Electrical statistics from the Northwest. J Elec 44:13 Ja 1 '20

Pacific states

- Potential water power in the Pacific states. Elec R 76:822 My 15 '20
 Water power and the West. J: A. Britton. J Elec 46:192-3 F 15 '21
 Waterpowers of the Pacific coast. F. F. Fowler. Eng & Contr 54:229-30 S 8 '20

Palestine

- La production de l'électricité en Palestine, à l'aide des eaux de la Méditerranée. diag map Génie Civil 77:240 S 18 '20

Quebec

- How the province of Quebec controls its water power. O. Lefebvre. Eng N 84:423-6 F 26 '20

Scandinavia

- Power developments in Scandinavia. J. W. Beckman. Am Electrochem Soc Trans v 37 (preprint 29):403-9 Ap '20; Same cond. J Elec 44:605-6 Je 15 '20

Scotland

- Scottish water power schemes. Electrician 86:70-1 Ja 14 '21
 Scottish water power schemes. map Engineering 111:622 My 20 '21

Sweden

- Developing water power in the Arctic circle; use of airplanes. A. Alin. il J Elec 46:437-8 My 1 '21
 Utilizing hydro-electric energy in Sweden. map Elec W 76:1167-70 D 11 '20

See also Hydroelectric plants—Sweden

Switzerland

- Water power and adequate electrical supply in Switzerland. H: L. Geissel. Elec W 77:94 Ja 8 '21

See also Hydroelectric plants—Switzerland

United States

- Coal and water in the United States compared as sources of power. R. S. McBride. maps Coal Age 18:343-4 Ag 12 '20
 Controversy over use of water of national parks. Eng N 86:777-8 My 5 '21
 Developing national water power. il J Elec 44:463-78+ My 15 '20; Same. Elec R 76:937-42, 1009-14 Je 5, 19 '20
 Developing power of the Potomac river. J: C. Hoyt. il Elec W 76:421-2 Ag 28 '20
 Development of national water-power resources. C. D. Wagoner. il map Elec R 77:717-20 N 6 '20; Excerpt. Sci Am 123:441 O 30 '20

- Financing water-power developments. H. L. Cooper. il Elec W 75:645-7 Mr 20 '20
 Fuel and water-power resources of the United States. Elec R 77:366-8 S 4 '20
 Harnessing our waterpower. S. G. Roberts. il Sci Am 122:514-15+ My 8 '20
 Harnessing up all waterpower. C: H. Ingersoll. Am Ind 21:43-4+ Je '21
 High coal prices boom gas. O. F. Schuette. Gas Age 45:132-3 F 10 '20
 Hydro-electric development, as affected by the recent water-power legislation and the North Atlantic super-power survey. Power 52:221-2 Ag 10 '20
 Industry begs for water powers. W. Bathon. il map Am Ind 21:7-10 F '21
 Our vast unused energy. Paper 27:23-4+ S 15 '20
 Our water powers—fallacies, facts and possibilities. E. Stafford. Power 51:1040-1 Je 29 '20
 Paper makers to develop hydro-electric power. il Paper 27:9-11 N 3 '20
 Potential U.S. water power but 16.6 per cent developed; abstracts. F. T. Griffith. N E L A Bul 7:331-3 Je '20; Elec W 75:1183 My 22 '20; Power 51:1020 Je 22 '20
 Preliminary power permits under consideration. map Elec W 76:422-3 Ag 28 '20
 Probable water-power developments. map Elec W 78:218-20 J1 30 '21
 Progress made in federal water power development. Eng N 87:313 Ag 25 '21
 Putting the waters to work. J. W. Bishop. il Nation's Business 9:22-3 Ja '21
 Regulation of level of Lake Superior. L. C. Sabin. il diags plan Can Eng 39:451-6 O 21 '20
 Turning the wheels of a century hence. C. H. Claudy. Sci Am 123:60+ J1 17 '20
 Undeveloped water-power rights not protected by federal constitution. Elec W 75:1425 Je 19 '20
 Water-power applications filed in 1920. map Elec W 77:138-9, 369-70 Ja 15, F 12 '21
 Water-power applications total 15,093,086 hp. Elec W 78:618-19 S 24 '21
 Water-power applications total over 10,000,000 horsepower in U.S. Elec W 77:42-3 Ja 1 '21
 Water power development in the United States. H: J. Pierce. il N E L A Bul 7:569-75 S '20
 Water-power development must come. il Elec W 75:648-50 Mr 20 '20
 Water power developments. D. W. Mead. Elec J 18:224-9 My '21
 Water powers of the United States. il diags maps Elec W 75:654-9 Mr 20 '20
 What a definite Federal water-power policy will mean. Power 51:1061-2 Je 29 '20
 See also Niagara Falls; Water power act, 1920; Water power league of America

Western states

- Future power development in the Middle West. C. W. Place. Power 53:1069-70 Je 28 '21
 Future water power development problems of the West. F. G. Baum. il diags J Elec 47:221-3 S 15 '21
 Water storage essential to western development. A. G. Wishon. Elec W 77:223-4 Ja 22 '21
 Water power act, 1920
 Accomplishments under the Federal water power act. Am Inst E E J 39:1009-11 N '20
 Pocket veto of water-power bill invalid. Elec W 75:1385-6 Je 12 '20
 Provisions of the federal water-power act. Eng N 85:204-8 J1 29 '20
 Regulations and rules of Federal power commission. Elec W 76:395-6 Ag 21 '20
 Relation of water resources to forestry. T. Saville. Pub Works 49:190 Ag 28 '20
 Synopsis of new water-power law. H: J. Pierce. Elec W 75:1467-72 Je 26 '20
 Water power bill. Sci Am 123:32 J1 10 '20
 Water-power bill as reported from Conference committee. Power 51:825 My 18 '20; Coal Age 17:1003-4 My 13 '20

Water power act, 1920 —Continued

Water-power bill is passed by Senate. Elec
W 75:1328-31 Je 5 '20

See also Water laws and legislation;
Water power—United States

Water power league of America

1st convention, Washington, D.C., Oct. 7-8.
Can Eng 39:439, 447-8 O 14-21 '20; Power
52:641 O 19 '20

Harnessing up all waterpower. C: H. Ingersoll. Am Ind 21:43-4+ Je '21

Water power interests discuss situation in the East. Elec R 79:25-6 Jl 2 '21

Water purification

Air lift pumping and water purification. J: Oliphant. Am Water Works Assn J 7:212-15 Mr '20

Coagulation of clay suspensions and silicic acid. O: M. Smith. il Am Chem Soc J 42: 460-72 Mr '20

Coagulation of water with alum by prolonged agitation. W. F. Langelier. il diags plan Eng N 86:924-8 Je 2 '21

Color removal in water purification. M. F. Stein. Eng & Contr 56:128-9 Ag 10 '21

Combined deferrization, softening and filtration plant. W. L. Benham. il diags plan Eng N 85:69-71 Jl 8 '20

Comparison of various methods of water purification. J. D. Yoder. Chem & Met Eng 24:592-3 Ap 6 '21

Cooperative research in problems of water purification. A. Wolman. Am Water Works Assn J 7:572-8 Jl '20; Same. Can Eng 39: 106-7 Jl 1 '20; Excerpts. Eng N 85:10-11 Jl 1 '20; Excerpts. Eng & Contr 54:44 Jl 14 '20

Dallas, Tex., water purification plant. H. Rosenthal. Can Eng 39:204-5 Jl 29 '20

Design of aspirators for sterilizing water. A. E. Walden. diags Mech Eng 42:562-4 O '20

Dry feed for waterworks chemicals. diag Eng & Contr 56:48 Jl 13 '21

Electrolytic sterilising of water. Elec R (Lond) 88:70 Ja 21 '21

Elimination of tastes in water at Marquette, Michigan. W. C. Brockway. map Eng N 87:72-3 Jl 14 '21

Excess lime method of water sterilization. A. F. Girvan. Eng & Contr 53:762 Je 30 '20

Experience of the Montreal water and power company in the manufacture of filter alum. J. O. Meadows. Am Water Works Assn J 7:841-3 N '20; Same. Can Eng 38: 597 Je 24 '20; Same. Eng & Contr 54:42 Jl 14 '20; Same. Eng N 85:59-60 Jl 8 '20; Discussion. Am Water Works Assn J 7:843-4 N '20

Features of new water purification plant at Hartshorne, Oklahoma. V. V. Long. il plan Munic Eng 60:123-4+ Mr '21

Guiding principles in water purification plant operation: abstracts. W. H. Dittoe. Munic Eng 58:130 Mr '20; Eng & Contr 53:271 Mr 10 '20

Hydrogen ion concentration and its application to water purification. R. E. Greenfield. Am Water Works Assn J 8:397-401 Jl '21; Same. Can Eng 40:335-6 Mr 31 '21; Excerpt. Eng & Contr 55:371-2 Ap 13 '21

Improvements in Trenton water purification. il Pub Works 50:341-3 Ap 23 '21

Inquiry into the effect of meteorological conditions upon the efficiency of storage, filtration, and chlorination, based upon a study of the Hagerstown water supply. A. Wolman. map Am Water Works Assn J 7: 352-63 My '20

Insuring purity of Plattsburg's water. Pub Works 51:254 O 1 '21

Iron removal plant at Iowa state college, Ames, Iowa. C: S. Nichols. il diags plans Munic Eng 59:26-9+ Jl '20

Javellization. E: Bartow. il Am Water Works Assn J 7:193-7 Mr '20

Method of purifying waste water flowing from a gas plant. diags Am Gas Assn Technical sec v 2:432-47 '20

Methods of purifying small water supplies. A. J. Lanza. Eng & Min J 112:55-6 Jl 9 '21

Mill village water supply plant; development at Ware Shoals, S.C. il diags Textile World 57:3505+ My 8 '20

Miniature settling plants to purge Ohio's streams. il Pop Mech 33:651-2 My '20

Minnesota's typhoid fever record. J: M. Goodell. Am Water Works Assn J 7:280-2 My '20

Necessity of competent supervision and careful laboratory control in the operation of water purification plants. L: I. Birdsall. Am Water Works Assn J 7:382-7 My '20; Same. Eng & Contr 53:656-7 Je 9 '20; Same. Munic Eng 59:148-9+ O '20

New coagulation basin for Atlanta. diags plan Eng N 84:958 My 13 '20

New mobile water purification unit. diag Eng & Contr 56:142 Ag 10 '21

New water pumping and purification works at Defiance, Ohio. N: S. Hill, jr. diags plans Am Water Works Assn J 7:440-50 Jl '20

Ozone as a disinfectant in water purification. J. W. Ellms. Am Water Works Assn J 7: 60-4 Ja '20

Rate of solution of sulphate of aluminum. J. W. Ellms, A. G. Levy and L. A. Marshall. Am Water Works Assn J 8:426-32 Jl '21; Same. Eng & Contr 56:136-7 Ag 10 '21

Reduced lime feed saves money and lessens deposits. Eng N 83:923-4 N 27 '19

Removal of clay and silica from water. O: M. Smith. il Am Water Works Assn J 7: 302-14 My '20; Discussion. 7:606-17 Jl '20

Removal of sulphur and iron from ground water in Ohio. G: Champe. il diags Munic Eng 58:266-8 Je '20

Removal of taste producing protozoa from Illinois reservoirs. Eng N 84:1214 Je 17 '20

Removing iron from public water supply at Shelby, Ohio. P. Burgess. Munic Eng 59: 175-6+ N '20; Same. Am Water Works Assn J 8:193-200 My '21; Same abr. Eng & Contr 54:141-2 D 8 '20; Abstract. Can Eng 40:323 Mr 24 '21

Report on Milwaukee's water supply; excerpts. J. W. Ellms. Pub Works 49:167-70, 191-3, 215-18 Ag 21-S 4 '20; (Results on filtration). Eng N 85:257-9 Ag 5 '20; (Novel and economical mixing devices for applying chemical coagulant to water). Munic Eng 59:67-9 Ag '20

Residual alumina in filtered water. Can Eng 40:275 Mr 3 '21; Same. Eng & Contr 55:361 Ap 13 '21

Residual aluminum compounds in water filter effluents. A. Wolman and F. Hannan. bibliog Chem & Met Eng 24:728-35 Ap 27 '21; Same cond. Eng & Contr 55:473-5 My 11 '21; Abstract. Eng N 86:844-5 My 19 '21

Rural water supply an integral part of the municipal supply. E. G. Birge. Am Water Works Assn J 7:198-202 Mr '20; Same. Can Eng 38:489-90 My 20 '20

Safeguarding the city's water supply; what the city of New York does to preserve the purity of its drinking water. il Sci Am M 4:149-54 Ag '21

St Louis water purification plant operation. il Munic J 48:3-5 Ja 3 '20

Significance of hydrogen-ion concentration in drinking water and particularly for the business of water supply. A. Massink and J. A. Heymann. Am Water Works Assn J 8:239-69 My '21

Significance of hydrogen-ion concentration in water purification. H. P. Eddy. Eng & Contr 56:354-5 O 12 '21; Same cond. Eng N 87:498 S 22 '21

Specifications for chemicals used at water purification plant of Columbus, O. Eng & Contr 55:562 Je 8 '21

Standardization of disinfectants, with special reference to the chemical sterilization of water. S. R. Christophus, K. R. Tyengar and W. F. Harvey. Eng & Contr 55:637-8 Je 29 '21

Sterilization of water. Am Inst Arch J 9:103-4 Mr '21

Water purification—Continued

- Testing and calculating aluminum sulphate solutions. C: H. Capen, jr. Eng N 87:574-5 O 6 '21
- Trouble with crustacea organism on filter beds. H. Rosenthal. Pub Works 51:26-7 J1 9 '21; Same. Eng & Contr 56:28 J1 13 '21
- Twin Falls water purification plant. il Munic J 48:41-3 Ja 31 '20
- Types of New Jersey water treatment plants and tests made by them. Eng & Contr 53: 661 Je 9 '20
- Uses of lime in water purification. C. A. Brown. Munic Eng 61:109-11 S '21
- Watchman sole attendant at filtered-water plant supplying people of Langeloth. D. J. Baker. il diags plans Coal Age 19:750-4 Ap 28 '21
- Water purification at Toledo. Pub Works 51:276 O 8 '21
- Water purification at Whiting, Indiana. S: A. Greeley. Munic Eng 60:161-4 Ap '21
- Water purification for towns on tidal rivers; Perryville, Md. Munic Eng 61:36 J1 '21; Same. Eng & Contr 56:38 J1 13 '21; Same cond. Pop Mech 36:180 Ag '21
- Water purification plant at Highland Park, Michigan. diags plans Eng N 86:772-5 My 5 '21
- Water supply made safe for a tropical town. diags map Can Eng 38:571-4 Je 17 '20; Same. Eng & Contr 53:754-6 Je 30 '20
- Water supply of the service of supplies, A. E. F. J. J. Hinman, jr. Am Water Works Assn J 7:179-87 Mr '20
- See also Copper sulfate; Feed water purification; Filters and filtration; Mine water; Screens; Strainers; Water aeration; Water softening; Water supply for factories

Chlorination

- Chlorinated water destroys metals in intake works. C. G. Gillespie. il plan Eng N 85: 127-8 J1 15 '20
- Chlorine absorption and the chlorination of water. A. Wolman and L. H. Enslow. charts J Ind & Eng Chem 11:209-13 Mr '19; Same, without tables. Sci Am S 88:370-1 D 20 '19; Abstract. Munic J 46:264-5 Ap 12 '19
- Chlorine purifies Poland's polluted streams. Munic Eng 58:138+ Mr '20
- Chlorine used to purify bathing-beach water. il Pop Mech 36:651 N '21
- Experiences in chlorination of Florida public water supplies. G: W. Simons, jr. Eng & Contr 55:240 Mr 9 '21
- Ornstein process of chlorinating water upheld in federal court. Chem & Met Eng 23: 1177-8 D 15 '20
- Problems in the chlorination of water. Eng N 87:392-6, 444-6 S 8-15 '21; Discussion. 87: 619-20, 828-9 O 13, N 17 '21
- Removal of taste from chlorinated waters. A. F. Girvan. Eng & Contr 53:744 Je 30 '20
- Sterilisation of water by chlorine gas. J. S. Arthur. il diags Engineering 110:716-21 N 26 '20; Same (without appendix). Engineer 130:531-2, 564-6 N 26-D 3 '20; Abstract. Eng & Contr 55:331 Mr 30 '21; Discussion. Engineering 110:694-6 N 26 '20; Engineer 130: 527-8 N 26 '20
- Studies in the corrosive action of chlorine-treated water; the effects of steel on the equilibrium: $\text{Cl}_2 + \text{H}_2\text{O} \rightleftharpoons \text{HCl} + \text{HClO}$, and of products of the equilibrium on steel. G: L. Clark and R. B. Iseley. J Ind & Eng Chem 12:1116-22 N '20
- Tastes and odors from chlorination. W. A. Sperry and L. C. Billings. Eng N 86:1041 Je 16 '21
- Water chlorination control by the absorption method. A. Wolman. Eng N 86:639-41 Ap 14 '21

Cost

- Cost of water purification at St Louis, Mo. A. V. Graf. Eng & Contr 54:245 S 8 '20
- Operating results of water softening and purification works of Columbus, O., in 1919. C: P. Hoover. Eng & Contr 53:428 Ap 14 '20
- Toledo water purification costs. Eng N 85: 791 O 21 '20

Water treatment for small municipalities. E. M. Partridge. Munic Eng 61:23-6 J1 '21

Filtration

See Filters and filtration

Patents

Ornstein process of chlorinating water upheld in federal court. Chem & Met Eng 23: 1177-8 D 15 '20

Ultra-violet ray treatment

- Elements of the theory underlying the disinfection of water by ultra violet light. G. M. Fair. bibliog Am Water Works Assn J 7:325-42 My '20
- Factors influencing ultra violet light water treatment. R. D. Scott. Eng N 85:1283-4 D 30 '20
- Sterilization of water by means of ultra-violet rays. W. L. Decker. diags Chem & Met Eng 22:639-44 Ap 7 '20
- Treatment of swimming pool water by the ultra violet ray sterilizer. G. R. Shaw. Munic Eng 61:78 Ag '21
- Water for shipyard drinking fountains treated by violet rays. W. L. Decker. Eng N 84: 572-3 Mr 18 '20

Water rates

- Fair rates for water service and effect of high prices thereon. D. H. Maury. Eng & Contr 55:28-30 Ja 12 '21
- Flat rate versus meters. C. E. Abbott. Am Water Works Assn J 7:132-6 Ja '20
- Meter rates—finances—labor. Pub Works 50:481-8; 51:261-2, 277-8 Je 4, O 1-8 '21
- Municipal water rates. E. E. Bankson, D. E. Davis and C. A. Finley. Am Water Works Assn J 8:497-521 S '21
- Water rates and salaries. Pub Works 48: 547-9 Je 19 '20
- Water rates at Milwaukee, Wis. Eng & Contr 56:133 Ag 10 '21
- Water rates for industrial consumers. E. E. Bankson. Munic Eng 61:143-6 O '21
- Water rates in small cities and villages. J: Wilson. Am Water Works Assn J 8:38-47 Ja '21; Same. Munic Eng 59:211-14+ D '20; Same. Eng & Contr 55:136-8 F 9 '21; Abstract. Pub Works 50:276 Ap 2 '21

Water requirements of plants

How much water for the crops? development of an automatic transpiration balance by government scientists. G: H. Dacy. il Sci Am 125:224 S 24 '21

Water rights

- Antioch wins injunction in suit over brackish water. map Eng N 86:513 Mr 24 '21
- Decision on lake diversion by the Chicago drainage canal. Eng N 85:129-30 J1 15 '20
- How the province of Quebec controls its water power. O. Lefebvre. Eng N 84:423-6 F 26 '20
- Interstate water conflicts and possible solution. R. I. Meeker. Eng N 86:157-60 Ja 27 '21; Discussion. 86:755-9 My 5 '21
- Ownership of mine-water. Min & Sci P 121: 614 O 30 '20
- Right to use water for condensing. Elec R (Lond) 89:257-8 Ag 19 '21
- Western farmer's water right. R. P. Teele. U S Agric Bul 913:1-14 '20; Same. Eng & Contr 54:461-5 N 10 '20

See also Water laws and legislation

Water sampling

Mailing-case method for long-distance bacteriological control of water supplies. M. H. McCrady. il Am Water Works Assn J 7:845-51 N '20; Same. Can Eng 39:110-11 J1 1 '20; Same abr. Eng & Contr 54:138-9 Ag 11 '20

Water sheds. See Watersheds

Water skis

How to make and use water skis. C. S. Bates. il diags Pop Mech 33:628-9 Ap '20

Water softening

Boiler feed water purification; new water softening plant installed by American coke and chemical company, Granite City, Ill. il Blast F & Steel Pl 9:128-9 F '21

Water softening—Continued

- Boiler feed water purification; with special reference to the advantages of the Zeolite water-softening process. S. B. Applebaum. *Chem & Met Eng* 25:23-6 JI 6 '21; Same. *Eng & Ind Management* 6:202-4, 230-1 Ag 25-S 1 '21; Discussion. W. M. Taylor. *Chem & Met Eng* 25:640-1 O 5 '21
- Boiler water treatment plants. R. June. il *diag Blast F & Steel Pl* 9:623-5 O '21; Same. *Textile World* 60:1376+ S 3 '21
- Colorado Portland cement co. installs permutit system. E. J. Strock. il *Concrete* 17:sup7 JI '20
- Comparison of various methods of water purification. W. M. Taylor. *Chem & Met Eng* 24:123-9 Ja 19 '21
- Data on operation of continuous type lime-soda ash water softener. R. F. Catherman and H. C. Fisher. *diag Chem & Met Eng* 23:526-8 S 15 '20
- Hard water—why and how softened. il *Plumber* 95:267-8 My 6 '21
- Hot process water softening. G. H. Gibson. il *Power Pl Eng* 24:390-4 Ap 1 '20; Same. *Chem & Met Eng* 22:899-902 My 12 '20; Same. *Paper* 27:14-18, 25+ S 8-15 '20; Same abr. *Coal Age* 17:919-23 My 6 '20; Same cond. *Blast F & Steel Pl* 8:325-6 Je '20; Abstract. *Power* 51:429-30 Mr 16 '20
- How to soften hard water. *diags plan Dom Eng* 91:10 Ap 3 '20
- International hot-flow softener. *diags Power* 51:1009-10 Je 22 '20
- Lime-barium softener for treatment of boiler feed water. C. A. Mehring. *diags Chem & Met Eng* 21:629-32 N 12 '19
- Power drives for rolling mills. W. O. Rogers. il *Power* 52:254-6 Ag 17 '20
- Precipitation from treated boiler water. C. H. Koyl. *Eng N* 86:458 Mr 17 '21
- Preparing Pittsburgh district waters for boilers. il *Power Pl Eng* 24:777-84 Ag 15 '20; Abstract. *Mech Eng* 42:587 O '20
- Railway water treatment pays large returns; results obtained on Rock Island. P. M. Labach. il *Ry Age* 70:247-8 Ja 21 '21; Excerpt. *Eng & Contr* 55:170 F 16 '21
- Selling soft water grows into a big industry. M. Hussobee. *Ptr Ink* 114:133-4+ F 24 '21
- Simplicity of water softening apparatus. il *Sanitary & Heat Eng* 96:103-4 Ag 12 '21
- Softening water for boiler use by Zeolite method. *Munic Eng* 61:146-7 O '21
- Study of the lime-soda ash water-softening process. M. R. Herrle and F. M. Gleeson. *Chem & Met Eng* 22:269-72 F 11 '20
- Study of the lime-soda ash water-softening process. W. M. Taylor. *Chem & Met Eng* 22:532-3 Mr 24 '20
- Use of phosphoric acid in water softening. *Eng N* 86:81 Ja 13 '21
- Water and its impurities. B. F. Soffe. *Paper* 27:26-7+ Ja 5 '21
- Water softener for raw-water ice plants. M. N. McIlvaine. *diags Power Pl Eng* 25:1006-8 O 15 '21
- Water softening and purification at Columbus. *Pub Works* 51:123-5 Ag 13 '21
- Water softening for the manufacture of raw water ice. A. S. Behrman. *J Ind & Eng Chem* 13:235-7 Mr '21
- Water softening in Florida. il *Pub Works* 48:295-8 Ap 3 '20
- Water softening in small plants. F. F. Vater. *Power Pl Eng* 24:231-3 F 15 '20
- Water treatment for raw water ice. J. J. Felsecker. il *A S R E J* 8:135-49 S '21
- Water treatment for small municipalities. E. M. Partridge. *Munic Eng* 61:23-6 JI '21
- Zero water for boiler feed. L. W. Allison. il *diag Power Pl Eng* 25:501-4 My 15 '21
- See also Feed water purification; Refinite

Water spray dry kilns. See Kilns

Water storage

- Application of copper sulphate to basin walls for control of algae. G. F. Gilkison. il *Am Water Works Assn J* 8:88-90 Ja '21; Same. *Eng & Contr* 54:468-9 N 10 '20; Same. *Can Eng* 39:596 D 9 '20; Same. *Munic Eng* 59:216 D '20; Same. *Pub Works* 50:260 Mr 26 '21

- Commercial aspects of water storage. E. B. Walthall. *J Elec* 44:349-53 Ap 15 '20; Same abr. *Eng & Contr* 54:137-8 Ag 11 '20
- Development, detection and prevention of algal troubles in reservoirs. A. F. Girvan. *Eng & Contr* 53:747 Je 30 '20
- General principles of the development and storage of water for electrical purposes. J. W. Meares. *diags Inst E E J* 57:426-39 Je '19; Same cond. *Engineer* 128:186-9 Ag 22 '19; Excerpt. *Eng & Contr* 52:768-70 D 31 '19
- Impounded water at Bloomington, Indiana. D. H. Maxwell. *Am Water Works Assn J* 8:407-11 JI '21; Same. *Munic Eng* 60:159-61 Ap '21
- Jackson lake dam the savior of the Snake river valley. il *diags Eng N* 83:992-4 D 11 '19
- Romance of water storage. G. A. Johnson. *Am Water Works Assn J* 8:291-300; Discussion. 300-20 JI '21
- St Francis river water storage. A. Duperron. il *diags plan Can Eng* 39:651-4; 40:107-8 D 30 '20-Ja 6 '21
- State storage development favored in Maine water-power report. *Elec W* 77:224-5 Ja 22 '21
- Treatment to counteract algae growths in large reservoirs. W. W. Brush. *Am Water Works Assn J* 7:149-52 Mr '20; Same. *Eng & Contr* 53:432-3 Ap 14 '20
- Upper Ottawa river storage: its value and possibilities. A. Langlois. *Can Eng* 39:460-1 O 21 '20
- Water control on hydro-electric systems. R. C. Denny. il *Power* 53:208-12 F 8 '21
- Water storage essential to western development. A. G. Wishon. *Elec W* 77:223-4 Ja 22 '21
- See also Dams; Irrigation; Rain and rainfall; Reservoirs; Standpipes; Water supply; Water tanks; Water towers

Water supply

- Boating and fishing in water-supply ponds. X. H. Goodnough; abstracts. *Can Eng* 39:416-17+ O 7 '20; *Eng & Contr* 54:369-71 O 13 '20; *Eng N* 85:542-3 S 16 '20
- Compensation water. E. Sandeman. *Engineering* 112:169-70 JI 22 '21; Abstract. *Engineer* 132:86-7 JI 22 '21
- Discussion of R. S. Weston's paper: Lead poisoning by water. G. C. Bunker. il *N E Water Works Assn J* 35:126-36 Je '21
- Importance of complete investigation work in determining the safety of water supplies for human consumption. H. A. Whitaker. *Am Water Works Assn J* 7:278-80 My '20
- Innocence or repentance in drinking waters? H. W. Clark. *Can Eng* 39:478-9 O 28 '20
- Lead poisoning and water supplies. *Eng & Contr* 55:333-4 Mr 30 '21
- Lead poisoning and water supplies. J. F. Reade. *Eng & Contr* 55:632-3 Je 29 '21
- Need for comprehensive water and sewerage systems. J. F. Druar. *Munic Eng* 58:264-5+ Je '20; Same cond. *Can Eng* 39:318+ S 9 '20
- Notes on irrigation, roads, and buildings and on the water supply of towns. W. L. Strange. 849p G. Routledge and sons, Ltd., London '20
- Public water supplies from small streams. J. P. Wells. *diag Munic Eng* 61:68-70 Ag '21
- Relation of water resources to forestry. T. Saville. *Pub Works* 49:188-91 Ag 28 '20
- Sanitary protection of water supplies. A. Hazen. *Eng N* 87:496 S 22 '21
- Scientific control of water supplies. J. M. Goodell. *Am Water Works Assn J* 7:159-62 Mr '20
- Water resources, present and future uses. F. H. Newell. 310p Yale university press '20
- Watershed leakage in relation to gravity water supplies. R. E. Horton. *diags Can Eng* 38:195-8 F 5 '20

Water supply—Continued

Wells as a source of supply. Engineering 111:161-4 F 11 '21; Excerpt. Eng & Contr 55:322-3 Mr 30 '21

See also Aqueducts; Armies—Water supply; Artesian wells; Barrages; Cisterns; Cooling water; Dams; Drinking fountains; Feed water; Filters and filtration; Fire service (water supply); Hot water supply; Hydrants; Hydraulic engineering; Irrigation; Plumbing; Pumping machinery; Pumping stations; Pumps; Railroads—Water supply; Reservoirs; Rock tanks; Snow surveys; Standpipes; Stream measurement; Water, Underground; Water companies; Water consumption; Water distribution; Water meters; Water pollution; Water purification; Water storage; Water supply engineering; Water tanks; Water towers; Water waste; Waterworks; Wells; *also* subdivision Water supply under names of cities

Cost

See Waterworks—Costs

Standards

Effective dilution as a pollution unit. W: F. Wells. bibliog Am Water Works Assn J 8:233-8; Discussion. G: A. Johnson. 270-1 My '21

Index numbers and scoring of water supplies. A. Wolman. Am Water Works Assn J 6:444-56; 7:927-30 S '19, N '20; Same (pt. 2). Can Eng 39:197-8 J1 29 '20; Discussion. Am Water Works Assn J 7:413-15; 8:182-90 My '20, Mr '21

Nitrate content of certain waters considered bacteriologically safe. M. S. Nichols. J Ind & Eng Chem 12:987-9 O '20

Standards of quality of water. J. J. Hinman, jr. Am Water Works Assn J 7:821-40 N '20; Excerpts. Can Eng 39:217-20 Ag 5 '20

See also Water—Bacteriology

State control

Rating of state sanitary control of public water-supplies. C. A. Hogentogler. map Eng N 84:44 Ja 1 '20; Correction. 84:926 My 6 '20

Arizona

Origin of rock tanks and charcos. K. Bryan. il diags maps Am J Sci 50:188-206 S '20

California

Conserving the water table in electric pumping. C: H. Lee. il J Elec 44:271-4 Mr 15 '20

Economic effects of deficient precipitation. Engineering 112:288 Ag 19 '21

Engineer phases of the water situation in California. S. E. Kieffer. Munic Eng 59:95-7 S '20

Increased salinity in waters of the lower Sacramento river. T. H. Means. Eng N 85:611-12 S 23 '20

Permanence of electric pumping in California. C: H. Lee. il J Elec 44:161-3 F 15 '20

Water-supply problems and projects in California. C. G. Gillespie. il Eng N 85:446-8 S 2 '20

See also Mohave desert region, California; Water power—California

Egypt

Allocation of Nile waters between Egypt and the Sudan; report gives principles of water and cost division. H. T. Cory. Eng N 86:679-81 Ap 21 '21

Great Britain

Some water supply problems. Engineering 109:239 F 20 '20

Utilization of river water for compensation purposes. W: Terrey. Eng & Contr 54:318 S 29 '20

Water resources of the Birmingham district. W. S. Boulton. map Engineer 129:646-8 Je 25 '20

Greece

Water supply and other sanitation in Greece. W. E. Spear. il map Eng N 86:708-15 Ap 28 '21

Idaho

Geography, geology, and mineral resources of the Fort Hall Indian reservation. G. R. Mansfield and W. B. Heroy. il maps U S Geol S Bul 713:1-152 '20

Illinois

Public water supplies in Illinois. G. C. Harbermeyer and A. A. Brensky. Am Water Works Assn J 7:542-8 J1 '20

India

Cavity wells in India. Engineering 110:168-9 Ag 6 '20; Same. Eng & Contr 56:216-17 Ag 31 '21

Percolation wells in India. diags Engineering 110:153-4 J1 30 '20

Indiana

Classification of Indiana public water supplies. J: C. Diggs. Eng & Contr 55:374-5 Ap 13 '21; Same abr. Eng N 86:686 Ap 21 '21

Impounded water at Bloomington. D. H. Maxwell. Am Water Works Assn J 8:407-11 J1 '21; Same. Munic Eng 60:159-61 Ap '21

Results of 15 years' operation of the Indianapolis filters. H. E. Jordan. Eng N 86:218-19 F 3 '21

Long Island

Damage to deep wells by sea water. W. P. Mason. diags Am Water Works Assn J 8:59-71; Discussion. 71-4 Ja '21

Massachusetts

Qualities of the water supplies of Massachusetts. G: C. Whipple. Eng N 87:497 S 22 '21

Missouri

Study relating to the water resources of Missouri. T: J. Rodhouse. 57p (Missouri univ. Bul. v. 21, no. 35, Eng. exp. sta. ser. 22) Columbia, Mo. '20

Netherlands

Significance of hydrogen-ion concentration in drinking water and particularly for the business of water supply. A. Massink and J. A. Heymann. Am Water Works Assn J 8:239-69 My '21

Nevada

Some water relations in Nevada. Eng N 85:492-3 S 9 '20

Ohio

Water purification in Ohio; abstracts. W. H. Dittoe. Eng & Contr 53:271 Mr 10 '20; Munic Eng 58:130 Mr '20

Palestine

Water supply in the Holy Land. W: C. Groeniger. il map Metal Work 92:758-63 D 26 '19

Water supply of an army division in Palestine. J. E. Pringle. il Can Eng 38:219-22 F 19 '20

See also Jerusalem—Water supply

Pennsylvania

Water resources inventory report. 10v Pennsylvania Water supply commission, W. S. Ray, etc., state printer, Harrisburg, Pa. '16-'21

See also Philadelphia—Water supply

Porto Rico

Water supply for island of Porto Rico. L. E. Gilbert. il Can Eng 39:163-4 J1 15 '20

Quebec

Statistics of the water supplies of the Province of Quebec. T. J. Lafrenière. Am Water Works Assn J 8:75-8 Ja '21; Same. Can Eng 38:589-90 Je 24 '20; Discussion. Am Water Works Assn J 8:78-81 Ja '21

Water supply—Continued**Saskatchewan**

Opinions on Moose Jaw-Regina district water supply project. map plan Can Eng 40:509-10 My 26 '21

Saskatchewan's water supply project. H. Butler. Can Eng 40:111-13 Ja 6 '21

United States

Hardness of surface waters of the United States. W. D. Collins. J Ind & Eng Chem 12:1181-3 D '20

Interstate water conflicts and possible solution. R. I. Meeker. Eng N 86:157-60 Ja 27 '21; Discussion. 86:755-9 My 5 '21

See also Snow surveys

Utah

Progress toward relief from water shortage at Salt Lake City. il Eng N 85:645 S 30 '20

West Indies

Tropical water supplies. D. M. Griswold. Am Water Works Assn J 8:157-60 Mr '21

Water supply, Rural

All modern conveniences on the farm. H: F. Thurston. il Dom Eng 92:437-9+ Ag 28 '20

Details of country water supply system. W: Hutton. diags Dom Eng 92:325-6+ Ag 14 '20

Modern practice in supplying water to isolated residences. G. C. Blalock. Munic Eng 60:80+ F '21

Overhauling the plumbing in an old colonial mansion. R. J. Gordon. diags plan Dom Eng 90:277-80+ F 7 '20

Pressure water supply a farm necessity. diag Metal Work 92:579 N 14 '19

Rural water supply an integral part of the municipal supply. E. G. Birge. Am Water Works Assn J 7:198-202 Mr '20; Same. Can Eng 38:489-90 My 20 '20

Safeguarding the water supply for the isolated country house. W: C. Tucker. Am Arch 118:383-5 S 22 '20; Same. Bldg Age 42:34-5+ O '20

Simple water supply system for a farm. il plan Metal Work 92:483-5 O 24 '19

Water supply and sewage disposal for country homes. E. J. McCaustland. diags plans Mo U Eng Exp Sta v 21, no 17:1-22 Je '20

Water supply for modern dairy barn. C. H. Pierce. il diags Metal Work 93:755-7 Je 11 '20

Water supply system in garage basement. J. A. Deyo. il plan Bldg Age 42:23-7 N '20

Water system of country house in garage basement for economy and convenience. il diag Metal Work 93:354-5 Mr 19 '20

Water supply engineering

Additional water supply for New Britain. Pub Works 48:511-14 Je 12 '20

Application du principe du dispatching au service de distribution d'eau de Genève. A. Bétant. il Génie Civil 78:230-1 Mr 12 '21

Construction of waterworks on land subject to subsidence. F. C. Cook and R. C. Moon. plans Eng & Contr 56:221-3 Ag 31 '21

Damming a lava-bottomed lake to insure a city's water supply; Bull Run lake. H. E. Thomas. il map Pop Mech 34:849-52 D '20

Hetch Hetchy water supply. il diags Pub Works 48:203-6, 234-6 Mr 20-27 '20

Hong Kong water supply. il diags (supp) plans Engineer 131:170-2, 180 F 18 '21

Iron range water system; Chisholm. C. J. Sullivan. Am Water Works Assn J 8:55-8 Ja '21

Making use of unusual geological formation permits carrying out Newark, N.Y., water supply plan. J. P. Wells. il map Munic Eng 59:173-5 N '20

Methods of relieving the water shortage in Baltimore. map Am Water Works Assn J 7:343-51 My '20

Mountain lake siphoned down to connect tunnel outlet. F. T. Crowe. il diags Eng N 85:80-1 Jl 8 '20

New intake and sedimentation basin at Sarnia, Ont. F. W. Thorold. il plans Can Eng 38:413-16 Ap 29 '20; Excerpt. Eng & Contr 53:670 Je 9 '20

New water works improvements in Columbus, Ohio. J: H. Gregory. Munic Eng 59:140-2 O '20

Norfolk emergency water connection. A. Le-wald. diags Pub Works 49:407-9 O 30 '20

Operation of a true siphon on a main supply pipe. W. R. Braun and C: W. Sherman. Eng & Contr 55:41-2 Ja 12 '21; Same. N E Water Works Assn J 35:36-9 Mr '21; Same cond. Eng N 85:541-2 S 16 '20; Same cond. Pub Works 50:475-6 Je 4 '21; Discussion. N E Water Works Assn J 35:39-40 Mr '21

Pumping project with low-level storage and semi-gravity supply. R. A. Trufant. Eng N 85:701-2 O 7 '20

Quicksand; its nature, behavior and control. C: R. Gow. diags Can Eng 39:392-5 S 30 '20; Excerpts. Eng & Contr 54:389-92 O 20 '20; Abstracts. Eng N 85:543 S 16 '20; Pub Works 50:98-100 Ja 29 '21

Rational method of developing a shallow ground water supply. W. D. P. Warren. diag Am Water Works Assn J 7:596-605 Jl '20; Same. Munic Eng 58:220-1+ My '20

Reservoir pressure vs. direct pressure in water systems. W. R. Gelston. Munic Eng 59:25-6 Jl '20

Sea water for oil refinery condensers secured by gravity. L. H. Watts. il diags Eng N 85:324-5 Ag 12 '20

Self-cleansing underground water collecting system. G: T. Prince. Eng & Contr 54:466 N 10 '20; Same. Can Eng 39:639-40 D 23 '20; Same. Am Water Works Assn J 8:147-50 Mr '21; Abstract. Eng N 85:1045 N 25 '20

Sinking test holes for a water supply survey. F. D. Yeaton. Eng & Contr 54:470 N 10 '20

Some problems encountered in waterworks engineering. W. C. Hawley. il diags Eng Soc W Pa 37:87-110 Mr '21; Excerpts. Eng & Contr 56:264-5 S 14 '21; Excerpts. Pub Works 51:295 O 15 '21; Discussion. Eng Soc W Pa 37:111-14 Mr '21

Studies of flood discharge of Pine Creek. J: B. Hawley. Pub Works 49:455-7 N 13 '20

Subterranean infiltration galleries for a water supply. A. T. Luce. diags Engineer 129:537 My 21 '20

Sultan water supply of Everett, Washington. C. S. Burns. il Am Water Works Assn J 7:451-5 Jl '20

Water distribution system of industrial housing projects for shipbuilders. W: H. C. Ramscy. diags map Am Water Works Assn J 7:239-63 Mr '20

Water supply and sanitary engineering in 1919. Engineer 129:10-12 Ja 2 '20

Water supply in 1920. Engineer 131:37-8 Ja 14 '21

Water supply of Tulsa. H. N. Roberts. il Pub Works 48:413-16 My 15 '20

World's longest tunnel for New York's water supply. il diag maps Pub Works 50:465-71, 496-8 Je 4-11 '21

See also Aqueducts; Armies—Water supply; Dams; Filters and filtration; Hydraulic engineering; Intakes; Irrigation; Pipe laying; Plumbing; Pumping machinery; Pumping stations; Pumps; Railroads—Water supply; Siphons; Surge tanks; Water conduits; Water distribution; Water flow; Water hammer; Water meters; Water pipes; Water storage; Waterworks; also Catskill aqueduct; Hetch Hetchy project; Winnipeg aqueduct

Tables, calculations, etc.

Figuring evaporation from temperature records. C. E. Grunsky. J Elec 46:23-6 Ja 1 '21

See also Water flow

Water supply for armies. See Armies—Water supply

- Water supply for factories**
 Auxiliary equipment for elevated water tanks.
 C: L. Hubbard. diags Power Pl Eng 25: 647-9 JI 1 '21
 Isko cold drinking water unit. il Textile World 57:3307 My 1 '20
 Pure drinking water for industrial plants. A. M. Buswell. Paper 27:12+ D 1 '20
 Safe practices for factory plumbing. il Dom Eng 91:382-4, 482-4 My 29, Je 12 '20
 Underground water supply for an Akron rubber plant. F: L. Roache. Eng N 87:411 S 8 '21
 Value of sanitary drinking facilities. il Metal Work 94:33-4 JI 9 '20
See also Cooling of water
- Water supply for hotels**
 Water for hotel. J. W. Shaw. Power Pl Eng 25:922-3 S 15 '21
 Water system classifies hotel power plant. G: T. Ingersoll. Power Pl Eng 25:726-7 JI 15 '21
- Water supply for mines**
 Utilizing a water supply struck in sinking a shaft. J: E. Ambrose. Coal Age 17:1062 My 20 '20
 Water supply of the Nevada Consolidated. L. Duncan. Eng & Min J 109:857-8 Ap 10 '20
- Water supply for power plants**
 Well-arranged condensing water-pumping plant. il Elec W 74:947-8 N 15 '19
- Water supply plumbing.** *See* Plumbing
- Water tanks**
 Auxiliary equipment for elevated water tanks.
 C: L. Hubbard. diags Power Pl Eng 25: 647-9, 703-6 JI 1-15 '21
 Calculations for heating outdoor water tanks. diags Heat & Ven 17:37-8 N '20; Discussion. 18:48 Ja; 52-5 F; 46 My '21
 Care and maintenance of fire-prevention systems. C. H. Jenkins. il diags Power 52:213-16 Ag 10 '20
 Computing amount of water in cylindrical tanks. diag Metal Work 92:694 D 12 '19
 Condensed lap joint table for water tanks. Eng & Contr 56:253 S 14 '21
 Conditions of Madison (Wis.) water tank after 30 years' service. W. E. Miller. il Eng N 86:548 Mr 31 '21
 Construction of water tanks used in army ambulance trains. E. Andrews. diags plans Am Mach 51:1098-1100 D 25 '19
 50,000 gallon hot water tank and tower. il Eng & Contr 53:544 My 12 '20
 Track built under water tank to move it. il Pop Mech 36:481-2 O '21
- Water towers, Concrete**
 Concrete towers at railway water stations: C. & N. W. Ry. il diags plan Eng N 85: 1143-4 D 9 '20
 Gravesend 2-compartment reinforced concrete water tower. diags Eng & Contr 55: 302 Mr 30 '21
 New reinforced concrete water tower, reservoir and centrifugal pumping plant for the city of Albert Lea, Minn. S. von Mehren and J. H. A. Brahtz. il diags Munic Eng 60: 27-8+ Ja '21
See also Standpipes, Concrete
- Water-tube boilers.** *See* Boilers, Water-tube
- Water vapor**
 Molecular state of water vapor. J. Kendall. Am Chem Soc J 42:2477-82 D '20
 Molecular state of water vapor. A. W. C. Menzies. Am Chem Soc J 43:851-7 Ap '21
See also Steam
- Water waste**
 Effect of pitometer survey and meterage on water waste at Waltham, Mass. H. F. Beal. Eng & Contr 54:552 D 8 '20
 Experience of the Spring Valley water company in restricting the waste of water in San Francisco. G. A. Elliott. Am Water Works Assn J 7:288-301 My '20
 Experiences in water-waste reduction. Eng N 84:566 Mr 18 '20
 Legitimate uses of water. G: A. Johnson. Can Eng 38:588-9 Je 24 '20
- Prevention of water waste on railroads. C. R. Knowles. il Can Eng 39:131-3 JI 8 '20; Same. Eng & Contr 54:139-41 Ag 11 '20; Same. Am Water Works Assn J 8:82-7 Ja '21
 Railway water consumption and waste prevention. Eng N 84:1202-4 Je 17 '20
 Results of pitometer survey of the Evansville, Ind., water system. C. Streithof. Munic Eng 58:186, 188-9 Ap '20; Abstract. Eng N 85:253 Ag 5 '20
 Some suggestions for prevention of water waste. Eng & Contr 55:630 Je 29 '21
 Suggestions for reducing waste of irrigation water. G. E. P. Smith. Eng & Contr 52:563-4 N 12 '19
 Waste of water in Detroit; abstracts. G: H. Fenkell. Pub Works 51:87-90 JI 30 '21; Eng & Contr 56:143, 254-7 Ag 10, S 14 '21
 Waste of water through defective plumbing. F. A. Schossow. Dom Eng 97:205 O 29 '21
 Waste restriction in Boston. F. A. McInnes. Can Eng 39:429-30 O 14 '20; Same. Eng & Contr 54:373 O 13 '20; Same. N E Water Works Assn J 35:34-5 Mr '21
 Water-closet flush tanks and the water-waste problem. A. O. True. Eng N 86:951-2 Je 2 '21
 Water waste control; symposium. Am Water Works Assn J 7:488-515 JI '20
 Water-waste prevention methods and results in Superior. W. C. Lounsbury and A. W. Fowler. il Eng N 86:461-3 Mr 17 '21
 Water waste prevention surveys in Washington. P. Lanham. il charts Munic J 47:250-4 O 25 '19; Abstract. Eng & Contr 52:683-4 D 10 '19
 What is the legitimate use of water. C. M. Saville. Am Water Works Assn J 7:914-26 N '20; Same. Eng & Contr 54:566-9 D 8 '20; Abstract. Pub Works 49:509-11 N 27 '20
 What meterage has done for a New England city; Middletown, Conn. Eng & Contr 52:558-9 N 12 '19
See also Seepage; Water meters
- Water wheels**
 Giant of old. J. F. Wright. il Sci Am 123: 591+ D 11 '20
 Protecting waterwheels against overspeeding. J. W. Truesdell. diag Elec W 77:1107-8 My 14 '21
 Water economy in mills. D. Lay. diag Eng & Min J 109:852 Ap 10 '20
See also Turbines
- Waterfalls**
 Fascination of waterfalls and gorges; study of pothole grinding and sluice cutting in the Finger Lakes region of New York. O. D. von Engeln. il Sci Am M 2:302-8 D '20
 Waterfalls near Portland, Oregon just discovered. H. E. Thomas. il Pop Mech 34: 349-50 S '20
See also Niagara falls
- Waterglass.** *See* Sodium silicate
- Waterloo, Wisconsin**
- Parks**
 Firemen found and maintain city park. B. J. Jenkins. il Pop Mech 36:86-7 JI '21
- Watermarks**
 Old watermarks of animals. D: Hunter. il Paper 28:12-15+ Ag 24 '21
 Oldest watermarks of papal states and nearby provinces. F. A. White. diags Paper 26:15-17 Je 30 '20
 Watermarking hand-made papers. D. Hunter. il Sci Am 124:248+ Mr 26 '21; Same. Paper 28:12-13+ Je 29 '21
 Watermarking of portraits, ancient and modern. D. Hunter. il Inland Ptr 68:51-3 O '21
- Waterproofing**
 Methods of securing impermeability in concrete. E. S. Andrews. Engineering 111:262-3 Mr 4 '21
 Preliminary report of exposure tests on colorless waterproofing materials. Am Arch 120: 248-51 S 28 '21
 Reservoir waterproofed by gunite interlining. B. A. Greene. diag Eng N 86:958 Je 2 '21

Waterproofing —Continued

- Securing a dry cellar. G: M. Warren. il diags Bldg Age 42:40-2 D '20; 43:55-7 Ja; 50-3 F '21
- Suggested improvements in waterproofing railroad structures. J. Ross. Eng & Contr 52:701-2 D 17 '19
- Tentative specifications for asphalt for use in damp-proofing and waterproofing; Tentative specifications for coal-tar pitch for use in damp-proofing and water-proofing; Tentative specifications for creosote oil for priming coat with coal-tar pitch for use in damp-proofing and waterproofing. Am Soc T M Pro v 20 pt 1:716-26 '20
- Water proofing blue prints and drawings. Eng & Contr 54:414 O 27 '20
- Waterproofing cement stucco. il Bldg Age 42: 52+ Ap '20
- Waterproofing paper. Chem & Met Eng 23:751 O 13 '20
- Waterproofing railroad structures. J. B. W. Gardiner. Eng & Contr 53:59-60 Ja 21 '20
- Waterproofing railroad structures. A. H. Rhett. Eng & Contr 53:173 F 18 '20
- See also* Corrosion and anti-corrosives; Gas and oil engines—Waterproofing
- Waterproofing of textiles**
- Determination of the water resistance of fabrics. F. P. Veitch and T. D. Jarrell. il J Ind & Eng Chem 12:26-30 Ja '20; Same abr. Textile World 57:2811+ Ap 17 '20
- Electrolytic water-proofing of textile fabrics: the Tate process. H: J. M. Creighton. il diags J Fr Inst 192:497-510 O '21
- Water resistance of treated canvas during continuous exposure to weather. F. P. Veitch and T. D. Jarrell. il J Ind & Eng Chem 13:672-6 Ag '21
- Waterproofing and mildewproofing of cotton duck. H. P. Holman, B. S. Levine and T. D. Jarrell. U S Agric Farmers' Bul 1157:1-13 '20; Abstracts. Am Inst Arch J 9:221-3 Je '21; Sci Am M 4:181-2 Ag '21
- Waterproofing cotton fabrics. A. J. Hall. Sci Am M 4:379-80 O '21
- Waterproofing fish lines. Textile World 59: 1298 F 12 '21
- Waterproofing of textile fabrics. W: H. Adams. Textile World 57:3779+, 4687+ My 22, Je 26 '20
- Waterproofing textile fabrics with rubber. F: Dannerth. Textile World 60:1213+, 1635 Ag 27, S 17 '21
- Water-proofing textiles. Sci Am 122:138 F 7 '20
- Waterproofing wool and silk materials. G. Colombo. Color Tr J 8:51 F '21

Watersheds

- Watershed leakage in relation to gravity water supplies. R. E. Horton. diags Can Eng 38:195-8 F 5 '20

Waterways

- Comparison of cargo transportation by land and water routes. W: T. Donnelly. il Marine Eng 25:899-903 N '20
- International waterways. P. M. Ogilvie. 424p Macmillan '20
- Problems of inland waterway transportation. C. J. Baer. il Soc Auto Eng J 7:433-5 N '20
- Reviving interest in inland waterways. W. J. Sherman. Munic Eng 58:237-9 Je '20
- See also* Canals; Lakes; River traffic; Rivers; Ship railroads; *also* names of canals and rivers, e.g. Panama canal, Rhine river, St Lawrence river

Australia

- Improvement work on River Murray in South Australia. R. C. Cutting. il diags plan Eng N 85:244-7 Ag 5 '20
- Murray river improvement between Lake Victoria and Blanchetown. il diags plan Engineering 170:171-3, 180 Ag 20 '20; Same, with- out title. Eng & Contr 54:302-4 S 29 '20

Bavaria

- L'exposition de navigation et d'énergie industrielle de Munich (juin-juillet 1921). A. Antoine. diags maps Génie Civil 79:303-7 O 8 '21

Canada

- Advantages of improved French river waterway. A. Langlois. il diags map Can Eng 39:559-61 N 25 '20
- See also* St Lawrence river; Welland ship canal

China

- China's waterways. A. H. Hallam. il Int Marine Eng 25:641 Ag '20

Europe

- Inland water transportation in Europe. C: W. Baker. Eng N 84:184-6 Ja 22 '20

France

- Détermination des dimensions des bateaux de navigation intérieure de fort tonnage et du gabarit des voies navigables. Génie Civil 77:514 D 18 '20
- Étude de diverses voies navigables. E. Imbeaux. Chimie & Ind 3:361-9 Mr '20
- Inland waterways of France. J. M. Watts. Int Marine Eng 25:32-3 Ja '20
- Le VI^e Congrès national de la navigation intérieure (Rouen, 5-9 juillet 1921). A. Pawlowski. maps Génie Civil 79:80-3, 108-11, 128-31 Jl 23-Ag 6 '21
- See also* Allier river; Rhone river

Germany

- Development of German waterways. Engineering 109:791 Je 11 '20

Great Britain

- Second interim report of the Committee on inland waterways. Engineer 132:91-2 Jl 22 '21

Netherlands

- See also* Meuse river

Nicaragua

- See also* Nicaraguan canal (proposed)

Switzerland

- Swiss Rhone-Rhine navigation project. A. W. Metcalfe. diags plan Engineer 129:212-14, 264-5, 290-1, 341-2, 389-90 Mr 12-19, Ap 2, 16 '20

United States

- Annual report, Division of inland waterways. Ry Age 68:617-18 F 27 '20; Same. Ry R 66:349-50 F 28 '20
- Army and inland waterways. Ry R 66:1017-18 Je 12 '20
- Army engineers report against ocean ship canal. Eng N 86:236 F 3 '21
- Co-ordinating our waterways. Sci Am 124: 402 My 21 '21
- Co-ordination of rail and water transport. C: H. Markham. Ry Age 69:1057-60 D 17 '20
- Duluth to Liverpool in one bottom. R. G. Skerrett. maps Sci Am 122:670+ Je 19 '20
- Experiences and prospects of inland waterway transportation. Eng N 84:763-70 Ap 15 '20
- Future of our waterways. Eng N 84:67 Ja 8 '20
- Government and inland waterways; abstracts. F. T. Hines. Ry Age 69:1014 D 10 '20; Eng N 85:1244 D 23 '20; Mech Eng 43: 181-2 Mr '21
- Government operation of inland waterways. Eng N 84:506-7 Mr 11 '20
- Illinois state waterway for barge navigation. diags plans Eng N 85:1095-8 D 2 '20
- Illinois waterway. M. G. Barnes. map W Soc E J 26:171-89 My '21
- Inland waterway transportation. T. Brent. W Soc E J 24:359-64; Discussion. 364-74 Je '19
- New Illinois waterway; abstracts. M. G. Barnes. Eng & Contr 53:261-2 Mr 10 '20; Eng N 84:433 F 26 '20
- On river and canal. R. G. Skerrett. il Sci Am 122:158-9+ F 14 '20
- Revive canal plan to aid steel trade. Iron Tr R 67:585 Ag 26 '20
- Some inland waterway transportation problems. V. E. Lacy. il Soc Auto Eng J 8:59-61; Discussion. 61-2 Ja '21

Waterways—United States—Continued

What is the future of inland water transportation? C: W. Baker. Eng N 84:19-28, 85-9, 137-44, 184-91, 234-42 Ja 1-29 '20

See also Great Lakes; Mississippi river; New York state barge canal; St Lawrence river

Waterworks

Additional water supply for the city of Chicago, 1920-55. maps Eng N 84:855-6 Ap 29 '20

Basic principles used in the design for the new water supply works of Winnipeg, Manitoba. J. H. Fuertes. diag plans Am Water Works Assn J 7:693-748 S '20; Excerpts. Pub Works 49:1-5, 86-7, 219-22 Jl 3, 24, S 4 '20

Birkenhead new water supply. il Engineering 112:284, 286-8 Ag 19 '21; Excerpt. Eng N 87:535 S 29 '21; Discussion 87:701 O 27 '21

Birkenhead's Alwen water supply. il map Engineer 132:183-6, 194 Ag 19 '21

Competing water works in Livingston. Pub Works 48:351 Ap 24 '20

Competition between municipally and privately owned water works at Livingston, Mont. R. E. McDonnell. Munic Eng 58:219+ My '20

Concrete in water works construction. A. C. Irwin. il Can Eng 38:142-7 Ja 15 '20; Same cond. Am Water Works Assn J 7:203-11 Mr '20

Considerations affecting the design of small water works. J. Q. Wickham. Munic Eng 58:228-9+ My '20

Construction features of the water works of the greater Winnipeg water district. W. G. Chase. il Am Water Works Assn J 7:931-49 N '20; Same cond. Pub Works 49:95-8, 150-2, 171-2 Jl 31, Ag 14-21 '20; Excerpts. Can Eng 39:156-7 Jl 15 '20

Construction of waterworks on land subject to subsidence. F. C. Cook and R. C. Moon. plans Eng & Contr 56:221-3 Ag 31 '21

Current water-works problems and practice: discussions before American water works association. Eng N 86:1039-43 Je 16 '21

Design of mill and workshop for Minneapolis filter plant. W. N. Jones. diag plan Munic Eng 60:117-18 Mr '21

East Hartford waterworks extension. diag plan Pub Works 49:28-31 Jl 10 '20

Economic choice between permanent and temporary installations where requirements are permanent, temporary, changing or uncertain. J: C. Black. Eng & Contr 56:30-2 Jl 13 '21

Existing water-works conditions and needed planning. G: W. Fuller. Eng N 86:9-10 Ja 6 '21

Features of additional water works for St Louis, Mo. E: E. Wall. plan Munic Eng 60:200-3 My '21

Filtration plant for Scarborough township. diag plans Can Eng 40:495-8+ My 26 '21; Same cond. Eng & Contr 56:125-6 Ag 10 '21

Hetch Hetchy water supply. il Pub Works 48:165-7, 203-6, 234-6 Mr 6, 20-27 '20

Hydro development furnishes power for municipal water supply. E. C. Hurd. il Munic Eng 57:273-4 D '19

Improvement of Oswego's water supply. Pub Works 49:234 S 11 '20

Indianola pumps water from Allegheny river wells and treats its sewage by bacteria and chlorination. A. F. Brosky. il plans Coal Age 20:487-90 S 29 '21

Kalispell water works. il Pub Works 48:349-51 Ap 24 '20

Keweenaw water works. il diag plans Power Pl Eng 25:497-500 My 15 '21

Milwaukee water works. Pub Works 50:173 F 19 '21

Municipal water supply of Montreal. T. W. Le Sage. map Am Water Works Assn J 7:892-902 N '20; Same cond. Can Eng 38:584-7 Je 24 '20

Planning the future of the Cleveland water supply. A. V. Ruggles. diag Eng N 85:886-9 N 4 '20

Present conditions in the waterworks field. Eng & Contr 52:668-9 D 10 '19

Prevalence of waterworks in Pennsylvania. Eng & Contr 53:549, 556 My 12 '20

Railway water supply at Atkins, Iowa. F. D. Yeaton. diag Eng N 85:463-4 S 2 '20

Rehabilitation requirements of the Denver water-works. Eng N 86:859 My 19 '21

Remarkable pumping performance at the northeast pumping station, Minneapolis. F. W. Cappelen. Am Water Works Assn J 7:88-101 Ja '20

Reservoir versus additional pumpage capacity for supplying peak demands. L. A. Quayle. Am Water Works Assn J 8:463-78 S '21; Same abr. Eng & Contr 56:360-2 O 12 '21; Same cond. Eng N 87:328-30 Ag 25 '21

Settling basin and pump sump for water works. P. E. French. il Concrete 19:148-9 O '21

Some features of the works of the Montreal water and power company. F. H. Pitcher. il map Am Water Works Assn J 7:903-13 N '20; Same. Can Eng 39:116-18 Jl 1 '20

Twin Falls, Idaho, water supply and purification plant. R. E. McDonnell. il Munic Eng 58:81-3 F '20

Wanaque dam. diag plans Pub Works 48:324-30 Ap 17 '20

Water supply made safe for a tropical town. diag map Can Eng 38:571-4 Je 17 '20; Same. Eng & Contr 53:754-6 Je 30 '20

Water supply of Geneva, Switzerland; with introd. by G: C. Whipple. A. Bétant. il diag map N E Water Works Assn J 35:19-30 Mr '21

Water supply of Memphis, Tennessee. J. N. Chester and D. E. Davis. Am Water Works Assn J 8:377-96 Jl '21

Waterworks data for small towns and villages. D. D. Ewing. Eng & Contr 53:427-8 Ap 14 '20

Water works improvements at Akron, Ohio. G. G. Dixon. il Am Water Works Assn J 7:315-24 My '20

Water works in 1865 and in 1920. J: W. Hill. Munic Eng 58:33-5+ Ja '20

Water works requirements for small agricultural villages. E. A. Rossiter. diag Munic Eng 58:226-7 My '20

Waterworks system for the Norfolk & Western Ry., at Roanoke, Va. diag plans Ry R 69:469-72 O 8 '21

See also Filters and filtration; Hydrants; Intakes; Pumping stations; Pumps; Reservoirs; Water conduits; Water distribution; Water pipes; Water purification; Water supply; Water supply engineering; Water waste; also subdivision Water supply under names of cities, e.g. Jerusalem—Water supply

Accounting

First report to the New England water works association of the committee on uniform accounting. A. R. Hathaway, comp. N E Water Works Assn J 35:57-76 Mr '21; Excerpt. Eng N 85:1026 N 25 '20

How a small city collects water bills. A. Martin. Eng & Contr 56:251 S 14 '21

How to get out water bills promptly. H. A. Gallagher. Eng & Contr 55:571 Je 8 '21

Contracts

Basis for extension of water mains. D. R. Gwinn. Munic Eng 60:118-21 Mr '21

Cost plus contracts for water works construction. G: W. Fuller. Am Water Works Assn J 7:683-92 S '20; Same. Can Eng 38:599-601 Je 24 '20; Same. Munic Eng 59:34-5, 36-8 Jl '20; Same abr. Eng & Contr 54:32-4 Jl 14 '20; Excerpts. Eng N 85:78-9 Jl 8 '20

Cost of construction

Cost of water main construction at Pasadena, Calif. Eng & Contr 55:375 Ap 13 '21

Design and cost of water supply dams at Jacksonville and Decatur, Ill. S: A. Greeley. Munic Eng 58:88+ F '20; Same. Eng & Contr 53:147-8 F 11 '20

Detroit water mains. Pub Works 51:199-201 S 10 '21

Municipal water works construction at post-war prices. M. R. Scharff. diag plan Munic Eng 59:138-40 O '20

Waterworks—Cost of construction—Continued

Prewar and present reproduction costs of water works. L. R. Howson. Am Water Works Assn J 7:523-7 J1 '20; Same. Munic Eng 58:184+ Ap '20; Abstract. Eng & Contr 53:426 Ap 14 '20; Abstract. Eng N 84:1063 My 27 '20
 Scarborough township's water works. E. M. Proctor. diag Can Eng 40:169-70 Ja 27 '21

Cost of operation

Cost of meter reading and upkeep. D. R. Gwinn. Eng & Contr 53:661 Je 9 '20
 Cost of water in 29 American cities. Eng & Contr 55:576 Je 8 '21
 How water works met cost increases. Pub Works 50:530 Je 18 '21
 Meter rates—finances—labor. Pub Works 50:481-8; 51:261-2, 277-8 Je 4, O 1-8 '21
 New Orleans waterworks notes. Pub Works 49:556-8 D 11 '20
 Page from recent waterworks reports. diag Eng & Contr 53:263 Mr 10 '20
 Plan for meeting water-supply and sewerage costs. R. B. Morse and A. Wolman. Eng N 86:944-7 Je 2 '21
 Revenue chargeable to public uses of water in the city of Rochester, New York. S. B. Story. Am Water Works Assn J 7:869-79 N '20; Abstract. Eng N 85:84-5 J1 8 '20; Discussion. Am Water Works Assn J 8:115-16 Ja '21
 Some cost and operating data for small waterworks. D. D. Ewing. Eng & Contr 54:379 O 13 '20
 Trend of prices in waterworks construction and operating fields. L. Metcalf. Eng & Contr 54:30-2 J1 14 '20

Costs

Kalispell water works. il Pub Works 48:349-51 Ap 24 '20
 Prices in 1914 and now. Pub Works 48:518-25 Je 12 '20
 Prices of waterworks and other materials month by month. Eng & Contr 56:347+ O 12 '21

Employees

Practical talk on some water works matters. G. H. Finneran. Eng & Contr 54:476-7 N 10 '20
 Water rates and salaries. Pub Works 48:547-9 Je 19 '20

Equipment and supplies

Standardization of water works supplies. A. Mueller. Can Eng 39:108-9 J1 1 '20
See also Waterworks—Costs

Failures

Suction well settlement curtails Des Moines water supply. diag plan Eng N 84:223-4 Ja 29 '20

Finance

Basis for extension of water mains. D. R. Gwinn. Munic Eng 60:118-21 Mr '21; Excerpts. Eng & Contr 55:378 Ap 13 '21
 Compensation of municipal waterworks for water furnished city departments. Eng & Contr 54:43-4 J1 14 '20
 Financing small municipal water supplies in Illinois. W. D. P. Warren. Eng N 86:299 F 17 '21
 High cost of financing public utilities. D. R. Gwinn. Eng & Contr 53:430 Ap 14 '20
 Life notes and sale, water system at Council Grove, Kansas. L. L. Tribus. Am Water Works Assn J 8:91-109 Ja '21
 Magnitude of the American municipal water supply business. J. M. Goodell. Am Water Works Assn J 7:264-73 Mr '20
 Management and finances of the Holyoke water-works; abstract. P. J. Lucey. Eng N 85:540 S 16 '20
 Municipal partnership in water supply in Decatur, Ill. Pub Works 50:256 Mr 26 '21
 Pipe extension charges. N: S. Hill, jr. N E Water Works Assn J 35:91-7 Je '21; Excerpts. Eng & Contr 55:370-1 Ap 13 '21; Discussion. N E Water Works Assn J 35:97-106 Je '21

Revenue chargeable to public uses of water in the city of Rochester, New York. S. B. Story. Am Water Works Assn J 7:869-79 N '20

Solving a New Jersey water problem. Pub Works 50:29-30 Ja 8 '21
 Sound financial basis for municipal water plants. G. W. Fuller. Munic Eng 60:37+ Ja '21

War burdens of water works in the United States continue. L. Metcalf. Am Water Works Assn J 7:471-6 J1 '20; Same, without tables. Can Eng 38:591-2 Je 24 '20; Same cond. Eng N 85:9-10 J1 1 '20
 Water department pays taxes, and charges all city departments for water used by them. Eng & Contr 55:127 F 9 '21

See also Water rates

Ice protection

Experiences with ice in standpipes. L. Metcalf. Am Water Works Assn J 7:579-88 J1 '20
 Ice troubles in the St Louis, Mo., water works. C. M. Daily. il Munic Eng 59:65-7 Ag '20
 Report of the committee on cold weather troubles. C: R. Bettes. Am Water Works Assn J 7:749-52 S '20; Same. Eng N 85:102 J1 15 '20

Laboratories

Apparatus and chemicals for a small water works laboratory. Eng & Contr 56:266-7 S 14 '21

Laws and regulations

Larceny of water, gas and electricity. J: Simpson. Munic J 48:28-30 Ja 17 '20
 Legal responsibility for a pure water supply. J: Wilson. Am Water Works Assn J 7:44-9; Discussion. 49-51 Ja '20
 Licensing of operators for water purification plants in the state of New Jersey. C: H. Capen, jr. Am Water Works Assn J 8:362-8 J1 '21; Same abr. Eng & Contr 56:252 S 14 '21
 Proposed Texas legislation for licensing waterworks operators. V. M. Ehlers. Eng & Contr 55:570 Je 8 '21

Maintenance and repair

Overhauling a neglected water-works distribution system. A. S. Holway. Eng N 87:158 J1 28 '21

Management

Application of engineering principles to water works operations to offset increased cost of labor and materials. R. J. Newsom. Can Eng 38:416-17 Ap 29 '20; Same. Eng & Contr 53:429 Ap 14 '20
 Business end of the water works. O. E. Clemens. Am Water Works Assn J 8:17-26 Ja '21; Same. Eng & Contr 55:133-4, 140-1 F 9 '21; Same abr. Can Eng 40:154-6 Ja 20 '21
 Educating water works consumers. O. E. Clemens. Pub Works 50:258-60 Mr 26 '21
 How St Paul water department saves \$65 per day on routine construction. J. W. Kelsey. Munic Eng 61:107-8 S '21
 Instructions to employees at pumping stations and filter plants. D. R. Gwinn. Power 52:522-3 S 28 '20
 Management and finances of the Holyoke water-works; abstract. P. J. Lucey. Eng N 85:540 S 16 '20
 Meter practices of the Terre Haute water company. D. R. Gwinn. Am Water Works Assn J 7:12-32 Ja '20
 Popularizing water. R. E. McDonnell. Am Water Works Assn J 8:110-14 Ja '21; Same. Eng & Contr 54:363-4 O 13 '20; Same. Munic Eng 59:144, 146+ O '20; Same. Can Eng 39:532+ N 18 '20
 Practical talk on some water works matters. G. H. Finneran. Eng & Contr 54:476-7 N 10 '20
 Relation between office methods, regulations, and the water consumer. R. J. Newsom. Eng & Contr 54:365-6 O 13 '20

Waterworks—Management—Continued

Small plant operator as scientist. A. Wolman. *Am Water Works Assn J* 8:359-61 J1 '21; Same *abr. Eng & Contr* 56:29 J1 13 '21

Trend of readjustment in the water works field. R. E. McDonnell. *Munic Eng* 61:114+S '21

Use of motor vehicles by water department. G. H. Finneran. *Eng & Contr* 54:367 O 13 '20

Water waste prevention surveys in Washington. P. Lanham. *il charts Munic J* 47:250-4 O 25 '19; *Abstract. Eng & Contr* 52:683-4 D 10 '19

Water works experiences. B. C. Little. *Am Water Works Assn J* 7:641-51 S '20; *Excerpts. Can Eng* 39:129-30 J1 8 '20; *Abstract. Eng & Contr* 54:143-4 Ag 11 '20

See also Water meters

Maximum demand controller

Maximum demand controller for large water consumers. E. C. Mayer. *il diag Munic Eng* 61:30-1 J1 '21

Records

Meter practices of the Terre Haute water company. D. R. Gwinn. *Am Water Works Assn J* 7:12-32 Ja '20

Reports

Water works reports and what they should contain. R. E. McDonnell. *Pub Works* 50:473-4 Je 4 '21; Same. *Eng & Contr* 55:569 Je 8 '21; Same. *Munic Eng* 61:31-2+ J1 '21

Standards

Standardization of waterworks corporation cocks. A. Mueller. *Eng & Contr* 54:227 S 8 '20

Statistics

Dominion bureau compiles municipal statistics. *Can Eng* 39:610-12 D 16 '20

Testing

Results of pitometer survey of the Evansville, Ind., water system. C. Streithof. *Munic Eng* 58:186, 188-9 Ap '20

Valuation

Depreciation rates for physical units of waterworks of Springfield, Mass. *Eng & Contr* 56:47 J1 13 '21

Valuations of the Iowa City water company based on present and pre-war costs. J. H. Dunlap. *Am Water Works Assn J* 8:138-46 Mr '21; *Excerpt. Eng & Contr* 55:36-7 Ja 12 '21

Watt-hour meters

Alternating current instruments: discussion of the theory, construction, and application of voltmeters, ammeters and watt-hour meters. V. H. Todd. *il diags Power Pl Eng* 25:370-4 Ap 1 '21

Differentially wound watt-hour meter for testing current transformers. E. C. Westcott. *diag Elec W* 76:433 Ag 28 '20

How meters induce car-energy savings. L. E. Gould. *Elec Ry J* 55:644-6 Mr 27 '20

One meter measures total power on two buses. S. A. Fletcher. *diag Elec W* 77:1255 My 28 '21

Polyphase watt-hour meters connected on a single-phase circuit. E. A. Fischer. *diags Power* 50:745 N 25 '19

Switchboard-meter connections—three-phase circuits. E. A. Reinman. *diags Power* 53:963-6 Je 14 '21

Watt-hour meter method of testing current transformers for ratio and phase angle. J. R. Craighead and C. T. Weller. *il diag Gen Elec R* 24:642-51 J1 '21

Testing

Accurate timer holds voltage constant when testing meters. *diag Elec W* 75:1007 My 1 '20

Checking four-wire three-phase watt-hour meter connections. H. C. Yeaton. *diags Power* 52:541-2 O 5 '20

Installation test on watt-hour meters. A. R. Happoldt. *diag Elec W* 78:571-2 S 17 '21

Integrating wattmeter accuracy and testing practice. W. K. Hervey. *diags Elec R* 77:965-7 D 18 '20

Portable device for testing watt-hour meters without stop watches. *il Elec W* 78:871 O 29 '21

Standardized meter test board speeds up laboratory testing. H. R. Thomas. *il diag Elec W* 77:429-30 F 19 '21

Station and service watt-hour meter testing. H. O. Hampson. *Elec R* 78:478 Mr 19 '21

Testing polyphase watt-hour meters. P. B. Findley. *il diags Power* 51:875-8 Je 1 '20

Testing single-phase watt-hour meter with a rotating standard of different make. P. B. Findley. *diag Power* 50:645-6 O 28 '19

Wattle bark. *See* Acacias

Wattmeters

Connections for measuring power with single-phase wattmeters. H. C. Yeaton. *diags Power* 52:96-8 J1 20 '20

Correcting wattmeter readings for phase-angle errors. E. D. Doyle. *chart Elec W* 77:314 F 5 '21

Graphic wattmeter checks gravity plant operation. *il charts Eng N* 86:1067-8 Je 23 '21

Multipliers for use with portable voltmeters and wattmeters. H. C. Yeaton. *diags Power* 52:395 S 7 '20; *Discussion. 52:594 O 12 '20*

Reactive volt-ampere indicators. H. C. Yeaton. *diags Elec W* 75:1476-9 Je 26 '20

Switchboard meter connections for alternating current circuits. J. C. Group. *diags Elec J* 17:131-5, 281-4 Ap, J1 '20

Switchboard-meter connections—three-phase circuits. E. A. Reinman. *diags Power* 53:963-6 Je 14 '21

Thermal storage demand wattmeter. P. M. Lincoln. *il diags Elec J* 17:253-6 Je '20

Testing

Checking four-wire three-phase switchboard wattmeters. H. C. Yeaton. *diag Power* 52:509 S 28 '20

Checking four-wire two-phase switchboard wattmeters. H. C. Yeaton. *diags Power* 52:292-3 Ag 24 '20

Checking single-phase wattmeters. H. C. Yeaton. *diags Power* 52:256 Ag 17 '20

Checking three-wire three-phase switchboard wattmeters. H. C. Yeaton. *diags Power* 52:467-8 S 21 '20

Wave-length. *See* Radiation

Wave meter. *See* Wavemeter

Wave motors

Force and power of waves. I. Hiroi. *diags Engineer* 130:184-5 Ag 20 '20; *Excerpt. Eng & Contr* 54:304-5 S 29 '20

Technologie—l'utilisation des courants de marée sur les côtes de France. Bigourdan. *Génie Civil* 77:541 D 25 '20

Water power is utilized as driving force. *il Iron Tr R* 67:1415-16 N 18 '20

Wave-motion turbine. A. Palme. *diags Power* 52:700-1 N 2 '20

Wave motor has ingenious clutch system. *il Pop Mech* 33:37 Ja '20

Wave power motor. *il Marine R* 51:201-2 Ap '21

See also Tide power

Wave-power tools. *See* Sonic waves

Wavemeter

Construction of a simple wavemeter, range 150-500 meters. A. H. Rice, jr. *chart diags Wireless Age* 7:24 Je '20

Design and construction of a short-range wavemeter. A. Rosander. *diag Wireless Age* 7:27-8 Je '20

Design and construction of a simple wavemeter—range 150 to 300 meters. F. C. Brockman; O. E. Cote; E. S. Herrick. *il chart diags plan Wireless Age* 7:29-33+ Je '20

Efficient wavemeter. E. Singer. *diags Wireless Age* 7:29 S '20

Heterodyne wavemeter. R. W. Goddard. *il diags Wireless Age* 7:15-17 F '20

Wavemeter—Continued

Regarding wavemeters. F. R. Pray. Wireless Age 8:25-6 N '20
Some electrical guides for wavemeter design. O. C. Roos. diags Wireless Age 7:17-22 S '20

Waves

L'emploi de l'air comprimé pour calmer l'agitation de la mer. A. Poidlouë. Génie Civil 77:465 D 4 '20
Fighting waves with compressed air. G. F. Paul. Sci Am 123:61+ J1 17 '20
Force and power of waves. I. Hiroi. diags Engineer 130:184-5 Ag 20 '20
How to find wave height and length. diags Marine R 50:539-40 O '20

See also Electric waves; Light; Radiation; Sound; Vibration

Wax figures

Making wax dummies for fashion displays. R. Howard. il Sci Am 122:367+ Ap 3 '20

Waxes

Wax and wax compounds. S. Wein. Metal Ind 19:274-7 J1 '21

Waybills

Accounting of interline waybills for the guaranty period. Ry R 67:372 S 4 '20
Stamping of express waybills in cars resumed. Ry R 67:315-16 Ag 28 '20

See also Railroads—Accounting

Weagant tube. *See* Vacuum tubes

Wealth

Economics of welfare. A. C. Pigou. 976p Macmillan '20

Management and the creation of wealth; an experiment in amateur socialism which points a moral to management. H. Emerson. Ptr Ink 116:69-70+ Ag 18 '21

See also Capital; Cost of living; Economic conditions and subdivision Economic conditions under names of countries; Economics; Income; Income tax; Money; Poverty; Profit; Success

Weather

Artificial control of weather. N. Shaw. Aerial Age 13:203-5 My 9 '21

Monthly weather record. *See* monthly numbers of Heating and ventilating magazine
Motion pictures of weather maps. Sci Am 123:403 O 16 '19

Record weather; excessive precipitation, temperature extremes, high winds, blizzards, hurricanes and tornadoes. W. M. Whiting. il Sci Am 123:180+ Ag 21 '20

See also Atmospheric electricity; Atmospheric pressure; Atmospheric temperature; Climate; Fog; Humidity; Meteorology; Rain and rainfall; Snow; Storm detectors; Storms; Thunderstorms; Weather forecasts; Winds; Winter

Weather bureau. *See* United States—Weather bureau

Weather forecasts

Army school for weather observers. G. Gaulois. il Sci Am 124:149+ F 19 '21

Daily weather report for aviators by radio from U.S. Weather bureau. Aerial Age 13:298-9 Je 6 '21

Forecasting hurricanes. C. L. Meisinger. Sci Am M 3:270-1 Mr '21

He saves money by foreseeing the weather. C. P. Russell. Ptr Ink 113:165+ N 11 '20

International weather bulletins by radio. Wireless Age 8:8 F '21

Long range weather forecasting. E. A. Beals and others. J Elec 46:508-11 My 15 '21

Telegraph wires as weather prophets. Sci Am 124:47 Ja 15 '21

Weather forecasts by solar radiation observations. C. G. Abbot. Sci Am M 2:175-6 O '20

Weather predictions from local barometer readings. Sci Am 122:517 My 8 '20

See also Atmospheric temperature

Weaver, Lawrence

Works of an English critic. C. O. Cornelius. Arch Rec 48:551-2 D '20

Weaver, Sylvester L., 1878-

Sketch. por J Elec 46:651 Je 15 '21

Weaving

Calculating loom production. E. Williams. Textile World 58:2665+ O 16 '20

Common faults in weaving. L. J. Mills. Textile World 57:33+ Ja 3 '20

Conditioning of filling. H. D. Martin. diag Textile World 59:1853 Mr 12 '21

Foot-power loom weaving. E. F. Worst. 261p 2d ed. Bruce pub. co., Milwaukee '20

Hand-loom weaving, plain and ornamental. L. Hooper. 341p Pitman '20

Humidity in weaving sheds. F. Scudder. Textile World 60:319+ J1 9 '21

Noise in weaving rooms. Textile World 58:4169 D 18 '20

Number of looms weaver should operate. A. S. Otis. Textile World 57:2537+ Ap 3 '20

Successful filling distribution methods. G. H. Goldsmith. diags Textile World 58:4007+ D 11 '20

Winding as related to the textile industry. G. W. Foster. Mech Eng 43:594-6 S '21

Same abr. Textile World 59:2559+ Ap 16 '21

Woven imitation of knit jersey cloth. il Textile World 58:259+ J1 10 '20

See also Basketwork; Carpets; Heddles; Lace; Linen; Looms; Rugs; Silk manufacture; Textile fabrics; Textile fibers; Woolen and worsted manufacture

Webb law

Collective selling in foreign markets. Sci Am 122:696 Je 26 '20

Webster, Edwin Sibley, 1866-

Sketch. por Elec W 77:1348 Je 11 '21

Webster, George Smedley, 1855-

Portrait. Eng N 86:139 Ja 20 '21

Wechel, Christian

Christian Wechel, printer. H: L: Bullen. Inland Ptr 65:733 S '20

Wedges

Discontinuous flow of liquid past a wedge. W. B. Morton. Philos Mag 6th ser 41:801-8 My '21

Weeds

Ammonia sulphate as weed killer. Gas Age 47:244 Mr 25 '21

Atlas weed killer service. il Ry R 68:683-4 Ap 30 '21

Chemical eradication of weeds. Eng & Contr 53:570 My 19 '20

Gas-propelled weed cutting machine. il Elec Ry J 58:448 S 17 '21

Mowing the weeds along the tracks. il Elec Ry J 57:1045 Je 4 '21

Railroad right of way singed clear of weeds. il Pop Mech 36:237 Ag '21

Turning live steam into weed destroyer. il Sci Am 125:261 O 8 '21

Weed-burning car on Texas & Pacific railway. il Ry R 68:79-80 Ja 15 '21; Ry Age 70:1033-4 Ap 29 '21; Eng & Contr 55:584 Je 15 '21

Weed seeds. Sci Am M 1:316 Ap '20

Weeds that are making good. R. P. Crawford. il Pop Mech 33:249-50 F '20

Weidlein, Edward Ray, 1887-

New director of Mellon institute. Chem & Met Eng 25:774 O 26 '21

Weighing

Analytical weighing H. L. Wells. Am Chem Soc J 42:411-19 Mr '20

See also Balances; Gold—Weighing; Track scales

Weighing machines

Hydraulic railway wagon weighing machine. il diags Engineer 131:23 Ja 7 '21

Large capacity locomotive weighing plant. C. C. Bailey. il diag Ry Age 71:453-5 S 3 '21; Same. Ry Mech Eng 95:749-50 D '21;

Same cond., with plans. Eng N 87:808-9 N 17 '21

New weightometer. E. J. Trimbey. diags Paper 28:78-9 Ap 20 '21

See also Balances; Scales; Weights and measures

Weight (physiology). *See* Corpulence

Weights and measures

- Buying commodities by weight or measure. *il* U S Bur Stand misc pub 45:1-42 '20
- Committee on technical standards, recommends use of English measuring system. *Am Mach* 53:647-8 S 30 '20
- Decimal parts of a gross ton. *Foundry* 48:402a My 15 '20
- Gross ton conversion tables. *Foundry* 48:360a My 1 '20
- International bureau of weights and measures; interview with Charles Edouard Guillaume. J. Boyer. *il Sci Am M* 3:105-9 F '21
- Latin-American situation regarding weights and measures. L. D. Burlingame. *Mech Eng* 43:277-8 Ap '21
- Net and gross ton equivalents. *Foundry* 48:334a Ap 15 '20
- Pan-Americanism in weight and measures. F: A. Halsey. *Am Mach* 52:784-6 Ap 8 '20
- Specifications and tolerances for weights and measures and weighing and measuring devices. *diags U S Bur Stand Circ* 61:1-44 '20
- Standardization of weights in teaching quantitative analysis. A. J. Hopkins, J. B. Zinn and H. Rogers. *Am Chem Soc J* 42:2528-31 D '20
- 12th annual conference, Bureau of standards, Washington, D.C., May 21-24, 1919. U S Bur Stand misc pub 41:1-226 '20
- 13th annual conference, Bureau of standards, Washington, D.C., May 24-27, 1920. U S Bur Stand misc pub 43:1-200 '21
- Weight table for estimating. F. W. Salmon. *Am Mach* 54:182-3 F 3 '21
- Weights and measures useful in truck body building. *Automotive Ind* 42:618 Mr 4 '20
- Why is it a pound? W. M. Butterfield. *Sci Am* 122:105 Ja 31 '20

See also Balances; Carat (unit of weight); Decimal system; Electric measurement; Electric standards; Gages; Gaging; Gravity; Magnetic measurement; Measuring instruments; Mensuration; Meters; Metric system; Scales; Specific gravity; Standards of length; Volumetric apparatus; Weighing machines

Weirs

- Improved weir for gaging in open channels. C. Herschel. *il diags Mech Eng* 42:83-8+ F '20; Same. *Eng & Contr* 53:265-8 Mr 10 '20; Same cond. *Eng N* 84:710-12 Ap 8 '20; Abstract. *Power* 52:156 Jl 27 '20; Abstract. *Power Pl Eng* 24:753-5 Ag 1 '20
- Parabolic weirs. F. W. Greve. *diags Eng & Contr* 55:237-8 Mr 9 '21
- Stilling rack for weirs. G: S. Binckley. *diag Eng N* 85:558 S 16 '20
- Weir formulas on simplified assumptions. M. F. Stein. *Eng & Contr* 55:146 F 9 '21; Discussion. 55:360-1 Ap 13 '21
- Weir measurement of liquids. L. G. Chase. *il diag Chem & Met Eng* 23:1124-6 D 22 '20

Weirs (dams)

- Ice diversion for St Lawrence river power co. B: F. Groat. *il maps plan Can Eng* 39:545-52 N 25 '20; Excerpts. *Eng & Contr* 55:45-6 Ja 12 '21

Weissenbruch, Louis Pierre Alexandre, 1857-1921

- General secretary of the Permanent commission of the International railway association, dead. *Ry Age* 71:472 S 3 '21

Welding

- Les défauts des soudures autogènes. *diags Génie Civil* 78:462-3 My 28 '21
- English welding process. *Power* 54:512 O 4 '21
- Examples of welding repairs to boilers. *diags Power* 53:82-3 Ja 11 '21
- Failures from contraction of welded straight piping solved by using welded bent piping. *il Chem & Met Eng* 23:537 S 15 '20
- Field of fusion welding expands. A. S. Kinsey. *Iron Tr R* 69:225+ Jl 28 '21; Same cond. *Min & Sci P* 123:432 S 24 '21; Same. *Iron Age* 108:327-8 Ag 11 '21
- Frame making and repairing. F. F. Hoeffle; G. W. Kelly. *diags Ry Mech Eng* 94:603-4 S '20
- Frame welding apparatus in railroad shop. F. A. Stanley. *il Am Mach* 53:1232-3 D 30 '20

- Gas torch and thermit welding. E. Viall. 442p McGraw-Hill '21
- Hammer-welding plant of the Blaw-Knox co. E. E. Thum. *il diags Chem & Met Eng* 25:747-51 O 19 '21
- Hauck preheating furnace for welding work. *il Ry Mech Eng* 94:805 D '20; *Iron Age* 106:1200 N 4 '20; *Foundry* 49:82 Ja 15 '21
- Heat treatment vital in welding. G: B. Malone. *Foundry* 48:397-8 My 15 '20
- How a slag hole in a cylindrical retort casting was filled in as good as new. *Am Gas Eng J* 112:23-5 Ja 10 '20
- How tie rods for ore docks were welded. *diags Foundry* 48:66 Ja 15 '20
- Hyde welding process. *il diags Engineering* 112:338-9, pl 18 S 2 '21
- Light-weight rail preheater. *il Elec Ry J* 56:425 Ag 28 '20
- Making pipe by hammer forging. *il diags Iron Tr R* 69:1148-51 N 3 '21; *Eng & Contr* 56:445 N 9 '21; *Iron Age* 108:1130-1 N 3 '21
- Modern welding and cutting. E. Viall. *il diags Am Mach* 50:243-8, 283-91, 341-6, 389-94, 479-83, 529-32, 641-5, 675-9, 733-7, 833-8, 879-83, 977-83, 1237-43; 51:61-5, 117-22, 685-9; 52:223-30, 603-9, 665-9, 769-72; 53:447-51, 497-9, 537-42, 583-8, 665-70, 719-27, 768-77, 807-21 F 6-27, Mr 13-20, Ap 3-17, My 1-8, 22, Je 26, Jl 10-17, O 9 '19, Ja 29, Mr 18-25, Ap 8, S 2-O 28 '20
- Modern welding methods: oxy-acetylene, thermit, electric arc and resistance. V: W. Pagé. 292p Henley '20
- New method of welding. *diags Sci Am M* 1:522 Je '20
- Patching piston valve cylinder. *il diags Ry Mech Eng* '93:674 N '19
- Principles and practice of fusion welding; discussion. S. W. Miller. *A S R E J* 6:114-30 S '19
- Reason why some fusion welds fail. T. D. Sedwick. *il Ry Mech Eng* 95:114-18 F '21
- Recent improvements in the manufacture of welded pipe. F. N. Speller. *Blast F & Steel Pl* 9:580-2 O '21
- Recent welding and cutting developments. R. M. Rush. *il Blast F & Steel Pl* 8:198-202+ Mr '20
- Reclaiming worn wabblers by welding. F. E. Rogers. *il Iron Tr R* 68:1450-1 My 26 '21
- Repairing box of manganese-insert frog. *il Elec Ry J* 57:561-2 Mr 19 '21
- Repairing broken cam shafts. G: J. Young. *il Eng & Min J* 110:1092-3 D 4 '20
- Repairing cast iron cylinders by welding. H. G. Knox and J. W. Owens. *il diags Int Marine Eng* 25:340-6 Ap '20
- Report of the committee and discussion on autogenous welding. *Ry Age* 68:1793-5 Je 15 '20; *Ry R* 66:1035 Je 19 '20
- Rules for autogenous welding. *Ry Age* 68:260 Ja 16 '20; Same. *Power* 51:471 Mr 23 '20
- Rules for locomotive boiler welding. *diags Ry R* 66:165 Ja 31 '20
- Schweissen von stahlformguss. L. Treuheit. *diags Stahl & Eisen* 41:1361-6 S 29 '21
- Some recent German welding machines. *Sci Am M* 3:183-4 F '21
- Steam boiler and flywheel service bureau accepts autogenous welding. *Power* 51:40 Ja 6 '20; Same. *Mech Eng* 42:70 Ja '20
- Studding cast-iron welds relieves contraction strains. C. J. Holslag. *il Elec W* 77:658-9 Mr 19 '21
- Theory and practice of welding sheet metal. M. H. Potter. *diags Metal Work* 94:339-41, 362-3; 394-6 S 10-24 '20
- Universal flue welder. *il Iron Age* 107:1163 My 5 '21; *Ry Mech Eng* 95:391 Je '21
- Welded steel specials as a substitute for castings. *il diags Engineering* 109:730 My 28 '20
- Welding. *Motor Age* 37:44-5 Ap 29 '20
- Welding a hydro-electric generator shaft (thermit weld). *il diag Power* 54:61 Jl 12 '21
- Welding; a practical treatise. G: W. Cravens. 138p American technical society, Chicago '20
- Welding and brazing steel and cast iron parts. G. H. Radebaugh. *il Brick & Clay Rec* 59:117-20 Jl 26 '21

Welding—Continued

- Welding and cutting. S. W. Miller. diags Am Mach 51:1088-9 D 25 '19
- Welding and cutting outfit for sheet metal shops. il Sheet Metal Worker 12:258 My 13 '21
- Welding and cutting plant at Balboa. R. D. Gatewood. il Am Mach 51:1023-5 D 18 '19
- Welding and other saving suggestions for the sheet metal shop. il Sheet Metal Worker 11:463-5 Ja 7 '21
- Welding broken pedestals without removing the truck. il Elec Ry J 55:400 F 21 '20
- Welding castings of different metals. G. B. Malone. Iron Age 106:514 Ag 26 '20
- Welding cylinders with tobin bronze. J. T. Paight. il Ry Mech Eng 95:374 Je '21
- Welding encyclopedia. L. B. Mackenzie and H. S. Card. Ed. of 1921. 326p Welding engineer pub. co., Chicago '21
- Welding ladle spouts at Garfield. E. J. Harris. il Eng & Min J 111:870 My 21 '21
- Welding locomotive cylinders. Am Mach 51:932-3 N 27 '19
- Welding locomotive cylinders. C. E. Farley. il Ry Mech Eng 95:247 Ap '21
- Welding locomotive frames. M. C. Whelan. diag Ry Mech Eng 94:301-2 My '20; Same. Ry R 67:460-1 S 25 '20
- Welding loose end rings on squirrel-cage rotors. E. R. Dehman. il Elec W 77:999-1000 Ap 30 '21
- Welding malleable iron. F. B. Corey. il Am Mach 52:1182-3 Je 3 '20
- Welding monel metal. Metal Ind 18:513 N '20
- Welding of steel in relation to the occurrence of pipe, blowholes, and segregates in ingots. H. Brearley. il Iron & Steel Inst J 103:27-43 no 1 '21; Same. Blast F & Steel Pl 9:361-7 Je '21; Same, without tables. Engineering 111:551-4 My 6 '21; Same, without tables. Iron Tr R 69:289-92 Ag 4 '21; Excerpts. Engineer 131:506, 508 My 13 '21; Excerpt. Iron Age 107:1397-8 My 26 '21; Abstract. Chem & Met Eng 24:1026-7 Je 8 '21; Discussion. Iron & Steel Inst J 103:44-62 no 1 '21; Engineering 111:577-8 My 13 '21; Engineer 131:519-20 My 13 '21; Iron Age 107:1398-9 My 26 '21
- Welding, particularly hammer welding. E. E. Thum. il diags Chem & Met Eng 25:553-61 S 21 '21
- Welding sets utilize gas engine power. Iron Tr R 69:238-9 Jl 28 '21
- Welding where casting fails. il Sci Am 124:189 Mr 5 '21
- Welds and welding—a study of the autogenous processes. W. Rosenhain. Automotive Ind 43:709-11 O 7 '20
- Wiederwax preheater. il Ry Age 68:1835 Je 15 '20
- Zinc welding for automobile bodies. il Sheet Metal Worker 12:42+ F 18 '21
- See also* Brazing; Chains—Manufacture; Electric welding; Lead burning; Shipbuilding—Welding operations; Solder and soldering

Safety devices and measures

- Eye protection in welding operations. R. R. Butler. il Engineering 109:823-6 Je 18 '20
- Safety methods used in welding. Power Pl Eng 24:992-3 O 15 '20

See also Welding, Oxyacetylene—Safety devices and measures

Terminology

- Welded joints and a nomenclature for welding. W. T. Bonner. diags Eng & Contr 54:95-6 Jl 28 '20

Testing

- Comparative welding tensile tests. diags Blast F & Steel Pl 8:171 F '20
- Desirability of standardisation in the testing of welds. F. M. Farmer. il diags Engineering 111:239-42 F 25 '21; Same. Engineer 131:200-2 F 25 '21; Same cond. Eng & Ind Management 5:256-61 Mr 3 '21; Discussion. Engineering 111:220-2 F 25 '21; Engineer 131:199, 231-2 F 25-Mr 4 '21
- Some tests on welded ammonia containers. E. A. Fessenden. il diags A S R E J 7:281-305 Ja '21

- Study of the testing of welds. S. W. Miller. il Blast F & Steel Pl 8:678-83 D '20; Same. Iron Tr R 67:1405-9 N 18 '20; Same. Ry Mech Eng 94:792-4 D '20; Same cond. Power 52:719-20 N 2 '20; Excerpts. Elec Ry J 56:1065-6 N 20 '20; Iron Age 106:1265 N 11 '20

Thermit process

- Building frogs in Atlanta by the thermit process. il diags Elec Ry J 58:15 Jl 2 '21
- Experiences with thermit insert welding at Southampton. W. T. Robson. il Elec Ry J 54:1049 D 27 '19
- New molding material for thermit welds. Elec Ry J 58:367 S 3 '21; Same. Chem & Met Eng 25:523 S 14 '21; Same. Ry Mech Eng 95:594-5 S '21; Same cond. Marine Eng 26:695 S '21
- Portable locomotive-frame thermit welding outfit. J. V. Hunter. il Am Mach 54:59 Ja 13 '21
- Solving track problems at St Joseph; thermit welding. H. L. Chaffee. il Elec Ry J 55:1135 Je 5 '20
- Thermit welded pipe joints. R. L. Browne. il diags A S R E J 7:452-7; Discussion. 457-9. My '21
- Thermit welding for special trackwork repairs. R. H. Dalgleish. il Elec Ry J 56:883 O 23 '20
- Tool wagon for thermit welding materials. diags Ry Mech Eng 94:660 O '20
- Unusual case of thermit pipe welding. E. A. Miller. il Power 53:351-2 Mr 1 '21
- Welding a lighthouse's broken legs by the thermit process. R. Howard. il Sci Am 122:275+ Mr 13 '20; Abstract. Int Marine Eng 25:771 S '20
- Welding cracked pump cylinder by thermit process. il Munic Eng 60:79-80 F '21; Same. Pub Works 50:277 Ap 2 '21
- Welding, Electric.** *See* Electric welding
- Welding, Oxyacetylene**
- Acetylene welded flying boat carries ten tons. il Sheet Metal Worker 11:336 N 12 '20
- Art of welding gears and pinions. F. H. Sweet. Blast F & Steel Pl 8:684-5+ D '20
- Autogenous welding; what it is and how it is applied. il Motor Age 38:8-9 Jl 22; 16-17 Jl 29; 32-3 Ag 5; 30-1 Ag 12; 34-5 Ag 19; 34 Ag 26; 34-5 S 2; 36-7 S 9; 36-7 S 16; 36-7 S 23; 32-3 S 30; 32-3 O 7; 32-3 O 14; 30-1 O 21 '20
- Choosing gas welding apparatus. F. W. Smith. Iron Tr R 68:1314-16 My 12 '21
- Constructing steam railroad track crossings by means of welding. il Sci Am 124:309 Ap 16 '21
- Features of new aqueduct for Butte, Montana. il Munic Eng 60:40-2 Ja '21; Same. Gas Age 47:53-5 Ja 25 '21
- Investigation of oxy-acetylene welding and cutting blowpipes. R. S. Johnston. il diags Mech Eng 43:305-10+ My '21; Same cond. Iron Tr R 68:1377-83 My 19 '21; Excerpt. Iron Age 107:1484 Je 2 '21; Summary. Ry Mech Eng 95:449-50 Jl '21
- Keeping presses at work with oxyacetylene. I. B. Rich. il Am Mach 53:1073-4 D 9 '20
- Metallography of the oxy-acetylene weld as affected by enameling. E. P. Poste. il Am Cer Soc J 4:546-57 Jl '21
- Methods of repairing oil pipe lines by oxy-acetylene process. diag Eng & Contr 51:246 S 8 '20
- Midway gas companys' new gas-welded pipeline. il Gas Age 47:453-4 My 25 '21
- Oxweld engineers solve problem of pipe welding on 54 large gasoline condensers. il Plumber 94:510-11 N 19 '20
- Oxy-acetylene application in foundries. Metal Work 94:237 Ag 20 '20
- Oxyacetylene gas welding. A. S. Kinsey. il diags Gas Age 45:331-5 Ap 26 '20
- Oxy-acetylene process of brazing and welding metals. P. W. Blair. il diag Metal Ind 18:11-12 Ja '20
- Oxyacetylene promptly clears shaft and repairs engine bed after an overwind. C. C. Phelps. il Coal Age 17:1131-4 Je 3 '20
- Oxyacetylene torch for pipe welding and cutting. il Pub Works 50:549-50 Je 25 '21

Welding, Oxyacetylene—Continued

- Oxy-acetylene welding and cutting. L. Ballet. Min & Sci P 122:522-3 Ap 16 '21
- Oxy-acetylene welding and cutting at Anaconda. T. W. Cunningham. Min & Sci P 122:425-6 Mr 26 '21
- Oxy-acetylene welding equipment. J. F. Springer. il Textile World 56:3154+ N 29 '19
- Oxy-acetylene welding fixtures for making manifolds. C. C. Phelps. il diags Am Mach 52:663 Mr 25 '20
- Oxy-acetylene welding kinks. J. F. Springer. diags Textile World 58:885+ Ag 7 '20
- Oxy-acetylene welding of cast and sheet aluminum. P. W. Blair. Metal Ind 19:402 O '21
- Oxyacetylene welding of damaged engine cylinders. il Power 52:465-6 S 21 '20
- Oxy-acetylene welding of refrigerating apparatus. F. E. Rogers. il diags A S R E J 7:432-50 My '21; Same. Gas Age 47:541-6 Je 25 '21; Discussion. A S R E J 7:450-1 My '21
- Proposed code for welded pressure vessels. S. W. Miller. Power 54:192-4 Ag 2 '21; Discussion. W. F. Schaphorst. 54:423 S 13 '21
- Relative economy of repairing frogs, switches and crossings by welding. Ry R 67:483-4 S 25 '20
- Repairing ore dock chutes by oxyacetylene welding. Eng & Contr 54:481 N 17 '20
- Rolls with broken wobblers repaired by the oxy-acetylene torch. il Iron Age 106:522 Ag 26 '20
- Simplifying the manufacture of metal products by oxy-acetylene welding. Metal Work 93:239-40 F 20 '20
- Surgical operation performed on a locomotive valve port. M. R. Feeley. diags Ry Mech Eng 95:508 Ag '21
- Survey of oxyacetylene welding. L. Campbell, jr. Soc Auto Eng J 9:320-1; Discussion. 321-2 N '21
- Tube welding by the oxy-acetylene process. F. W. Smith. il diags plan Am Mach 51:845-8 N 13 '19
- Use of acetylene in U.S. navy yards during the war. H. G. Knox. il Engineer 129:164-6 F 13 '20; Excerpts. Int Marine Eng 24:720-7 N '19; Excerpts. Am Mach 51:661-4 O 2 '19
- Value of oxyacetylene welding process. A. S. Kinsey. Metal Work 92:555-7 N 7 '19; Same. Chem & Met Eng 22:221-2 F 4 '20; Discussion. F. E. Johnson, jr. Chem & Met Eng 22:581 Mr 31 '20
- Welded joints on a steel gas main. il Eng N 86:731 Ap 28 '21
- Welded joints on ships. il Int Marine Eng 25:717-18 S '20
- Welded pipe lines. il Textile World 58:1541+ S 4 '20
- Welding a worn driving wheel flange. il Ry R 66:338 F 28 '20; Same. Ry Mech Eng 94:223-4 Ap '20
- Welding and cutting. F. E. Rogers. 95p Davis-Bournonville co., Jersey City, N.J. '21
- Welding and its relation to the repair industry. L. Campbell, jr. il Soc Auto Eng J 7:42-6 Jl '20
- Welding as applied to the plumbing and heating field. il Dom Eng 92:428-30+ Ag 28 '20
- Welding becoming important factor in plumbing and heating. il Dom Eng 97:2-3 O 1 '21
- Welding galvanized range boilers. Metal Work 92:397 O 3 '19
- Welding large mill engine cylinders. L. M. Malcher. il Foundry 47:908-9 D 15 '19; Same. Iron Tr R 65:1710-11 D 25 '19; Same. Am Mach 52:81-2 Ja 8 '20
- Welding repairs in textile mills. J. F. Springer. il Textile World 57:1845+ Mr 6 '20
- Welding the base of a 250-ton hydraulic press. il Power Pl Eng 25:689-90 Jl 1 '21
- Welding various metals by gas methods. J. F. Springer. diags Textile World 58:2519+ O 9 '20

Cost

- Cost of oxyacetylene welding. A. S. Kinsey. Ry R 69:590 O 29 '21

Safety devices and measures

- Hazards in gas welding and cutting. il Power Pl Eng 24:892-5 S 15 '20

Study and teaching

- Acetylene welding and cutting institute; Davis-Bournonville co., Jersey City, N.J. il Sheet Metal Worker 11:307-10 O 29 '20

Welding, Percussive. See Electric welding**Welding rods**

- How to make cast iron welding rods. il Foundry 48:383 My 15 '20

Welding society, American. See American welding society**Welfare work in industry**

- Artistic roof garden features city factory. A. P. Child. il Pop Mech 33:214-16 F '20
- Building mining cities in South America. H. F. Guggenheim. il Eng & Min J 110:204-10 Jl 31 '20
- Clubhouse brightens lives of miners. il Iron Tr R 68:151 Ja 13 '21
- Common sense attack on turnover. J. R. Adams. il Ind Management 62:298-302 N '21
- Community spirit in small industrial town: Towson Heights, Md. E. A. Hunger. il Iron Age 106:1038-40 O 21 '20
- Compulsory welfare work in England. J. A. Hunter. Textile World 60:1219 Ag 27 '21
- Do things for employees who are sick. F. H. Williams. Am Mach 54:11 Ja 6 '21
- Electric railway and welfare work. J. H. Alexander. il Elec J 18:453-7 O '21
- Factory acts in relation to welfare. Eng & Ind Management 5:604-6 My 26 '21
- Factory restaurant as a service nucleus. S. DeHart. Ind Management 61:338-40 My 1 '21
- Guarding the employee's pocketbook. J. T. Bartlett. Ind Management 61:193-4 Mr 1 '21
- How a country fair helped plant team-work. il Factory 25:226 Jl 15 '20
- How so-called welfare work is handled. Sci Am 123:622+ D 18 '20
- Human factor. Factory 24:748+, 1578+, 1732+, 1924+; 25:600+, 926+, 1818+; 27:700+ Mr 1, My 15-Je 15, Ag 15, S 15, D 1 '20, N '21
- Industrial efficiency promoted through welfare work; Edison electric illuminating co. H. W. Moses. il Elec R 78:73-4 Ja 8 '21
- Industrial welfare at an Indian spinning mill. C. U. Kerr. il Eng & Ind Management 5:524-5 My 5 '21
- Is welfare work accomplishing constructive results? N. G. Shidle. Automotive Ind 43:619-21+ S 23 '20
- Labor maintenance; a practical handbook of employees' service work. D. Bloomfield. 530p Ronald press '20
- Maderia-Hill interests open a community club house for employees and public at the Natalie mine. D. C. Ashmead. il diags plans Coal Age 20:87-92 Jl 21 '21
- Making employes contented; how the Rocky Mount mill employes learned to use and prefer gas. J. M. Baird. il Gas Age 45:370-3 Ap 26 '20
- Making welfare copy believable; advertising that sells the community and gets new workers. R. Dickinson. Ptr Ink 110:169+ Mr 11 '20
- Meeting the boss in his shirt sleeves. J. T. Bartlett. Ptr Ink 110:156+ F 19 '20
- New spirit of co-operation. S. Sayward. il Textile World 57:941+ F 7 '20
- Organizing welfare work. O. E. Perrigo. Am Mach 54:1130-1 Je 30 '21
- Pay gas bills here. E. W. Hulet. il Factory 24:460-3 F 15 '20
- Peculiarities of welfare work. V. E. Burnett. Ind Management 61:439-40 Je '21
- Put it all in the pay envelop. P. H. Clarke. Factory 27:250+ Ag '21
- Recreation helps pay. W. Webb. Textile World 56:3601 D 27 '19
- Recreations in the modern mining community. il plans Eng & Min J 111:379-81 F 26 '21

Welfare work in industry—Continued

- Refinery workers run own athletics without company interference. *il Nat Pet N* 13:51+ O 19 '21
- Safety and welfare work in industrial plants; with discussion. H. A. Schultz. *Eng Soc W Pa* 35:395-426 N '19
- Scientific management; welfare—trade unions. H: Atkinson. *Eng & Ind Management* 6:119-21 Ag 4 '21
- Secure loyalty of employees by proper welfare methods. *il Paper* 28:9-11 Ap 27 '21
- Sinclair companies win in promoting spirit of organization. P. Wagner. *il Nat Pet N* 13:37+ Ja 19 '21
- Social service as applied to the plants of the Louisville cement company. E. J. Heimerdinger. *il Concrete* 19:sup6-8 J1 '21
- Some economic aspects of welfare work. H. P. Carruth. *Paper* 27:12-13 O 27 '20
- Successful northern company that finds the welfare of its employees as important as any other part of the business. *Am Lumberman* 2333:52-3 Ja 31 '20
- University in an industry. E. Kurtz. *Ind Management* 61:191-3 Mr 1 '21
- Welfare bureau of the Edison electric illuminating company of Boston. H. W. Moses. *il N E L A Bul* 7:831-4 N '20
- Welfare in the land of the rising sun. *Am Ind* 21:21-2 Ag '20
- Welfare work and industrial stability. C: E. Fouhy. *Ind Management* 58:413-14 N '19
- Welfare work at an anthracite colliery. D. C. Ashmead. *il diags plans Coal Age* 17:382-5 F 26 '20
- Welfare work at the Homestake mine. B. C. Yates. *il Eng & Min J* 110:198-203 J1 31 '20
- Welfare work in the Coeur d'Alenes. H. W. Power. *il Eng & Min J* 112:295-7 Ag 20 '21
- Welfare work in the steel industry. C. L. Close. *il Blast F & Steel Pl* 8:418-21, 462-5 J1-Ag '20; Same cond. *Iron Tr R* 66:1685-90 Je 10 '20; Abstract. *Iron Age* 105:1599-1601 Je 3 '20
- Welfare work is curtailed at Youngstown. *Iron Age* 105:1735 Je 17 '20
- Welfare work—pseudo, or real. J. C. Davis. *Ind Management* 59:48 Ja '20
- Worker writes about Lord Leverhulme. *Ptr Ink* 110:97-8+ F 5 '20

See also Athletics; Children—Charities, protection, etc.; Company stores; Dental service, Industrial; Employment management; Employment systems; Garden cities; Housing projects, Company; Industrial betterment; Insurance, Industrial; Lunch rooms and cafeterias, Employees'; Medical service, Industrial; Profit sharing; Saving; *also* Penn-American employees' association

Well-point pumping system. *See* Pumping machinery

Welland ship canal

- Canada's great ship canal; the present status and the ultimate plans of the Welland improvement. J. F. Springer. *il map Sci Am* 124:504-5 Je 25 '21
- Progress on new Welland ship canal. *il diags plans (supp) Can Eng* 39:319-30 S 9 '20
- Progress on Welland canal construction. A. J. Grant. *Eng & Contr* 54:487 N 17 '20

Wellesley college, Wellesley, Massachusetts

- Addition to dormitory quadrangle, Wellesley college, Wellesley, Mass. *Arch Forum* 34:pl 40-1 Mr '21

Wells

- Cavity wells in India. *Engineering* 110:168-9 Ag 6 '20; Same. *Eng & Contr* 56:216-17 Ag 31 '21
- Damage to deep wells by sea water. W. P. Mason. *diags Am Water Works Assn J* 8: 59-71; Discussion. 71-4 Ja '21
- Deep wells reclaim desert, Utah. F: Kinney. *il Pop Mech* 33:715-16 My '20
- Deep wells with packed strainers to exclude sand. F. D. Yeaton. *diag Eng N* 86: 895 My 26 '21
- Depletion of ground-water supplies. R. E. Horton. *bibliog diags map Am Water Works Assn J* 8:167-81 Mr '21; Same abr. *Eng & Contr* 55:379-81 Ap 13 '21

- Grouting of wells in rock formations. W. G. Kirchoffer. *Eng & Contr* 54:141-2 Ag 11 '20
- Lining a 20 foot well, 50 feet deep. *Pub Works* 50:507-9 Je 11 '21
- Lowering concrete well pits by caisson method. F. Mansfield. *il Eng & Contr* 55:132 F 9 '21
- Our deepest wells. R. G. Skerrett. *il Sci Am* 122:214+ F 28 '20
- Overhauling the plumbing in an old colonial mansion; making the well. R. J. Gordon. *diags plan Dom Eng* 90:277-80+ F 7 '20
- Percolation and tube wells. *diags Engineering* 111:734-6 Je 17 '21
- Percolation wells in India. *diags Engineering* 110:153-4 J1 30 '20
- Protecting your well against pollution. *diags plan Metal Work* 93:542-3 Ap 30 '20
- Rational method of developing a shallow ground water supply. W. D. P. Warren. *diag Am Water Works Assn J* 7:596-605 J1 '20; Same. *Munic Eng* 58:220-1+ My '20
- Records of water levels in wells in southern California. F. C. Ebert. *U S Geol S Water-supply Pa* 468:1-156, pl 1-2 '21
- Temporary contamination of a deep well supply at Montgomery, Alabama. G. H. Hazlehurst. *Am Water Works Assn J* 7: 171-5 Mr '20; Same. *Can Eng* 38:424-5 Ap 29 '20

Waterproofing a vertical lift well. G: L. Knott. *diags Eng N* 86:607-8 Ap 7 '21

Well pumping in Savannah. *Pub Works* 48:385 My 1 '20

Wells and ground water. *Engineering* 110: 727-9 D 3 '20; Same abr. *Eng & Contr* 56: 200-1 Ag 31 '21; Discussion. *Engineering* 110:803 D 17 '20

Wells and the permeability of soils. *Engineering* 110:856-7 D 31 '20; Same abr. *Eng & Contr* 55:312-13 Mr 30 '21

Wells as a source of supply. *Engineering* 111:161-4 F 11 '21; Excerpt. *Eng & Contr* 55:322-3 Mr 30 '21

See also Artesian wells; Drilling and boring (earth and rocks); Gas, Natural; Petroleum—Well boring; Water, Underground

Testing

Analysis of yield tests made on a percolation well. *diag Engineering* 110:272-3 Ag 27 '20

Capacity characteristics of a deep well. L. W. Cox. *diags Munic Eng* 60:195-7 My '21

Measuring depth to water in well. C: Brossman. *il diag Munic Eng* 61:34 J1 '21

Well tests—the basis for pump selection. G: M. Shepard. *Munic Eng* 59:137-8 O '20

Wells, Artesian. *See* Artesian wells

Wesley foundation. *See* Illinois. University—Wesley foundation

West

West is growing more rapidly than the rest of the United States. *J Elec* 46:599 Je 15 '21

See also Electric industries—Western states; Electric plants (central stations)—Western states; Pacific coast

Economic conditions

Basic role of electricity in western growth. *il map (supp) J Elec* 46:597-8 Je 15 '21

Economic competition between the West and East. J. W. Beckman. *J Elec* 46:445-8 My 1 '21

Place of the electrical industry in the West. *maps J Elec* 46:600-3 Je 15 '21

West Baden, Indiana**Hotels**

Artistic lighting of a large interior. J. R. Cravath. *il diags Elec W* 75:939-41 Ap 24 '20

West coast lumbermen's association

3d annual Shingle congress. Seattle, Wash., Dec. 10-11. *Am Lumberman* 2327:43-6 D 20 '19

West Indies**Industries and resources**

Industrial and agricultural chemistry in the British West Indies, with some account of the work of Sir Francis Watts, imperial commissioner of agriculture. C. A. Browne. *il J Ind & Eng Chem* 13:78-83 Ja '21

West Jersey & Seashore railroad

Changes from deficit in 1918 to a profit in 1919. *Elec Ry J* 57:54 Ja 1 '21

Old New Jersey railroad loses its name and identity. *Ry R* 66:1072 Je 19 '20

25th annual report—year ending Dec. 31, 1920. *Comm & Fin Chr* 113:1883 sec 1 O 29 '21

West Penn power company

Electrical features of Springdale plant. G. S. Humphrey. *diags map Elec W* 76:1115-18, 1165-7 D 4, 11 '20

Generating plant at the mouth of coal mine. G. G. Bell. *il diags Elec W* 76:625-9, 733-5 S 25, O 9 '20

Generating system of the West Penn power company. G. G. Bell. *il diags Elec J* 18:175-89 My '21

Industrial field of the West Penn power company. G. H. Gadsby. *Elec J* 18:189-93 My '21

Transmission system of the West Penn power company. G. S. Humphrey. *il diag maps Elec J* 18:169-75 My '21

West Virginia

See also Coal mines and mining—West Virginia; Electric plants (central stations)—West Virginia

West Virginia accountants association

West Virginia accountants organize. *Coal Age* 17:356 F 19 '20

West Virginia coal mining institute

Semi-annual session, Huntington, W. Va. *Coal Age* 17:1217-20 Je 10 '20

24th semi-annual meeting, Huntington, Dec. 1-2. R. D. Hall. *Coal Age* 16:826-8 N 27 '19

West Virginia coal mining institute meets in Fairmont, June 7-8. *il Coal Age* 19:1119-23 Je 23 '21

West Virginia—Kentucky association of mine, mechanical and electrical engineers

1st annual meeting, Huntington, W. Va., Sept. 20-24. R. D. Hall. *Coal Age* 20:505-7, 537-9 S 29-O 6 '21

West Virginia metal products corporation

New plant of the corporation. *il Metal Ind* 18:543-8 D '20

Western association of electrical inspectors

15th annual convention, St Louis, Jan. 27-29. *Elec W* 75:284-5 Ja 31 '20; *Elec R* 76:194-6, 239-41 Ja 31-F 7 '20

16th annual meeting, Detroit, Jan. 25-28. *Elec R* 78:185-6, 226-8 Ja 29-F 5 '21

Western electric company

Report to stockholders, 1919. *Comm & Fin Chr* 110:1322-3 Mr 27 '20

Report to stockholders for the year ending December 31, 1920. *Comm & Fin Chr* 112:1306-8 Mr 26 '21

Western Pacific railway

Will investigate relations of Western Pacific. *Ry Age* 71:111-12 Jl 16 '21

Western retail lumbermen's association

16th annual meeting, Boise, Idaho, Feb. 21. *Am Lumberman* 2337:58-62 F 28 '20

Western society of engineers

Annual dinner, Chicago, Jan. 28. *Power* 51:239-40 F 10 '20

Engineers' trust. A. S. Baldwin. *W Soc E J* 25:153-8 Mr 5 '20

50th anniversary, June 27-28. *W Soc E J* 24:467-8 O '19

List of members and officers. 159p *Western society of engineers*, 1735 Monadnock blk., Chicago '21

Résumé of the activities of the Society. E. S. Nethercut. *W Soc E J* 24:469-77 O '19

Western union telegraph company

Annual report; 1919. *Comm & Fin Chr* 110:1431-2 Ap 3 '20

Annual report for the year ended December 31, 1920. *Comm & Fin Chr* 112:1526-7 Ap 9

Report and accounts for the year 1920. *Electrician* 87:92-3 Jl 15 '21

Structural and electrical features of the new Western union telegraph building, Chicago.

E. M. Fisk. *il diags plans W Soc E J* 26:86-115 Mr '21

Westinghouse air brake company, Wilmerding, Pennsylvania

Programs of apprenticeship and special training in representative corporations. J.

V. L. Morris. *Am Mach* 54:1081-3 Je 23 '21

Westinghouse electric and manufacturing company

Graduate student course at Westinghouse electric and manufacturing company. E. B.

Roberts. *Sibley J* 34:9-10 Mr '20

Programs of apprenticeship and special training in representative corporations. J.

V. L. Morris. *il Am Mach* 53:847-52 N 4 '20

Westinghouse 1920 engineering accomplishments. H. W. Cope. *il Elec R* 78:23-6 Ja 1 '21

Year's achievements of Westinghouse company. *il Elec R* 76:28-32, 65-8 Ja 3-10 '20

Westminster Abbey

Proposed restoration of Westminster Abbey. *il Am Arch* 118:208-10 Ag 18 '20

Westminster Hall, London

Entomology and architecture. *Am Inst Arch J* 9:182-3 My '21

Whale meat

Whale meat to the rescue of h.c.l. victims. A. A. Hopkins. *il Sci Am* 122:167 F 14 '20

Whales

Kid gloves from whale intestines. L. W. Pedrose. *il Pop Mech* 35:169-72 F '21

Stranded school of whales and what it means. H. J. Shepstone. *il Sci Am* 122:461+ Ap 24 '20

Wharves

Combination quay and pier built in restricted space at Castle Point, Hoboken, N.J. *il diags plan Eng N* 86:1074-6 Je 23 '21

New wharf-paving method is tried in Cincinnati. *il Pop Mech* 35:393 Mr '21

Quay design for ocean, lake, inland river and canal terminals. H. M. Harding. *il diag plan Int Marine Eng* 25:182-7 Mr '20

Quays more economical than piers for comprehensive port. F. T. Chambers. *diags plans Eng N* 85:556-8 S 16 '20

Quays vs. piers for ports. *plans Eng N* 85:665-6 S 30 '20

Special quay wall for shores which require filling. *il diags plan Eng N* 85:658-9 S 30 '20

Varying river water levels necessitate floating wharf. *il Pop Mech* 36:339 S '21

See also Bulkheads; Docks; Piers

Wharves, Concrete

Armstrong shipyard. *diags plan Engineering* 109:434-7 Ap 2 '20

Hell Gate power house tunnel and wharf. *il diags plan Pub Works* 51:213-15, 236-8 S 17-24 '21

Murs de quai en pieux-palplanches en béton armé. C. Dantin. *il diags Génie Civil* 76:425-7 My 8 '20

Quay wall construction with reinforced concrete sheet piles. *diags Eng & Contr* 55:318-19 Mr 30 '21

Reinforced concrete for wharves and breakwaters. G. FitzGibbon. *Engineering* 112:73 Jl 8 '21; *Discussion. Engineering* 132:31 Jl 8 '21; *Engineering* 112:40-2 Jl 8 '21

Reinforced concrete pile wharf. A. C. Weston. *diag Eng & Contr* 56:207 Ag 31 '21

Reinforced concrete wharf and bridge in Honduras. W. J. Riggs. *il Concrete* 19:157-60 O '21

Retaining walls for Toronto, Ont. harbor development. E. L. Cousins. *diags Eng & Contr* 55:258-9 Mr 16 '21

Wheat

Canada's wheat crop increases 100,000,000 bushels in 1920. *Comm & Fin Chr* 111:2013 sec 1 N 20 '20

Cost of producing wheat. *Comm & Fin Chr*

Wheat—Continued

- Increasing the protein content of wheat. W. F. Gericke. *Sci Am M* 3:77 Ja '21
- Laboratory control of wheat flour milling. B: R. Jacobs and O. S. Rask. *J Ind & Eng Chem* 12:899-903 S '20
- Setting federal wheat standards. G: H. Dacy. *il Sci Am* 123:445 O 30 '20
- Warm bath for wheat. C. C. Crain. *il Sci Am* 121:579 D 13 '19
- What about our wheat production?; suggestion as to how we may produce more by producing less. H. A. Crafts. *Sci Am* 123:376+ O 9 '20
- See also* Flour; Shredded wheat; Wheat trade; also Northwest wheat growers, associated; Spring wheat crop improvement association

Prices

- High winter wheat costs in 1920. *Comm & Fin Chr* 113:1844 sec 1 O 29 '21
- Report of the Federal trade commission on wheat prices for the 1920 crop. 91p U.S. Federal trade commission, Washington, D.C.

Wheat trade

- Federal trade commission's advices to President Wilson on wheat situation. *Comm & Fin Chr* 111:2477-8 D 25 '20
- Should we smash the exchanges? *il Nation's Business* 8:32-4 D '20
- What's behind the wheat strike. R. Yarnell. *Nation's Business* 9:32-4 F '21

Wheatstone bridge

- Universal inductance and capacity testing bridge. C. V. Drysdale. *il diags Electrician* 84:80-2, 108-9 Ja 23-30 '20

Wheatsworth biscuit

- How Wheatsworth biscuit displaced entire line of crackers. E: T. Tandy. *Ptr Ink* 113:58+ O 14 '20

Wheeler, Clifton H.

- Sketch. T. Roberts. *por Power Pl Eng* 24:327-8 Mr 15 '20

Wheeler, Schuyler Skaats, 1860-

- Portrait. *Elec W* 76:768 O 16 '20

Wheels

- Bill makes some sheave wheel rigging. P. Dwyer. *diag Foundry* 48:564-6 Jl 15 '20
- Single-disc metal wheels. A. L. Putnam. *Soc Auto Eng J* 7:437; Discussion. 442-5 N '20
- See also* Automobiles—Wheels; Axles; Car wheels; Electric railroads—Trolley wheels; Flywheels; Gearing; Grinding wheels; Hand-wheels; Locomotives—Wheels; Motor trucks—Wheels; Pulleys; Tires; Tractors—Wheels; Turbines; Water wheels; Windmills

Manufacture

- Follow-die for eight-spoke wheel. H. W. House. *diags plans Mach* 27:790-1 Ap '21
- Improved method of making steel gear and wheel blanks. G: A. Richardson. *il diags Am Mach* 54:981-4 Je 9 '21
- Precision wheel-truing machine. *il Am Mach* 54:531 Mr 24 '21
- Les roues en fonte trempée; fabrication, propriétés et usages. E. P. Polushkin. *il diags Génie Civil* 78:173-7 F 19 '21

Wheels, Steel

- Production of pressed steel wheels is successfully accomplished. J. E. Schipper. *il Automotive Ind* 45:668-71 O 6 '21

Wheelwright, Jere H.

- Sketch. *por Coal Age* 17:232-3 Ja 29 '20

Whey

- Relations of hydrogen-ion concentration to the heat coagulation of proteins in Swiss cheese whey. Y. Okuda and H. F. Zoller. *J Ind & Eng Chem* 13:515-19 Je '21

Whistles

- Whistle operator. *il Marine R* 50:46 Ja '20

White, James Gilbert, 1861-

- Portrait. *Elec W* 76:720 O 9 '20

White

See also Satin white

White ants. See Termites**White arsenic. See Arsenic trioxide****White Eagle oil & refining company**

- Report. *Comm & Fin Chr* 110:2683-4 Je 26 '20

White House

- Roosevelt and the fine arts; restoration of the White House. G. Brown. *Am Arch* 116:739-52 D 17 '19

White lead

- Lead paint for wood and metal. J. S. Springer. *il Gas Age* 47:137-9 F 25 '21
- Modification of the Thompson method for the determination of acetic acid in white lead. L. McMaster and A. E. Goldstein. *J Ind & Eng Chem* 12:170-1 F '20
- New British laws for white lead. *Oil Paint & Drug Rep* 100:25 sec 1 Ag 15 '21
- Porcelain white lead. E. Euston. *J Ind & Eng Chem* 12:974-5 O '20
- Recommended specification for basic carbonate white lead, dry and paste. *U S Bur Stand Circ* 84:1-10 '19
- Recommended specification for basic sulphate white lead, dry and paste. *U S Bur Stand Circ* 85:1-11 '20
- White lead and oxides in 1919. *Eng & Min J* 109:182 Ja 17 '20
- White lead ban approved by brotherhood of painters. *Oil Paint & Drug Rep* 100:23 sec 1 S 19 '21
- White lead in painting. *Engineering* 112:323-4 Ag 26 '21; Same. *Engineer* 132:521-2 N 11 '21; Discussion. A. S. Jennings. *Engineering* 112:451 S 23 '21
- White lead question. *Am Inst Arch J* 9:284 Ag '21

White metal. See Babbitt metal**White motor company, Cleveland, Ohio**

- Increasing production without a bonus. F. H. Colvin. *Am Mach* 52:869-71, 1041-4 Ap 22, My 13 '20
- Labor policy of the White motor company. R. T. Solensten. *Ind Management* 59:330-2 Ap '20

White oil corporation

- Official statement to the New York stock exchange in connection with the listing of its capital stock without nominal or par value. *Comm & Fin Chr* 111:1760-4 O 30 '20

Whitehead, Robert F.

- New commissioner of patents. *por Sci Am* 123:183 Ag 21 '20

Whitley plan. See Industrial councils**Whitney, Amos, 1832-1920**

- Sketch. *por Mach* 27:19-20 S '20

Whitney, Willis Rodney, 1868-

- Perkin medalist, 1921. A. D. Little. *por J Ind & Eng Chem* 13:158-60 F '21
- Portrait. *Elec W* 77:636 Mr 19 '21
- Presentation of Perkin medal to Willis R. Whitney. *por Chem & Met Eng* 24:99-107 Ja 19 '21

- Presented with Chandler medal. *Chem & Met Eng* 22:863 My 5 '20

Whittling. See Woodwork**Wholesale coal trade association of New York, Inc.**

- Need of organization by coal trade. C: S. Allen. *Coal Age* 19:124 Ja 20 '21

Wicker weaving. See Basketwork**Wildcat stocks. See Securities****Wilkinite**

- Wilkinite, a new loading material. S. D. Wells. *Paper* 27:19-21+ D 8 '20

Will o' the wisp

- Will o' the wisp—ignis fatuus—irrlichter—feux follet. R. D. Whitney. *Sci Am M* 1:390-1 My '20

Willamette iron and steel works

- Willamette's war work. F. H. Colvin. *il Am Mach* 54:105-7 Ja 20 '21

Willans law

- Economy characteristics of the steam turbines. A. C. Flory. *Elec R* 76:724-6 My 1 '20

Williams, Arthur, 1868-

- Portrait. *Elec W* 77:188 Ja 22 '21

- Williams, Walter**
Printer-educator. C: S. Brown. por Inland Ptr 64:447-8 Ja '20
- Willow, Basket**
Where willow ware comes from. G: H. Dacy. il Sci Am 123:222+ S 4 '20
- Wilson, E. B. and company**
Short histories of famous firms; The railway foundry, Leeds. E. L. Ahrons. il diags Engineer 130:369-72 O 15 '20
- Wilson, William B.**
Keeping the peace with labor. M. H. Wiseman. Ind Management 59:177-83 Mr '20
- Wilson, Woodrow**
House of ex-president Woodrow Wilson, Washington, D.C. Arch Forum 34:pl 37-9 Mr '21
- Winches**
Double drum motor truck power winch. diag Automotive Ind 45:356 Ag 25 '21
Electric car hauling winch. il Iron Age 105:1018 Ap 8 '20; Iron Tr R 66:1003 Ap 1 '20; Foundry 48:376 My 1 '20; Ry Mech Eng 94:308-9 My '20
Electrically-driven 3-ton cargo winch. il Engineering 110:599 N 5 '20
Lidgerwood steam balloon winch. Aviation 8:205-6 Ap 1 '20
Motor-winch with 7-horse-power paraffin engine. il diags Engineering 112:25 Jl 1 '21
Shepard electric car-hauling winch. il Ry Age 68:1452 My 21 '20
Special winch for road tractor. il Eng & Contr 55:219 Mr 2 '21
- Winchester repeating arms company, New Haven, Connecticut**
Dealer advertising to bridge the summer valley. R. Dickinson. Ptr Ink 115:41-2+ Je 23 '21
Programs of apprenticeship and special training in representative corporations. J. V. L. Morris. il Am Mach 55:131-3 Jl 28 '21
Winchester arms co. invades chain store field. Ptr Ink 110:17-18 Ja 8 '20
- Wind. See Winds**
- Wind bracing**
Wind bracing diagram and typical wind bracing details, the Metropolitan annex, New York city. Am Arch 118:834 D 22 '20
Wind bracing in the steel frames of office buildings. W. M. Wilson and F. E. Richart. diags Eng & Contr 53:314-16 Mr 24 '20
- Wind motors. See Windmills**
- Wind power**
Maximum theoretically possible utilization of wind in wind motors; abstract. A. Betz. Mech Eng 43:203 Mr '21
L'utilisation pratique de la force motrice du vent; abstract. Basiaux. Génie Civil 78:428 My 14 '21
Wind motors; their possibilities and limitations. F. C. Poulton. Sci Am S 88:286-7 N 15 '19
Wind power. I. M. Mayersohn. Engineering 110:769 D 10 '20; Same. Sci Am M 3:242 Mr '21
See also Windmills
- Wind pressure**
Chimneys—practical features of design. T. Croft. diags Power 53:257-60 F 15 '21
Determination of the pressure law for wing surfaces. S. E. Slocum. Aerial Age 11:188-9+ Ap 19 '20
Steel transmission line towers; loading and wind pressure on towers and lines. E. F. Gemmill. il Elec R 76:385-90 Mr 6 '20
Wind loads on miscellaneous structures; billboard, sky signs, fences and walls, traveling cranes, etc. R. Fleming. Eng N 85:66-8 Jl 8 '20
Wind pressures and the design of radio and high transmission towers. S. P. Wing. il plan Electrician 87:6-10 Jl 1 '21
Wind stresses in mill building bents. F. E. Richart and W. M. Wilson. diags Eng & Contr 53:477-9 Ap 28 '20
See also Air resistance; Anemometer; Wind bracing

Wind scoops (for ships)

- Developing a pattern for a metal wind scoop. diags Sheet Metal Worker 11:250 O 1 '20

Wind tunnels

- Aerodynamic experimental station at Göttingen. diags Engineering 112:218-20 Ag 5 '21
Description of apparatus for measurement in a wind tunnel of the performance of an airscrew or the windage torque of a rotary engine. A. Page, H. E. Collins and T. H. Fewster. diags Aerial Age 11:118+ Ap 5 '20
Description of the McCook field wind tunnel. il Aerial Age 13:319-21 Je 13 '21
Design of wind tunnels and wind tunnel propellers. F. H. Norton and E. P. Warner. il diags U S Nat Advisory Com for Aeronautics 1920:473-80 '21
Design of wind tunnels and wind tunnel propellers. E. P. Warner, F. H. Norton and C. M. Herbert. il diags U S Nat Advisory Com for Aeronautics 1919:651-70 '20
Efficiency of a wind tunnel. G: De Bothezat. U S Nat Advisory Com for Aeronautics 1920:100-3 '21
Horizontal buoyancy in wind tunnels. A. F. Zahm. Aerial Age 12:298-9 N 22 '20
National advisory committee's 5-ft. wind tunnel. F. H. Norton. il diags Soc Auto Eng J 8:489-95 My '21
New method of testing models in wind tunnels. W. Margoulis. Aerial Age 14:58-61 S 26 '21
New type of wind tunnel. M. Munk. Aviation 11:162-3 Ag 8 '21
Physical basis of air-propeller design—study of flight vortices; abstracts. F. W. Caldwell and E. N. Fales. il charts diags Mech Eng 42:213-19+ Ap '20; Engineering 109:501-4, 534-7 Ap 16-23 '20
Propeller testing laboratory at McCook field. F. W. Caldwell. il diags Sci Am M 1:197-201 Mr '20
Recording instrument for use in wind tunnels. A. A. Merrill. il diags Aviation 8:190-1 Ap 1 '20
Report on German wind tunnels and apparatus. E. P. Warner. diags Aerial Age 12:275-7, 298 N 15-22 '20; Excerpts. Aviation 9:258-61 N 8 '20
Résumé of wind tunnel tests of airship envelopes. J. C. Hunsaker. Aviation 7:393; 8:110 D 1 '19, Mr 1 '20
Static pressure gradients in wind tunnel work. J. G. Coffin. diags Aviation 8:317-18 My 15 '20
Velocity determination in McCook field wind tunnel. Aerial Age 13:542 Ag 15 '21
Wind tunnel and airship model testing. R. N. Wing. Aviation 9:56-8 Ag 15 '20
Wind tunnel in aerodynamic phenomena at high speed. F. W. Caldwell and E. N. Fales. il diags U S Nat Advisory Com for Aeronautics 1920:59-99 '21
Wind tunnel test stations. Aviation 10:235 F 21 '21
Wind tunnels and airplane designs. il Sci Am 121:558 D 6 '19
With model basin and wind-tunnel; how our naval constructors check up their designs by means of miniature hulls and model airplanes. il Sci Am 125:82 Jl 30 '21
Zeppelin aerodynamical laboratory. Aerial Age 13:472 Jl 25 '21
See also Aerodynamic laboratories
- Windbalance. See Aerodynamic balances**
- Winding**
Thread winding meter. il Textile World 60:691 Jl 30 '21
Winding as related to the textile industry. G: W. Foster. Mech Eng 43:594-6 S '21; Same abr. Textile World 59:2559+ Ap 16 '21
- Winding machines**
Card wrapping machines; multiple spindle devices for mending yarn, sample cards, etc. il Textile World 58:1187+ Ag 21 '20
New winding and warping machinery. il Textile World 60:467+ Jl 16 '21
- Windlass. See Winches**

Windmills

- Harnessing the wind to make electricity for farm. diag Elec R 79:662 O 29 '21
- Maximum theoretically possible utilization of wind in wind motors; abstract. A. Betz. Mech Eng 43:203 Mr '21
- Novel windmill unaffected by wind direction. il Pop Mech 36:323 S '21
- Power from the thermocouple and wind motors. L. G. Hall. Sci Am 123:521 N 20 '20
- Regulating the stroke of the windmill. il Sci Am 124:214 Mr 12 '21
- Still another scheme for harnessing the wind. il Sci Am 123:552 N 27 '20
- Wind motors; their possibilities and limitations. F. C. Poulton. Sci Am S 88:286-7 N 15 '19
- Wind power. I. M. Mayersohn. Engineering 110:769 D 10 '20; Same. Sci Am M 3:242 Mr '21
- Windmill power plant for the amateur's workshop. F. E. Leitch. diags Pop Mech 34:632-3 O '20
- Windmills, picturesque and historic: the motors of the past. F. H. Shelton. diags Arch & Bldg 52:17-22, 29-34 F-Mr '20

Window cards. See Show cards

Window seats

Window seats. il Bldg Age 43:57 Je '21

Window shades

Test of conductivity of window shades. J. R. Allen. diags Am Soc Heat & V E 25:171-3 '19

Windows

- Carved window of San José. I. T. Frary. il Arch Rec 47:286-7 Mr '20
- Construction of cellar windows and methods of making them water-tight. A. B. Greenberg. diags plan Bldg Age 41:406-7 D '19
- Double hung windows in masonry walls and construction of lintels, jambs, etc. A. B. Greenberg. diags Bldg Age 42:58-9 F '20
- Early architecture of Pennsylvania; windows and shutters. A. L. Kocher. il diags plan Arch Rec 49:518-35 Je '21
- Facts about windows. il diags Bldg Age 43:58-9 Jl '21
- How to lay a brick bay window. diags plan Bldg Age 43:30 Je '21
- Stain for glass windows. J. H. Van Nice. Pop Mech 33:135 Ja '20
- Transmission of heat through single-frame double windows. A. N. Shaw. il Am Soc Heat & V E J 26:773-86 D '20; Discussion. 27:206-7 Mr '21
- View and detail of window on stair landing, house of Chas. LeB. Homer, Philadelphia; Pa. Bldg Age 42:47 F '20
- Window in the Palazzo Piccolomini, Siena, measured and drawn by Robert M. Blackall. il diags Am Arch 120:114-15 Ag 17 '21
- See also Blinds; Glass; Ships—Windows; Show windows; Skylights; Stained glass

Winds

- Explanation of peculiarities observed in flying in the wind. J. G. Coffin. diags Aviation 7:381-5 D 1 '19
- See also Cyclones; Tornadoes

Windwheels

- Paradoxical windwheels and soaring birds. T. O. Perry. il Sci Am M 1:205-7 Mr '20

Wine

- Produits vinicoles et exportation. L. Mathieu. Chimie & Ind 3:253-61 F '20

Analysis

- Acidimetry of red wines and fruit juices. A. M. Macmillan and A. Tingle. J Ind & Eng Chem 12:274-6 Mr '20

Wine, Dealcophilized

- Divides product and discovers parts are greater than whole; Garrett & co.'s Virginia Dare products. M. Hussobee. Ptr Ink M 2:37-8+ F '21

Wing, John Mansir, 1845-1917

- John M. Wing foundation of the Newberry library. E. E. Sheldon. por Inland Ptr 65:199-200 My '20

Wingdale, New York**Prison**

- Features of the mechanical equipment of the Wingdale prison buildings. G. B. Nichols. diags plans Am Arch 117:57-66 Ja 14 '20

Winnetka, Illinois

- Community center developments; the North shore suburbs of Chicago. plan Am Arch 118:272, 274, 275 S 1 '20

Winnipeg, Manitoba

- Flood prevention projects to protect Winnipeg. D. L. McLean. diag map Can Eng 38:333-5 Ap 1 '20

Parliament building

- Mechanical equipment of the new Manitoba parliament building. il Heat & Ven 18:29-31 Je '21

Water supply

See Winnipeg aqueduct

Winnipeg aqueduct

- Alkali damages part of Winnipeg concrete aqueduct. diags plan Eng N 84:1097-8 Je 3 '20

Basic principles used in the designs for the new water supply works of Winnipeg, Manitoba. J. H. Fuertes. diags plans Am Water Works Assn J 7:693-748 S '20; Same. Pub Works 49:1-5, 37-40, 58-60, 86-7, 219-22, 235-6, 257-9, 279-81 Jl 3-24, S 4-25 '20; Excerpts. Can Eng 39:153-6, 265-7+ Jl 15, Ag 19 '20; Excerpt. Eng & Contr 54:361-2 O 12 '20

City without water; how Winnipeg brought water 100 miles across a barren plain. J. F. Springer. il Sci Am 124:350+ Ap 30 '21

Construction features of the water works of the greater Winnipeg water district. W. G. Chase. il Am Water Works Assn J 7:931-49 N '20; Same cond. Pub Works 49:95-8, 150-2, 171-2 Jl 31, Ag 14-21 '20; Excerpts. Can Eng 39:156-7 Jl 15 '20

New Winnipeg waterworks. F. W. Skinner. diags plan Engineering 112:589-91, 621-4 O 28-N 4 '21

Underdrainage for preventing alkali action on Winnipeg aqueduct. diag Eng & Contr 56:267 S 14 '21

Winston, W. O., 1853-

W. O. Winston heads Associated general contractors. por Eng N 86:235 F 3 '21

Winter

What about the old-fashioned winter? J. M. Bird. Sci Am 122:253+ Mr 6 '20

Winter construction

Is municipal construction feasible in winter? W. C. Clark. Can Eng 39:418-20 O 7 '20; Same. Eng & Contr 54:472-4 N 10 '20

See also Concrete construction in winter

Wire

- Baking steel wire in ovens. il Iron Age 105:1169-70 Ap 22 '20; Same. Blast F & Steel Pl 8:291-3 My '20; Same. Iron Tr R 66:1340-1 My 6 '20; Same. Elec W 76:193-4 Jl 24 '20; Same. Chem & Met Eng 23:295 Ag 18 '20
- Bismuth wire manufactured in the United States. Pop Mech 36:236 Ag '21

Diamond dies for wire drawing. C. W. Busick. il diags Am Mach 55:703-5 N 3 '21

Effect of zinc plating on the physical properties of streamline wire. Aerial Age 13:368-9 Je 27 '21

Electric wire hardening and tempering plant. il diags Engineering 111:76, 78 Ja 21 '21

Heat treatment by electricity for wire drawing. il Elec R 76:947-8 Je 5 '20

Improved methods of making brass and copper wire. L. Wolffgram. Metal Ind 19:3 Ja '21

Making brass rods and wire illustrated. O. A. Kenyon. il Iron Age 105:1437-40 My 20 '20

Manufacture of copper wire and strand. R. Kennard. il Elec J 18:361-4 Ag '21

Modern process of drawing wire. L. D. Granger. Blast F & Steel Pl 8:661-3 D '20

Wire—Continued

- Output of coated wire gains 177 per cent. Iron Tr R 69:371-2 Ag 11 '21
- Pioneer in the manufacture of wire. Iron Age 104:1173-4 D 11 '19
- Seven centuries of brass making; phonoelectric wire—brass and copper tubes. O. A. Kenyon. il Am Mach 53:1033-9 D 2 '20
- Seven centuries of brass making; sheet brass—extruded rods and wires. O. A. Kenyon. il Am Mach 53:1133-6 D 16 '20
- Steel wire and wire drawing. E. A. Atkins. il diags Engineering 109:731-4, 749-52 My 28-Je 4 '20
- Wire and sheet gauge tables. T. Stobbs, comp. 2d ed. Spon '20
- Wire; Census bureau's summary concerning the industry—1919. Sibley J 35:124-5 S '21
- Wire drawing. K. B. Lewis. Iron Age 107:1607 Je 16 '21
- Wire production falls short of demand. Iron Tr R 68:89 Ja 6 '21

See also Cables; Electric wire and wiring; Trolley wire

Prices

- Copper wire costs and contributing metals' prices, 1901-1920. Elec W 77:907-8 Ap 16 '21

Specifications

- Proposed tentative specifications for cold-drawn steel wire for concrete reinforcements. Blast F & Steel Pl 9:502-3 Ag '21
- Standard specifications for hard-drawn copper wire; English and French. diags U S Bur For & Dom Com Industrial Standards 135:1-22 '21
- Standard specifications for soft or annealed copper wire; English and French. U S Bur For & Dom Com Industrial Standards 137:1-16 '21

Testing

- Chart for testing steel wire. E. H. Webb. Iron Age 105:1066-7 Ap 8 '20
- Charts for testing steel and steel wire. H. M. Brayton. Iron Age 105:20-2 Ja 1 '20

Wire cloth

- Fence of wire cloth retains hydraulic fill. R. R. Lundahl. il diags Eng N 87:317 Ag 25 '21

Wire fence**Advertising**

- Damage weeds do—a wire fence advertisement. J. T. Bartlett. Ptr Ink 111:73-4+ Je 17 '20

Wire glass

- Corrugated wire glass roofs. il diags Bldg Age 43:61-2 Ag '21
- Wire glass as a fire retardant. M. L. Carr. Metal Work 93:452-3 Ap 9 '20

Wire rods

- Wire rod prices at Pittsburgh for eighteen years, 1902-1919. Iron Age 105:45 Ja 1 '20
- Wire rod prices at Pittsburgh for eighteen years, 1903-1920. Iron Age 107:58 Ja 6 '21

Wire rope

- Corrosion in wire ropes. Iron Age 105:942 Ap 1 '20
- Development of the wire rope. G. W. Westgarth. diags Eng & Ind Management 5:585-6 My 19 '21
- Effects of acid on wire rope. Eng & Contr 53:573 My 19 '20
- How to prolong working life of wire rope. Eng & Contr 53:684-5 Je 16 '20; Same cond. Concrete 17:sup51 O '20
- McCabe sleeve. I. E. McCabe. il Aviation 9:60-2 Ag 15 '20
- Manila and wire rope. Power Pl Eng 25:115-18 Ja 15 '21
- Power transmission by wire rope. A. J. Dixon. diags Power 53:893-6 My 31 '21
- Relèvement de la durée et de la sécurité des câbles de mine par l'amortissement des efforts de torsion; attelage de cage antitor-sion. M. Durnerin. diag Génie Civil 78:235-7 Mr 12 '21
- Safe practice in using wire ropes in mines. R. H. Kudlich and O. P. Hood. U S Bur Mines Tech Pa 237:1-11 '19; Same. Eng & Contr 52:697-9 D 17 '19

- Strength and other properties of wire rope. J. H. Griffith and J. G. Bragg. il diags U S Bur Stand Tech Pa 121:1-80 '19
- Wire ropes in contract work. Munic J 47:281-2 N 8 '19
- Wire ropes research. diag Mech Eng 43:47 Ja '21; Same. Sci Am M 3:91-2 Ja '21
- See also Cables

Lubrication

- Wire rope lubrication is field almost untouched by jobbing trade. il Nat Pet N 13:67+ My 18 '21

Manufacture

- Manufacture of wire rope. C. King. il Blast F & Steel Pl 9:196-7 Mr '21

Wire rope fastenings

- Reserve strength of elevator ropes. W. Voigtlander. il diags Power 52:115-16 Jl 20 '20
- Socketing hoisting cables. A. H. Halladay. diag plan Power 52:474, 872 S 21, N 30 '20
- Socketing hoisting ropes with zinc. R. V. Ageton. il Eng & Min J 112:219-20 Ag 6 '21
- Wire rope fastening. Pub Works 50:64 Ja 15 '21

Wire stitchers

- Characteristics of wire stitching through paper. H. G. Allen. diags Sibley J 35:43-51 Mr '21

Wire wrapping machine

- Edstrom wire wrapping machine. Aviation 7:473-4; 8:64 Ja 1, F 15 '20
- Making eyes on airplane cables. il Automotive Ind 42:453 F 12 '20

- Wired wireless. See Telegraph, Carrier current; Telephone, Carrier current

Wireless antennae

- Better antennas. D. W. Richardson. diags Wireless Age 8:36-7 S '21
- Cage antenna and counterpoise ground; prize essays. diags Wireless Age 8:25-7 Jl '21
- Capacitance of flat top antennae. W. H. Eccles. Electrician 86:72 Ja 14 '21
- Concealed loop aerial. F. L. Brittin. diags Pop Mech 36:315 Ag '21
- Construction of radio aeriels. F. L. Brittin. Pop Mech 36:635 O '21
- New coil antenna. diag Wireless Age 8:22 N '20
- New type of condenser antenna. S. R. Winters. il diags Wireless Age 8:11-14+ Ap '21
- Radiation resistance of various types of antenna construction. A. Press. diags Inst E E J 59:439-42 Ap '21
- Radiotelegraphy by antenna or loop aeriels. Engineering 109:467-8 Ap 9 '20
- Superlative in loop antennae. il Sci Am 124:29 Ja 8 '21
- Theory of antenna resistance. W. H. Eccles. diag Electrician 84:370 Ap 2 '20

Wireless apparatus

- Arc generator as an engineering mechanism. il diags Electrician 85:648-51 D 3 '20
- Automatic signal recorder. S. R. Winters. il Wireless Age 8:14-15 S '21
- Biotron: a new device having negative-resistance characteristics. J. Scott-Taggart. diag Elec R (Lond) 89:450 S 30 '21; Same. Engineering 112:585 O 21 '21
- Bombing the radio-controlled Iowa. Aerial Age 13:303 Je 6 '21
- Control means for vacuum tube generator. diags Wireless Age 8:19-20 Ap '21
- Controlling the amplitude of radio frequency continuous oscillations. diags Wireless Age 7:20-1 Je '20
- Data and tests on 10000 cycle per second alternator. B. G. Lamme. diags Elec J 18:132-6 Ap '21
- Desk cabinet for radio apparatus. F. L. Brittin. il diags Pop Mech 35:463-4 Mr '21
- Development of radio generators for the army and navy. F. I. Hiss. il Am Inst E E J 39:1049-51 D '20
- Direction and position finding. H. J. Round. diags Engineering 109:108-12, 161-4 Ja 23-30 '20; Same. Inst E E J 58:224-47; Discussion. 247-57 Mr '20

Wireless apparatus—Continued

- Direction-finding wireless. J. J. Bennett. il diags Engineering 112:333-5 S 2 '21
- Disturbances to electric service from X-ray and radio outfits. G. M. Gadsby. Elec W 78:71 JI 9 '21
- Double-anode rectifier and generator. diags Wireless Age 8:20-1 D '20
- Duplex wireless system. diag Wireless Age 7:21-2 Ja '20
- Electron power tubes and some of their applications. W. C. White. il diag Gen Elec R 23:514-26 Je '20
- Epoch making radio inventions of Fessenden. S. M. Kintner. Elec J 18:111-12 Ap '21
- Errors of direction-finders. E. Bellini. diags Electrician 86:220-2 F 18 '21; Same. Sci Am M 3:451-3 My '21
- Explanation of the principles underlying radio telegraphy and telephony. Sci Am M 2:177-8 O '20
- Generators for wireless telegraphy. K. Schmidt. Elec W 77:1383 Je 11 '21; Same. Sci Am M 4:103 Ag '21
- Heising's modulation method. diag Wireless Age 8:20-1 N '20
- High-frequency resistance of wires and coils. G. W. O. Howe. diags Inst E E J 58:152-62; Discussion. 162-70 F '20
- How and why of radio apparatus. H. W. Secor. Experimenter publishing company, inc., New York '20
- How to avoid lighting circuit troubles caused by wireless outfits. N E L A Bul 8:495-6 Ag '21
- How X-ray and radio service problems in electric industry have been solved. C. H. Mueller. Elec W 78:370-1 Ag 20 '21
- Human nerves act as wireless antennæ. F. L. Brittin. il diag Pop Mech 33:743 My '20
- Improved arc generator. diags Wireless Age 7:22 Je '20
- Making high-frequency Oudin and Tesla coils. F. L. Brittin. diags Pop Mech 35: 953-4 Je '21
- Many improvements in radio equipment. il Pop Mech 33:645-7 My '20
- Modulator for high power work. diag Wireless Age 7:23-4 S '20
- Multi-layer inductances for long wave work. F. V. Bremer. il diags Wireless Age 7:26-7 My '20
- Negative resistance for atmospheric reduction. M. I. Pupin and E. H. Armstrong. diags Wireless Age 8:22-4+ O '20
- Negatron: a new negative resistance device for use in wireless telegraphy. J. Scott-Taggart. il diags Engineering 112:584-5 O 21 '21; Abstracts. Elec R (Lond) 89:449 S 30 '21; Electrician 87:386 S 23 '21
- New inter-tube audio-frequency amplifying transformer. il diag Wireless Age 8:17-18 JI '21
- One-operation control of honeycomb coil units. R. R. Batcher. diags Wireless Age 8:27-8 Mr '21
- Oriental radio set. H. S. Pyle. il Wireless Age 7:18-20 My '20
- Original aerial switch. T. W. Benson. diags Wireless Age 7:23-4 Ap '20
- Oscillating current generator. diags Wireless Age 7:17-18 Je '20
- Practical radio arc-and-spark receiving cabinet. F. L. Brittin. il plan Pop Mech 33:128-31 Ja '20
- La production des courants à haute fréquence par alternateurs. M. Latour. diags Génie Civil 78:507-8 Je 11 '21
- Proposed revision of code rules on radio wiring. Elec R 76:445-6 Mr 13 '20
- Qm-operators and hysteresis harmonics. A. Press. diags Electrician 86:72-3 Ja 14 '21
- Radio America shown to foreign experts. Wireless Age 8:10-16+ D '20
- Radio apparatus for aircraft and ground stations. E. M. Kinney. il Eng Soc W Pa 36:1-21; Discussion. 22-4 F '20
- Radio apparatus for the mercantile service. il diag Electrician 86:722-5 Je 10 '21
- Radio device prevents listening in. Wireless Age 8:9 N '20

- Reception of wireless waves on a shielded frame aerial. A. A. C. Swinton. Philos Mag 6th ser 42:502-6 O '21; Same cond. Elec R (Lond) 89:356-7 S 9 '21; Abstract. Engineering 112:434 S 23 '21
- Remote control by radio. A. L. Wilson. diags Elec J 18:146-8 Ap '21
- Simplifying wireless communication; resonance wave coil uses no ground and tunes its own waves. S. W. Beach. il diags Pop Mech 35:349-50 Mr '21
- Smallest portable radio outfit. A. Bingham. il diags Wireless Age 8:27-9 Ja '21
- Some modern developments in radio installations for ships. il Electrician 86:49-51 Ja 7 '21
- Systems of direction finding by wireless. J. J. Bennett. diags Electrician 87:134-6 JI 29 '21
- Theory and practical attainments in the design and use of radio-direction finding apparatus using closed coil antennæ. A. S. Blatterman. J Fr Inst 190:421 S '20
- Tracking submarines by radio. S. W. Beach. il map Pop Mech 33:527-8 Ap '20
- Transmission of electrical energy by wireless. C. H. Roe. diag Wireless Age 8:21 N '20
- Ubiquitous radio; how kites and balloons may be pressed into service for putting up the temporary radio station. A. Lynch. il Sci Am 125:147 Ag 27 '21
- VT radio panel with navy-type loose coupler. F. L. Brittin. diags Pop Mech 34:948-50 D '20
- What the amateur can learn from the navy. R. J. McAusland, jr. il diags Wireless Age 7:13-15 Je '20
- Why high frequency for radiation? J. Slepian. diags Elec J 18:129-31 Ap '21
- Wireless apparatus for the electrical dealer. L. Etshokin. J Elec 45:423-4 N 1 '20
- Wireless apparatus shows vast improvement. il Pop Mech 36:95 JI '21
- Wireless telephony. N. H. Slaughter. il diags J Fr Inst 189:1-24 Ja '20
- See also Amplifiers; Audion; Inductance coils; Variometers; Wavemeter; Wireless antennæ; Wireless compass; Wireless receivers; Wireless signals; Wireless stations; Wireless transmitters

Alexanderson system

- Alexanderson system for radio communication. E. E. Bucher. il diags plan Gen Elec R 23:813-39 O '20; Same. Wireless Age 7:10-17 JI; 13-23 Ag '20; Excerpts. Sci Am M 2: 161-6 O '20
- Improvement on the Duplex system. diags Wireless Age 8:17-18 N '20
- Method of frequency transformation. E. F. W. Alexanderson. diags Wireless Age 8:23-4 S '21
- Transoceanic radio communication. E. F. W. Alexanderson. il diags Gen Elec R 23: 794-803 O '20

Diagnostic use

- Diagnosis of hear troubles by wireless. S. R. Winters. il Sci Am 124:465 Je 11 '21

Exhibitions

- New York amateurs put it over. il Wireless Age 8:9-21 My '21

Manufacture

- Electric welding in radio apparatus. F. A. Anderson. il J Elec 46:132-3 F 1 '21

Nomenclature

- Question of nomenclature-wire radio. Electrician 85:716-17; 86:81, 107-8, 305; 87:388 D 17 '20, Ja 14-21, Mr 11, S 23 '21

Patents

- Armstrong radio patent sustained. Sci Am 125:5 JI 2 '21

Protection

- Static preventer buried in the earth. diags Wireless Age 8:18 D '20

Testing

- High-frequency iron losses. T. Spooner. diag Am Inst E E J 39:809-13 S '20

Wireless beacons

Development of the radio beacon. il Wireless Age 8:16-17 Mr '21

Wireless circuits

Abstractive and selective properties of radio antenna circuits. E: Bennett. Am Inst E E J 39:995-1004, 1052-62 N-D '20

Continuous wave multi-stage receiving circuits employing retroaction and self-heterodyne principles. J: Scott-Taggart. diags Electrician 85:441-2 O 15 '20

Regenerative circuit. E. H. Armstrong. Elec J 18:153-4 Ap '21

Three magnetically-coupled circuits. E. Belini. Electrician 85:78 Jl 16 '20

Use of vacuum tubes for wireless transmission and the reception of continuous waves. J: Scott-Taggart. diags Inst E E J 58:893-7 S '20; Abstract. Electrician 86:97-8 Ja 21 '21

Wireless compass

Application of radio to navigation problems. W. H. G. Bullard. il maps J Fr Inst 191:739-50 Je '21

Radio compass. Sci Am 124:43 Ja 15 '21

Radio compass and automatic pilot developed for naval flying boats. J. B. Kean. il diag Pop Mech 34:485-7 O '20

Radio compass and navigation. R. G. Skerrett. il diags Sci Am 125:89+ Ag 6 '21

Radio compass annual report. Wireless Age 8:10 Ag '21

Radio compass on ship board. il diag Marine Eng 26:620-1 Ag '21

See also Wireless signals

Wireless control

Crewless battleship operated by radio. S. R. Winters. il Pop Mech 36:166-8 Ag '21

Radio control of naval units. Sci Am 123:442 O 30 '20

Radio-controlled aeroplanes. Aerial Age 12:663 Mr 7 '21

Radio controlled auto at McCook field. Aerial Age 13:547, 595 Ag 15, 29 '21

Radio controlled automobile. il Sci Am 125:253 O 8 '21

Remote control by radio. A. L. Wilson. diags Elec J 18:146-8 Ap '21

Torpedo controlled by airplane by means of wireless. E: T. Jones. diags Wireless Age 8:30-1 O '20

Wireless hound—an interesting case of radio control. G: Gaulois. il Sci Am 122:601+ My 29 '20

Wireless measurement

Elementary radio measurements. Wireless Age 8:30+ Ap '21

Heterodyne wavemeter. R. W. Goddard. il diags Wireless Age 7:15-17 F '20

Measurement of the electromagnetic field of transoceanic radiographic waves. G. Vallauri. diag Electrician 86:249-50 F 25 '21

Wireless megaphone

Dr Goldsmith's radio megaphone. Wireless Age 8:8 Ap '21

Wireless receivers

British Thomson-Houston portable wireless receiver. il diag Engineer 129:394 Ap 16 '20

Continuous wave radio receivers. M. C. Batsel. diags Elec J 18:136-41 Ap '21

Direct coupled radio receiving sets. R. N. Turner. diags Wireless Age 8:28 O '20

Duplex radiophone receiver on U.S.S. George Washington. H. H. Beverage. il diags Gen Elec R 23:807-12 O '20

Efficient design of combined receiver and radiophone transmitter. G. N. Garrison. diag Wireless Age 8:30-1 S '21

Heterodyne receiver. J: V. L. Hogan. il diags Elec J 18:116-19 Ap '21

Indoor receiver for the winter. E: T. Jones. il diags Wireless Age 8:26-8 D '20

Intermediate wave receiver. W: E. Diehl. il diag Wireless Age 8:23-4 Ap '21

Navy receiver with vacuum tube detector or amplifier. R. W. Wight. diags Wireless Age 8:23 Ja '21

New generator for the heterodyne. diags Wireless Age 8:21 D '20

Novel receiving circuit employing two vacuum tubes. E. W. B. Gill. diags Wireless Age 8:23 Jl '21

Portable receptor. il diags Wireless Age 7:26-9+, 31+ Jl '20

Radio receiver for everybody. il Sci Am 124:354 Ap 30 '21

Radio telegraph and telephone transmitter and receiver. diags Wireless Age 8:21-2 Jl '21

Receiving circuit for frequency selection. diags Wireless Age 8:20-1 Ap '21

Reception at Santiago de Chile. A. E. Salazar. il Wireless Age 8:15-16 Mr '21

Selective receiver for C. W. reception. diag Wireless Age 8:24 Jl '21

Selective receiving system. diag Wireless Age 8:20 N '20

Sensitive and compact portable receiver. H. S. Pyle. diags Wireless Age 8:22 D '20

Short-wave regenerative audion receiver. F. L. Brittin. diags Pop Mech 36:788-90 N '21

Simple wireless receiver upsets old theories. diag Pop Mech 33:66 Ja '20

Space-saving receiving tuner. F. L. Brittin. diags Pop Mech 36:155-6 Jl '21

Swedish cash register receiver. R. R. Batch-er. il diags Wireless Age 8:23-4 N '20

Uni-control receiver without a coupled-tuned circuit. diags Wireless Age 7:20-2 Ap '20

Universal wavelength receiver. il diag Wireless Age 8:26-7+ N '20

Manufacture

Wireless-instrument construction standardized. B. G. Priestley. il Pop Mech 35:183-4 F '21

Wireless signals

Application of radio to navigation problems. W. H. G. Bullard. J Fr Inst 191:725-66 Je '21

Automatic signal recorder. S. R. Winters. il Wireless Age 8:14-15 S '21

Fading wireless signals studied. C. A. Briggs. Pop Mech 35:757 My '21

From star to chronometer via radio; the function and the manner of transmission of the modern time signal. C. H. Claudy. il Sci Am 125:186+ S 10 '21

Guide ships and planes by radio pathfinder. il Pop Mech 33:8-9 Ja '20

Harbor piloting and ship location by radio methods. Eng N 85:714 O 7 '20

How wireless is applied in solution of navigational problems. diag Marine R 51:243-4 My '21

Interplanetary communication. N. Tesla. Elec W 78:620 S 24 '21

Leader cable at Portsmouth. J. J. Bennett. il diags Engineering 111:187-90 F 18 '21;

Same cond. Génie Civil 78:454-8 My 28 '21

Methods of signaling with an arc. diag Wireless Age 7:25 S '20

New Marconi distress calling device. il diags Wireless Age 7:18-19 Jl '20

New York's radio pilot cable. G: Gaulois. il diags Sci Am 123:195+ Ag 28 '20

Observe effects of eclipse on radio signals. Elec R 79:156 Jl 30 '21

Piloting the ship with the ears. G: Gaulois. il Sci Am 123:423 O 23 '20

Piloting vessels by electrically energised cables. A. Crossley. diags Engineer 131:567-8 My 27 '21

Practical results in piloting ships by electrified channel cables. A. Crossley. Eng N 86:590-1 Ap 7 '21

Radio fog signal and radio direction finder system. Elec W 78:434-5 Ag 27 '21

Signal distortion prevented. diags Wireless Age 8:16-17 Je '21

Those Martian radio signals. Sci Am 122:156; 125:194 F 14 '20, S 17 '21

Wireless fog signals for New York harbor. Elec R 78:546 Ap 2 '21

Wireless railroad signals. il diag Wireless Age 8:10-11 Ja '21

See also Wireless beacons; Wireless compass

Wireless stations

Alexanderson system for radio communication.

E. E. Bucher. il diags plan Gen Elec R 23:813-39 O '20; Same. Wireless Age 7:10-17

Jl; 13-23 Ag '20; Excerpts. Sci Am M 2:161-6 O '20

Wireless stations—Continued

- Central stations for radio communication. E. F. W. Alexanderson. *il diag Elec R* 77: 879-82 D 4 '20; Same. *Am Ind* 21:11-14 D '20; Abstracts. *Electrician* 85:657-8 D 3 '20; *Wireless Age* 8:16 Ja '21
- Combined kick-back preventer and switch panel for experimental radio stations. J. A. Weaver. *diags plan Wireless Age* 7:18-20 F '20
- Concrete wireless tower 672 ft. high in Japan. *il diags Eng N* 86:847-8 My 19 '21; Discussion. K. Shibata. 87:204-5 Ag 4 '21
- Experimental wireless stations, their theory, design, construction and operation. P. E. Edelman. *Rev. ed.* 392p Henley '20
- Federal telegraph co. builds new wireless station. W. A. Scott. *il Elec R* 78:953-4 Je 11 '21
- Fifteen radio stations to improve air mail service. S. R. Winters. *il Wireless Age* 8: 12-13 Ja '20
- La future station de télégraphie sans fil de Sainte-Assise, près Melun (Seine-et-Marne). A. B. des Chaumes. *il diags plans Génie Civil* 78:73-8 Ja 22 '21
- Geneva wireless station. *Electrician* 85:632 N 26 '20; *Engineer* 130:541-2 N 26 '20
- La grande station radiotélégraphique de Nauen, près Berlin. G. Viard. *il diags Génie Civil* 78:405-9 My 14 '21
- High-power radio station Deutsch-Altenburg. J. Mayer and L. Hogelsberger. *Elec W* 77:724 Mr 26 '21
- High-power wireless station at Nauen. F. Linke. *diag Elec W* 77:839, 893 Ap 9-16 '21
- Holland's new radio station has interesting towers. *il Pop Mech* 35:538-9 Ap '21
- Imperial wireless station at Leafield, Oxfordshire. E. H. Shaughnessy. *il Electrician* 87: 266-8 Ag 26 '21
- Inauguration of the extended Nauen wireless station. A. Gradenwitz. *il Electrician* 85:714-15 D 17 '20
- Investigation of fire in private radio station. T. H. Day. *il Elec R* 76:80-1 Ja 10 '20
- Lafayette radio station. S. C. Hooper. *il Elec J* 18:112-13 Ap '21
- Lafayette wireless station, world's largest, presented to France by American builders. *il Pop Mech* 35:364-5 Mr '21
- Largest radio station, near Port Jefferson, Long Island, will operate five units simultaneously. *Elec W* 76:143, 1036 Jl 17, N 20 '20
- Last word in wireless—the New York radio central station. *il Sci Am* 123:79+ Jl 24 '20
- League of nations wireless station. *Wireless Age* 8:8 Ja '21
- Light mobile equipment used in construction of mast foundations for radio station. *il diags Génie Civil* 79:32-5, 53-7 Jl 9-16 '21
- Measurement of vibration of the 660-ft. wireless telegraph station tower at Haranomachi. F. Omori. *il diags Engineering* 112: 196-9 Jl 29 '21
- New Poland radio circuit. E. J. Nally. *il Wireless Age* 8:11-12 Je '21
- New radio station at Lyons. L. Faljau. *il diags Wireless Age* 7:11-14 S '20
- New wireless station at Northolt. *Elec R* (Lond) 88:85 Ja 21 '21
- New York radio central station. *il Wireless Age* 7:10-12 Ag '20
- Newfoundland wireless plants for ship reporting. *Wireless Age* 8:8 Mr '21
- Northolt radio station. *Sci Am* 124:283 Ap 9 '21
- Poland's transoceanic wireless station. *il Wireless Age* 8:19-20 S '21
- Powerful wireless station for Belgium. *Engineer* 130:514 N 19 '20
- Radio-station hazards. H. P. Maxim. *Elec R* 76:287-8 F 14 '20
- Radio station on Long Island for coastal service. *il Elec R* 78:365 F 26 '21
- Radio telegraphic station at Rome. B. Michiardi, G. Pession and G. Vallauri. *diags plan Electrician* 85:445-7 O 15 '20
- Range of wireless stations. R. C. Trench. *Inst E E J* 59:157-70; Discussion. 170-80 Ja '21

La station radiotélégraphique Lafayette à Croix-d'Hins, près Bordeaux. H. de la Noë. *diags Génie Civil* 79:32-5, 53-7 Jl 9-16 '21

La station radiotélégraphique "Lafayette" à Croix-d'Hins, près Bordeaux, Cabanne. *il diags plans Génie Civil* 77:473-82, pl 6 D 11 '20

La station radiotélégraphique Lafayette, à Croix-d'Hins, près de Bordeaux; construction des pylônes et pose de l'antenne. L. Jullien. *il diags plan Génie Civil* 78:517-24, pl 6 Je 18 '21

Tested radio grounds. F. L. Brittin. *diags Pop Mech* 36:475 S '21

Tour en béton armé de 205 mètres de hauteur, de la station de T. S. F. de Tokyo. *diags Génie Civil* 79:88 Jl 23 '21

Transatlantic radio station at Eilvese. F. Linke. *Elec W* 78:936 N 5 '21

Wind pressures and the design of radio and high transmission towers. S. P. Wing. *il plan Electrician* 87:6-10 Jl 1 '21

Wireless half way 'round the world. J. W. Kean. *il map Sci Am* 122:698+ Je 26 '20

Wireless tower 200 ft. high moved. A. T. Colwell. *Eng N* 87:420 S 8 '21

See also Wireless receivers; Wireless transmitters

Wireless stations, Amateur

Amateur spark and C. W. transmission. J. O. Smith. *diags Wireless Age* 8:11-12+ F '21

Community radio stations for amateurs. S. W. Beach. *diags Pop Mech* 34:472-3 S '20

Latticed wireless towers for amateur stations. *il diag Wireless Age* 8:32-3 S '21

Practical amateur wireless stations. J. A. White. *Wireless press, inc.*, New York '20

Suggestions on the distribution of wave lengths for amateurs. J. C. Morris, jr. *Wireless Age* 8:27-8 N '20

Wireless stations, Portable

Amateur radio operators aid flood victims. R. W. Goddard. *il Wireless Age* 9:27+ O '21

Wireless telegraph

Admiral Bullard offered the initial suggestion that led to the formation of a great combination of radio interests. *Wireless Age* 8: 13-14 F '21

Admiralty handbook of wireless telegraphy, 1920. 477p H. M. Stationery off., London '20

Application of radio to navigation problems. W. H. G. Bullard. *il maps J Fr Inst* 191: 725-66 Je '21

Beat reception; abstract. *Elec W* 76:1081 N 27 '20

Central stations for radio communication. E. F. W. Alexanderson. *il diag Elec R* 77: 879-82 D 4 '20; Same. *Am Ind* 21:11-14 D '20; Abstracts. *Electrician* 85:657-8 D 3 '20; *Wireless Age* 8:16 Ja '21

Continuous-wave wireless telegraphy. pt 1 W. H. Eccles. 407p The Wireless Press, London '21

Determination of the direction of atmospheric disturbances or static in radio telegraphy. L. W. Austin. *diags J Fr Inst* 191:619-29 My '21

Developments in the electrical industry during 1919. J. Liston. *il diags Gen Elec R* 23:17-20 Ja '20

Efficiency of aerials and the power required for long distance transmission. G. W. O. Howe. *Engineering* 110:357-9 S 10 '20; Same cond. *Electrician* 85:298-300 S 10 '20

L'emploi du télégraphe Baudot en télégraphie sans fil. H. Abraham and R. Planiol. *Génie Civil* 78:442-3 My 21 '21

How the central station can help to popularize radio and promote customers' good will. O. R. Toman. *Elec W* 77:1484 Je 25 '21

L'influence de l'état électrique de l'atmosphère sur la télégraphie sans fil. J. Brun. *Génie Civil* 78:162 F 12 '21

Inter-imperial wireless communication. *Engineer* 129:280 Mr 12 '20

Wireless telegraph—Continued

- Long-distance wireless transmission. C. F. Elwell. *Inst E E J* 59:677-9 Je '21; Same cond. *Electrician* 86:718-19 Je 10 '21; Abstract. *Elec R (Lond)* 88:742 Je 10 '21; Discussion. *Inst E E J* 59:679-92 Je '21; *Electrician* 86:719 Je 10 '21; *Elec R (Lond)* 88:742 Je 10 '21
- Making radio commonplace in Germany. A. Longville. *il Sci Am* 124:133 F 12 '21
- Modern developments in wireless telegraphy and telephony. E. W. Marchant. *Electrician* 86:464 Ap 15 '21
- Multiplex radio telegraphy and telephony. F. M. Ryan, J. R. Tolmie and R. O. Bach. *Wash U Eng Exp Sta Bul* 7:1-23 Jl '20
- New record made in code receiving contest. *il Wireless Age* 8:21 My '21; *Elec R* 78:832 My 21 '21
- New transcontinental amateur record. *il Wireless Age* 8:27+ Je '21
- Origin and development of radio service in America. *Elec R* 78:67-8 Ja 8 '21
- Overstresses due to resonance phenomena in high-tension direct-current machines for radio spark transmitters; abstract. K. W. Wagner. *Elec W* 76:647 S 25 '20
- Poulsen system of radiotelegraphy. C. F. Elwell. *il map Electrician* 84:596-9 My 28 '20
- Poulsen system of radio-telegraphy. G. Pession. *diags Electrician* 84:393-5 Ap 9 '20
- Practical wireless telegraphy; a complete text book. E. E. Bucher. rev. ed. 336p *Wireless press*, New York '21
- Principles of radio communication. J. H. Morecroft and others. 953p *Wiley* '21
- Radiation of antenna systems; abstract. M. Abraham. *Elec W* 75:560 Mr 6 '20
- Radio America shown to foreign experts. *Wireless Age* 8:10-16+ D '20
- Radio communication; elementary explanation of the principles. J. H. Dellinger. *il diags Sci Am M* 3:157-62 F '21
- Radio companies of four nations unite to improve service. *Elec W* 78:810 O 22 '21
- Radio research and co-operation with universities. *Sci Am M* 1:371 Ap '20
- Radio serves western power companies. *il Elec W* 78:266-8 Ag 6 '21
- Radio service not affected by aurora borealis. *Wireless Age* 8:7 Jl '21
- Radio telegraph and telephone in railroad service. *Ry Age* 69:450 S 10 '20
- Radio-telegraphy and telephony in 1920-1921. *Electrician* 86:94-5 Ja 21 '21
- Radiotelegraphy by antenna or loop aerials. *Engineering* 109:467-8 Ap 9 '20
- Radio-telegraphy by invisible infra-red radiation. *Sci Am M* 1:181 F '20
- Range of wireless stations. R. C. Trench. *Electrician* 87:240 Ag 19 '21
- Receive wireless messages by sense of taste. *Pop Mech* 35:578 Ap '21
- Review of the engineering of telegraphy, telephony and radio communication during 1920-1921. *Am Inst E E J* 40:583-7 Jl '21
- Succeeding in radio engineering. R. F. Yates. *Sci Am* 122:644+ Je 12 '20
- Transition period in radio communication. A. F. Van Dyck. *il Gen Elec R* 1:828-32, 884-9 S-O '21
- Tree telephony and telegraphy. G. O. Squier. *Electrician* 84:111-12, 147-9 Ja 30-F 6 '20
- United States Naval communication service. S. W. Bryant. *J Fr Inst* 188:751-76 D '19
- Use of radio transmission companies. G. A. Iler. *il Elec W* 75:376-7 F 14 '20
- Why not radio? technical advances which have made wireless commercially practical. *il Sci Am* 124:152+ F 19 '21
- Wireless and everyday business. B. F. Miessner. *il Sci Am* 122:182+ F 21 '20
- Wireless in foreign trade. *Wireless Age* 7:10-11 Ja '20
- Wireless telegraphy and telephony. A. A. C. Swinton. *diags Engineer* 130:592-4 D 10 '20
- Wireless telegraphy and telephony. L. B. Turner. 195p *University press*, Cambridge, England '21
- Wireless telegraphy and telephony during the war. W. H. Eccles. *il diags Engineering* 110:783-5 D 10 '20; Same. *Inst E E J* 59:77-84 D '20; Abstract. *Electrician* 85:678-80 D 10 '20; Abstract. *Sci Am* 121:183 F '21
- Wireless telegraphy and telephony, first principles, present practice and testing. H. M. Dowsett. 331p *The Wireless press, ltd.*, London; New York '20
- Wireless telegraphy; review. *Engineering* 112:160-1 Jl 22 '21
- Wireless telegraphy, with special reference to the quenched-spark system. B. Leggett. 485p *Chapman & Hall*, London '21
- See also* Amplifiers; Electric waves; Telegraph, Carrier current; Vacuum tubes; Wireless apparatus and other headings beginning Wireless; *also* Radio corporation of America
- Automatic recorders**
- Translating wireless messages printed by simple recorder. E. A. Eckhardt. *il diags Pop Mech* 35:824-6 Je '21
- Classification**
- Extension of the Dewey decimal classification applied to radio. 36p '20 (Typew) U.S. Bureau of standards, Radio laboratory, Washington, D.C.
- History**
- Foundations of modern radio. L. W. Chubb and C. T. Allcutt. *Elec J* 18:120-2 Ap '21
- Installation on ships**
- Commercial operating in Alaskan waters. H. S. Pyle. *Wireless Age* 8:35+ Ap '21
- Development of thermionic valves for naval uses. B. S. Gossling. *diags Inst E E J* 58:670-97 Ag '20; Abstract. *Electrician* 85:494-5 O 29 '20; Discussion. *Inst E E J* 58:697-703 Ag '20
- Marine uses of radio. A. Stein. *Gen Elec R* 24:137-9 F '21
- Modern marine wireless apparatus manufactured by Siemens brothers & company. *il Electrician* 86:381 Ap 1 '21
- Les progrès de la télégraphie et de la téléphonie sans fil à bord des sous-marins. J. Quinet. *diags Génie Civil* 77:398-9 N 13 '20
- Radio accident in the Kiel canal. S. W. Beach. *il Pop Mech* 35:104-5 Ja '21
- Some modern developments in radio installations for ships. *il Electrician* 86:49-51 Ja 7 '21
- Warship's wireless. S. W. Beach. *il Pop Mech* 33:231-2 F '20
- Wireless in the mercantile marine. H. MacCallum. *il Electrician* 85:263-6 S 3 '20
- See also* Wireless compass; Wireless signals
- Laws and regulations**
- New legislation. *Wireless Age* 8:21+ Je '21
- Picture transmission**
- Transmitting photographs and drawings by radio. *il Sci Am* 125:163+ S 3 '21
- Printing system**
- Automatic printing of radio messages. *il Sci Am M* 3:155-6 F '21
- Wireless message printing in ordinary type. *Engineering* 110:678 N 19 '20
- Study and teaching**
- Education of radio engineers; communication engineering at Yale. H. M. Turner. *Elec J* 18:149-50 Ap '21
- Tables, calculations, etc.**
- Antenna form factors. A. Press. *diag Electrician* 85:492-3 O 29 '20
- Formulas for calculating antenna constants. A. Hund. *Elec W* 75:898 Ap 17 '20
- Qm-operators and hysteresis harmonics. A. Press. *diags Electrician* 86:72-3 Ja 14 '21
- Radiation resistance of various types of antenna construction. A. Press. *diags Inst E E J* 59:439-42 Ap '21
- Range of wireless stations. R. C. Trench. *Inst E E J* 59:157-70; Discussion. 170-80 Ja '21
- UV-216 kenotron—its operation and application. W. R. G. Baker. *il diags Wireless Age* 9:21-6 O '21
- Wireless telegraphy and telephony. W. Eccles. *Electrician* 84:297 Mr 12 '20

- Wireless telegraph in agriculture**
Informing the farm by wireless. C. B. Sherman. *Nation's Business* 9:52 Je '21
- Wireless telegraph in aviation**
Aeroplane radio direction finding. *Aerial Age* 12:545 Ja 31 '21; Same. *Aviation* 10:179 F 7 '21
Air-mail deliveries facilitated by postal radio stations. S. R. Winters. *il Pop Mech* 35:552 Ap '21
Determination of position of aircraft by radio. F. P. Conger. *Flying* 10:178 Je '21; Same. *Aviation* 11:44 Jl 11 '21
Developments of radio communication in French aviation; abstract. M. Bernard. *Elec W* 77:1440; 78:81, 430 Je 18, Jl 9, Ag 27 '21
Directional wireless in air navigation. J. Robinson. *Automotive Ind* 41:958 N 13 '19
Naval aircraft radio. T. Johnson. 103p Navy department, Bureau of steam engineering, Washington, D.C. '20
Principles of radio communication for aircraft. *Aviation* 10:338 Mr 14 '21
Radio apparatus for aircraft and ground stations. E. M. Kinney. *il Eng Soc W Pa* 36:1-21; Discussion. 22-4 F '20
Radio communication with postal aeroplanes. J. L. Bernard and L. E. Whittemore. *il diag Aerial Age* 13:105-6, 127-9+, 155-7+ Ap 11-25 '21
Wireless in the Royal air force. J. Erskine-Murray. *maps Inst E E J* 59:693-700 Je '21
- Wireless telegraph in war**
Development of army wireless during the war. A. G. T. Cusins. *Inst E E J* 59:763-70 Jl '21
Wireless in the A.E.F. L. R. Krumm and W. H. Taylor, jr. *il diags Wireless Age* 7:14-19 Ja; 10-14 Ap '20
- Wireless telegraph operators**
Radio operating as a career. P. H. Boucheron. *il Wireless Age* 7:16-19 Mr '20
Seasonable styles in operators. G. F. Patrick. *Wireless Age* 8:12-14 N '20
Should all (radio) men be created equal? E. T. Jones. *il Wireless Age* 7:14-15 S '20; Discussion. 8:10, 13-14 O '20, Ja '21
Speaking of wage scales. C. Aiken. *Wireless Age* 8:10 Mr '21
- Wireless telephone**
Danish inventors improve radiophone. *Wireless Age* 8:8 D '20
Distribution of market news by radiophone. D. C. Rogers. *Wireless Age* 8:20+ S '21
Eight-hour radiophone transmission by Union college. *il Wireless Age* 8:31+ Jl '21
Experiments being conducted to popularize radio telephone. *Elec W* 77:672 Mr 19 '21
July 2nd fight described by radiophone. *Wireless Age* 8:10 Jl '21
Laboratory radiophone. A. H. Wood, jr. *diags Wireless Age* 7:27-8 S '20
Long distance radio telephony. W. C. Ballard, jr. *diag Sibley J* 33:81-2 Jl '19
Long-distance radio telephony now practicable. J. H. Dellinger. *Elec W* 77:142-3 Ja 15 '21
Merlin of today; what the audion of De Forest has done and what it may yet do. C. H. Claudy. *il Sci Am* 122:540+ My 15 '20
Modern developments in wireless telegraphy and telephony. E. W. Marchant. *Electrician* 86:464 Ap 15 '21
New era in wireless: what is being done with the radio telephone. L. H. Rosenberg. *Sci Am* 124:449 Je 4 '21
Newspaper's use of the radio phone. *il Wireless Age* 8:10-11 N '20
Pastorless church hears service by wireless. *il Pop Mech* 36:37 Jl '21
Portaphone—a wireless set for dance music or the day's news. H. T. Wade. *il Sci Am* 122:571 My 22 '20
Production and control of radio frequency oscillations. *diags Wireless Age* 8:19-20 D '20
Quiescent aerial wireless telephone. J. Scott-Taggart. *diags Electrician* 87:234-5 Ag 19 '21
Radio communication; elementary explanation of the principles. J. H. Dellinger. *il diags Sci Am M* 3:157-62 F '21
- Radio link; extending the usual telephone service by bridging present gaps with radio telephone installations. *il Sci Am* 125A:40-1 N '21
Radio link in our telephone system. F. B. Howe. *il Sci Am* 125:21 Jl 9 '21
Radio replaces telephone lines on remote construction in California. *Eng N* 87:57 Jl 14 '21
Radio telegraph and telephone in railroad service. *Ry Age* 69:450 S 10 '20
Radio-telegraphy and telephony in 1920-1921. *Electrician* 86:94-5 Ja 21 '21
Radio telephony across oceans and continents. A. N. Goldsmith. *il Wireless Age* 7:10-13 Je '20
Radio telephony systems employing thermionic vacuum tubes. J. Scott-Taggart. *diags Wireless Age* 8:17-18 Ja; 17-19 F; 21-3 Mr; 17-18 Ap '21
Radiophone fills vacant pulpit. *il Wireless Age* 8:14 S '21
Review of the engineering of telegraphy, telephony and radio communication during 1920-1921. *Am Inst E E J* 40:583-7 Jl '21
Simplifying the radio telephone. *Sci Am* 123:373 O 9 '20
Speech through the ether. O. Lodge. *Electrician* 87:358-9 S 16 '21
Transition period in radio communication. A. F. Van Dyck. *il Gen Elec R* 24:828-32, 884-9 S-O '21
Tree telephony and telegraphy. G. O. Squier. *Electrician* 84:111-12, 147-9 Ja 30-F 6 '20
Vacuum tube in radio telephony. J. Scott-Taggart. *diags Electrician* 85:301-3 S 10 '20
Voice-broadcasting the stirring progress of the battle of the century; Dempsey-Carpentier contest. *il Wireless Age* 8:11-21 Ag '21
Wireless communication between power stations and sub-stations. Count Arco. *Electrician* 87:214-15 Ag 12 '21
Wireless in forest fire fighting. S. R. Winters. *il Wireless Age* 8:11-12 O '20
Wireless telegraphy and telephony. A. A. C. Swinton. *diags Engineer* 130:592-4 D 10 '20
Wireless telegraphy and telephony. L. B. Turner. 195p University press, Cambridge, England '21
Wireless telegraphy and telephony during the war. W. H. Eccles. *il diags Engineering* 110:783-5 D 10 '20; Same. *Inst E E J* 59:77-84 D '20; Abstract. *Electrician* 85:678-80 D 10 '20; Abstract. *Sci Am M* 3:183 F '21
Wireless telephone and fundamental research. *Sci Am M* 2:345 D '20
Wireless telephone for automobiles. *Sci Am* 124:43 Ja 15 '21
Wireless telephone progress. *il diags Electrician* 84:568-70 My 21 '20
Wireless telephony. N. H. Slaughter. *il diags J Fr Inst* 189:1-24 Ja '20
See also Telephone, Carrier current; Vacuum tubes; Wireless apparatus; Wireless megaphone; Wireless stations, and other headings beginning Wireless
- Bibliography**
- Telephony without wires. P. R. Coursey. *Wireless Press*, 12 Henrietta St, Covent Garden, W.C. 2. London. [700 references]
- History**
- Foundations of modern radio. L. W. Chubb and C. T. Allcutt. *Elec J* 18:120-2 Ap '21
- Installation on ships**
- Duplex radiophone receiver on U.S.S. George Washington. H. H. Beverage. *il diags Gen Elec R* 23:807-12 O '20
Marine uses of radio. A. Stein. *Gen Elec R* 24:187-9 F '21
Les progrès de la télégraphie et de la téléphonie sans fil à bord des sous-marins. J. Quinet. *diags Génie Civil* 77:398-9 N 13 '20
Radiophone transmitter on the U.S.S. George Washington. J. H. Payne. *chart diag Gen Elec R* 23:804-6 O '20

Wireless telephone—Installation on ships—*Cont.*
Speaking on a battleship to a crowd in New York city. R. Howard. *il diag Sci Am* 122: 601 My 29 '20

Music transmlssion

Radio music. *Sci Am M* 2:178 O '20
Transmitting music by radiophone. *il diag Wireless Age* 8:25-6 Mr '21

Wireless telephone, Amateur

American amateur phone reaches Scotland. *il Wireless Age* 8:11-12 Ja '21
High-power amateur radiophone. H. O. Peterson. *Wireless Age* 9:30 O '21
Thousand-mile amateur radiophone; description and operation of the set used at 2ZL station, Valley Stream, L.I. J. O. Smith. *il diag Wireless Age* 8:11-15 Mr '21
Wireless telephone set for amateur use. E. T. Jones. *il diags Wireless Age* 8:23-6 D '20

Wireless telephone in aviation

Duplex wireless telephony: some experiments on its application to aircraft. P. P. Eckersley. *diags Inst E E J* 58:555-65 J1 '20; Abstract. *Electrician* 85:207-9 Ag 20 '20; Discussion. *Inst E E J* 58:565-71 J1 '20
Marconi wireless telephone set for aircraft. *il Elec R (Lond)* 88:832-3 Je 24 '21
Telephoning from the air. R. J. Heffner. *il diags J Elec* 44:307-10 Ap 1 '20
Wireless telephone transmitter for seaplanes. *diags Electrician* 85:133-6 J1 30 '20
Wireless telephony on aeroplanes. C. E. Prince. *diags Inst E E J* 58:377-84; Discussion. 384-90 My '20; Abstract. *Electrician* 84:448-9 Ap 23 '20

Wireless transmitters

Amateur C. W. transmission. J. O. Smith. *diags Wireless Age* 8:14-15 Ja '21
C. W. below 200 meters. *diag Wireless Age* 8:30-1 J1 '21
Continuous wave radio communication. D. G. Little. *il Elec J* 18:124-9 Ap '21
C. W. transmitter using house lighting current. *diags Wireless Age* 8:19-20 Mr '21
Continuous wave transmitting chopper. M. L. Snyder. *diags plan Wireless Age* 9:31-2 O '21
C. W. transmitting circuit. *diag Wireless Age* 8:20-1 F '21
Description and design of a small transmitter unit. D. R. Clemons. *il diags Wireless Age* 8:25-7 O '20
Description of a uni-wave signaling system for arc transmitters. W. A. Eaton. *diags Elec J* 18:114-15 Ap '21
Efficient design of combined receiver and radiophone transmitter. G. N. Garrison. *diag Wireless Age* 8:30-1 S '21
Electron tube transmitter of completely modulated waves. L. M. Hull. *il diags U S Bur Stand Sci Pa* 381:259-71 '20
Hammond's selective transmitter. *diags Wireless Age* 8:18 N '20
Loop transmitter for local work. A. F. Murray. *diags Wireless Age* 7:25+ J1 '20
Measuring losses of transformer. L. R. Felder. *diag Wireless Age* 8:26-7+ My '21
New arc method for continuous waves. *diags Wireless Age* 8:19 N '20
Radio arc transmitters. Q. A. Brackett. *il Elec J* 18:142-6 Ap '21
Radio telegraph and telephone transmitter and receiver. *diags Wireless Age* 8:21-2 J1 '21
Radio with the arc transmitter; the remarkable showing made by this type of apparatus on the Aeolus. A. H. Lynch. *il Sci Am* 124:410+ My 21 '21
Radiophone transmitter on the U.S.S. George Washington. J. H. Payne. *chart diag Gen Elec R* 23:804-6 O '20
Spark coil panel transmitter. T. W. Benson. *diags Wireless Age* 7:24-5 My '20
Static frequency doublers. J. F. Peters. *il diags Elec J* 18:122-3 Ap '21
Study of electrical resonance in radio transmitters. C. S. Perkins. *Wireless Age* 8: 23-4+ F '21
Tube transmitter using two aerials. *diag Wireless Age* 8:21 F '21

25-mile radiophone transmitter using Marconi V.T.'s for 200-meter amateur work. C. R. Leutz. *diags Wireless Age* 7:15-18 Ap '20

Two new coastal stations use tube transmitters for first time in ship-to-shore work. *il Wireless Age* 8:20 Je '21

Vacuum tube transmitter. *diag Wireless Age* 8:23 Mr '21

Wisconsin

Business man's America. A. W. Douglas. *Nation's Business* 8:24-6 Je '20

See also Electric plants (central stations)—Wisconsin; Roads—Wisconsin; Zinc industry and trade—Wisconsin; Zinc mines and mining—Wisconsin

Wisconsin electrical association

12th annual convention, Milwaukee, Mar. 24. *Elec Ry J* 55:690-2 Ap 3 '20
13th annual convention, Milwaukee, Mar. 23-24. *Elec Ry J* 57:645-6 Ap 2 '21

Wisconsin gas association

Meeting with the Wisconsin electrical assn., Milwaukee, Mar. 23. *Elec Ry J* 57:645-6 Ap 2 '21

19th annual meeting, Milwaukee. *Gas Age* 45: 339-40 Ap 26 '20

Wishon, A. G., 1858-

Portrait. *Elec W* 76:368 Ag 21 '20

Witnesses

Geologists in the courts. *Min & Sci P* 120: 593-4 Ap 24 '20

See also Expert evidence; Geologists

Wizard lightfoot appliance company

How educational advertising sells foot appliances. C. M. Harrison. *Ptr Ink* 114:57-8+ Ja 20 '21

Woman

Employment

Annual report of Women's service section of the Division of labor. *Ry Age* 68:351-7 Ja 30 '20

Employment of women in France before and after the war. *Monthly Labor R* 11:314-18 Ag '20

Employment of women in industrial occupations in Oregon. *Monthly Labor R* 11:1242-5 D '20

Handling women workers. *Factory* 24:172+, 1246+, 1358+, 1766+; 25:82+, 894+; 26:536+; 27:116+, 543+ Ja, Ap 15-My 1, Je 1, J1 1, S 15 '20, F 15, J1, O '21

Industrial opportunities and training for women and girls. B. M. Nienburg. *U S Women's Bur Bul* 13:1-48 '20

Industry and finance. A. W. Kirkaldy. *supp. vol. 150p Pitman* '20

Measures for stabilizing the demand for woman labor in Germany. *Monthly Labor R* 13:397-402 Ag '21

New place of women in industry. I. M. Tarbell. *Ind Management* 60:265-6, 329-30, 399-400; 61:51-8, 135-7; 62:106-8 O-D 1 '20, Ja 1, F 1, Ag '21

New position of women in American industry. *il U S Women's Bur Bul* 12:1-158 '20; Abstract. *Monthly Labor R* 12:153-7 Ja '21

Physiological basis for the shorter working day for women. G. W. Webster. *U S Women's Bur Bul* 14:1-20 '21

Positions of responsibility in department stores and other retail selling organizations. M. H. Tolman. 126p Bureau of vocational information, New York '21

Pregnant woman in industry. C. P. McCord and D. K. Minster. *bibliog J Ind Hygiene* 3:39-50 Je '21

Responsibility of women workers for dependents. B. S. Rowntree and F. D. Stuart. 68p Clarendon press, Oxford '21

Some effects of legislation limiting hours of work for women. *U S Women's Bur Bul* 15: 1-26 '21

Study of accidents among women in industry. N. Swartz. *Safety Eng* 41:19-22 Ja '21

Trends in management; have women in industry come to stay? H. M. Bennett. *Factory* 24:974-6 Ap 1 '20

Vocational training for women in industry. *Monthly Labor R* 10:966-70 Ap '20

Woman—Employment—Continued

- Wages and earnings of women in food and confectionery manufacture in Massachusetts. Monthly Labor R 12:999-1000 My '21
- Wages of women employed as cleaners, maids, and elevator operators in buildings and theaters in the District of Columbia. C. E. Mortenson. Monthly Labor R 11:976-82 N '20
- Wages of women in hotels and restaurants in the District of Columbia. Monthly Labor R 10:144-8 Ja '20
- Wages of women in industry. M. B. Gilson. *il* Ind Management 61:427-31; 62:37-42 Je-Jl '21
- What industry means to women; what women mean to industry. *il* Ind Management 60:1-7 sec 2 N '20
- Why is there a shortage of women workers? H. M. Bennett. Factory 25:360-4 Ag 1 '20
- Woman and the two-shift system. Engineering 110:711-12 N 26 '20
- Woman in the progress department. W. J. Hiscox. Electrician 85:420-1 O 8 '20; Discussion. 85:449-50, 475-6, 499, 568-70 O 15-29, N 12 '20
- Woman labor in Germany during the war. A. Maylander, comp. Monthly Labor R 11:1036-50 N '20
- Woman labor in the Prussian-Hessian railroad service. Monthly Labor R 11:377-82 F '21
- Woman wage earners in Minnesota. Monthly Labor R 11:543-7 S '20
- Woman's future position in industry. M. Anderson. *il* Am Ind 21:27-9 D '20
- Women as clerks in banks and banking houses. E. Wallace. Comm & Fin Chr 110:2435-7 Je 12 '20
- Women in industry. See monthly numbers of Monthly labor review
- Women in the aircraft industry. Aviation 10:52 Ja 10 '21
- Women in the electrical industry. Lady Parsons. Electrician 86:622-3 My 20 '21
- Women in the government service. Monthly Labor R 10:208-17 Ja '20
- Women professional workers. E. K. Adams. 392p The Chautauqua press, Chautauqua, N.Y. '21
- Women street car conductors and ticket agents. U S Women's Bur Bul 11:1-90 '21
- Women's service section report. P. Goldmark. Ry R 66:173-4 Ja 31 '20
- Women's wages in Kansas. U S Women's Bur Bul 17:1-104 '21
- See also Disabled—Rehabilitation; Home labor; Hours of labor; Minimum wage; Saleswomen; Servants; Telephone operators
- Bureau of Vocational Information is a research and educational organization established to study the opportunities for training and for professional employment for women; to supply educational institutions with information concerning the occupational opportunities and needs of women and to help women to choose wisely and prepare adequately for their fields of work. Emma P. Hirth, Director, 2 West 43d St, New York.

Law

- Hours for women workers; laws in the principal textile manufacturing cities. Textile World 57:3509 My 8 '20
- Laws relating to women. Factory 24:1768+ Je 1 '20
- New British legislation affecting women and young persons. Int Labour R 1:121-6 Ja '21
- Women, Disabled. See Disabled—Rehabilitation
- Women as scientists**
- Analytical chemistry as a profession for women. E. L. B. Forster. 125p C. Griffin & co., ltd., London '20
- Women in industry. See Woman—Employment
- Women's bureau.** See United States—Women's bureau
- Women's engineering society**
- 2d annual general meeting, London, May 20. Engineering 111:653-4 My 27 '21

Women's rooms. See Automobile service stations—Women's rooms

Wood, Willam O.

President of N.Y.E.R.A. por Elec Ry J 57:1151 Je 18 '21

Wood

- Average weights of various species of wood. Eng & Contr 52:610 N 26 '19
- Le béton armé de bois. diags Génie Civil 77:394-6 N 13 '20
- Cause and prevention of blue stain in timbers. Eng & Contr 56:96 Jl 27 '21
- Effect of chemical reagents on the microstructure of wood. A. Abrams. *il* J Ind & Eng Chem 13:786-90 S '21
- Empire timber resources. Engineering 110:52 Jl 9 '20; Same. Eng & Contr 54:321-2 S 29 '20
- How to distinguish woods—birch, beech and maple. Am Arch 118:764 D 8 '20
- Knots and boles on forest trees; causes of grain in timber. C. E. Chidsey. *il* Sci Am M 2:209-10 N '20
- Lumber trade loses good customers—who is to blame? R. J. Blair. *il* Am Lumberman 2339:60-1 Mr 13 '20
- Lumber used in motor vehicle manufacture. A. Koehler. Automotive Ind 44:1114-16 My 26 '21; Abstract. Sci Am M 3:274-5 Mr '21
- Made of wood. Sci Am 122:55 Ja 17 '20
- Microscopy of pulpwoods. E. Gerry. *il* Paper 26:19-20+ Ap 21 '20
- Our tropical timber trade. S: J. Record. *il* Sci Am 124:444+ Je 4 '21
- Pattern lumber. J. A. Shelly. *il* diags Mach 26:539-40 F '20
- Phenomena of drying wood. H. D. Tiemann. *il* diags J Fr Inst 188:27-50; 189:645-8 Jl '19, My '20
- Preparation of textile thread from wood. Paper 28:28-31+ My 25 '21
- Properties of ordinary wood compared with plywood. Aerial Age 13:6 Mr 14 '21; Same. Automotive Ind 44:711 Mr 31 '21
- Properties of woods at 10 per cent moisture. B. C. Boulton and R. L. Hankinson. Aerial Age 12:11-13+, 43-4 S 13-20 '20
- Railway car material—wood. N. Litchfield. Elec Ry J 55:366-9 F 21 '20
- Relation of moisture contents of wood to its decay. W. H. Snell. *il* Paper 28:22-4 My 4 '21
- Relation of moisture to the properties of wood. Sci Am M 3:82 Ja '21
- Shrinkage in compression wood. Sci Am 122:663 Je 12 '20
- Substitutes for ash in automobile bodies. Soc Auto Eng J 9:181 S '21; Same. Sci Am M 4:377 O '21
- Supplies and production of aircraft woods. W. N. Sparhawk. maps U S Nat Advisory Com for Aeronautics 1919:411-71 '20
- Timbers and lumber for shipbuilding purposes. H. H. Thayer. Marine Eng 26:703-7, 771-5, 840-3 S-N '21
- Timbers of tropical America and railway tie supply. A. W. Buel. Eng N 85:1139-41 D 9 '20
- Use and value of wood in building bodies. G: J. Mercer. diags Automotive Ind 42:914-16 Ap 15 '20
- Use of wood in freight-car construction. H. S. Sackett. Am Mach 54:20-1 Ja 6 '21; Same. Ry Mech Eng 95:105-6 F '21; Same cond. Mech Eng 43:90-2 F '21
- Uses of wood in lead accumulators. T. E. Green. Elec R (Lond) 88:304-5 Mr 11 '21
- Where are our ties coming from? H. Von Schrenk. Eng & Contr 54:393-6 O 20 '20; Excerpts. Ry Age 69:659-60 O 15 '20; Abstract. Eng N 85:1141-2 D 9 '20
- White-ant-proof wood for the tropics. T. E. Snyder. *il* Am Lumberman 2324:58 N 29 '19
- Wood as a structural material. Sci Am 123:120 Ag 7 '20; Same. Eng & Contr 54:409 O 27 '20
- Wood used in house construction. map Am Inst Arch J 9:189-90 My '21
- Woods for airplane construction. Automotive Ind 42:1001 Ap 29 '20
- Woods for posts and stakes. J. T. Bartlett. Sci Am 122:500 My 1 '20

Wood—Continued

Woods used in aircraft construction. Aerial Age 14:65, 87, 113, 137 S 26-O 17 '21

See also Blue stain; Forests and forestry; Hard woods; Lignin; Lumber; Pavements, Wood; Pipes, Wood; Plywood; Poles; Sawmills; Shipbuilding; Ships, Wooden; Timber; Wood preservation; Wood pulp; Woodwork; *also* names of woods, e.g. Applewood, Balsa wood, Coniferae, Cypress, Douglas fir, Hickory, Mesquite, Oak, Pine, Possum wood, Redwood, Spruce, Sycamore

Analysis

Determination of cellulose in woods. W. H. Dore. diag J Ind & Eng Chem 12:264-9 Mr '20; Same. Paper 26:20, 22-5 Mr 10 '20
Distribution of certain chemical constants of wood over its proximate constituents. W. H. Dore. diag J Ind & Eng Chem 12:472-6 My '20

Experimental study of the significance of lignin color reactions. E. C. Crocker. J Ind & Eng Chem 13:625-7 JI '21; Abstract. Paper 28:22-3+ Ag 31 '21

Proximate analysis of coniferous woods. W. H. Dore. J Ind & Eng Chem 12:476-9 My '20

Proximate analysis of hardwoods: studies of quercus agrifolia. W. H. Dore. J Ind & Eng Chem 12:984-7 O '20

Some observations on the determination of cellulose in woods. S. A. Mahood. J Ind & Eng Chem 12:873-5 S '20

Testing

Crushing strength of southern pine at angles to grain. Q. C. Ayres. Eng N 85:653-4 S 30 '20

Effect of kiln drying on the strength of airplane woods. il diags U S Nat Advisory Com for Aeronautics 1919:477-537 '20

Experiments on the mechanical properties of Scots pine. A. R. Horne. il Engineering 112:387-9 S 9 '21; Discussion. 112:405 S 16 '21

Inclined-bearing tests on Douglas fir and white pine. T. R. Simpson. diags Eng N 85:654-5 S 30 '20; Discussion. Q. C. Ayres. 85:958 N 11 '20

Jacoby formula for inclined bearing recommended for coniferous woods. H. D. Dewell. Eng N 85:811 O 21 '20

Les méthodes nouvelles d'essais des bois; abstract. M. Monnin. Génie Civil 78:537 Je 18 '21

Relation of the shrinkage and strength properties of wood to its specific gravity. J. A. Newlin and T. R. C. Wilson. U S Agric Bul 676:1-35 '19

Strength of whole timbers tested by huge machine. il Pop Mech 36:94 JI '21

Test of timber posts with warp and seasoning cracks. T. W. Greene. il Eng N 85:342-3 Ag 19 '20

Tests of bearing strength of redwood agree with Howe's formula. R. R. Martel. Eng N 85:959 N 11 '20

Tests of old creosoted pine dock stringers. M. O. Fuller. Eng N 86:928 Je 2 '21

Wood alcohol. *See* Alcohol, Wood

Wood as fuel

Bringing the wood-burning locomotive up to date. il Sci Am 124:353 Ap 30 '21

Design of hog-fuel furnace. G. L. Baldwin. diag Power 52:989 D 21 '20; Discussion. 53:319, 596 F 22, Ap 12 '21

L'emploi du bois pour le chauffage des générateurs à vapeur. Kammerer. Génie Civil 77:465-6 D 4 '20

Fuel value of wood. Sci Am M 1:425 My '20; Same cond. Sci Am 123:275 S 18 '20

Hog fuel in the Pacific Northwest. il Power 51:709-12 My 4 '20

How can shavings be burned with coal? R. McLaren. diag Power 52:831 N 23 '20

Sawdust as fuel. il Elec R (Lond) 89:236-8 Ag 19 '21

Sawmill refuse, powdered coal, and oil fuels. D. Corbet. diag Am Inst E E J 39:715-32 Ag '20; Abstracts. Elec W 76:183-5 JI 24 '20; J Elec 45:10-11 JI 1 '20; Elec Ry J 56:314-15 Ag 14 '20; Mech Eng 42:580 O '20; Power Pl Eng 24:934-7 O 1 '20

Les succédanés du charbon: bois, tourbe, lignite. E. Damour. diag Chimie & Ind 5:11-17 Ja '21

Trouble in burning hog fuel. Power 52:592, 758 O 12, N 9 '20

Use of wood as fuel. Engineer 131:650-1 Je 17 '21

L'utilisation du bois comme combustible industriel. Génie Civil 77:487-9 D 11 '20; Abstract (Use of wood as fuel in industry). J Fr Inst 191:282 F '21

Winter fuel from our woodlands. A. L. Dahl. il Sci Am 123:495+ N 13 '20

Wood waste. Power Pl Eng 25:42-4 Ja 1 '21

Woodshop waste runs power plant. il diags plan Power Pl Eng 24:821-7 S 1 '20

Wood ash

Wood ashes and production of potash. E. Bateman. il diag plan Chem & Met Eng 21:615-19 N 12 '19

Wood carving

Handicraft of woodcarving. J. Jackson. 68p Pitman '21

Wood distillation

La carbonisation du bois par l'échappement des moteurs à explosion. L. Tissier. il Chimie & Ind 5:136-42 F '21

Charcoal and wood-oil manufacture. Min & Sci P 123:219 Ag 13 '21

Chemist and the crude factory in the hardwood distillation industry. R. E. Gilmore. flow sheet Can Chem & Met 5:37-41 F '21

Distilling pine stumps. il Sci Am 124:313 Ap 16 '21

Hardwood-distillation industry. L. F. Hawley. il Chem & Met Eng 25:137-40, 195-9, 237-41 JI 27-Ag 10 '21

Hardwood distillation industry of Southern states and its development of by-products. Am Lumberman 2351:62 Je 5 '20

Lack of team work in the wood-distillation industry. F. J. Root. Chem & Met Eng 25:448 Ag 31 '21

Progress in England in wood distillation. M. Meredith. Am Gas J 115:78+ JI 23 '21

Recent developments in the hardwood distillation industry and suggestions for the future. L. F. Hawley. il Chem & Met Eng 23:466-8 S 8 '20

Tar-still operation in hardwood distillation plants. L. F. Hawley and H. N. Calderwood, jr. J Ind & Eng Chem 12:684-5 JI '20

Wood-distillation industry of Canada; quantity and value of the various products. Chem & Met Eng 23:153 JI 28 '20; Same. Gas Age 46:183 S 10 '20

See also Pyroligneous acid

Wood drying. *See* Lumber drying

Wood engraving

Commercial art and the block print. F. Weitenkampf. il Ptg Art 36:393-402 Ja '21

Techniques of advertising illustration; modern derivations of wood engraving. W. L. Larned. il Ptg Art 37:405-16 JI '21

Tribute to Chicago wood engraving from far away Japan. il Inland Ptr 66:648 F '21

Wood-block printing. F. M. Fletcher. 132p Pitman

Wood oil. *See* China wood oil

Wood pavements. *See* Pavements, Wood

Wood piles

Fire prevention in pulp wood piles. F. J. Hoxie. il Paper 27:13-19 D 15 '20

Spraying wood for preservation and fire prevention. E. Sutermeister. Paper 27:21+ D 22 '20

Wood pipes. *See* Pipes, Wood

Wood preservation

Application of the perforating process in the preservative treatment of wood with especial reference to Douglas fir. E. M. Blake. Boston Soc C E J 7:99-126 Ap '20

Wood preservation—Continued

- Basilit: a preservative for wooden poles; abstract. Nowotny. Elec W 77:722 Mr 26 '21
- Brush coat should follow trimming of treated timber. G: M. Hunt. il Eng N 84:753 Ap 15 '20
- Butt treatment of cedar poles by open-tank method. W. M. Leavitt. il Elec R 78:403-4 Mr 5 '21
- Complete wood preserving plant mounted on cars. il Ry Age 67:453-5 S 5 '19; Same. Sci Am S 88:332-3 D 6 '19; Same abr. Eng & Contr 52:334 S 17 '19
- Data on preservative treatments prove that increased service fully justifies cost. E. M. Blake. Am Lumberman 2346:62-3 My 1 '20
- Decay of timber in return air courses. D. Harrington. il diag Eng & Min J 112:565-9 O 8 '21
- Entomology and architecture. Am Inst Arch J 9:182-3 My '21
- Fence posts that don't decay. F. W. Hyde. il Sci Am 123:63 Jl 17 '20
- Framing timber bridge trusses before treatment. il Ry Age 68:1479-80 My 21 '20
- Guniting at United Verde extension. E. E. Cambell. Eng & Min J 112:620-1 O 15 '21; Excerpt. Eng & Contr 56:467 N 16 '21
- Insulating roofs of moist buildings. F. J. Hoxie. il Textile World 60:1937+ O 1 '21
- Light creosote oils in wood preservation. Eng & Contr 53:722 Je 23 '20; Same. Chem & Met Eng 23:56 Jl 14 '20; Same. Elec R 79:14 Jl 2 '21
- New tie preserving plant for the Norfolk & Western Ry.; with layout. il Ry R 69:353-7 S 17 '21
- Plea for research in paint and wood. A. H. Sabin. Eng N 87:291-2 Ag 18 '21
- Preservation of mine timber. Coal Age 16:164, 377-8, 459, 760 Jl 25, Ag 28, S 11, N 6 '19
- Preservative pole treatment with carbolineum. H. H. Gerhard. Elec R 78:979 Je 18 '21
- Preservative treatment of wood poles. Pub Works 50:63 Ja 15 '21
- Preservative treatment of wood poles. R. V. Achatz. (Purdue univ. Eng. depts. v.4, no. 2, circ. 2) 54p Engineering experiment station, Lafayette, Ind. '20
- Preserve the pole line. Elec Ry J 57:126 Ja 15 '21
- Preserving wood roof timbers. il Textile World 59:215+ Ja 8 '21
- Processes and equipment used in wood preservation. E. S. Park and J. M. Weber. diag plan Ry R 67:972-5 D 25 '20; Excerpts. Mech Eng 43:98-9 F '21
- Puncturing poles before impregnation. il Elec Ry J 57:560 Mr 19 '21
- Recent developments in wood preservation. Eng N 86:297-9 F 17 '21
- Report on the abuse of treated material. Ry Age 69:759-60 O 29 '20; Same. Eng & Contr 54:509 N 24 '20
- Results with butt-treated poles in California. P. R. Hicks. Elec Ry J 57:400 F 26 '21
- Sodium fluoride as a wood preservative. Eng N 84:1253 Je 24 '20
- Study in the preservation of pulp and pulpwood. Paper 28:20-3 Jl 20 '21
- Three or twelve years for mine timber? D. C. Ashmead. il Coal Age 18:281-2 Ag 5 '20
- Timber perforating patent released. il Ry Age 67:1203-4 D 19 '19
- Toxicity of various fractions and combinations of fractions of coal-tar creosote to wood-destroying fungi. H. Schmitz and S. M. Zeller. J Ind & Eng Chem 13:621-3 Jl '21
- Toxicity of wood preservatives. C. J. Humphrey, R. M. Fleming and E. Bateman. il J Ind & Eng Chem 13:618-21 Jl '21
- Treating three million feet of lumber on the job. il Eng N 84:754 Ap 15 '20
- Treatment of mine-timbers. Min & Sci P 122:336 Mr 5 '21
- Utilizing electric current for treating of wooden poles. F. C. Adsett. Can Eng 39: 215 Ag 5 '20
- Water solubility a necessary property of wood preservatives. Eng N 85:940 N 11 '20; Same. Sci Am 124:431 My 28 '21

Will sodium fluoride come into general use for preserving wood? G: M. Hunt. Eng & Contr 54:94-5 Jl 28 '20; Same. Chem & Met Eng 23:1123-4 D 8 '20

Wood piles coated with concrete applied by cement-gun. il Eng N 84:225-6 Ja 29 '20

Wood preservation. L. Smith. Boston Soc C E J 7:127-35 Ap '20

Wood preservers 16th annual convention, Chicago. Am Lumberman 2336:58-9 F 21 '20; Ry Age 68:491-5 F 13 '20; Ry R 66: 252-4 F 14 '20

Wood preservers' association 17th annual convention, San Francisco. Ry Age 70:321-2 F 4 '21

Wood preserving notes by Forest products laboratory. Pub Works 49:534 D 4 '20

See also Creosote; Dry rot; Varnish and varnishing; Zinc chloride

American wood preservers' association has established a service bureau at 1146 Otis building, Chicago, with Mr P. R. Hicks, secretary-manager.

Experiments

Inaccuracy of treating records due to moisture in wood. E. Bateman. Chem & Met Eng 22:57-9 Ja 14 '20

Report on paint exposure tests at Atlantic City, New Jersey. H: A. Gardner. il Am Arch 118:445-9 O 6 '20

Specifications

Specifications for the preservative treatment of wood. Boston Soc C E J 7:136-44 Ap '20

Statistics

Wood preservation statistics for 1919. Ry Age 69:802 N 5 '20

Wood pulp

Advertising's concern with the paper situation. Ptr Ink 113:33-4+ N 25 '20

African woods for pulp. C. J. West. Paper 27:23+ F 16 '21

Another strong plea for reforestation. Paper 29:13-14 S 14 '21

Antiseptic treatment of wood pulp prevents mold and decay. Chem & Met Eng 25:205 Ag 3 '21

Book paper from southern pines and gums. S. D. Wells. Paper 27:16-21 N 24 '20

Book paper from southern woods; using pines and other conifers to furnish a perpetual supply of pulp. S. D. Wells. il Sci Am M 3:439-41 My '21

Canada's pulp and our paper. W. E. Haskell. il Nation's Business 9:28+ F '21

Chemical composition of wood pulp. C. G. Schwalbe and E. Becker. Paper 27:20-3+ F 23 '21

Chemical constitution of soda and sulfate pulps from coniferous woods and their bleaching qualities. S. D. Wells. J Ind & Eng Chem 13:936-9 O '21

Decay of woodpulp. S. A. Mahood and D. E. Cable. Paper 25:11-12 F 18 '20

Differentiation of sulphite pulps. F. B. Seibert and J. E. Minor. il Paper 25:17-20 Ja 28 '20

Digestion of wood. C. G. Schwalbe. Paper 28:15-17+ Jl 6 '21

Finnish manufacturers centralize control of wood pulp supplies. Paper 26:12+ Jl 21 '20

Forest products laboratory and the paper manufacturer. O: Kress. il Paper 27:9-11+ D 1 '20

From wood to cloth. S: J. Record. il Sci Am 123:591+ D 11 '20

Grinding of wood from young and old trees. Sci Am 122:692 Je 19 '20

Ground wood mill equipment. M. E. Chalmers. il Paper 27:47-9 N 10 '20

Guarding against fungi in wood and wood pulp. O: Kress, C. J. Humphrey and C. A. Richards. il Paper 26:13-15 My 12; 23-5 My 19; 21-2 My 26 '20

Hearings on wood pulp tariff. Paper 27:9-11+ F 16 '21

Making pulp from pine stumps and logging refuse. Paper 29:11-13 S 7 '21

Wood pulp—Continued

- Measuring moisture content of chips. F. M. Williams. Paper 28:63+ Ap 20 '21
- Method for differentiating and estimating unbleached sulphite and sulphate pulps in paper. R. E. Lofton and M. F. Merritt. U S Bur Stand Tech Pa 189:1-18 '21
- Micrography of sycamore pulp. Y. L. Vidal. il Paper 27:18-19 S 22 '20
- Modern chemical pulp mill. R. L. Trildon. il diags Paper 27:34-6 N 10 '20
- New Hall process of grinding pulp. W. A. Munro. Paper 28:26-7 Ap 27 '21
- Nitrocellulose from wood pulp. R. G. Woodbridge, jr. J Ind & Eng Chem 12:380-4 Ap '20; Same abr. Paper 26:136+ Ap 21 '20
- Ontario government says pulp wood regulations are not discriminatory—Senator Underwood's views. Comm & Fin Chr 110:2449-50 Je 12 '20
- Paper from Alaska. J. Anderson. il Sci Am 124:64+ Ja 22 '21
- Passage of Poindexter bill urged; recommends federal survey of public pulpwood lands. Paper 26:36+ Mr 24 '20
- Progress in study of wood and wood pulp infection and decay. O. Kress and C. J. Humphrey. Paper 27:22-5+ N 24 '20
- Pronounced benefits from preliminary impregnation of pulpwood chips. Chem & Met Eng 25:463 S 7 '21
- Pulp and paper research problems. Paper 26:54+ Ap 21 '20
- Pulp wood from Labrador. J. T. Rowland. il Sci Am 123:156 Ag 14 '20
- Swedish sulphite mills reduce output to meet market. Paper 26:11-12 Jl 21 '20
- Swedish wood pulp industry in 1919. Chem & Met Eng 23:31 Jl 7 '20
- Use of southern woods for pulp and paper manufacture. Paper 27:23 S 8 '20
- What is wrong with our paper supply? H. A. Mount. il Sci Am 122:674+ Je 19 '20
- Wood pulp investigations. F. Lenze, B. Pleus and J. Muller. Paper 28:27-9+ My 11 '21
- Wood room. T. W. Duncan. il diags Paper 27:43-6 N 10 '20
- See also* Paper

Measurement

- Measurement of pulp wood and determination of yields. O. Kress and G. D. Bearce. Paper 27:9-10+ D 8 '20

Testing

- Estimating moisture in pulp. Paper 29:9-14 S 28 '21
- Testing kraft pulps for strength. K. G. Wilen. diag Paper 27:15-17+ D 29 '20
- Testing of wood pulp. G. H. Gemmell. Paper 27:24-5+ N 3 '20

Wood using industries

- Better forest utilization. Paper 28:13-15+ Je 22 '21

See also Woodwork; Woodworking shops

Accounting

- Costs in wood operations. D. A. Crooker. Paper 27:13-14+ D 22 '20

Wood-using industries, Association of. See Association of wood-using industries**Wood waste**

- Controlling wastes in woodworking plants. C. M. Bigelow. diags plan Ind Management 59:377-83 My '20
- Forest products of the Northwest as industrial chemical assets. R. K. Strong. Chem & Met Eng 23:279 Ag 18 '20
- Making pulp from pine stumps and logging refuse. Paper 29:11-13 S 7 '21
- Manufacture of ethyl alcohol from wood waste. E. C. Sherrard. Chem Age 29:76-9 F '21
- Sawdust pays the bill. il Factory 24:796-7 Mr 15 '20
- Utilization and waste prevention in lumber; abstract. Sci Am M 2:179 O '20
- Utilization of pine waste. J. H. Wallace. Chem Age 29:374-5 S '21
- Utilisation of wood-waste. E. Hubbard. 236p Scott, Greenwood & son, London '20

Where the lumber goes. S. R. Winters. Sci Am 123:563 D 4 '20

Yields of alcohol from wood waste. Chem & Met Eng 24:212 F 2 '21; Excerpts. Sci Am M 3:275 Mr '21

See also Lumber—Short lengths; Sawdust; Wood as fuel

Woodcuts. See Wood engraving**Wooden ships. See Ships, Wooden****Woodlots**

Forestry for the private owner. Paper 28:12 Ap 27; 29 My 4; 18 My 11; 20 My 18; 15 My 25; 15+ Je 8 '21

Woodwork

- Close utilization in lumber manufacture; making of wooden bowls and clothes pins. W. C. Hull. Am Lumberman 2345:62-3 Ap 24 '20
- Engineer and the woodworking industry. T. D. Perry. il Mech Eng 42:448-50 Ag '20
- Garden woodwork that adds beauty to the grounds. il Bldg Age 43:31-2 Jl '21
- Interior woodwork. R. B. Derby. il Arch Forum 33:77-82, 131-6 S-O '20
- Louis XV paneled room; gift of J. P. Morgan to the Metropolitan museum of art, New York. il Am Arch 119:586+ My 25 '21
- Problems in woodwork. E. F. Worst. 2d ed., enl. 246p Bruce pub. co. Milwaukee, Wis. '21
- Time studies on wooden knife handles. P. Bernstein. diags Ind Management 62:76-82 Ag '21
- Whittler's museum. il Sci Am 124:333 Ap 23 '21
- Wood bending and forming. F. D. Burke. diags Pop Mech 33:923-4 Je '20
- Wood blocking and boring-bar work. J. Slocumb. diags Am Mach 54:868-70 My 19 '21
- See also* Furniture; Turning; Woodworking shops; *also* Curtis service bureau

Advertising

Teaching the dealer a new standardized line. H. Burwen. Ptr Ink 116:73-4+ S 29 '21

Woodworkers

Wages and hours of labor in woodworking industries. Monthly Labor R 10:118-41 Ja '20

Woodworking machinery

- Engineering in furniture factories. B. A. Parks. il Mech Eng 43:85-90 F '21
- Engineering in the woodworking industries. il Mech Eng 43:85-101; Discussion. 101 F '21
- Fraiseuse universelle pour travaux de modelage et de menuiserie. diag Génie Civil 79:276 S 24 '21
- Machine molder practice. W. H. Rohr. 173p The Practical books co., P.O. Box 372, Indianapolis, Ind. '19
- Machining railroad cross-ties. D. W. Edwards. il Am Mach 53:1237-40 D 30 '20; Same. Ry R 68:2-5 Ja 1 '21; Same cond. Mech Eng 43:99-101 F '21
- Motor drive in the woodworking industry. F. H. Penney and E. L. Bamforth. il Gen Elec R 24:554-7 Je '21
- Recessing, housing and stair-stringing machine. il Engineering 111:618 My 20 '21
- See also* Lathes; Planing machines; Sanding machines; Sawmills; Saws

Safety devices

Pattern shop casualties; suggestions for their prevention. W. H. Parry. Metal Ind 18:511-13 N '20

Woodworking shops

- Accumulation of costs in woodworking. C. M. Bigelow. il Ind Management 59:480-2 Je '20
- Automatic regulation of humidity in factories. il diag plan Sci Am M 1:24-8 Ja '20
- Controlling wastes in woodworking plants. C. M. Bigelow. diags plan Ind Management 59:377-83 My '20
- Installing management in woodworking plants. C. M. Bigelow. 323p Engineering magazine co., New York '20

Woodworking shops—Continued

Installing management methods in the wood-working industry. C. M. Bigelow. *il Ind Management* 58:1-8, 124-33, 185-95, 295-305, 388-99, 470-7 J1-D '19

Successful wood working business built up on sound common sense principles; P. A. Feigin introduces efficiency in shop layout. *il plans Bldg Age* 43:24-8 N '21

Tool and fixture control in woodworking. C. M. Bigelow. *il diags Ind Management* 59:284-7 Ap '20

Works of Messrs. Marshall, sons and co., ltd., Gainsborough. *il diag Engineering* 109: 670-5, 686, pl 38 My 21 '20

See also Planing mills—Layout; Wood waste

Lighting

Electric lighting of woodworks. *il Electrician* 86:206-7 F 11 '21

Lighting a wood-working plant. *il Eng & Ind Management* 5:237 F 24 '21

Wool

Constituents of raw wool in relation to scouring. J. MacGregor. *il Color Tr J* 9:97-102 S '21

Determination of wool and staple fiber in mixtures. P. Kraus and E. Biltz. *Color Tr J* 8:49-50 F '21

See also Dyes and dyeing; Fulling; Shoddy; Textile fabrics; Tibet; Wool scouring; Wool trade; Woolen and worsted manufacture; Worsted

Wool, Artificial

Artificial wool from cotton waste. *Chem & Met Eng* 23:696 O 6 '20; *Same. Sci Am* 123:569 D 4 '20

Germany's artificial wool. *Sci Am* 124:223 Mr 19 '21

Scientific investigation of artificial wool. *Sci Am* 123:384 O 9 '20

Wool, Pulverized

Pulverized cotton and wool used in many industries. *Pop Mech* 36:539 O '21

Wool carbonizing

Carbonizing raw stock and piece goods. F. A. Hayes. *il chart Textile World* 59:3937+, 4167+ Je 11, 25 '21

Wool carding

Grinding woolen and worsted cards. *Textile World* 58:2667 O 16 '20

Wool oiling

Adapting mineral oil to the wool industry. *Nat Pet N* 13:32 S 14 '21

Wool scouring

Cleanliness in cloth finishing. J. Schofield. *Textile World* 58:3643+ N 27 '20

Constituents of raw wool in relation to scouring. J. MacGregor. *il Color Tr J* 9:97-102 S '21

Controlled temperatures in wool scouring. E. H. Hinckley. *il charts diag Textile World* 56:3520+ D 27 '19

Dyeing of worsted piece goods. L. J. Matos. *Textile World* 58:2069+ S 25 '20

Minsco—a wool scourer. *Textile World* 60: 1639 S 17 '21.

Notes on wool washing. H. Turner. *Color Tr J* 8:90-1 Mr '21

Scouring and milling of fancy woolen piece-goods. S. Begg. *Color Tr J* 6:155-6 My '20

Scouring wool; patent. C. Benners. *Chem & Met Eng* 23:989 N 17 '20

Study of wool scouring wastes. *Textile World* 58:261 J1 10 '20

Use of glue in wool dyeing; abstract. L. Rinoldi. *Color Tr J* 7:158 N '20

Wool storage

Ten acre Nissen building for storage of wool. *il Engineering* 110:617 N 5 '20

Wool tariff. *See* Tariff—United States—Wool

Wool trade

Answers statement of wool bureau. P. T. Cherington. *Textile World* 58:419+ J1 17 '20

Wool market now readjusted to peace footing. *Textile World* 57:1137+ F 7 '20

Year 1920 was very eventful for the wool trade. *Textile World* 59:1041+ F 5 '21

See also Textile industry; Wool storage

Statistics

Wool consumption; Bureau of markets shows amount used from December to March. *Textile World* 59:3799 Je 4 '21

Wool growing industry; report for the world issued by United States tariff commission. *Textile World* 59:4161-2 Je 25 '21; *Same. Comm & Fin Chr* 113:30-1 J1 2 '21

France

La destruction systématique des industries de la filature et du tissage; et l'effort de reconstitution déjà réalisé dans les régions envahies plus particulièrement dans celle de Fourmies. M. P. Mariage. *Soc Ing Civils Bul* 74:83-97, pl 10 Ja '21; *Same cond. Génie Civil* 78:390-2 My 7 '21

Germany

German wool industry on up grade. E. Singer. *Textile World* 59:1015 F 5 '21

Great Britain

Profits in the British woolen industry. *Textile World* 58:1017 Ag 14 '20

Wool textile trade of Great Britain in 1920. *chart Textile World* 59:1047-9 F 5 '21

Wool trade of Great Britain in 1919. *Textile World* 57:1147+ F 7 '20

United States

Tariff briefs of wool and cotton industries; textile manufacturers optimistic on outlook. *Textile World* 59:850-1+ F 5 '21

21st annual report of the American woolen company for the year ending December 31, 1919. *Comm & Fin Chr* 110:1886-7 My 1 '20

Wool imports show gain. *Am Ind* 21:21 O '20

Wool washing. *See* Wool scouring

Woolen and worsted finishing

Cleanliness in cloth finishing. J. Schofield. *Textile World* 58:3643+ N 27 '20

Construction and finish for tibets. *Textile World* 57:4245-6 Je 5 '20

Feel of the fabric. O. Fisk. *Textile World* 57:3783+ My 22 '20

Finishing undressed worsted suiting. *Textile World* 58:4291+ D 25 '20

Importance of temperature control in dyeing and finishing woolen and worsted goods. *Textile World* 60:2439 O 29 '21

Moss finish on tweeds and overcoatings. *Textile World* 57:4395 Je 12 '20

Process details for a melton finish. O. Fisk. *Textile World* 59:589 Ja 29 '21

Production of quality during dyeing and finishing. E. Midgeley. *Textile World* 59:591 Ja 29 '21

Use of oils in fulling. A. S. Mann. *Textile World* 59:2435+ Ap 9 '21

Velvet finish on woolen goods. *Textile World* 58:2993+ O 30 '20

Wrinkles in worsted goods. *il Textile World* 57:1635 F 28 '20

See also Kersey

Woolen and worsted machinery

Care and operation of gill boxes. *il diags Textile World* 57:3643+ My 15 '20

Woolen and worsted manufacture

Brief of Natl. association of wool mfrs.; arguments against the Capper bill. *Textile World* 59:4050-1 Je 18 '21

British wool-manufacturing industry. *Textile World* 57:4379+ Je 12 '20

Carding, spinning and weaving notes. *Textile World* 57:33 Ja 3 '20

Cloudy and shady wool cloth. *Textile World* 59:3807+ Je 4 '21

Cloudy effects in finished pieces; causes of common defects in woolens and worsteds. *Textile World* 58:2071+ S 25 '20

Defects in top manufacturing. *Textile World* 57:1332 F 7 '20

Drying woolen and worsted fabrics. E. H. Hinckley. *diags Textile World* 58:2991+ O 30 '20

High class men's wool suitings. *il Textile World* 58:1557+ S 4 '20

Woolen and worsted manufacture—Continued

- Men's wear woolen fabrics. Textile World 60: 879 Ag 6 '21
 State pure fabric bill. Textile World 57:2492+ Ap 3 '20
 Textile men oppose Capper truth-in-fabric bill. Textile World 59:3927+ Je 11 '21
 Trend in wool manufacturing. Textile World 57:1871+ Mr 6 '20
 Wool and wool manufacture; a brief analysis for the layman. J. P. Warburg. 50p
 The First national bank of Boston, Boston '20
 Wool manufacturing situation. J. J. Nevins. Textile World 58:2057 S 25 '20
 Worsted trouserings featured with silk. il Textile World 60:2057+ O 8 '21
 Yorkshire woollen and worsted industries, from the earliest times up to the industrial revolution. H. Heaton. 459p Clarendon press, Oxford '20
See also Beaver cloth; Dyes and dyeing—Wool; Fulling; Kersey; Textile fabrics; Textile industry; Textile mills; Wool carding; Wool scouring; Woolen and worsted finishing; Woolen and worsted machinery; Woolen and worsted mills
Woolen and worsted mills
 Cleveland worsted mills co. enlargements. il Textile World 57:1213+ F 7 '20
 Cyril Johnson woolen company, Stafford Springs, Conn. il Textile World 60:464-5+ Jl 16 '21
 New mill of Monomac spinning co., Lawrence, Mass. il Textile World 59:1151+ F 5 '21
See also Textile mills; *also* Cleveland worsted mill company

Employees

- Vages and hours of labor in woolen and worsted goods manufacturing, 1907 to 1920. Monthly Labor R 12:551-3 Mr '21
 Vages and labor conditions in the British wool-manufacturing industry. Monthly Labor R 11:508-13 S '20

Power

- Electrification of a Yorkshire woollen mill. il Electrician 86:179-81 F 4 '21; Same cond. Elec R (Lond) 88:219-20 F 18 '21
 Fabric boilers in a woollen mill. il diag plan Engineer 132:380-1 O 7 '21
 oolen and worsted overseers, National association of. *See* National association of woolen and worsted overseers
 olworth, F. W.
 esidence of the late F. W. Woolworth, esq., Glen Cove, L.I. H. Croly. il plans Arch Rec 47:195-213 Mr '20
Woolworth, F. W., company
 Woolworth's successor and his success. Eng & Contr 53:326-8 Mr 24 '20
Worcester, Massachusetts

Sewerage

- Activated-sludge experiments at Worcester. R. S. Lanphear. diag plans Eng N 84:819-23 Ap 22 '20
 Several years' experiments on the disposal of Worcester sewage. R. S. Lanphear. Boston Soc C E J 8:109-22 Mr '21; Excerpts. Eng & Contr 55:464-6 My 11 '21; Excerpts. Pub Works 50:421-3 My 21 '21

Words

- Curios found in dictionaries. F. H. Teall. Inland Ptr 64:700; 66:494, 624; 67:60, 350, 494, 68:56, 189-90 Mr '20, Ja-F, Ap, Je-Jl, O-N '21

See also Compound words

Work

- Comparative value of the labor of workmen shown by respiration. J. Amar. Sci Am M 3:127 F '21
 Making work a game. L. K. Sillcox. Ry R 67:977-8 D 25 '20
See also Fatigue

Workbenches

- Steel bench legs; suitable for section hands' work benches, inspection tables, etc. il diag Textile World 58:3647 N 27 '20

Workers. *See* Labor and laboring classes

Workers' education. *See* Education of workers

Workers' educational association (Great Britain)
 Adult working-class education in Great Britain and the United States. C: P. Sweeney. U S Bur Labor Statistics Bul 271:10-31 '20

Workers' university (New York city)

- Adult working-class education in Great Britain and the United States. C: P. Sweeney. U S Bur Labor Statistics Bul 271:36-42 '20

Workmen's compensation

- Coal-mine compensation in Kentucky. H. M. Wilson. Coal Age 17:1259-62 Je 17 '20
 Comparison of compensation laws in the United States, including 1919 legislation. C. Hookstadt. map Monthly Labor R 10:230-47 Ja '20
 Comparison of workmen's compensation laws of the United States and Canada up to January 1, 1920. C. Hookstadt. map U S Bur Labor Statistics Bul 275:1-140 '20
 Compensation of occupational diseases in the United States. Int Labour R 1:423-30 Mr '21
 Compensation results achieved in Illinois and Pennsylvania. H. M. Wilson. Coal Age 17:1313 Je 24 '20
 Compensation table for visual losses of one eye. F. Allport. Monthly Labor R 10:1017-18 Ap '20
 Courts liberal to injured workmen. C. C. Sherlock. Iron Age 108:145-6 Jl 21 '21
 Employee may recover damages for accident that aggravates a disease. W. Gustin. Chem & Met Eng 24:480 Mr 16 '21
 Employer's responsibility if a workman is injured by a foreman. G: M. Rittelmeyer. Ind Management 62:289 N '21
 Injuries caused by emergencies. C. C. Sherlock. Chem & Met Eng 24:1069-70 Je 15 '21
 Injury reports made compulsory. H. D. Martin. Iron Tr R 68:615-16 Mr 3 '21
 Law in regard to strikes. C. C. Sherlock. Am Mach 53:1141-4 D 16 '20
 Law of workmen's compensation; the Workmen's compensation act with discussion and annotations, tables and forms. S: A. Harper. 2d ed. 697p Callaghan and co., Chicago '20
 Loss of use or the impairment of function. M. C. Frincke, jr. Monthly Labor R 11:333-42 Ag '20
 Medical aid under the compensation acts. C. C. Sherlock. Am Mach 53:844-6 N 4 '20
 Methods of amending compensation laws. Monthly Labor R 12:167-71 Ja '21
 Minors under compensation acts. C. C. Sherlock. Am Mach 51:893-5 N 13 '19
 More oddities of workmen's compensation law. E. J. Buckley. Metal Work 94:81+ Jl 16 '20
 Notices and claims under compensation acts. C. C. Sherlock. Am Mach 52:515-17, 560-2, 844-6 Mr 4-11, Ap 15 '20
 Ohio manual of compensation law. N: G. White. 548p, 123p The Baldwin law publishing co., Cleveland '20
 Physical condition of workmen. C. C. Sherlock. Chem & Met Eng 22:612 Mr 31 '20
 Plea for more adequate accident compensation rates. E. Stewart. Monthly Labor R 11:1121-30 D '20
 Proceedings of the 5th annual meeting of the International association of industrial accident boards and commissions. U S Bur Labor Statistics Bul 264:1-224 '19
 Proceedings of the 6th annual meeting of the International association of industrial accident boards and commissions, Toronto, Canada, Sept. 23-26, 1919. U S Bur Labor Statistics Bul 273:1-424 '20
 Proposed changes in British workmen's compensation law. Monthly Labor R 11:560-5 S '20
 Reforming compensation laws. H. D. Martin. il Iron Tr R 69:1016-17 O 20 '21

Workmen's compensation—Continued

- La réparation des maladies professionnelles dans les industries du plomb et du mercure. P. Razous. *Chimie & Ind* 3:841-5 Je '20; Same. *Génie Civil* 77:462-4 D 4 '20
- Report of British committee. *Electrician* 85:75 J1 16 '20
- Report of the committee of N.W.D.A. on employers' liability and workmen's compensation. *Oil Paint & Drug Rep* 100:33-6 O 4 '21
- Responsibility of the worker for accidents. T. Rich. *Eng & Ind Management* 5:438+ Ap 14 '21
- Returns to mine for tools and is killed; should company pay compensation? *Coal Age* 20:259 Ag 18 '21
- Scope and operation of the workmen's compensation laws of the United States. L. D. Clark. *Monthly Labor R* 10:844-62 Ap '20
- State agencies for administering workmen's compensation and accident prevention laws. *Monthly Labor R* 12:171 Ja '21
- Trend of workmen's compensation—a glance at compensation history, past and present. W. J. French. *Monthly Labor R* 11:875-83 N '20
- What workmen's compensation insurance means to the manufacturer. A. W. Whitney. *map Factory* 26:1307-10 Je 1 '21
- When a workman overdoes himself. C. C. Sherlock. *Chem & Met Eng* 23:117-18 J1 21 '20
- Who are entitled to compensation. C. C. Sherlock. *Chem & Met Eng* 21:639-40 N 12 '19
- Working conditions. C. C. Sherlock. *Inland Ptr* 64:303-4 D '19
- Workmen's compensation. See monthly numbers of the *Monthly labor review*
- Workmen's compensation digest. C. C. Sherlock. *map Am Mach* 52:77-80 Ja 8 '20; Correction. W. J. French. *Am Mach* 52:1053 My 13 '20
- Workmen's compensation legislation of 1920. *Monthly Labor R* 11:809-15 O '20
- Workmen's compensation legislation of 1921. *Monthly Labor R* 13:417-35 Ag '21
- Workmen's compensation statistics in England. *Engineering* 111:365-6 Mr 25 '21
- Your liability for concurrent compensation. C. C. Sherlock. *Am Mach* 53:998-1000 N 25 '20
- See also Back strain; Disabled; Insurance, Employers' liability; also International association of industrial accident boards and commissions
- Works councils.** See Shop committees
- Works councils act, Germany.** See Labor laws—Germany
- Workshops**
- Evolution of the workshop. H. H. Manchester. *il Am Mach* 51:781-4; 52:115-17, 245-8, 389-92, 449-52, 545-8, 726-9, 889-91, 1187-9; 53:71-4, 205-8, 311-14, 353-7, 459-63 O 30 '19, Ja 15, 29, F 19-26, Mr 11, Ap 1, 22, Je 3, J1 8, 29, Ag 12-19, S 2 '20
- World cotton conference**
- Constitution. *Textile World* 56:2445 O 25 '19
- Cotton conference permanently organized. *Textile World* 56:2413-15+ O 25 '19
- International cotton conference. *Comm & Fin Chr* 112:2685-6 Je 25 '21
- Resolutions officially adopted by conference. *Textile World* 56:2441+ O 25 '19
- Second World cotton conference. E. K. Swift. *Textile World* 59:2891 Ap 30 '21
- Shall U.S. spinners join international body? C: Macara; J. R. MacColl; A. S. Pearse. *Textile World* 59:856-7+ F 5 '21
- Tentative program and elaborate entertainment plans. *Textile World* 59:2101 Mr 26 '21
- Top crop of the World cotton conference. R. N. Durfee. *Textile World* 57:953+ F 7 '20
- Trip of the World cotton conference special. *Textile World* 56:2507-15+ O 25 '19
- World cotton conference meets in England. H: G. Lord. *Textile World* 60:257+ J1 9 '21
- World cotton conference party. *Textile World* 59:3798 Je 4 '21

World's board of aeronautical commissioners, Inc.

Commission which made journey around the world, incorporated. *Flying* 10:109 Ap '21

Worm gearing. See Gearing, Worm

Wormwood oil

Yield and composition of wormwood oil from plants at various stages of growth during successive seasons. F. Rabak. *J Ind & Eng Chem* 13:536-8 Je '21

Worsted

Demand in excess of supply in worsted yarns. *Textile World* 57:1119, 1121 F 7 '20

Worsted yarns reach record levels, in 1920, then decline. *Textile World* 59:1029+ F 5 '21

See also Woolen and worsted finishing; Woolen and worsted manufacture; Woolen and worsted mills; Yarn

Worsted and woolen spinners, National association of. See National association of worsted and woolen spinners

Wort

Acclimatization of yeast to ammonium fluoride and its reversion in wort. E. I. Fulmer. *J Phys Chem* 25:455-72 Je '21

Wounds

Artificial parthenogenesis and cell stimulants. M. Popoff. *il Sci Am M* 1:312-16 Ap '20

Studies in wound infection; abstract. S. R. Douglas, A. Fleming, and L. Colebrook. *J Ind Hygiene* 3:supl32-4 O '21

Wrapping machines

Machine places wrapper on coiled wire. *il Iron Tr R* 68:1047 Ap 14 '21

See also Package wrapping machines

Wrecking

Chimney felling reduced to a science. *il Power* 53:378-9 Mr 8 '21; Discussion. F. Bergmann. 53:753 My 10 '21

Concrete stack difficult to demolish. G: F. Paul. *il Pop Mech* 34:391-2 S '20

Dismantling a city; how a great arm camp is converted into second-hand building material. H. A. Mount. *il Sci Am* 122:566+ My 22 '20

Felling a chimney by fire. L. G. Hall. *il Sci Am* 122:391 Ap 10 '20

Felling a concrete chimney. A. D. Butler. *il Eng N* 84:899-901 My 6 '20

Felling four steel chimneys lined outside with concrete. *il Eng N* 86:855-6 My 19 '21

Felling two brick chimneys by dynamiting at base. H. B. Hommon. *il Eng N* 87:370-1 S 1 '21

Hints on wrecking buildings. O. B. Maginnis. *Bldg Age* 41:381 N '19

Pneumatic way of cutting rivets and breaking up concrete. *il Eng & Contr* 54:429 O 27 '20

Tearing down old business buildings. W. E. Welch. *il Bldg Age* 43:45-7+ S '21

Troublesome problem in stack-wrecking. *il Sci Am* 125A:51 N '21

Wrecking old naval guns with dynamite. J: E. Hogg. *Pop Mech* 33:419 Mr '20

Wrecking old stone buildings with dynamite. M. C. Potter. *Eng & Contr* 53:102 Ja 28 '20

Wrecking reinforced concrete structures—the demolishing art at its best. L. G. Hall. *il Sci Am* 122:331 Mr 27 '20

Safety devices and measures

Building department's viewpoint of safety in demolition. F: C. Kuehnle. *Safety Eng* 41:215-17 My '21

Methods and precautions necessary in steel frame and wall bearing building wrecking. W. E. Welch. *Safety Eng* 41:167-70 Ap '21

Pictorial demonstrations of methods used in structural demolition. A. A. Volk. *Safety Eng* 41:180-2 Ap '21

Wrenches

Allan track wrench. *il Rv R* 66:658 Ap 17 '20; *Ry Mech Eng* 94:610 S '20

Analysis of construction costs and methods; pipe wrenches. H. A. Call. *il Plumber* 95:334-5+ Je 3 '21

Wrenches—Continued

Designing a wrench for minimum angular movement. W. H. Wakefield. *diags Am Mach* 54:32-3 Ja 6 '21

Offset wrenches for removing connecting rod. V. Orr. *diags Pop Mech* 33:768 My '20

Slip-friction wrenches. G. C. Hanneman. *diags Mach* 26:1155-6 Ag '20

Swaco safety wrench for opening car hoppers. *diags Ry Mech Eng* 94:674 O '20; *Ry Age* 69:577 O 1 '20

Advertising

Problem of advertising after a patent has expired. S. C. Lambert. *Ptr Ink* 110:77-8+ F 19 '20

Manufacture

Making a small automobile wrench. J. Vincent. *il Am Mach* 53:471-2 S 2 '20

Making 300,000 wrenches monthly. H. R. Simonds. *il Iron Tr R* 68:756-9+ Mr 17 '21

Manufacture of socket wrenches. P. Baldus. *diags Mach* 27:868-9 My '21

Wright, Orville, 1871-

Orville Wright receives John Fritz medal. *Am Mach* 52:1118 My 20 '20; *Power* 51:823-4 My 18 '20; *Min & Met* 162:11-12 Je '20; *Soc Auto Eng J* 6:394-6 Je '20

Sketch. *Aviation* 10:365 Mr 21 '21; *por Aerial Age* 13:61 Mr 28 '21

Wright, Wilbur

Unveiling of the monument to Wilbur Wright. *il Flying* 9:530-1 S '20

Wrigley, William, jr.

Rise of William Wrigley, jr. G. A. Nichols. *il Ptr Ink M* 3:17-18+ N '21

Wrigley building, Chicago

Architecture and illumination; notable example in the Wrigley building, Chicago. *il plan Arch Forum* 35:135, pl 54-5 O '21

Sanitary engineering in Chicago's tallest skyscraper; the Wrigley building. E. J. Lomasney. *il diags Dom Eng* 93:446-8, 510-13 D 4-11 '20

Writing

Art of writing and its early history. A. A. Hopkins. *il Sci Am M* 4:321-6 O '21

Wrought iron

How wrought iron is made. *il Am Arch* 119:101-2 Ja 26 '21

Influence of enclosed slag on the corrosion of wrought iron. L. T. Richardson. *il Am Electrochem Soc Trans v* 37 (preprint 9):99-104 Ap '20; *Excerpts. Chem & Met Eng* 22:845-6 My 5 '20; *Excerpt. Iron Age* 105:1165-6 Ap 22 '20

Making navy stud chain cable. C. G. Lutts. *il Iron Tr R* 66:1819-23 Je 24 '20

Manufacture of wrought iron pipe. N. Bowland. *il diags Mach* 26:844-9 My '20

Manufacture of wrought pipe for high pressures. *il diags Mach* 27:755-6 Ap '21; *Same cond. Sci Am M* 3:473-4 My '21

See also Puddling

Specifications

Report of committee A-2 on wrought iron. *Am Soc T M Pro v* 20 pt 1:143-4 '20

Standard specifications for refined wrought-iron bars; English and French. *U S Bur For & Dom Com Industrial Standards* 130:1-14 '21

Standard specifications for welded wrought iron pipe; English and French. *U S Bur For & Dom Com Industrial Standards* 132:1-14 '21

Tentative specifications for extra refined wrought-iron bars. *Am Soc T M Pro v* 20 pt 1:522-5 '20

Terminology

Tentative definitions of terms relating to wrought-iron specifications. *Am Soc T M Pro v* 20 pt 1:526-7 '20; *Same. Iron Age* 106:19-20 Jl 1 '20

Wulfenite

Crystal structures of wulfenite and scheelite. R. G. Dickinson. *diag plan Am Chem Soc J* 42:85-93 Ja '20

Wulfenite: its concentration and separation from barite. J. P. Bonardi. *J Fr Inst* 189:47-61 Ja '20

Wurtz, Adolphe, 1817-1884

Sketch. A. Haller. *Chimie & Ind* 6:402-4 S '21

Würzburg, Figured stones of. *See Paleontology*

Wyoming

See also Irrigation—Wyoming; Petroleum—Wyoming; Petroleum industry and trade—Wyoming

Description and travel

From the mountains of Montana to the Tetons of Wyoming. L. Jeffers. *il map Sci Am* 122:364+ Ap 3 '20

X**X-ray tubes**

Current generation for X-ray work. *Engineering* 109:315-16 Mr 5 '20

Electricity in connection with X-ray work. R. Morton; C. E. S. Phillips; R. S. Wright. *Electrician* 84:289-90 Mr 12 '20

Evolution of the Coolidge X-ray tube; abstracts. W. D. Coolidge. *Electrician* 85:106-7 Jl 23 '20; *Engineering* 110:109-10 Jl 23 '20

New type of stabilizer for use with the Coolidge tube. W. K. Kearsley, jr. *il diags Gen Elec R* 24:864-6 O '21

Romance of invention; Dr W. D. Coolidge's invention makes tungsten workable, revolutionizes the lighting industry and makes the X-ray an instrument of precision. C. H. Claudy. *Sci Am* 123:282+ S 18 '20

Les tubes à décharge électronique et leurs applications. P. Letheule. *il diags Génie Civil* 76:233-5 F 28 '20

X-ray transformers require liberal service rating. M. Morrison. *Elec W* 75:550-1 Mr 6 '20

Manufacture

X-ray tubes by the hundreds. G. Gaulois. *il diag Sci Am* 124:28+ Ja 8 '21

X-rays

Absorption of X-rays by chromium, manganese and iron. W. Duane and H. Fricke. *Phys R* 17:529-31 Ap '21

Action of X-rays upon fertilized frog's ova. W. M. Baldwin. *Sci Am M* 2:364 D '20

Analysis by X-rays. *il diags Engineering* 109:365-6 Mr 19 '20

Beta-ray emission from thin films of the elements exposed to Röntgen rays. L. Simons. *diags Philos Mag* 6th ser 41:120-40, pl 3 Ja '21

Bringing the X-ray to the patient. R. Howard. *il Sci Am* 122:511 My 8 '20

Complete X-ray laboratory in one compact unit. *il Pop Mech* 35:644 My '21

Data relating to X-ray spectra, with a brief statement of their bearing on theories of the structure of atoms and the mechanism of radiation. W. Duane. *Nat Research Council Bul* 1 pt 6:383-408 N '20

Deadly X-ray and the innocent bystander. *il diag Sci Am M* 4:109-12 Ag '21

Detecting defects in metals with the X-ray. W. E. Ruder. *Iron Age* 105:1027-8 Ap 8 '20

Disturbances to electric service from X-ray and radio outfits. G. M. Gadsby. *Elec W* 78:71 Jl 9 '21

Données expérimentales et balance pour le dosage des rayons X en radiographie et radiothérapie. F. M. de Laroquette and S. Millot. *Génie Civil* 78:240 Mr 12 '21

Examination of materials by X-rays; abstracts. G. W. C. Kaye. *Engineer* 131:437-8 Ap 22 '21; *Elec R (Lond)* 88:602-3 My 6 '21; *Eng & Contr* 56:220 Ag 31 '21

Experimental study of the reflection of X-rays from calcite. B. Davis and W. M. Stempel. *diags Phys R* 17:608-23 My '21

X rays—Continued

- Functions of the Victor-Kearsley stabilizer. il Elec R 79:528 O 1 '21
- Graphical determination of hexagonal and tetragonal crystal structures from X-ray data. A. W. Hull and W. P. Davey. Phys R 17:549-70 My '21
- How X-ray and radio service problems in electric industry have been solved. C. H. Mueller. Elec W 78:370-1 Ag 20 '21
- Industrial use of X-rays presents new problems. Pop Mech 36:4 Jl '21
- Intensity of reflexion of X-rays by rock-salt. W. L. Bragg, R. W. James and C. H. Bosanquet. diags Philos Mag 6th ser 41:309-37; 42:1-17 Mr, Jl '21
- Interference of X-rays. K. Siebel. diags Sci Am M 2:150-1 O '20
- Laws of absorption of X-rays. F. K. Richtmyer. Phys R 18:13-30 Jl '21
- Mass absorption and mass scattering coefficients for homogeneous X rays of wavelength between 0.13 and 1.05 Ångström units in water, lithium, carbon, nitrogen, oxygen, aluminum, and iron. C. W. Hewlett. Phys R 17:284-301 Mr '21
- Mechanism of chemical actions caused by X-rays. A. Dauvillier. Sci Am M 3:262-3 Mr '21
- Polarization of secondary X-rays. A. H. Compton and C. F. Hagenow. Phys R 18:97-8 Ag '21
- Precision-measurements in the X-ray spectra; K-series, the elements Cu—Na. E. Hjalmar. Philos Mag 6th ser 41:675-81 Ap '21
- Problems of X-ray emission. D. L. Webster. bibliog diags Nat Research Council Bul 1 pt 7:427-55 D '20
- Radiology applied to the testing of materials. A. P. M. Fleming and J. R. Clarke. diags Engineering 110:850-2, 877-9 D 24-31 '20; Abstract. Engineer 130:642 D 24 '20
- Reflection of X-rays from crystals. W. M. Stempel. Phys R 17:521-4 Ap '21
- Remeasurement of the radiation constant, h , by means of X-rays. W. Duane, H. H. Palmer and C. Yeh. Phys R 18:98-9 Ag '21
- Röntgen spectrographic investigations of iron and steel. A. Westgren. il diags Iron & Steel Inst J 103:303-25 no 1 '21; Same. Engineering 111:727-8, 757-9 Je 10-17 '21; Discussion. Iron & Steel Inst J 103:326-37 no 1 '21; Engineering 111:609 My 20 '21; Engineer 131:537-8 My 20 '21
- Scattering and absorption of hard X-rays in the lightest elements. T. E. Aurén. Philos Mag 6th ser 41:733-43 My '21
- Scattering of rays in X-ray diffraction. S. J. Plimpton. diag Philos Mag 6th ser 42:302-4 S '21
- Scattering of X- and γ -rays. J. A. Gray. diags J Fr Inst 190:633-55 N '20
- Sensibility of X-ray analysis and the absorption spectrum of radium. Am J Sci 49:79-80 Ja '20
- Soft X-rays of characteristic type. E. H. Kurth. Phys R 18:99-100 Ag '21
- Special applications of metal-radiography. H. S. Rawdon. il Blast F & Steel Pl 8:144-6+ F '20
- Studies of crystal structure with X-rays. E. C. Bain. il diags Chem & Met Eng 25:657-64 O 5 '21
- Tests for danger points of X-ray operation. Pop Mech 35:501 Ap '21
- Using X-rays to determine proper fit of shoes. il Sci Am 124:513 Je 25 '21
- Width of X-ray spectral lines. L. Gilchrist. Phys R 18:89-95 Ag '21
- X-ray and microphone probe used together in surgery. il diag Pop Mech 33:688 My '20
- X-ray and radium protection. Engineering 112:13 Jl 1 '21
- X-ray apparatus for workshop use. il diag Engineering 111:532 Ap 29 '21
- X-ray bulb with a liquid mercury antithode, and on wave-length measurements of the I-spectrum of mercury. A. Müller. diags Philos Mag 6th ser 42:419-27, pl 14 S '21

X-ray crystal analysis of thirteen common metals. A. W. Hull. il diag Phys R 17:571-88 My '21

X-ray examination of materials. J. R. Clarke. Sci Am M 3:476-7 My '21

X-ray fluorescence of certain organic compounds. H. S. Newcomer. Am Chem Soc J 42:1997-2007 O '20

X-ray in the shop. G. Gaulois. il Sci Am 122:271+ Mr 13 '20

X-rays and atomic structure. A. Trowbridge. Sci Am M 2:357-60 D '20

X-rays and their industrial applications. G. W. C. Kaye. il diags Engineering 111:412-15 Ap 8 '21; Electrician 86:517-20 Ap 29 '21

X-rays in medical science. A. C. Jordan. Sci Am S 88:391 D 27 '19

See also Radioactivity; Radiography; Ultra X rays; X-ray tubes

Xylene

Derivatives of *m*-xylene. S. A. Pearman. Chem Soc J 119:717-21 My '21

Xylic acid

Application of Victor Meyer's esterification law to 2,6-xylic acid and its reduced derivatives. R. W. Hufferd and W. A. Noyes. Am Chem Soc J 43:925-35 Ap '21

Xylidine

Syntheses of *s*-xylidine. H. L. Haller, E. Q. Adams and E. T. Wherry. Am Chem Soc J 42:1840-2 S '20

Y**Yacca gum**

Production of yacca gum in South Australia. H. P. Starrett. Chem & Met Eng 23:1154 D 15 '20; Same abr. Sci Am M 3:450 My '21

Yacht racing

America's cup races. J. B. Walker. il Sci Am 123:108+, 128+ Jl 31-Ag 7 '20

International yacht race. C. A. Mc Allister. il Int Marine Eng 25:574-6 Jl '20

Next America's cup challenge. Sci Am 125:142 Ag 27 '21

Resolute defends the cup. J. B. Walker. il Sci Am 122:64+ Jl 17 '20

Yachts

Big yacht Delphine launched at lake yard. il Marine R 51:219 My '21

Bringing the electric drive to yachting. il Sci Am 122:188 F 21 '20

Challengers and defenders of the America's cup. J. B. Walker. il diags Sci Am 122:622-3 Je 5 '20

Cutler versus sloop; the past thirty-five years of racing for the America's cup. il diags Sci Am 123:86-7 Jl 24 '20

Diesel-electric drive for yacht Elfay. R. W. Wadman. il Int Marine Eng 25:161-5 Mr '20

Diesel-electric equipment of the yacht Elfay. il Power 51:452 Mr 23 '20

Diesel motor yacht for Vincent Astor. diags plans Marine Eng 25:965-9 D '20

Fair weather yachts. Sci Am 123:120 Ag 7 '20

How fast can a yacht sail? Sci Am 123:100 Jl 31 '20

King's yacht Britannia. il Sci Am 125:167 S 3 '21

New development in the application of electricity to marine transportation; electric power generated on one vessel transmitted to another. W. T. Donnelly. il diags plans Int Marine Eng 25:352-9 Ap '20

Oil-electric propelled yacht Elfay. il J Elec 45:266 S 15 '20

Tuning up for the cup races. J. B. Walker. il diags Sci Am 123:6-7 Jl 3 '20

Turbine yacht Cutty Sark. il diags Engineering 110:846-7, pl 74 D 24 '20

World's largest and fastest express cruiser. G. F. Paul. il Pop Mech 35:872-4 Je '21

Yacht design—underwater characteristics. Marine Eng 26:710 S '21

Yacht has gas-electric drive. W. H. Easton. il Marine R 50:144-6 Mr '20

Yachts, Flying. See Flying boats

Yale (ship)

Unusual honors accorded ship. F. B. Howe. *il Pop Mech* 36:191 Ag '21

Yale Bowl

Report on trip to Princeton, College of City of New York, Yale and Harvard for the purpose of inspecting the stadia at those universities. H. D. Smith. *il Am Arch* 118:160-4 Ag 4 '20

Yale university

Yale university. M. A. Osborn. *il Eng Educ* 11:350-60 Ap '21

Harkness memorial quadrangle

Harkness memorial quadrangle at Yale. M. Wilcox. *il plan Arch Rec* 50:162-82 S '21

Harkness memorial tower. S. T. Williams. *Am Arch* 120:315-16 O 26 '21

Memorial quadrangle and the Harkness memorial tower at Yale. *il plans Am Arch* 120:298-314, 312a-p O 26 '21

Yale memorial quadrangle and Harkness tower. *Arch & Bldg* 53:35-8, pl 58-64 My '21

Yap

Attitude of Japan to Yap mandate—the Hughes and Colby notes. *Comm & Fin Chr* 112:1705-8 Ap 23 '21

Yardometer

Physical and optical societies' annual exhibition; yardometer. *il diags Electrician* 86:227 F 18 '21

Yarn

Crepe yarns and fabrics. J. Chittick. *Textile World* 58:3519-20 N 20 '20

Measurement of crimp in yarns and fabrics. A. N. Gadsby and E. D. Walen. *diags India Rubber W* 63:10-11 O '20

Requirements of yarns for knitting. W. Davis. *il diags Textile World* 56:3365+ D 13 '19

Twist in yarns—origin. S. Wakefield. *il Textile World* 57:2003+ Mr 13 '20

Weight corrections for varying humidity. H. T. Mailey. *Textile World* 57:4246 Je 5 '20

Yarn from vegetable fiber. *Color Tr J* 8:70-1 F '21

Yarn steaming device; patent. *Color Tr J* 6:58 F '20

Yarn twist and cloth strength. H. Priestman. *Textile World* 57:2535 Ap 3 '20

See also Cotton yarn; Insulating yarns; Worsted

Advertising

Letting your customers set your right. R. Dickinson. *Ptr Ink* 115:3-4+ My 26 '21

Sawing of ships. See Ships—Stability

Yeast

Acclimatization of yeast to ammonium fluoride and its reversion in wort. E. I. Fulmer. *J Phys Chem* 25:455-72 Je '21

Action of methylene-blue and certain other dyes on living and dead yeast. C. G. Fraser. *J Phys Chem* 24:741-8 D '20

Effect of alcohol on the toxicity of phenol towards yeast. E. I. Fulmer. *J Phys Chem* 25:10-18 Ja '21

Fresh information concerning yeast. *Sci Am M* 1:417-20 My '20

Methylene-blue as indicator in determining the toxicity of phenol and phenol-salt solutions towards yeast. C. G. Fraser. *J Phys Chem* 25:1-9 Ja '21

Nutritional requirements of yeast. E. I. Fulmer, V. E. Nelson and F. F. Sherwood. *Am Chem Soc J* 43:186-99 Ja '21

Nutritive value of yeast in bread. P. B. Hawk, C. A. Smith and O. Bergeim. *Sci Am M* 4:175-6 Ag '21

Sur la suppression de l'écume. E. Stich. *diag Chimie & Ind* 4:203-4 Ag '20

Yeast crops and the factors which determine them. A. Slator. *diag Chem Soc J* 119:115-31 Ja '21

Yeasts. A. Guilliermond. 424p Wiley '20
See also Saccharomycetes

Advertising

Advertising in new fields when the initial market grows smaller. C. P. Russell. *Ptr Ink* 111:3-4+ Ap 22 '20

How a new use developed a new outlet. C. P. Russell. *Ptr Ink* 116:17-20 Jl 7 '21

Marketing

Delivering a perishable product to ten million people each day; Fleischmann's yeast. R. Dickinson. *il map Ptr Ink M* 3:15-16 N '21

Yellow

Detection and estimation of yellow AB and yellow OB in mixtures. W. E. Mathewson. *J Ind & Eng Chem* 12:883-7 S '20

Identification and properties of direct cotton yellow. L. G. Hayes. *Color Tr J* 7:86-91 S '20

Yellow fever

Physician and engineer needed to control yellow fever. C. G. Wigley. *Eng N* 86:372 Mr 3 '21

Yellowstone National park

From the mountains of Montana to the Tetons of Wyoming. L. Jeffers. *il map Sci Am* 122:364+ Ap 3 '20

Photographing Yellowstone park at night. J. A. Bristol. *il Pop Mech* 36:560-2 O '21

Yellowstone park menaced by commercial purposes. *Am Arch* 117:699-700 Je 2 '20

Yguazu falls. See Iguazu falls

York, Pennsylvania

Water supply

Operation of an American or rapid water filtration plant for twenty years at York. J. M. Caird. *Am Water Works Assn J* 7:368-76 My '20

Yosemite national park

Electrifying Yosemite valley. N. S. Gallison. *il J Elec* 46:432-5 My 1 '21

Yosemite park elevator will hoist visitors to Glacier hotel. *il diag Pop Mech* 33:482-4 Ap '20

Young, Joseph Hardie, 1864-

Portrait. *Ry Age* 70:1027 Ap 29 '21

Young men's Christian association

Industrial service movement of Y.M.C.A. J. P. Channing. *Min & Met* 177:33-4 S '21

Railroad department

15th international conference, Richmond, Va. *Ry Age* 69:977-84 D 3 '20

Progress made by the railroad Y. M. C. A. *Ry Age* 67:1155-6 D 12 '19

Railroad Y.M.C.A. *Ry R* 66:781 My 8 '20

Young men's Hebrew association buildings

Building for Y. M. & Y. W. H. association, Newark, N.J. *il plans Am Arch* 120:48-9, 48a-c Jl 20 '21

Young women's Christian association buildings

Colored women's branch, Y.W.C.A. *Arch & Bldg* 52:44-5, pl 46-8 Ap '20

Harlem branch, Y. W. C. A., New York. *il Arch & Bldg* 52:59, pl 65-7 Je '20

Young women's Christian association building, New York, N.Y. *diag Arch Forum* 32:25-6, pl 7-10 Ja '20

Y.W.C.A. building, Syracuse; views and plans. *Arch Rec* 47:348-53 Ap '20

Young's modulus. See Elasticity

Youngstown sheet and tube company

Welfare work is curtailed at Youngstown. *Iron Age* 105:1735 Je 17 '20

See also Campbell, James A.

Yucca

Destiny of our deserts. A. T. Vogelsang. *il Nation's Business* 8:16-17 Ag '20

Tough bark of desert plant shields trees from rabbits. *il Pop Mech* 33:52 Ja '20

Yucca house national monument

Preserving a prehistoric city. *Am Arch* 117:822-3 Je 30 '20

Yukon

See also Electric plants (central stations) —Yukon; Gold mines and mining—Yukon

Yukon gold company

Special report to stockholders Dec. 10 1920. *Comm & Fin Chr* 111:2517 D 25 '20

Z

Zachrisson, Waldemar

Waldemar Zachrisson—the master printer of Scandinavia. *Inland Ptr* 68:232 N '21

Zebras

Zebras in New York. *W: T. Hornaday. il Sci Am* 125:276 O 15 '21

Zebu

Tropic beeves developed from Zebu cattle. *H. C. Plummer. il Pop Mech* 34:226-9 Ag '20

Zeolite process. See Water softening

Zeppelins. See Airships

Zinc

C. P. zinc for fixation of the temperature scale. *A. O. Ashman. Chem & Met Eng* 22:22 Ja 7 '20

Commercial grades of zinc, or spelter. *Foundry* 49:772a O 1 '21

Getting a zinc roof—its cost and service. *Metal Work* 92:433-4 O 10 '19

How to apply corrugated zinc roofing. *Metal Work* 94:393+ S 24 '20

Industrial development of zinc. *S. S. Tuthill. Eng & Min J* 111:426-7 Mr 5 '21

Knowledge of zinc you must have. *Sheet Metal Worker* 12:360 Je 24 '21

Metal of many names. *D. Henderson. Nation's Business* 8:88-9 O '20

Observations on the zinc electrode. *W: C. Moore. Am Chem Soc J* 43:81-4 Ja '21

Our mineral supplies; zinc. *C. E. Siebenthal. U S Geol S Bul* 666:159-62 '19

Plating of sheet zinc. *C: H. Proctor. Metal Ind* 18:495-7 N '20

Preservative qualities of zinc. *Sheet Metal Worker* 11:494 Ja 21 '21

Reduction by metals in acid solutions; the reduction of acid ferric sulphate solutions by zinc and magnesium. *S: Sugden. Chem Soc J* 119:233-8 Mr '21

Reflecting power of monel metal, stellite, and zinc. *W. W. Coblenz. U S Bur Stand Sci Pa* 379:249-52 '20

Relation between mechanical properties and microstructure in pure rolled zinc. *D. H. Ingall. il Engineering* 112:489-92; Discussion. 484 S 30 '21

Revision of the atomic weight of zinc; electrolytic determination of zinc in zinc chloride. *G. P. Baxter and J. H. Hodges. Am Chem Soc J* 43:1242-51 Je '21

Role of zinc in the human body. *Sci Am M* 1:512 Je '20

Rolled zinc production in the United States, 1915-1919. *Metal Ind* 18:127 Mr '20

Soldering with zinc. *S. E. Frew. Am Mach* 52:970 Ap 29 '20

Some practical information on zinc and its properties. *T: Newton. Sheet Metal Worker* 12:496+ Ag 19 '21

Standard specifications for spelter; English and French. *U S Bur For & Dom Com Industrial Standards* 140:1-20 '21

Story of the rolling of zinc sheets. *G: S. Harvey. Metal Work* 94:311-12 S 3 '20

Views from England on qualities of zinc. *T: Newton. Sheet Metal Worker* 12:152 Ap 1 '21

Zinc a metal of many valuable properties. *A. D. Terrill. Metal Work* 94:241 Ag 20 '20

Zinc as applied to building construction. *E: S. Gellatly. Sheet Metal Worker* 12:74-6 Mr 4 '21

Zinc for eaves trough and conductor pipe. *R. L. McHale. Sheet Metal Worker* 11:345-6 N 12 '20

Zinc in 1917. *C. E. Siebenthal. U S Geol S Min Res of U S* 1917,pt 1:855-79 '20

Zinc in 1918. *C. E. Siebenthal. U S Geol S Min Res of U S* 1918,pt 1:1027-74 '21

Zinc roofing and how it should be applied. *il diags Sheet Metal Worker* 12:105-6+ Mr 18 '21

Zinc roofing possibilities. *C. H. Stewart. Metal Work* 93:672-3 My 28 '20

Zinc used for money in Belgium and France. *il Min & Met* 159:(sec 1) 34-5 Mr '20

Zinc welding for automobile bodies. *il Sheet Metal Worker* 12:42+ F 18 '21

See also Galvanizing; Zinc metallurgy; Zinc mines and mining

Analysis

Determination of small quantities of zinc. *M. Bodansky. J Ind & Eng Chem* 13:696-7 Ag '21

Determination of zinc by the potassium ferrocyanide method. *E. Olivier. Min & Sci P* 123:66 Jl 9 '21

Nature of zinc dust. *O. Rayner. Chem & Met Eng* 24:932-4 My 25 '21

Zinc alloys

Density of the copper-zinc alloys. *T. G. Bamford. Engineering* 112:585-7 O 21 '21; Discussion. 112:449 S 23 '21

Utilization of zinc-aluminum-copper alloys. *P. Powell. Brass W* 17:190-1 Ap '21

See also Brass; Zisium; Ziskon

Zinc carbonate

Early days in North Arkansas zinc district. *T. Shiras. il Eng & Min J* 110:165 Jl 24 '20

Zinc chloride

Poisoning by zinc chloride in a wood-preserving plant. *C. P. McChord and C. H. Kilker. Monthly Labor R* 12:818 Ap '21

Production of chlorides of zinc from zinc ores; patent. *Chem & Met Eng* 23:988 N 17 '20

Revision of the atomic weight of zinc; electrolytic determination of zinc in zinc chloride. *G. P. Baxter and J. H. Hodges. Am Chem Soc J* 43:1242-51 Je '21

Will sodium fluoride come into general use for preserving wood? *G: M. Hunt. Eng & Contr* 54:94-5 Jl 28 '20; Same. *Chem & Met Eng* 23:1123-4 D 8 '20

Zinc-chloride loss from treated ties. *Eng N* 85:843 O 28 '20

Zinc cyanide

Studies on the zinc cyanide plating solution. *C. J. Wernlund. Am Electrochem Soc Trans v* 40 (preprint 27):345-64 S '21

Zinc dimethyl

Preparation of zinc methyl. *R. R. Renshaw and C. E. Greenlaw. Am Chem Soc J* 42:1472-4 Jl '20

Zinc dust

Improved zinc feeder. *A. J. Clark. il diags. Eng & Min J* 109:862 Ap 10 '20

Nature of zinc dust. *O. Rayner. Chem & Met Eng* 24:932-4 My 25 '21

Zinc industry and trade

Conditions in zinc industry. *E. H. Wolf. Sheet Metal Worker* 12:77-8 Mr 4 '21

Domestic and European zinc conditions. *Eng & Min J* 111:40 Ja 1 '21

Lead and zinc in 1920. *Brass W* 17:227-8 Ag '21; *Iron Age* 107:136 Ja 13 '21; *Min & Sci P* 122:160 Ja 29 '21

La production mondiale en minerais de zinc. *E. Prost. Génie Civil* 78:46 Ja 3 '21

Production of zinc. *C. E. Siebenthal. Min & Sci P* 121:272 Ag 21 '20

Production of zinc, 1915-1919. *Eng & Min J* 109:120 Ja 17 '20

Smelter production of zinc. *Eng & Min J* 111:100 Ja 15 '21

Some aspects of the zinc situation. *W. F. Boericke. Eng & Min J* 111:658-62 Ap 16 '21

Unsatisfactory zinc situation. *Eng & Min J* 110:191-2 Jl 24 '20

World's production of zinc, 1911-1920. *Min & Sci P* 122:886 Je 25 '21; Same. *Eng & Min J* 111:1050 Je 18 '21

World's zinc industry. *Min & Sci P* 123:271 Ag 20 '21

World's zinc industry depressed. *Eng & Min J* 111:570 Mr 26 '21

Zinc in 1917. *C. E. Siebenthal. U S Geol S Min Res of U S* 1917,pt 1:855-79 '20

Zinc industry. *Min & Sci P* 122:519-20 Ap 16 '21

Zinc—market and metallurgy. *W. R. Ingalls. Eng & Min J* 111:139-40 Ja 22 '21

Zinc industry and trade—*Continued*

Zinc market in 1919. Eng & Min J 109:121 Ja 17 '20

Zinc situation. Eng & Min J 109:1242 My 29 '20

Belgium

Belgian zinc industry. A. S. de Bonnier. Eng & Min J 109:1159 My 22 '20

Zinc industry in Belgium. M. F. Chase. Chem & Met Eng 21:571-3 O 29 '19; Excerpts. Metal Work 92:135 Ag 1 '19; Iron Age 104:436-7 Ag 14 '19

Japan

Lead and zinc industry in Japan. Chem & Met Eng 22:1198-1200 Je 30 '20; Same cond. Eng & Min J 110:339 Ag 14 '20; Abstract. Min & Sci P 121:278 Ag 21 '20

United States

Aim of American zinc institute to put zinc over right. Metal Work 93:651-5 My 21 '20

Annual meeting of the American zinc institute, St Louis. Sheet Metal Worker 12:294-5 My 27 '21

Export trade in zinc. Min & Sci P 122:368 Mr 12 '21

Future of the United States zinc industry. Eng & Min J 110:682 O 2 '20

Importance of foreign trade in copper and other non-ferrous metals. F. E. Wormser. Eng & Min J 111:460-1 Mr 12 '21

Joplin-Miami district. J. A. Zook. Eng & Min J 111:174-5 Ja 22 '21

Lead and zinc in the Joplin district. J. A. Zook. Eng & Min J 109:181-2 Ja 17 '20

Mine output of lead and zinc in 1919. Min & Sci P 120:202-3 F 7 '20

Zinc in 1919. C. E. Siebenthal and A. Stoll. U S Geol S Min Res of U S 1919, pt 1:653-64, pl 4 '21

Wisconsin

Zinc in Wisconsin. J. E. Kennedy. Eng & Min J 111:176 Ja 22 '21

Zinc institute, American. See American zinc institute

Zinc metallurgy

Analytical control of electrolytic zinc production. H. F. Bradley. Chem & Met Eng 24:461 Mr 16 '21

Blanket process for zinc? E. W. Buskett. Eng & Min J 112:163-10 S 10 '21

Complex process in California. Min & Sci P 120:594, 783-8 Ag 24, My 29 '20

Condensation of zinc vapor. O. Ravner. diag. Chem & Met Eng 24:885-9 My 18 '21

Critical cooling plant. W. F. Boericke. flow sheet il plan Eng & Min J 111:1065-8 Je 25 '21

Electric-resistance furnace of large capacity for zinc ores; operation of furnaces and characteristics of process. C. H. Fulton. il diags Chem & Met Eng 22:73-9, 130-5 Ja 14-18 '20

Electrical power used in the production of zinc. Elec R 77:486 S 25 '20

Electrolysis vs. retort smelting for zinc. F. Laist. Chem & Met Eng 25:754-5 O 19 '21

Electrolytic deposition and hydrometallurgy of zinc. O. C. Ralston. 201p McGraw-Hill '21

Electrolytic recovery of zinc. Min & Sci P 122:880 Je 25 '21

Electrolytic recovery of zinc; abstracts. S. Field. Engineering 111:397-8 Ap 1 '21; Elec R (Lond) 88:570-1 Ap 29 '21; Engineer 131:384 Ap 8 '21

Electrolytic recovery of zinc in Tasmania. Eng & Min J 112:499 S 24 '21

Electrolytic zinc. Eng & Min J 111:341-2 F 19 '21

Electrolytic zinc. Min & Sci P 121:792 D 4 '20

Electrolytic zinc. C. A. Hansen. diags Min & Met 152:1247-81 Ag '19; Discussion. 157:(sec 12) 21-8 Ja '20

Electrolytic zinc; abstracts. S. Field. Engineer 130:231 S 3 '20; Engineering 110:416 S 24 '20

Electrolytic zinc methods. H. R. Hanley. Min & Sci P 121:795-804 D 4 '20

Electrolytic zinc plant of the Anaconda copper mining co., at Great Falls, Mont. F. Laist. flow sheet il plan Chem & Met Eng 24:245-50 F 9 '21; Abstract. Min & Met 168:36-8 D '20; Same. Sci Am M 2:379-80 D '20; Discussion. Chem & Met Eng 24:329 F 23 '21

Electrolytic zinc plant of the Consolidated mining & smelting co. of Canada, ltd. L. W. Chapman. flow sheet diags plan Chem & Met Eng 23:227-31 Ag 11 '20

Electrolytic zinc plant of the Judge mining & smelting co., at Park City, Utah. L. S. Austin. Min & Sci P 120:409-10 Mr 20 '20

Electrolytic zinc plant of the Judge mining & smelting co., Park City, Utah. L. W. Chapman. flow sheet diags Chem & Met Eng 22:537-40 Mr 24 '20

Electrolytic zinc—present and future possibilities. Eng & Min J 112:663-4 O 22 '21

Electrometallurgy of zinc. W. R. Ingalls. Am Electrochem Soc Trans v 40 (preprint 12):165-72 S '21

Flotation tests of Idaho ores. C. A. Wright, J. G. Parmelee and J. T. Norton. il diags U S Bur Mines Bul 205:1-48 '21

Judge electrolytic zinc plant. G. C. Heikes. il diags Eng & Min J 110:1118-23 D 11 '20

Loss in re-melting pure zinc. Metal Ind 18:84 F '20

Making lithopone at Collinsville, Ill. C. H. Jones. il Chem & Met Eng 22:497-500 Mr 17 '20

Metallurgical operations of the Judge mining & smelting company. A. B. Parsons. flow sheet il diags Min & Sci P 122:153-9 Ja 29 '21

Metallurgical progress in Shasta county, Cal. G. J. Young. il map Eng & Min J 112:286-90 Ag 20 '21

Metallurgy of zinc. W. R. Ingalls. Eng & Min J 109:192-3 Ja 17 '20

Methods for analytical control of electrolytic zinc production. H. F. Bradley. il Chem & Met Eng 22:651-4 Ap 7 '20

Milling process in southwest Wisconsin zinc district. D. I. Hayes. Min & Met 172:20-1 Ap '21

Process for the extraction of zinc; patent. diag Chem & Met Eng 22:232-3 F 4 '20

Process for treating complex zinc ores; patent. Chem & Met Eng 23:798 O 20 '20

Purifying zinc solutions; patent. Chem & Met Eng 25:252 Ag 10 '21

Radiant resistor furnace for distilling scrap zinc. F. A. J. Fitzgerald. Elec W 75:168 Ja 17 '20

Les réactions chimiques dans la métallurgie du zinc. Génie Civil 78:217-18 Mr 5 '21

Recent metallurgy at Trail, British Columbia. F. H. Mason. flow sheet il Min & Sci P 120:863-8 Je 12 '20

Removal of arsenic from zinc electrolyte by means of hydrogen sulphide. H. R. Hanley. plan Chem & Met Eng 24:693-6 Ap 20 '21

Roasting zinc concentrates in suspension. C. H. Fulton and J. B. Read. il diags Eng & Min J 110:405-8 Ag 28 '20

Some information as to electrified zinc spelters. C. C. Lovejoy. Elec W 74:1005 N 29 '19

Bibliography

Pressure smelting of zinc ores not a success. B. M. O'Harra. Eng & Min J 112:605 O 15 '21

Zinc mines and mining

Recent developments in the tri-state zinc district. A. C. Terrill. il Min & Met 165:5-7 S '20

Status of the metal mining industry: an interrogatory. Min & Sci P 123:574-6 O 22 '21

New York (state)

Zinc mine in New York state. Min & Sci P 122:16 Ja 1 '21

Wisconsin

Wisconsin zinc district. W. F. Boericke and T. H. Garnett. flow sheet diag maps Min & Met 152:1213-35 Ag '19; Discussion. 154:2942-3; 155:3017-19; 157:(sec 12) 68-71 O-N '19, Ja '20

Zinc mines and mining—Wisconsin—Continued
 Zinc mining in Wisconsin in 1919. J. E. Kennedy. Eng & Min J 109:121-2 Ja 17 '20

Zinc ores

Zinc ores of the North Arkansas field. T. Shiras. il Eng & Min J 110:811-12 O 23 '20

Zinc oxide

French process zinc oxide; patent. diags Chem & Met Eng 24:895-6 My 18 '21

More zinc used in government paints. Metal Work 94:107 Jl 23 '20

Production of zinc oxide. diag Chem & Met Eng 22:330-1 F 18 '20

Recommended specifications for leaded zinc oxide, dry and paste. U S Bur Stand Circ 88:1-8 '20

Recommended specifications for zinc oxide, dry and paste. U S Bur Stand Circ 87:1-8 '20

Zinc-oxide plant of the Utah zinc company. A. B. Parsons. flow sheet il diags plan Min & Sci P 121:759-64 N 27 '20

Zinc phosphates

System zinc oxide, phosphorus pentoxide and water at 25° and 37°. N. E. Eberly, C. V. Gross and W. S. Crowell. Am Chem Soc J 42:1433-9 Jl '20

Zinc plating

Effect of zinc plating on the physical properties of streamline wire. Aerial Age 13:368-9 Je 27 '21

Electro sherardizing. il diag Mach 26:649-52 Mr '20

Protection of automobile parts. C. H. Proctor. Metal Ind 18:263-4 Je '20

Studies on the zinc cyanide plating solution. C. J. Wernlund. Am Electrochem Soc Trans v 40 (preprint 27):345-64 S '21

Zinc sulfide

Preparation of zinc sulphide; patent. Chem & Met Eng 23:1182 D 15 '20

Les sulfures phosphorescents at leurs applications. A. A. Guntz. il Chimie & Ind 4:597-611 N '20

Zincography

Planographic process brings new competition. W. Fawcett. Inland Ptr 68:237-8 N '21

Zircon

American enterprise makes rare earths a misnomer. G. A. Pritchard. Chem Age 29:45 F '21

Zircon. Brass W 17:253 S '21

Zirconia

Approximate determination of the melting-point diagram of the system zirconia-silica. E. W. Washburn and E. E. Libman. diags Am Cer Soc J 3:pt 1,634-40 Ag '20

Investigations of zirconium with especial reference to the metal and oxide. J. W. Madden and M. N. Rich. U S Bur Mines Bul 186:20-6 '21

Zirconia cements. M. Sheppard. Am Cer Soc J 4:662-8 Ag '21

Zirconium

Investigations of zirconium with especial reference to the metal and oxide. J. W. Madden and M. N. Rich. diags U S Bur Mines Bul 186:1-152, pl 1-2 '21; Abstract. J Ind & Eng Chem 12:651-6 Jl '20

Separation of zirconium and titanium as the phosphates. J. Brown and H. T. Madden. Am Chem Soc J 42:36-9 Ja '20

Zirconium. Min & Sci P 123:576 O 22 '21

Zirconium is deoxidizer in cast iron. R. Moldenke. Foundry 48:878-9 N 1 '20; Same. Iron Age 106:968-9 O 14 '20

Zirconium minerals. W. T. Schaller. U S Geol S Min Res of U S 1919,pt 2:18-28 '20

Zirconium, the mystery metal. Dom Eng 97:192 O 29 '21

Analysis

Determination of zirconium and titanium in zirconium ores. G. E. F. Lundell and H. B. Knowles. Am Chem Soc J 42:1439-48 Jl '20

Determination of zirconium in steel. G. E. F. Lundell and H. B. Knowles. J Ind & Eng Chem 12:562-7 Je '20

New method for the determination of zirconium. M. M. Smith and C. James. Am Chem Soc J 42:1764-70 S '20

Bibliography

Investigations of zirconium with especial reference to the metal and oxide. J. W. Madden and M. N. Rich. U S Bur Mines Bul 186:119-44 '21

Zirconyl chloride

Hydrolysis of zirconyl chloride and sulfate at zero and twenty degrees. F. P. Venable and D. H. Jackson. Am Chem Soc J 42:2531-4 D '20

Zirconyl sulfate

Hydrolysis of zirconyl chloride and sulfate at zero and twenty degrees. F. P. Venable and D. H. Jackson. Am Chem Soc J 42:2531-4 D '20

Zirkite

Electric-furnace purification of zirkite. J. G. Thompson. Am Electrochem Soc Trans v 40 (preprint 23):291-300 S '21

Zisium

Trade origin of two valuable alloys. R. E. Search. Metal Ind 18:269 Je '20

Ziskon

Trade origin of two valuable alloys. R. E. Search. Metal Ind 18:269 Je '20

Zone system. See City planning—Zone system

Zuider Zee

Drying up the Zuyder Zee to create farms. il Pop Mech 35:55-7 Ja 41

Dutch dry the Zuyder Zee. Am Arch 119:215-16 F 23 '21

Some economic results of draining the Zuider Zee. Sci Am 124:14 Ja 1 '21

Les travaux d'assèchement du Zuiderzée (Hollande). A. Bijls. diag map plans Génie Civil 79:269-71 S 24 '21

Zurich, Switzerland

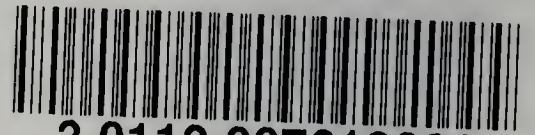
City of Zurich (Switzerland) bonds listed on New York stock exchange. Comm & Fin Chr 113:1517 O 8 '21

Rapid transit

Zurich abandons zones. Elec Ry J 58:417 S 10 '21

UNIVERSITY OF ILLINOIS-URBANA

605IND C003
THE INDUSTRIAL ARTS INDEX\$NY
9 1921



3 0112 007619031